# GREECE'S ECONOMIC PERFORMANCE and PROSPECTS


**EDITORS**
Ralph C. Bryant
Nicholas C. Garganas
George S. Tavlas

BANK OF GREECE
THE BROOKINGS INSTITUTION

# Greece's Economic Performance and Prospects

## ABOUT THE COIN ILLUSTRATED ON THE COVER

The one-euro coin. Common side for all euro-area countries: a Europe without frontiers. National side: a reproduction of an Athenian tetradrachm (four-drachma coin) minted in the 5th century B.C., depicting an owl, symbol of wisdom and of Athena, the patron goddess of ancient Athens.

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editors

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# Preface

On 1 January 2001, Greece became the twelfth Member State of the European Union to adopt the euro. The fulfilment by Greece of the convergence criteria for entering the euro area, the result of the fiscal and monetary policies pursued since the mid-1990s, was a significant achievement. These policies led to a high degree of macroeconomic stability and fostered an improved environment for investment and faster output growth. Greece's adoption of the euro marks the end of a long stabilisation effort and the beginning of a new era of opportunities and challenges.

To examine the performance of the Greek economy over the past quarter of a century and to gain a better understanding of the challenges and main options facing Greece after its accession to the euro area, the Bank of Greece and the Brookings Institution decided to commission jointly a series of studies. The decision to go ahead with this project was made in the autumn of 1998 after a distinguished group of American and European economists had agreed to participate.

Authors were invited to prepare papers dealing with a specific aspect of the Greek economy. Each paper was as a rule to be co-authored by scholars from Greece and other countries. The authors worked on their individual contributions during 1999 and 2000 while maintaining contact with other project participants. All the authors carried out a good part of their research in Greece and received assistance from several staff members of the Bank of Greece. Drafts of the individual studies were presented and discussed at a joint Bank of Greece/Brookings Institution conference held in Athens on 7-8 December 2000.

The authors were asked to revise and update their papers in view of comments made by participants at the conference and this was done in the course of 2001. This volume contains the revised versions of the papers and the comments of invited discussants. It also includes the Governor's opening address and an introductory chapter, in which the editors summarise eco-

nomic developments and policies in Greece since the mid-1970s, highlight the major economic challenges facing Greece at the dawn of the new millennium and provide an overview of the papers in this volume.

The Bank of Greece is very happy to have participated in the organisation of the conference and the publication of this book. The project falls squarely within the Bank's continued interest in the study of topics of major concern to the Greek public. We hope that this joint endeavour to assess Greek economic performance and policies in the light of experience since the mid-1970s will lead to a better public understanding of, and promote a constructive dialogue about, the current economic situation and the challenges and policy options that Greece will face in the future. Our country's experience with macroeconomic adjustment and structural reform over the past decade can also provide lessons for countries that are candidates for accession to the European Union as well as for other countries which are undertaking programmes of economic stabilisation and restructuring.

We would like to express our appreciation to all those who participated in the conference for their outstanding contributions. We also wish to thank the staff members of the Brookings Institution and the Bank of Greece who contributed to the project.

The views expressed in this volume are those of the authors and should not be attributed to the Bank of Greece, the Brookings Institution, or to any institution or organisation with which individual authors are affiliated.

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*Bank of Greece*

LUCAS D. PAPADEMOS
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*Bank of Greece*

*December 2001*
*Athens*

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# Opening Address

# The Greek Economy: Performance and Policy Challenges

Lucas D. Papademos

This conference, jointly organised by the Bank of Greece and the Brookings Institution, is being held at a unique juncture. At the beginning of the new millennium, the Greek economy enters a promising but challenging phase. On 1 January 2001, Greece will become a full member of the European Economic and Monetary Union (EMU) and adopt the euro as its currency, after attaining a high degree of macroeconomic stability and fulfilling the convergence criteria set by the Maastricht Treaty. The adoption of the single currency marks the completion of a long and difficult convergence process, which led to an impressive improvement in the country's economic performance. At the same time, it marks the beginning of a new era, with generally favourable prospects for price stability and economic growth. Greece's participation in EMU is expected to bring significant benefits and opportunities, but it also poses new challenges for economic policy. This is indeed an appropriate time to take a long-term view of the Greek economy: assess its performance and the policies pursued over the past twenty-five years as well as examine its prospects and the challenges to be faced within the euro area.

In the case of Greece, the road to stability and entry into EMU was long and arduous, a fact which underscores the importance of the substantial progress made in recent years. From the second oil crisis in the late 1970s to the early 1990s, the performance of the Greek economy was not satisfactory. A few figures will serve to illustrate this point. From 1979 to 1993 inflation was very high, averaging 18.9 per cent, well above the corresponding EU figure.

Moreover, economic growth was rather slow, 0.9 per cent on average and below that of our European partners. The fiscal position deteriorated significantly, with the budget deficit relative to GDP reaching very high levels for an OECD member country and public debt rising steadily from about 27 per cent of GDP in 1979 to 111.6 per cent in 1993. The drachma was weak on foreign exchange markets, losing about 83 per cent of its value during this fifteen-year period.

To a large extent, this performance reflected the macroeconomic policies pursued from the late 1970s until the early 1990s. However, significant structural change and social transformation were also having an effect on economic developments. Following Greece's accession to the European Economic Community in 1981, trade barriers, which were protecting a relatively undeveloped economy, were progressively eliminated and an excessively regulated banking system was gradually liberalised. Furthermore, the economic policies pursued in certain periods also aimed to change the distribution of income, admittedly very uneven at the time, while macroeconomic policies were not left unaffected by the electoral cycle. Efforts made on a number of occasions, notably in 1985-87 and in 1992-93, to stabilise the economy improved the situation somewhat, but only for a limited length of time, as they had to be abandoned under the pressure of political considerations and could not be supported by the then-existing inadequate institutional framework for economic and monetary policy-making. Thus, Greek economic developments during the 1979-1993 period reflected the cumulative impact and interaction of various economic, structural and political factors.

In contrast to this mediocre performance, a systematic and determined effort over the past six years has succeeded in stabilising the economy and achieving nominal convergence to European Union norms. In the first half of 2000, at the time when the Greek economy was assessed for joining the euro area, average annual inflation, as measured by the harmonised index of consumer prices, had fallen to 2 per cent; the general government budget deficit had shrunk to 1.6 per cent of GDP in 1999; and public debt, although still high at 104.4 per cent of GDP at the end of 1999, was declining at a satisfactory pace.[1] Moreover, the drachma had participated without tensions in the Exchange Rate Mechanism (ERM) for the required two-year period and long-term government bond yields had dropped to levels comparable with

1. These figures were included in the *Convergence Report 2000* of the European Central Bank, May 2000. The budget deficit and public debt figures as a percentage of GDP were revised to 1.8 per cent and 104.6 per cent, respectively, in 2001.

those in other euro area countries. A particularly noteworthy feature of the Greek stabilisation process was that it was accompanied by a steadily rising rate of economic growth.

The main factor underlying the brighter and more vibrant economic picture in recent years has been a fundamental change in the stance of monetary and fiscal policies. But, as in the earlier period, other factors have contributed as well. These include a strong political commitment to, and public support for, stability (partly stemming from the failures and painful experiences of the past), an improved institutional framework for monetary policy, and the financial support mechanisms of the European Union. Also, the "project euro", i.e. the objective of joining EMU at a specific date, has helped to speed up the stabilisation process and contributed to increased business and consumer confidence and, hence, to higher investment which has underpinned growth.

The monetary policy pursued by the Bank of Greece over the past few years was instrumental in ensuring the success of the disinflation process and the fulfilment of the convergence criteria relating to inflation, exchange rate stability and long-term interest rates. Reducing inflation to 2 per cent in a country which had experienced high inflation, averaging close to 20 per cent for more than fifteen years, was a major challenge for monetary policy. The stance and strategy of monetary policy changed in the 1990s. In the early 1990s the Bank began to attach growing importance to the exchange rate as a nominal anchor and in 1995 the exchange rate was explicitly adopted as an intermediate target parallel to a monitoring range for the rate of growth of broad money (M3). The market response to the pegging of the exchange rate and a tighter monetary policy was large capital inflows, which had to be sterilised in order to prevent an easing of domestic monetary conditions. The international currency crises in 1997 put downward pressure on the drachma exchange rate, which was defended successfully on a number of occasions. The pressure was heightened, however, in the last quarter of 1997 and the early months of 1998 by a widening current account deficit and rumours about an impending devaluation of the drachma associated with an expected entry into the ERM of the European Monetary System. The policy response was the participation of the drachma in the ERM in March 1998 at a central rate which implied a 12.3 per cent devaluation. The drachma's central rate in the ERM was calculated so as to be compatible with the fundamentals and thus sustainable until the planned entry of Greece into EMU in 2001.

The drachma's participation in the ERM offered various advantages. First, it placed the disinflation strategy within a new institutional framework

which gave it increased credibility. This was especially true since ERM entry was accompanied by a commitment to continued fiscal consolidation and more structural reforms. Second, joining the ERM with the standard fluctuation band of ±15 per cent gave the Bank of Greece ample room for manoeuvre to maintain a tight monetary policy and contain the inflationary impact of the devaluation. Thus, inflation returned to a downward path and decelerated to an average annual rate of 2 per cent by the end of 1999 and the first quarter of 2000, which permitted the fulfilment of the relevant convergence criterion.

In the year 2000, the Bank's cautious monetary policy helped secure a smooth transition to the single currency (with the gradual alignment of the drachma parity with its euro conversion rate). Also, it contained inflationary pressures generated by external factors and the inevitable easing of domestic monetary conditions, as short-term interest rates in Greece converged towards the lower euro area rates. Moreover, many institutional, operational and technical adjustments, required for the introduction of the euro in Greece and for the participation of the Bank of Greece in the Eurosystem, were completed successfully.

Against this background, the Greek banking system has gone through a rapid transformation, adapting to the more competitive environment generated by the single financial market and the euro. Greek banks have improved the quality of their portfolios, strengthened their capital base, restructured their balance sheets, diversified their income sources, consolidated their domestic position and enhanced their competitiveness. The risk-adjusted capital adequacy ratio, which stood at just over 8 per cent at the end of 1996, has almost doubled to around 15 per cent at end-2000, giving banks a solid base for increasing their business. Banks have expanded aggressively into retail financial services and are offering a wider range of products. The new monetary and financial environment of lower interest rates and increased competition requires greater vigilance in monitoring and managing credit and market risk. The Bank of Greece has been fostering the necessary improvements in banks' risk management systems.

I have tried to illustrate, with a few broad strokes, economic developments over the last twenty years as well as the main factors and policies explaining past failures and successes. And I highlighted in particular the role of monetary policy over the past few years in helping attain stability and fulfilling the convergence criteria required for EMU entry. It is the objective of this conference, however, to examine in a detailed and systematic way Greece's past economic performance and the relative importance of its determining factors. Another objective is to derive some lessons which may

be useful to other countries facing macroeconomic imbalances and structural problems, such as those we have dealt with in the past. Based on my own assessment of the Greek experience, I have drawn a number of policy lessons, which I believe could prove useful to other policy-makers. But I will not tell you about these lessons this morning, as it would not be appropriate at the beginning of this conference.[2] We may discuss them later on and see whether they overlap with or supplement the conclusions reached in the conference papers.

Now that nominal convergence has been successfully completed and Greece is about to enter the euro area, the main objective of economic policy is to achieve faster economic growth and real convergence of Greek living standards on the EU average. Alongside this objective, a further goal is the reduction of the unemployment rate, which is over 10 per cent in 2000. Both these goals should be attained parallel to securing price stability, not only because of the direct benefits which price stability entails but also because it is a precondition for sustainable growth. In 2000, *per capita* income in Greece (on a purchasing power parity exchange rate basis) is around 67 per cent of the euro area average. For this gap to close within a reasonable period of time, say ten years, Greece will need to sustain considerably higher real growth rates than the other members of the euro area.

It is self-evident that the above goals cannot be achieved by means of national monetary and exchange rate policies. After entry into the euro area, the Bank of Greece will be implementing the single monetary policy decided by the Governing Council of the European Central Bank and it will certainly be impossible to improve the economy's international competitiveness by changing the exchange rate of our new currency, the euro. The objectives of higher employment and output growth will therefore have to be pursued through structural reforms and fiscal measures aimed at enhancing international competitiveness by increasing productivity, improving the quality of Greek goods and services and securing price stability.

In order to improve the performance of the real economy so as to ensure that real convergence or "catch-up" occurs quickly, it is necessary to implement a wide spectrum of reforms which can contribute to increased competitiveness. First, there are reforms involving market deregulation, privatisation and reduced state intervention, which can help increase competition, influence price developments favourably and lower production costs.

2. Some policy lessons from the Greek experience are presented in L. Papademos "The Greek economy in the euro area", The Annual Lecture of the Hellenic Observatory, The European Institute, London School of Economics and Political Science, May 2000.

Second, there are reforms which involve changing and/or enhancing the role of the state in improving the infrastructure of the economy, upgrading the education system, promoting research and development and raising the efficiency of public administration. Third, reforms are needed in order to facilitate the growth of entrepreneurial activity as well as of domestic and foreign investment.

Fiscal policy can also contribute to the growth process through tax reform to stimulate investment and through a restructuring of government expenditure to channel additional resources to productivity-enhancing activities, while curtailing subsidies to unprofitable public enterprises. Fiscal policy, however, must strike a careful balance between the objectives of faster growth, on the one hand, and stability and fiscal consolidation, on the other. It must be compatible with the Stability and Growth Pact, which requires, as a medium-term objective, a budgetary position that is close to balance or in surplus. To this end, the implementation of measures aimed at creating a viable and competitive social security system is a policy priority for Greece, as it is for many other countries. Such measures are necessary for ensuring fiscal balance in the long-run as well as for improving the competitiveness of the economy.

To sum up, the Greek economy has made impressive progress over the past decade and particularly in recent years. It has attained a high degree of macroeconomic stability which has enabled Greece to enter EMU and has fostered fairly robust growth. The adoption of the euro will change in a fundamental and irreversible way the country's monetary and economic environment. The prospects for sustaining faster economic growth combined with price stability are generally favourable. However, as already explained, important policy challenges remain to be dealt with.[3] Real economic convergence can be realised over the next ten years, provided the appropriate economic policy and necessary structural reforms are implemented consistently and effectively as in the case of the fiscal and monetary policies that led to the economy's nominal convergence to stability.

The philosophy underlying conferences such as this one is that they encourage economists from the country being studied to undertake research jointly with economists from the Brookings Institution or other institutions. In this way, the resulting papers benefit from the comparatively better knowledge that "domestic" researchers have about their country and from the broader

3. For a comprehensive presentation of the economic policy challenges Greece will face in the euro area, see Bank of Greece, *Annual Report of the Governor* (Chapter II) for the years 2000 and 2001.

experience and analytic expertise of "foreign" researchers. And, of course, as we know from basic trade theory, we are all better off as a result of the free exchange of experiences and views, as well as of cooperation and specialisation according to our comparative advantage. I am sure that we will have a productive conference and that our friends from abroad will have the opportunity to learn much more about the Greek economy, while we will acquire some new ideas which will help shape our policies in the future.

# Introduction

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THE papers in this book look backward at the performance of the Greek economy in the last decades of the 20th century and forward to the challenges that the economy will face in the first decades of the 21st century. The historical analysis focuses in particular on the years leading up to Greece's entry into the euro area in January 2001.

The book is the result of a collaboration among Greek and non-Greek economists, sponsored by the Bank of Greece and the Brookings Institution. Details of the collaboration are summarised in the Preface. An underlying premise of the project has been that cooperation between Greek and non-Greek analysts would prove helpful in assessing the performance and prospects of the Greek economy.

Careful analysis of an individual country's economy is difficult even for insiders who have a firm grasp of key features of their economy. Good analysis is even more difficult for outside economists, who typically lack detailed knowledge of the economy. Yet outsiders can bring a fresh perspective that raises interesting questions and contributes new insights. When insiders and outsiders cooperate, the resulting analysis may be a significant improvement over what each group could achieve by itself.

By combining the expertise of Greek and non-Greek economists, the project has sought to achieve two broad goals. The first is to facilitate understanding of Greek observers of their economy and to stimulate a constructive policy debate within the country. The second, complementary goal is to provide an analysis of the economy useful to observers of other countries whose economic situations and problems have similarities with those of Greece. Greece's efforts to attain economic convergence with the rest of the euro area, for example, are of interest to countries in Central and Eastern Europe which have applied, or intend to apply, for accession to the European Union (EU).

In this introductory chapter, we provide an overview of Greece's economic developments and policies and review broad features of the historical background. The historical review discusses the 1974-79 period, the mounting

macroeconomic imbalances and stagflationary trends during 1980-85, the 1985-87 stabilisation programme, the re-emergence of large internal and external imbalances in the late 1980s and the early 1990s and the progress in the later 1990s towards the fulfilment of the conditions for Greece's adoption of the single European currency. To provide a measure with which to assess Greece's economic performance, we compare economic trends in Greece with trends in Ireland, Portugal and Spain, three EU countries that were at broadly similar levels of development with that of Greece in the mid-1970s. We also identify the main economic challenges confronting Greece in the early stages of its participation in the European monetary union. The final pages of the introduction provide a guide to the papers included in the volume.

The editors wish to thank the many staff members of the Bank of Greece and the Brookings Institution who contributed to the project. Emmanouil Emmanouil provided valuable administrative supervision. The Bank's Secretariat organised the conference. George Nikolaidis and his colleagues in the Bank's Publications and Translations Section oversaw the production of the book. Maria Emmanouilidou, Anastasia Pervena and Panayiota Printzou provided secretarial support and helped prepare the index. George Hondroyiannis provided research assistance at the Bank of Greece. Rachel Rubinfeld and Elif Arbatli provided research assistance at Brookings. Beth Schlenoff and Susan F. Woollen designed the cover. Dimitris Sigalas and his colleagues in the Bank of Greece Printing Works carried out the typesetting and printing of the volume.

## An Overview Perspective

Greece's entry into the euro area in January 2001 with its adoption of the single European currency, the euro, represents a singular achievement in the light of the country's long history of macroeconomic imbalances and structural rigidities. This achievement followed several years of successful, but often difficult, adjustment efforts to achieve the high degree of sustainable convergence required for participation in the euro area.

Following a long period of weak growth, sluggish productivity increases, and high inflation, Greece's output and inflation performance improved markedly beginning in the mid-1990s. Output growth accelerated after 1994. Since 1996, it has exceeded the euro area average. The growth rate of real GDP in 1999 was about 3.5 per cent; it was 4.3 per cent in 2000 (provisional data). Following the 11 September 2001 terrorist attack against the United States, world economic growth forecasts for the final months of 2001 and the first half of 2002 were revised significantly downwards. Greece, however, is

still experiencing a strong economic performance. While the forecast for Greek economic growth was also revised downwards in the aftermath of the 11 September events, real growth was nevertheless projected to be around 4 per cent for the year 2001 as a whole. This strong output performance is expected to continue in the medium term. Investment, which increased sharply in the second half of the 1990s, should continue to rise at a fast rate. Output growth should be sustained by several factors, including an easing of monetary conditions as Greece participates in the euro area, expenditures in preparation for the Olympic Games of 2004 and projects financed by European Union Structural Funds and the Cohesion Fund.

Consumer price inflation averaged 17.25 per cent in the 20-year period to 1994. It was subsequently sharply reduced; by mid-1999 it fell to about 2 per cent, an inflation rate consistent with a broad definition of price stability. Inflation started rising after the autumn of 1999 because of soaring oil prices and a depreciation of the drachma. The currency depreciation reflected the weakness of the euro against non-European currencies as well as the drachma's convergence (from a higher level) to its central rate by the end of 2000 within the Exchange Rate Mechanism II (ERM II). Rising world oil prices and a further depreciation of the euro against the US dollar kept inflation relatively high in the first half of 2001; it exceeded 3 per cent (year-on-year) for 13 consecutive months through September 2001. Consumer price inflation subsequently subsided to less than 3 per cent (year-on-year) in the final three months of 2001.

The performance of the Greek economy in the second half of the 1990s contrasts starkly with its performance during 1975-94. During that period as a whole, economic growth was slightly below the EU average; growth was substantially below the EU average during 1980-94 (see Table I-1).[1] Weak growth took place against the background of distinctly more accommodative macroeconomic policies in Greece than in its EU partners. After running budgets that were in balance or in surplus during 1970-73, the public sector started running substantial fiscal deficits, which became larger in the early 1980s. Those deficits remained persistently high in the mid-1990s, with the

1. During 1975-94, real GDP growth averaged 2.0 per cent in Greece, compared with an average rate of 2.2 per cent in the 15 countries which currently comprise the European Union (EU) and 3.0 per cent in the 30 countries which currently comprise the OECD. For the period 1980-94, real GDP growth averaged 0.8 per cent in Greece, 2.0 per cent in the EU and 2.7 per cent in the OECD. The foregoing figures reflect the fact that real growth in Greece during 1975-79 was relatively strong. As discussed below, however, the growth performance during this period was not sustainable. The figures are based on Ministry of National Economy data for Greece and OECD data for the EU and OECD totals. In these figures and the figures that follow, Greece has not been netted out of the EU and OECD totals.

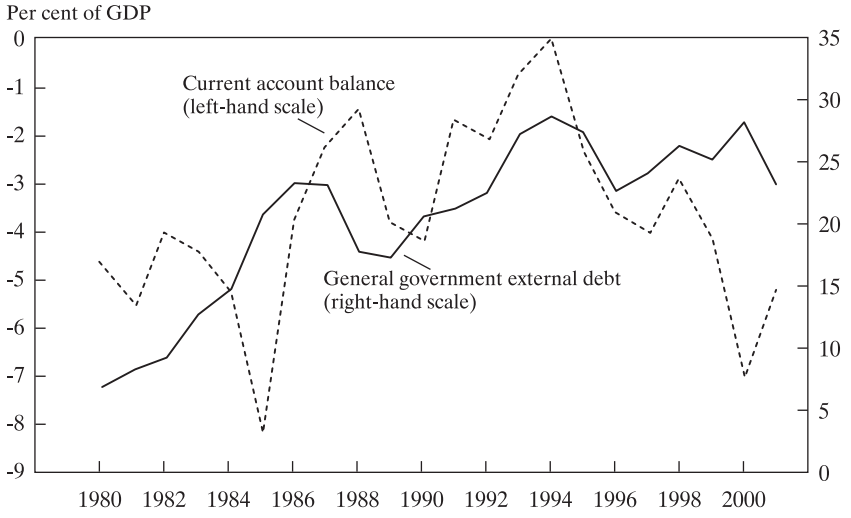
**Table I-1. Comparative Economic Performance of Greece, Selected Periods, 1974-2001**

| *Economic Indicators* | *1974-1979* | *1980-1994* | *1995-2000* | *2001*[a] |
|---|---|---|---|---|
| Annual growth of GDP | | | | |
| Greece | 4.9 | 0.8 | 3.2 | 3.9 |
| Ireland | 4.9 | 3.5 | 9.9 | 5.6 |
| Portugal | 2.9 | 2.8 | 3.3 | 1.9 |
| Spain | 2.3 | 2.4 | 3.6 | 2.7 |
| Total EU-15 | 2.5 | 2.0 | 2.6 | 1.7 |
| OECD | 3.2 | 2.7 | 3.2 | 1.0 |
| Annual growth of productivity[b] | | | | |
| Greece | 4.2 | -0.1 | 2.6 | 3.6 |
| Ireland | 3.4 | 3.2 | 4.1 | 3.7 |
| Portugal | 0.5 | 1.6 | 2.0 | 1.0 |
| Spain | 2.6 | 2.6 | 0.8 | 0.8 |
| Total EU-15 | 2.2 | 1.8 | 1.4 | 0.7 |
| OECD | 1.6 | 1.7 | 1.7 | 0.8 |
| Annual growth of fixed investment | | | | |
| Greece | 6.8 | -2.2 | 7.3 | 8.5 |
| Ireland | 5.3 | 0.3 | 14.0 | 2.5 |
| Portugal | -0.4 | 2.9 | 6.8 | 2.2 |
| Spain | -1.2 | 2.8 | 6.5 | 3.3 |
| Total EU-15 | 0.2 | 1.7 | 4.2 | 0.7 |
| OECD | 2.7 | 2.8 | 5.5 | -1.1 |
| Annual consumer price inflation rate | | | | |
| Greece | 16.2 | 18.3 | 5.5 | 3.3[c] |
| Ireland | 14.9 | 7.0 | 2.5 | 4.3[c] |
| Portugal | 23.5 | 14.6 | 2.9 | 4.3[c] |
| Spain | 18.2 | 8.6 | 3.0 | 3.7[c] |
| Total EU-15 | 11.9 | 6.4 | 2.2 | 2.4[c] |
| OECD | 10.3 | 7.5 | 4.2 | 2.0[c] |
| Annual percentage increase of unit labour costs in manufacturing | | | | |
| Greece | 21.2 | 17.4 | 4.6 | 1.3[d] |
| Ireland | . . . | 1.7 | . . . | 3.9[d] |
| Portugal | 19.5 | 11.1 | 1.7 | 4.8[d] |
| Spain | 20.3 | 6.8 | 2.3 | 3.1[d] |
| Total EU-15 | 6.2 | 3.1 | 0.7 | 2.8[d] |
| OECD (business sector) | 10.1 | 5.8 | 2.8 | 4.1 |
| Annual unemployment rate | | | | |
| Greece | 2.0 | 7.3 | 10.5 | 11.2 |
| Ireland | 7.9 | 14.2 | 8.6 | 4.3 |
| Portugal | 6.2 | 6.9 | 5.8 | 4.2 |
| Spain | 5.3 | 18.0 | 19.1 | 13.3 |
| Total EU-15 | 4.2 | 9.0 | 9.8 | 7.8 |
| OECD | 4.8 | 7.0 | 6.9 | 6.5 |
| General government deficit as a per cent of GDP | | | | |
| Greece | -2.3 | -10.3 | -4.5 | 0.2 |
| Ireland | -8.4 | -7.2 | 1.3 | 3.2 |
| Portugal | -4.9 | -5.3 | -2.8 | -1.7 |
| Spain | -0.8 | -4.4 | -3.1 | 0.0 |
| Total EU-15 | -3.3 | -4.6 | -2.3 | -0.7 |
| OECD | -2.6 | -3.7 | -1.7 | -0.7 |
| Current account balance as a per cent of GDP | | | | |
| Greece | -3.7 | -3.5 | -4.2 | -5.2 |
| Ireland | -6.7 | -3.1 | 1.4 | -2.0 |
| Portugal | -4.1 | -2.6 | -6.0 | -9.2 |
| Spain | -2.0 | -1.5 | -0.9 | -2.4 |
| Total EU-15 | -0.3 | -0.2 | 0.6 | -0.2 |
| OECD | -0.3 | -0.4 | -0.3 | -1.2 |

SOURCES: OECD, *Historical Statistics 1970-1999* and *Economic Outlook*; National Statistical Service of Greece and Ministry of National Economy, National Accounts of Greece (for Greek national accounts data over the 1974-2000 period, except for current external balance as a per cent of GDP). Because 1974 was an exceptional year in Greece, the base used in calculating the rate of growth of GDP and of fixed investment in 1975 is the average of 1973, 1974 and 1975.

a. OECD forecast based on partial-year data. *Preliminary Economic Outlook*, November 2001.
b. GDP per person employed.
c. OECD forecast refers to private consumption deflator.
d. OECD forecast refers to ULC in the business sector.

**Figure I-1. Current Account Balance and General Government External Debt [a]**




SOURCE: Bank of Greece.
a. After 1995, the data on the general government's external debt do not include domestic bonds held by non-residents. Data for 2001 are Bank of Greece estimates based on partial year data.

(general government) deficit-to-GDP ratio reaching double-digit levels in the late 1980s and the early 1990s. The debt-to-GDP ratio rose to about 108 per cent of GDP in 1994.[2] Monetary policy was accommodative, with real interest rates in negative territory for much of the period through the mid-1980s.

Overly accommodative macroeconomic policies led to the persistence of strong inflationary pressures. Resources in the economy were sometimes allocated inefficiently. Weak growth and serious structural problems in many sectors led to a deterioration of conditions in the labour market. The unemployment rate rose from about 4 per cent in 1981 to almost 10 per cent in 1994.

The emergence and persistence of major domestic imbalances, combined with successive oil-price shocks during the early part of the period, contributed to a marked deterioration of the external economic position, which acted as a constraint on growth. A two-year stabilisation programme, implemented in October 1985, led to a narrowing of the current account deficit. But then the situation deteriorated in 1989 and 1990 (Figure I-1), following the abandonment of the stabilisation programme in 1988.

2. Contributing to the rise in the debt-to-GDP ratio in the early 1990s was the taking over by the central government of liabilities of various public legal entities to the banking system. See Manessiotis and Reischauer (2001). The debt-to-GDP ratio peaked at 111.3 per cent in 1996.

The domestic imbalances continued in the early 1990s. In the three years 1991-93, the fiscal deficit-to-GDP ratio averaged about 12.5 per cent. Although inflation declined, it remained in double-digit levels; tightened incomes policy and weak domestic demand contributed to the fall in inflation. The current account deficit as a ratio to nominal GDP was reduced, with the decline attributable mainly to slow real GDP growth.

The impressive economic performance achieved in the second half of the 1990s reflects a substantial shift towards stability-oriented policies. Monetary and fiscal policies were progressively tightened. Structural reforms were pursued more vigorously. The policy shifts were necessitated by the Greek authorities' objective to achieve a high degree of sustainable economic convergence in order to satisfy the criteria required for participation in the euro area from January 2001.

The primary objective of the monetary policy of the Bank of Greece became the attainment of price stability. To this end, the authorities maintained a tight monetary policy stance throughout most of the 1990s. In particular, beginning in 1995 the authorities pursued a hard-drachma policy. For the first time, the Bank announced a specific exchange rate target in 1995, limiting the year-on-year depreciation of the drachma (against the ECU) to a rate that did not fully offset inflation differentials between Greece and its main trading partners. High official interest rates, aimed at facilitating the move towards price stability, also supported the drachma's value in the foreign exchange market, contributing to the attainment of price stability. The deregulation of the financial system, a process that began in the mid-1980s and was completed in the mid-1990s, provided the monetary authorities with greater flexibility in policy implementation.

The reduction in inflation was supported by a marked tightening in the stance of fiscal policy. The general government deficit was reduced to under 1 per cent of GDP in 2000, from about 13.5 per cent in 1993.[3] Over the same period, the debt-to-GDP ratio declined by about 7.5 percentage points. Although the debt-to-GDP ratio remained at a high level (at around 103 per cent), by 2001 it appeared to be firmly on a downward path.

Although both growth and inflation performance improved considerably after the mid-1990s, major policy challenges lie ahead (see below). One of those challenges is the reduction of unemployment. Despite strong output growth since 1994, the unemployment rate continued to rise steadily. Greece's experience contrasted with the situation in the euro area as a whole, where the rate declined somewhat in the second half of the 1990s. The growth of output

3. The general government fiscal position is expected to be close to balance in 2001.

did generate employment; but the supply of labour grew faster than the demand for labour, reflecting mainly the rising participation of women in the labour force, immigration and industrial restructuring. Unemployment in Greece is concentrated among women and the young. Although the unemployment rate fell below 11.5 per cent in 2000 from 12 per cent in 1999, and was expected to fall below 11 per cent in 2001, it nevertheless remained the second highest rate in the European Union, below that of Spain (Table I-1).

A major factor underlying Greece's weak economic performance during the late 1970s, the 1980s and the early 1990s was the slow growth of potential output. Inappropriate macroeconomic policies (including incomes policies) and structural rigidities limited capital accumulation. A number of reform measures were taken in the 1990s and in 2000 and 2001 to lessen structural rigidities and boost the growth of potential output. Despite those measures, more needs to be done to address structural weaknesses.

In the sections that follow, we amplify on the preceding historical generalisations about the performance of the Greek economy from 1974 through the end of the last century. We then turn to Greece's economic challenges for the future, identifying needed structural reforms and policy areas warranting close attention.

## The Greek Economy between 1974 and 1979

After an earlier extended period of strong growth and low inflation, Greece experienced a slowdown in growth, rising inflation, and widening current-account deficits during the second half of the 1970s. Greece's weaker economic performance reflected, in part, the effects of the two oil-price shocks of the 1970s and the associated slowdown in the growth of world demand and trade. Many other industrial countries also experienced similar developments. Even before the oil-price shocks, however, inadequate development policies in Greece, in force over a long period of time, exerted pressures on Greek resources and made it increasingly difficult to sustain the high growth rates achieved through the early 1970s. The boom of the early 1970s was clearly unsustainable.[4] Sizeable emigration abroad contributed importantly to the strains on national resources, though difficulties were eased temporarily by productivity gains resulting from the movement of excess labour from agriculture to manufacturing and services.

Problems came to a head in 1974. The abrupt rise in oil prices created unfavourable conditions abroad. This development, exacerbated by the impact

4. As Alogoskoufis (1995, p. 154) put it, "During the dictatorship [i.e. 1967-74] some aspects of the institutional regime were driven to unsustainable extremes. Demand was ..expanded excessively."

of political events in Greece and Cyprus, led to a sharp fall of Greece's real GDP, an acceleration of inflation and a serious deterioration of the balance of payments. Economic growth recovered subsequently, though to levels well below those experienced in the late 1960s and the early 1970s. From 1975 to 1979 real GDP grew at an annual rate of around 5 per cent, compared with over 8.5 per cent during 1961-73.[5]

The pattern of resource use and income developments in the second half of the 1970s created problems for subsequent years. The trend of total fixed investment was generally downward. Growth in housing investment, supported by controls on the allocation of credit and on interest rates, was used to stimulate the economy. Housing investment was favoured because it accounted for a substantial share in GDP, had a high labour content and resulted in only small import leakages; between 1975 and 1980, the share of housing construction in total investment rose by about 7.5 percentage points (see Table I-2). Meanwhile, the share of machinery, equipment and other non-construction investment —more likely to increase the economy's efficiency and potential output— fell substantially during this period (Table I-2). Public sector investment also evolved unfavourably. Public outlays shifted towards current expenditure away from investment. Accordingly, the share of public sector investment in total investment fell by about 5 percentage points, to about 7 per cent in 1980. Public investment in infrastructure experienced a sustained fall. Thus, despite the economic growth of the 1970s, in 1980 Greece still had a relatively narrow industrial base (unchanged from its 1970 share of 30 per cent of GDP). The agricultural sector, accounting for about 15 per cent of GDP in both 1970 and 1980 (Table I-2), remained large and relatively inefficient.

The combination of weak and unbalanced growth was closely associated with an upsurge in inflation. Strong cost-push forces adversely influenced business investment through a profit squeeze and generated strong inflationary pressures. Unit labour costs in manufacturing rose by an average rate of 21 per cent per year during 1974-79, compared with an average of about 6 per cent in the 15 countries that at present comprise the European Union (see Table I-1).[6] Cost-push inflationary forces were reinforced by an accommodating monetary policy stance. Monetary policy was constrained by gov-

5. The fall of about 6.5 per cent in real GDP in 1974 was due in important part to political turbulence in 1973-74, associated with the exceptional events of the Cyprus crisis, the subsequent collapse of the Greek military dictatorship, which had been in power since 1967, and the return to civilian government. The year 1974, therefore, does not provide a reliable base from which to measure subsequent increases in real GDP. To deal with this situation, the base used in Table I-1 in calculating real growth is the average GDP in 1973, 1974 and 1975.

6. During the same period, unit labour costs rose by about 20 per cent in both Portugal and Spain (Table I-1).

**Table I-2. Greece: Structure of Output and of Total Investment**

| *A. Structure of output (current prices)* | *1970* | *1975* | *1980* | *1985* | *1990* | *1995* | *2000* |
|---|---|---|---|---|---|---|---|
| **Primary sector (agriculture)** | **15.8** | **13.9** | **15.1** | **11.8** | **10.6** | **9.9** | **7.3** |
| **Secondary sector (industry)** | **30.0** | **29.0** | **29.6** | **28.3** | **26.6** | **22.4** | **20.4** |
| Mining and quarrying | 0.7 | 0.7 | 0.8 | 1.5 | 0.8 | 0.6 | 0.6 |
| Manufacturing | 17.6 | 18.5 | 17.9 | 17.0 | 15.2 | 13.0 | 11.1 |
| Electricity, gas and water | 1.9 | 1.5 | 1.5 | 2.5 | 2.6 | 2.4 | 1.8 |
| Construction | 9.8 | 8.2 | 9.4 | 7.4 | 8.0 | 6.4 | 6.9 |
| **Tertiary sector (services)** | **54.2** | **57.1** | **55.3** | **59.8** | **62.8** | **67.7** | **72.3** |
| Transport and communication | 5.9 | 6.7 | 6.1 | 5.8 | 5.4 | 6.7 | 8.5 |
| Trade | 13.7 | 16.3 | 14.6 | 15.3 | 14.8 | 13.6 | 14.5 |
| Financial intermediation | 2.9 | 3.6 | 3.2 | 3.2 | 3.4 | 4.2 | 5.5 |
| Real estate, renting and business activities | 13.1 | 11.7 | 10.8 | 10.3 | 11.7 | 17.0 | 17.0 |
| Public administration and defence | 4.0 | 4.7 | 5.3 | 7.3 | 7.7 | 7.2 | 7.0 |
| Health and education | 5.9 | 6.4 | 6.7 | 7.8 | 9.2 | 9.7 | 9.9 |
| Other service activities | 8.7 | 7.7 | 8.6 | 10.1 | 10.6 | 9.3 | 10.0 |
| **Gross value added** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** |
| *B. Structure of investment (current prices)* | *1970* | *1975* | *1980* | *1985* | *1990* | *1995* | *2000* |
| Total investment | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| **By sector** | | | | | | | |
| 1.General government | 10.6 | 12.2 | 7.3 | 16.6 | 11.8 | 17.1 | 18.1 |
| 2.Other domestic sectors | 89.4 | 87.8 | 92.7 | 83.4 | 88.2 | 82.9 | 81.9 |
| **By type of asset** | | | | | | | |
| 3.Construction | 67.9 | 68.3 | 72.6 | 66.5 | 67.2 | 63.4 | 58.3 |
| *a. Housing* | *33.0* | *36.8* | *44.3* | *33.3* | *36.9* | *27.1* | *21.5* |
| *b. Other construction* | *34.8* | *31.4* | *28.4* | *33.2* | *30.3* | *36.3* | *36.8* |
| 4. Equipment | 29.0 | 28.7 | 25.1 | 30.1 | 29.6 | 31.5 | 35.8 |
| 5. Other | 3.1 | 3.0 | 2.2 | 3.4 | 3.2 | 5.2 | 5.9 |
| *Memo: Non-residential business investment [(2)-(3a)]* | *56.4* | *50.9* | *48.4* | *50.0* | *51.3* | *55.8* | *60.4* |

SOURCE: Ministry of National Economy, *Main national accounts aggregates of the Greek economy according to ESA system.* Data for 2000 are provisional. For the period 1970-1990 structure of output data according to "mixed" system (based on ESA 79, with elements of ESA 95).

ernment pressures for central bank financing of the fiscal deficits. The outcome of these various forces was a rate of inflation rising from about 12 per cent in 1977 to 19 per cent in 1979. Inflation distorted the movement in relative prices through which market information is normally transmitted, creating economy-wide uncertainty and leading to an inefficient allocation of resources. Consequently, real growth was weakening even before the effects of the 1979-80 oil price shock and the associated world recession began to work through the Greek economy.

## Mounting Macroeconomic Imbalances and Stagflationary Trends: 1980-1985

The Greek economy stagnated in the early 1980s. After the second oil price shock in 1979, the country isolated itself from the trend in most industrial countries by pursuing accommodative macroeconomic policies. Except for a two-year stabilisation programme implemented in October 1985 (see below), macroeconomic policies were characterised by episodes of stop and go associated with the political cycle. Reflecting the political cycle, the public sector borrowing requirement relative to GDP in 1981 rose by 6.5 percentage points, to nearly 15 per cent, resulting in a sharp acceleration in domestic credit expansion.[7] Despite the accommodative macroeconomic policies, however, real GDP fell in 1981, after having risen by less than 1 per cent in 1980. Meanwhile, inflation rose to around 25 per cent in both 1980 and 1981. The adverse impact of higher oil prices and the emerging effects of the growing imbalances of the second half of the 1970s added to the overly accommodative macroeconomic policies of the early 1980s in generating the stagflationary developments.

The government elected in October 1981 added to the weaknesses inherited from earlier years by continuing to pursue highly accommodative policies in the three years to 1984. Consequently, the public sector borrowing requirement as a per cent of GDP was little changed during those years, remaining in the range of 11 per cent to 15 per cent. General government consumption rose significantly. Pension expenditures and the deficits of pension funds also rose, pushed up by the generosity of the system coupled with inadequate funding.

7. Domestic credit expansion reached an annual rate of about 36 per cent in 1981, compared with 25 per cent in 1980 (see Garganas and Tavlas, 2001). As Alogoskoufis and Christodoulakis (1991, p. 268) point out, "the [1981] spending spree and the deferral of taxes did not help the [ruling] conservative government, and the socialists won [the October 1981 national election] in a virtual landslide."

**Table I-3. Potential Output Growth (Business Sector)**
Annual percentage change (1980-90)

| | *Greece* | *Spain* | *Portugal* |
|---|---|---|---|
| Actual output | 1.5 | 2.8 | 3.0 |
| Potential output | 1.4 | 3.0 | 3.2 |
| Capital stock | 1.9 | 3.5 | 2.9 |
| Labour force | 0.9 | 1.0 | 0.9 |
| Total factor productivity | -0.1 | 1.3 | 0.7 |

SOURCE: OECD (1990/91).

The need to finance the large public sector deficits continued to put pressure on the central bank for an accommodative stance of monetary policy. Monetary and credit aggregates often reached growth rates in excess of 20 per cent, while real interest rates were consistently at negative levels. To compensate partially for the large financing needs of the public sector, the Bank of Greece implemented a complex credit allocation system (including quantitative limits) that restrained credit expansion to the private sector. Thus, the private sector increasingly became crowded out of economic activity.

The competitiveness of the economy and the growth of potential output in the first half of the 1980s were also undermined by long-standing structural weaknesses such as a high concentration of industrial activity in declining traditional industries and the pervasiveness of rigidities and controls in labour markets, product markets and the financial system. In a study comparing total factor productivity in Greece, Portugal and Spain during the 1980s, the OECD (1990/91) estimated that the annual average rise in total factor productivity in Greece was slightly negative, while total factor productivity grew by average rates of 1.3 per cent and 0.7 per cent in Spain and Portugal, respectively (see Table I-3).[8] Bosworth and Kollintzas (2001) estimated that the average annual growth of productivity (total factor productivity adjusted for educational improvements) during the 1980s was –1.1 per cent in Greece. The authors also estimated that multi-factor productivity grew in Ireland, Portugal and Spain by average rates of 3.1 per cent, 0.4 per cent and 1.3 per cent, respectively.

As we have noted, labour productivity growth in Greece during the first half of the 1980s suffered from relatively weak overall investment. As reported in Table I-3, the average annual growth of final investment was –2.2 per cent during 1980-94. Several other factors also seem to have been important.

- The imposition of investment ratios on banks impeded an efficient allocation of resources. Because a majority of banks were publicly control-

8. As shown in Table I-1, the average growth of productivity in Greece was also slightly negative for the entire period 1980-94.

led, economic efficiency criteria were not always given priority in banks' lending decisions and in measuring the performance of banks.

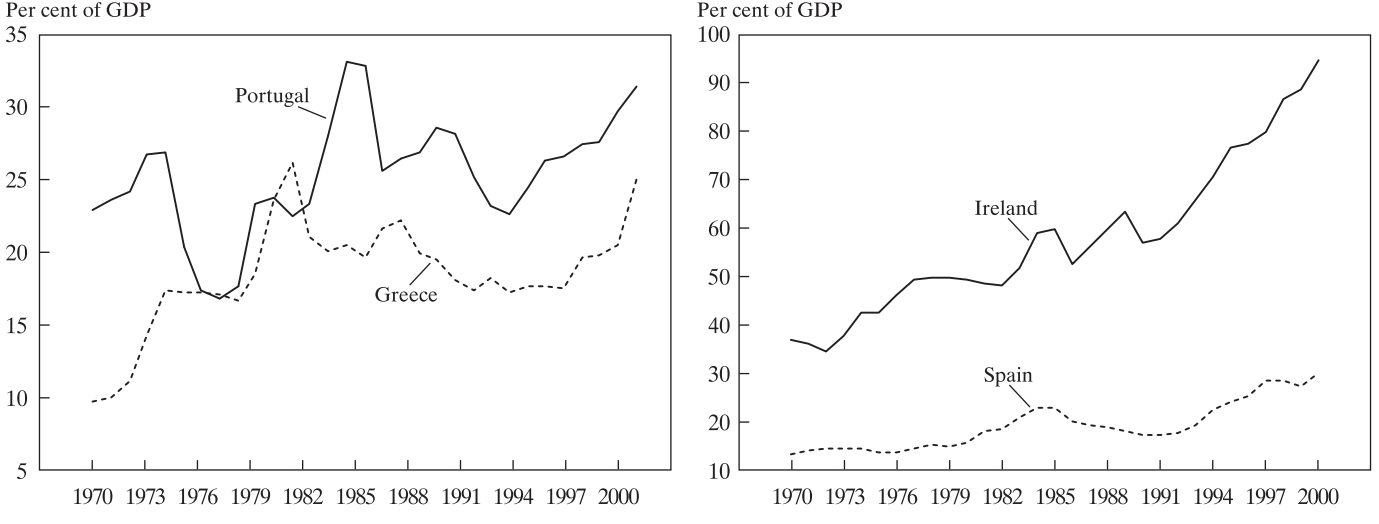
- According to a 1993 study undertaken at the OECD, "lack of transparency of the bureaucracy, coupled with a lack of clear rules, exacerbated uncertainty", thereby contributing to low foreign direct investment (FDI) in Greece during the 1980s (OECD, 1993, p. 19). The OECD study estimated that foreign direct investment in Greece was less than $2 billion in the 1980s, compared with $6.5 billion in Portugal, and $46 billion in Spain.[9] Foreign direct investment in an open economy can be a catalyst to growth and productivity. The small amount of FDI in Greece helps explain the country's slower growth and a more sluggish diffusion of modern technology relative to countries receiving higher flows of FDI.
- The underdeveloped state of Greece's infrastructure raised the costs of business transactions and hindered private investment, both domestic and from abroad. In the telecommunications sector, for example, firms in many districts had to wait for up to two years to be connected.[10]
- Public enterprises were heavily subsidised and not well managed. The existence of such enterprises inhibited competition and an efficient allocation of resources.
- Regulations aimed at raising the purchasing power of workers and protecting them from dismissal increased labour market rigidities. For example an automatic wage indexation system (ATA), introduced in 1982 (a time when wage moderation was the rule in most OECD countries), contributed to a sharp increase in wages, which was mirrored in a decline of the share of profits in value added (excluding agriculture).

The structural weaknesses just identified were unfortunate in their own right. They became even more problematic after Greece acceded to the European Communities (EC) in January 1981. Participation in the EC meant that Greece had to compete on liberalised terms with other European economies that were more advanced and more efficient. The potential benefits from accession to the EC were limited by the large domestic and external imbalances which emerged in the 1970s and increased significantly during most of the 1980s. Between 1980 and 1990, the share of exports of goods and services in Greece's GDP declined from 23.6 per cent to 18.1 per cent (Figure I-2a). This

9. Data on FDI in the 1980s are not available for Greece. Thus, the OECD data are estimates and likely underestimate FDI in Greece. Nevertheless, the OECD study provides a rough basis of comparison of FDI for these countries. The OECD study did not include Ireland. According to data from the IMF's International Financial Statistics, foreign direct investment in Ireland in the 1980s appears to have been of the same order of magnitude as in Greece but then rose to high levels in the 1990s.

10. OECD (1993, p. 19).

**Figure I-2a. Exports of Goods and Services**




SOURCES: Bank of Greece and IMF, *International Financial Statistics*.

experience is broadly comparable with those of other economies that joined the EC subsequent to its initial creation. For example, Ireland underwent an interruption in the growth of its share of exports of goods and services relative to GDP after accesion to the EC, while Spain and Portugal experienced declining shares in the years immediately following their accession (Figure I-2a).[11]

Exchange rate policy in the first half of the 1980s in Greece was not consistent. It alternated between periods of informal pegging (to the US dollar, or to a basket of currencies) and periods in which the drachma was allowed to fall in value. A discrete devaluation of the drachma was implemented in early 1983. If the real exchange rate is calculated in terms of relative unit labour costs in manufacturing, the drachma declined in real terms in the immediate aftermath of the 1983 devaluation, but subsequently rose in 1984. By the first quarter of 1985, the real exchange rate was some 30 per cent above its average level in 1980 (Figure I-2b).[12] The emergence and persistence of major domestic imbalances, coupled with a less favourable international environment, led to a marked deterioration of the current account deficit and a rapid build-up of external government debt (Figure I-1).

In light of the factors discussed above, Greece's economy expanded less rapidly than those of its trading partners in the first half of the 1980s. Slow output growth was accompanied by high inflation. During 1980-84, average real GDP growth was slightly negative, while the rate of inflation averaged over 20 per cent a year. During the same period, real GDP growth for all 15 countries which at present comprise the European Union was about 2.5 per cent per year and inflation was around 8 per cent per year.

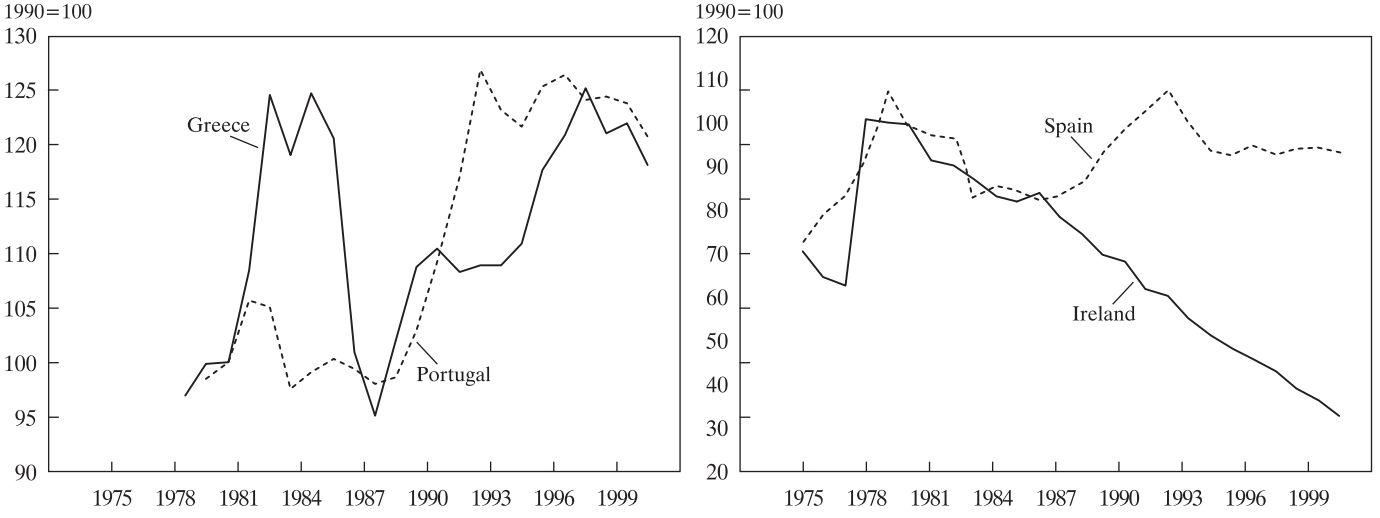
Greece's economic performance deteriorated further in 1985, reflecting a further shift towards accommodative policies in the first half of the year ahead of national elections. Compared with 1984, the public sector borrowing requirement in relation to GDP increased by almost 3 percentage points, to about 18 per cent. The lax fiscal stance was accompanied by a sharp expansion of domestic credit and the money supply.[13] The current account deficit widened from an annual average of about 4 per cent of GDP in the second half of the 1970s to 8 per cent of GDP in 1985. As a result, external indebtedness increased rapidly. The ratio of external government debt to GDP rose from about 4.5 per cent in the late 1970s to 18 per cent in 1985 (Figure I-1).

11. Ireland joined the European Communities in 1973, well before Greece. Spain and Portugal joined in 1985, four years after Greece's accession.

12. The data in Figure I-2b are from the IMF's *International Financial Statistics*. These data show a real appreciation of 30.2 per cent. The Bank of Greece's real exchange rate index based on relative unit labour costs shows a real appreciation of 35.4 per cent.

13. Broad money (M3) grew by about 27 per cent and domestic credit by about 26 per cent in 1985. See Garganas and Tavlas (2001).

**Figure 1-2b. Real Effective Exchange Rates [a]**




SOURCE: IMF, *International Financial Statistics*.
a. ULC-based for Greece, Ireland and Spain. CPI-based for Portugal.

## The 1986-1987 Stabilisation Programme

The government formed after the June 1985 elections, confronted with the rapid deterioration in Greece's external accounts, faced the necessity of shifting the focus of economic policies towards macroeconomic stabilisation. The government placed immediate emphasis on redressing the balance of payments and laying the ground for more fundamental adjustments of the economy over the medium term. Accordingly, it introduced a stabilisation package in October 1985.

The principal measures of the package included: a 15 per cent devaluation of the drachma; a temporary advance deposit requirement on a wide range of imports; a modification of the wage-price indexation mechanism to reflect the projected (adjusted to exclude the impact of increases in import prices) as opposed to the past rate of inflation; a reduction of 4 percentage points in the public sector borrowing requirement relative to GDP in both 1986 and 1987; and a tightening of monetary policy through a reduction of the growth of domestic credit and the gradual establishment of positive real interest rates for all borrowers. These measures were viewed as first steps towards a comprehensive adjustment effort to be maintained over a two-year period (1986-1987). The goals of the programme were to restore a sustainable balance of payments position and to reduce substantially the inflation differential between Greece and its main trading partners.

The strategy in support of these objectives centred on a firm incomes policy, which aimed at a sustained reduction of labour costs per unit of output. The incomes policy was accompanied by a significant tightening of fiscal and monetary policies and by an exchange rate policy geared to the broad maintenance of the gains in competitiveness obtained from the October 1985 devaluation. The stabilisation package was supported by the European Communities with an ECU 1.75 billion loan, phased in over two years.

The strict implementation of the 1985 programme of economic stabilisation over the two succeeding years was a landmark, though opposition to the stabilisation package from the labour unions was strong. Although the new policy measures had not been designed to tackle microeconomic structural issues, they nevertheless aimed at improving the business climate by providing a stable macroeconomic environment for at least two years and creating conditions for the resumption of faster growth.

The programme succeeded in reversing the rapid deterioration of the macroeconomic imbalances. Incomes policy, firmly implemented, bore the brunt of the adjustment effort. Real wages dropped sharply in 1986 and 1987 and business profitability rose for the first time in many years. The public

sector borrowing requirement relative to GDP declined to about 13 per cent in 1987 from about 18 per cent in 1985. This reduction fell short of the initial objective but was nevertheless significant. Monetary policy succeeded in lowering the rate of growth of bank credit and in gradually establishing positive real interest rates on bank deposits and loans. The programme's external objectives were also broadly achieved. The current account deficit declined from 8 per cent of GDP in 1985 to some 2 per cent of GDP in 1987. It was financed almost entirely by non-debt capital inflows in 1987, thus halting the accumulation of external debt (Figure I-1). The inflation rate was brought down from around 20 per cent in September 1985 (just before the stabilisation programme was adopted) to 16 per cent in December 1987. The rate at the end of 1987 remained well above the programme's ambitious target rate of 10 per cent. About 4 percentage points of the inflation rate in 1987, however, were attributable to the introduction of the value-added tax (VAT); the underlying inflation rate can therefore be viewed as having fallen to about 12 per cent by the end of 1987 (Georgakopoulos, 1991). Given the restraints on domestic demand, real GDP rose by only 0.5 per cent in 1986 and fell by 2.3 per cent in 1987.

## Re-Emergence of Large Internal and External Imbalances

In late 1987, following the completion of the two-year stabilisation programme, the government announced that its policy orientation would shift from "adjustment" towards "development". As a consequence, in 1988 macroeconomic and incomes policies were significantly relaxed. The stabilisation and consolidation gains of the previous two years were partly lost. Domestic credit expansion significantly overshot its target. Real wages rose by almost 5 per cent, about double the rate of increase in productivity. The drachma appreciated in real terms as exchange rate policy sought to dampen inflationary pressures.

Despite the relaxation of policies, some of the benefits of the earlier stabilisation programme continued to be realised. The external environment remained relatively favourable. Hence, economic performance in 1988 and 1989 continued to improve. Output grew strongly, real investment recovered sharply, inflation continued to fall and, in 1988, the current account deficit narrowed. An additional expansionary impulse came from the external side. The international upturn, which had shown signs of slackening in 1986 and in the first half of 1987, regained momentum thereafter. The annual rate of growth of Greek export markets was about 8.5 per cent in 1988 and 1989, about twice the rate recorded between 1979 and 1987.

Yet, the improved economic performance was short-lived. Despite a favourable international conjuncture in 1989 and 1990, confidence was eroded by a prolonged period of electoral uncertainty associated with the formation of weak coalition governments. Moreover, a further easing of macroeconomic policies occurred.[14] The revival of output growth lost momentum and the economy again was plagued by macroeconomic imbalances. Consumer price inflation accelerated, reaching about 15 per cent at the end of 1989, despite a freeze of administered prices. The public sector borrowing requirement exceeded 18 per cent of GDP in 1989 and the current account widened (Figure I-1). At the same time, the general government debt climbed to about 70 per cent of GDP, imposing a heavy future burden on the economy.

The new government formed after the April 1990 general election introduced immediate measures to curb the fiscal deficit. Those measures, however, were not sufficient to improve economic performance in 1990: inflation rose to about 20 per cent; the general government deficit was almost 19 per cent of GDP; the debt-to-GDP ratio rose to 80 per cent; and the deficit in the current account of the balance of payments widened further, to 4.2 per cent of GDP. Real GDP failed to increase in 1990.[15]

At the end of 1990 the government announced a medium-term adjustment programme to cover the years 1991-93. The programme included optimistic targets to be reached by 1993, notably reductions in the rate of inflation to 8 per cent and in the public sector borrowing requirement to 3 per cent of GDP. In order to boost the supply responsiveness of the economy, market-oriented structural reforms were implemented. The European Communities agreed to provide a 3-year balance of payments loan of ECU 2.2 billion to support the adjustment programme; the first tranche was disbursed in March 1991.

As events unfolded, there were large deviations from the adjustment programme. Progress towards structural reform also was more modest than initially projected. Thus, the government did not request the second tranche of the EC loan, which had been scheduled for disbursement in February 1992.

14. Following the general election in June 1989, no party obtained an absolute majority. An interim Coalition Government was formed between the former main opposition party, New Democracy, and the Alliance of the Left and Progress. November 5th was set as a date for new elections. In those November elections, again no party obtained an absolute majority. Hence the three major parties —New Democracy, Pasok and the Alliance of the Left and Progress— formed an interim government which lasted until the middle of April 1990. A new general election was held in April 1990 following the failure of Parliament to elect a new President of the Republic. After that election, the New Democracy party formed a Government, which had a two-seat majority in Parliament.

15. As noted, the short-lived recovery in real GDP in 1988 and 1989 was largely attributable to the lagged effects of the 1986-87 stabilisation programme.

The electoral cycle again led to a relaxation of macroeconomic policies in 1993. Earlier progress was partly offset and substantial fiscal slippage occurred. When the new government came into office in October 1993, it announced that the modest fiscal consolidation process, begun in 1991, would be resumed. The outcome of the budget, however, proved to be otherwise. The overshooting of the budgetary target that ensued, moreover, took place in a notably weak economy. The European recession of the early 1990s had a serious impact on Greece. In addition, the domestic fiscal imbalances contributed to high real interest rates, which, in turn, discouraged private spending.

During the period 1990-93 as a whole, Greece again experienced weak economic activity, with real GDP growing by an average rate of only about 0.5 per cent annually. The derailment of the public finances, high real interest rates and poor economic growth were associated with a rise in the debt ratio for the general government from 80 per cent of nominal GDP in 1990 to 110 per cent of GDP in 1993. Considerable progress was made in bringing inflation down from about 20 per cent in 1990 to around 12 per cent (annual rate) in December 1993. Yet, the fall of inflation relied substantially on incomes policy and occurred against the backdrop of weakness in economic activity. Inflation expectations remained high, in part because of the large continuing fiscal imbalances. On the external side, the current account deficit narrowed to less than 1 per cent of GDP in 1993; a primary cause of this development, however, was weak domestic demand.

In 1992, the Maastricht Treaty was signed. It came into effect on 1 November 1993 and stipulated convergence criteria that needed to be fulfilled before a country could join the euro area.[16] Yet, at the beginning of Stage II of Economic and Monetary Union (EMU) in January 1994, Greece found itself in serious divergence from the other member countries of the European Union, particularly with regard to public finances and inflation. It became increasingly clear that Greece would not be in a position to participate fully in the next phase of EMU unless a high degree of sustainable convergence was achieved on the Maastricht criteria.

In those circumstances, the Greek authorities drew up a new convergence programme in June 1994, covering the period 1994-99.[17] The goal of the programme was to scale back the general government deficit to 1 per cent of

16. These criteria are discussed in Garganas and Tavlas (2001) and Manessiotis and Reischauer (2001).

17. In early 1993, Greece had presented to the EU a convergence programme for the period 1993-98. That programme had been discussed by the ECOFIN Council on 15 March 1993. Subsequently, as a result of the very significant overrun in the fiscal targets for 1993, it became clear that the 1993 convergence programme, without significant revisions, was no longer valid.

GDP by 1999, with the ratio of government debt to GDP stabilising in 1996 and declining from then on. The programme was also crucially dependent on bringing inflation down sharply, to 3.3 per cent in 1999. The government's strategy likewise relied on a policy of wage moderation. The stance of monetary policy was expected to contribute to disinflation. The target range for M3 growth in 1995 was set at a lower level (7-9 per cent, compared with 8-11 per cent in 1994) and was judged to be consistent with a projected slow effective depreciation of the drachma.

## Progress Towards Convergence and Fulfilment of the Conditions for the Adoption of the Single European Currency

Greece's economic performance, as indicated above, improved markedly beginning in the mid-1990s. Real and nominal convergence progressed during the second stage of EMU. Economic policies were primarily oriented towards fully satisfying all the convergence criteria set by the Maastricht Treaty for the adoption of the single currency. On the whole, fiscal and monetary policies were implemented consistently and the targets of the successive convergence programmes were broadly met.

Disinflation was achieved under conditions of accelerating economic growth and rising real incomes. Monetary policy was kept tight and, as noted above, focused on a specific exchange rate target, a policy that became known as the hard-drachma policy. Budgetary policy was also restrictive; the general government deficit was brought down to 1 per cent of GDP in 2000, from about 13.5 per cent of GDP in 1993.

In March 1998, the mix of macroeconomic policies was further redefined. Entry of the drachma into the European Exchange Rate Mechanism (ERM) was accompanied by a simultaneous exchange rate adjustment, which corresponded to a 12.3 per cent devaluation of the drachma against the ECU. The government introduced a package of measures to support the new exchange rate, including budgetary measures and the acceleration of structural reform. At the same time, incomes policy became an even more important component of the anti-inflation strategy, leading to substantial moderation in both wage and price increases.

As reported in Table I-1, from 1995 to 2000 the magnitude of Greece's convergence towards EU averages was striking. After growing by an average annual rate of only 0.8 per cent during 1980-94, real GDP growth averaged 3.2 per cent per year during 1995-2000, a rate above the EU average. Long-term interest rates and inflation converged to EU levels (Garganas and Tavlas, 2001).

Whereas Greece's annual productivity growth had been slightly negative during 1980-94, productivity rose by an annual average rate of 2.6 per cent during 1995-2000, also well above the EU average. The annual growth rate of fixed investment was –2.2 per cent during 1980-94; during 1995-2000 fixed investment rose by an average annual rate of 7.3 per cent, almost double the EU average. The average annual increase of unit labour costs in Greek manufacturing exceeded 17 per cent during 1980-94, compared with an average rise of about 3 per cent in the EU; the average annual increase in Greece's unit labour costs decelerated to 4.6 per cent during 1995-2000 and is expected to slow down to 1.3 per cent in 2001.[18]

In addition to the post-1994 adjustment of macroeconomic policies, a number of structural reform measures were introduced, intended to enhance efficiency and boost potential output. Financial markets experienced significant restructuring. In the banking sector, for example, privatisation facilitated consolidation; with increased competition, interest rate spreads narrowed. Participation of Greece in the euro area was expected to give these financial reforms a further impetus.

Reforms in the labour market were designed with the objectives of encouraging net new hires, removing disincentives for part-time employment, facilitating more flexible working hours, providing opportunity for additional wage flexibility (through "opt-outs" from sectoral wage accords in high unemployment areas) and legalising private employment services. A new law was enacted in late 2001 to reorganise the Manpower Employment Organisation (OAED) with the aim of increasing its efficiency and also to allow the legal operation of temporary employment agencies.

New and more flexible regulatory regimes were instituted for the telecommunications and energy sectors, sparked by the liberalisation of these sectors at the start of 2001 in accordance with European Communities law. The important reforms included the establishment of independent regulatory authorities. The role of the Competition Committee, which oversees competition in the goods and services markets, was enhanced by legislation passed in August 2000, giving the Committee increased administrative and financial autonomy.

The structural reforms and the macroeconomic convergence programmes implemented in the second half of the 1990s appear to have contributed to a change in the structure of investment. Whereas the share of non-residential business investment in total investment fell from about 56 per cent in 1970 to 51 per cent in 1990 (Table I-2), the share subsequently rebounded, reaching 60 per cent in 2000 (Table I-2).

18. OECD estimate for business sector.

## Further Reforms and Challenges for the Future

Notwithstanding the substantial progress in economic performance achieved after the mid-1990s, Greece will continue to face important economic challenges. Most notably, Greece's participation in the euro area will have far-reaching implications for the evolution of the Greek economy. In a variety of significant ways, the Greek economy will become more extensively and deeply integrated into the wider economy of the single European currency area. That integration will, in turn, pose further challenges for Greece's economy and will require appropriate policy responses.

For successful participation in the euro area, it will be vital for Greece to maintain balanced and prudent macroeconomic policies. Additional structural reforms will also be essential so that the Greek economy can attain full real convergence with the other euro area economies. In this overview, we identify some key aspects of these future challenges facing the Greek economy. Subsequent chapters in the volume provide a more detailed discussion.

**External balance and competitiveness**. Economic growth and prosperity in Greece require, as a minimum condition, a sustainable evolution of Greece's external transactions with other euro area Member States and with non-euro-area countries. Greece must thus nurture its existing comparative advantage relative to the comparative advantages of other countries and seek new ways to strengthen its external competitiveness.

The behaviour of the external imbalances of the Greek economy during the latter years of the 1990s could be a reason for some concern. The current account deficit widened sharply during the acceleration of output growth in the second half of the 1990s and in 2000. The deficit (including capital transfers) increased from about 3 per cent of GDP in 1998 to 6.8 per cent of GDP in 2000 (preliminary data), reflecting the growth differential between Greece and its EU trading partners; that deficit ratio was the second highest level among euro area countries. The deficit ratio, however, is expected to fall to between 5 and 6 per cent in 2001.

In addition to the growth differential, a substantial part of the recent increase in the current account deficit is due to a combination of factors that were temporary. Following the sharp increase in world oil prices, Greece's import payments for oil were unusually high in 2000. Also, the growth of passenger car imports was exceptional, spurred by tax cuts and a faster growth of consumer credit. According to Bank of Greece estimates adjusting for the effects of higher oil prices and the exceptional rise in passenger car imports, the current-account-deficit-to-GDP ratio was about 5 per cent in 2000, compared to the unadjusted figure of 6.9 per cent. Current account

deficits of moderate size, moreover, may not be cause for concern. Greece has traditionally been a net importer of capital and hence has registered deficits on its current account. Some investments in Greece have yielded higher rates of return than those in other European countries, stimulating capital imports. When rates of return earned on investments in Greece financed by foreign capital are reliably higher than the interest costs paid on the foreign borrowing, current account deficits associated with those foreign borrowings are beneficial. Another mitigating factor is that Greece has historically received significant remittances from Greeks living abroad; other things being equal, such remittances (with respect to the trade deficit) permit a deficit in goods trade larger than would otherwise be sustainable.

Even so, a part of the widening current account deficit at the end of the 1990s might have reflected underlying structural weaknesses and, to some extent, weaknesses in external competitiveness. Achievement of a sustainable current account is, therefore, likely to be a major preoccupation for Greece's policy authorities in the first years of the 21st century. Adoption of the single European currency is expected to bring a wide variety of shorter-run and longer-run benefits to Greece (Garganas, 1998). Participation in the European monetary union also means, however, that Greece no longer has any policy option for nominal exchange rate adjustment. Within the euro area itself, the possibility of exchange rate adjustment no longer exists because of monetary union. The exchange rate of the euro vis-à-vis non-European currencies will inevitably be dominated by European-wide and rest-of-the-world considerations. Movements in the exchange rate of the euro against the US dollar, the yen and the currencies of developing countries, for example, will not be noticeably and predictably influenced by Greece's external-sector competitiveness. Thus, the adjustment mechanism of changes in exchange rates —permitting currency depreciation as a way of improving external competitiveness (especially in the short run)— will be completely absent for Greece in its euro area future.

Without an exchange rate adjustment mechanism under European monetary union, Greece will have to rely entirely on other types of policies to promote external adjustment and to strengthen competitiveness. Sound budget and debt policies and effective structural reforms will thus become even more important than they were in the past.

The strength in Greece's comparative advantage has traditionally been in services, especially tourism and shipping. Greece has also been an exporter of traditional manufactured products. One possible vision of the evolution of Greece's comparative advantage, therefore, would be to encourage strengthening of the services sectors of the economy and their exports to the rest of the world. With such an outcome, Greece might move relatively smoothly from a

primarily agricultural to a service-dominated economy without the need for an intensive development of the industrial sector (as occurred in other European economies). In any case, all visions of the future evolution of the economy require robust, efficient growth in Greece's exports (services, goods, or both).

Shipping and, more broadly, transportation services seem likely to continue as components of Greece's future comparative advantage. Tourism may be even more promising. Greece's Mediterranean location and climate already substantially favour tourism and related services. The combination of marvellous geography and resonant history might be exploited still more intensively in the future. As discussed below, under the appropriate economic conditions, the new economy could also be a part of the country's comparative advantage.

Another favourable dimension of Greece's geography is its proximity to the Balkans, southern parts of Eastern Europe, and the Middle East. During the later years of the 1990s and in 2000 and 2001, substantial amounts of outward Greek foreign direct investment flowed into those areas, for example in financial service industries. The evolution of Greece as a regional financial centre and a regional source of financial intermediation and entrepreneurship might thus be another, complementary component of Greece's future comparative advantage. Ireland in the 1990s benefited strongly from being chosen as a location from which American and other non-European firms could establish an EU base for operations in northern and western Europe. The pool of Greeks who have lived in the former Soviet Union and the Middle East and who speak the native languages of those regions provides a good starting point. As countries in eastern and southern Europe develop further and as they seek to become Member States of the European Union, Greece might conceivably enjoy an upward surge in inward foreign direct investment, enabling it to play an analogous role as an EU base of operations for non-EU firms seeking to expand their activities in eastern and southern Europe.

As discussed above, Greece for many years was not widely regarded as a highly attractive location for foreign direct investment. When inflows of foreign direct investment to Greece are compared with inflows into Ireland, Spain and Portugal (both prior to and following accession to the European Communities), Greece stands out both for the smallness of its inflows and the lack of an upsurge after accession. The vision of Greece as a future regional entrepot could presumably become a reality only if structural reforms in labour-market, tax, pension-system and product-market policies (see below) could significantly improve perceptions by foreign firms that Greece offers a favourable climate for inward investment.

Economists continue to debate the complex relationships between increasing openness of economies and their ability to grow vigorously. A cau-

tious inference from the existing literature is that Greece cannot be confident —merely by joining the European monetary union— of boosting its sustainable real growth rate to higher levels. A consensus exists that open economies should reduce inefficient and distorting barriers that inhibit cross-border transactions. It is not clear, however, that open economies should pin their hopes for robust future growth predominantly on exports of goods and services rather than on domestic sources of growth. A middle-of-the-road judgement suggests that Greece should respond to the economic challenges ahead by trying to nurture both the external and the domestic sources of growth.[19]

High-quality education and communication facilities, widely available to the entire society, are critical requirements for supporting both the external and the domestic dimensions of future economic growth. Such facilities are essential inputs to any modern economy and crucial inputs for the development of the new economy. They will be especially important for Greece to the degree that its external competitiveness depends on exports of services.

**Cessation of EU Structural Funds transfers**. Following Greece's 1981 entry into the European Communities, the economy benefited from sizeable amounts of inward net transfers from EU institutions. Transfers in the 1980s came under the European common agricultural policy (CAP) and were primarily for the support of agricultural incomes and rural areas. After 1988, transfers in support of infrastructure investment and other non-CAP transfers also became quite significant. The total of net transfers from the European Union rose to levels well above 4 per cent of GDP in the early 1990s; even at the end of the 1990s such transfers were well above 3 per cent of GDP.

The likely termination of large transfers from the European Union is a further important reason to be concerned about the sustainability of Greece's future external balance. The current Community Support Framework will end in 2006. If another support programme is implemented, Greece's share is sure to be smaller than the current support programme because of EU enlargement.

As inward transfers of structural funds from the EU diminish (and possibly even cease), other macroeconomic variables —in Greece's balance of payments, and in the domestic economy— will need to adjust to offset the change in the flow of transfers. As already discussed, none of the adjustments in the future can take the form of changes in exchange rates within European monetary union.[20] As the Greek authorities formulate policies for the future, it will become even more essential to make efficient use of the

19. These issues are discussed by Bosworth and Kollintzas (2001) and Helliwell (2001).

20. Spraos (2001) studies the interrelationships between EU transfers and Greece's real exchange rate during the period when exchange rate movements were a significant component of Greece's adjustment to changes in its balance of payments.

inward transfers while they last and to implement prudent measures to ease the transition towards their cessation.

**Reform of the pension system**. Achieving an improved external competitiveness is one of the most important challenges facing the Greek economy. But other structural problems need policy attention and reform. Reform of the complex and fragmented pension system is one of the top priorities.

Pensions equalled some 12 per cent of Greek GDP at the end of the 1990s. Because Greece's population will be ageing rapidly over the first decades of the 21st century, the fraction of GDP going to pensions will rise sharply, perhaps reaching more than 20 per cent of GDP. Though the Greek pension system has successful aspects, it is widely agreed that serious difficulties lie ahead. In addition to the adverse demographic trends with which the system will be increasingly confronted, it is saddled by relatively low retirement ages and unsustainably high benefits compared to contributions.

Reform of the pension system appeared to stall in the latter half of the 1990s. Recently, however, a consensus has emerged among the social partners on the need for reform. Such a consensus is crucial, given that the prospective further ageing of the population will interact with inefficiencies in the existing system to produce major pressures on the system itself and more broadly on the government's budget. The adverse trends will become more severe after 2005, but this fact should lead analysts and the authorities to seize the opportunity for reform in the period prior to 2005. Without structural reform in the near term, a substantial hike in the tax burden to cover future pension expenditures will become virtually inevitable over the longer run.

Most other developed nations are struggling with demographic pressures and growing burdens on their pension systems and government budgets. The problems in Greece, however, appear to be especially acute. As Greece plans and implements its reforms, it will have the advantage of being able to draw on the experiences and best practices in other countries. Yet, Greece should not wait to adopt needed reforms until other European countries have shown the way. Greece should be, if anything, a leader rather than a follower in this area.

**Labour market and tax reforms**. As noted above, the unemployment rate has been high in Greece; at the end of the 1990s it was higher than in any European Union country except Spain. The high levels of joblessness and relatively slow growth rates of labour productivity have been caused, at least in part, by structural weaknesses and rigidities in the labour market. One sign of these weaknesses and rigidities is that a very large proportion of the labour force remains in small-scale farming and modest-sized family businesses. The share of Greek workers who are self-employed, for example, is the highest in the OECD area.

The legal and regulatory environment in Greece relative to that in the richest industrialised countries appears to be less congenial to formal employment in medium-sized and large firms. For example, sole proprietorships and small family firms are not required to observe (or find it easier not to observe) legal restrictions on conditions of employment. Numerous small firms and family businesses also appear to evade contribution requirements for social insurance (for unemployment, health and retirement pensions). Larger firms thus are at a competitive disadvantage relative to small firms and family businesses in creating employment.

Structural rigidities in the labour market are linked closely with tax-system weaknesses. Compliance with tax laws is noticeably poorer for small and family businesses. Taxation of the self-employed appears to be ineffective relative to the situation in other EU countries. Revenue from personal income tax is also low compared with levels of other countries.

Recent government actions in, and proposals for, the labour market have gone some way towards improving performance. Some efforts have been made to achieve better compliance with tax laws. Even so, stronger tax and labour-market reforms are required. Broadly, policies are needed either to reduce the private costs of creating employment in large, modern-sector firms or to increase the incentives for sole proprietorships and family firms to pay their mandated tax and social insurance contributions. Policies to improve education and job training, facilitating better matching of jobs and skills, would also be desirable. A variety of options exist for tax reform, especially for broadening tax bases and even for lowering tax rates. Choosing among the options for tax and labour market reforms will, of course, be politically difficult. If the Greek government and Greek citizens wish to encourage efficient and robust growth in the economy and reduce unemployment, such structural reforms are essential.

**Structural reforms and improved regulations in product markets**. Similar comments apply to product markets. In the second half of the 1990s Greece succeeded in introducing some structural reforms. The reforms proceeded farthest (partly because they were the easiest to implement) in areas such as telecommunications and air travel. Looking ahead to full participation in the European monetary union, moreover, the government considered further proposals for reform.

At the time this book is published, efforts to achieve structural reforms and improved regulations in product markets appear to have strengthened. Substantial scope for further progress, however, remains in virtually all sectors of the economy. Recent efforts to privatise key publicly-owned companies, for example, need to continue. Further progress on privatisation is desirable for the efficiency gains it brings to the economy. Privatisation also has beneficial

effects on the government's budget; it reduces the costs of subsidising loss-making public enterprises and its proceeds can be used to retire government debt (which in turn reduces interest payments on the debt. Government transfers to public sector enterprises are equal to over 1.5 per cent of GDP).

Further enhancements would be desirable in the regulations and supervisory procedures for ensuring transparency and integrity in accounting practices and for promoting strengthened corporate governance. More progress is needed in reducing the barriers to establishment of new firms. A recent study by EOS Gallup Europe[21] found that Greece is below the EU average in providing a regulatory environment conducive to business activity. According to the study, 42 per cent of the Greek firms surveyed considered the regulatory environment not to be fully adapted to current market realities. Greek firms estimated that they could reduce compliance costs by 15 per cent with better-quality legislation. Greece had the most onerous regime in the EU for starting a small or medium-sized enterprise. Finally, the study found that Greece was considered one of the four most difficult EU members to trade with. A recent EU survey (2001, page 5), however, found that Greece has started making "impressive progress" in implementing EU legislation regarding the Single Market, after being a laggard for quite some time.

The government has cut back by about one fourth the number of required certificates for new businesses and streamlined approval processes through the introduction of "one-stop shops", but further efficiency gains could be achieved through the opening up of sectors where competition may be hindered by unnecessarily restrictive entry regulations, including some professions and some transportation sectors. Another suggestion that has been made is that the Competition Committee should be further strengthened so as to play a more assertive role in championing competitive conditions in Greek product markets.

Greece, no less than other European countries, would like to nurture a robust development of information and communications technologies (ICT), the key components of what is frequently called the "new economy." But further structural reforms in product and labour markets are likely to be necessary conditions for ICT and the new economy to prosper in Greece. In this connection, a study by the European Central Bank (ECB) in 2001 found that, while there is evidence of an increased contribution of ICT to euro area economic growth both in terms of investment and production in the second half of the 1990s, there is —as yet— little evidence of positive

21. The study was commissioned by the European Commission, Internal Market DG.

spillover effects from the use of ICT to overall productivity growth. The ECB study supports the view that structural reforms in euro area economies are crucial in order to reap the full benefits of the new technological possibilities.

**Macroeconomic policies**. External competitiveness and structural reforms, the challenges emphasised so far, will in themselves prove challenging. Making progress on those fronts would be still more daunting —and, unfortunately, less likely— in the absence of a continuation of sound macroeconomic policies for the government's budget and debt.

Prudent macroeconomic policies will be even more essential in the future than in the past. Because monetary conditions in the Greek economy will be determined by a European-wide monetary policy and cannot be differentially shaped to meet Greece's particular needs and problems, it will no longer be possible for stringency in a Greek monetary policy to offset laxness in fiscal policy. Moreover, fiscal policy will be disciplined by the EU's Stability and Growth Pact, which requires that budget balances be in surplus or close to balance over the medium term (Economic Commission, 1999).

As discussed above, during the second half of the 1990s Greece made exceptional progress in its efforts at fiscal consolidation. The fiscal consolidation achieved, however, was based largely on tax revenues, including measures which widened the tax base, and on the associated reductions in interest payments on government debt. Primary government spending continued to creep upward.

For the future, a successful and sustainable fiscal consolidation will need to rely primarily on spending cuts and further progress against tax evasion rather than increases in taxes. The experiences of other countries attempting to consolidate the fiscal situation after a period of excessive weakness — as well as an analysis of the Greek budget itself— suggest strongly that a lasting fiscal adjustment can be obtained only through substantial cuts in primary government spending. Reductions in interest payments on government debt are helpful but should not be relied on to attain consolidation goals.

If it should prove necessary in future years to restrain the government's budget through tax increases rather than spending cuts, it would be preferable from the perspective of fostering robust growth to increase indirect rather than direct taxes. Direct taxes typically have more adverse longer-run effects on investment and growth than indirect taxes.

When growth in primary government spending needs to be held back, government wages and especially transfers are likely to have to bear a major portion of the restraint. Political pressures invariably make such restraint difficult. Without it, however, the chances of maintaining a prudent evolution of the budget are small.

Greek budget expenditures for defence are large. In 1998, for example, Greece allocated 4.8 per cent of its GDP to defence, a proportion very much higher than the EU average. This atypically high figure is, of course, largely attributable to tensions with neighbouring states, especially Turkey. (Turkey, likewise, spends a very high proportion of its GDP on defence — of the order of 3.6 per cent in 1998.) In contrast to most other countries, Greece did not experience a "peace dividend" in the 1990s. On the contrary, the conflicts in the Balkans and the eastern Mediterranean area necessitated increased vigilance and, therefore, larger defence expenditures. It would be highly beneficial for the government's budget and for growth in the Greek economy if the large burden of defence expenditures could somehow be eased. Self-evidently, reductions in defence expenditures in relation to the economy will depend on achieving more peaceful relations with neighbouring states. The subject of Greece's security and diplomatic relations is outside the scope of this book. Yet, as economists, we would be remiss if we failed to observe that a successful easing of tensions in the Balkans and the eastern Mediterranean area could free large amounts of resources in Greece and the neighbouring states for economically productive purposes.

**Prudential supervision and regulation of financial institutions**. A final challenge for the future deserves identification. In the new environment of Greek participation in the European monetary union, the Bank of Greece itself is experiencing major changes in its responsibilities. It is an integral participant in the decision-making of the European Central Bank with regard to euro area general monetary policy.

As one looks ahead, the prudential oversight of Greece's financial system, in particular the supervision and regulation of banks and other financial intermediaries, will become a relatively more dominant part of the Bank of Greece's responsibilities. Additionally, the provision of banking and financial services through the Internet, as well as the oversight of payment systems and e-money credit institutions, will bring new challenges for the supervisory authorities. A strengthening of prudential supervision in all European countries seems necessary for financial stability in a European financial environment that is becoming ever more strongly competitive. The Bank of Greece moved in 1992 to tighten Greek supervisory arrangements as Law 2076/1992 was adopted to enact the provisions of the European Union's Second Banking Directive. Other measures were taken later in the 1990s, such as a series of measures to improve the quality of banks' credit portfolios, as well as changes in the credit culture, the legal framework, disclosure requirements and the power of the supervisory authorities (Bank of Greece) to implement the measures.

The challenge facing the Bank of Greece and indirectly all Greek financial institutions is to continue to improve prudential supervision in the Europe-wide context of increased financial liberalisation and financial integration. Credit risk, market risk, systems of risk management and internal control, accounting standards, evaluation of capital adequacy, especially the challenges set by the new Basle Accord, and the role of foreign financial institutions in the restructuring of the Greek financial system are challenges which the Bank of Greece should address, so that the relevant benefits are fully realised.

## The Papers in This Volume

The eleven papers that follow this introduction, together with comments of discussants, examine in greater detail the developments and issues identified above. Parts of their analyses are backward looking, evaluating Greece's experience with economic adjustment and reform and its efforts to achieve convergence within the euro area. Other parts look forward to the key challenges facing the Greek economy in the years ahead.

Disinflation commenced in most industrial countries in the early 1980s following the two oil price shocks of the 1970s. As discussed above, however, inflation in Greece persisted at high levels through the early 1990s, before falling sharply thereafter. In the first paper, Nicholas C. Garganas and George S. Tavlas focus closely on Greece's inflation performance. Michael Artis provides comments on their paper.

Garganas and Tavlas investigate the principal causes of Greek inflation, its effects on economic activity, and the policies needed to achieve low inflation. Based on inflation experiences, the authors separate the period 1975-2000 into two sub-periods of different monetary regimes and a transition period between them. The first regime encompasses the period 1975-90, when annual inflation persisted in the vicinity of 20 per cent. During this period, monetary targets were frequently exceeded because of the need to finance large fiscal deficits, the difficulty of controlling monetary aggregates in a regulated financial system (which often featured negative real interest rates), and money-demand instability. A wage indexation system served as a propagation mechanism through which an initial inflationary impulse could affect wage outcomes, helping to lock in higher rates of price increases.

Statistical tests performed by Garganas and Tavlas confirm that a significant break in the inflation data occurred in the first half of the 1990s, as disinflation began. Accordingly, the authors characterise the years 1991-94 as a transition period. Inflation came down to around 11 per cent, as incomes policy was tight-

ened. Still, large fiscal deficits continued to undermine the effectiveness of monetary policy, contributing to high real interest rates and sluggish growth, while the inflation process displayed inertia at the end of the period.

According to Garganas and Tavlas, the second regime runs from 1995 to the present. Inflation has decelerated sharply to the low single digits, while economic growth has accelerated. Garganas and Tavlas credit this recent performance to the critical role of increased policy credibility, which the authors attribute to a change in policy regime, as the Bank of Greece adopted an explicit exchange rate target in 1995 and the exchange rate was used as a nominal anchor. Important factors reinforcing the credibility of exchange rate policy were: sustained and substantial fiscal adjustment, wage restraint, legislation providing independence to the Bank of Greece, and the entry of the drachma into the European Exchange Rate Mechanism (ERM). Additionally, the authors argue that monetary policy actions were more effective during the second regime than during the first one, because monetary policy was conducted in a deregulated financial system. The authors show how the Bank of Greece, confronted with the challenge of large capital inflows, responded with sterilisation measures, thereby limiting the appreciation of the nominal exchange rate and curbing the monetary effects of the inflows.

Garganas and Tavlas also examine the factors underlying the drachma's orderly devaluation of March 1998. Among these factors were policy credibility, including the Bank's prior move to make low inflation its main objective, effective prudential supervision, which limited the exposure of banks to foreign currency risk, the combined backward and forward nature of the devaluation, which took account of both past and prospective inflation differentials, and the wide ERM bands, which permitted the Bank to maintain its tight policy stance in the period prior to euro area entry.

Large and growing fiscal deficits were, as stressed above, a main factor underlying the difficulty of controlling monetary growth during the period from the mid-1970s through the early 1990s. The paper by Vassilios Manessiotis and Robert D. Reischauer examines the factors contributing to the profligate fiscal stance. Discussion of the paper is provided by Vito Tanzi.

Manessiotis and Reischauer document that fiscal discipline began to erode during 1975-80, as revenue growth fell short of the growth in general government expenditures (characterised especially by expanding defence spending, public sector wage increases and a general increase in public sector activities). Beginning in the second half of the 1970s and the early 1980s, the fiscal deficits widened significantly, averaging 12 per cent of GDP between 1981 and 1994. During this period, a pronounced political cycle emerged, contributing to substantial increases in spending in a number of areas, includ-

ing pensions, public sector wages, employment in the public sector, and funds for ailing private and public enterprises. General government debt grew from below 30 per cent of GDP to over 110 per cent of GDP and net public sector interest payments grew from about 1 per cent of GDP to a peak of about 14 per cent of GDP. The authors point out that, except for the two-year stabilisation programme introduced in October 1985, there were no explicit fiscal targets through the late 1980s.

Manessiotis and Reischauer note that some efforts were made in the early 1990s to control public sector spending and the fiscal deficits, but these efforts were neither maintained nor successful because of the political cycle. Sustained and significant fiscal consolidation began in earnest in 1994, however, as Greece strove to satisfy the Maastricht fiscal criteria. The authors provide data showing that fiscal adjustment was achieved mainly through revenue increases, including a widening of the tax base and a more efficient tax collection system, as well as a decline in interest payments relative to GDP (especially in the later part of the period) because of reduced interest rates. Reductions in primary government spending, however, did not contribute to the fiscal consolidation.

The authors argue that, although Greece successfully met the Maastricht criteria and qualified for European monetary union, Greece's high tax structure compared to those of other euro area economies may impede its competitiveness inside the euro area. Effective control of future primary spending will therefore be required in order to alter the composition and ensure the sustainability of the fiscal adjustment. According to Manessiotis and Reischauer, such control will better enable fiscal policy to tackle the major remaining problems related to the social security system and the large public debt.

The paper by Barry Bosworth and Tryphon Kollintzas examines the past growth performance of the Greek economy and the outlook for future growth in light of the macroeconomic stabilisation achieved over the last half of the 1990s and in 2000, and Greece's entry into the euro area. Comments are provided by John F. Helliwell and by George Tavlas and Nicholas Zonzilos.

Bosworth and Kollintzas characterise the growth performance of the Greek economy as "very disappointing" over the period from 1973 to 1995. They develop a set of growth accounts that attributes part of the disappointing performance to a fall-off in capital formation. The most significant factor, however, was a sharp deterioration in total factor productivity. The authors attribute this deterioration in productivity growth partly to overly accommodative macroeconomic policies. High rates of wage inflation led to a squeeze of profit margins and a weakening of investment incentives. The authors also believe that the Greek economy underperformed in other dimensions, for example because of a lack of competitiveness in its tradeable goods

sectors and structural rigidities in its labour market. These factors, the authors argue, imparted a reputation to Greece as a relatively unattractive market for foreign capital. With regard to the trade sector, the authors argue that Greece did not follow the approach of some other European Union countries in using trade policy as an active part of its growth strategy.

Bosworth and Kollintzas point out that, over the last half of the 1990s, Greece undertook a successful programme to restore fiscal and monetary stability, allowing the country to qualify for admission to the European monetary union and leading to a substantial acceleration of economic growth. According to the authors, Greece's recent growth rates appear to be sustainable and consistent with current rates of capital accumulation.

Given that Greece has achieved macroeconomic stability, Bosworth and Kollintzas believe that the next step for Greece is to attain an accelerated path of growth to promote the catch-up of Greek *per capita* GDP with that of the rest of the European Union, following perhaps the experience of Ireland. In these authors' view, however, Greece has yet to develop an effective strategy to achieve a further acceleration of growth. The authors argue that the country does not possess a strong export sector, comparable to that of Ireland, which could propel growth. They say that, without further structural reforms, Greece may continue to be an unattractive destination for foreign direct investment. They express concern that domestic rates of saving will be insufficient to finance higher rates of capital investment. The authors conclude that Greece needs to quicken the pace of reform of domestic economic institutions to promote innovation and entrepreneurship.

The wage-price mechanism has been a significant factor underlying inflation in Greece. In their paper, Stephen G. Hall and Nicholas Zonzilos analyse the operation of this mechanism in the context of the transformation in wage and price behaviour that has taken place over the past 25 years. Comments on the paper are by Peter Pauly.

Hall and Zonzilos draw on recent developments in the identification of cointegrated systems in small samples to build a data-coherent model of wage, domestic price, exchange rate, and import price behaviour. Underlying this system are three identified structural cointegrating relationships for wage formation, price formation and import price/exchange rate determination. The complete, identified system is estimated as a whole using full information maximum likelihood techniques.

The authors' results suggest that the recent sharp fall in inflation can be attributed to three policy-related factors. First, wage restraint associated with the two-year Stabilisation Programme introduced in October 1985 caused a permanent slowdown in real wage increases relative to their previous trend

rate of increase. Second, the 1990s saw a general increase in unemployment, which caused a reduction in wage-inflation pressure. Finally, the "hard-drachma" policy pursued from the mid-1990s meant that the exchange rate had a strong stabilising effect on inflation.

The empirical results derived by Hall and Zonzilos suggest that the most important of these effects was the reduction in real wages relative to their trend value, occurring during the stabilisation programme and the structural reforms which took place at that time. The authors argue that the "hard-drachma" policy appears to have modified wage behaviour so that it reinforced the disinflationary dynamics. Because that policy is of much more recent vintage than the stabilisation programme, the full effects of the hard-drachma policy are still working their way through the system. A key property of the authors' estimated system is that the unit root in inflation means that effects can build up over a long period to become very powerful. Once inflation has begun, therefore, it is difficult to stop. An implication of the authors' findings is that the success of the hard-drachma policy in bringing down inflation rapidly is attributable to the credibility of that policy.

The monetary transmission mechanism consists of the various channels through which monetary policy actions are transmitted into changes in real GDP and inflation. Knowledge of the operation of the transmission allows more informed judgements to be made about the timing and extent of changes in the stance of monetary policy which might be needed to keep inflation in check than are possible in the absence of this knowledge. The paper by Sophocles N. Brissimis, Nicholas S. Magginas, George T. Simigiannis and George S. Tavlas examines the operation of the monetary transmission mechanism in Greece. Comments on the paper are provided by Frank Smets and by Lawrence Klein.

The authors examine the main channels through which monetary policy operates. Those channels include the cost-of-capital channel, the exchange-rate channel, wealth effects of monetary policy and credit channels caused by asymmetric information. The authors point out that, in a small, open economy, the identification of a monetary policy impulse that sets in motion the transmission mechanism is not always clear-cut. In the case of Greece, large capital inflows during the 1990s and their occasional, but sharp reversals complicated the implementation and identification of monetary policy actions. The authors provide some specific examples of the reactions of the Bank of Greece to capital flows.

Brissimis, Magginas, Simigiannis and Tavlas use vector autoregressive (VAR) methodology to identify monetary policy shocks as innovations in the equation for the short-term interest rate, which is represented in their

model by the 3-month Treasury bill rate. The authors find that a shock to the interest rate produces a significant, but short-lived, effect on real GDP. An appreciation of the exchange rate causes the price level to fall; the appreciation does not, however, have a significant effect on output. The authors argue that this finding supports the notion that the use of the exchange rate as a nominal anchor by the Bank of Greece was viewed as credible in the markets so that an appreciation of the exchange rate reduced prices, but not real growth. The authors also find that there is some evidence of a wealth channel and a credit channel. When compared with the results of other studies, the authors' results suggest that monetary innovations have a faster effect on real output and prices in the Greek economy than in other European Union economies.

The next paper in the volume, by John Spraos, discusses the large transfers that Greece has received from European Community institutions since its accession to the European Economic Communities in the early 1980s. His analysis focuses on how these inward transfers affected the drachma's real exchange rate. Apostolis Philippopoulos discusses the paper.

Spraos performs his analysis in four steps. The first step involves calculating the change in the real exchange rate over relevant periods of analytical interest. The index he chooses to measure this change is the CPI-deflated real exchange rate. Because only two years of data were available following the March 1998 devaluation of the drachma, the author uses two-year averages for both his starting and ending points. The author's second step is to adjust the measured change in the real exchange rate during the relevant periods so that the end-of-period rate is consistent with the authorities' intended fundamental equilibrium exchange rate. The third step consists of making the initial and final observations compatible by adjusting for any major accidental distortions which could affect the current account balance. The fourth step involves identifying and accounting for the "other things" which may not have stayed equal between the two end-points.

Spraos finds that the real effective exchange rate does not show a significant difference between the immediate pre-transfers period and the most recent period, after ironing out incomparabilities by reference to a simple fundamental equilibrium exchange rate. In the interim years, however, the other things that did not stay equal are assessed as having pushed towards real depreciation. That such a real depreciation did not occur is consistent with the inward transfers from the European Union exerting an influence towards real appreciation. Thus, Spraos concludes that Greece received a double gain from the transfers: directly from the resources transferred and indirectly from the appreciation of the real exchange rate. The author notes,

however, that judgments about the longer-run value of the EU transfers for the Greek economy will depend upon the way Greece adjusts to the challenge of the eventual winding down of these transfers.

As noted above, Greece has long experienced current account deficits, indicating a shortfall of domestic saving relative to domestic investment. Despite the current account deficits, the Greek authorities found it necessary to devalue the drachma on only four occasions in the second half of the 20th century (in 1953, 1983, 1985 and 1998). Nicholas Tsaveas contributes a paper to the volume that assesses the evolution of Greece's balance of payments and competitive position since the mid-1970s.

Tsaveas shows that trade in services plays a very important role for Greece's external sector. The services sector comprises more than half of Greece's exports of goods and services, which is more than double the ratio for most countries. Tourism receipts are the main component of Greece's services exports. The author finds that Greece has maintained competitiveness over the years as a tourist destination.

Tsaveas documents that, following Greece's accession to the European Communities in 1981, there was an upward trend in the share of Greece's exports directed to its EC (subsequently, European Union) trading partners. Since 1994, however, this share has declined to pre-accession levels, while the share of exports to the countries of Central and Eastern Europe has increased. The author attributes this shift in export shares in part to differential trade liberalisations. In the 15 years following accession to the EC, Greece became a less open economy (in terms of the ratio of exports and imports of both goods and services to GDP). As Tsaveas shows, however, the economy has become more open in recent years. Regarding competitiveness, Tsaveas concludes that the recent levels of current account deficits appear to be sustainable. Nevertheless, he suggests, those levels are high enough to warrant policy actions aimed at improvements in the supply side of the Greek economy.

The complex Greek pension system, incrementally enacted over the last half-century, has succeeded in limiting social exclusion. This function of the pension system will continue to be needed in the future. However, the challenges facing the system in the future —identified briefly above— appear formidable. Efforts since 1992 to reform the pension system have been only modestly successful despite the widespread knowledge that population ageing, projected to accelerate sharply after 2005, is certain to threaten the sustainability of existing pension arrangements. Against this backdrop, the paper by Axel Börsch-Supan and Platon Tinios describes the Greek pension system, analyses its strengths and weaknesses and suggests a framework for reform. Discussion of the paper is provided by E. Philip Davis.

Börsch-Supan and Tinios argue that the Greek pension system is representative of the "Mediterranean Welfare State." They perceive the complex of pension arrangements as extremely fragmented and characterised by "islands of privilege in a sea of insufficient provision." The longevity of the existing arrangements in the face of obvious inefficiencies may be explained if it is understood as an effective second-best response to real problems faced by Greek society in the 1950s and 1960s.

The authors find that reform is urgently needed, not only for financial viability considerations, but also for wider reasons, both social and economic. They also emphasise that the Greek pension system has a window of opportunity for reform that lasts only until about 2005, at which point demographic trends will become much less favourable. Börsch-Supan and Tinios present reform alternatives in detail, ranging from parametric reform of the existing pay-as-you-go (PAYG) system to a partially funded, mixed system. The authors do not believe that a fully funded pension system would be feasible and advisable for Greece. However, Börsch-Supan and Tinios emphasise that a continuation of the current system is not a feasible policy either. They argue that reforms moving towards a mixed system, by changing the system's architecture, can be made a win-win game for public policy. According to the authors, because of the growth-enhancing effects of such a reform, it is not, as is often claimed, a zero-sum game across generations.

The structure and institutions of the Greek labour market and their impact on economic performance are the subject of the paper by Gary Burtless. Plutarchos Sakellaris discusses the paper. After an introductory overview, Burtless explains the system of social and legal protection defining employer responsibilities towards workers in the formal sector and describes the systems of collective bargaining, employment protection and social insurance. His empirical analysis provides data on trends in, and the structure of, the Greek labour market, for example trends in the job-holding rates of different classes of potential workers. Burtless compares Greek labour market trends with corresponding trends elsewhere in southern Europe and in the United States. He also analyses the reasons for the slow growth in output *per capita* in Greece relative to the growth rates in other industrialised countries.

Burtless notes that, when the Greek system of employment and social protection was introduced, a large percentage of the Greek workforce was employed in small-scale farming and in modest family businesses. He then stresses that a striking feature of today's labour market in Greece is that a large fraction of workers continues to be employed in small-scale farming and in modest family businesses. This feature sharply differentiates Greece

from other European Union member countries. The author argues that an important reason for this unusual structure of the Greek labour market is that Greece maintains a legal and regulatory environment unfriendly to the creation of wage and salary employment.

Government-enforced hurdles to the creation of wage and salary employment would not represent a problem, Burtless argues, if the alternatives to this kind of employment relationship were equally efficient. But in many industries this is apparently not the case. Burtless argues that sole proprietorships and family businesses are rarely able to take advantage of economies of scale in production. He cites a range of empirical evidence suggesting that small firms pay lower wages and produce less output per hour of labour input. The experience of the richest industrialised countries shows that larger firm size is closely associated with increases in productivity. Big firms have greater scope for worker specialisation, better access to capital financing and more resources to invest in research, development and worker training.

Burtless observes, as mentioned already above, that sole proprietorships and family firms enjoy one big advantage over larger companies in Greece. They do not need to observe the legal restrictions that regulate workers' wages, hours, vacation and sickness compensation, separation allowances and dismissals. Furthermore, they are more likely than large firms to evade taxes and contribution requirements for social insurance. Burtless concludes that, as long as the cost savings from these advantages remain important, smaller Greek firms will continue to prosper even though they tend to be less efficient producers than large firms.

Several papers in the volume emphasise that Greece's entry into the European monetary union heightens the need for structural reforms that enhance productivity and raise Greek *per capita* GDP to the levels of Greece's partner countries. The paper by Paul Mylonas and George Papaconstantinou contributes to this theme, focusing on reforms for product markets. Leonard Waverman discusses the paper.

Mylonas and Papaconstantinou observe that, although it is difficult to pinpoint empirically the policies that will improve productivity, it is generally agreed that they include those that will make product markets function more efficiently. The immediate benefits from product market reform are a more efficient use of resources and a higher quality of products and services and lower prices for the consumer. The authors report that Greece is near the bottom of the list of OECD countries with respect to productivity in the largest sectors. In Greece, these sectors are, for the most part, dominated by public enterprises. The overall influence of such enterprises on productivity

is large as they provide key inputs to the economy in such areas as telecommunications, energy and transport. Greek public enterprises have performed poorly in terms of productivity and have consistently required financial support, mainly because of high operating costs. The authors attribute this situation to high labour costs and the fact that most public enterprises have not updated their technologies or maintained their infrastructure and equipment.

Mylonas and Papaconstantinou discuss the reform efforts currently being attempted and note that they should benefit from the experience of countries that have already undertaken reforms. Most reforming countries, according to the authors, have aimed at creating more competitive environments to ensure the efficient operation of public enterprises. International experience indicates that it is not easy to introduce a suitably contestable environment, with easy entry and exit for potential competitors. In the case of Greece, its relatively isolated geographical location, which acts to reduce potential competition from imports, complicates the situation. Mistakes have been made most frequently, argue the authors, in designing contestable markets in sectors containing elements of natural monopoly (e.g. electricity, natural gas, water, rail service and, to a lesser extent, telecommunications) where Greece is facing institutional changes. The authors stress that the most common regulatory flaws have involved inadequate third-party access conditions to networks (especially access charges), failures to reduce the market power of incumbents and failures to properly deal with such issues as public service obligations and sunk costs. A difficult question to analyse is whether a separation of the non-competitive segment of the industry from the competitive component will enhance the level of competition and the quality of regulation. In the case of Greece, where liberalisation has, thus far, left the incumbents in the electricity, natural gas and telecommunications sectors as vertically integrated firms, another option is the development of the role of independent competition agencies with economy-wide competencies, as well as sector regulators.

Mylonas and Papaconstantinou also assess measures necessary to promote competition and entrepreneurship in the rapidly growing private sector. The authors point out that, similar to the situations in markets dominated by public enterprises, a level playing field is a necessary condition to foster competition. In the case of Greece, weaknesses exist in the framework conditions relating to entry and exit issues, such as licensing requirements and insolvency, as well as financing issues and operation of the legal framework. The authors believe that the government can and should help promote a more dynamic private sector by eliminating obstacles to competition.

The final paper in the volume, focusing on Greek banking and financial-market issues, is by Barry Eichengreen and Heather D. Gibson. Their paper is followed by a comment by W. Max Corden, giving some thoughts on Greece joining the European monetary union.

Eichengreen and Gibson point out that Greek banking is being reshaped by three powerful forces: catch-up (with trends in banking in the rest of the European Union), competition and privatisation. As Greek *per capita* incomes and economic development continue to converge with those in the rest of the European Union, the level of banking services will also continue to converge. Typically, a rapidly growing market creates favourable prospects for profitability. Eichengreen and Gibson argue, however, that, in the case of Greek banking, such prospects need not follow, because competition is intensifying as the market grows. European integration will further intensify competition. The authors note that the Single European Act and the First and Second Banking Directives have made it easier for banks from other European Union countries to operate in Greece, resulting in new entrants and increased competition in all segments of the market. Competition will also come from the deregulated financial markets. With the growth of securities exchanges and derivative financial instruments, corporate and other clients will be able to choose among alternative sources of finance. Individuals, once forced to park their savings in deposit accounts, will be able to choose among a variety of financial instruments.

Eichengreen and Gibson assess the impact of these trends. They analyse the determinants of bank profitability using a panel of data for Greek banks. The authors' analysis takes account of both bank-specific effects that control for possible proprietary advantages and time-fixed effects that control for aggregate factors such as the business cycle. Their results indicate that profitability is a non-linear function of bank size. The implication is that smaller Greek banks will reap scale and scope economies and raise profits if they grow larger. Some of the larger banks, however, have already exhausted their scale economies and will need to downsize in order to reduce per unit costs. While there is some evidence that banks which engage in more progressive asset management practices, such as off-balance-sheet business, are more profitable, there is no indication that increasing loans enhances profitability. The authors find only a weak relationship between market concentration and profitability.

Looking to the future, Eichengreen and Gibson argue that the most revolutionary transformation will follow from the privatisation of Greece's publicly-owned banks. Publicly-owned banks face softer budget constraints than their private counterparts because the management of the former is protected from hostile takeovers. Also, their loan portfolios, staffing and tech-

nical efficiency differ from those of private banks. Thus Eichengreen and Gibson argue that privatisation, together with the other trends they identify, will alter the structure of Greek banking. The authors conclude that the challenge for policy makers will be to ensure that this transformation in financial structure is completed without jeopardising financial stability.

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# 1 Monetary Regimes and Inflation Performance: The Case of Greece

Nicholas C. Garganas and George S. Tavlas

A SALIENT feature of the Greek economy since the mid-1970s has been the rise, persistence and, subsequent, sharp fall in inflation. The past quarter century has witnessed three major inflation peaks, in 1979-80, 1985-86, and again in 1990. In each instance, inflation rose to at least 20 per cent. As was the case for other industrial countries, the peak of 1979-80 was partly due to steep increases in primary commodity prices, particularly that of oil, and the peak of 1990 was caused in part by a temporary rise in oil prices. The peak of 1985-86, however, was, among industrial countries, peculiar to Greece. Indeed, throughout the period encompassing the mid-1970s through the mid-1990s, inflation in Greece was well above inflation in the other industrial countries. While disinflation commenced in most industrial countries in the early 1980s, inflation in Greece persisted at high levels through the early 1990s (Figure 1-1a).

From Greece's experience over the past twenty five years, what are the principal lessons about inflation's causes, its effects on economic activity, and the policies needed to achieve low inflation? These are some of the issues explored in this paper. In order to make the following presentation more manageable, we separate the past twenty five years into two broad monetary regimes and a transition period. The two regimes and the transition period each correspond to a particular inflation experience.

(1) The first regime covers the period 1975-90. Except for the beginning of the period and a two-year stabilisation programme introduced at the end of 1985, inflation persisted in the vicinity of 20 per cent. The ability of mon-

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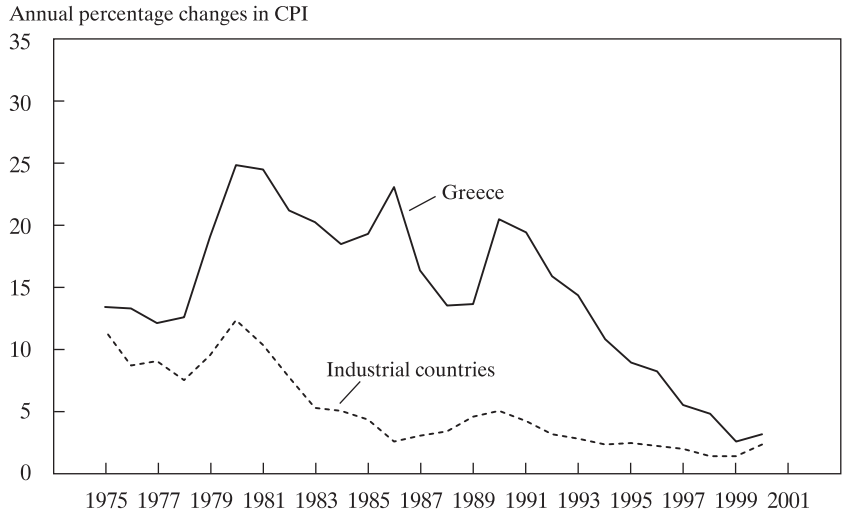
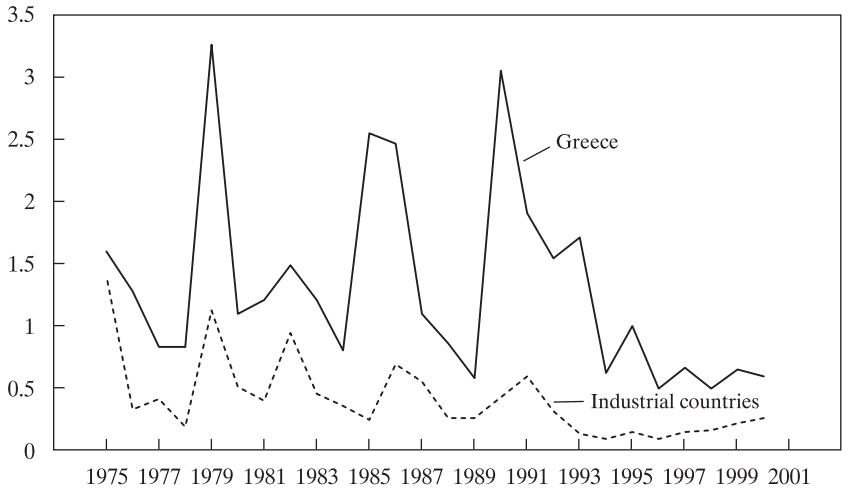
**Figure 1-1a. Greece and Industrial Countries: Inflation 1975 - 2000**




SOURCE: National Statistical Service of Greece and International Monetary Fund.

**Figure 1-1b. Greece and Industrial Countries: Inflation Volatility as Measured by the Standard Deviation of the CPI**




SOURCE: Calculations based on data compiled by the National Statistical Service of Greece and the International Monetary Fund.

etary policy to reduce inflation appeared to be limited, while the overall performance of the economy was less than successful.

(2) The transition period comprises the years 1991-94. The period marks a transition from high inflation (around 20 per cent) to a more moderate inflation rate (around 11 per cent), while real economic growth was sluggish. During this period, the effectiveness of monetary policy gradually increased in light of continued financial deregulation. In 1994, monetary policy was tightened. This tightened policy stance was maintained in subsequent years and was pivotal for the disinflation of the mid-1990s.

(3) The second regime runs from 1995 to the present. While the experiences of other countries have shown that it is typically easier to disinflate from high (above 20 per cent) inflation rates to moderate inflation rates (between 10 and 20 per cent) than to reach the territory of single-digit annual inflation rates (IMF, 1996, p. 113), in the case of Greece disinflation to very low levels was achieved within a few years while economic growth accelerated. This recent performance is largely attributable to the adoption of a nominal exchange rate anchor as the main intermediate target for monetary policy, a significant tightening of fiscal policy, and the implementation of a number of institutional measures which increased policy effectiveness and credibility.

The remainder of this paper examines each of these regimes and the transition period in turn. Briefly to anticipate, several key policy lessons emerge from Greece's experience. First, it is important to limit the monetary accommodation of adverse supply shocks, since the inflation that is permitted tends to get built into inflation expectations, to become persistent, and to raise the cost of subsequent disinflation (IMF, 1996). Second, a nominal exchange rate anchor can provide an important mechanism for disinflation if supported by (1) institutional arrangements that enhance the effectiveness of monetary policy and (2) tightened fiscal and incomes policies. Third, increased capital mobility brings new opportunities, but also new challenges. We show how capital inflows to Greece in the mid- and late 1990s complicated the conduct of monetary policy, and we describe the policy reactions of the Greek authorities to this new reality.

## First Regime: 1975-90

### *Background*

The advent of floating exchange rates among the major currencies in 1973 provided countries with some freedom to respond to adverse supply shocks with different degrees of monetary accommodation. When the first oil price

shock hit in 1973-74, many governments sought to offset its adverse output and employment effects with accommodative monetary policies (IMF, 1996). The quadrupling of oil prices was followed by sharp increases in inflation in industrial (and other) countries along with severe contractions in economic activity.[1]

In Greece, inflation shot up from single digit levels prior to the 1973-74 oil price hike to over 20 per cent in the immediate aftermath of the shock. Inflation subsequently subsided, but still remained around 12 per cent in the period leading up to the oil price shock of 1978-79 (Figure 1-1a). As was the case in other countries in which the monetary authorities failed to adequately counter inflation in the first half of the 1970s, Greece was left not only with a high inflation rate, but also with a ratcheting up of expectations of future inflation that made the country more vulnerable to the impact of the second oil price shock than countries where the containment of inflation had been given a higher priority.

Faced with unacceptable rates of inflation following the second oil price shock, most industrial countries realised that bringing inflation down was crucial for achieving broader economic goals. Beginning in the late 1970s and the early 1980s, strong and widespread efforts were made to attain reasonable price stability (Hutchison, 1991; IMF, 1996). Economic policies were reoriented toward medium-term objectives, with monetary policy playing a pivotal role in the disinflation strategy. By the early 1980s, inflation in most industrial countries had fallen to single digit levels and remained there for the rest of the 1980s and the 1990s (Figure 1-1a).

In Greece, efforts to disinflate were, by and large, unsuccessful in the late 1970s and throughout the following decade. Why was monetary policy less successful in Greece in restoring reasonable price stability than in most other industrial countries? To answer this question, in what follows we describe the key features of the financial environment and the constraints placed on the operation of monetary policy.

## *The Financial System*

In common with the financial systems in many other countries at the time, the Greek financial system of the 1970s and early 1980s was highly regulated.[2]

1. The impact on inflation of the oil price shock varied among countries, depending, in part, on the policy response. For example, although inflation surged in Germany and Switzerland, it was better contained in these countries than in other industrial countries (Hutchison, 1991).

2. Detailed discussions of the earlier Greek financial system are provided in Papademos (1992) and Garganas (1994), upon which the discussion in this paper draws.

The aims of the general system of controls were to lower the costs of financing the public sector, provide incentives to preferred sectors of the economy, such as agriculture, and discourage some activities, including consumer credit. The key features of the system included the following.

(1) The banking system was highly concentrated. In 1985, for example, the three largest financial institutions accounted for 64 per cent of total private deposits and 63 per cent of loans to the private sector. Eight (out of thirty-three) commercial banks, including the three largest, were publicly controlled.

(2) The banking system was subject to extensive controls and regulations. Interest rates on all categories of bank deposits and loans were set administratively. The allocation of financial resources through the banking system was determined according to a complex set of rules and regulations. These included general portfolio allocation requirements on commercial banks to earmark specific fractions of their deposits for the financing of the public sector and small and medium-sized firms, and for long-term loans to industry. In 1985, these requirements, plus a primary reserve requirement of 7 per cent on total deposits, restricted the allocation of 78 per cent of commercial bank deposits. Moreover, the quantity and terms of commercial bank lending to selected sectors or industries came under credit controls and regulations aimed at subsidising certain sectors. The overall credit expansion of specialised credit institutions was subject to quantitative ceilings, while some of these institutions operated under special regulations and were heavily dependent on central bank funds.

(3) The capital market was narrow and thin. There was no nonbank money market. Public sector deficits were financed exclusively through the banking system and foreign borrowing.

(4) Foreign exchange transactions were tightly regulated. As a rule, long-term and short-term international capital transactions by Greek residents were prohibited.

As is typically the case in repressed financial systems (Llewellyn and Holmes, 1992), a number of problems emerged. First, the pervasive restrictions limited the effectiveness of monetary policy (see below). Second, competition within the banking system was blunted, impairing its efficiency. Third, some controls, such as those on capital account transactions, tended to be circumvented and, to that extent, had only limited power. Fourth, as the controls were not applied universally and equally to all lending institutions, they caused serious distortions. Fifth, the maintenance of artificially low real rates of interest discouraged savings in financial assets and reduced the efficiency of investment.

### *Institutional Setting*

The government played a key role in setting the objectives of monetary policy, especially in the early part of the first regime. Prior to 1982, the government exerted its influence directly, through what was called the Currency Committee. This Committee, comprised of five Ministers and the Governor of the Bank of Greece, decided on monetary policies and targets, and frequently on detailed matters related to banking, foreign exchange, and the balance of payments. The Currency Committee was abolished in 1982, but the government continued to set the broad outlines of monetary and exchange rate policies.

The behaviour of wages was a crucial determinant of the inflation outcomes of the second half of the 1970s and the 1980s. During the period 1975-81, weekly earnings of blue-collar workers in manufacturing rose by an average of 22.7 per cent (Table 1-1). In 1982, the government introduced an automatic wage indexation system (ATA), under which low wages were fully indexed to past inflation at four-month intervals, while average and high wages were partially indexed.[3] As shown in Table 1-1, the average annual ATA adjustment during 1983-90 was 15.6 per cent. Excluding the two years 1986 and 1987, during which a temporary stabilisation programme had been enacted (see below), the average ATA adjustment was 17.3 per cent; over these same years (i.e. excluding 1986 and 1987), weekly earnings in manufacturing rose by an average of 23.1 per cent. The indexation system served as a propagation mechanism through which an initial inflationary impulse could affect wage outcomes, helping to lock in higher rates of inflation.

### *Welfare Costs of Inflationary Finance*

As Corbo and Fischer (1994, p. 62) have noted, the arguments for seeking to reduce inflation are conceptually clear, even if they are difficult to quantify.[4] Inflation imposes significant economic and social costs. By distorting relative price signals, generating uncertainty about future inflation, and generally reducing the information provided by the price system, inflation impedes the allocation of resources and adversely affects economic effi-

3. In 1986, the system was changed to one under which wages were adjusted every four months in line with the government's inflation forecasts. For a detailed discussion of the ATA, see Burtless (2001).

4. Empirical evidence shows consistently that inflation is negatively correlated with growth. See, for example, Fischer (1993) and Barro (1995).

**Table 1-1. Weekly Earnings and Unit Labour Costs**
Annual percentage change

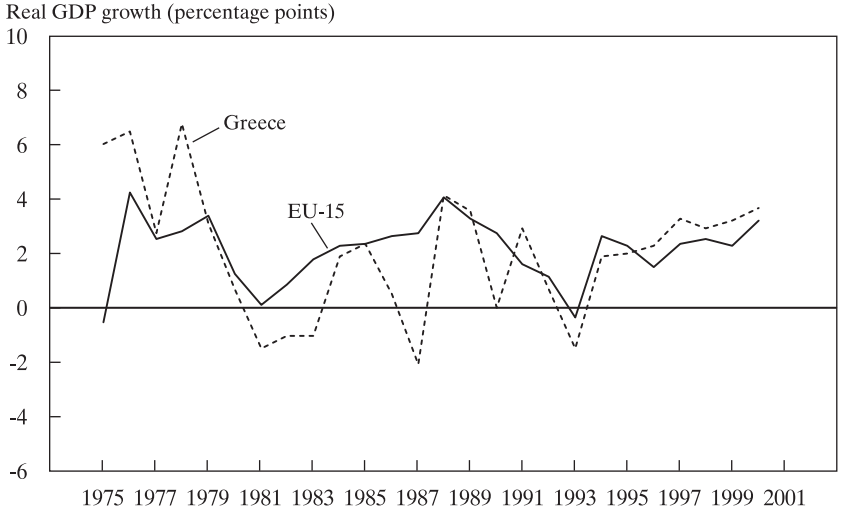
| Year | *ATA wage adjustment*[a] | *Weekly earnings of blue-collar workers in manufacturing* | | *Unit labour costs in manufacturing (including employers' contributions)* |
|---|---|---|---|---|
| | | *Nominal* | *Real* | |
| 1975 | ... | 21.4 | 6.9 | 17.2 |
| 1976 | ... | 26.0 | 11.5 | 20.9 |
| 1977 | ... | 18.7 | 5.6 | 22.5 |
| 1978 | ... | 24.2 | 10.3 | 18.9 |
| 1979 | ... | 20.4 | 1.3 | 16.6 |
| 1980 | ... | 25.5 | 0.6 | 25.9 |
| 1981 | ... | 22.8 | -0.6 | 24.0 |
| 1982 | 9.4 (45.9)[b] | 30.3 | 7.7 | 33.4 |
| 1983 | 19.9 | 19.2 | -0.8 | 19.5 |
| 1984 | 19.0 | 25.3 | 5.7 | 24.0 |
| 1985 | 17.8 | 23.1 | 3.2 | 18.8 |
| 1986 | 10.8 | 12.5 | -8.5 | 13.3 |
| 1987 | 9.9 | 9.8 | -5.7 | 10.6 |
| 1988 | 17.3 | 24.0 | 9.3 | 19.2 |
| 1989 | 16.4 | 20.7 | 6.2 | 18.3 |
| 1990 | 13.3 | 19.3 | -0.9 | 21.2 |
| 1991 | ...[c] | 16.7 | -2.3 | 11.5 |
| 1992 | ... | 13.7 | -1.9 | 10.0 |
| 1993 | ... | 10.5 | -3.4 | 10.1 |
| 1994 | ... | 13.2 | 2.1 | 8.7 |
| 1995 | ... | 13.3 | 4.0 | 11.3 |
| 1996 | ... | 8.8 | 0.6 | 7.7 |
| 1997 | ... | 8.8 | 3.1 | 4.4 |
| 1998 | ... | 4.6 | -0.2 | 0.2 |
| 1999[d] | ... | 4.4 | 1.8 | 2.5 |

SOURCE: National Statistical Service of Greece.
a. Increase through the year in basic wage rates (applying to low-paid workers) in line with the ATA (automatic indexation adjustment) based on past inflation up to 1985 and targeted inflation since then.
b. Includes lump-sum increases at the beginning of the year.
c. The ATA was abolished in 1991.
d. Estimates.

ciency and growth. In Greece, a casual inspection of the data shows that the decade of the 1980s was associated with not only high and variable inflation (Figures 1-1a and 1-1b), but also with relatively low economic growth (Figure 1-2).

If inflation retards growth, why did the government fail to undertake adequate measures to reduce it? To address this issue, the benefits of lower inflation must be weighted against the costs of lower inflation. According to the theory of optimal public finance, rational governments will use sources of revenue so that the marginal cost of raising the last unit of revenue through these different sources is equalised (Fischer, 1982). The less developed a nation's

**Figure 1-2. Real Output Growth: Comparison of Greece with the EU-15**




SOURCE: Eurostat/ DG EcFin. For 2000: Eur. Commission, Spring Forecasts.

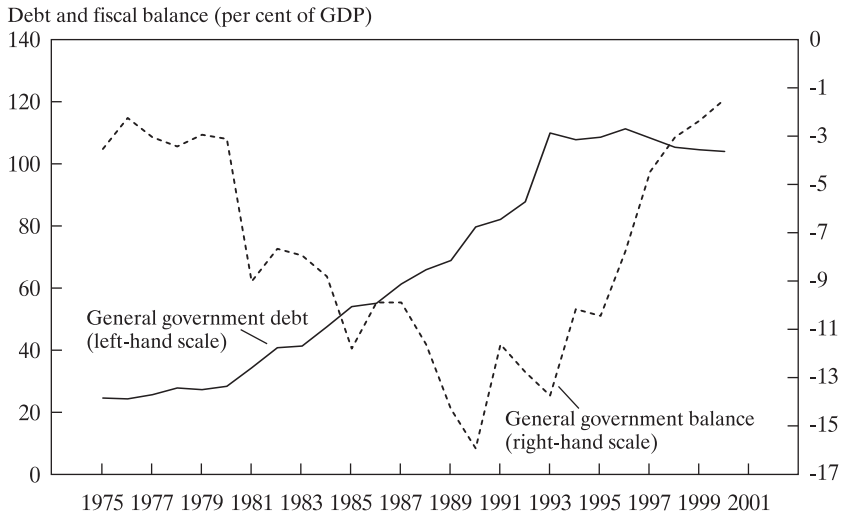
fiscal system, the greater the economic costs of raising revenue by increasing taxes, and the lower the costs of increasing revenues through inflation (relative to the cost of explicit taxation) (Tavlas, 1993; De Grauwe, 2000).

The decade of the 1980s was characterised by large government deficits. The general government deficit-to-GDP ratio jumped from around 2.5 per cent in 1980, to around 8.5 per cent in 1981 (Figure 1-3). The ratio averaged about 10.5 per cent for the remainder (i.e. 1982-90) of the first regime, peaking at about 16 per cent in 1990. The influential role played by the government in matters of monetary policy, and the underdeveloped nature of the tax system, provided powerful incentives for money creation.[5] This money creation was the source of seigniorage revenues in the form of inflation.

Empirical work has shown that seigniorage revenue was considerably higher in Greece during the late 1970s and the 1980s than in low-inflation

5. This argument does not mean that seigniorage was an explicit goal of the government. As Dornbusch and Fischer (1993, p. 40) argued in their study of moderate inflation: "There is little evidence ...that seigniorage considerations played an important role in the thinking of any government. This absence may reflect a general lack of understanding of the inflationary process, or may rather mean that seigniorage is rarely an explicit reason for a government to pursue inflation policies. We believe the latter interpretation". Calvo and Reinhart (2000, p. 20) argued that "Emerging markets have a weak revenue base and rudimentary tax collection system. This combination has driven many a country, particularly in Latin America, to use and abuse the inflation tax."

**Figure 1-3. Greece: Fiscal Trends**




SOURCE: Ministry of National Economy.

EU countries, such as the former West Germany. Dornbusch (1988) estimated that Greece's seigniorage revenue averaged 3.4 per cent of GNP during 1976-85. Over this same period, Dornbusch estimated that seigniorage revenue in the former West Germany was only 0.2 per cent of GNP. Hochreiter (1999) estimated that Greece's seigniorage revenue averaged 2.7 per cent of GNP in the 1980s, compared with 1.2 per cent in the 1970s. For the former West Germany, Hochreiter estimated that seigniorage revenue averaged 0.9 per cent of GNP in the 1970s and 0.8 per cent in the 1980s. In a study of countries with moderate inflation rates, Dornbusch and Fischer (1993) estimated that Greece's seigniorage during 1982-87 was 2.6 per cent of GNP, which was within the range (2-3 per cent) of the other countries in the authors' study. In a study confined to Greece, Tavlas (1987) estimated that seigniorage revenue averaged 2.9 per cent of GNP during 1981-83.

## *Monetary Policy*

With inflation at post-war highs following the 1973-74 oil price shock, starting in the mid-1970s central banks in many industrial countries adopted monetary targets to guide the conduct of monetary policy. Monetary targets served two main purposes: they acted as a guidepost of monetary policy, aid-

ing central banks in setting their instruments for an appropriately disinflationary policy stance; they signalled to the public the central banks' intentions and goals with respect to inflation and provided the basis for a public understanding of policy actions (IMF, 1996). In Greece, monetary targets were first announced (for M0) in 1975; in the early 1980s the Bank of Greece placed increasing weight on the broader aggregates, especially on M3[6] (Table 1-2).

In practice, the Bank found it useful to monitor a range of supplementary targets, including domestic credit expansion and the exchange rate, that had potential predictive content for the ultimate goals of policy. This practice continued into the second regime. Underlying the use of supplementary targets, in Greece and in other countries, have been the views that (1) no single indicator can adequately summarise the stance of monetary policy and (2) each indicator might be subject to influences other than that of monetary policy. The chances of correctly identifying the timing and nature of economic disturbances are, therefore, improved by observing several intermediate targets (IMF, 1996, p. 106).

The Bank often exceeded its targets for the monetary aggregates, and monetary growth in the second half of the 1970s and the 1980s remained at rates that accommodated inflation. M0 growth averaged 18.2 per cent in the eight years (1975-82) during which it served as the targeted aggregate. M3 growth averaged 24.1 per cent in the seven years (1983-89) following the decision to place greater emphasis on that aggregate. One factor accounting for the difficulty in controlling the growth of the monetary aggregates was the apparent instability in the demand for the aggregates. Although monetary targeting relies on a stable demand-for-money function, in common with the situation in many other countries in the 1970s and 1980s, the demand for money in Greece became unstable in light of innovations in financial services, sparked, in part, by higher rates of inflation.[7]

A second factor contributing to the difficulty of controlling monetary growth was the fact that the instruments of monetary policy were not well

6. M3 consisted of M1 (currency plus private demand deposits) and private savings and time deposits. In 1992, M3 was redefined to include bank bonds and repurchase agreements. Initially, specific values were announced for the growth of the monetary aggregates. Beginning in 1988, growth ranges were announced.

7. Another factor that may have contributed to unstable money demand is the so-called Lucas critique. Lucas (1976) demonstrated that coefficient estimates of typical forecasting models are unlikely to be stable across policy regimes. The adoption of monetary targeting constituted a regime shift. A number of empirical studies have found that Greek money demand was unstable during this period (e.g. Psaradakis, 1993; Papadopoulos and Zis, 1997; Apergis, 1997; 1999; Brissimis, Hondroyiannis, Swamy and Tavlas, 2001).

**Table 1-2. Monetary Targets and Outcomes, 1975-2000**

| | *Monetary policy target*[a] | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | *Exchange rate* | | *Money*[b] | | | *Credit*[b] | | |
| *Year* | *Target*[c] | *Out-come*[d] | *Target*[c] | | *Out-come*[d] | *Target*[c] | | *Out-come*[d] |
| 1975 | GRD/$[f] | ≠[f] | M0[g] | 20.0 | 15.6 | DCE[e] | 25.0 | 27.5 |
| 1976 | | | M0 | 12.0 | 21.9 | DCE | 18.0 | 22.8 |
| 1977 | | | M0 | 14.0 | 18.3 | DCE | 23.9 | 24.8 |
| 1978 | | | M0 | 16.6 | 21.1 | DCE | 23.8 | 24.5 |
| 1979 | | | M0 | 15.6 | 14.2 | DCE | 22.4 | 21.7 |
| 1980 | | | M0 | 15.0 | 14.6 | DCE | 14.9 | 25.4 |
| 1981 | | | M0 | 17.2 | 24.3 | DCE | 22.5 | 36.4 |
| 1982 | | | M0 | 24.0 | 15.2 | DCE | 30.3 | 31.7 |
| 1983 | GRD/$[h] | ≠[h] | M3 | 26.1 | 20.9 | DCE | 26.4 | 21.8 |
| 1984 | | | M3 | 22.0 | 29.6 | DCE | 21.6 | 26.6 |
| 1985 | | | M3 | 23.5 | 27.3 | DCE | 21.3 | 26.0 |
| 1986 | | | M3 | 20.0 | 19.1 | DCE | 17.0 | 18.5 |
| 1987 | | | M3 | 15.5 | 24.7 | DCE | 13.2 | 13.0 |
| 1988 | | | M3 | 14-16 | 22.9 | DCE | 10.5-11 | 15.5 |
| 1989 | | | M3 | 18-20 | 24.2 | DCE | 13-14 | 20.0 |
| 1990 | | | M3 | 19-21 | 15.3 | DCE | 16.2-17.4 | 15.0 |
| 1991 | | | M3 | 14-16 | 12.3 | DCE | 12.5-13.5 | 11.2 |
| 1992 | | | M3 | 9-12 | 14.4 | DCE | 7-9 | 11.6 |
| 1993 | | | M3 | 9-12 | 15.0 | DCE | 6-8 | 13.5 |
| 1994 | | | M3 | 8-11 | 8.8 | DCE | 6-8 | 8.9 |
| 1995 | GRD/ECU (-3.0%)[i] | -3.0%[i] | M3 | 7-9 | 10.3 | DCE | 6-8[j] | 7.9 |
| | | | M4 | 11-13[j] | 8.2 | | | |
| 1996 | GRD/ECU (-1.0%)[i] | -1.0%[i] | M3 | 6-9 | 9.4 | DCE | 5-7[j] | 5.9 |
| | | | M4 | 9-12[j] | 12.0 | | | |
| 1997 | GRD/ECU (0.0%)[i] | -1.7%[i] | M3 | 6-9 | 9.5 | DCE | 4-6[j] | 9.6 |
| | | | M4 | 8-11[j] | -1.6 | | | |
| 1998 | GRD/ECU (0.0%)[i] | -12.3%[k] | M3 | 6-9[l] | 8.9 | DCE | 4-6[j] | 9.8 |
| 16.03.98[k] | ERM (±15.0%)[k] | = | | | | | | |
| 1999 | ERM (±15.0%)[k] | = | M4N[m] | 7-9 | 5.5 | DCE | 7-9 | 12.2 |
| 2000 | ERM (±15.0%)[k] | = | M4N[m] | 5-7 | | | | |

SOURCES: Bank of Greece and Houben (2000).

a. Since 1990, increasing attention has been placed on the CPI inflation projection underlying the monetary programme, without, however, entailing a switch to direct inflation targeting.

b. Data relate to December on December percentage growth rates.

c. Specifies the exchange rate commitment, the targeted rate of devaluation under the drachma/ECU peg and the relevant fluctuation margin under the ERM.

d. Defined as the percentage devaluation (-) relative to the ECU, unchanged parity (=) or withdrawal of the exchange rate commitment (≠).

e. DCE = Domestic Credit Expansion; at times targets were also set for domestic credit to the private sector.

f. The Greek Drachma (GRD) was pegged to the US dollar between the end of 1973 and March 1975.

g. M0 comprises only currency in circulation, except for 1975 when sight deposits were also included.

h. The drachma was pegged to the dollar for 7 months between January and August 1983.

i. Greece pegged the drachma to the ECU with a targeted devaluation in 1995 and an objective of 'broadly stable' thereafter; the quantitative targets for 1996-98 are taken from Greece's convergence programme.

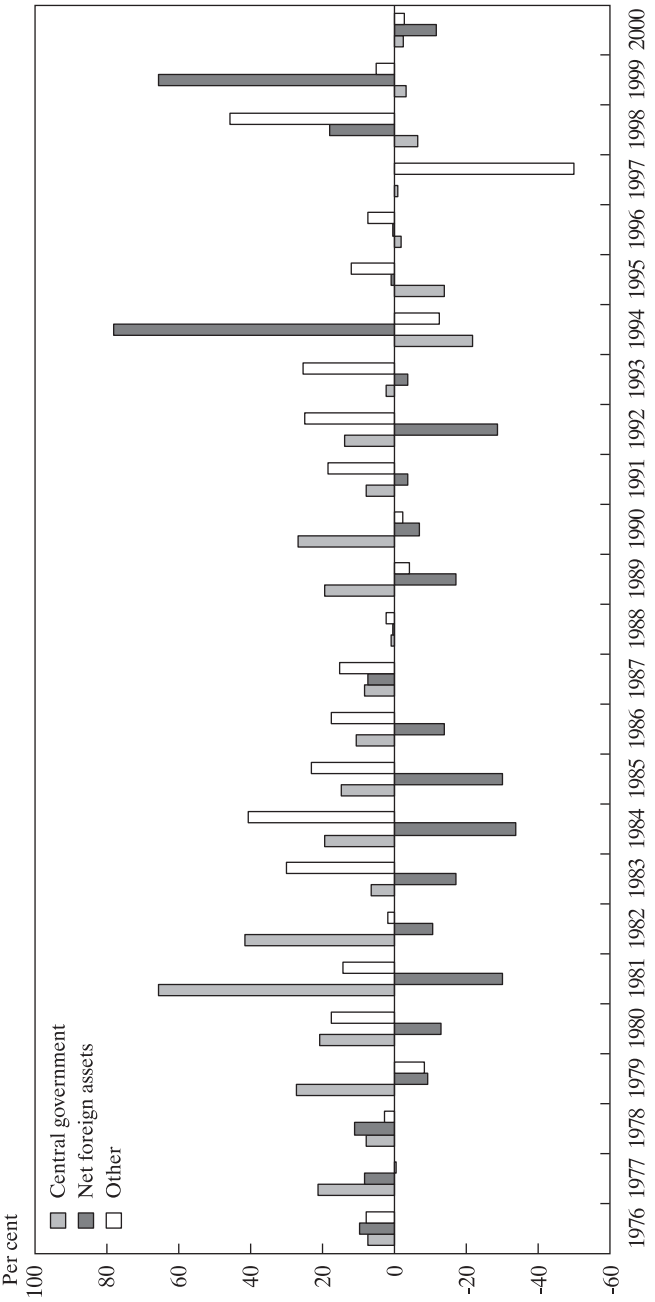
j. With the introduction of the ECU-peg, M4 and DCE became monitoring ranges.

k. On 16 March 1998 Greece joined the ERM at a parity that implied a 12.3 per cent devaluation against the ECU-peg.

l. Subsequent to Greece's entry in the ERM, M3 became a monitoring range.

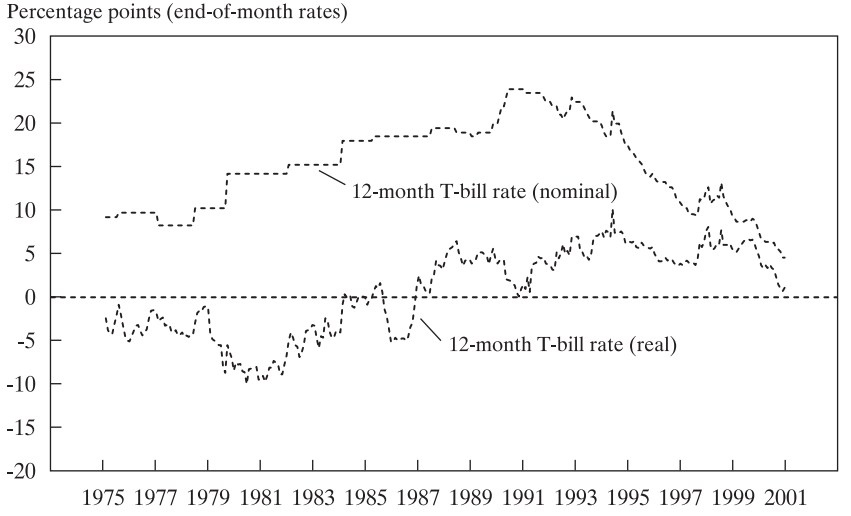
m. M4N is equal to M0 + private deposits in drachmas and foreign exchange + repos + bank bonds + money market fund units + private investment in Greek government securities with an initial maturity of up to one year.

**Figure 1-4. Contributions to Monetary Base Growth, 1976 - 99**




SOURCE: Bank of Greece.

**Figure 1-5. Nominal and Real Interest Rates**




SOURCE: Bank of Greece and National Statistical Service of Greece.

developed. Financial regulation, for example, limited the scope for using interest rates to influence monetary aggregates. Additionally, interest rates were administratively set and the discount rate was rarely altered. Open market operations did not exist in any meaningful sense, since most government securities were held by commercial banks as part of their secondary reserve requirements and a secondary market for these securities effectively did not exist. Monetary policy was conducted through direct instruments of monetary control, which operated by setting or limiting either prices (interest rates) or quantities (amounts of credit outstanding) through regulations.[8] To the extent that economic agents found ways to circumvent controls over time, the controls tended to lose their effectiveness.

A third, and probably the most important, factor underlying the high monetary growth rates was the need to finance the large fiscal deficits (Figure 1-4). The public sector enjoyed preferential access to credit at subsidised rates, though the degree of subsidisation declined during the course of the 1980s. With the aim of keeping government borrowing costs down, the real rate of interest on twelve-month Treasury bills was negative until the mid-1980s (Figure 1-5). Effectively, the money supply was rendered endogenous

8. The term "direct" refers to the one-to-one correspondence between the instrument (such as a credit ceiling) and the policy objective (such as a specific amount of domestic credit outstanding). See Alexander, Balino, and Enoch (1995).

(Garganas, 1992). The low levels of interest rates and the large public sector claims on financial flows contributed to a significant overshooting of the credit aggregates; during the sixteen-year period 1975-90, domestic credit expansion exceeded its target on twelve occasions (Table 1-2). The Bank of Greece was often called upon by the government to support an expansion of economic activity while not fuelling inflation or provoking disequilibrium in the balance of payments, goals that were, at times, inconsistent with one another. When conflicts appeared, all too often they were resolved at the cost of the inflation objective.[9]

### *Fiscal Deficits and Money Growth: Causality Tests*

To examine the statistical relationship between the fiscal deficits and the money supply (M3) during the first regime, we performed causality tests using quarterly data. For the measure of the fiscal deficit, we used the central government borrowing requirement (i.e. cash basis).[10] This measure of the deficit is available beginning in the first quarter of 1980. The causality tests reported below use four lags; therefore, the estimation period covers 1981:1-1990:4. To perform the causality tests, we use extensions of vector error correction models (VECMs). These extensions can help distinguish between exogenous and endogenous variables.[11]

Testing for the existence of a statistical relationship among the two variables is performed in three steps. The first step is to determine the order of integration of the variables because the following causality tests are valid only if the variables have the same order of integration. The tests indicated that the levels of the variables are integrated of order one (the first differences are stationary) and can be used to perform cointegration tests. These results are reported in Table 1A-1 (see page 84). The second step involves testing for cointegration using the Johansen maximum likelihood approach (Johansen and Juselius, 1992). We found evidence of cointegration between the two variables, ruling out the statistical possibility of a spurious relationship. The results of testing for cointegration are reported in Table 1A-2 (see page 85).

9. A similar situation pertained in other industrial countries in the 1960s and 1970s. As Hafer and Wheelock (2001, pp. 2-3) report for the United States, "Because unemployment frequently was viewed as a more serious concern than inflation, for many years the Fed opted for maintaining an inflationary bias in monetary policy to avoid higher rates of unemployment".

10. The fiscal data reported in Figure 1-3 are on a national accounts basis, for which quarterly data do not exist. The source of the data in Table 1-3 is the Bank of Greece.

11. Causality testing using VECMs extends the techniques developed in the 1960s and 1970s by Granger (1969) and Sims (1972). See Granger (1988) for a discussion of VECMs.

**Table 1-3. Summary of Tests for Weak and Strong Exogeneity of Variables Based on Vector Error-Correction Models**

| | *Test of restrictions (Wald test)* | | | | |
|---|---|---|---|---|---|
| | *Strict Granger non-causality*[a] | | *Weak exogeneity, (ECT coefficient)*[b] | *Tests for Granger non-causality, (joint short-run dynamics and ECT)*[c] | |
| *Equations* | *DLM3* | *DLCGBR* | *Z=0*[d] | *DLM3 and ECT* | *DLCGBR and ECT* |
| DLM3 | | 17.11*** | -0.10*** | | 23.09*** |
| DLCGBR | 2.03 | | 0.17 | 2.97 | |

SOURCES: Bank of Greece and authors' calculations.

DLM3 is the growth of money supply M3. DLCGBR is the growth of central government borrowing requirements (cash basis). ECT is the error correction term. Normalising the cointegrating vector on money supply variable derives the lagged ECT. The statistics reported are distributed as $\chi^2$ distribution with the degrees of freedom equal to the number of restrictions.

a. In the short-run dynamics asterisks indicate rejection of the null hypothesis that there is no short-run causal relationship between the two variables.

b. Asterisks indicate rejection of the null hypothesis that the estimated coefficient is equal to zero (weak exogeneity).

c. Asterisks denote rejection of the null hypothesis of Granger non-causality and strong exogeneity.

d. Z is the cointegrating vector LM3-0.73LCGBR, where LM3 is the log of money supply M3 and LCGBR is the log of central government borrowing requirement (cash basis).

*** Indicates significance at the 1 per cent level.

The third step involves implementing the VECMs and testing for exogeneity. To test the null hypothesis that "X does not cause Y" we regress Y against (1) lagged values of Y, (2) the lagged error correction term, and (3) lagged values of X. The results of the causality tests are reported in Table 1-3. Three kinds of exogeneity were tested. Each involves regressing Y (e.g., money growth) on lagged Y, lagged X (e.g. the change in the deficit) and the lagged error correction term (which uses the logs of the variables, since they cointegrate). The three tests differ in terms of the restrictions tested.

*(1) Strict Granger causality*. We test for the joint significance of the lagged values of X using a Wald test. As shown in Table 1-3, the $\chi^2$ test rejects the hypothesis that the growth in the fiscal deficit does not cause the growth in M3. The test does not reject the hypothesis that the growth in M3 does not cause the growth in the fiscal deficit. Thus, the growth in the fiscal deficit is exogenous in the strict Granger sense.

*(2) Weak exogeneity*. This approach tests the hypothesis that the error correction term is not statistically significant in the VECMs. That is, we run the regression as under the strict Granger causality test above, but we test for the significance of the lagged error correction term. The results suggest that the error correction term in the M3 growth equation is statistically significant, indicating that M3 is not weakly exogenous. The error correction term

in the growth in the fiscal deficit equation is not statistically significant, indicating that the growth in the deficit is weakly exogenous.

*(3) Strong exogeneity*. A Wald test is applied to test the joint significance of the lags of X and the lagged error correction term. The empirical results reject the hypothesis of strong exogeneity of money growth variable. The results suggest that the fiscal variable is strongly exogenous.

In sum, the results of each of the three exogeneity tests support the view that, during the 1980s, growth in the fiscal deficits caused growth in M3. The results of each of the tests do not reject the hypothesis that changes in M3 did not cause changes in the fiscal deficits. Thus, in the first regime the change in fiscal deficits caused, in the statistical sense, changes in M3, but changes in M3 did not cause changes in the fiscal deficits. As reported in Table 1-3 (footnote d), the long-run cointegrating vector indicates that a 1 per cent change in the fiscal deficit led to a 0.7 per cent change in M3.

### *The 1985-87 Stabilisation Programme*

To provide some context to the discussion, consider some key features of macroeconomic policy during 1985-87. This particular period is an instructive one, because it includes a serious, though transitory, attempt to disinflate. In the five years (i.e. 1980-84) leading up to 1985, inflation averaged over 20 per cent, contributing to an appreciation of the real exchange rate. As a result, the current account deficit widened to almost 10 per cent of GDP in 1985, from about 5 per cent in 1982. In these circumstances, the drachma was devalued by 15 per cent in October 1985. Although the devaluation helped restore competitiveness, it provided the potential for additional inflationary momentum. To deal with the inflationary impact of the devaluation, the government announced a stabilisation programme aimed at reducing the large macroeconomic imbalances (reflected in the high inflation rate, the large current account deficits, and large public sector borrowing requirements). All components of macroeconomic policies (including incomes policy) were tightened.

Despite the devaluation, the tightened policy mix led to a marked deceleration in inflation. The (CPI) inflation rate fell from 25 per cent in the year to December 1985 to about 16 per cent in the year to December 1987; excluding the effects of a VAT introduced at the beginning of 1987, the inflation rate fell to about 12 per cent in the year to December 1987.[12] Additionally,

12. The VAT is estimated to have added three to five percentage points to inflation in 1987. See Georgakopoulos (1991).

the fiscal deficit and the current account deficit were significantly reduced. However, the tightened policies also contributed to a downturn in economic activity (with real GDP declining by over 2 per cent in 1987). The political business cycle led to a termination of the stabilisation programme (in November 1987) and macroeconomic policies were relaxed. The deceleration in inflation was short-lived (Figure 1-1a).

### *Assessment*

The experience of Greece in the first regime demonstrates that attempts to garner seigniorage and support government objectives that are incompatible with price stability tend to propagate supply-side inflationary impulses, resulting in persistent inflation. To enhance the potential effectiveness of monetary policy, the monetary authorities must be able to perform in an environment free of political constraints and in a financial system in which financial prices reflect market clearing values. The termination of the 1985-87 stabilisation programme, despite its successful effort to disinflate, clearly demonstrates how the political business cycle can influence policies. While there are sound reasons to monitor a range of intermediate targets for monetary policy, a multiple-target approach does not enable monetary authorities to reap the potential credibility benefits that a commitment to a single, visible intermediate target can bestow by serving as a focal point for expectations. As we discuss below, in the second regime the Bank of Greece adopted an explicit exchange rate target as the main intermediate target of monetary policy in order to disinflate.

## Transition Period: 1991-94

### *Background*

In 1990 there was an upturn in inflation, which reached about 5 per cent (on average), in the industrial countries (Figure 1-1a). Contributing to this rise in inflation was a temporary, but sharp, increase in oil prices in 1990.[13] Other developments contributing to the upturn in inflation included a robust

13. Oil prices rose from an average of about $16 per barrel in July 1990, to near $40 per barrel in September 1990 following the invasion of Kuwait by Iraq on 2 August 1990. They subsequently declined sharply following the outbreak of war in the Gulf region in January 1991. See IMF (1991).

economic recovery in most industrial countries that had begun in the mid-1980s and the reunification of Germany, which resulted in a substantial pro-cyclical fiscal stimulus in that country (IMF, 1996). In response to this episode of increased inflationary pressures, monetary authorities in most industrial countries reacted to resist further increases in inflation by tightening monetary policies (IMF, 1996, p. 104).

### *Monetary Policy*

In Greece, after accelerating during the course of 1989, inflation again reached the vicinity of 20 per cent in 1990 (Figure 1-1a). As had been the case under the first regime, the necessity of financing a large fiscal deficit reinforced the impulse of the rise in oil prices, while wage increases acted as a propagation mechanism.[14] The fiscal deficit-to-GDP ratio reached the vicinity of 16 per cent (Figure 1-3), and (*ex post*) real interest rates, which had attained positive levels in 1987, once again approached the zero per cent level (Figure 1-5). A 13.3 per cent rise in the ATA contributed to an increase of about 19 per cent in average earnings in the manufacturing sector (Table 1-1).

Faced with a fresh surge in inflation and saddled with macroeconomic imbalances that were probably the largest imbalances in all industrial countries (OECD, 1990/91, p. 11), Greek incomes policy was tightened in 1991 (Table 1-1). With regard to monetary policy, the growth of M3 remained the main intermediate target, while credit targets were also announced. The M3 and credit targets were closely followed in 1991 (Table 1-1). Contributing to the slowdown in the growth of M3 in the early 1990s was a portfolio shift in favour of government securities at the expense of time and savings deposits with financial institutions. This shift was induced by a steep increase in the relative yield on government securities in the aftermath of the initial phase of financial deregulation (see below). With the gradual dismantling of the credit allocation system, which had been used to serve the financing needs of the public sector, interest rates increasingly became the main instrument of monetary management, especially in 1994 with the full liberalisation of capital movements. As the fiscal deficit-to-GDP ratio remained at high levels in the 1991-94 period (Figure 1-3), the deficits resulted in an increased cost of credit to the private sector.

Inflation fell from around 20 per cent to about 11 per cent during the period 1991-94. An important factor contributing to the fall in inflation was

14. Contributing to the rise in inflation in 1990 were increases in indirect taxes and public utility rates introduced in December 1989 (Bank of Greece, 1991, p. 10).

the tightening of incomes policy. In 1991, the ATA system was abolished. During the four years, 1991-94, weekly earnings in manufacturing rose by an average of about 13.5 per cent; in real terms, weekly earnings in manufacturing declined on average in these years (Table 1-1). Another factor figuring in the transition from high inflation to moderate inflation was a non-accommodating exchange rate policy. During 1991-94, the Bank of Greece aimed to set a rate of depreciation of the drachma that did not fully accommodate the inflation differential between Greece and the country's main trading partners, mainly other EU countries (Figure 1-6).[15] Ultimately (in the second regime), the exchange rate target would attain precedence over other monetary policy targets.

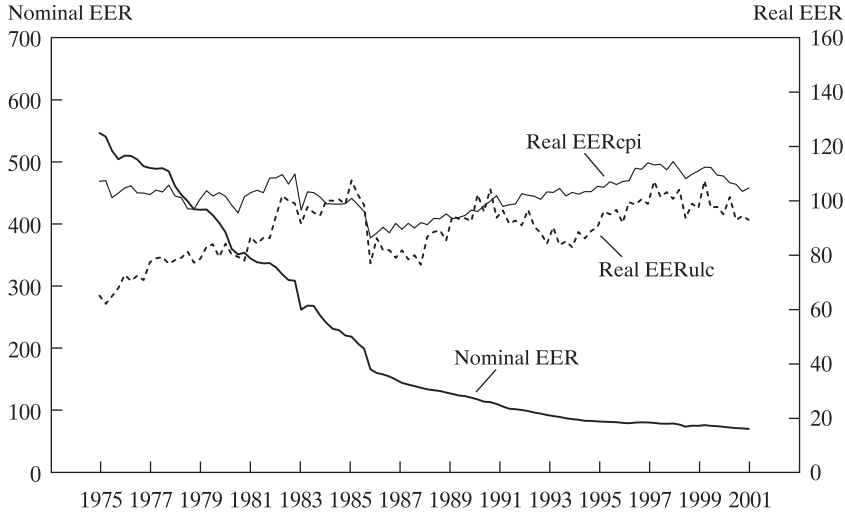
### *Financial Deregulation*

As noted above, for much of the 1980s the financial system was highly regulated and monetary policy operated through direct instruments of monetary control, including directed credits, credit ceilings, and interest rate controls. Beginning around 1987, a series of deregulation measures improved the functioning of financial markets, allowing the gradual adoption (in the 1990s) of indirect instruments of monetary control. Financial liberalisation, however, was a gradual process, reflecting the view that gradualism was necessary to avoid potentially destabilising effects from a rapid elimination of extensive regulations in an economy characterised by sizeable macroeconomic imbalances (Papademos, 1992, p. 280). Thus, even in the late 1980s and early 1990s the level and structure of interest rates were effectively influenced by the authorities through their control of interest rates on savings deposits, which accounted for nearly two-thirds of private deposits, and on government securities (Garganas, 1992, p. 133). Subsequently, indirect instruments, including a refinance facility, open market operations, and reserve requirements, were increasingly used (especially in the second regime) to influence overall monetary and credit conditions by affecting the supply of, and demand for, liquidity, working through markets and the general level of interest rates.[16] Indirect instruments permitted the authorities to have greater flexibility in policy implementation. Small, frequent changes in the

15. The use of the exchange rate as an implicit target commenced in the late 1980s.

16. In contrast to direct instruments, which often lead to flows of funds into unregulated or informal financial markets, indirect instruments encourage intermediation through the formal financial sector. See Alexander, Balino, and Enoch (1995).

**Figure 1-6. Nominal and real effective exchange rate indices (EER) of the drachma 1975-2000** [a]




SOURCE: Bank of Greece.
a. 1990=100. Quarterly data. Real effective exchange rates based on unit labour costs (ulc) and consumer price index (cpi).

instrument became feasible, enabling the authorities to respond rapidly to shocks.

Financial reform initially involved raising interest rates on deposits, loans and government securities to market-clearing levels. This was followed by the abolition of interest rate ceilings, and the elimination of quantitative restrictions on credit allocation. At the beginning of 1994, the monetary financing of the government (i.e. PSBR) and privileged access by the government to the banking system were abolished, as mandated by the Maastricht Treaty. Financial liberalisation was accompanied by the lifting of foreign exchange controls, with the last vestige of capital controls removed in May 1994.[17] Essentially, by 1995 financial deregulation had been completed. Appendix 1 provides a detailed list of measures taken.

17. In May 1994, an episode of foreign exchange market turbulence was experienced. There arose market expectations that the lifting of the remaining controls on capital movements, scheduled for July 1, 1994, would be accompanied by a devaluation of the drachma. Capital outflows ensued, and the authorities responded by bringing forward the timing of the liberalisation to mid-May. Also, the Bank of Greece raised its intervention rate sharply and imposed an additional surcharge on banks' overdrafts, bringing the cost of borrowing in drachmas to very high levels. As a result of these actions, capital outflows were reversed and interest rates returned to pre-turbulence levels. See Brissimis, Magginas, Simigiannis and Tavlas (2001).

### *Assessment*

The tightened incomes policy and weak economic growth (see below) contributed crucially to the fall in inflation. Financial deregulation paved the way for a deeper and broader financial sector which could more effectively contribute to growth by mobilising savings and more efficiently allocating resources among competing investment opportunities. The annual rates of growth of both M3 and domestic credit fell significantly during the 1991-94 period compared with their growth under the first regime (Table 1-2). Still, M3 growth and domestic credit expansion overshot their targeted ranges in both 1992 and 1993.

Also, the fiscal deficit-to-GDP ratio remained in double digit levels (Figure 1-3). While the deregulation of the financial market and the indirect instruments of monetary control provided some insulation for monetary policy from pressure to finance the fiscal deficits, the large deficits contributed to real interest rates that averaged about 5 per cent during the years 1991-94 (Figure 1-5). The large fiscal deficits also led to a rapidly growing public debt (Figure 1-3). As the experiences of a large number of countries with high levels of public debt have shown, an anti-inflationary monetary policy that is not supported by fiscal adjustment is not likely to be credible (IMF, 1996, p. 126).

Although inflation fell during the course of what we have called the transition period, by 1994 it had become apparent that the inflation process contained a good deal of inertia. Thus, the annual rate of inflation in the year to December 1994 was 10.6 per cent, only slightly below the rate of January 1994 (11.3 per cent) and above the rate of July 1994 (10.3 per cent). A factor contributing to the inflation inertia was the large fiscal deficits, which gave rise to expectations of future money growth, undermining policy credibility. Additionally, growth performance was sluggish in 1991-94, as real GDP growth averaged only about 1 per cent. A new policy regime was called for.

## Second Regime: 1995-2000

### *Background*

Although inflation in Greece had essentially been cut in half in the transition period, in 1994 Greece's inflation differential with the other industrial countries remained substantial. During the period 1990 to 1994, the other industrial countries had also lowered their inflation rates; the average annual rate among industrial countries fell from 5.0 per cent to 2.3 per cent (Table 1-4). Indeed, in 1994 Greek inflation was more than double the rates experi-

**Table 1-4. Inflation and Fiscal Balances, 1990 and 1994**

| | *1990* | | *1994* | |
|---|---|---|---|---|
| | *Inflation* | *Fiscal deficit (per cent of GDP)* | *Inflation* | *Fiscal deficit (per cent of GDP)* |
| Greece | 20.6 | 15.9 | 10.8 | 9.9 |
| Italy | 6.5 | 11.0 | 4.0 | 9.2 |
| Portugal | 11.9 | 5.5 | 4.9 | 6.0 |
| Spain | 6.6 | 3.9 | 4.7 | 2.9 |
| EU | 5.3 | 3.6 | 5.3 | 5.7 |
| Industrial countries | 5.0 | 2.1 | 2.3 | 3.5 |

SOURCE: IMF, *International Financial Statistics.*

enced in such formerly-high inflation EU countries as Italy, Portugal and Spain, and the government deficit (as a per cent of GDP) was higher in Greece than in any of these three countries (Table 1-4). The challenge for the Greek authorities was to pursue disinflationary policies while avoiding the short-run output costs typically incurred in bringing inflation down significantly further.

As noted above, empirical studies have found that it is often easier to decrease inflation from the vicinity of 20 per cent (or higher) to around 10 per cent than it is to attain inflation rates in the lower single digits (e.g. Dornbusch and Fischer, 1993; IMF, 1996). There are several reasons for this finding. First, in most countries with moderate inflation (i.e. 10 per cent to 20 per cent) seigniorage is of the order of 2-3 per cent of GDP and accounts for a significant share of government revenue. A shift to inflation in the low single-digits requires that fiscal adjustment be tackled partly through tax reforms that make it possible to generate tax revenues at levels comparable with those of low-inflation countries, and/or through public expenditure restraint (IMF, 1996, p. 113). Often, the needed fiscal adjustment is difficult to bring about. Second, nominal rigidities tend to become more important at lower inflation rates because of inflationary expectations. Without a supportive fiscal policy, economic agents may expect that a persistent budget deficit will be financed with future money creation, leading to higher inflationary expectations. It is crucial, therefore, that an anti-inflationary monetary policy be accompanied by a consistent fiscal policy (Dornbusch and Fischer, 1993, p. 40).[18]

In Greece, with the prohibition of the monetary financing of the PSBR in 1994, a significant tightening of monetary policy had taken place that year, which laid the foundation for the disinflation of 1995 (and beyond). The (*ex*

18. Under a situation where there is a persistent budget deficit and the real rate of interest exceeds the economy's growth rate, a tightening of monetary policy can worsen the debt dynamics, as higher interest rates increase the stock of debt.

*pos*t) real interest rate on 12-month T-bills rose from about 5 per cent at the beginning of 1994 to the 7-8 per cent range for much of the remainder of the year (Figure 1-5). For the first time since 1991, the M3 growth target was attained, while domestic credit expansion was only slightly above its targeted range (Table 1-2). The real effective exchange, whether based on relative CPIs or relative unit labour costs, appreciated during the course of 1994 (Figure 1-6).

As we discuss below, to focus expectations, beginning in 1995 the Bank of Greece adopted a "hard drachma policy", under which the exchange rate was used as a nominal anchor. For the first time, the Bank announced a specific exchange rate target. As we also discuss below, during the mid- and late 1990s the Greek monetary authorities had to deal with the challenge posed by large capital inflows and occasional, but abrupt, reversals of capital flows. In common with the experiences of a large number of other countries during the 1990s, the increase in capital flows had several origins, including the removal of restrictions on capital account transactions, the deregulation of the financial system, and the macroeconomic stabilisation and policy reform.[19] The rise in capital movements increased the potential for intertemporal trade, portfolio diversification, and risk sharing. At the same time, the increase in capital flows complicated considerably the conduct of monetary policy, underscoring the crucial role of prudential supervision and regulation, and heightening the need for an appropriate policy mix.

Crucially, fiscal policy was progressively and sharply tightened throughout the period 1995-2000. The signing of the Maastricht Treaty in 1992 and the government's publicly-stated objective of joining the euro area provided powerful incentives to garner support for policy adjustment. In mid-1994, the government introduced a convergence programme, adopted by the ECOFIN Council[20] on 19 September 1994 and covering the period 1994-99. The programme aimed to reduce the general government fiscal deficit from 12.5 per cent of GDP in 1993 to below 3 per cent in 1998.[21]

### *Exchange-Rate-Based Disinflation: the Hard-Drachma Policy*

The decision to use the exchange rate as a nominal anchor is, in part, based on the belief that the adoption of a visible anchor can enhance the credibility

19. For a detailed discussion of the factors underlying the explosive growth of international capital flows during the 1990s, see Eichengreen and Mussa (1998).

20. The ECOFIN Council is comprised of EU National Economy Ministers and Finance Ministers.

21. The figure for the 1993 deficit-to-GDP ratio was subsequently revised to 13.6 per cent.

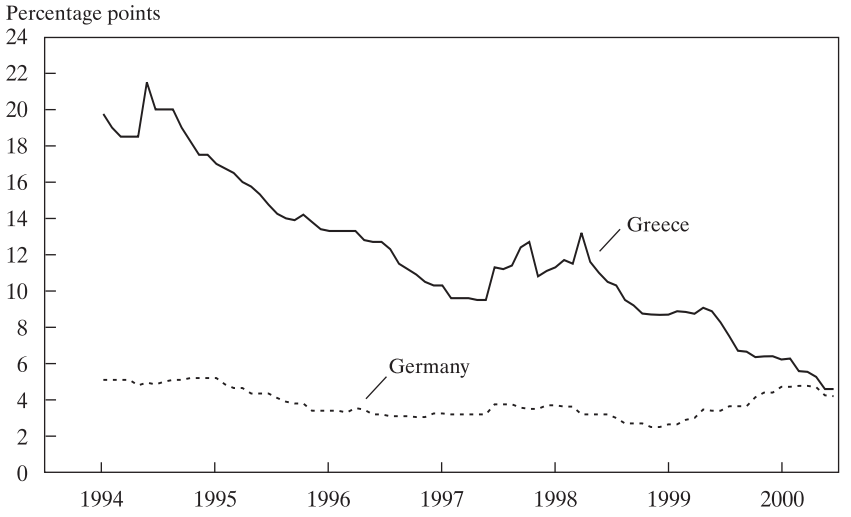
of the disinflation effort. By pegging the exchange rate to the currency of a low-inflation country, inflation could be brought down rapidly, because (1) the traded goods component of the price level can be stabilised, (2) of the attendant restraint imposed on wage-setting and price-setting behaviour, and (3) of the restraint imposed on aggregate demand, especially government spending (IMF, 1997, p. 90). If the exchange rate commitment is credible, so that it is really believed in the goods, labour, and foreign exchange markets, then the output costs of a given set of restrictive policies will be reduced (Corden, 1994; Tavlas, 2000).[22]

### *The Hard-Drachma Policy: Targets and Outcomes*

To demonstrate the operation of the hard drachma policy, consider the objectives of monetary policy during the course of 1995-97, a period marked by a sharp deceleration of inflation. In 1995, the Bank of Greece announced that the main objective of monetary policy would be to contribute to a further deceleration of inflation, while at the same time supporting the anticipated growth of economic activity (Papademos, 1996, p. 7). To attain this goal, the Bank set two intermediate targets: (i) to limit the year-on-year depreciation of the drachma against the ECU to 3 per cent, a rate that would not fully offset inflation differentials between Greece and its EU partners, and (ii) to contain monetary expansion, as measured by the growth rate of M3, to 7-9 per cent (Papademos, 1996, p. 7). The Bank aimed to reduce inflation to 8 per cent in 1995, from 10.8 per cent in 1994. To this end, the exchange rate target was assigned preeminence. The Bank also monitored the evolution of supplementary indicators, including M4 and total domestic credit. In the event, M3 rose by 10.3 per cent in 1995, but the exchange rate target and the supplementary indicators were attained (Table 1-2). Inflation, at 8.9 per cent, was somewhat above the Bank's objective. The differential between drachma-denominated and deutsche-mark-denominated twelve-month T-bills averaged about 1,200 basis points in 1995 (Figure 1-7a).

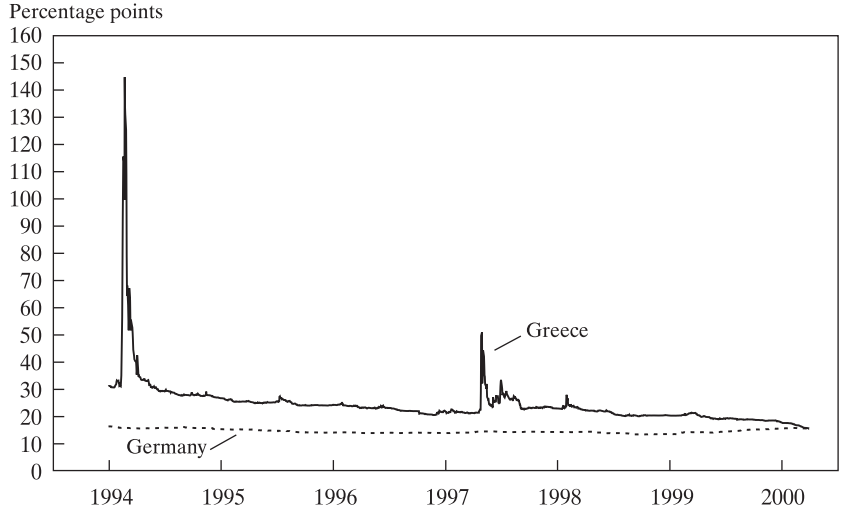
22. During the 1980s and the 1990s, a large number of countries began pegging their exchange rates to the currency of a low-inflation country in order to enhance credibility. The deutsche mark, for example, was used as the anchor currency within the Exchange Rate Mechanism of the EMS (Tavlas, 1991). Another framework that has been used to enhance credibility is direct inflation targeting. As Masson, Savastano and Sharma (1997) point out, however, to be really effective inflation targeting requires several preconditions, including central bank independence and an inflation rate under 10 per cent when inflation targeting is introduced. As we discuss below, in Greece legislation for central bank independence was passed in December 1997. For a discussion of the strategies at various central banks, see von Furstenberg and Ulan (1998).

**Figure 1-7a. 12-month Treasury Bill Rates: Greece and Germany [a]**




SOURCE: Bank of Greece and Bloomberg.
a. End-of-month rates.

**Figure 1-7b. Interbank Interest Rates in Greece and Germany [a]**




SOURCE: Bank of Greece and Bloomberg.
a. 3-month rates.

The Bank's objective for 1996 was to reduce inflation to 7 per cent. As in the previous year, the Bank relied on two intermediate targets – an exchange rate target and a target range for M3 growth (of 6 to 9 per cent). Again, the exchange rate target was given preeminence and was achieved; the M3 target was exceeded slightly, with M3 growing by 9.3 per cent. Although inflation, at 8.2 per cent, exceeded its target value, the outcome reflected insufficient support from fiscal policy and incomes policy, contributing to the high interest rates (Bank of Greece, 1997; see, also OECD, 1997, pp. 24). Transitory factors (such as rises in food and oil prices) caused the headline rate of inflation to rise relative to the underlying rate.

The hard-drachma policy continued in 1997. The Bank aimed to bring inflation down to 4.5 per cent by the end of the year, using both an exchange rate target and an M3 target.[23] The Bank announced that monetary policy would respond more than in the past to the progress made towards attaining the inflation target, as well as to developments in capital and foreign exchange markets. Correspondingly, the Bank made it clear that monetary policy would respond more slowly than in the past to variations of monetary aggregates from their target ranges in view of their instability. In the event, the exchange rate objective was achieved, while the M3 objective was slightly exceeded (a 9.6 per cent outturn compared with a target range of 6-9 per cent). Inflation fell to 4.7 per cent by the end of the year, just above the Bank's objective.

Thus, during the first three years of the hard-drachma policy, inflation was more than halved. Indicative of the stance of monetary policy and of the large, but declining (as a per cent of GDP), fiscal deficits in the three years through 1997, nominal and real interest rates remained at very high levels (Figures 1-5, 1-7a and 1-7b). Correspondingly, the real effective exchange rate (measured on the basis of relative unit labour costs) appreciated by about 17 per cent (Figure 1-6), which may have reduced competitiveness (see below). Although inflation fell sharply, real growth accelerated; real GDP growth averaged about 2.8 per cent during 1995-97 compared with 1 per cent during 1991-94.

Why did real growth accelerate during a period when inflation fell from a moderate level to the single digits? Although the credibility gain is difficult to quantify, the hard-drachma policy provided an unambiguous target for monetary policy, exerting a measure of self-discipline and serving to tie down inflationary expectations. Other factors that strengthened credibility included the following.

23. The Bank announced that, in gauging progress on disinflation, it would also examine several indicators that affect core inflation and inflationary expectations.

- Substantial fiscal adjustment occurred. The fiscal deficit, as a per cent of GDP, fell from about 10 per cent in 1995 to around 4 per cent in 1997 (Figure 1-3). Measures to improve the efficiency of tax collection were stepped up (Manessiotis and Reischauer, 2001) so that seigniorage became a less significant source of revenue. The prohibition of the monetary financing of the PSBR (as from 1994) increased the scope for monetary control.
- With the complete deregulation of the financial system by 1995, the Bank of Greece was increasingly able to use interventions that are flexible and reduce the operating costs of monitoring and controlling incurred by the Bank and other financial institutions. The operation of monetary policy in the deregulated system is described in Appendix 2.
- The Greek Parliament approved central bank independence and provided the Bank of Greece with a mandate to achieve price stability. The law granting central bank independence gave the Bank control over exchange rate policy within a framework agreed with the government. Although not approved until December 1997, the impending enactment of the legislation had been communicated to the markets well in advance, providing an unambiguous signal that a regime shift was in process. One factor underlying the move to central bank independence in Greece, and elsewhere, has been the view that pressures to follow expansionary monetary policies frequently are political in nature. As we have seen, government involvement in the conduct of monetary policy was an important reason for the high inflation outcomes during 1975-94.[24]

### *ERM Entry*

While the hard-drachma policy was crucial in bringing down inflation, as is typically the case with all nominal-anchor exchange-rate pegs, it presented difficulties for the monetary authorities. (1) The relatively high Greek interest rates, coupled with the increasingly credible exchange rate peg, led to a capital inflows problem. If the inflows had not been sterilised, they would have increased the monetary base and pushed down nominal interest rates. With a given level of inflation expectations, the result would have been a decline in real interest rates. Both the increase in the monetary base and the decline in

24. A number of empirical studies have found that central bank independence leads to less inflation. See, for example, Alesina and Summers (1993) and Eijffinger and Schaling (1995).

real interest rates would have meant an easing of monetary conditions, contrary to the tight monetary policy stance needed to disinflate. (2) Thus, one response by the Bank of Greece to the inflows was to undertake sterilisation operations. Sterilisation, however, was costly, as it reduced the Bank's profits. Moreover, to the extent that sterilisation caused domestic interest rates to be higher than they would otherwise have been, capital inflows tended to be higher than they would have been in the absence of sterilisation.[25] (3) A fundamental problem confronting nominal-anchor exchange-rate pegs is that the currency of the high-inflation country can become overvalued (relative to its equilibrium value) during the move to a low inflation regime. In the case of Greece, the appreciation of the real exchange rate (Figure 1-6)[26] contributed to a widening of the current account deficit to about 4 per cent of GDP in 1997, from near balance in 1994. The 1994 outcome, however, was in large part due to weak domestic demand. Furthermore, Greece has traditionally been a natural net capital importer, reflecting the high rates of return yielded by investments in Greece relative to many other countries, and Greece has historically received remittances from Greeks living abroad.

Nevertheless, the widening current account deficit, combined with rapid wage growth, fed market expectations of drachma overvaluation and provided a sufficient basis for contagion from Asia, which commenced with the devaluation of the Thai baht in July 1997.[27] The view that an exchange rate correction would be needed in good time before intended euro area accession became increasingly embedded in market expectations. Further, the

25. In 1997, the Bank took other measures to discourage capital inflows. For example, weekly repo auctions replaced the overnight facility as the main intervention instrument, and deposits at the Bank's overnight window in excess of a global banking system limit were renumerated at a lower interest rate. For a detailed discussion of the Bank's sterilisation operations during the 1990s, see Brissimis *et al*., 2001.

26. The extent of the real appreciation depends upon the base period and the measure of relative prices used. In general, price indices indicate that the real value of the drachma rose by about 14.8 per cent on the basis of relative CPI indices and 4.3 per cent on the basis of unit labour costs between 1990 and 1997.

27. The recent literature on currency crises has offered a number of reasons that such crises tend to be clustered (e.g. Masson, 1998). In the case of the attack against the drachma, financial linkages were an important channel for spillover and contagion effects from the Asian crisis. In effect, the Asian crisis induced investors to rebalance their portfolios for risk management, liquidity, or other reasons. One way in which this channel works that has some relevance for the attack against the drachma is that investors who have positions in a country undergoing a crisis (such as Thailand in mid-1997) will often be induced to sell liquid assets, because the reduced value of the assets of the crisis country gives rise to an immediate need to raise cash to meet margin calls (Goldfajn and Valdes, 1997). In addition, investors may sell assets that are highly represented in their portfolios simply because of their greater availability. Some countries, therefore, may experience capital outflows simply because their assets are more liquid or more highly represented in the portfolios of creditors.

sharp rise in interest rates required to support the drachma (Figures 1-5, 1-7a and 1-7b) increasingly undermined growth and fiscal targets.

By early 1998, the government's strategy of joining the euro area in early 2001 was in jeopardy. A clear strengthening of policies, signalling a fundamental regime shift, had become a necessity. In response, effective March 16, 1998, the drachma joined the Exchange Rate Mechanism (ERM) of the European Monetary System (EMS) at a central rate that implied a 12.3 per cent devaluation against the ECU. At the same time, a package of supportive fiscal and structural measures was announced. Efforts to restructure public enterprises were stepped up. Entry into the ERM served to fulfil the Maastricht Treaty requirement that ERM participation is needed in the two years prior to joining the euro area.

Two (interrelated) issues arise with respect to the monetary policy strategy. First, why was the policy of ERM entry combined with devaluation effective?[28] Unlike the devaluations of several other currencies in the mid-1990s and late 1990s, the devaluation of the drachma in March 1998 was not followed by further rounds of speculative attacks. Second, how was the impact of the devaluation on inflation contained? If the effects of the devaluation had become incorporated into inflation expectations, the goal of entry into the euro area in early 2001 would have been jeopardised.

With regard to the former issue, the drachma's devaluation did not strictly follow the first principles enumerated in the literature dealing with orderly exit strategies (Eichengreen and Masson, 1998; Eichengreen, 1999).

- This literature recommends exiting a pegged central rate during periods of exchange market tranquility or during periods of upward pressure on the exchange rate. The drachma exited its central rate during a period of downward pressure.
- The literature recommends an appreciation of the exchange rate following the exit. The drachma was devalued.
- The literature advises that the exit should be from a pegged rate to a floating rate. The drachma was devalued from one pegged central rate to another pegged rate.

There are several principles of the exit strategy literature, however, that were key features of the drachma's exit from one central rate to another.

- The literature strongly advises that, following the exit from a central rate, the country in question should establish low inflation as a key

28. Eichengreen (2000) reported that, for the period 1970-98, the typical emerging market economy experiencing an exchange market crisis lost an average of 3 percentage points from GDP growth between the years preceding and following a crisis. For the six EMS countries experiencing a crisis in 1991-92, the comparable figure is 1.6 percentage points (Eichengreen, 2000, p. 37).

objective and grant operational independence to the central bank to pursue this objective. As discussed above, a reduction of inflation had been the main goal of the Bank of Greece for several years, and, following the granting of independence, the Bank's mandate was to achieve price stability.

- The devaluation of the drachma was both backward looking and forward looking. The magnitude of the devaluation took account of both past inflation differentials between Greece and other EU countries and prospective differentials in the period leading up to Greece's expected entry into the euro area.
- Additionally, the drachma exited a unilateral peg and entered the ERM arrangement within which it benefited from the availability of the mutual support facilities (e.g. the Very Short-Term Financing Facility) and wide exchange rate bands.
- The literature recommends implementation of proper supervision and prudential regulation for foreign exchange exposure prior to the exit. As discussed below, prudential supervision and regulation had been implemented in Greece, and banks had effectively no net foreign exchange exposure at the time of the devaluation.
- The exit strategy literature recommends that fiscal policy be tightened following the exit. Fiscal tightening had already been in process in Greece in the years leading up to the drachma's devaluation, and it continued following the devaluation. The fiscal deficit, as a per cent of GDP, fell to 2.5 per cent in 1998, from 4.0 per cent in 1997 (Figure 1-3).

Crucially, the Bank did not ease monetary conditions; it made clear that it would use its independence to ensure that the Maastricht inflation criterion was attained. In its first monetary policy report (April 1998) after independence, the Bank stated that it would not set an inflation target for end-1998 in view of the lags with which monetary policy affects inflation and of the uncertain impact of the devaluation on inflation. Instead, the Bank stated that it would seek to achieve price stability by end-1999. Its intermediate target would be to maintain a stable exchange rate, defined as an average annual exchange rate within 2.5 per cent of the central rate. In striking a balance between the objectives of disinflation and exchange rate stability, the Bank clearly affirmed that priority in policy implementation would be given to achieving the inflation target and, consequently, the drachma could appreciate to a point outside the narrow margins of fluctuation (Bank of Greece, 1998). Thus, the wide bands of the ERM facilitated the disinflation strategy, as they allowed the Bank to maintain high interest rates and to let the exchange rate appreciate relative to its central rate.

Capital inflows resumed in the aftermath of the devaluation, and, although inflation picked up, the rise was mild and short-lived (see below). Unlike the situation that confronted some other countries whose currencies were attacked in 1997 and 1998, in Greece there was no disruption of real economic activity, as real growth accelerated in the aftermath of the devaluation. Two important factors contributing to the smooth exchange rate adjustment were the law granting independence to the Bank of Greece to pursue price stability and the drachma's entry into the ERM arrangement. Also, many of the fundamentals, including inflation performance and the government's fiscal position, had improved markedly in the years leading up to the attack against the drachma. Often, currency attacks are provoked by worsening fundamentals.

With regard to the issue of the inflationary impact of the devaluation, inflation accelerated following the devaluation, but the upturn was short-lived. Inflation peaked at 5.3 per cent in May 1998 and fell to 3.9 per cent at year's end. The Bank of Greece kept interest rates at very high levels; at the short end, real rates were in the range of 8-9 per cent in the months following the devaluation. Additionally, the appreciation of the drachma within the ERM reversed some of the inflationary effects of the devaluation. Moreover, monetary policy received support from other policy measures. As noted, fiscal policy was steadily tightened. Also, a sharp moderation of labour costs occurred; real wages in the manufacturing sector declined in 1998 (Table 1-1).[29]

### *Exchange Rate Devaluations and Financial Crises*

A prominent feature of recent currency crises has been the close association between exchange rate crises and financial crises. In a number of cases, pegged exchange rate arrangements and high domestic interest rates provided incentives for domestic firms and financial institutions to borrow in foreign currencies carrying low interest rates. Typically, the foreign currency debt was unhedged and short-term (Sneddon-Little and Olivei, 1999). In the event of a speculative attack, a rise in domestic interest rates to thwart the attack often aggravated conditions in an already weak domestic banking system. An exchange rate devaluation served to increase the debt burdens of domestic borrowers, also aggravating the fragile condition of the banking systems.

As shown in Table 1-5, in the period leading up to the speculative pressures against the drachma, Greek commercial banks had net foreign exchange exposure of only $0.4 billion, while branches of foreign banks operating in

29. Hall and Zonzilos (2001) discuss the determination of wages in Greece.

**Table 1-5. Commercial Banks' Assets and Liabilities in Foreign Exchange**
Million USD

| | *1996 Year-end* | *1998 February* |
|---|---|---|
| **I. Assets in foreign exchange** | | |
| 1. Redeposits with the Bank of Greece | **11,352** | **9,001** |
| *1.1 (Greek banks)* | *8,246* | *6,469* |
| *1.2 (Branches of foreign banks)* | *3,106* | *2,532* |
| 2. Loans to private sector | **8,780** | **11,352** |
| *2.1 (Greek banks)* | *6,469* | *7,153* |
| *2.2 (Branches of foreign banks)* | *2,311* | *4,199* |
| 3. Greek government bonds | **1,255** | **808** |
| *3.1 (Greek banks)* | *1,056* | *622* |
| *3.2 (Branches of foreign banks)* | *199* | *186* |
| 4. Deposits with correspondent banks | **11,984** | **14,361** |
| *4.1 (Greek banks)* | *7,072* | *7,942* |
| *4.2 (Branches of foreign banks)* | *4,912* | *6,419* |
| 5. Other assets | **758** | **906** |
| *5.1 (Greek banks)* | *746* | *876* |
| *5.2 (Branches of foreign banks)* | *12* | *30* |
| 6. TOTAL | **34,129** | **36,428** |
| *6.1 (Greek banks)* | *23,589* | *23,062* |
| *6.2 (Branches of foreign banks)* | *10,540* | *13,366* |
| **II. Liabilities in foreign exchange** | | |
| 1. Deposits by non-financial companies and individuals | **18,220** | **23,232** |
| *1.1.1 (Greek banks)* | *12,950* | *18,128* |
| *1.1.2 (Branches of foreign banks)* | *5,270* | *5,104* |
| *1.2.1 (Residents)* | *17,548* | *22,434* |
| *1.2.2 (Non-residents)* | *672* | *798* |
| 2. Other liabilities | **15,603** | **12,787** |
| *2.1 (Greek banks)* | *8,067* | *5,341* |
| *2.2 (Branches of foreign banks)* | *7,536* | *7,446* |
| 3. TOTAL | **33,823** | **36,019** |
| *3.1 (Greek banks)* | *21,017* | *23,469* |
| *3.2 (Branches of foreign banks)* | *12,806* | *12,550* |
| **III. Foreign exchange exposure (I.6-II.3)** | **306** | **409** |
| *1.1 (Greek banks)* | *2,572* | *-407* |
| *1.2 (Branches of foreign banks)* | *-2,266* | *816* |

SOURCE: Bank of Greece.

Greece had (positive) foreign exchange exposure of about $0.8 billion. Much of the foreign-currency borrowing by the banks was on-lent to domestic firms. Traditionally, a large portion of the receipts of the firms was in foreign currency. Other data bearing on the soundness of the banking system at the time of the attack against the drachma include the following:

- Bank loans in foreign currencies to the private sector represented less than 25 per cent of total bank loans to that sector and only about 7 per cent of total bank assets (a large proportion of which consisted of liquid government securities).
- About 58 per cent of these loans in foreign currencies had been provided to industrial, tourist and shipping firms with significant receipts in foreign currencies. A significant portion of these loans was, therefore, effectively hedged.
- Greek banks observed the capital adequacy and solvency requirements for credit and market risks as provided under EU directives. The capital adequacy ratio of Greek commercial banks was (on average) above 10 per cent and that of the five largest banks (with a share of 72 per cent in the banking sector) was over 11 per cent. Moreover, Greece's banking sector had one of the highest rates of return on own capital (about 16 per cent, 1994-97, on average) in the OECD area. Under the supervision of the Bank of Greece, in the years leading up to the attack against the drachma commercial banks had been building up provisions for bad loans so that these provisions more than covered any possible losses at the time of the attack. Thus, banks were in a position to withstand a deterioration in the quality of their loan portfolios.

In sum, the Greek banking system was fundamentally sound at the time of the devaluation of the drachma, ensuring that the devaluation did not precipitate a financial crisis.

### *ERM II*

With the adoption of the euro by eleven EMS members on January 1, 1999, the drachma began participation in ERM II, which succeeded the ERM. The drachma's central rate in ERM II was set at 353.109 drachmas per euro, with a standard fluctuation band of ± 15 per cent.[30]

Monetary policy in 1999 and 2000 aimed to attain the Maastricht Treaty convergence criteria so that Greece could participate in the euro area. Three

30. The Danish krone also participates in the ERM II, with a ± 2.25 per cent band.

of these (five) criteria bear directly on monetary policy. In particular, a country can join the final stage of monetary union if (during the previous year):[31]

- its inflation rate (based on the harmonised index of consumer prices, or HICP) is not more than 1.5 percentage points higher than the average of the three best performing Member States;
- its long term nominal interest rate is not more than 2 percentage points higher than that of, at the most, the three best performing Member States in terms of price stability.
- it has joined the exchange rate mechanism of the EMS and has respected the standard fluctuation margins without severe tensions for the two years before the examination (for entry into the euro area). In particular, the Member State shall not have devalued its currency's bilateral central rate against any other Member State's currency on its own initiative for the same period.

To help attain these criteria, the tight monetary policy stance remained in force in 1999, as evidenced by the following indicators of monetary conditions in 1999.[32] (1) The drachma traded (on average) 7.7 per cent above its central rate. Thus, the wide margins of the standard fluctuation band continued to provide an important tool in the disinflation process. (2) Interest rates were kept at high levels. For example, for most of the year the three-month interbank rate stood about 700 basis points above the German three-month interbank rate (Figure 1-7b); the twelve-month T-bill rate stood some 600 basis points above the corresponding German rate (Figure 1-7a).

The tight monetary stance received support from a considerable slowdown in the growth of unit labour costs and a further tightening in fiscal policy. The fiscal deficit-to-GDP ratio fell to 1.8 per cent (Figure 1-3) and weekly earnings of blue-collar workers in manufacturing rose by 4.4 per cent (Table 1-1); both outcomes represented the lowest levels in over twenty five years. As a result of this policy mix, inflation fell to 2 per cent in August and September of 1999, before picking up somewhat due to a sharp rise in world oil prices.[33]

31. The Maastricht criteria pertain to the period before the examination for entry into the euro area. To be specific, therefore, "during the previous year" refers to the one year before the examination. The remaining two criteria deal with the deficit-to-GDP ratio and the public debt, respectively. For a discussion of these criteria in the context of Greece, see Manessiotis and Reischauer (2001).

32. Detailed descriptions of the Bank's monetary policy strategy are provided in the Bank's Annual Report for 1999 and 2000.

33. At year's end, inflation stood at 2.7 per cent. On the basis of the harmonised index (HICP), the inflation differential between Greece and the euro area narrowed to 0.7 percentage point in December 1999, from 2.9 percentage points in December 1998; the average annual increase in the HICP was 2.3 per cent. The decline in inflation occurred against the backdrop of accelerating growth.

The anti-inflationary strategy in 1999 encountered challenging aspects. During the first half of the year, high real interest rates led to further capital inflows. This situation was dealt with in several ways. First, the Bank of Greece intervened in the foreign exchange market in order to restrain pressures on the drachma and reduce its volatility; from mid-January to end-March, the drachma traded between 8.5 and 9 per cent above its central rate. Second, when further upward pressures emerged, the Bank imposed temporary credit controls to help stem total credit expansion.[34] During the second half of the year, market expectations that the drachma would approach its central rate faster than had previously been expected led to some capital outflows. Consequently, the drachma fell to a low of around 6.5 per cent above its central rate against the euro.

Expectations that Greece would qualify for entry into the euro area on January 1, 2001 posed challenges for monetary policy in 2000. With the drachma trading about 6.0 per cent (at 331.8 drachmas per euro) above its central rate on January 14, 2000, a depreciation of the drachma to its central rate over the course of the year (i.e. 2000) threatened to add to inflation. In response, on January 17, 2000, the drachma's central rate against the euro was revalued by 3.5 per cent, to 340.75 drachmas per euro. This adjustment limited the required depreciation to 2.6 per cent, from the 6 per cent depreciation that would have been required had the drachma's central rate remained unchanged (at 353.109). The move also provided the Bank of Greece increased latitude with regard to the timing and the size of interest rate cuts during the course of 2000, since these cuts could be made in the context of a smaller depreciation than would have been required had the central rate not been revalued.

With the revaluation of the drachma in hand, monetary policy (as well as fiscal and structural policies) in the first half of 2000 continued to focus on the Maastricht criteria dealing with inflation convergence, exchange rate stability, and long term interest rate convergence. The policy mix was successful. On June 19, the ECOFIN Council admitted Greece into the euro area, effective January 1, 2001.[35]

In the second half of 2000, monetary policy aimed at completing the transition to the euro area, which implied a gradual convergence of interest rates

34. Non-remunerated deposits were introduced in April 1999 for an amount equivalent to the growth of credit above specified rates. Subsequently, the penalty for excess lending in this category was doubled. These credit controls were in effect until the end of March 2000. The Bank of Greece took also steps to prevent a surge in liquidity when it reduced reserve requirements from 12 per cent to the euro area's 2 per cent. The freed-up reserves were converted into blocked interest-bearing deposits at the Bank, to be gradually released until end-2001.

35. With regard to the inflation criterion, the EU countries (i.e. Austria, France and Sweden) with the three lowest inflation rates produced a harmonised inflation reference value of 2.4 per cent over the reference period April 1999 through March 2000. Greece's harmonised inflation rate was 2.0 per cent.

to euro area levels and a convergence of the exchange rate to its central parity. Monetary policy also had to deal with the emergence of inflationary pressures stemming from the sharp increase of world oil prices and the depreciation of the euro against the US dollar. With regard to interest rate convergence, the differential between the Greek 14 day intervention rate and the corresponding rate for the ECB narrowed from 775 basis points at the end of 1999 to 175 basis points at end-November; the narrowing was due to a decline of 425 basis points in Greek rates and a rise of 175 basis points in the ECB's intervention rate. With regard to exchange rate convergence, the move to central parity occurred in smooth manner.

### *Was There a Regime Change?*

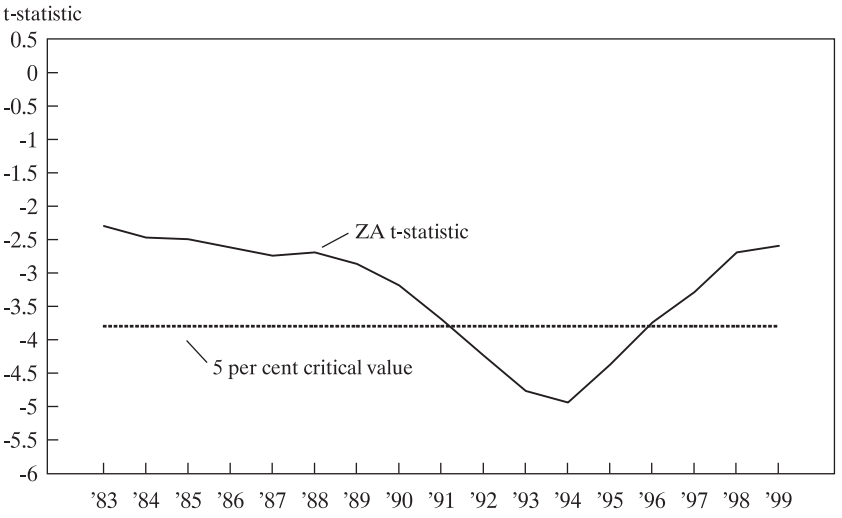
The above discussion apportioned the past twenty-five years into two regimes and a transition period, each corresponding to a particular inflation outcome. Is there any statistical evidence that a regime change occurred?

Figure 1-8 sheds some light on this issue. The figure shows the results of applying the Zivot-Andrews (1992) test to annual inflation (CPI) data for the period 1979-99. The Zivot-Andrews test allows an endogenous determination of the time of a shift while testing for stochastic nonstationarity. The null hypothesis is that the inflation series follows a random walk process without a structural break. The alternative hypothesis is that the inflation process involves a change in slope (but not a change in the constant term). As shown in Figure 1-8, an estimated break point in the inflation series (at a 5 per cent critical level) occurs in 1994. A variant (not reported) of the foregoing test, which allows changes in both the slope and the constant term, places the change in regimes several years earlier. Both tests confirm that a statistical break in the inflation process occurred sometime in the first half of the 1990s.[36]

To further examine whether a regime change occurred, we estimated the variance of the inflation rate around a detrended, or smoothed, inflation series at each point of time (using monthly data) during the period 1975-2000. To obtain the detrended series, we used both the Kalman filter and the Hodrick-Prescott (HP) filter. The Kalman filter is a recursive algorithm for sequentially updating a state vector given past information. The HP filter is a two-sided linear filter that computes the smoothed series, s, of y by minimising the variance of y around s subject to a penalty that constrains the second difference of s.[37]

36. These results are from Zonzilos (2000).
37. For discussions of these smoothing techniques, see Pesaran and Pesaran (1997).

**Figure 1-8. ZA t-Statistic for the Inflation Rate**
**Sample: 1979-1999**




SOURCE: Zonzilos (2000).

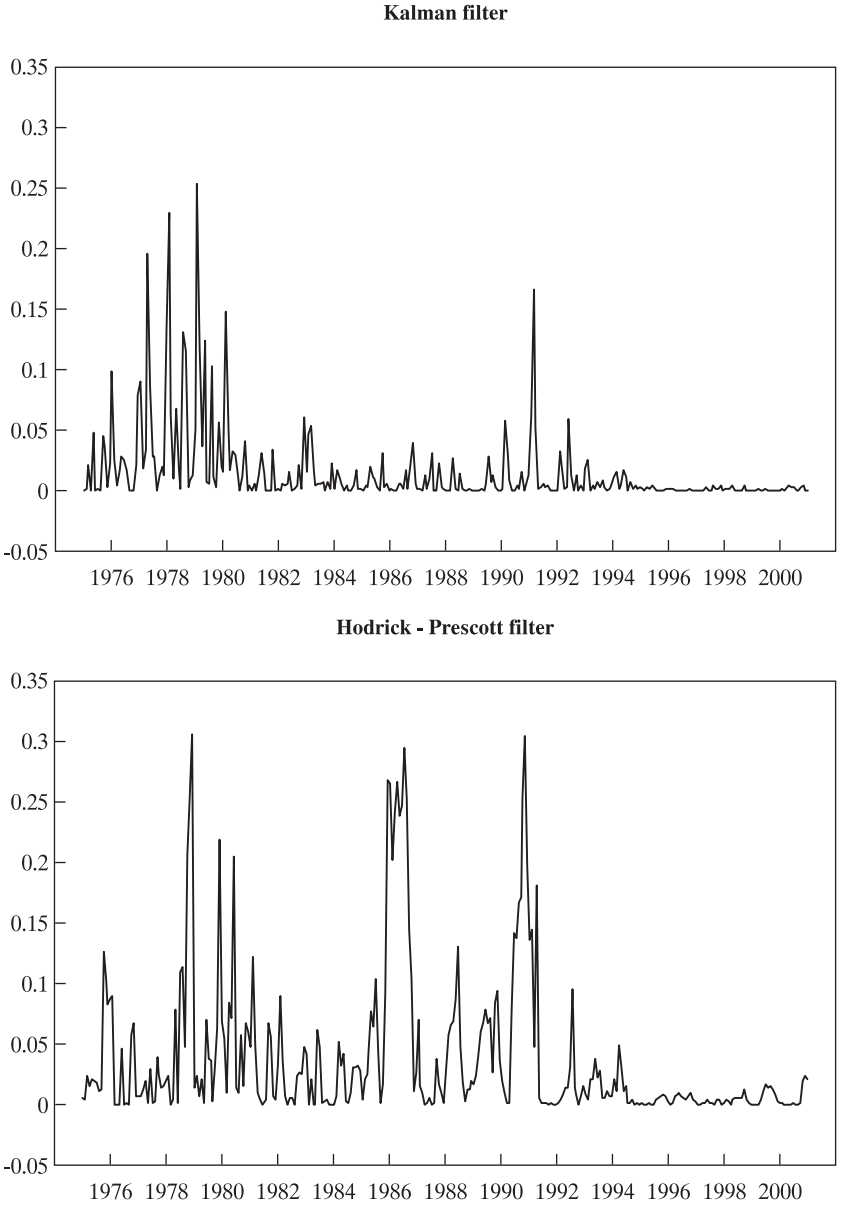
The variances of the inflation series based on each of these two smoothing methods are presented in Figure 1-9. Both methods indicate that Greece moved from a period of continually changing regimes during 1975 to around the middle of 1994 to a period of stability, or a single regime, beginning in the second half of 1994. Thus, variances based on the Kalman and HP filters provide clear evidence that more than just a statistical break occurred around 1994. A change in the nature of the time series took place, indicating a change in the underlying economic-policy regime.

## *Challenges Ahead*

In recent years, a transformation in Greece's economic landscape has taken place. Inflation and interest rates have declined to historically low levels, while GDP growth has exceeded the euro area average during the past five years. Continued fiscal adjustment is expected to lead to a budget surplus in 2001. Looking forward, the challenge is to safeguard, and to build on, these achievements and take advantage of the opportunity provided by monetary union.

With Greece in the euro area, the country will initially have to deal with some reversals of its recent gains in its quest to attain price stability. At the

**Figure 1-9. Variance of Monthly Inflation, 1975 - 2000**




SOURCE: Bank of Greece and authors' calculations.

same time, the high growth rate of the Greek economy relative to that of the rest of the euro area will imply that a given policy stance by the ECB will be expansionary in the case of Greece. In part, this situation should be expected. Fast growing economies require appreciations of their real exchange rates. In a monetary union, the only way to attain such adjustment is through relative changes in national price levels.

Nevertheless, the rapid credit growth,[38] reflecting the confluence of (1) the decline in interest rates, (2) elimination of credit restrictions, and (3) future releases of bank liquidity following the reduction in reserve requirements (from 12 per cent to the euro area's 2 per cent), provides a potential for a pick-up in inflation. In the medium term, the broader challenge of macroeconomic stabilisation will be to keep inflation at bay, while also preventing the emergence of its converse – namely, generalised price deflation. In dealing with these issues, there are several channels through which the Bank will continue to be an active force in the economy.

(1) *Prudential supervision*. The acceleration in domestic credit expansion during the past years leads to concern that banks do not take on excessive risk and highlights the need for effective prudential supervision.

More generally, sound management by banks themselves is crucial for financial stability. In the best of all worlds, banks and other financial market participants would have the proper incentives to manage risk, and these incentives would help avert a concentration of risks. The tendency to take on excessive risks would be contained through the operation of market discipline, facilitated through the adoption of internationally-accepted accounting, auditing and disclosure standards. However, in a world where asymmetric information and other distortions interfere importantly with banks' ability to manage risk, there is a particularly important role for firm prudential supervision (Eichengreen and Mussa, 1998). The Bank of Greece will help ensure the use of proper accounting, auditing, and reporting rules for financial institutions through continued prudential supervision.

(2) *The role of surveillance*. In view of the common monetary policy, in the euro area, other policies — particularly fiscal and structural policies — will become increasingly important in countering national inflationary pressures. The Bank can be expected to play an increasing role in providing guidance and advice to policy makers. Beyond that, the Bank will also have a role to play in the policy decisions of the ECB, as the Governor of the Bank will sit on the Governing Council of the ECB.

38. Private sector credit growth exceeded 25 per cent (year-on-year) in late 2000.

### *Assessment*

Although monetary policy bore the brunt of the disinflation during 1995-2000, fiscal policy and incomes policy were also tightened so that the overall policy stance became sustainable and credible. During the second regime, inflation fell from about 9 per cent (in 1995) to under 3 per cent (in 2000), while real growth averaged more than 3 per cent. Contributing to policy credibility were the use of the exchange rate as a nominal anchor, the law granting independence to the Bank of Greece, and the entrance of the drachma into the ERM. The deregulated financial system increased the Bank's effectiveness in transmitting its policy objectives in the financial markets and allowed the Bank to respond rapidly to unforeseen circumstances. Foreign exchange intervention during periods of capital inflows enabled the Bank to limit the appreciation of the nominal exchange rate, to reduce the impact of capital flows on money growth, and to buy time so that other policies could adjust. As inflation subsided and the policy mix became increasingly consistent and sustainable, nominal interest rates fell significantly, converging towards those in countries with historically low inflation rates (Figures 1-7a and 1-7b).

## Conclusions

The Greek experience provides a number of lessons for countries pursuing comprehensive reforms, including the following:

(1) There are limits on what monetary policy can achieve as an instrument of fine-tuning the economy in the short run. If supported by other policies, monetary policy can play a key role in delivering price stability over the medium term. By anchoring inflationary expectations, it can create a stable financial environment, help eliminate uncertainty and provide an economic environment conducive to sustainable growth.[39]

(2) The costs of allowing inflation to rise are very high. Inflation distorts relative price signals, generates uncertainty about future inflation and generally reduces the information provided by the price system. By so doing, inflation imposes substantial economic and social costs. In the case of Greece, the years of double-digit inflation were accompanied by sluggish economic growth. While commodity shocks and other supply shocks can provide substantial impetus to inflation, the response of inflation to such shocks depends

39. This view is developed by Friedman (1968). For recent restatements, see Buiter (2000, pp. 50-52) and Issing, Gaspar, Angeloni, and Tristani (2001, pp. 7-31).

crucially on the stance of macroeconomic policies. The behaviour of wages is an important propagation mechanism that can lock in higher rates of inflation.

(3) Although high rates of inflation are predominantly due to excessive money growth, assessments of the determination of money growth need to consider the stance of fiscal policy. Without a fiscal stance supportive of tight monetary policy, economic agents may expect that a persistent budget deficit will be financed with future money creation, leading to higher inflationary expectations, undermining policy credibility and sustainability. In the Greek case, fiscal pressures contributed greatly to excess money creation and high inflation in the first regime and the transition period. The influential role of the government in matters of monetary policy, and the underdeveloped nature of the tax system, provided powerful incentives for money creation.

(4) While the use of multiple monetary indicators can improve the chances of correctly identifying the timing and nature of disturbances, a single-indicator approach to monetary policy can serve as a focal point of expectations, enhancing credibility. In countries such as Greece, with histories of high inflation, a multiple target approach need not be sufficient to enhance transparency or establish credibility.

(5) The success of the Greek disinflationary effort in the second regime underscores the critical role of the credibility of policies. Credibility, however, cannot be achieved overnight, particularly if there is a history of failed stabilisation attempts. In such a situation, credibility can be fostered by a change in policy regime; in the case of Greece, the hard-drachma policy constituted such a regime change. While an exchange rate target can help establish credibility by providing a clear and transparent nominal anchor, it runs the risk that it may become unsustainable in the absence of supportive fiscal policy and incomes policy. Important factors reinforcing the credibility of the exchange rate nominal anchor in the second regime were continued fiscal adjustment, wage restraint, the legislation providing independence to the Bank of Greece, and the entry of the drachma into the ERM.

(6) A number of factors contributed to the orderly nature of the drachma's devaluation in March 1998: the Bank of Greece had previously established low inflation as its main objective and, as noted in the previous paragraph, the implementation of various institutional changes, continued fiscal adjustment, and wage restraint enhanced credibility. Also, the wide ERM exchange rate bands permitted the Bank to continue its tight monetary policy in the period prior to entry into the euro area.

(7) A deregulated financial system facilitates the use of indirect instruments of monetary policy so that small, frequent changes in the instruments become

feasible, enabling the authorities to respond rapidly to shocks. Financial deregulation needs to be accompanied by adequate measures of prudential supervision. In the Greek case, a properly supervised banking sector with adequate prudential regulations limited the exposure of commercial banks to foreign currency risk, providing an additional reason why the exit strategy of the drachma in March 1998 could be implemented in an orderly way.

(8) Capital inflows provide opportunities as well as challenges. In periods of large capital inflows, sterilisation can be used to limit the appreciation of the nominal exchange rate and curb the monetary effects of the inflows. Sterilisation, however, prevents domestic interest rates from falling in response to the inflows and thus tends to maintain the yield differential that gave rise to them. Also, the quasi-fiscal losses of intervention, arising from the differential between the interest earned on foreign reserves and that paid on debt denominated in domestic currency, will mount with greater sterilisation efforts. Sterilisation, therefore, tends to be effective primarily as a short-term device. In the case of Greece, sterilisation was useful, in part, because it could be implemented quickly and helped buy time to achieve a consistent policy mix.

## Annex Tables

**Table 1A-1. Tests of Unit Roots Hypothesis**

| | *Augmented Dickey-Fuller* | | |
|---|---|---|---|
| *Variable* | $\tau_\mu$ | $\tau_\tau$ | *k* |
| LM3 | -2.78 | 0.66 | 6 |
| LCGBR | -0.36 | -3.33 | 5 |
| DLM3 | -4.07** | -4.96** | 5 |
| DLCGBR | -9.52** | -9.41** | 2 |

LM3 is the log of money supply M3. LCGBR is the log of central government borrowing requirements (cash basis). DLM3 and DLCGBR are the first differences of LM3 and LCGBR respectively.

The relevant tests are derived from the OLS estimation of the following autoregression for the variable involved:

$$\Delta x_t = \delta_0 + \delta_1 (\text{Time})_t - \delta_2 x_{t-1} + \sum_{i=1}^{k} \Phi_i \Delta x_{t-i} + u_t \quad (1)$$

$\tau_\mu$ is the t-statistic for testing the significance of $\delta_2$ when a time trend is not included in equation 1 and $\tau_\tau$ is the t-statistic for testing the significance of $\delta_2$ when a time trend is included in equation 1. The calculated statistics are those reported in Dickey-Fuller (1981). The critical values at 5 per cent and 1 per cent for N=50 are -2.93 and -3.58 for $\tau_\mu$ and -3.5 and -4.15 for $\tau_\tau$, respectively. The lag length structure of $\Phi_i$ of the dependent variable $x_t$ is determined using a recursive procedure in the light of a Lagrange multiplier (LM) autocorrelation test (for orders up to six) which is asymptotically distributed as $\chi^2$ distribution and the value of t-statistic of the coefficient associated with the last lag in the estimated autoregression.

** Indicates rejection of the null hypothesis at 1 per cent level of significance.

**Table 1A-2. Johansen and Juselius Cointegration Test. Money Supply, M3, and Central Government Borrowing Requirements, 1981: 1 – 1990: 4.**

*VAR=4, Variables: LM3 and LCGBR*

Maximum eigenvalues

| | | | *Critical values* | |
|---|---|---|---|---|
| *Null* | *Alternative* | *Eigenvalue* | *95 per cent* | *90 per cent* |
| r=0 | r≥1 | 29.96** | 14.88 | 12.98 |
| r≤1 | r=2 | 4.98 | 8.07 | 6.5 |

Trace statistic

| | | | *Critical values* | |
|---|---|---|---|---|
| *Null* | *Alternative* | *Trace* | *95 per cent* | *90 per cent* |
| r=0 | r≥1 | 34.95** | 17.86 | 15.75 |
| r≤1 | r=2 | 4.98 | 8.07 | 6.5 |

*Z=LM3-0.73LCGBR*

*Long-run test for the hypothesis that each variable does not enter any cointegrating vector*

| *Variables* | $\chi^2$ *test of restrictions* |
|---|---|
| LM3=0 | $22.14^{+++}$ |
| LCGBR=0 | $17.25^{+++}$ |

LM3 is the log of money supply M3. LCGBR is the log of central government borrowing requirements (cash basis). r indicates the number of cointegrating relationships. Maximum eigenvalue and trace test statistics are compared with the critical values almost identical with those reported in Johansen and Juselius (1992, Table 2).

** Indicates rejection of the null hypothesis at 95 per cent critical value. The reported statistics for the long-run hypothesis that each variable is equal to zero are distributed as $\chi^2$ distribution with the degrees of freedom equal to the number of cointegrating vectors.

+++ Indicates rejection of the null hypothesis at 1 per cent level of significance.

## Appendix 1: Liberalisation and Deregulation of the Greek Banking System

### *1982-1985*

– Abolition of the Currency Committee and assignment of its tasks to the Bank of Greece.

– Establishment of a limit (10 per cent of the budgeted annual current and investment expenditure) on central bank financing of central government.

– Simplification of the credit controls concerning commercial banks and specialised credit institutions.

– In 1984, the Bank of Greece ceased to determine the allocation of credit extended by the Agricultural Bank of Greece and the National Mort-

gage Bank of Greece and concentrated on controlling their overall credit expansion. Moreover, it limited the amount of funds they could draw from the central bank and increased the interest rate on such refinancing.

– Rationalisation of interest rate structure by:
  i) reducing the wide diversification of existing categories of interest rates,
  ii) narrowing the interest rate differentials between the various types of credit, and
  iii) raising the entire range of interest rates in real terms.

*1985-1988*

– Introduction of a floor rate on short-term loans, at one percentage point higher than the rate on savings deposits (November 1985).

– Determination of a minimum long-term lending rate, equal to the rate on savings deposits (June 1986).

– Banks are allowed to accept 7- to 90-day deposits (February 1987) and to offer certificates of deposit (June 1987) at market rates.

– Abolition of the requirement on commercial banks to earmark 15 per cent of their deposits for financing fixed investment by private enterprises (June 1987).

– Abolition of the maximum rate of 21.5 per cent on short-term credit and on other categories of bank loans and determination of a minimum rate of 21 per cent on all working capital loans (June 1987). This minimum rate was abolished in December 1987.

– Financial institutions are authorised to extend medium- and long-term loans for fixed investment at market rates (November 1987).

– Freely negotiable interest rates and other terms of time deposits, savings deposits with a notice, and bank bonds (November 1987).

– Following a gradual reduction in reserve/rebate rations on bank loans, the reserve/rebate system is abolished (December 1988).

*1989*

– Exporters are permitted to open foreign exchange accounts covering their transactions abroad (January).

– Freely determined interest rates on current accounts and sight deposits (June).

– Determination of a minimum interest rate on savings deposits (June).

– Freely negotiable terms on drachma loans to public enterprises and entities (October).

*1990*

– Reduction (from 10.5 per cent to 9.5 per cent as from April and to 9 per cent as from May) of the requirement on commercial banks to earmark a percentage of their deposits for the financing of public enterprises and public entities. The requirement is reduced at the margin from 9 per cent to 6 per cent as from November 1990, to 3 per cent as from January 1991 and is abolished as from April 1991.

– Direct investment in EC countries by Greek nationals is fully liberalised (July).

*1991*

– Ceilings per bank regarding bond issues are abolished (February).

– The Bank of Greece further simplifies the provisions regarding the issue of letters of guarantee in foreign exchange. All relevant provisions are codified into a single text (February).

– The requirement on commercial banks to earmark a percentage of their deposits for investment in government securities is reduced at the margin from 40 per cent to 35 per cent as from February and to 30 per cent as from July.

– The Agricultural Bank of Greece is authorised to expand its operations to all categories of loans commercial banks are authorised to grant (July).

– Simplification and codification into a singe text of the rules governing the granting of drachma loans by banks operating in Greece (July) and loans in foreign currency to legal and natural persons for their business activity (September).

*1992*

– Creation of a forward market in foreign exchange. The scope of transactions that can be covered in the forward market is extended to all transac-

tions related to exports and imports of goods and services and the payment of interest, dividends and profits (January).

– Currency swaps between banks located in Greece are liberalised (January).

– The requirement on commercial banks to earmark a percentage of their deposits for investment in government securities is reduced at the margin from 30 per cent to 25 per cent as from February, to 20 per cent as from July and to 15 per cent as from October.

– The EC definition for the own funds of credit institutions is adopted and the solvency ratio of credit institutions authorised in Greece is determined according to the relevant EC Directive (March).

– Mortgage banks are authorised to carry out foreign exchange transactions, with the exception of those related to import-export trade (April).

– Reduction from 10 per cent to 5 per cent of the budgeted annual current and investment expenditure of the limit on central bank financing of central government for 1993 (July).

– Abolition of all remaining restrictions on the transfer abroad of funds pertaining to current external transactions (including business profits and rental income) (July).

– The Second Banking Directive of the EC Council is transposed by Law 2076/1992 into Greek banking legislation (August).

– The requirement on commercial banks to earmark a percentage of their deposits for the financing of small and medium-sized firms is lowered from 7 per cent to 6.5 per cent (September 1992) and reduced at the margin from 6.5 per cent to 5 per cent as from November 1992, to 2.5 per cent as from March 1993 and is abolished as from July 1993.

*1993*

– Adoption of the Council Directive 92/121/EEC, which sets the rules for monitoring credit institutions' large exposures (January).

– Liberalisation of savings deposits, following the abolition of the minimum interest rate (March).

– Liberalisation of long-term capital movements (March).

– To prevent the use of the financial system for money laundering, banks operating in Greece must require identification of their customers for transactions equal to, or exceeding the equivalent of, ECU 15,000. Banks are required to refrain from transactions which they know or suspect to involve money laundering (March).

– The requirement on commercial banks to earmark a percentage of the changes in their deposits for investment in government securities is abolished (May).

– Authorisation is granted for the establisment and operation of banks exclusively concerned with the provision of housing loans to consumers (August).

*1994*

– Prohibition of monetary financing of general government as from January 1, 1994.

– Effective liberalisation of consumer credit (8 million per person).

– The abolition of the requirement on banks to earmark a percentage of the increment in their deposits for the financing of public enterprises and entities is extended to the outstanding balance of deposits which constitutes the basis for the calculation of the above requirement (February).

– Liberalisation of short-term capital movements (May).

– Gradual equalisation of the interest-bearing part of the reserve requirement on deposits with the Agricultural Bank of Greece to the requirement imposed on commercial banks (from 1 per cent to 2 per cent as from May, to 3 per cent as from June and to 4.5 per cent as from July).

– Full liberalisation of lending in foreign currency to residents by domestic credit institutions (August).

– Abolition of the minimum interest rates on short- and long-term loans as well as of the credit institutions' maximum rate of discount on government securities (August).

– Time deposits are fully liberalised, following the abolition of the minimum maturity of 7 days (August).

*1995*

– The system according to which foreign currency deposits with credit institutions have to be redeposited with the Bank of Greece is simplified, with a view to gradually increasing banks' autonomy in managing these deposits. Specifically, the obligation to surrender certain categories of foreign currency deposits against drachmas at a fixed exchange rate is abolished and a single framework for managing foreign currency deposits is established. Moveover, the proportion of foreign currency deposits that credit

institutions are required to redeposit with the Bank of Greece is lowered as a first step from 100 to 70 per cent (May).

*1996*

– Expansion of the range of investment banks' operations (October).

*1997*

– Full liberalisation of Greek residents' deposits in foreign currency. Foreign currency deposits (with the exception of seamen's and emigrants' deposits) cease to be subject to the redeposit requirement with the Bank of Greece and are henceforth subject to the same management framework as drachma deposits (August).

– Amendment of the Statute of the Bank of Greece in order to enshrine independence in law and ensure democratic accountability in accordance with the Maastricht Treaty and the Statute of the European Central Bank (December).

*1998*

– The redeposit requirement with the Bank of Greece on seamen's and emigrants' foreign currency deposits with credit institutions operating in Greece is reduced from 70 to 60 per cent (July).

– Cooperative banks are authorised to perform certain financial intermediation operations with non-members (August).

*1999*

– Simplification of the procedures for the granting of foreign exchange for current transactions between residents of Greece and non-residents and for capital movements (August).

– Credit institutions are authorised to grant loans for covering any investment (as defined in Council Directive 93/22/EEC) and brokerage firms' borrowing requirements (September).

*2000*

— Banks are allowed to finance legal and natural persons for the purchase of shares, provided that, by such acquisition, participation in the share capital of a firm is maintained at, or increased to, at least 5 per cent (March).

## Appendix 2: The Implementation of Monetary Policy in the Deregulated Financial System

The main instruments used by the Bank of Greece to conduct monetary policy are the following: (a) reserve requirements on credit institutions; (b) standing facilities, which encompass the rediscounting of bills of exchange and promissory notes (discount facility), the financing against collateral of government securities (Lombard facility and a deposit facility); (c) interventions by the central bank on its own initiative for the purposes of injecting or absorbing liquidity; and (d) credit institutions' access to central bank financing through overdrafts on their current accounts with the central bank. However, the decision of the Bank in March 2000 to abolish the quantitative limits applied to Lombard facility and to provide banks with interest-free intra-day liquidity to cover their positions (if any) in the HERMES payment system have made this latter facility redundant.

Reserve requirement ratios [(a) above] have traditionally been changed rather infrequently, because this instrument is not typically employed for the short-term control of liquidity. The rediscounting mechanism [(b) above] was reactivated in 1993 in order to provide limited liquidity. Because of its potential signalling role, the discount rate is infrequently adjusted. The Lombard mechanism [(b) above] was introduced in 1993 to enable the Bank of Greece to provide liquidity to credit institutions in meeting their exceptional needs arising from unpredictable factors such as foreign exchange outflows and excessive liquidity drain (due to, for example, tax payments). This facility helps smoothen interest rate movements and serves as the upper limit of interbank rate fluctuations.

While the discount and Lombard mechanisms operate in a way that smoothens movements in interest rates, they cannot be flexibly used by the monetary authorities, given that they are activated on the initiative of the credit institutions. By contrast, interventions in the interbank drachma market constitute a flexible instrument; those interventions are the principal instrument used by the Bank of Greece to control liquidity and influence interest rates.

Interventions in the interbank market are of two types: (a) repurchase agreements; and (b) direct interventions. Open market operations, in particular repurchase agreements, constitute the foremost intervention type in all developed financial markets today. These operations are in line with market principles, support the deepening of the domestic money market and enable the allocation and control of liquidity through the market and the effective steering of interest rates. Repurchase interventions by the Bank of Greece date back to 1989, but they had been used to a limited extent until mid-1995. Repurchase agreements have the following advantages over other types of intervention: (i) transactions are reversed at a predetermined date and thus, unlike outright purchases of securities, do not affect liquidity in the long run; (ii) operations can be concluded quickly; (iii) a high degree of safety is ensured, because transactions are covered by government securities and the amount of financing is restricted by the volume of available securities; (iv) they ensure transparency, given that the general rules of the auction are known beforehand; and (v) the Bank of Greece is able to obtain information on market expectations about interest rates, not only from the average interest rate but also out of the range of bids. Prior to November 1994, Bank of Greece interventions were limited to the overnight market. The overnight rate had therefore assumed a strong signalling role. Since then, the Bank of Greece has initiated systematic one-month interventions, in order to assign a signalling role to the one-month rate too and foster a deeper market of this maturity; from the beginning of 1998, 14-day interventions have been conducted on a regular weekly basis.

In December 1997, the Greek Parliament approved central bank independence and provided the Bank of Greece with a mandate to achieve price stability. The law granting central bank independence also gave the Bank control over exchange rate policy within a framework agreed with the government.

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## Comment by M.J. Artis

### Introduction

This conference is, in part at least, a celebration of Greece's entry into the euro area. This paper provides the backdrop: it gives an account of the policy effort which led to this achievement and it places that effort in the perspective of the relevant literature. This includes the literature that encourages the adoption of Central Bank independence as a commitment technology to defeat inflation: and it includes also the literature which discusses the virtues of using the nominal exchange rate as an anchor and the problems of the exit from such a regime.

At first (and second!) sight, the Greek achievement is something of a miracle. I begin by underlining its miraculous dimensions, but go on to ask whether we should believe in miracles. I then discuss whether the move from a hard-exchange-rate-high-interest-rate regime to a regime which in effect is a soft-exchange-rate-low-interest-rate regime (which is the immediate representation of EMU for Greece) is good for Greece and I ask how Greece can perform needed economic adjustment inside the framework of EMU.

### The Miracle

Only two and a half years before this conference Greece was deemed to be ineligible to participate in the European Monetary Union. The Council of Ministers which met in May 1998 to review the economic performance of the EU countries against the Maastricht Treaty criteria concluded that Greece did not meet those criteria in any respect: her debt- and deficit-to-GDP ratios exceeded the reference values (respectively, 60 per cent and 3 per cent), as did inflation and the long-term interest rate. Nor had Greece satisfied the exchange rate criterion. Tables 1B-1 and 1B-2 show the comparative data for the two fiscal ratios, while Figure 1A-1 shows the position

**Table 1B-1. Government Surplus/Deficit in EU Member States**
General government net lending (+)/net borrowing (-), as a per cent of GDP

| | *1995* | *1996* | *1997* | *1998* | *1999* | *2000* [a] |
|---|---|---|---|---|---|---|
| BE | -4.2 | -3.7 | -2.0 | -1.0 | -0.9 | -0.5 |
| DE | -3.3 | -3.4 | -2.6 | -1.7 | -1.1 | -1.0 |
| ES | -6.9 | -5.0 | -3.2 | -2.6 | -1.1 | -0.7 |
| FR | -5.5 | -4.2 | -3.0 | -2.7 | -1.8 | -1.5 |
| IE | -2.5 | -0.6 | 0.8 | 2.1 | 2.0 | 1.7 |
| IT | -7.6 | -7.1 | -2.7 | -2.8 | -1.9 | -1.5 |
| LU | 2.2 | 2.7 | 3.6 | 3.2 | 2.4 | 2.6 |
| NL | -4.2 | -1.8 | -1.2 | -0.8 | 0.5 | -1.0 |
| AT | -5.1 | -3.8 | -1.9 | -2.5 | -2.0 | -1.7 |
| PT | -4.2 | -3.8 | -2.6 | -2.1 | -2.0 | -1.5 |
| FI | -3.7 | -3.2 | -1.5 | 1.3 | 2.3 | 4.1 |
| *EUR-11* | *-4.9* | *-4.2* | *-2.6* | *-2.0* | *-1.2* | *-0.9* |
| DK | -2.3 | -1.0 | 0.5 | 1.2 | 3.0 | 2.4 |
| GR | -10.2 | -7.8 | -4.6 | -3.1 | -1.6 | -1.3 |
| SE | -7.9 | -3.4 | -2.0 | 1.9 | 1.9 | 2.4 |
| UK | -5.8 | -4.4 | -2.0 | 0.3 | 1.2 | 0.9 |
| *EU-15* | *-5.1* | *-4.2* | *-2.4* | *-1.5* | *-0.6* | *-0.4* |

SOURCE: Commission services.
a. Spring 2000 economic forecasts.

**Table 1B-2. Government Debt in EU Member States**
General government consolidated gross debt, as a per cent of GDP

| | *1995* | *1996* | *1997* | *1998* | *1999* | *2000* [a] |
|---|---|---|---|---|---|---|
| BE | 129.8 | 128.3 | 123.0 | 117.4 | 114.4 | 110.1 |
| DE | 57.0 | 59.8 | 60.9 | 60.7 | 61.1 | 60.7 |
| ES | 63.2 | 68.0 | 66.7 | 64.9 | 63.5 | 62.3 |
| FR | 51.9 | 57.1 | 59.0 | 59.3 | 58.6 | 58.2 |
| IE | 80.8 | 74.1 | 65.3 | 55.6 | 52.4 | 45.2 |
| 1T | 123.2 | 122.1 | 119.8 | 116.3 | 114.9 | 110.8 |
| LU | 5.6 | 6.2 | 6.0 | 6.4 | 6.2 | 5.8 |
| NL | 75.5 | 75.3 | 70.3 | 67.0 | 63.8 | 58.8 |
| AT | 68.0 | 68.3 | 63.9 | 63.5 | 64.9 | 62.6 |
| PT | 64.7 | 63.6 | 60.3 | 56.5 | 56.8 | 57.0 |
| FI | 56.6 | 57.1 | 54.1 | 49.0 | 47.1 | 42.6 |
| *EUR-11* | *71.4* | *74.7* | *74.5* | *73.0* | *72.2* | *70.3* |
| DK | 69.3 | 65.0 | 61.3 | 55.6 | 52.6 | 49.3 |
| GR | 108.7 | 111.3 | 108.5 | 105.4 | 104.4 | 103.7 |
| SE | 76.6 | 76.0 | 75.0 | 72.4 | 65.5 | 61.3 |
| UK | 52.0 | 52.6 | 50.8 | 48.4 | 46.0 | 42.4 |
| *EU-15* | *69.5* | *72.1* | *71.0* | *59.0* | *67.6* | *65.1* |

SOURCE: Commission services.
a. Spring 2000 economic forecasts.

**Table 1B-3. Long-Term Interest Rates in EU Member States**
12-month averages, percentage points

| | *1995* | *1996* | *1997* | *1998* | *1999* | *March 2000*[a] |
|---|---|---|---|---|---|---|
| BE | 7.5 | 6.5 | 5.8 | 4.8 | 4.7 | 5.2 |
| DE | 6.9 | 6.2 | 5.6 | 4.6 | 4.5 | 4.9 |
| ES | 11.3 | 8.7 | 6.4 | 4.8 | 4.7 | 5.1 |
| FR | 7.5 | 6.3 | 5.6 | 4.6 | 4.6 | 5.0 |
| IE | 8.3 | 7.3 | 6.3 | 4.8 | 4.7 | 5.1 |
| IT | 12.2 | 9.4 | 6.9 | 4.9 | 4.7 | 5.1 |
| LU | 7.2 | 6.3 | 5.6 | 4.7 | 4.7 | 5.1 |
| NL | 6.9 | 6.2 | 5.6 | 4.6 | 4.6 | 5.0 |
| AT | 7.1 | 6.3 | 5.7 | 4.7 | 4.7 | 5.1 |
| PT | 11.5 | 8.6 | 6.4 | 4.9 | 4.8 | 5.2 |
| FI | 8.8 | 7.1 | 6.0 | 4.8 | 4.7 | 5.1 |
| *EUR-11*[b] | *8.7* | *7.2* | *6.0* | *4.7* | *4.6* | *5.0* |
| DK | 8.3 | 7.2 | 6.3 | 4.9 | 4.9 | 5.3 |
| GR | 17.0 | 14.5 | 9.9 | 8.5 | 6.3 | 6.4 |
| SE | 10.2 | 8.0 | 6.6 | 5.0 | 5.0 | 5.4 |
| UK | 8.3 | 7.9 | 7.1 | 5.6 | 5.0 | 5.3 |
| *EU-15*[b] | *8.8* | *7.5* | *6.3* | *4.9* | *4.7* | *5.1* |
| Reference value[c] | | 9.1 | 8.0 | 6.6 | 6.8 | 7.2 |
| Average of 3 best price performers | | 7.1 | 6.0 | 4.6 | 4.8 | 5.2 |
| Dispersion rate[d] | | 1.3 | 1.8 | 1.0 | 0.5 | 0.2 |

SOURCES: ECB, Commission services.
a. Average of April 1999-March 2000.
b. Weighted average based on GDP.
c. Average of interest rates of the three best performing Member States (underlined) in terms of price stability plus 2 percentage points.
d. Measured by the standard deviation.

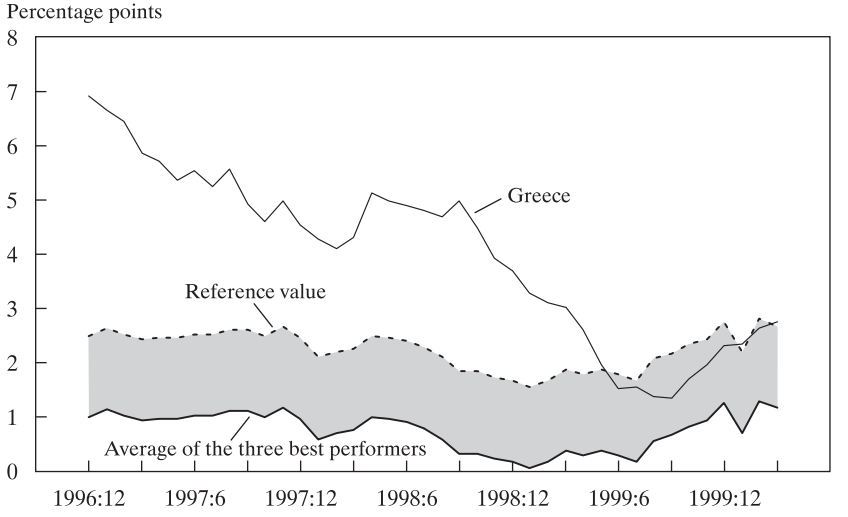
with respect to inflation. Table 1B-3 then shows comparative data on the long term interest rate.[40] Clearly, the qualification took place very quickly, with the Council of Ministers in June 2000 looking at data for 1999 which were transformed with respect to the situation in 1997.[41]

As discussed below, satisfying the Maastricht Treaty criteria is different from qualifying against the criteria posed by the optimal currency area (OCA) theory. But to have satisfied the former criteria is to have made giant

40. These data are drawn from CEC (2000).

41. Greece remained well above the reference value for the debt/GDP ratio but benefited from the "escape clause" permitting an excess, in line with the precedent set by a few other countries (Italy, Belgium).

**Figure 1A-1. Greece – Comparison of Average Inflation Rate (HICP) with Reference Value**




SOURCE: Eurostat.
Note: The grey band represents 1.5 percentage points interval between the average rate in the three best performers in terms of lowest inflation rates during a year.

strides in the direction of adopting "a stability culture" and in bringing inflation down. The burden of the paper is that this achievement reflects the adoption by Greece of important policy innovations. Before examining these innovations in detail we should briefly ask whether another type of explanation might not be available. After all, there are other policy "miracles" to consider: Spain, perhaps, and more certainly Italy. World-wide, the great inflation of the 1970s and 1980s was ground to a halt in the 1990s. The widespread conversion of monetary policy strategies to that of "direct inflation targeting" has coincided with a general reduction in inflation; almost certainly (in my view – but others disagree, cf. for example Cecchetti, 2001), it did not cause it. There are a few economists who emphasise the possibility of multiple and sunspot equilibria (e.g. Farmer and Benhabib, 1999), and it may be that the current low-inflation equilibrium is simply an example of a 'different' equilibrium being chosen. It is clear that some elements in the world external to Greece —low commodity price inflation, the example set by her peer group (Italy, again)— would have helped in a critical way in the reduction of inflation, making possible what was not possible a decade before. Still, this is not enough to deny an important role to policy. It is this to which I now turn.

## The Policy Innovations

The authors divide the period since 1974 into two on the basis of the Zivot-Andrews test applied to the CPI inflation series. They place the break in 1994/95. Eye-balling the series suggests that it would be easy to choose alternative break-points in the first half of the 1990s, or even earlier. Not a great deal depends on this however. It is not as if there is an unambiguous break earlier in the sample period which, if it were present, might indicate a different explanation. The policy innovations that the authors emphasise are:

– The declaration of CBI: in 1997 the Bank of Greece became independent. As the authors note, this follows the central recommendation of the Barro-Gordon literature. They do not (perhaps for reasons of corporate modesty) mention whether the appointment of Lucas Papademos to the Governorship follows another recommendation in that literature – Ken Rogoff's (Rogoff, 1985) advice to appoint to the Governorship someone with "more conservative" tastes than the populace at large.

– The development of a hard exchange rate policy, commencing in 1995 based on an "under-indexed" crawl.

– A prohibition of monetary financing of the deficit (and, eventually, a reduction in the fiscal deficit).

During the period there was a substantial process of liberalisation and financial development, not immediately and in every respect helpful to the macroeconomic objectives of policy, though it helped to contribute to the image of a "modernisation" of the Greek economy.

It seems clear that the hard exchange rate policy worked, much as it had in earlier ERM country-histories, to squeeze inflation out of the system. The usual problem with such nominal exchange rate anchors is that they lack immediate full credibility and induce a problem of (sometimes severe) overvaluation, the unwinding of which may involve a spectacular devaluation and the undoing of much of the gains previously made. In the case of Greece, this risk was compounded by contagion from the South-East Asian currency crises. Greece's solution was to join the ERM with a modest devaluation; continuation of fiscal retrenchment and high interest rates moderated the inflationary impact of the devaluation and indeed eventually produced an appreciation. The *"Deus ex Machina"* of jumping into the ERM seems to have had all the credibility effects any theatre-goer could have desired. The unconcealed objective of Greece to join EMU and the fact that policies inside Greece were consistently aimed at this objective seem to have persuaded those agents in the foreign exchange market who might have sold the drachma short that there was no profit in doing so. The "fundamental fundamentals" (widespread political support for Greece's

objectives and policies) were in Greece's favour[42] and the political commitment implied in joining the ERM in the first place was no doubt helpful.

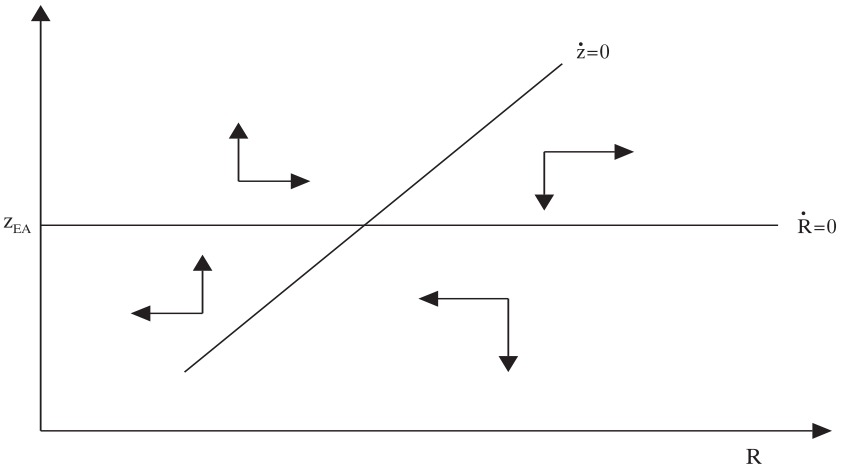
## The Future

Greece has succeeded in meeting the Maastricht criteria but in doing so does not face a secure future. The hard-exchange-rate-high-interest-rate policy that secured for Greece the qualification to enter the euro area is no longer an option. Greece revalued her exchange rate before entering, as Ireland did, but perhaps —as in the Irish case— not by enough. She lowered her interest rates considerably in the process of joining (as did Ireland). It is a plausible working hypothesis that Greece still has a proclivity for inflation: and may show the effects of excess demand, both from a laxer monetary policy and through a favourable external account. This being so, what should Greece now do? One possibility is simply to let excess inflation wear itself out in an appreciation of the real exchange rate, a loss of competitiveness and, finally, weakening demand. This would appear to be the advice that the authors of the CEPR's latest report in the series "Monitoring the European Central Bank" would give (Alesina *et al*., 2001). This adjustment process is complicated in at least two ways.

First, the adjustment may take a long time, as increasing inflation will reduce the real interest rate and add to demand even while the real exchange appreciation works to weaken it. The process is quite likely to involve an oscillation of under- and over-valuation, as suggested by Figure 1A-2. In this figure, Greek inflation (z) is measured on the vertical axis, and the drachma's real exchange rate (R) on the horizontal. "Core inflation", the general inflation rate in the euro area, is measured by $z_{EA}$. Evidently, if Greek inflation is above this rate, Greece's real exchange rate against her euro area partners will appreciate; if below it, it will depreciate. Thus the horizontal at $z_{EA}$ is also the line $\dot{R} = 0$. The $\dot{z} = 0$ schedule is shown as sloping up from left to right: as inflation increases, the real rate of interest falls, stimulating demand and inflation further; but the real appreciation of the exchange rate acts in the opposite sense. The schedule $\dot{z} = 0$ is drawn where these forces balance out. Above the $\dot{z} = 0$ line, demand (hence inflation) is rising; below it, it is falling. It is clear from the arrows of motion that the system is not globally (nor saddlepath) stable and may oscillate.

42. There is an obvious contrast here with the case of the UK in 1992 when an alternative, politically supported, equilibrium set of policies was discernible and the market "chose" this alternative, self-fulfilling, equilibrium, with the result that sterling was driven from membership of the ERM.

**Figure 1A-2**




Second, the process in any case works through *demand* and the creation of unemployment in particular sectors of the economy. A more balanced adjustment could involve the use of fiscal policy: this still would imply demand deflation of course. A further possibility, one that is open to small economies like that of Greece and is being given a new lease of life in Europe now, is represented by tripartite decision-making between the social partners. Here, the social partners may, if they choose, aim to produce wages and prices that keep the economy competitive and in a state of high employment. This "internalisation" of the adjustment problem is probably not open to large economies where the coordination problem is too big. Time will tell what route, or combination of routes, Greece chooses to adopt.

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# 2 Greek Fiscal and Budget Policy and EMU

Vassilios G. Manessiotis and
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## Introduction

FROM the mid-1970s until 1990 political considerations drove Greek fiscal policy. Budgets were subjected to little discipline and deficits and public sector debt soared. The inexorable integration of the Greek economy with the economies of Europe and the rest of the world, however, made fiscal profligacy increasingly problematic. Greece's strong desire to participate as an equal partner in Economic and Monetary Union (EMU) required changes (greater fiscal discipline, monetary restraint and structural reforms) which would have been unacceptable to politicians and the public in earlier decades but were adopted, albeit haltingly, after 1991. With EMU membership slated to begin in 2001, Greek fiscal policy will face new challenges and constraints but, at the same time, membership will create new opportunities for the economy.

This paper analyses fiscal developments in Greece over the past quarter of a century. In particular, it examines the following questions:

- What were the fiscal policy mistakes of the past and how has Greece's fiscal policy evolved since 1975?
- How was Greece able to meet the Maastricht fiscal criteria?
- What can be learned from past efforts to impose fiscal discipline that might be useful for the future?
- What structural reforms in spending and tax policy would help Greece sustain the fiscal requirements of the Stability and Growth Pact?

We are greatly indebted to Nicholas Garganas, Heather Gibson and George Tavlas for constructive comments. We are also grateful to George Hondroyiannis, Konstantina Argyrou and Maria Papageorgiou for excellent research and computational assistance.

The paper starts with a broad-brush description of the public sector in Greece, how it has changed over the past two and one-half decades and how it compares with the public sectors of the other members of the EMU. It then summarises recent fiscal policy outcomes as measured by trends in three indicators: the nominal deficit, the structural deficit and the primary deficit. The paper then provides a brief history of fiscal policy during the 1976 to 1992 period when Greece was undergoing adjustments associated with first seeking membership in, and then joining the, European Economic Community (EEC). During the late 1970s and the first half of the 1980s, Greece's fiscal policy began to spiral out of control. In 1983 and 1985, the government was forced to devalue the drachma and, in November of the latter year, adopt a programme of significant fiscal restraint. This effort, known as the 1986-87 Stabilisation Programme, was abandoned in late 1987 but not before realising some modest success and providing some lessons for the post-1992 period. The paper next examines the post-Maastricht Treaty period, during which the focus of Greek fiscal policy was on attaining the Treaty's fiscal and economic criteria. The chapter concludes with a discussion of the consequences and prospects for the Greek public finances inside EMU.

## Overview of the Public Sector in Greece

Any discussion on the public sector in Greece must begin with some definitions. In its narrowest sense, the public sector consists of Central Government (CG) activities. This measure encompasses the standard public services such as defence, education, law enforcement, the judicial system and public administration, as well as the taxes, fees and charges imposed to support these activities. A broader measure of the public sector, referred to as General Government (GG), adds to the CG accounts of the social security system (close to 300 primary and supplementary funds that provide pension and health insurance); the limited activities that are the responsibility of local authorities; chambers of commerce; and the budgets of legal public entities such as hospitals and universities. General Government expenditures were 49.6 per cent larger than those of Central Government in 1994. Most of the discussion in this paper uses the GG concept, which was the focus of the Maastricht criteria and is also the focus of the Stability and Growth Pact. The broadest measure of the Greek public sector is referred to as simply the Public Sector (PS). It adds to the GG the accounts of 44 major public enterprises, which include public utilities (electricity, telephone and water), energy (oil and gas), transportation services (rail, bus, and air), major port authorities,

postal services, school construction, the National Tobacco Organisation, the Cotton Organisation and various other enterprises and agencies. With the exception of utilities (especially the telephone system which turns in a tidy profit) and the energy sector, most of the other entities require annual subsidies, so the consolidated overall balance for these enterprises shows a deficit.

### *Spending*

No matter what concept one uses, the Greek public sector grew rapidly from the mid 1970s through the early 1990s. General Government spending rose from 28.3 per cent of GDP in 1976 to 49.2 per cent in 1995 and then declined to 46.4 per cent in 2000 (Table 2-1). At the beginning of this period, Greece's public sector spending relative to its GDP was only 64 per cent of the EU-14 average; by 1995 it was 96.9 per cent of this benchmark and in 2000 it is estimated to be close to parity – 99.6 per cent of the EU average. More relevant, during the last ten years, Greece's spending was significantly above the average of the four most comparable EU Member States, that is, the EU members with the lowest *per capita* GDP (Ireland, Italy, Portugal and Spain), which are referred to in this chapter as the "low-tier Member States" (LTMS).[1] Since 1995, GG spending has trended down (but not as fast as in other Member States) and, as noted, is estimated to be 46.4 per cent of GDP in 2000. The effect of this substantial rise in public expenditure, as well as of the higher taxes (see below), on the distribution of household incomes (budget incidence) is a very interesting question and a possible topic for further research.

The growth in spending in the two decades after 1976 was largely accounted for by rapid expansion in transfer payments and debt service. Only one eighth of the growth in the public sector relative to the economy was attributable to the growth in government consumption (compensation of government employees and purchases of goods and services).

*Transfers*. The growth of transfers (to households) is understandable considering that in 1976 Greece devoted the smallest share of GDP to government transfers of any EU-14 nation; at 8.2 per cent of GDP this share was about half the 1976 EU-14 average. After two decades of rapid growth, Greece remained only slightly below the EU-14 average[2] but above the levels of Spain, Portugal and Ireland.

1. Data are drawn from "Total Current Expenditures: General Government" (*European Economy*, 1999, Tables 77A and 77B).

2. For the 1995-2000 period, transfers relative to GDP in Greece averaged 91.4 per cent of the EU-14 average, but trended upward over the period.

**Table 2-1. General Government Consolidated Expenditure as a per cent of GDP, and Composition of Expenditure, 1976-2000**

| | *1976* | *1980* | *1985* | *1990* | *1995*[c] | *2000*[c]* |
|---|---|---|---|---|---|---|
| | *As a per cent of GDP* | | | | | |
| EU average | 44.1 | 45.9 | 49.7 | 48.0 | 50.8 | 46.6 |
| Selected EU Member States[a] | 37.4 | 42.2 | 48.9 | 45.1 | 46.3 | 42.6 |
| **Greece: (Total)** | **28.3** | **29.7** | **42.3** | **48.2** | **49.2** | **46.4** |
| 1. Government consumption | 12.8 | 13.6 | 16.3 | 15.3 | 15.3 | 15.1 |
| – Public employee compensation | 8.3 | 9.5 | 11.6 | 12.7 | 11.3 | 11.6 |
| 2. Transfers | 10.8 | 11.5 | 16.8 | 16.2 | 16.8 | 17.3 |
| – To households | 8.2 | 9.4 | 14.3 | 15.2 | 15.1 | 15.9 |
| – To enterprises | 2.6 | 2.1 | 2.5 | 1.0 | 1.7 | 1.4 |
| 3. Debt service[b] | 1.3 | 2.0 | 4.9 | 10.2 | 11.1 | 7.2 |
| 4. Gross fixed capital formation and other capital expenditure, including capital transfers received | 3.5 | 2.6 | 4.3 | 6.6 | 6.0 | 6.8 |
| | *As a per cent of total expenditure* | | | | | |
| 1. Government consumption | 45.1 | 45.7 | 38.4 | 31.7 | 31.1 | 32.5 |
| – Public employee compensation | 29.4 | 31.9 | 27.3 | 26.2 | 22.9 | 25.1 |
| 2. Transfers | 38.0 | 38.9 | 39.8 | 33.7 | 34.1 | 37.2 |
| – To households | 28.9 | 31.7 | 33.8 | 31.6 | 30.7 | 34.3 |
| – To enterprises | 9.1 | 7.2 | 6.0 | 2.1 | 3.5 | 3.0 |
| 3. Debt service[b] | 4.7 | 6.7 | 11.7 | 21.1 | 22.6 | 15.6 |
| 4. Gross fixed capital formation and other capital expenditure, including capital transfers received | 12.2 | 8.7 | 10.1 | 13.6 | 12.2 | 14.6 |

SOURCES: 1) Ministry of National Economy. 1998. *The Greek Economy 1960-1997: Macroeconomic Time Series*, Tables 8A, 8-1A. Athens.
2) Ministry of National Economy. 2000. *Macroeconomic Aggregates - Forecasts (ESA 95): 1995-2000*, mimeo. Athens (March).
3) Ministry of National Economy. 2000. *Macroeconomic Aggregates - Forecasts (ESA 95): 1997-2002*, mimeo. Athens (September).
4) Ministry of National Economy. 2000. *Macroeconomic Aggregates - Forecasts (ESA 95): 1998-2002*, mimeo. Athens (October).
a. Ireland, Italy, Portugal and Spain.
b. Excluding amortisation payments.
c. ESA 95.
* Estimates.

Like other countries, Greece's social security system will impose serious fiscal pressures in the future. This system is made up of almost 300 separate primary and supplementary funds that, for the most part, provide pensions and health insurance. Each has its own benefit and contribution structures. The funds are organised by economic sectors (e.g. employees of private businesses, shipyards, the government, the banks, farmers, shop proprietors, etc.).

Although they started out as funded plans, they have been operating on a pay-as-you-go basis for many years. Taken together, the funds run a small surplus, but the surplus is nowhere near as large as the annual increase in the funds' liabilities. The system is complex, inequitable, and inefficiently administered – roughly 1 per cent of the nation's workers are employed by the funds. The system lacks adequate administrative data and is thought to be subject to considerable fraud.[3] Compared to the benefits provided by other systems, Greek pensions tend to be quite generous – that is, they have high minimums and replacement rates and workers become eligible for benefits after contributing for relatively few years. A significant moral hazard exists because the government bails out bankrupt funds. In general, the relationship between the total amount of contributions and pension received is very loose; in some cases it borders on nonexistent.

*Government consumption*. The growth of government consumption accounted for 12.4 per cent of the total expansion of the general government between 1976 and 2000. As a per cent of GDP, government consumption spending rose modestly from 12.8 per cent to 15.1 per cent over this period. The biggest component in government consumption is public employee compensation. In 1976 compensation amounted to 64.8 per cent of government consumption; in 1990 this category accounted for 83.0 per cent of total government consumption spending but it is projected to recede to 77.0 per cent in 2000. These trends are no accident. Both the numbers of general government employees and real wages in the public sector increased substantially, especially in the 1980s. Between 1976 and 1997, the number of general government employees grew from 282.8 thousand to 487.0 thousand or at an average annual rate of 2.29 per cent, while employment in the balance of the economy grew at only a 0.55 per cent rate.[4] Very large pay increases were granted in 1982. In that year, the average salary increases for the lowest paid civil servants reached, and in some cases exceeded, 100 per cent, while in the private sector the minimum wage increased by 46.4 per cent. The wage bill in the central government budget increased by 33.4 per cent in 1982. Large increases were also recorded during the 1989-1991 period but increases subsided in 1992. Since 1995, pay increases have pushed up the ratio of public sector wages

3. It is thought that a significant number of workers do not contribute the full amount they are required to contribute and that many others receive excessive pensions or multiple ones to which they are not entitled. While there are regulations limiting the maximum a retiree can receive from multiple pensions, there are no mechanisms to enforce these restrictions. (OECD, *Economic Surveys: Greece 1997*, pp. 64-97.)

4. Ministry of National Economy (1998, Table 3A).

to GDP up by 0.4 percentage point. Every year since 1995 the wage bill has overrun the amounts budgeted.

For several reasons the general government data used above underestimate the growth of compensation costs in the public sector as a whole. First, wages in public enterprises, which are not recorded in general government data, are substantially higher and have grown faster than those in the general government. This is especially true for Olympic Airways and the telecommunications and electricity enterprises. Second, during the 1990s some categories of civil servants obtained retrospective pay raises through court decisions that are not reflected in the data. The Ministry of Finance paid these arrears by giving employees government bonds. The payments were not recorded as employee compensation and did not appear in the annual government spending or deficit totals. It has been estimated that, during the 1990s, about 200 billion drachmas were paid to judges, one of the categories of employees receiving such retroactive compensation. Finally, some categories of civil servants, notably the customs officers, received special payments amounting to about 50 per cent of their regular monthly salaries, which until 1997 were not recorded in the budget.

The sharp rise in public sector pay in Greece has created problems not only for the budget but also for the labour market and the broader economy. According to a recent study,[5] the substantial rise in public sector pay in the early 1980s as well as the increased employment opportunities in the public sector, especially in the 1980s and the early 1990s, led to *an increase in the reservation wage in the economy*. In turn, that situation contributed significantly to the quadrupling over the past two decades of the Greek unemployment rate. Preliminary results from another study[6] indicate that, following the pay raises in the early 1980s, the public sector in Greece had all the characteristics in the "primary market." Every public sector job opening attracts an abnormally high number of young applicants who prefer to remain unemployed longer waiting for a government job rather than to get a job in the private sector.

The growth of public sector compensation was exacerbated after 1982 by the introduction of an automatic wage indexation mechanism. This scheme, which was modified several times before it was finally abolished in 1991, provided for full inflation indexation of low wages, salaries and pensions (up to 35,000 drachmas per month) and for partial indexation of "high" wages. Automatic indexation of public sector wages had ramifications for the econ-

5. Demekas and Kontolemis (1998, p. 64).
6. Manessiotis (2000).

**Box 2-1. The Informal Economy and GDP Measures**

Greece has a large and vibrant informal economy. Close to one-half of the nation's labour force is classified as self-employed, a category that includes farmers, proprietors of small shops, craftsmen such as plumbers, electricians and construction workers, and many doctors, lawyers and other professionals. The output of these workers is difficult to capture using traditional methods of measuring national product and even the indirect methods employed to estimate this output are problematic. Several studies have estimated that about one third of Greek output is generated in the informal sector, a fraction that is much higher than that of any other EU member with the exception of Italy.[1,2]

While the Greek national income and product accounts attempt to capture the goods and services produced in the informal economy, these adjustments are almost certainly too low. To the extent that this is the case, Greek GDP is understated and the various ratios discussed in this chapter (spending/GDP, revenues/GDP, deficits/GDP, debt/GDP and the like are biased upwards relative to those of the other EU members for whom the informal economy poses less of a problem.

There is not a great deal of information that sheds light on the question of how the relative size of the informal economy has changed over time or the extent to which the official statistics did a better or worse job estimating this output in the past. Those who have studied the issue think it is likely that the informal sector constitutes a larger fraction of total output now than in the past.[3]

1. Schneider and Enste (2000).
2. Tanzi (1999).
3. Pirounakis (1997, p. 28) cites Centre for Planning and Economic Research estimates of 27 per cent for 1982, rising to 31 per cent for 1988. He also cites other estimates of 25 to 35 per cent for the early 1980s, rising to 40 per cent in 1990.

omy. It made containing inflation very difficult because it created a price-wage inflationary spiral. Furthermore, the system helped to undermine economic incentives. Public sector wage differentials narrowed substantially with the sharp increase of lower wages in 1982 and the indexation mechanism thereafter, reducing the gain received for additional effort.

At 8.3 per cent of GDP, Greece spent less on public employee compensation in 1976 than any other EU country except Spain, which spent 7.8 per cent of its GDP on public employee compensation in that year. By 1990, Greece was spending 12.7 per cent of GDP on public employees, ranking behind only Denmark, France, Sweden and Finland among EU Member

States. During the last 5 years (1995-2000), as Greece has sought to meet the Maastricht criteria, public employee compensation has remained slightly above the EU-14 average.

*The special problem of defence*. Greece's spending on national defence is large compared to that of other EU nations. In 1998 Greece devoted 4.8 per cent of GDP on national defence versus the EU average of 1.7 per cent. The explanations for this difference are straightforward. Greece was not only a front-line NATO state during the Cold War, but also it has had troubled relations with Turkey, which maintained high levels of defence spending after the Cold War ended. Periodic increases in tensions with Turkey have led to periodic sporadic sharp increases in defence spending. During the 1990-1998 period, Greece's defence spending ranged between 4.3 and 4.8 per cent of GDP. No other EU country's defence spending exceeded 3 per cent of GDP during this 9-year period except for France and the UK both of whose spending was below 4 per cent. Moreover, with the exception of Greece, defence spending has trended downward since 1990 in all of the EU countries. By 1998, no other EU country was spending more than 2.7 per cent of GDP on defence, compared with Greece's 4.8 per cent.[7]

*Investment*. During the past quarter century, the investment budget has been a major component of the budget, with outlays ranging from 8.9 per cent to 19.5 per cent of total outlays.[8] Introduced in 1952, the capital budget was conceived as a mechanism for providing much needed infrastructure for the reconstruction of the country. Moreover, it was envisioned as a way to provide and enforce fiscal discipline. Indeed, the operating (non-capital) budget was kept in balance or surplus between 1952 and 1977 and deficits were allowed only in the investment budget, a practice known as the "Golden Rule". To better enforce fiscal discipline, only certain categories of expenditure (related to public investment projects) were included in the capital budget.

As is the case in most countries, the Greek investment budget has been very sensitive to changes in the direction of fiscal policy and, therefore, has been quite volatile. The variation in the annual rate of growth of the capital budget expenditure (CV= 0.75) has been almost three times bigger than that of the annual rate of growth of outlays under the operating budget (CV = 0.26).[9] Government investment declined during the 1979-1982 period

7. SIPRI Yearbook (2000, Table 5A.4, pp. 276-84).

8. This percentage was high in the 1976-1986 period. As interest payments grew, however, it declined to 8.9 per cent in the early 1990s. As of 1995, however, there has been a clear upward trend, from 9.8 per cent in 1995 to 17.8 per cent in 2000.

9. Calculations refer to the 1976-1988 period only. For the 1990-2000 period the respective estimates are: 1.93 for the capital budget expenditure and 0.55 for the operational expenditure.

(despite the large primary deficit of 1981), during the 1986-87 stabilisation effort, and during the 1993-1994 period.

Investment-oriented spending has grown significantly since 1990 and now constitutes 6.8 per cent of GDP and 14.6 per cent of GG spending. Much of this growth is a consequence of payments the EU makes to its less-developed members for infrastructure projects which recipient states submit and the EU approves. This assistance is concentrated on major highway projects, port and airport facilities, water projects, environmental projects, the Athens Metro, etc. In 1999, roughly two thirds of Greece's public sector investment was EU-sponsored. Investment spending that was financed domestically is concentrated on public buildings (hospitals, schools, and universities) and streets and roads that serve the local population.

*Debt service*. Since the mid 1980s, the government's debt service costs have soared, rising from 1.3 per cent of GDP in 1976 to a peak of 14.1 per cent in 1994; or from 4.7 per cent of GG expenditures to 30.3 per cent over the two decades.

Since 1992, Greece has had the highest debt service burden relative to GDP of any EU Member State. In the early 1990s Greece's interest payments relative to GDP were almost twice those of any other country, with the exception of Italy and Belgium, both of which have higher debt-to-GDP ratios than Greece.

The huge deficits of the 1980s and the early 1990s, which ballooned debt from 24.6 per cent of GDP in 1976 to 111.3 per cent in 1996, are an obvious explanation for the growth in debt service costs. Compounding this, however, was the gradual increase in the real rates at which the government borrowed, which was, in part, caused by the gradual deregulation of the banking sector after 1986 (see below the subsection "Public Debt").

### *Receipts*

General government receipts amounted to 45.6 per cent of GDP in 2000, up from 26.7 per cent in 1976 (see Table 2-2). Today, Greece's tax burden is virtually the same as the EU average (45.5 per cent) but it far exceeds the average of the LTMS (40.9 per cent). The growth of receipts was far from uniform over the past two and one-half decades. More than 70 per cent of the increase occurred between 1991 and 2000. Between 1976 and 1990 — when receipts increased from 26.7 per cent of GDP to 32.1 per cent of GDP — growth was sluggish.

**Table 2-2. General Government Consolidated Receipts as a per cent of GDP, and Composition of Receipts, 1976-2000**

| | *1976* | *1980* | *1985* | *1990*[b] | *1995*[c] | *2000*[c]* |
|---|---|---|---|---|---|---|
| | *As a per cent of GDP* | | | | | |
| EU-14 average | 41.1 | 42.5 | 45.2 | 44.9 | 45.1 | 45.5 |
| Selected EU Member States[a] | 31.4 | 33.8 | 38.5 | 38.9 | 39.5 | 40.9 |
| **Greece: (total resources)** | **26.7** | **27.0** | **30.6** | **32.1** | **39.1** | **45.6** |
| 1. Direct taxes | 12.6 | 14.0 | 16.3 | 17.2 | 20.0 | 24.6 |
| Personal income and wealth<br>Corporate income | 4.3 | 4.6 | 4.6 | 5.5 | 7.4 | 10.8 |
| Social security contributions | 8.2 | 9.4 | 11.7 | 11.7 | 12.6 | 13.8 |
| 2. Indirect taxes | 12.3 | 11.1 | 12.6 | 13.2 | 13.5 | 15.3 |
| Consumption taxes | ... | ... | ... | ... | ... | ... |
| Other | ... | ... | ... | ... | ... | ... |
| 3. Other current resources | 1.8 | 1.9 | 1.7 | 1.7 | 2.9 | 2.7 |
| 4. Capital transfers received | - | - | - | - | 2.7 | 3.0 |
| | *As a per cent of total receipts* | | | | | |
| 1. Direct taxes | 47.1 | 51.9 | 53.4 | 53.4 | 51.2 | 54.0 |
| Personal income and wealth<br>Corporate income | 16.3 | 16.9 | 15.1 | 17.0 | 19.0 | 23.7 |
| Social security contributions | 30.9 | 35.0 | 38.3 | 36.4 | 32.2 | 30.3 |
| 2. Indirect taxes | 46.0 | 40.9 | 41.1 | 41.2 | 34.7 | 33.5 |
| Consumption taxes | ... | ... | ... | ... | ... | ... |
| Other | ... | ... | ... | ... | ... | ... |
| 3. Other current resources | 6.9 | 7.2 | 5.5 | 5.4 | 7.4 | 5.9 |
| 4. Capital transfers received | - | - | - | - | 6.8 | 6.6 |

SOURCES: 1) Ministry of National Economy. 1998. *The Greek Economy 1960-1997: Macroeconomic Time Series*, Tables 8A, 8-1A. Athens.
2) Ministry of National Economy. 2000. *Macroeconomic Aggregates - Forecasts (ESA 95): 1995-2000*, mimeo. Athens (March).
3) Ministry of National Economy. 2000. *Macroeconomic Aggregates - Forecasts (ESA 95): 1997-2002*, mimeo. Athens (September).
4) Ministry of National Economy. 2000. *Macroeconomic Aggregates - Forecasts (ESA 95): 1998-2002*, mimeo. Athens (October).
a. Ireland, Italy, Portugal and Spain.
b. ESA 79.
c. ESA 95.
*. Estimates.

Most of the growth was accounted for by direct taxes, which grew at an average annual rate of 21.4 per cent and, in particular, by taxes on income[10] and real property. As a share of total receipts, taxes on income and wealth increased from 16.3 per cent to 23.7 per cent. Social security contributions grew at a slightly slower pace of 19.4 per cent per annum and their share

10. Both personal and corporate income.

declined marginally, from 30.9 per cent of total receipts in 1976 to 30.3 per cent in 2000.

The significance of indirect taxes has declined somewhat. In 1976 they provided 46.0 per cent of total GG revenue, compared to 33.5 per cent in 2000.[11] This decline, which is related to the harmonisation of Greek indirect taxes with those of the European Union, mainly took place on two occasions. First, several indirect taxes were abolished or cut in 1980, the year prior to Greece's accession to the European Union. As a result, the share of indirect taxes to GG revenue declined from 46.1 per cent in 1979 to 40.9 per cent in 1980. Second, some indirect taxes were also abolished in the 1993-1994 period, when the Single Market was established (1st January 1993), resulting in a further decline in their share of total GG revenue, from 43.4 per cent in 1992 to 34.7 per cent in 1995.

Following these efforts to harmonise the Greek tax system with those of the other EU countries, the relative reliance that Greece places on various revenue sources —indirect taxes, social security contributions and taxes on income and wealth— does not deviate significantly from the EU-14 average.

*Direct taxes*. Direct taxes include personal and corporate income taxes, gift and inheritance taxes, the real property tax and direct tax arrears. Taxes on shipping and interest income are also included, although these income streams are taxed differently.

In the late 1990s, income taxes (which include the personal and corporate income tax, taxes on interest income and taxes on income from shipping) accounted for 85.2 per cent of total receipts from direct taxes in the CG budget. Receipts from tax arrears, inheritance and gift taxes and real property taxes accounted for 8.2 per cent, and social security contributions *of civil servants only* for 6.5 per cent. It must be noted that the social security contributions of those working in the private sector, public enterprises, various agencies etc. *are not recorded in the CG budget*. They appear as receipts of the various "independent" social security funds which are included in the GG totals.

In 1999, revenue from personal income tax accounted for 45.1 per cent of all direct tax revenue, while that from corporate income tax accounted for 28.1 per cent. Finally the taxation of interest income (introduced in 1992) yielded an additional 12.0 per cent. Thus, these three taxes yield the bulk of revenue from direct taxation (as they are recorded by the Ministry of Finance – accruals basis).

11. Until the late 1970s, indirect taxes were used to provide up to 80 per cent of budget revenue for Central Government (accruals data).

Currently, the personal income tax is characterised by complexity, very low deductions, small credits, considerable horizontal inequity and relatively high marginal tax rates that are imposed at fairly modest levels of taxable incomes. This latter dimension represents a significant change from the tax system of the past. If the 1961 tax schedule had been simply adjusted for inflation (not even real wage growth), the top marginal tax rate would have been applicable to incomes above 61 million drachmas. Under the current system, the top marginal tax rate is imposed on incomes above 16.2 million drachmas. The bulk of the income tax's progressivity is compressed into a relatively narrow income range. Taxable income up to 2.5 million drachmas is effectively tax free, while that above 7.6 million and below 16.2 million drachmas —where the top marginal tax rate (45 per cent) kicks in— is taxed at a 40 per cent rate. Recent legislation, which calls for the elimination of the 45 per cent rate in two years (2001 and 2002), will compress progressivity into an ever narrower income range.

The rapid increase in the yield from the personal income tax is due not only to increases in marginal rates and the failure to adjust tax brackets for inflation but also to policies that abolished or reduced tax exemptions, allowances and deductions. Unfortunately, the increase in the tax burden has affected only those who truthfully declare their incomes. Compliance has long been a problem for Greece's revenue administrators.

For the most part, the corporate income tax is imposed at a 40 per cent flat rate; in certain cases a 35 per cent or a 45 per cent rate applies. The tax is imposed on total profits, prior to the distribution of dividends. Dividends are then distributed free of any additional tax, either at the corporation level or to the shareholders. The yield of this tax increased substantially during the 1990s due to the increase in corporate profits, an increase in the number of corporations, and certain reforms in the taxation of the banking sector in the early 1990s.

Interest income was first subjected to taxation in 1992. Currently, a 15 per cent flat rate is imposed on interest income (10 per cent for interest income from government securities) regardless of the level of the taxpayer's income. Prior to 1992, interest income was not taxed.

Gift and inheritance taxes, which are imposed at various rates, contribute about 2.3 per cent of direct tax revenue. Bequest and gifts made to close relatives are taxed at lower rates than those made to distant relatives and non-relatives.

Finally, the tax on real property currently generates 0.8 per cent of direct tax revenue. This tax was first imposed in 1997 after unsuccessful attempts were made in 1975 and 1982 to adopt a national levy, and a substitute local

level tax was imposed in 1993. Compared with most other EU countries, Greece relies less on real property tax revenues.

*Indirect taxes*. Despite their decline in importance, indirect taxes still provide 55.3 per cent of CG budget receipts and 59.2 per cent of CG tax revenue.[12] The VAT is by far the most important indirect tax, followed by taxes on liquid fuels, tobacco and passenger cars.

After several delays, the Greek Value Added Tax was introduced in 1987 as a replacement for the Turnover and Stamp Duty taxes, as well as for about 30 other taxes of lesser importance. The introduction of the VAT modernised and simplified the Greek tax system. The VAT tax base is fully harmonised with that in the other EU countries. Currently, it is imposed with two rates, the "normal" rate (18 per cent) and the "reduced" rate (8 per cent). The VAT yields more than any other tax in the tax system. In 1999, revenue from the VAT reached 3 trillion drachmas or 51.0 per cent of indirect revenue (28.2 per cent of budget revenue); in 2000 the VAT's yield is projected to exceed 3.3 trillion drachmas.

The tax on liquid fuels yielded 795 billion drachmas or 7.5 per cent of 1999 budget revenue. The tax base is uniform across the EU; the rate is allowed to vary within a band that is determined by the European Commission. Following the rate cuts of 1998 and 1999, Greek rates are at the lower end of the band.

The tobacco tax is also levied uniformly across the EU. Collections from this tax amounted to 558 billion drachmas or 5.3 per cent of total budget receipts, placing the tax third in importance, in terms of revenue, among indirect taxes in Greece.

Finally, taxes on the transfer of real property, on transactions on the Athens Stock Exchange as well as Stamp Duty taxes (what still remains of the old tax), yielded 791 billion drachmas in 1999. A 0.3 per cent tax on the Stock Exchange transactions was imposed in lieu of a capital gains tax on 1 January, 1998. The tax generated 220 billion drachmas in 1999 due to the extraordinary performance of the Athens Stock Exchange and the doubling of the tax rate from 0.3 per cent to 0.6 per cent in October 1999.

## *Some Areas of Concern*

Although the Greek tax system is now similar to those of the other EU countries, especially with respect to the VAT and the three traditional excise

12. Based on the outcome of the 1999 Budget of the Central Government. Data are on an accrual basis and differ from National Accounts data.

taxes, it suffers from several deficiencies. Over the course of the last 25 years, various taxes were introduced and others were abolished usually either to comply with EU regulations or to generate additional revenue. Little attention was paid to the effects of these policy changes on the progressivity or the horizontal equity *of the overall system*.

Until the mid-1970s, the tax system was regressive except at the highest income bracket. For the most part this was a reflection of the predominance of indirect taxes.[13] Although indirect taxes have declined in importance over the past two decades, the overall system is not progressive. Compared to the situation that prevailed in the 1960s and the early 1970s, income tax now exhausts all of its progressivity at fairly low income levels, after which it is proportional. The taxation of interest income, which began in 1992, added another dimension of regressivity. This is the case because this tax is not integrated into the income tax, so there are no deductions or allowances, and low income taxpayers, who are exempted from income tax, must pay tax on their interest income. In addition, many of the financial investments preferred by higher income groups are either tax-free (i.e. repos), or are taxed at low rates (i.e. government bonds). Finally, with the spread of automobile ownership, some indirect taxes that previously had added to the system's progressivity (i.e. gasoline tax, road duties and the excise tax on passenger cars) have now become proportional or even regressive.

There are no analyses of the horizontal equity of the Greek tax system. Nevertheless, over the past 15 years the concept of horizontal equity, especially as it relates to families, has not played a prominent role in the evolution of Greek tax policy. Under the present tax code, a married couple with one earner pays *exactly the same tax* as a single taxpayer with the same earned income. There are no personal exemptions for spouses or children. There is a *tax credit* for children but it is relatively insignificant for the first and second child – equalling about the cost of a pair of jeans.

Itemised deductions are fairly limited, have low ceilings and are granted only under certain conditions. Interest paid on mortgages, for example, is deducted only for the first house that the taxpayer buys in his lifetime. Deductions for charitable contributions and life insurance premia have very low ceilings. There was a child care credit but it was abolished in the late 1980s.

The issues of vertical and horizontal equity are further complicated by the existence of extensive tax evasion. Compliance has long been a serious prob-

13. At least three studies agree on that. See Karageorgas (1973), De Wulf (1975, p. 70) and Manessiotis (1985, pp. 227-48).

lem in Greece, particularly among the self-employed, those with capital income, and small businesses. In an effort to deal with underreporting by those who are not part of the wage withholding system, individuals are required to pay taxes on the higher of their reported or "presumed" income. Presumed income is based on the individual taxpayer's lifestyle. Specific amounts of income are presumed to be needed to own a house, car or boat of various sizes, to pay household help (maids, drivers, gardeners, etc.), to pay tutors for one's children and so on. In recent years the government has mounted an aggressive effort to improve compliance. Registrations and administrative records for cars, boats, real estate and the like are being computerised and linked to the tax administration system so that the information can be used to determine presumptive income. Over the past four years, income tax receipts have grown significantly faster than expected, suggesting that these efforts are paying off. However, as long as compliance remains a problem, allowances, deductions, exemptions and tax incentives lose their importance and marginal and average tax rates must be unnecessarily high. Besides the lack of consideration given to equity issues, little attention has been paid to the effects of the tax system on economic activity and the competitiveness of the Greek economy. An OECD study[14] concluded that the heavy tax burden on employment in Greece, combined with the relatively high level of the minimum wage, has contributed to higher unemployment among lower income groups. The study noted that, as the tax burden continued to increase during the 1990s, "... unemployment for the less skilled, including youth, has increased rapidly...".[15] Although other factors also contributed to the rise of unemployment during this period, the tax system clearly played a significant role.

The tax system has also had several other effects on the functioning of the Greek labour market. High marginal income tax rates, applied at low incomes, combined with high social security contributions, have made overtime unpopular among employees. Moreover, the lack of geographical mobility in the labour market in Greece is partly attributed to the heavy taxes applied to real property transactions and to the fact that mortgage interest on all but the first home one purchases is not deductible.

In the past, there was little discussion on the tax system's impact on Greek competitiveness. However, as Greece is about to participate in EMU, concern over competitiveness has mounted. Reflecting this concern, the tax bill of 2000 incorporated several provisions designed to enhance the international competitiveness of the Greek economy. The bill abolished the tax on

14. OECD (1995, p. 79).
15. OECD (1995, p. 79).

the gross receipts of banks, reduced the corporate income tax rate for corporations not listed on the Athens Stock Exchange from 40 per cent to 37.5 per cent in 2001 and 35 per cent in 2002 and cut the tax rate on partnerships from 30 to 25 per cent.

### *Public Debt*

Any discussion of the public sector in Greece over the past two decades would be incomplete without analysing the evolution of public debt.

After 1980, public debt accumulated rapidly for 13 years. The debt-to-GDP ratio stabilised during the 1993 to 1996 period and then began to decline slowly (see Figure 2-1). Several factors explain the rise and the subsequent decline in the ratio of public debt to GDP. The 20-year period between 1980 and 2000 can usefully be divided into four sub-periods; during each subperiod, a different factor was responsible for the movement in the ratio.

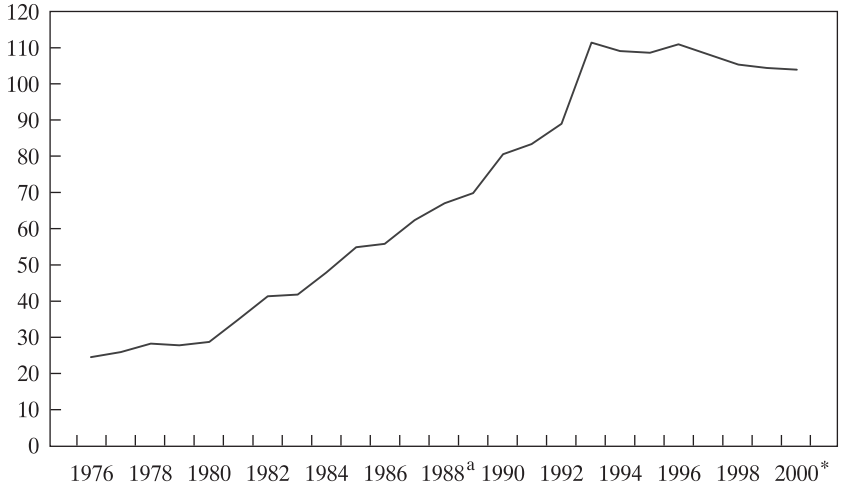
*The early phase (1980-1987)*. During the second half of the 1970s, the debt-to-GDP ratio remained broadly unchanged, hovering a bit below 30 per cent of GDP. After 1980, however, debt began growing at an increasing rate. Table 2-3 presents the annual changes in the debt-to-GDP ratio and decomposes them into three major components: primary balance, the effect of interest rates and the rate of growth of GDP, and the stock-flow adjustments (see Appendix 2 for analytical details).

As is evident from the data presented in this table, over the course of two years (1981-1982) the debt-to-GDP ratio grew by 12.7 percentage points; in the 1984-1985 period the ratio grew by another 12.8 percentage points. Underlying this rise in debt were both the *large primary deficits* experienced between 1981 and 1986[16] and the *substantial stock-flow adjustments* of 1982 and 1984-1985.

Regarding the latter, it relates to the 250 billion drachma loan granted by the Bank of Greece to the State in order to settle the accumulated deficits (for the 1978-1981 period) of an off-budget account through which national transfers to farmers were effected prior to Greece's participation in the EU (see also p. 138). The loan was granted in late 1981 but was actually used in 1982, when the account was closed. A new 150 billion drachma loan was granted in 1984 to cover all remaining obligations. The 1985 drachma devaluation accounts for the sizeable stock-flow adjustment in that year.

16. For completeness, it may also be mentioned that there were two drachma devaluations, one in January 1983 and the other in October 1985, which affected foreign debt.

**Figure 2-1. General Covernment Debt as a per cent of GDP**




SOURCE: See Sources of Table 2-4.
a. As of 1988, calculations are based on a new GDP series.
* Estimates.

In contrast, interest payments were low and prevented a faster accumulation of debt during this period (with the exception, perhaps, of 1987). One reason for this was that, at that time, interest rates were administratively determined. The government financed its deficits by requiring the banking sector to invest in Treasury bills that bore negative real interest rates. At that time, it was mandatory for banks to invest 37 per cent of their deposits in Treasury bills.[17] In 1980 and 1981, when the rate of inflation was 24.9 per cent and 24.5 per cent respectively, the nominal interest rate of one-year Treasury bills was set at 14.25 per cent. Furthermore, in 1981 and 1983, the Bank of Greece granted the above mentioned loans to the State at a 5 per cent and 10 per cent interest rate, respectively. Thus, the State had privileged access to capital markets at negative real interest rates. Otherwise, the debt to GDP ratio would have risen at an even faster rate.

*The second period (1988-1992).* The deregulation of the Greek banking system, along with the liberalisation of capital movements, brought an end to the government's ability to borrow at concessional rates. The obligation of banks to invest in Treasury bills was phased out and the real interest rate in Treasury bills became positive. The obligation of banks to invest in Treasury

17. By 1990 this ratio was raised to 40 per cent.

**Table 2-3. Decomposition of Changes in the Government Debt Ratio**
Per cent of GDP

| | *1976* | *1977* | *1978* | *1979* | *1980* | *1981* | *1982* | *1983* | *1984* | *1985* | *1986* | *1987* | *1988* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Level of government debt | 24.6 | 25.7 | 28.0 | 27.5 | 28.6 | 34.5 | 41.3 | 41.9 | 48.0 | 54.7 | 55.9 | 62.2 | 66.8 |
| Change in government debt ratio: | -0.10 | 1.10 | 2.30 | -0.50 | 1.10 | 5.90 | 6.80 | 0.60 | 6.10 | 6.70 | 1.20 | 6.30 | 4.60 |
| – Contribution of primary balance | 0.40 | 1.30 | 1.50 | 0.60 | 0.60 | 6.50 | 4.00 | 4.00 | 4.00 | 6.80 | 4.20 | 2.60 | 4.00 |
| – Interest and nominal GDP contribution | -3.78 | -2.56 | -3.52 | -3.96 | -2.91 | -2.63 | -5.04 | -3.67 | -4.91 | -4.85 | -4.52 | -0.70 | -5.15 |
| – Stock-flow adjustment | 3.28 | 2.36 | 4.32 | 2.86 | 3.41 | 2.03 | 7.84 | 0.27 | 7.01 | 4.75 | 1.52 | 4.40 | 5.75 |

| | *1989* | *1990* | *1991* | *1992* | *1993* | *1994* | *1995* | *1996* | *1997* | *1998* | *1999* | *2000** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Level of government debt | 69.9 | 80.7 | 83.3 | 89.0 | 111.6 | 109.3 | 108.7 | 111.3 | 108.3 | 105.5 | 104.6 | 103.9 |
| Change in government debt ratio: | 3.10 | 10.80 | 2.60 | 5.70 | 22.60 | -2.30 | -0.60 | 2.60 | -3.00 | -2.80 | -0.90 | -0.70 |
| – Contribution of primary balance | 6.80 | 5.90 | 2.10 | 1.10 | 1.00 | -4.10 | -1.00 | -3.10 | -4.20 | -5.30 | -5.80 | -6.50 |
| – Interest and nominal GDP contribution | -4.35 | -4.14 | -7.84 | -1.49 | 0.09 | -0.70 | -3.23 | -0.33 | -3.09 | -1.05 | 0.84 | -0.26 |
| – Stock-flow adjustment | 0.65 | 9.04 | 8.34 | 6.09 | 21.51 | 2.50 | 3.63 | 6.03 | 4.29 | 3.55 | 4.06 | 6.06 |

SOURCES: 1) Ministry of National Economy. 1998. *The Greek Economy 1960-1997: Macroeconomic Time Series*, Tables 8A, 8-1A. Athens.
2) Ministry of National Economy. 2000. *Macroeconomic Aggregates - Forecasts (ESA 95): 1995-2000*, mimeo. Athens (March).
3) Ministry of National Economy. 2000. *Macroeconomic Aggregates - Forecasts (ESA 95): 1997-2002*, mimeo. Athens (September).
4) Ministry of National Economy. 2000. *Macroeconomic Aggregates - Forecasts (ESA 95): 1998-2002*, mimeo. Athens (October).
* Estimates.

bills was reduced from 40 per cent at the end of 1990 to 30 per cent in July 1991 and 20 per cent in July 1992; it was abolished in May 1993. By June 1990, the nominal interest rate on annual Treasury bills was 24 per cent, while inflation was 20.4 per cent.

Starting in 1986, the State began to sell Treasury bills to the non-bank public, at quite attractive interest rates. In 1986 and 1987 the amounts were fairly small (33 and 175 billion drachmas respectively). As of 1988, however, sales of Treasury bills to the non-bank public became quite important. In 1990, 43.1 per cent of the public sector's borrowing requirement (PSBR) was financed by the sale of Treasury bills to the non-bank public. This percentage increased to 68.0 per cent in 1991 and 71.2 per cent in 1992.

Thus, the second sub-period is basically characterised by *a substantial rise in interest rates* along with a radical change in the way government deficits were financed. When this started (1988), the debt-to-GDP ratio stood at 66.8 per cent of GDP. By the end of 1992, this ratio had reached 89 per cent of GDP. However, the full effect of the higher interest rates is more apparent in the 1992-2000 period, where the negative effect of interest rates on the change in the debt ratio is very small (compared with the 1980s) or even positive in certain years (see Table 2-3).

In addition to higher interest rates, the underlying budget situation in 1989 and 1990 pushed the debt ratio upwards. During these two years, the annual average primary deficit exceeded 6 per cent of GDP (from 3.4 per cent in 1986-1987), while real (and nominal) interest rates on Treasury bills exceeded real (and nominal) GDP growth. As it is well known, if these conditions prevail for long, the debt ratio can increase without limits.

Finally, substantial *stock-flow adjustments* took place during the 1990-1992 period, as the CG took over long-standing liabilities of various public legal entities to the banking system (which up to that point were not recorded in the GG debt). These liabilities were turned into government bonds ("consolidation loans") amounting to 1.8 trillion drachmas for the three-year period (1990-1992).

Beginning in 1991, fiscal policy changed substantially, as deficits were cut by more than 40 per cent. By 1992, the central government budget achieved a primary surplus[18] and later primary surpluses appeared in the general government accounts. Through the 1990s, primary surpluses continued and became the norm.

18. The 1992 primary surplus was achieved through a large capitalisation of interest payments, while the 1993 primary surplus was virtually zero.

*The consolidation period (1993-1996).* Despite the change in fiscal policy and the appearance of primary surpluses in the budget, it took a few years for the debt-to-GDP ratio to stabilise and then start declining. Not only were the dynamics of the debt such that an immediate stabilisation of the debt ratio would have required very high primary surpluses, but the second phase of EMU (January 1994) required a consolidation of the accounts of the State, especially with the central bank, which caused very large *stock-flow adjustments* and a hike in debt-to-GDP ratio (see Table 2-3). This was the case because the State had three current accounts with the central bank,[19] all of which were overdrawn. The balances of these accounts (3,043 billion drachmas) had to be transformed into formal debt by the end of 1993 so that Greece could enter the 2nd phase of EMU. Two of these accounts were closed, while the third was required always to be in surplus. Thus, in addition, the State had to borrow approximately 300 billion drachmas in excess of its 1993 PSBR, so that the remaining account was always in surplus. (Overall, owing to these adjustments, the debt increased by 3,343 billion drachmas.) Together, these institutional arrangements increased the debt-to-GDP ratio by 15.9 percentage points or 70.4 per cent of the total increase in 1993. Other institutional arrangements[20] in 1994 resulted in a slight decline in the debt ratio in that year. The stock-flow adjustments in 1990, 1991 and especially that in 1993 were the highest in the 25-year period under consideration.

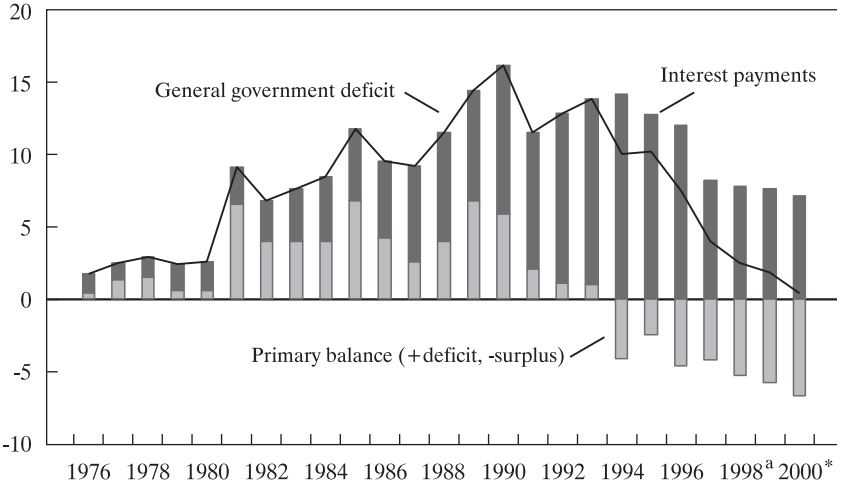
Beyond those *ad hoc* factors, the *primary surpluses* which were realised every year, coupled with an acceleration in the real rate of growth of GDP since 1994, dampened the dynamics of the debt and eventually stabilised the debt ratio in early 1997, despite the fact that high (but falling) interest rates continued throughout the period. By the end of 1997 the debt ratio had begun to fall. The downward trend has been maintained despite the devaluation of the drachma in March 1998 and the sharp decline of the euro vis-à-vis the dollar in 1999 and 2000.

*The fall of the debt ratio (1997-2000).* Three developments contributed to the establishment of the downward trend in the debt-to-GDP ratio. First, there is the decline in deficits. The deficit of general government, which stood at 10.2 per cent of GDP in 1995, declined to 4.0 per cent by 1997; for 2000 it

19. One for crude oil procurement, one for foreign exchange valuation differences and a current account where all other receipts and payments of the State Budget were recorded.

20. Before June 1994, Social Security Funds' deposits were treated as ordinary bank deposits and the central bank invested these funds in government paper in its own name. From June 1994 onwards these sums were invested on behalf of, and in the name of, the Social Security Funds, with the central bank acting as an agent. As a result, the consolidated debt of General Government declined.

**Figure 2-2. General Government Deficit, Interest Payments and Primary Balance as a per cent of GDP**




SOURCE: See Tables 2A-1 and 2A-2 in Appendix 1.
a. Since 1997, interest payments are consolidated.
* Estimates.

is estimated to be only about 0.8 per cent. The primary surplus increased from 1.0 per cent of GDP in 1995 to 4.2 per cent in 1997 and an estimated 6.5 per cent for 2000. Second, inflation (CPI) fell from 8.9 per cent in 1995 to 5.5 per cent in 1997 and 2.5 per cent in June 2000, reducing nominal interest rates. Third, ten-year fixed-interest-rate bonds were introduced in June 1997, further reducing interest rates and ending the government's heavy reliance on short-term borrowing. Initially the interest rate on these bonds was 8.8 per cent, when the interest rate on annual Treasury bills was 9.7 per cent. By June 2000 this interest rate had declined to 6.0 per cent, while the annual Treasury bill rate was 6.4 per cent. The effects of the primary balance and interest payments on the deficit during the 25-year period are shown in Figure 2-2.

What, however, characterises this last sub-period is the *acceleration of privatisation,* which bolstered the government's coffers. A number of policies, among them an ambitious privatisation programme, accompanied the drachma's entry into EMU in mid-March 1998. The strong performance of the Athens Stock Exchange (ASE) favourably affected and intensified the privatisation effort and most privatisations were realised in 1998 and 1999.[21]

21. Virtually all privatisations in Greece were implemented through the sale of stocks on the ASE.

Privatisation receipts for 1997, 1998 and especially 1999 (amounting to about 2 trillion drachmas) were used to retire public debt and helped establish the downward trend of the debt-to-GDP ratio.

*Other developments affecting the debt ratio.* Several other developments during the 1990s affected public debt. First, the average maturity of debt increased three fold between the early 1990s and 1999. The heavy reliance on short-term financing (3-month, 6-month and 12-month Treasury bills) in the late 1980s and the early 1990s had reduced the average maturity of debt to no more than two and a half years. The substitution of long-term bonds for Treasury bills changed that. In 1990, bonds accounted for 13.6 per cent of total debt and Treasury bills for 47.0 per cent. In 1999 bonds accounted for 78.0 per cent of total debt and Treasury bills for 3.9 per cent. The average maturity is now estimated to exceed six years.

Second, in the early 1990s bonds carried floating interest rates that were tied to the rate paid on 12-month Treasury bills. Adjustments were made once a year. Ten-year bonds with fixed interest rates were introduced in June 1997 and by 2000 had become the major financial instrument of the State. The sharp decline of Treasury bills and the substitution of fixed- for floating-interest-rate bonds have substantially reduced the sensitivity of public debt to changes in short-term interest rates. The establishment of a secondary market exclusively for government paper[22] in March 1998 has helped to increase liquidity, reduce government interest rates and improve public debt management.

Finally, it must be mentioned that both short- and long-term interest rates remained high throughout the 1990s, compared with the interest rates prevailing in international markets. This fact, coupled with the "hard-drachma" policy pursued between May 1994 and March 1998 (as well as after March), stimulated large inflows of foreign capital which created substantial problems for those responsible for the conduct of monetary policy. The central bank addressed these challenges with extensive sterilisation operations and other policies.

## Recent Fiscal Policy: Trends and Comparisons

With the exception of 1967 and 1973, when small deficits were recorded, Greece ran modest annual surpluses during the 1958-1973 period.[23] The sustained and rapid pace of economic growth that characterised that period is

22 There exist 173 different types of government securities.

23. General Government, National Accounts basis.

one explanation for the nation's fiscal prudence. With the economy expanding at an average annual rate of about 6.9 per cent between 1958 and 1973,[24] revenues grew sufficiently to support a significant expansion in public sector activity. Moreover, a large number of new indirect taxes were introduced during the second half of the 1950s and most of the 1960s. Greece's prudent fiscal stance was reinforced by the fact that the country could not borrow from abroad prior to 1966 when the settlement of the prewar foreign debt was finally completed. In addition, the governments of this era tended to be fiscally conservative (the Ordinary Budget was always in balance), in part because the hyperinflation experience of the immediate post-war years was fresh in policy makers' minds.

Fiscal discipline began to erode during the 1975-1980 period, when general government deficits averaged 2.5 per cent of GDP (Figure 2-2). These deficits reflected a faster annual average growth of general government expenditure (22.1 per cent) than of respective revenue (21.1 per cent).

Expenditure growth was driven by increased defence spending, including the establishment of new defence-related public enterprises, high wage concessions in the public sector[25] and a general expansion of public sector activities. This expenditure growth took place despite a serious effort to contain government spending.[26]

Revenue was affected by opposing forces. Several indirect taxes (mostly on imported goods) were imposed between 1975 and early 1979 and a substantial degree of fiscal drag developed as income tax brackets remained unchanged between 1975 and 1980 in the face of rapid inflation. On the other side, several indirect taxes were abolished in late 1979 and 1980 to facilitate Greece's accession to the European Union on 1 January 1981.

Between 1981 and 1994 Greece incurred much larger deficits, which averaged around 12 per cent of GDP per year. During that period, real economic growth slowed to 0.8 per cent per annum. This dampened revenue growth at a time when the establishment of the National Health System, subsidies to ailing enterprises, increases in pensions and other factors were pushing up spending. In addition, a pronounced political fiscal cycle began to emerge. In general election years —1981, 1985, 1989, 1990 and 1993— politicians increased expenditures rapidly and revenue growth slowed (see Figure 2-2). Election year revenues were affected not so much by explicit tax cuts as by

24. The average annual growth rate was 6.6 per cent for the 1951-1973 period.

25. OECD (1996, p. 54).

26. In the 1977-1979 period, a serious effort was undertaken to introduce the Zero Base Budget approach in the Greek budget. Several pilot projects (hospitals, postal service etc.) yielded very encouraging results. The effort was abandoned in 1980-1981.

**Table 2-4. General Government Deficit as a per cent of GDP, 1976-2000**

| | *1976* | *1980* | *1985* | *1990* | *1995* | *2000** |
|---|---|---|---|---|---|---|
| I. General government deficit | -1.7 | -2.6 | -11.7 | -16.1 | -10.2 | -0.8 |
| II. Primary balance *(- deficit, + surplus)* | -0.4 | -0.6 | -6.8 | -5.9 | 1.0 | 6.5 |
| III. Structural balance | ... | ... | ... | ... | ... | ... |

SOURCES: 1) Ministry of National Economy. 1998. *The Greek Economy 1960-1997: Macroeconomic Time Series*, Tables 8A, 8-1A. Athens.
2) Ministry of National Economy. 2000. *Macroeconomic Aggregates - Forecasts (ESA 95): 1995-2000*, mimeo. Athens (March).
3) Ministry of National Economy. 2000. *Macroeconomic Aggregates - Forecasts (ESA 95): 1997-2002*, mimeo. Athens (September).
4) Ministry of National Economy. 2000. *Macroeconomic Aggregates - Forecasts (ESA 95): 1998-2002*, mimeo. Athens (October).
* Estimates.

reduced compliance, as taxpayers realised that little effort would be made to enforce tax laws in an election year. The increase in election year spending was largely associated with wage and pension increases for civil servants (especially in the early 1980s) and expansions in public sector employment. Unemployed labour was absorbed by the public sector, which created a permanent drain on public resources because the new workers could not be fired. The expanded ranks of government workers further enhanced the political power of the public work force.

### *The Primary Deficit*

Large primary deficits played a decisive role in destabilising public finances in Greece. During the 1976-1980 period, primary deficits were low and averaged 0.9 per cent of GDP. During the 1980s, however, primary deficits averaged 4.9 per cent of GDP, falling below 4.0 per cent in only one year (1987). Subsequently, between 1991 and 1993, they declined to an average of 1.4 per cent of GDP. Finally, primary surpluses appeared consistently, starting in 1994.

With primary deficits averaging about 5 per cent of GDP for 10 consecutive years, it is not surprising that public debt accumulated rapidly and interest payments began to explode. In the second half of the 1990s, large primary surpluses were required to stabilise public debt and to secure a substantial decline in the deficit of the GG.

Large primary deficits were the result of sluggish revenue growth from 1976 until 1990 and substantial rises in primary spending. In 1981, an election year, primary spending rose by almost 5 percentage points of GDP. In 1985 and 1990, two other election years, spending rose by 2.7 and 2 per-

**Table 2-5. Primary Budget Surplus as a per cent of GDP at the Peaks and the Troughs of Cycles: 1974-2000**[a, b]

| | *Trough* | *Peak* | *Trough* |
|---|---|---|---|
| 1974-1982 | -0.3 | -1.5 | -4.1 |
| 1982-1987 | -4.1 | -6.8 | -2.6 |
| 1987-1993 | -2.6 | -4.1 | -1.0 |

SOURCE: Ministry of National Economy. 1998. *The Greek Economy 1960-1997: Macroeconomic Time Series.* Athens.
a. The last cycle has not yet been completed.
b. Cycles are not officially dated in Greece.

centage points of GDP, respectively. These trends were reversed during the 1990s. Revenue growth accelerated, while primary spending grew modestly, although with substantial fluctuations, over the course of the decade.

### *The Structural Deficit*

Virtually the whole of the Greek budget deficit is of a structural nature, that is, the cyclical component is fairly small. Although there are no official estimates of the structural deficit or of Greece's potential GDP,[27] there is ample evidence that the sensitivity of the budget to the business cycle is fairly limited. As is suggested by Table 2-5, over the three major cycles since 1974 the deficit as a per cent of GDP at the peak was not, in general, lower than in troughs. On the contrary, in two out of three cycles the highest primary deficit coincided with the peak of the cycle.

Preliminary results of a recent study[28] indicate that the short-run elasticity of the Greek budget deficit is 0.17, compared with 0.3-0.5 for other countries. These findings reflect institutional differences both in labour markets and in revenue and expenditure structures. In contrast to other countries, fluctuations in economic activity in Greece seem to have relatively little effect on unemployment or the budget balance.

There are several features of the Greek *labour market*, which help to explain the very low responsiveness of unemployment to the level of economic activity. First, about 48 per cent of those employed are self-employed

27. Recently, preliminary potential GDP estimates have been developed by the Bank of Greece.

28. Manessiotis and Nicolitsa (1999) estimated the equation $\Delta b_t = \alpha + \beta_1 \Delta y_t + \beta_2 b_{t-1} + n_t$, where $\Delta b$ is the change in the budget deficit, $\Delta y$ is the change in nominal GDP and n is an error term. The data covered the period 1960-1997. The 1974-1993 period would have probably given a smaller elasticity.

(including farmers). These workers are considered always employed and are, therefore, hardly affected by fluctuations in economic activity. Second, about 12 per cent of the Greek work force are employed in the broad public sector (central government, social insurance organisations and public enterprises). Employment fluctuations in the public sector are virtually nonexistent, as employees are protected by tenure.[29] Third, the rules governing dismissals in the private sector are very restrictive. Companies employing 50 or more workers may each month lay off only 2 per cent of those employed. Moreover, mandated severance payments are fairly large, especially for white-collar workers. These rules not only prevent dismissals in a recession but also make firms reluctant to hire new employees in a recovery. Finally, there is a widely held belief that workers should be protected by any means from losing their jobs, especially during an economic downturn.[30] Governments have, in many instances, assisted ailing firms, even those that were not viable over the long run, helping them remain in operation and, thus, have smoothed employment fluctuations. In addition, governments have tried to avoid job losses in all of the privatisations.

Thus, the labour market is, to a substantial degree, insulated from fluctuations in economic activity. It is worth mentioning that, although the economy has been in an expansion phase since 1994 and the pace of GDP growth has been accelerating (from 2.0 per cent in 1974 to 4.1 per cent in 2000 and an estimated 5.0 per cent in 2001), the unemployment rate has increased from 9.6 per cent in 1994 to 12 per cent in 1999. This rise in unemployment, however, might be related to an increase in the participation rate from 60.6 per cent in 1994 to 63.9 per cent in 1999. Overall, in the six years from 1993 to 1999, the economy created 103.7 thousand jobs, 60 thousand of which represented increased General Government employment. Given that public enterprises and other state-controlled activities are not included in the GG figures, it is possible that no net new jobs were created in the private sector of the economy during 6 years of steady economic recovery.

Even if unemployment were more responsive to fluctuations in economic activity, the budget might still be only marginally affected by the business cycle. On the expenditure side, the primary reason why this would be the case is that Greece does not have a significant Western-European-style social welfare system. The limited system that it does have is not cyclically sensitive because it is primarily targeted on families with many children, per-

29. Not including state-controlled banks, where employment is also tenured.

30. Greece offers the highest protection to "insiders" among all EU countries and the lowest to the unemployed. See, for example, Grubb and Wells (1993) and OECD (1996, pp. 53-96).

manently disabled individuals, the blind and others who are not engaged in economic activity. Greece has no means-tested welfare programmes.

While Greece does have an unemployment benefit system, it is "... the least generous in the OECD...Both the duration of unemployment benefits and the statutory replacement ratio are low compared with other OECD countries".[31] This is not accidental, since core employment is protected in several other ways, some of which have been mentioned previously.[32] The eligibility criteria for unemployment benefits are such that only approximately 20 per cent of the unemployed receive unemployment benefits.[33] About half of those receiving unemployment benefits are seasonal workers (primarily those working in tourism), who receive unemployment benefits every year, usually from November to March.[34] Thus, unemployment and welfare payments are not sensitive to fluctuations in economic activity.

On the revenue side, income taxes and social security contributions are the most "sensitive" to cyclical fluctuations. Although income taxes have become an important source of revenue in the last five years, total tax collections are still not highly responsive to fluctuations in economic activity, for four main reasons. First, the progressive personal income tax provides a relatively small share of total government revenues – only 17.2 per cent of CG budget revenue (1999 data, excluding social security contributions and EU transfers) or 10.6 per cent of GG total revenue. Second, extensive income tax evasion by the self-employed (approximately 50 per cent of those employed) and those working in the "hidden" economy, as well as the presumptive determination of the income of those who are self-employed, act to dampen the sensitivity of income tax receipts to cyclical fluctuations.

A third reason for the lack of responsiveness of revenues to economic fluctuations is the modest role played by the corporate income tax, which provides only 10.7 per cent of CG budget revenue (1999 data) or 6.6 per cent of GG revenue. This tax is levied at a flat rate and extensive investment incentives further dampen the sensitivity of tax collections to cyclical fluctuations.

Finally, receipts from social security contributions fluctuate little in line with the business cycle. As a percentage of GDP, they have remained remarkably stable. During the second part of the 1970s they increased slightly and

31. OECD (1996, p. 54 and p. 81).
32. The unemployment rate for the household head is only 2 per cent (OECD, 1996, p. 63).
33. OECD (1996, p. 81).
34. OECD (1996, p. 81).

then remained broadly stable at around 11.0 per cent of GDP during the 1980s and the early 1990s. Following the 1992 reforms, which increased contribution rates, the ratio of social security contributions to GDP increased by 1 percentage point to 12.1 per cent in 1993 (a recession year). Since then these receipts have been creeping upwards to 13.8 per cent of GDP in 2000. Given that the revenue effects of the 1992 reforms were completed in 1997 (contribution rates increased gradually until 1997), one can hardly say that social security contributions are responsive to cyclical fluctuations.

In summary, neither revenues nor expenditures are sensitive to cyclical fluctuations. Overall, the cyclical components of the deficits during the period under consideration were probably fairly small, with the possible exception of the 1981-1983 period when there was a severe recession.

### *The Financing of Deficits*

Until the mid 1980s, deficits were financed by Treasury bills, which banks were required to buy at low, administratively determined interest rates (see also the subsection "Public Debt" above). Starting in 1986, Treasury bills were issued to the non-bank public at market rates, while the obligation of banks to buy bills was gradually reduced and finally abolished in 1993. In the early 1990s, medium-term, floating-rate notes (bonds) were introduced. Finally, as of June 1997, 10-year bonds with fixed interest rates were introduced. A massive substitution of bonds for Treasury bills then took place. By the end of 2000, Treasury bills accounted for only 3.5 per cent of total GG debt, compared with 42 per cent in 1990.

Foreign borrowing was also used during the period under consideration. As a percentage of total debt, foreign debt averaged about 22 per cent, never exceeding the 25 per cent mark.

## Meeting the Maastricht Criteria: Fiscal Policy 1992-2000

Fiscal policy co-ordination within the EU was greatly enhanced with the Maastricht Treaty and, more recently, with the Stability and Growth Pact (SGP). The rationale for closer fiscal policy co-ordination, especially in the third phase of EMU (which for Greece started on 1 January 2001), is to protect the common monetary policy (in the euro area) from lax fiscal policies in one or more Member States. To monitor and ensure fiscal discipline in all Member States, the following mechanisms are used:

- the broad economic policy guidelines,
- the convergence programmes, and
- the excessive deficit procedure (including the stability programmes).

The *economic policy guidelines* have been issued annually since 1993 by the European Council and address medium-term macroeconomic and structural issues and policies.

The *convergence programmes* were submitted to the Commission by all Member States during the second stage of EMU. These reports indicated which economic policies the country in question intended to pursue the following few years, in order to attain convergence, and the progress achieved so far by a Member State towards meeting the Maastricht criteria. (The convergence programmes usually covered a four-year period but were regularly updated).

The *excessive deficit procedure* (EDP) requires that Member States submit biannually (since 1994, the beginning of the second stage of EMU) detailed figures regarding central government deficit and debt levels. As of 1999, for euro area countries the EDP has been reinforced by the annual *stability programmes* which Member States have to submit to the European Commission. The stability programmes present the fiscal policies a country in the euro area intends to follow so that the general government deficit remains "close to balance or in surplus", as it is required by the SGP.

In order to participate in the Economic and Monetary Union (EMU), Greece had to first satisfy the criteria set by the Maastricht Treaty, signed on 3 February 1992. The core of the Treaty concerns the monetary union. It provides for the introduction of the common currency, the euro, the establishment of the European Central Bank (ECB) and the European System of Central Banks (ESCB), and for the centralised conduct of monetary policy (at the EU level). According to the Treaty, the aim of monetary policy and the ECB is *price stability*.

For a Member State to enter the monetary union, its economy has to satisfy five criteria. These criteria, stated in the Treaty and in the annexed Protocols, are as follows:

- **The price stability criterion**

A Member State has achieved price stability when its inflation rate (as measured by the CPI) for the last 12 months does not exceed by more than 1.5 percentage points the average inflation of the three Member States with the lowest inflation.

- **The exchange rate stability criterion**

A Member State currency has to participate in the Exchange Rate Mechanism (ERM) for two years prior to joining EMU. During these years it should not be devalued against any other Member State's currency and it must remain within the narrow band.

- **The fiscal deficit criterion**

The annual deficit of the General Government, measured on a national accounts basis, should not exceed 3 per cent of GDP.

- **The public debt criterion**

General Government gross consolidated debt should not exceed a limit set at 60 per cent of GDP. This criterion can be waived if this ratio exceeds the 60 per cent mark but is falling continuously at a satisfactory rate.

- **The interest rate convergence criterion**

The average nominal long-term interest rate of a country, during the 12 months prior to its entrance to EMU should not exceed by more than 2 percentage points the respective interest rates of the three Member States with the lowest inflation rates.

These criteria were supplemented by other rules such as the "no bail-out" clause, the independence of the ECB and the ESCB, the prohibition of central bank financing of any type to the state and the prohibition of any type of privileged access of the state to (domestic) financial markets.

Thus, although the Treaty established the monetary union, extensive coordination, limitations and strict rules were imposed on the conduct of fiscal policy. As mentioned above, the rationale behind these rules was to safeguard the ECB's monetary policy from irresponsible fiscal policy of one or more Member States and limit the possibility that a Member State's fiscal policy would generate macroeconomic imbalances.

When the Treaty was signed, fiscal aggregates in Greece were far from satisfying any of the criteria. The General Government deficit stood at 11.5 per cent of GDP at the end of 1991 and the debt-to-GDP ratio was 83.3 per cent and rising.

Although fiscal consolidation efforts had started in 1991, they became ineffective by the end of 1993. The deficit, which had stood at 16.1 per cent of GDP in 1990 and was brought down to 11.5 per cent in 1991, grew to 12.8

per cent in 1992 and 13.8 per cent in 1993. New efforts began in early 1994 and continued uninterrupted through the rest of the decade. The overall macroeconomic policy-mix, which has been followed consistently since 1994, had the following characteristics:

- tight monetary policy,
- gradual reduction of the large fiscal deficit and
- "hard-drachma" policy, along with a liberalisation of short-term capital movements (May 1994).

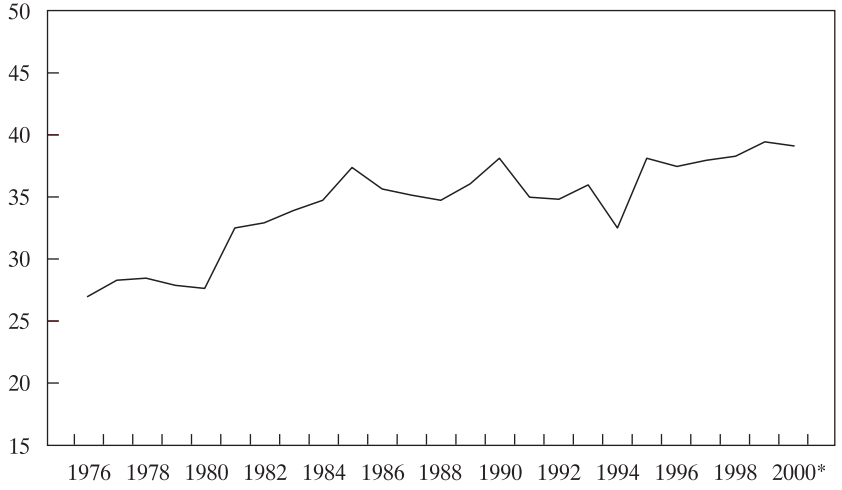
This policy-mix had several consequences. First, the monetary-fiscal policy mix led to high interest rates.[35] At the same time, high interest rates were instrumental in pursuing the "hard-drachma" policy. The successful liberalisation of short-term capital movements and the overall conduct of monetary policy further increased its credibility. In the autumn of 1994, Greek firms, for the first time since World War II, were able to borrow in foreign exchange. Moreover, foreign short-term capital began to flow into Greece, attracted by high interest rates. The central bank responded to this inflow with extensive sterilisation operations.

With respect to fiscal policy, the goal was to meet the Maastricht criteria, specifically to reduce the deficit and establish a downward trend for the debt-to-GDP ratio. These goals were met. GG deficit, on a national accounts basis, was reduced from 13.8 per cent of GDP in 1993 to 0.8 per cent in 2000. Moreover, the debt-to-GDP ratio, after fluctuating around 110.0 per cent between 1993 and 1997, began to drift downwards from 111.3 per cent of GDP in 1996 to 103.9 per cent in 2000.

The decline in deficits resulted from rapid revenue growth and a decline in interest payments. Indeed, total GG receipts increased from 35.0 per cent of GDP in 1993 to 45.6 per cent in 2000 – 10.6 percentage points of GDP in seven years. Interest payments, on the other hand, declined from 12.8 per cent of GDP in 1993 (and 14.1 per cent in 1994) to 7.2 per cent in 2000. Total GG spending, however, declined little. It fell from 48.8 per cent of GDP in 1993 to 46.6 per cent in 1994 and then remained virtually unchanged for the rest of the period; for 2000, spending is projected to be 46.4 per cent of GDP. Thus, primary spending *increased* by 3.2 percentage points of GDP during the 1994-2000 period (see Figure 2-3).

35. The annual Treasury bill interest rate fluctuated around 20 per cent, both in 1993 and 1994. Time deposits carried an even higher interest rate and bank lending rates were even higher, close to 30 per cent.

**Figure 2-3. Primary Spending as a per cent of GDP**




SOURCE: See Tables 2A-1 and 2A-2 in Appendix 1.
* Estimates.

Relative to GDP, only direct taxes —primarily income taxes— increased during this period. Direct taxes as a share of total revenue increased from 16.5 per cent in 1993 to 23.7 per cent in 2000. In contrast, indirect taxes declined from 40.1 per cent of total revenue in 1993 to 33.5 per cent in 2000. Given that the share of income taxes is still relatively low compared to that of other EU countries, these developments would seem to represent a movement in the right direction.

Nevertheless, problems remain. There is no concrete evidence that the increase in collections has been related to a decline in income tax evasion. Part of the increase is due to the introduction of the taxation of interest income (in 1992), which made the system a bit more regressive, and another part to the abolition of various tax exemptions, deductions and allowances, especially those related to the family status of the taxpayer, which did not conform with standard concepts of horizontal equity. Furthermore, the progressive component of the income tax schedule remains compressed in a narrow income band and is exhausted at fairly modest income levels. What is certain is that the tax burden of taxpayers whose real income ranges between 3 and 7 million drachmas has increased considerably since the early 1980s.

The substantial 7.4 percentage point decline in the debt-to-GDP ratio between 1997-2000 is somewhat misleading. This decline more than reflects

**Table 2-6. Irish Fiscal Consolidation: 1993-2000**
Per cent of GDP

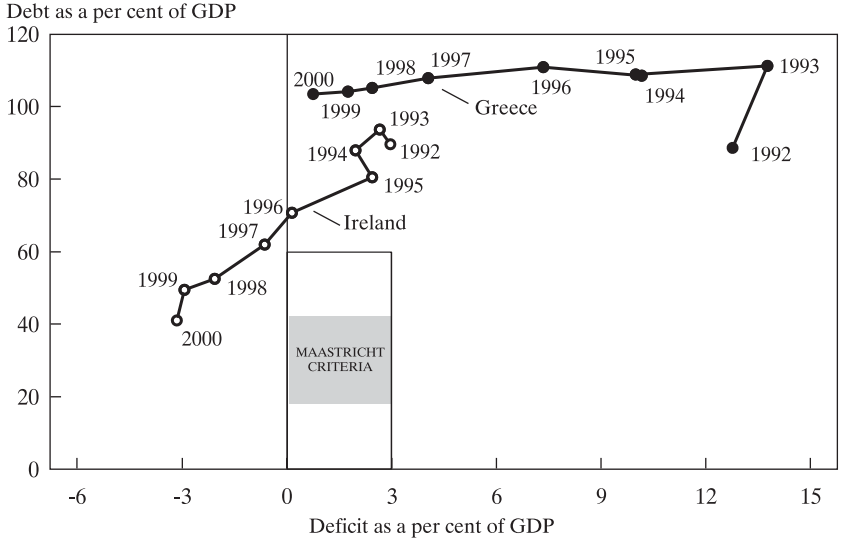
| | *1993* | *2000* |
|---|---|---|
| Revenue | 39.6 | 34.8 |
| Expenditure | 44.2 | 33.2 |
| Debt | 94.0 | 41.4 |

SOURCE: *European Economy* 69.

the substantial reduction in the deficits; the proceeds from privatisation were used to retire debt during this period. As was explained previously, this is partly due to the fact that certain expenditures (like "financial transactions", debt assumption etc.) are not recorded in the deficit but appear directly in the public debt figures. Thus, despite the substantial decline in deficits, the average annual stock-flow adjustment for the 1996-2000 period remained above 5 per cent of GDP.

The relatively slow pace at which the debt-to-GDP ratio has declined and the fact that this ratio remains well above the Maastricht 60 per cent limit imply that fiscal consolidation efforts should continue. This is underscored

**Figure 2-4. Fiscal Consolidation Paths: Greece and Ireland**




SOURCE: *European Economy* 69.

by the provisions of the Stability and Growth Pact, which require that the budget be "....close to balance or in surplus". International experience suggests[36] that fiscal consolidation based on revenue increases during a period of strong economic growth is not as sustainable as consolidation based on a decline in government spending. Ireland is a case in point. Between 1993 and 2000 the Irish debt-to-GDP ratio fell by 52.6 percentage points, while at the same time expenditure fell by 11 percentage points and revenue also fell by 4.8 percentage points. This type of fiscal consolidation is different than the Greek one (see Figure 2-4 and Table 2-6).

## Lessons from the 1981-1992 Period: The Effects on the Public Sector from Joining the EEC, and the 1986-1987 Stabilisation Programme

Greece's accession to the European Union[37] on 1 January 1981 brought about pervasive changes in the Greek economy, including the public sector. Greece's membership required a number of important changes to harmonise fiscal policies with those of the Community. Some of the most important changes and their consequences are analysed below.

### *Central Government*

By and large, most of the required changes affected the central government budget. As was mentioned above, such changes started in the second half of 1979, some 18 months prior to Greece's accession, when several indirect taxes and other measures[38] designed to stem imports were repealed.

*Budget revenue*. On the revenue side, Greece had to adopt, as of 1 January 1981, the Common External Tariff, which had generally lower rates than those of Greece. The rate differences were eliminated only gradually and the process was not completed until 1986. Under the new system, 90 per cent of tariff receipts collected by Greece go to the EU (own resources) and not to the Greek Treasury. This, however, did not cause a huge revenue loss because Greece had been gradually lowering its tariffs since 1962, upon Greece's Association with the EEC.

36. Mc Dermott and Wescott (1996).
37. At that time EEC.
38. Such measures required, among other things, the deposit of the total worth of imports to a bank six months prior to importation. Bank credit to importers was also prohibited.

A larger revenue loss was incurred when Greece was forced to stop the differential tax treatment of all imported goods versus domestically produced ones.

This elimination of differential treatment, which was effected through various means,[39] was highly complex. In 1984, the excess tax burden on imported goods, versus similar domestic goods, was recorded on an item-by-item basis and was expressed as a percentage of the prevailing 1984 price of each imported good. This calculation was called "The Regulatory Tax". These percentages declined gradually and the "tax" was eventually abolished on 1 January 1989. Revenue from the Regulatory Tax in 1986 amounted to 5.3 per cent of total 1986 CG budget receipts. It is estimated that the loss of revenue from the elimination of differential tax treatment between 1985 and 1990 was 770 billion drachmas, or 52 per cent of total 1986 budget[40] receipts.

The most important change in the Greek tax structure, however, was the introduction of the Value Added Tax (VAT). Following three postponements, the VAT was finally introduced on 1 January 1987. It replaced two major taxes, the Turnover Tax and the Stamp Duty on Invoices, as well as more than 30 low-yield levies. The introduction of the VAT greatly simplified, rationalised and modernised the Greek tax system. It suffices to say that the two major taxes that were replaced by the VAT created a lot of cascading which resulted in a heavier taxation of certain domestically produced goods vis-à-vis the imported ones. Moreover, it was virtually impossible to trace these taxes and return them when the products were exported.

The introduction of the VAT, however, unleashed some inflationary pressures in 1987 and created new opportunities for tax evasion, especially during the first few years, because Greek tax administrators were not prepared to handle such a tax. The introduction of the VAT required tax auditing of about 850 thousand retailers, while the previous tax regime required tax auditing of only about 150 to 160 thousand wholesalers. Since tax offices were not computerised at that time, the introduction of the VAT created many administrative problems. The situation has improved considerably, however, over the last few years.

Other changes in the Greek tax structure include the harmonisation of the three traditional excise taxes (on tobacco, liquid fuels and alcoholic bev-

39. Including, for example, the manipulation of the tax base, the imposition of a tax on the top of another etc.

40. Manessiotis (1993, pp. 34-36).

erages) with EU regulations and the more accurate definition of the VAT tax base.

*Budget expenditure*. On the expenditure side, Greece had to transfer to the EU the proceeds from customs duties, sugar levies and agricultural levies and pay its EU financial contribution (originally set at a certain percentage of GDP, later as a percentage of the VAT base and, by the end of the period, as a combination of the two). In 1981, these payments amounted to 47.7 per cent of Greece's total receipts from the EU. By 1990, these payments had declined to 19.2 per cent of total receipts from the EU.

The most significant impact of EU membership, however, was on transfers to farmers. Membership meant that Greece had to adopt the Common Agriculture Policy (CAP). CAP payments, however, did not appear in the Central Government budget. EU funds are deposited into an account with the Agricultural Bank of Greece and then are paid to farmers. These transfers appear neither on the revenue nor on the expenditure side of the Greek budget. Nevertheless, these funds are Greece's single biggest receipt from the EU, accounting, on average, for 65 per cent of total receipts from the EU.

Even prior to 1981, transfers to farmers were effected through an account kept with the Bank of Greece and did not appear directly in the budget. At unspecified intervals, the accumulated deficits in this account were covered either through transfers from the budget or by formal borrowing from the Bank of Greece. The accumulated balances were covered in 1978 by a loan of 70 billion drachmas granted by the Bank of Greece. The accumulated deficits from the 1978-1981 period (approximately 230 billion drachmas) were covered by a 250 billion drachma loan granted to the state by the Bank of Greece in December 1981. (Most of the loan was actually used in 1982). The account was closed in 1982 and a new 150 billion drachma loan was granted in 1984 to cover all remaining obligations.

*The investment budget*. During the past two decades, the investment budget has received an amount equal to 10.7 per cent of Greece's total receipts from the EU. Transfers were smaller in the first five years (about 6.5 per cent) and grew larger (11.7 per cent of total receipts) after 1986, when the Mediterranean Integrated Programmes (MIP) were introduced.[41]

41. Up to the early 1980s, existing EU structural funds were designed either (a) to help ailing industrial sectors, or (b) to assist declining industrial areas, or (c) to assist agricultural restructuring (changing crops etc.). There was no fund to promote economic development of whole regions or countries. Greece reacted to this with a formal Report in 1984, and in 1986 the MIP were established.

**Table 2-7. Effects on Fiscal Accounts Due to EU Membership: 1981-1990**
Billion drachmas

| *Component of the public sector* | *Additional revenue* | *Additional expenditure* |
|---|---|---|
| I. Ordinary budget | 155.0 | 1,563.6[a] |
| II. Investment budget | 268.2 | - |
| III. Public enterprises etc. | 298.5 | - |
| **Subtotal** | **721.7** | **1,563.6** |
| IV. Farmers-income support | 1,605.0 | 90.5 |
| **Total** | **2,326.7** | **1,654.1** |

SOURCE: Manessiotis, B. 1993. *The Impact of Greece's Accession to the EEC on the Public Sector,* opt. cit. p. 42.
a. Of which 411.6 billion drs. account for lost revenue.

### *Social Security Funds and Public Enterprises*

Social Security Funds did not receive any transfers from the EU, with the exception of the Unemployment Agency, which received small amounts from the Social Fund.

In contrast, public enterprises (Public Power Corporation, Hellenic Telecommunications Organisation, Greek Railways etc.) received almost 300 billion drachmas (or 16.8 per cent of total receipts) over the period under consideration to improve infrastructure. Of these funds, 92 per cent were granted from the Regional Fund and the MIP.

### *The Overall Impact on the Public Sector as a Whole*

Table 2-7 above gives the overall financial transactions of the public sector as a whole with the EU for the period 1981-1990.

On the basis of these data, the following conclusions may be drawn, regarding the fiscal impact of Greece's participation in the EU during the first 10 years.

1. Gross total receipts from the EU (2,326.7 billion drachmas) were bigger than Greece's payments (1,654.1 billion drachmas) to the EU during the first ten years. Annual net receipts (i.e. receipts minus payments) ranged between 0.49 per cent of GDP in 1981 and 4.9 per cent of GDP in 1990.

2. About 65 per cent of gross receipts went for farmers' income support programmes.

3. All of Greece's payments to the EU (including lost revenue) are recorded in the Ordinary Budget, while virtually all receipts from the various EU funds go to extrabudgetary accounts or to public corporations. This

marks the beginning of a 20-year period during which *the ordinary budget increasingly undertook the obligations and liabilities of the rest of the public sector.*

4. The substantial increase in farmers' incomes (without any obligation for crop restructuring etc.) further increased aggregate demand and maintained inflationary pressures.

5. Finally, the answer to the question "whether it was beneficial for Greece to join the EU or not" hinges on another question: How would farmers' income support programmes have evolved, if Greece had not joined the EU? If the national subsidies were to be as generous as the EU ones, then it was better that Greece joined the EU and the budget was relieved of this obligation. If national farm supports would have been substantially lower than those provided by the EU, it is not at all clear that Greece benefited from EU membership during the first ten years.

### *"Qualitative" Effects*

Beyond financial considerations, there has been a "qualitative" impact of the EU on the public sector which is definitely positive. The Greek tax system was rationalised, greatly simplified and modernised, especially after the introduction of the VAT. These changes have resulted in a more efficient tax system. Moreover, the credit rating of the state was substantially enhanced by EU participation. The cost of conforming with EU standards was the loss of national autonomy over several aspects of the tax system.

### *The 1986-1987 Stabilisation Programme*

The sharp rise in wages and pensions, both in the public and the private sector, in the first half of 1982, along with the rise in farmers' incomes and the liberalisation of imports, led to a substantial disequilibrium in the balance of payments, especially in the trade balance. Thus, on 9 January 1983 the drachma was devalued by 15.5 per cent vis-à-vis the US dollar.

Following subsequent fiscal expansion, a widening current account deficit, and continued high inflation, a decision was made, in late summer of 1985, to try to stabilise the economy. A two-year "Stabilisation Programme" was prepared during the fall of 1985. Among its elements, the Programme provided for another 15 per cent devaluation of the drachma vis-à-vis the dollar, which was implemented on 12 October 1985. The devaluation was accompanied by mea-

sures to restrain incomes,[42] increase tax revenues and contain government expenditure. This effort started with the drafting and execution of the 1986 budget.

The programme's duration was for two years, 1986 and 1987, and it had the full support of the Commission services of the EU. In the first year the programme was met with considerable success. The GG deficit declined by 2.2 percentage points from 11.7 per cent of GDP in 1985 to 9.5 per cent in 1986. GG revenue increased in 1986 by 0.8 percentage point and spending declined by 1.4 percentage points of GDP. Revenues were favourably affected by a drop in the international price of oil and by the various tax measures taken.

In 1987, the GG deficit declined by 0.3 percentage point of GDP. Revenue continued to increase, by 1.2 percentage points, but expenditure *increased* by 0.9 percentage point of GDP. Taking both years together, revenue increased by 2 percentage points, while expenditure declined by 0.5 percentage point. By the autumn of 1987, however, the programme and the stabilisation effort had been abandoned. In 1988, the GG deficit increased back to its 1985 level.

While the Stabilisation Programme was being drafted during the Autumn of 1985, it became clear to the working group that was in charge of expenditure cuts that, to a considerable degree, 1986 spending was predetermined (i.e. two-year rolling programmes etc.). In other words, either the fact that legal and institutional changes were required to effect cuts, or the existence of other considerations, related to the credibility of the state, prevented expenditure cuts. As a result, expenditure cuts *in the short run* were virtually impossible. Substantial cuts would require a *medium term horizon* (at least 3 to 5 years), legal and institutional changes and continuity and consistency.

The second important conclusion (which should have been anticipated) was that the existence of the Automatic Wage Indexation Scheme made it much more difficult to contain inflation. It was no accident, therefore, that when another consolidation effort started in the early 1990s, the Automatic Wage Indexation Scheme was abolished.

## Conclusions and Prospects

The preceding analysis shows that, since 1994, Greece has achieved substantial progress in its efforts at fiscal consolidation, allowing it to satisfy the Maastricht criteria and qualify for EMU.

42. For the first time there was an effort to contain all incomes in the economy. Farmers' incomes were appropriately contained by an adjustment in the value of the "Green drachma", wage earners' incomes by a modification in the Automatic Wage Indexation Scheme, and self-employed and small entrepreneurs' incomes by an extraordinary tax levy.

Progress was most visible in the decline of the GG deficit, but the stabilisation of public debt was at least as important. Available data indicate that fiscal consolidation was based on tax increases, especially direct tax increases, and the ("automatic") reduction in interest payments, while primary spending has been creeping upwards.

This composition of fiscal consolidation, however, raises questions regarding future prospects. If successful fiscal consolidation is defined as putting the ratio of debt to GDP on a *sustainable* downward path, as is usually the case, then successful fiscal consolidation should have the following characteristics:

(a) It should rely primarily on spending cuts rather than tax increases, in particular on restraining the growth of government wages and transfers.[43]

(b) Reductions in government interest payments should not be relied on to achieve consolidation goals.[44]

(c) If taxes are to be increased, then long-term economic effects suggest that it is better to increase indirect taxes than direct ones.[45]

Based on these criteria, the composition of the fiscal adjustment in Greece may need to be reoriented. In addition, starting in 2001, the Greek economy will be operating in a quite different economic environment. *Tax competition* will be a major characteristic of this new environment. Most euro area countries plan or have already embarked on extensive tax cuts to improve their competitiveness. Greece will have to follow. Actually, some limited tax cuts have already been decided upon for 2001. In addition, fiscal policy must become more active, flexible and effective. Fiscal targets in Greece must be very ambitious, because fiscal policy will have to deal with rising inflation and with longer-term problems, such as the social security system and the large public debt.

Although the possibility of increasing certain taxes in the future (or further containing tax evasion) should not be excluded, generalised tax increases are probably out of the question. Additional fiscal adjustment should be based on expenditure cuts. Four studies completed in the first part of the 1990s found that there was a causal relationship between tax revenues and government spending in Greece, with causation running from spending to tax revenue. In other words, public expenditures are exogenously determined and then taxes are increased to meet these higher expenditures.[46] This

43. McDermott and Wescott (1996, pp. 726-27).

44. McDermott and Wescott (p. 728).

45. McDermott and Wescott (p. 728).

46. See: a) Provopoulos and Zambaras (1991), b) Kollias and Makrydakis (1995), c) Hondroyiannis and Papapetrou (1996) and d) Hondroyiannis (1999).

finding and the new economic environment in which the Greek economy will operate suggest that *a lasting fiscal adjustment can be obtained only through substantial expenditure cuts*.

Greece has to adopt clear and binding rules regarding public spending,[47] which will lead to a reduction of the primary expenditure ratio over the next few years. This will improve the composition of the fiscal adjustment and accelerate the decline in the debt-to-GDP ratio. Moreover, substantial tax cuts would keep Greece's competitive position from eroding.

In the years ahead, the social security problem and the substantial reduction of public debt must be addressed. Resources must be freed from the budget to help the social security funds meet their obligations and reduce public debt. If large tax increases are virtually impossible to enact and are counter-productive, these resources will have to come from a reduction of primary spending.

Finally, privatisation efforts will have to be stepped up. This will help in two ways. Privatisation proceeds will be used to retire debt and the budget will stop subsidising loss-making public enterprises (such as the Olympic Airways, railways, etc.), thus reducing primary spending. Therefore, along with efforts to contain primary spending, privatisation efforts should be intensified.

47. Kopits and Symansky (1998).

**Table 2A-1. General Government Consolidated Expenditure as a per cent of GDP, and Composition of Expenditure, 1976-2000**

| | *1976* | *1977* | *1978* | *1979* | *1980* | *1981* | *1982* | *1983* | *1984* | *1985* | *1986* | *1987* | *1988* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | As a per cent of GDP | | | | | | | | | | | | |
| EU-14 average | 44.1 | 44.2 | 44.7 | 44.8 | 45.9 | 48.1 | 49.0 | 49.4 | 49.5 | 49.7 | 49.1 | 48.7 | 47.6 |
| Selected EU Member States[a] | 37.4 | 36.8 | 38.4 | 38.9 | 42.2 | 46.0 | 46.8 | 47.6 | 48.4 | 48.9 | 46.2 | 45.3 | 44.0 |
| **Greece: (total)** | **28.3** | **29.5** | **29.9** | **29.7** | **29.7** | **35.1** | **35.7** | **37.5** | **39.1** | **42.3** | **40.9** | **41.8** | **42.2** |
| 1. Government consumption | 12.8 | 13.5 | 13.3 | 13.5 | 13.6 | 14.9 | 14.6 | 15.1 | 15.5 | 16.3 | 15.4 | 15.6 | 14.3 |
| – Public employee compensation | 8.3 | 8.8 | 9.0 | 9.3 | 9.5 | 10.1 | 10.5 | 10.8 | 11.0 | 11.6 | 10.9 | 11.1 | 11.3 |
| 2. Transfers | 10.8 | 11.6 | 12.1 | 11.2 | 11.5 | 14.4 | 15.3 | 15.0 | 15.1 | 16.8 | 16.6 | 16.4 | 16.6 |
| – To households | 8.2 | 8.9 | 9.5 | 9.2 | 9.4 | 10.9 | 12.8 | 13.1 | 13.4 | 14.3 | 14.4 | 14.8 | 14.9 |
| – To enterprises | 2.6 | 2.7 | 2.6 | 2.0 | 2.1 | 3.5 | 2.5 | 1.9 | 1.7 | 2.5 | 2.2 | 1.6 | 1.7 |
| 3. Debt service[b] | 1.3 | 1.2 | 1.4 | 1.8 | 2.0 | 2.6 | 2.8 | 3.6 | 4.4 | 4.9 | 5.3 | 6.6 | 7.5 |
| 4. Gross fixed capital formation and other capital expenditure, including capital transfers received | 3.5 | 3.2 | 3.1 | 3.1 | 2.6 | 3.1 | 3.1 | 3.8 | 4.1 | 4.3 | 3.7 | 3.2 | 3.8 |
| | As a per cent of total expenditure | | | | | | | | | | | | |
| 1. Government consumption | 45.1 | 45.7 | 44.5 | 45.6 | 45.7 | 42.5 | 40.8 | 40.3 | 39.7 | 38.4 | 37.7 | 37.3 | 33.9 |
| – Public employee compensation | 29.4 | 29.9 | 30.3 | 31.3 | 31.9 | 28.6 | 29.5 | 28.7 | 28.1 | 27.3 | 26.7 | 26.7 | 26.7 |
| 2. Transfers | 38.0 | 39.2 | 40.4 | 37.7 | 38.9 | 41.1 | 42.9 | 39.9 | 38.6 | 39.8 | 40.5 | 39.3 | 39.4 |
| – To households | 28.9 | 30.2 | 31.7 | 30.9 | 31.7 | 31.1 | 35.9 | 34.8 | 34.4 | 33.8 | 35.2 | 35.5 | 35.3 |
| – To enterprises | 9.1 | 9.0 | 8.7 | 6.9 | 7.2 | 10.0 | 7.0 | 5.1 | 4.2 | 6.0 | 5.3 | 3.8 | 4.0 |
| 3. Debt service[b] | 4.7 | 4.2 | 4.8 | 6.0 | 6.7 | 7.5 | 7.8 | 9.6 | 11.2 | 11.7 | 12.9 | 15.8 | 17.7 |
| 4. Gross fixed capital formation and other capital expenditure, including capital transfers received | 12.2 | 10.9 | 10.3 | 10.6 | 8.7 | 8.9 | 8.6 | 10.1 | 10.5 | 10.1 | 8.9 | 7.6 | 9.0 |

*(continued)*

**Table 2A-1** ***(continued)***

| | *1989* | *1990* | *1991* | *1992* | *1993* | *1994* | *1995*[c] | *1996*[c] | *1997*[c] | *1998*[c] | *1999*[c] | *2000*[c]* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | As a per cent of GDP | | | | | | | | | | | |
| EU-14 average | 47.0 | 48.0 | 49.1 | 50.2 | 51.8 | 50.8 | 50.8 | 50.7 | 49.0 | 47.9 | 47.6 | 46.6 |
| Selected EU Member States[a] | 42.8 | 45.1 | 46.4 | 46.8 | 48.7 | 47.3 | 46.3 | 45.5 | 44.6 | 43.4 | 43.1 | 42.6 |
| **Greece: (total)** | **43.6** | **48.2** | **44.4** | **46.5** | **48.8** | **46.6** | **49.2** | **48.0** | **46.2** | **46.1** | **47.0** | **46.4** |
| 1. Government consumption | 15.2 | 15.3 | 14.4 | 13.9 | 14.5 | 13.9 | 15.3 | 14.5 | 15.2 | 15.3 | 15.0 | 15.1 |
| – Public employee compensation | 12.3 | 12.7 | 11.6 | 11.1 | 11.1 | 10.8 | 11.3 | 10.7 | 11.6 | 11.7 | 11.5 | 11.6 |
| 2. Transfers | 16.7 | 16.2 | 15.6 | 15.2 | 15.8 | 15.7 | 16.8 | 17.1 | 16.9 | 17.0 | 17.5 | 17.3 |
| – To households | 15.3 | 15.2 | 15.1 | 15.0 | 15.3 | 15.4 | 15.1 | 15.4 | 15.6 | 15.6 | 15.8 | 15.9 |
| – To enterprises | 1.4 | 1.0 | 0.5 | 0.2 | 0.5 | 0.3 | 1.7 | 1.7 | 1.3 | 1.4 | 1.8 | 1.4 |
| 3. Debt service[b] | 7.6 | 10.2 | 9.4 | 11.7 | 12.8 | 14.1 | 11.1 | 10.5 | 8.2 | 7.8 | 7.6 | 7.2 |
| 4. Gross fixed capital formation and other capital expenditure, including capital transfers received | 4.1 | 6.6 | 5.0 | 5.7 | 5.7 | 2.8 | 6.0 | 5.8 | 5.9 | 5.9 | 6.9 | 6.8 |
| | As a per cent of total expenditure | | | | | | | | | | | |
| 1. Government consumption | 34.8 | 31.7 | 32.4 | 30.0 | 29.7 | 30.0 | 31.1 | 30.3 | 32.8 | 33.3 | 32.0 | 32.5 |
| – Public employee compensation | 28.2 | 26.2 | 26.2 | 23.8 | 22.7 | 23.1 | 22.9 | 22.3 | 25.1 | 25.4 | 24.5 | 25.1 |
| 2. Transfers | 38.3 | 33.7 | 35.0 | 32.7 | 32.3 | 33.7 | 34.1 | 35.6 | 36.5 | 36.8 | 37.3 | 37.2 |
| – To households | 35.1 | 31.6 | 33.9 | 32.2 | 31.3 | 33.1 | 30.7 | 32.1 | 33.8 | 33.9 | 33.6 | 34.3 |
| – To enterprises | 3.2 | 2.1 | 1.1 | 0.5 | 1.0 | 0.6 | 3.5 | 3.6 | 2.8 | 2.9 | 3.8 | 3.0 |
| 3. Debt service[b] | 17.4 | 21.1 | 21.2 | 25.1 | 26.2 | 30.3 | 22.6 | 21.9 | 17.9 | 17.0 | 16.1 | 15.6 |
| 4. Gross fixed capital formation and other capital expenditure, including capital transfers received | 9.5 | 13.6 | 11.3 | 12.2 | 11.7 | 6.1 | 12.2 | 12.2 | 12.8 | 12.9 | 14.6 | 14.6 |

SOURCES: 1) Ministry of National Economy. 1998. *The Greek Economy 1960-1997: Macroeconomic Time Series*, Tables 8A, 8-1A. Athens.
2) Ministry of National Economy. 2000. *Macroeconomic Aggregates - Forecasts (ESA 95): 1995-2000*, mimeo. Athens (March).
3) Ministry of National Economy. 2000. *Macroeconomic Aggregates - Forecasts (ESA 95): 1997-2002*, mimeo. Athens (September).
4) Ministry of National Economy. 2000. *Macroeconomic Aggregates - Forecasts (ESA 95): 1998-2002*, mimeo. Athens (October).

a. Ireland, Italy, Portugal and Spain.
b. Excluding amortisation payments.
c. ESA 95.
* Estimates.

**Table 2A-2. General Government Consolidated Receipts as a per cent of GDP, and Composition of Receipts, 1976-2000**

| | *1976* | *1977* | *1978* | *1979* | *1980* | *1981* | *1982* | *1983* | *1984* | *1985* | *1986* | *1987* | *1988* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | As a per cent of GDP | | | | | | | | | | | | |
| EU-14 average | 41.1 | 41.7 | 41.3 | 41.5 | 42.5 | 43.3 | 44.0 | 44.5 | 44.7 | 45.2 | 45.0 | 45.1 | 44.5 |
| Selected EU Member States[a] | 31.4 | 31.6 | 31.5 | 31.8 | 33.8 | 35.2 | 36.7 | 38.9 | 38.6 | 38.5 | 37.8 | 38.1 | 38.5 |
| **Greece: (total resources)** | **26.7** | **27.0** | **27.0** | **27.3** | **27.0** | **26.0** | **28.9** | **29.9** | **30.7** | **30.6** | **31.4** | **32.6** | **30.6** |
| 1. Direct taxes | 12.6 | 12.4 | 12.8 | 13.0 | 14.0 | 13.5 | 15.6 | 15.8 | 16.4 | 16.3 | 16.4 | 16.6 | 16.3 |
| Personal income and wealth / Corporate income | 4.3 | 3.6 | 3.8 | 4.0 | 4.6 | 3.9 | 4.9 | 4.5 | 4.9 | 4.6 | 5.0 | 5.0 | 5.4 |
| Social security contributions | 8.2 | 8.8 | 9.0 | 9.0 | 9.4 | 9.6 | 10.7 | 11.3 | 11.5 | 11.7 | 11.4 | 11.6 | 10.9 |
| 2. Indirect taxes | 12.3 | 13.0 | 12.8 | 12.6 | 11.1 | 10.8 | 11.8 | 12.6 | 12.6 | 12.6 | 13.6 | 14.5 | 12.9 |
| Consumption taxes | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Other | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 3. Other current resources | 1.8 | 1.7 | 1.4 | 1.7 | 1.9 | 1.7 | 1.4 | 1.5 | 1.6 | 1.7 | 1.4 | 1.5 | 1.5 |
| 4. Capital transfers received | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | As a per cent of total receipts | | | | | | | | | | | | |
| 1. Direct taxes | 47.1 | 45.8 | 47.4 | 47.7 | 51.9 | 52.0 | 54.1 | 53.0 | 53.6 | 53.4 | 52.2 | 50.8 | 53.2 |
| Personal income and wealth / Corporate income | 16.3 | 13.3 | 13.9 | 14.6 | 16.9 | 14.9 | 16.9 | 15.2 | 16.1 | 15.1 | 16.0 | 15.4 | 17.6 |
| Social security contributions | 30.9 | 32.5 | 33.5 | 33.2 | 35.0 | 37.0 | 37.2 | 37.8 | 37.6 | 38.3 | 36.2 | 35.4 | 35.6 |
| 2. Indirect taxes | 46.0 | 48.0 | 47.5 | 46.1 | 40.9 | 41.6 | 41.0 | 42.1 | 41.0 | 41.1 | 43.3 | 44.4 | 42.0 |
| Consumption taxes | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Other | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 3. Other current resources | 6.9 | 6.2 | 5.1 | 6.1 | 7.2 | 6.4 | 5.0 | 4.9 | 5.3 | 5.5 | 4.5 | 4.7 | 4.8 |
| 4. Capital transfers received | - | - | - | - | - | - | - | - | - | - | - | - | - |

*(continued)*

**Table 2A-2** ***(continued)***

| | *1989* | *1990*[b] | *1991*[b] | *1992*[b] | *1993*[b] | *1994*[b] | *1995*[c] | *1996*[c] | *1997*[c] | *1998*[c] | *1999*[c] | *2000*[c]* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | As a per cent of GDP | | | | | | | | | | | |
| EU-14 average | 44.8 | 44.9 | 44.7 | 45.1 | 45.7 | 45.4 | 45.1 | 45.9 | 45.8 | 45.8 | 46.1 | 45.5 |
| Selected EU Member States[a] | 38.4 | 38.9 | 40.1 | 41.5 | 42.0 | 41.1 | 39.5 | 40.2 | 41.1 | 40.7 | 41.2 | 40.9 |
| **Greece: (total resources)** | **29.2** | **32.1** | **32.9** | **33.7** | **35.0** | **36.6** | **39.1** | **40.6** | **42.1** | **43.6** | **45.2** | **45.6** |
| 1. Direct taxes | 16.0 | 17.2 | 16.8 | 16.6 | 17.9 | 19.2 | 20.0 | 20.0 | 21.1 | 23.0 | 24.2 | 24.6 |
| Personal income and wealth / Corporate income | 4.6 | 5.5 | 5.6 | 5.5 | 5.8 | 6.9 | 7.4 | 7.1 | 7.8 | 9.5 | 10.5 | 10.8 |
| Social security contributions | 11.4 | 11.7 | 11.2 | 11.1 | 12.1 | 12.3 | 12.6 | 12.9 | 13.3 | 13.5 | 13.7 | 13.8 |
| 2. Indirect taxes | 11.5 | 13.2 | 13.8 | 14.6 | 14.0 | 13.6 | 13.5 | 14.0 | 14.3 | 14.4 | 15.2 | 15.3 |
| Consumption taxes | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Other | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 3. Other current resources | 1.7 | 1.7 | 2.2 | 2.5 | 3.1 | 3.8 | 2.9 | 2.9 | 3.4 | 2.7 | 2.7 | 2.7 |
| 4. Capital transfers received | - | - | - | - | - | - | 2.7 | 3.7 | 3.4 | 3.5 | 3.1 | 3.0 |
| | As a per cent of total receipts | | | | | | | | | | | |
| 1. Direct taxes | 54.8 | 53.4 | 51.1 | 49.2 | 51.0 | 52.4 | 51.2 | 49.4 | 50.1 | 52.8 | 53.5 | 54.0 |
| Personal income and wealth / Corporate income | 15.8 | 17.0 | 16.9 | 16.2 | 16.5 | 18.7 | 19.0 | 17.5 | 18.5 | 21.9 | 23.3 | 23.7 |
| Social security contributions | 39.0 | 36.4 | 34.2 | 33.0 | 34.6 | 33.6 | 32.2 | 31.8 | 31.6 | 31.0 | 30.2 | 30.3 |
| 2. Indirect taxes | 39.5 | 41.2 | 42.1 | 43.4 | 40.1 | 37.2 | 34.7 | 34.4 | 33.9 | 33.1 | 33.5 | 33.5 |
| Consumption taxes | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Other | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 3. Other current resources | 5.7 | 5.4 | 6.8 | 7.5 | 8.9 | 10.4 | 7.4 | 7.2 | 8.1 | 6.1 | 6.1 | 5.9 |
| 4. Capital transfers received | - | - | - | - | - | - | 6.8 | 9.0 | 8.0 | 8.0 | 6.9 | 6.6 |

SOURCES: 1) Ministry of National Economy. 1998. *The Greek Economy 1960-1997: Macroeconomic Time Series*, Tables 8A, 8-1A. Athens.
2) Ministry of National Economy. 2000. *Macroeconomic Aggregates - Forecasts (ESA 95): 1995-2000*, mimeo. Athens (March).
3) Ministry of National Economy. 2000. *Macroeconomic Aggregates - Forecasts (ESA 95): 1997-2002*, mimeo. Athens (September).
4) Ministry of National Economy. 2000. *Macroeconomic Aggregates - Forecasts (ESA 95): 1998-2002*, mimeo. Athens (October).

a. Ireland, Italy, Portugal and Spain.
b. ESA 79.
c. ESA 95.
* Estimates.

## Appendix 2: Decomposition of Changes in the Debt-to-GDP Ratio

The results appearing in Table 2-3 were obtained by the use of a simple formula, which decomposes changes of the debt-to-GDP ratio into three parts: The effect of the current primary balance, the effect of interest rates and GDP growth, and the stock-flow adjustment element. In algebraic terms,

$$\frac{D_t}{Y_t} - \frac{D_{t-1}}{Y_{t-1}} = \frac{PB_t}{Y_t} + \frac{D_{t-1}}{Y_{t-1}} \cdot \frac{i - y_t}{1 + y_t} + \frac{SF_t}{Y_t} \qquad (1)$$

where
$D_t$ = general government debt
$PB_t$ = primary balance
$Y_t$ = GDP at current market prices
$y_t$ = rate of growth of nominal GDP ($Y_t$)
i = implicit (nominal) interest rate on GG debt
$SF_t$ = stock-flow adjustment

The implicit interest rate is estimated as

$$i = \frac{I_t}{\frac{D_{t-1} + D_t}{2}} \qquad (2)$$

where $I_t$ = actual interest payments of general government.

Except for the last term on the right-hand side of expression (1), all other terms are known, so the equation is solved for $\frac{SF_t}{Y_t}$.

Please note that the resulting estimates are sensitive to the interest rates used (capitalised interest is shown as a stock-flow adjustment). However, the estimates obtained do reflect all major stock-flow adjustments which took place during the period under consideration.

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## Comment by Vito Tanzi

I found the paper by V.G. Manessiotis and R.D. Reischauer on "Greek Fiscal and Budget Policy and EMU" very informative and a good description of events over the past three decades. I agree with much of it, so I will focus my comments on some omissions or on points that I felt the paper could have developed more.

The paper states that the Greek fiscal policy had been quite conservative until around 1976 and that by 1980 the share of government spending in GDP (G/GDP) had remained under 30 per cent. By European standards this was a low percentage for that year; however, it was in the same range as average spending in Europe in 1960. Between 1980 and 1985, the share of public spending in GDP rose by a remarkable 12.5 per cent of GDP. The increase continued over the next decade and by 1995 the G/GDP ratio had reached almost 50 per cent, a high percentage even by European standards. An interesting element of this growth, an element shared with other European countries, is that much of the increase was due to transfers to the private sector, as well as to interest payments on the growing public debt. On the other hand, government consumption or real expenditure changed little.

The growth in Greek public spending parallelled closely that of most European countries, but with a lag of about 20 years. In fact, while in most European countries the explosive growth of spending occurred, in its largest part, during the 1960-80 period, in Greece it occurred in the 1980-95 period. By the end of this period, Greece's spending as a share of GDP was in line with, or higher than, that of continental European countries. In spite of the very high spending growth, a genuine welfare state was not created. This leads to some questions that could have been discussed in the paper.

Who gained and who lost from this increase? What programmes were created? How were the benefits from public spending distributed among the population? Which households or groups benefited from the sharp increase in transfers? Which from the increase in interest payments? Did public spending crowd out some private activities? Were disincentive effects created by the higher spending and by the accompanying increase in taxation? Finally, can anything be said as to whether social welfare was increased by the 20 per cent of GDP rise in public spending? Some discussion of these questions would have made the paper less descriptive and more analytical and interesting.

The authors mention that the informal economy is high in Greece. This statement invites two questions. First, does the size of the underground econ-

omy distort the estimate of gross domestic product and, if so, by how much? This is an issue receiving much attention on the part of Eurostat and it must have received some attention on the part of the Greek statistical office. Second, was there a relationship between the increase in social security charges and in income tax rates on one hand and the growth of the underground economy on the other hand? This connection has been suggested for other countries and it probably existed also in Greece.

Other aspects could have been discussed in some detail. For example, the role of judges in the growth of public spending mentioned in the paper. This role would seem strange to individuals living in the United States but not to those living in Argentina, Brazil, Italy and some other countries with different legal traditions. In these countries decisions on the part of judges regarding particular programmes or particular spending decisions have at times resulted in increased public spending. However, often, this spending is never shown in the budget so that it never affects the measured fiscal deficit. When judges impose a given spending, *ex post*, public debt increases by more than one would have assumed from the data on the fiscal deficits. Was this so in Greece?

During the 1980s, financial repression must have reduced the cost of financing public debt, while it must have probably hurt the growth of the economy or the development of the capital market. As it was the case in Italy, in the early 1980s, banks must have been required to invest a proportion of their deposits in public bonds, thus reducing the interest rate on public debt. Was this an important factor in Greece? When was the financial market liberalised? Is there any estimate of the quasi-fiscal taxes that the government was imposing on the financial market during the period of financial repression?

Shifting the attention from the spending to the revenue side of the budget, the paper shows that the ratio of tax revenue to GDP (T/GDP) was low until 1980. However, from 1980 until 2000, this ratio increased by almost 19 per cent or about one per cent of GDP per year. Most likely this increase was a world record. I do not know of any other country that has increased the level of taxation by that much in 20 years. Such an increase leads inevitably to questions which merit some discussion in the paper. First, what was the impact on the economy of such a large increase in the tax burden? Was its rate of growth affected? How was it achieved? With what taxes? What was the role of better tax administration? Is the new tax level sustainable in time in spite of globalisation?

More technical, tax-related questions could also be addressed. For example, did the taxation of interest income have an impact on interest rates?

What is the productivity of the value-added tax compared to other European countries? Did the introduction of the VAT have an impact on the price level? Was this impact temporary or permanent? How does the "presumed" income tax work? There is now an increasing number of countries using "presumed" income taxes so that some description of it would be useful to tax expert.

Major progress has been made in reducing the macroeconomic disequilibrium in recent years. However, this progress has been achieved exclusively by the increase in the tax level and the fall in the rate of inflation, which has reduced nominal interest rates and, thus, the interest component of spending. Furthermore, revenue from privatisation has contributed to the macroeconomic adjustment by providing additional revenue and by allowing a reduction in public debt. Apart from the fall in the interest expenditure, there has been no reduction in non-interest (or primary) spending. Thus, it is natural to ask (a) whether what has been achieved is genuine adjustment; (b) whether it is durable adjustment and (c) whether it is high-quality adjustment.

The quantitative adjustment that has taken place in the fiscal accounts has moved Greece into the direction required by the Maastricht criteria, which, for the public finances, focus on the size of the deficit and on the size and direction of change in public debt. The Maastricht criteria are silent about the size of the public sector or even about the net worth of this sector. Thus, a country that satisfies the criteria by sharply raising the level of taxation and by cutting the size of its debt by selling valuable public assets might satisfy the criteria but be far from having made a high-quality or durable adjustment. To some extent this is what has happened to Greece. One would hope that future developments indicate not just a quantitative but also a qualitative improvement in the situation.

# 3 Economic Growth in Greece: Past Performance and Future Prospects

Barry Bosworth and Tryphon Kollintzas

## I. Introduction

OVER THE PAST quarter century the Greek economy has had a very disappointing rate of economic growth. After a rapid expansion in the years following the end of the civil war, the growth of real GDP slowed down to only 1.5 per cent annually in the period of 1973-95.[1] Much of the popular discussion has attributed the poor performance to deteriorating economic policy conditions in the period after 1973 – particularly during the 1980s. Beginning in the mid-1970s the government ran large and sustained budget deficits and monetary policy accommodated a sharp acceleration of inflation. High rates of wage inflation led to a squeeze of profit margins and a weakening of investment incentives.

With the restoration of macroeconomic order in the late 1990s, the economic situation has improved. In the most recent five years, 1995-2000, growth averaged 3.3 per cent annually, slightly exceeding the EU average. As the most obvious policy failings have been corrected, a more complete explanation of the growth slowdown takes on added importance. Will a stable macroeconomic environment be enough to restore growth or do the fundamental causes of the poor performance lie elsewhere? In addition, since its admission to the EU, Greece has received large transfers from the rest of the European Union. A major objective of those programmes has been to promote a catch-up

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1. According to data collected by Maddison (1995), Greece was in 1950 the poorest of the current members of the European Union. Over the next two decades up to 1973, it was the fastest growing economy and its standard of living rose to exceed that of Ireland and Portugal. Since 1973, it has had the lowest rate of growth and has fallen back to being the poorest country in the EU.

of incomes in the poorer countries. Will the resources of the Third Community Support Framework (2000-2006) suffice so that income *per capita* in Greece will achieve significant convergence towards the EU average?[2]

In this paper we examine the past performance of the Greek economy in some detail and we try to provide a few answers to the question of why growth slowed down so dramatically. In the second section, we develop a simple set of growth accounts for Greece and compare the growth of labour productivity and multifactor productivity with those of the EU. All of the industrial countries experienced a series of external shocks and growth slowed considerably on a global basis. We use the EU average to adjust for these common factors, and evaluate Greece's performance relative to this average. Then we compare the growth of the Greek economy with that of three other countries –Ireland, Spain and Portugal– with similar starting points and basic economic conditions, including Structural Funds transfers from the rest of the EU. In the third section, we examine several factors that have been suggested as possible contributors to the slowdown. These include the deterioration in macroeconomic policy, reduced rates of capital formation, the shock of entry into the EU, and the presence of structural rigidities in labour markets. In the fourth section, we try to look ahead to evaluate Greece's growth prospects in a world of more stable macroeconomic conditions, but one in which Greece will face increasing competition from countries in Eastern and Central Europe.

We conclude that economic stagnation was attributable to a widespread weakening of economic institutions that went beyond the breakdown of macroeconomic policy, to a rigid and over-regulated labour market, a deterioration in the competitive position of the tradeable goods sector, and continuing subsidies to inefficient enterprises. The restoration of a rational macroeconomic policy structure has provided support for a renewal of economic growth. However, if Greece is to accelerate its growth rate to a pace that would imply significant convergence of incomes towards the EU average, it will need to consider more drastic reforms of existing economic institutions.

## II. The Historical Record

In a 1995 paper, George Alogoskoufis referred to the break in Greek economic performance before and after 1973 as the 'two faces of Janus' because of the magnitude of the divergence in economic trends. For the

2. According to the Ministry of Finance, these transfers rose from an average of 2 per cent of GDP in the 1980s to over 4 per cent in the 1990s and 5 per cent in 2000.

twenty years up to 1973, Greece enjoyed high growth and low inflation; and for the twenty years thereafter, the economy stagnated and inflation became high and persistent. Alogoskoufis viewed the change as reflective of a major regime change in Greek economic policy. Other researchers, such as Christodoulakis, Dimeli and Kollintzas (1996), argue that the more pronounced break in the growth rate of GDP per capita occurred around 1980. Among the several reasons they suggest for this break are the reduction in industry protection accompanying Greece's entry in the EU and the impact on investment of uncertainties about the future political situation. But, in either case, there is agreement that the economy performed very poorly in the 1980s and up to the mid-1990s.

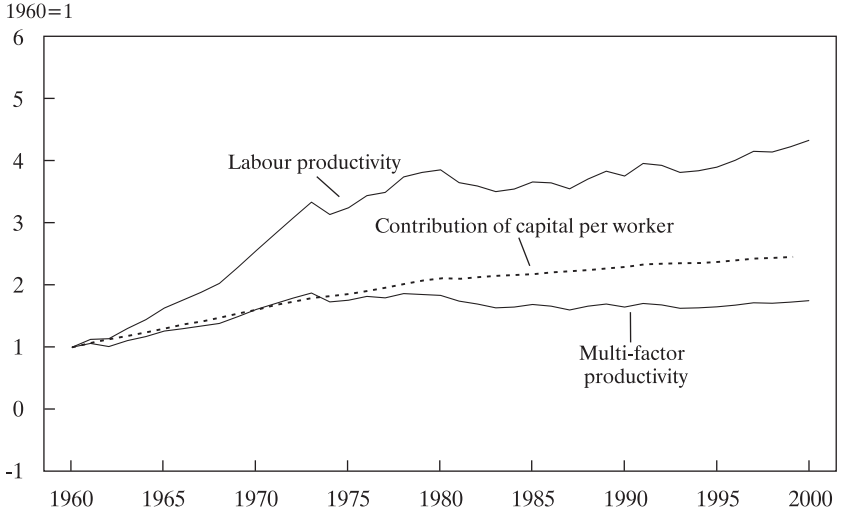
### *Growth Accounts*

The basic pattern of the growth experience is summarised in Figure 3-1a. The growth in output per worker slowed down from a rate in excess of 9 per cent annually in the 1960-73 period to one per cent per year from 1973 to 2000.[3] We can also divide the growth of labour productivity into the contribution of increases in physical capital per worker, improvements in education, and the residual of changes in multi-factor productivity (MFP).[4] As shown in the figure, but more clearly in Table 3-1, the growth slowdown can be traced both to a sharp deceleration of capital accumulation and an outright decline in multifactor productivity. The contribution of increased physical capital per worker drops from a robust 4.2 per cent per year to only 0.7 per cent. As measured by an index of educational attainment, the skills of the Greek labour force continued to rise throughout the period. The change in multifactor productivity actually turns negative; but, given the accuracy of the underlying data and the methodology, it would be more accurate to view it as stagnating over a 25-year period. Thus, while a falloff in capital formation appears to be a significant part of the story, there is also a very large deterioration in the performance of MFP.

3. The rate of growth for output per worker and multi-factor productivity is probably overstated in the pre-1973 period because married women in the agricultural sector were included as part of the labour force in the 1961 census. The drop in the number of unpaid family workers in agriculture between the 1961 and 1971 censuses accounted for a 10 per cent decline in the measured labour force. In addition, we made no correction for changes in the workweek. However, the study by Tsaliki (1991) suggests a continuous decline in average working hours after 1960 that would have only a small influence on relative rates of change for the subperiods.

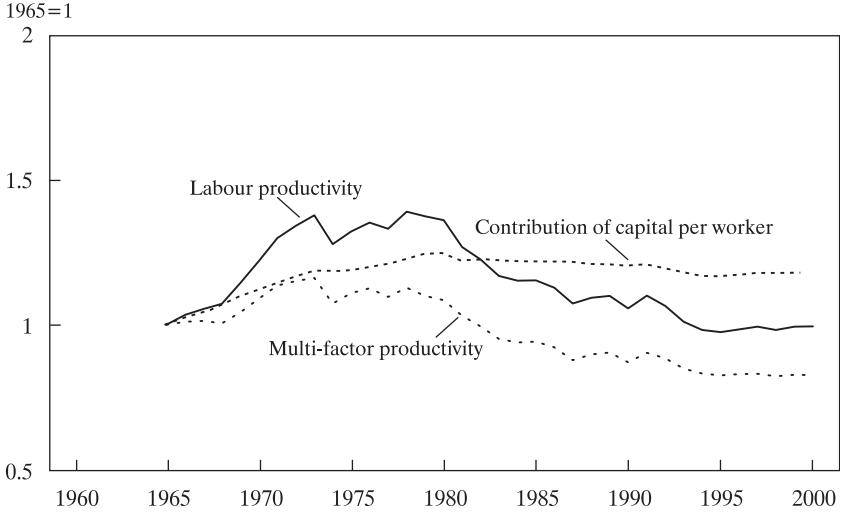
4. The details of the construction of the growth accounts are provided in Appendix 1.

**Figure 3-1a. Output per Worker and its Components, Greece 1960 - 2000**




SOURCES: Data from the OECD and the Bank of Greece, and authors' calculations. Note that capital per worker includes improvements in education.

**Figure 3-1b. Relative Performance of Output per Worker and its Components[a]**




SOURCES: OECD and authors' calculations.
The average is based on 13 countries for which the data extended back to 1965: Austria, Denmark, Finland, France, Germany, Great Britain, Ireland, Italy, Norway, Portugal, Spain, Sweden and Switzerland.
a. Greece, relative to an average of 13 European countries.

Similar results were obtained by Christodoulakis, Dimeli and Kollintzas (1996) using a smaller sample (1960-1992), somewhat different measures of the factors of production and the old unrevised GDP data. They report the average growth rate of MFP to be 3.72, 1.89, and –0.04 in the 1960s, the 1970s and the 1980s, respectively.[5] These growth rates amount to 54 per cent, 35 per cent and –3 per cent, respectively, of the corresponding labour productivity growth rates, in their data.

One of the puzzles of accounting for the post-1973 slowing of growth is that it was a very general phenomenon affecting most of the world's economies. Thus, before we go too far in searching for a Greek explanation, we need to adjust for the external shocks that were common to all countries. We have done this by extending the growth-accounting methodology to 13 other European economies and using the arithmetic average of the 13 as the benchmark against which we judge Greece's performance.

The results of the benchmark comparison are shown in Figure 3-1b, where each of the component indexes for Greece is divided by the corresponding EU average. The deteriorating performance of the Greek economy becomes even more evident, but the distribution of the sources of the decline between a reduced rate of capital formation and lower rates of MFP growth remains very similar: a lower rate of capital accumulation accounts for about 40 per cent of the slowdown. The contribution of increased capital per worker, which had far exceeded the European average in the pre-1973 period, slowed to the average; and the growth of MFP consistently fell short of the performance of the rest of Europe until 1995. Since 1995, growth has recovered to match or slightly exceed that of the rest of Europe.

The adjustment for the common external shocks also has some influence on the timing of the break in the growth trend. In Figure 3-1b, the Greek economy outperforms the rest of Europe in the pre-1973 period, and its relative growth rate slows after 1973; but there is another large downward break in the early 1980s that is most pronounced in the MFP component. Measured by both output per worker and multi-factor productivity, the Greek economy fell short of the rest of Europe by ever-increasing amounts throughout the 1980s and into the 1990s. Thus, relative to the rest of Europe, the break in performance seems more pronounced at about 1980, rather than 1973. That is of some potential significance for, as mentioned earlier, in 1981 Greece joined the European Community and the early 1980s were marked by uncertainties about the future direction of economic policy. However, given the turmoil in the global economy and with allowance for lags, the evidence of a specific dating of the break must be ambiguous.

5. This GDP revision is explained in Appendix 2.

**Table 3-1. Sources of Growth, by Country and Period**
Annual percentage change

| Period | Growth of output per worker | Contribution by component | | | |
|---|---|---|---|---|---|
| | | Physical capital per worker | Education per worker | Multi-factor productivity | |
| | | | | Total | Shift-effect[a] |
| **Greece** | | | | | |
| 1960-00 | 3.6 | 1.8 | 0.5 | 1.3 | 1.0 |
| 1960-73 | 9.7 | 4.2 | 0.4 | 4.9 | 1.5 |
| 1973-00 | 1.0 | 0.7 | 0.5 | -0.3 | 0.7 |
| 1973-80 | 2.1 | 1.2 | 0.9 | -0.3 | 1.0 |
| 1980-90 | -0.3 | 0.4 | 0.4 | -1.1 | 0.6 |
| 1990-00 | 1.4 | 0.5 | 0.4 | 0.6 | 0.5 |
| **Spain** | | | | | |
| 1965-00 | 3.2 | 1.3 | 0.5 | 1.3 | 1.0[b] |
| 1965-73 | 6.0 | 1.7 | 0.6 | 3.5 | 1.8[b] |
| 1973-00 | 2.4 | 1.2 | 0.5 | 0.7 | 0.6 |
| 1973-80 | 3.1 | 1.8 | 0.8 | 0.1 | 0.8 |
| 1980-90 | 2.6 | 0.9 | 0.4 | 1.3 | 0.7 |
| 1990-00 | 1.6 | 0.9 | 0.3 | 0.4 | |
| **Portugal** | | | | | |
| 1960-00 | 3.4 | 1.9 | 0.5 | 1.0 | 0.6 |
| 1960-73 | 7.5 | 3.9 | 0.4 | 3.1 | 0.9 |
| 1973-00 | 1.5 | 0.9 | 0.6 | 0.0 | 0.4 |
| 1973-80 | 0.8 | 0.9 | 0.8 | -1.0 | 0.6 |
| 1980-90 | 1.8 | 0.8 | 0.6 | 0.4 | 0.7 |
| 1990-00 | 1.7 | 1.0 | 0.5 | 0.3 | -0.1 |
| **Ireland** | | | | | |
| 1961-00 | 4.1 | 0.3 | 0.4 | 3.4 | 0.3[b] |
| 1961-73 | 4.9 | 0.2 | 0.2 | 4.4 | 0.2[b] |
| 1973-00 | 3.8 | 0.4 | 0.4 | 3.0 | 0.4 |
| 1973-80 | 4.0 | 0.5 | 0.3 | 2.7 | 0.3 |
| 1980-90 | 4.7 | 0.9 | 0.6 | 3.1 | 0.2 |
| 1990-00 | 2.8 | -0.3 | 0.3 | 2.8 | 0.6 |
| **European average** | | | | | |
| 1965-00 | 2.8 | 1.0 | 0.4 | 1.5 | 0.3[b] |
| 1965-73 | 5.1 | 1.5 | 0.3 | 3.1 | 0.2[b] |
| 1973-00 | 2.2 | 0.8 | 0.4 | 1.0 | 0.4 |
| 1973-80 | 2.3 | 1.0 | 0.5 | 0.6 | 0.3 |
| 1980-90 | 2.3 | 0.8 | 0.4 | 1.1 | 0.2 |
| 1990-00 | 2.0 | 0.7 | 0.3 | 1.1 | 0.6 |

SOURCES: OECD, Bank of Greece, Bank of Portugal and authors' calculations.
a. Effect of employment shifts, sectoral data extend only to 1997.
b. Period is from 1960 on.

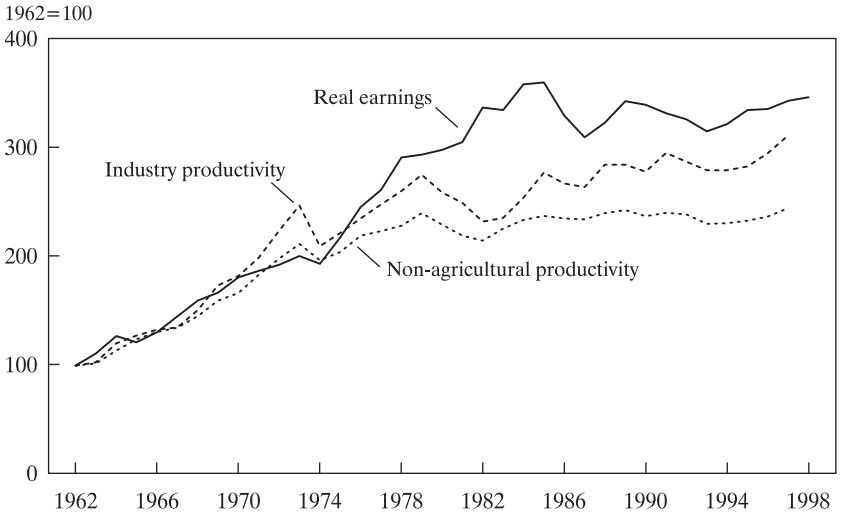
Also in Table 3-1, the growth performance of the Greek economy is matched against that of three other European countries that were at similar stages of economic performance in the early 1960s, Ireland, Portugal and Spain. For the whole period of 1960-2000, Greece compares quite favourably with the other three; but again that is due to the strong growth of the pre-1973 period. Since 1973, Greece has the lowest rate of increase in output per worker and the change in multi-factor productivity has been negative. Measured in purchasing power parity (OECD, 1999), Ireland has moved up to the average of the EU in terms of output per worker and Spain is only slightly below the average; but both Greece and Portugal have failed to make further progress in narrowing the gap after 1973. In addition, both Greece and Portugal experienced a very sharp deterioration in the contribution of capital per worker as well as MFP. In contrast, the slowdown in Spain was largely due to a fall-off in MFP growth, and improvements in capital per worker have never been that important in Ireland.

In evaluating these comparisons, it is important to recognise that there are significant reservations about the quality of the economic data for Greece. As discussed more fully in Appendix 2, a recent revision of the national accounts resulted in a 20 per cent increase in the level of GDP beginning in 1988, as the national statistical office made an effort to capture more of the informal sector. There is considerable uncertainty about the appropriate adjustment for earlier years. In the published revisions, the adjustment to the level of nominal GDP is phased down to 6 per cent in 1960; but for the volume measures, the adjustment is significant all the way back to 1960. For example, the level of real GDP is raised by 38 per cent in 1973 and 25 per cent in 1960. Thus, the revisions have a modest impact on the estimate of real GDP growth over the full period.

We can also compare the national accounts to another independently derived measure of living standards. Real wage growth should move in line with economy-wide changes in labour productivity over a long period of time. The comparison is less reliable for Greece because there are large numbers of the self-employed, and a survey of wage rates (independent of the national accounts) is limited to the manufacturing sector.[6] Still, an index of the real wage in manufacturing, deflated by the CPI, is shown in Figure 3-2, together with indexes of labour productivity (inclusive of the self-employed) for the whole economy and the industrial sector. The wage data confirm that Greece experienced very rapid growth in the 1960s; but, while

6. According to the Ministry of Labour, the fraction of self-employed to employed was 37 per cent and 35.5 per cent in 1991 and 1997, respectively.

**Figure 3-2. Real Earnings and Labour Productivity in Greece, 1962-1998**




SOURCES: OECD and Bank of Greece. Earnings are deflated by the CPI.

there is a marked slowing of growth in later years, the timing is more supportive of the Christodoulakis, Dimeli and Kollintzas (1996) view that the big break in performance occurred in the 1980s, not in the 1970s.[7]

## *Sectoral Comparisons*

Historical data at the level of individual industries are very limited in Greece; and with the recent revisions in national accounts, information for the pre-1988 period has become even more questionable. However, given the large size of the agricultural sector in the early 1960s, some disaggregation is necessary for identifying the sources of growth. Thus, we have developed measures of labour productivity at the level of agriculture, industry and services.[8] For purposes of comparison, we have compiled matching data for

7. The growth of real wages in excess of productivity in the last half of the 1970s is reflected in a rise in the labour share of GDP in national accounts, but a severe decline in profit margins is most evident in the early 1980s.

8. Agriculture includes forestry and fisheries, and industry is inclusive of mining, construction, manufacturing, and electricity, gas, and water. Services comprise a substantial number of industries, where the output price is estimated on the basis of input prices, particularly wage rates.

Spain and Portugal, two countries with similar economic conditions in the early 1960s, and we have only employment information for Ireland.[9]

We have modified the published data on agricultural output in Greece prior to 1988 simply because we could not understand the basis for the drastic revisions to the previously published information. In the new national accounts the estimate of nominal value added in agriculture is revised downwards for the 1960-88 period by an average of 9 per cent with no change in the trend. In contrast, real output is revised upwards by an average of 70 per cent with a peak of 125 per cent in 1973. In effect, there is a dramatically different estimate of the time path of agricultural prices. The national accounts revisions are discussed in more detail in an appendix; but we have created an alternative, based on extrapolating the average ratio of the new to the old series for 1988-90, 0.98, back to 1960.

As shown in Figure 3-3, the pattern of change in output per worker at the sector level is broadly similar across the three countries. The largest growth in productivity is observed in agriculture, but it starts from a very low level.[10] Furthermore, productivity growth in Spain has generally outpaced that of Greece and Portugal in agriculture and industry – the latter by a wide margin. Greece has performed relatively better in services, but the growth slowdown is very evident in both industry and services.

A large decline in the proportion of employment in the agricultural sector (shown in panel 2 of Figure 3-3) is also a very common feature of these economies and Ireland. In fact, the reallocation of employment —from the low-productivity sector, agriculture, to the higher productivity sectors of industry and services— has been a major source of the improvements in productivity reported in Table 3-1. We can illustrate this point by representing aggregate productivity as an employment-weighted average of productivity in the individual sectors:

$$A_0 = \sum_i \left(\frac{X_i}{E_i}\right) * \left(\frac{E_i}{E_0}\right) = \sum_i A_i S_i ; \qquad (1)$$

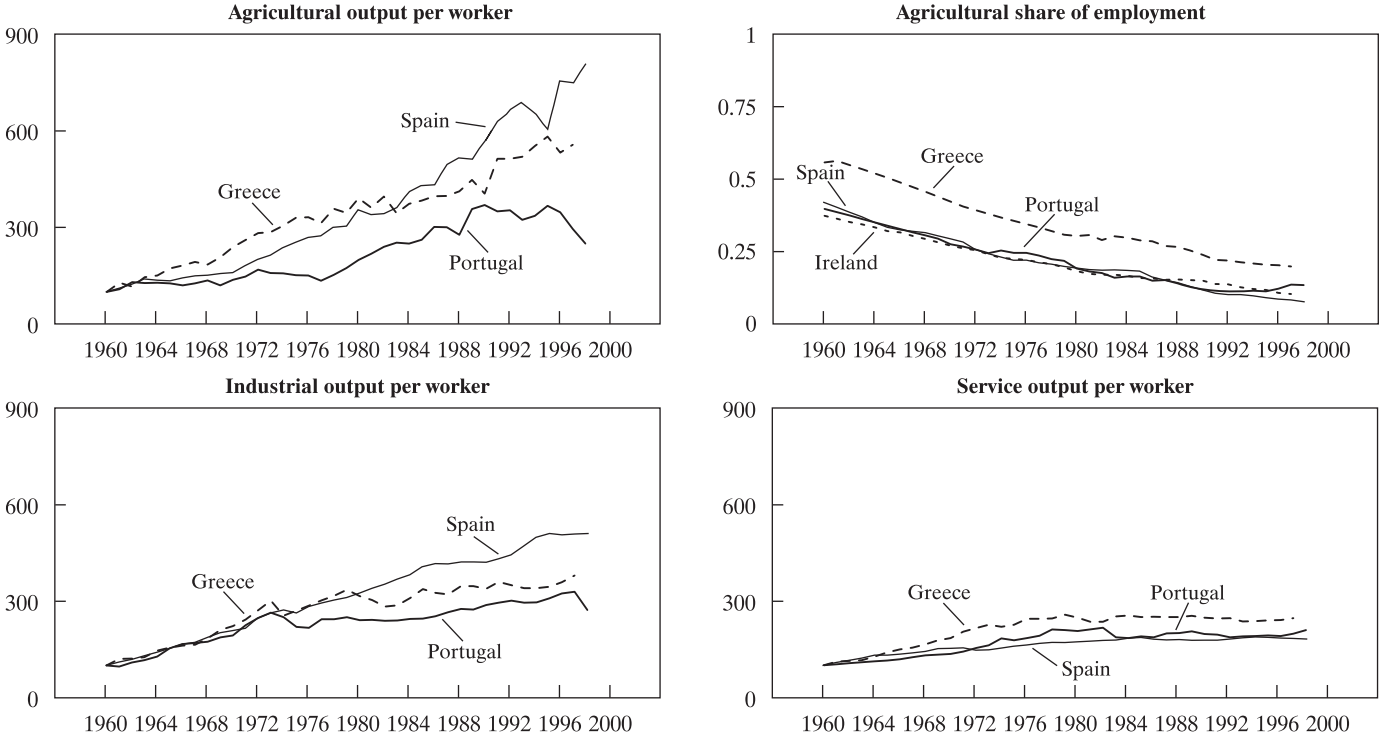
where Xi = output in industry i,
Ei = employment in industry i, and
Si = employment share in industry i.

Then, the change in aggregate productivity can be divided into a change effect that is computed as an employment-weighted average of productivity

9. Ireland does not compile volume measures of output at the sector level, but nominal measures of value added are available.

10. The spectacular gains in productivity in agriculture in all three countries is consistent with the notion of considerable unemployment being camouflaged as underemployment.

**Figure 3-3. Output per Worker by Sector in Greece, Spain and Ireland, 1960-97**




SOURCES: OECD, Bank of Greece, National Statistical Service of Greece, Bank of Spain and Bank of Portugal.
For all the panels except the upper right one, 1960=100.

growth in individual industries and a levels effect of employment shifting from low-productivity industries to those with high productivity levels:

$$\dot{A}_0 = \sum_i \dot{A}_i S_i + \sum_i A_i \dot{S}_i . \quad (2)$$

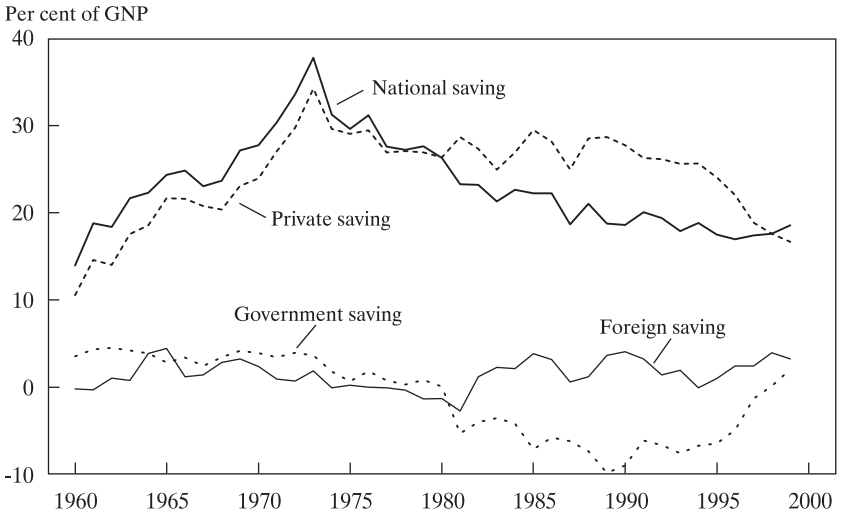
Thus, the levels effect of reallocating labour can be measured by weighting the change in the employment share of each industry over various subperiods, using as weights the relative labour productivities at the beginning of each subperiod. The resulting estimates of the employment-shift effect are shown in column 5 of Table 3-1. The resource reallocations were particularly important in the pre-1973 period and thus they can explain a significant portion of the slowing of MFP growth after 1973. The magnitude of the change between the 1960s and the 1990s is greatest for Spain, but it is also substantial for Greece and Portugal: one percentage point off the annual growth rate. It is relatively unimportant for Ireland because, even though there is the same magnitude of change in the employment shares, the differences in labour productivity across sectors are modest.

### *Saving-Investment Balance*

The prior sections have documented a significant deterioration in the contribution of increased capital per worker to economic growth. This falloff is also evident in the data on rates of national saving and investment. The basic data are summarised in Figures 3-4a and 3-4b. Compared to other EU countries, the national saving rate for Greece began at a modest level in the early 1960s, but rose sharply over the second half of the 1960s and the early 1970s. Greece also benefited in the 1960s from an inflow of foreign capital of about two per cent of GDP. Given the low initial capital stock and the rapid growth of income, the total supply of saving was sufficient to finance a high rate of capital accumulation up to about 1981. The saving rate fell sharply in the early 1980s, however, and continued to drift down in subsequent years. In the 1990s, national saving averaged about 18 per cent of GDP, compared with about 21 per cent for the rest of the EU. Foreign capital inflows increased in importance in the 1990s; but foreign direct investment remained steady at only about one per cent of GDP, while the dominant inflows consisted of foreign loans to the government and private firms. Private portfolio capital inflows were very small.

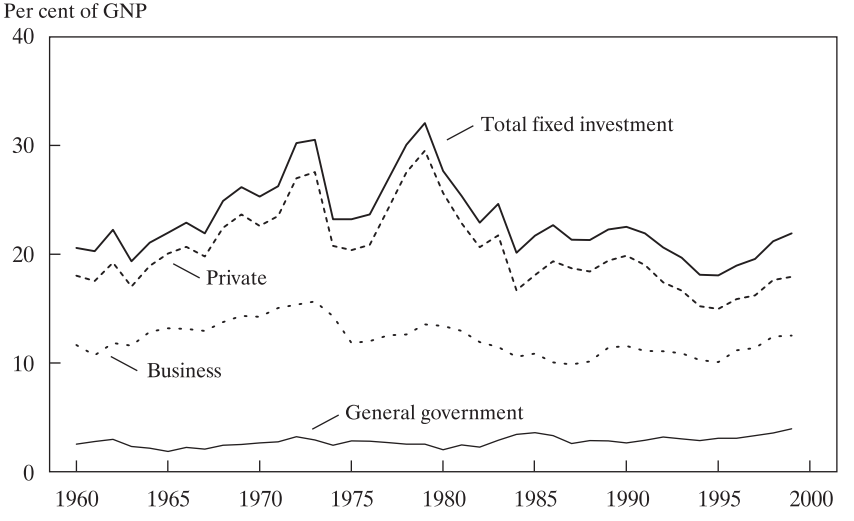
On the investment side (Figure 3-4b), the behaviour of private-sector investment closely tracks the movements in the national saving rates – there

**Figure 3-4a. National Saving and its Components, Greece 1960-99**




SOURCE: National Statistical Service of Greece, macroeconomic data on the basis of ESA 95, 1960-99.

**Figure 3-4b. Total Investment and its Components, Greece 1960-99**




SOURCE: National Statistical Service of Greece, macroeconomic data on the basis of ESA 95, 1960-99.

is very little fluctuation in the government component.[11] A substantial portion of the long-run variation is accounted for by residential investment, so that the change in business investment is less than might be anticipated with such a large change in the saving rate.[12]

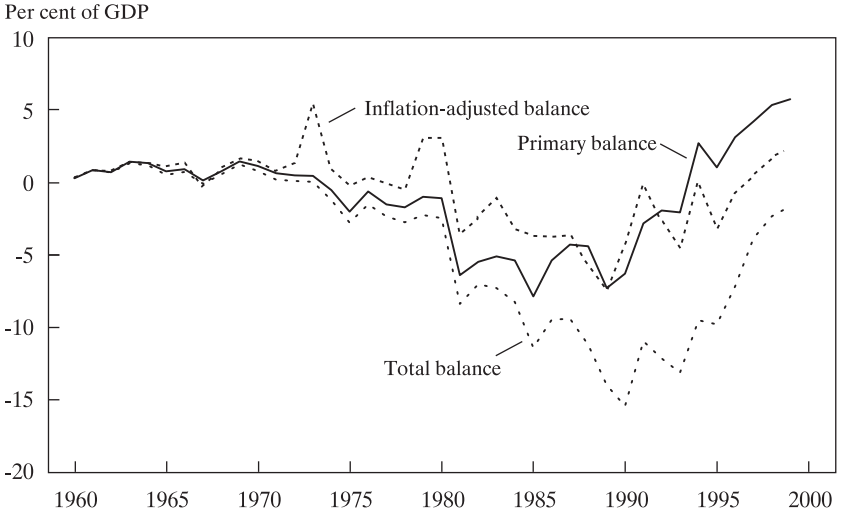
The nominal data suggest that much of the secular decline in national saving can be traced to a deterioration in the public sector fiscal position, as the budget balance changed from 0.5 per cent of GDP in 1960-73 to an average of –13.6 per cent in the 1985-95 period (Figure 3-5). The private saving rate has declined from its peak of the late 1970s, but is still well above the rates of the 1960s. However, beginning in the1970s, Greece experienced a very high rate of inflation and a major increase in public indebtedness – from 25 per cent of GDP in 1980 to 100 per cent by 1993. Thus, the division of national saving between the public and the private sector may be biased by the inclusion of nominal interest payments in the measure of government outlays. In an inflationary environment, a portion of interest payments represents a repayment of loan principal, amortisation, rather than constituting income to the private sector recipients. The potential importance of this factor is apparent in Figure 3-5 where the primary government budget balance (exclusive of interest) departs dramatically from the trend of the overall balance.

We have made a rough adjustment for the inflation component by multiplying the outstanding stock of drachma-denominated debt by the rate of inflation as measured by the consumer price index, and adding the result to the reported budget balance. The inflation-adjusted measure of the budget balance shows a much smaller deterioration of the budgetary position in the 1980s, and correspondingly less of an improvement in recent years when inflation was reduced to much lower rates. The implications for the division of national saving between the public and the private sector are shown in Figure 3-6. On an inflation-adjusted basis, the decline in government saving is much reduced, and a substantial portion of the fall in national saving is concentrated in the private sector. There is no direct means of determining which measure of public-private saving is more reasonable, but the nominal data do display an inverse relationship between public and private saving (Ricardian equivalence) that is completely absent in the adjusted data. This

11. The rise in fixed investment in the mid-1970s is significantly less than that in saving because of a large increase in inventory accumulation that may reflect some inconsistency in the estimates of GDP derived from the income and product sides, respectively, of the national accounts.

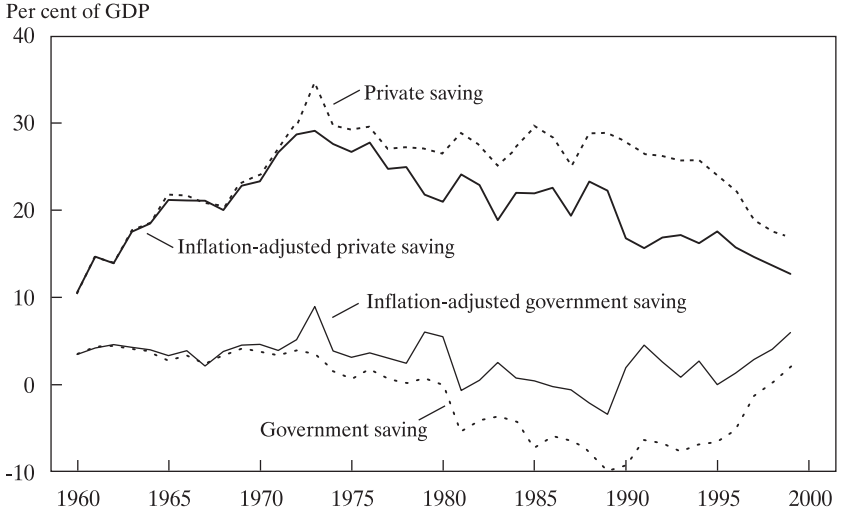
12. Since our growth accounts are based on the total capital stock, inclusive of housing, we may have overstated the change in the contribution of capital between the 1960s and the post-1980 period.

**Figure 3-5. Government Budget Balance, Primary Balance and Inflation-Adjusted Balance, Greece 1960-99**




SOURCES: Bank of Greece and Ministry of National Economy data diskettes.

**Figure 3-6. Inflation-Adjusted Government Saving and Private Saving, Greece 1960-99**




SOURCES: Bank of Greece and Ministry of National Economy data diskettes.

is evident in the following set of simple correlations between the public and private saving rates:

$rs_p = a + b\ A\ rs_g$

| Equation | Coefficient on public saving | t-statistic | Dependent var.-independent var. |
|---|---|---|---|
| 1 | –0.41 | 2.9 | nominal - nominal |
| 2 | 0.06 | 0.7 | real – real |

The first equation is based on the nominal data and the coefficient on public saving implies an offset of about 40 per cent. In contrast, using the same equation with the inflation-adjusted data results in an insignificant offset. Thus, the evidence of Ricardian Equivalence appears to be largely due to the difficulties of partitioning interest payments between income and principal repayment.

Kollintzas and Vassilatos (1996, 2000) argue that this drop in aggregate savings together with the simultaneous drop in public investment rates can account for the reduction in the growth rate of the economy within a neoclassical growth model without full Ricardian Equivalence.[13] This happens as the economy's steady-state-growth capital-labour ratio is reduced and the convergence to this new steady state becomes slower. In addition, they argue that the transfers from the rest of the EU may have further adversely affected the incentives to save and work, strengthening the effects of government deficits.

## III. Causes of the Productivity Slowdown

In part, the explanation of the collapse of economic growth in Greece is quite straightforward – a large fall-off in the rate of capital accumulation and its contribution to the growth in output. As we shall show, a decline in investment should be no surprise in view of the sharply deteriorating macroeconomic situation and the collapse of profits in the 1980s. However, the causes of the severe fall-off in MFP growth are more difficult to quantify. We have come to conclude that it was the product of a large number of neg-

13. Public investment as a fraction of GDP steadily declined from about 5.5 per cent in the early 1960s to less than 3 per cent in the 1980s.

ative developments, including, *inter alia*, the worsening macroeconomic situation and a highly inefficient structure of the labour market. In addition, Greece did not follow the approach of some other successful countries in using trade policy as an active part of its growth strategy, and the trade sector has contracted since EU accession. It is also clear from a simple examination of trends in foreign direct investment that Greece has not been viewed as a promising investment opportunity.

### *Macroeconomic Instability*

The macroeconomic environment clearly deteriorated in Greece in the latter part of the 1970s and remained in disarray throughout most of the 1980s. The general government budget balance switched from an average surplus equal to one per cent of GDP in the 1960s to steadily increasing deficits after the 1973 oil price shock. These deficits averaged 9 per cent of GDP in the 1980s and peaked at 16 per cent in 1990. Throughout the period, the magnitude of the budget deficit was actually understated by a policy of directed bank lending to the public sector.[14] Inflation, as measured by the CPI, rose from an annual average of 2 per cent in the 1960s to 20 per cent in the 1980s. Real rates of interest on bank lending and deposits, which had been strongly positive in the 1960s, went negative after 1973 and remained so until the late 1980s.

The late 1970s and 1980s also saw the emergence of strong cost pressures from the labour market as a strengthening of labour's bargaining situation, combined with controls on many prices, raised real wages well in excess of productivity (refer back to Figure 3-2) and severely depressed profit margins. The return on equity in Greek manufacturing fell from an average of 6 per cent in 1976-80 to –6.8 per cent in 1982-86.[15]

The contribution of macroeconomic policies to growth was examined in an empirical context in a 1993 paper by Fischer.[16] For a cross-section of countries, he found a consistent negative relationship between growth and the rate of inflation and a significant positive association of growth and the

14. This policy may have reduced growth substantially by crowding out more productive private investments. In a neoclassical growth model calibrated to the Greek economy, Krystaloyanni (2000) computed the effect of a one per cent increase in the rate of direct lending to the public sector as reducing investment by 0.5 percent.

15. Federation of Greek Industries (1999 and earlier years).

16. Fischer (1993). See also Easterly and Rebelo (1993). Collins and Bosworth (1996) find some supporting evidence, though the magnitudes of the effects are smaller.

public sector budget balance. While Greece's inflation experience falls into the moderate range by the standards of Fischer's analysis, his estimated impact of the budget balance on growth suggests that the swing in the annual fiscal balance by 10 per cent of GDP might have reduced Greece's rate of economic growth by about two per cent per year in the 1980s, or about one-fifth of the observed slowdown.

In the 1990s, a major effort was made to reverse the deterioration of macroeconomic policies. The government budget deficit was cut from 16 per cent of GDP in 1990 to 0.9 per cent of GDP by 2000; and inflation was reduced from the 20 per cent annual rate of the 1980s to the standards required for entry to EMU. Moreover, financial market deregulation, which started in the late 1980s and accelerated in the mid-1990s, must have contributed to the reduction of financial intermediation margins and promoted growth (Krystaloyanni, 2000). These developments have led to the improvement in the growth of GDP, which averaged 3.3 per cent in the 1995-2000 period. These positive benefits are, to date, at the low end of the impact found in studies such as that of Fischer.

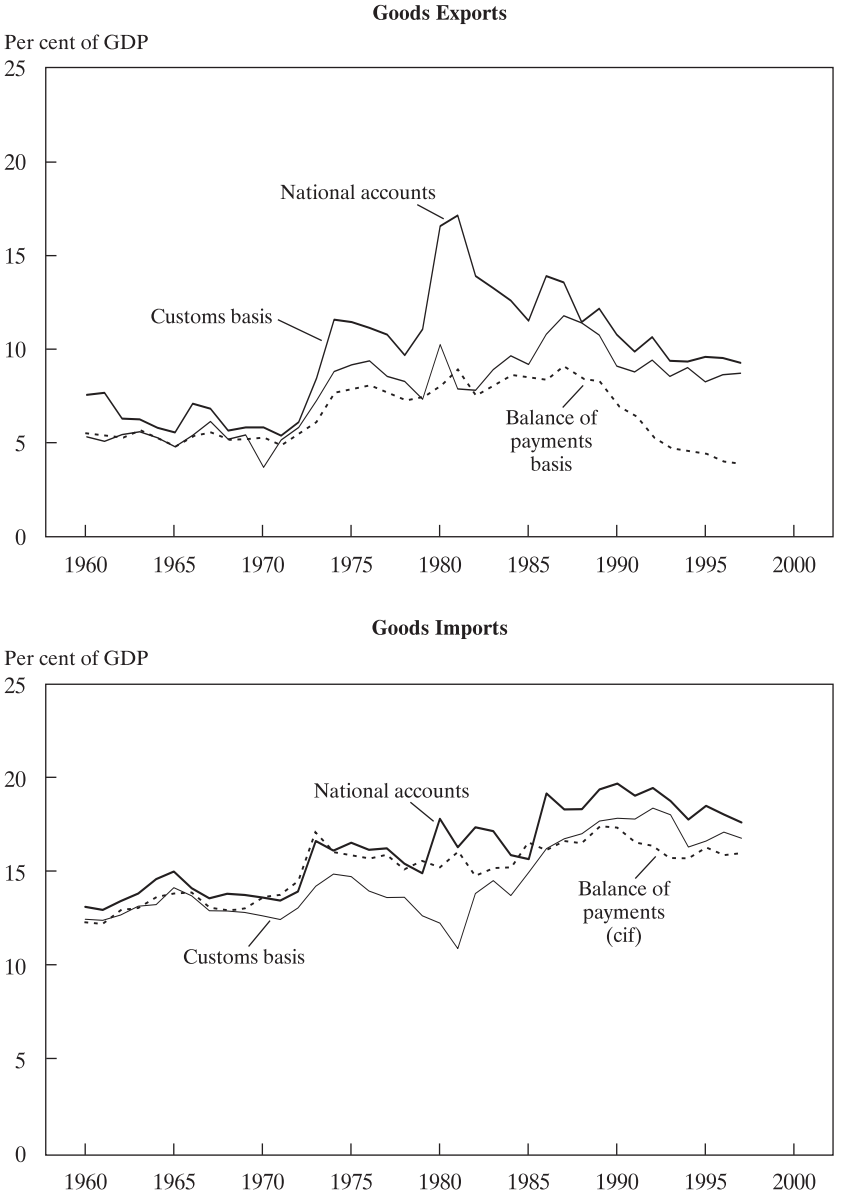
### *Entry into the European Union*

In the effort to account for differences in rates of economic growth among developing countries, trade policy has played a central role. In several studies of the World Bank, an open trade policy is identified as a key feature of economic growth in East Asia; and in a far-ranging global study, Sachs and Warner argued that a liberal trade policy is the most important element of government policy.[17] In their empirical study, Sachs and Warner also characterised Greece as a fully open economy since 1959, citing an earlier study by Eichengreen (1994). If the Greek economy were really open at such an early date, entrance into the EC in 1981 should have had a relatively minor impact.

However, a much different perspective is provided by Giannitsis (1993), who argues that the Greek economy was actually quite closed prior to accession, citing levels of tariff and non-tariff protection that were high relative to Greece's European trading partners. The degree of protection was reduced substantially over the 1974-86 period and accession required Greece to eliminate a preferential system of industrial subsidies, including export subsidies.[18]

17. World Bank (1993) and Sachs and Warner (1995).
18. Giannitsis (1993, Table 1, p. 245).

**Figure 3-7. Alternative Measures of Non-Fuel Goods Exports and Imports, Greece 1960-97**




SOURCE: National Statistical Service of Greece (1999).

Giannitsis argues that the process of integration into the EU was mishandled to the extent that the liberalisation worsened the competitive position of Greek industries and contributed to a squeeze on profits of domestic firms. Thus, from his perspective, trade liberalisation impacted negatively on growth.[19]

In evaluating this argument, we looked first for evidence of the effect of EU accession on the structure of Greece's external trade. As with the national accounts, the analysis is complicated by conflicting measures of trade flows. Three alternative measures of non-fuel goods exports and imports as a percentage of GDP are shown in Figure 3-7. The series labelled "National accounts" refers to the goods component of the revised accounts. The customs series is identical to the estimate used in the old (base-year: 1970) national accounts. The measure labelled "Balance of payments" is that of the balance of payments converted to local currency. Exports and imports of fuels have been removed from all the series. The data are consistent in showing that Greece was a country with a very low ratio of exports to GDP in the 1960s and that the role of both exports and imports expanded sharply in the 1970s.

However, the new estimates of the national accounts imply a far larger expansion of exports up to the date of entry in the EU and a major erosion immediately thereafter. Exports decline from a peak of 17 per cent of GDP in 1981 to less than 10 per cent in 1997.[20] The alternative series imply a much smaller expansion in the years prior to entry and a more gradual decline thereafter.

As discussed by Tsaveas (2001), services play a very important role in the Greek economy. In terms of exports of goods and services, based on the new national accounts data, their share of GDP fell from 26 per cent in 1981 to a trough of 18 per cent in 1996. Their share has subsequently increased, rising to 22 per cent in 1999.

Further differences emerge in the 1990s, when the balance-of-payments (BOP) measure of goods trade shows a decline of the export share of GDP to a level below that of the 1960s. There are also large discrepancies in the various measures of imports; in particular, the revised national accounts indicate a much higher level of imports in the late 1970s and early 1980s than was previously reported in the customs series. Despite the large differences in the measures of gross trade flows, the balance-of-payments data and the

19. Some of these structural issues are also addressed in Katseli (1990).

20. In recent years, exports of goods have stabilised as a percentage of GDP and exports of services have grown.

new national accounts are in fairly close agreement on the magnitude of the trade balance. As discussed below, the deficit of goods and services is considerably smaller than the trade deficits in goods, reflecting Greece's comparative advantage in services.

Overall, evidence of a large trade shock from EU accession is mixed. The revised national accounts data do imply a large erosion of exports of goods and services after accession, but that comes on the heels of a very large expansion in the 1979-81 period. Furthermore, the impact on imports, which was more the focus of the Giannitsis study, seems quite modest in the revised data. Imports rise as a share of GDP throughout the 1970s and 1980s, in both the revised national accounts and in the BOP statistics. But there is little evidence of a significant change in the early 1980s. On the other hand, there is a substantial reorientation of Greek trade towards the EC after 1981: the EU share of exports rose quickly from about 50 per cent in 1980 to 70 per cent by 1987 and the import share increased more gradually from about 52 per cent in the 1980-85 period to 68 per cent by 1990.[21]

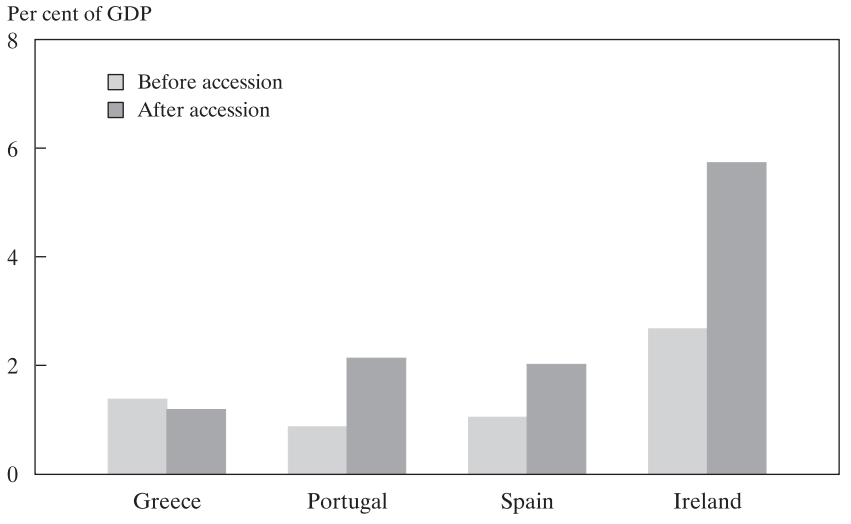
Finally, the inflow of foreign direct investment (FDI) into Greece might be viewed as an indicator of the impact of accession on external perceptions of economic opportunities in Greece. We compared the pre- and post-accession experience of Greece with that of Ireland, Spain and Portugal. As shown in Figure 3-8, Greece stands out both for the consistently small role of FDI and for the fact that there was no boost to FDI after accession. FDI averaged only about 1.5 per cent of GDP in the 1970s and actually declined in subsequent years. In contrast, accession brought forth a doubling of FDI in the other three countries. In Greece, FDI remained in the range of about one per cent of GDP throughout the 1990s.

We conclude that EC accession did not have a large negative impact on the competitiveness and thus the growth potential of the Greek economy; but the review of the external economic relationships does expand on a more general notion that the industrial sector of the Greek economy is very weak, and the country has not defined and exploited its areas of competitive advantage. For Spain and Ireland, the existence of a large EC market supported a growth strategy that emphasised the expansion of the export-oriented industries.[22] No such strategy is evident for Greece and its

21. Since 1990 the orientation of exports appears to have shifted away from the EU towards an expanded relationship with the transitional economies of Central and Eastern Europe.

22. See Appendix 3 for more details on the comparison between Greece and Ireland.

**Figure 3-8. Average FDI Inflows before and after Accession to the European Community**




SOURCE: OECD.
Membership dates: Greece: 1981, Portugal: 1986, Spain: 1986, Ireland: 1973.
"Before" is the average of 5 years before accession to the EC, "after" is the average of the first five years in the EC.

competitive position appears to have been significantly eroded until 1996, as reflected by the share of exports of goods and services in GDP.

### *Labour Market Structures*

Throughout the 1990s, labour market reforms were at the centre of much of the European discussion of policy changes that are needed to enhance adaptation to economic change. The OECD, in particular, has initiated a large volume of research on labour markets and the need to promote greater flexibility in work relationships. Much has been done to document the dimensions of employment protection legislation (EPL) and to assess the extent to which it influences labour market performance. Such legislation also has an obvious link to economic growth if it inhibits adjustment to new technologies or discourages achievement of scale economies.

A recent study by the OECD surveyed a large number of member countries and developed comprehensive summary measures of the relative extent of EPL.[23] The measures were built up from an underlying set of indicators that reflect the strictness of regulations governing dismissal of workers (prior

23. The most thorough recent analysis is that of OECD (1999, chapter 2).

notification and severance pay) and restrictions on the use of temporary workers. The study also evaluated the empirical evidence of the relationship between high levels of EPL and various dimensions of unemployment.

The study found that all of the Southern EU countries, including Greece, stand out with the most strict legislation on employment protection (Greece ranked 24th among 26 countries included in the study, beginning with the country with the less strict EPL). Greece is very restrictive in preventing most forms of temporary employment and it offers extensive protection against dismissal for workers with long tenure on the job. Most of these measures were introduced beginning in the mid-1970s, and they remained largely unchanged in the 1990s. While the OECD study found no relationship between EPL and the overall rates of unemployment, EPL appears to favour employment of prime age males at the expense of other groups and to increase the duration of unemployment spells. Strict EPL is also strongly associated with higher rates of self-employment.[24]

We used the EPL rankings to explore the extent of any relationship between job protection and economic growth for our prior sample of 14 European economies. As shown in Figures 3-9a and 3-9b, there is a negative but insignificant correlation between the EPL variable and the rates of growth in output per worker over the period of 1980-97. The relationship is slightly stronger between EPL and reduced rates of growth in total factor productivity. The deviation of the value of the EPL variable for Greece from the mean of the European economies accounts for a reduction of about 0.6 percentage point in the annual growth rate of MFP.

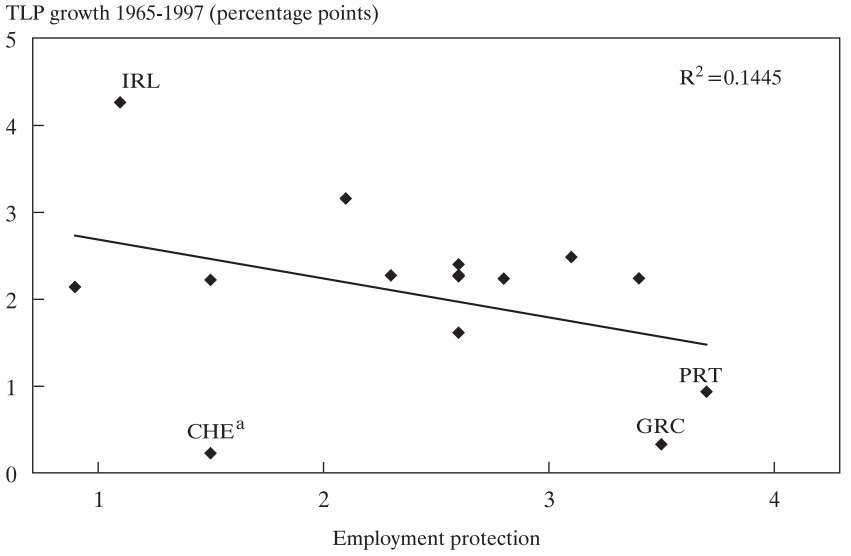
A companion OECD study also found that Greece ranked last among 24 OECD countries in worker participation in job training programmes.[25] Again, we find a significant correlation between this labour market measure and rates of growth in labour productivity and MFP ($R^2$ equal 0.21 and 0.27, respectively). However, because the measures of participation in job training and employment protection are highly correlated, it is not possible to measure their separate contributions. Used separately, both variables have comparable effects on the rate of growth of labour productivity and MFP.

An idiosyncratic feature of the Greek labour market, which most likely has contributed to unemployment and has lowered growth, is the rapid expansion of life-time government jobs in the 1980s and most of the first part of

24. The finding that restrictive EPL is associated with high levels of self-employment suggests that legislation might discourage the formation of larger, more efficient plants. See for example, the article by Burtless in this volume. According to estimates of Eurostat, firms with less than 10 employees accounted for 57 per cent of employment in the mid-1990s (Eurostat, 1998, p. 223).

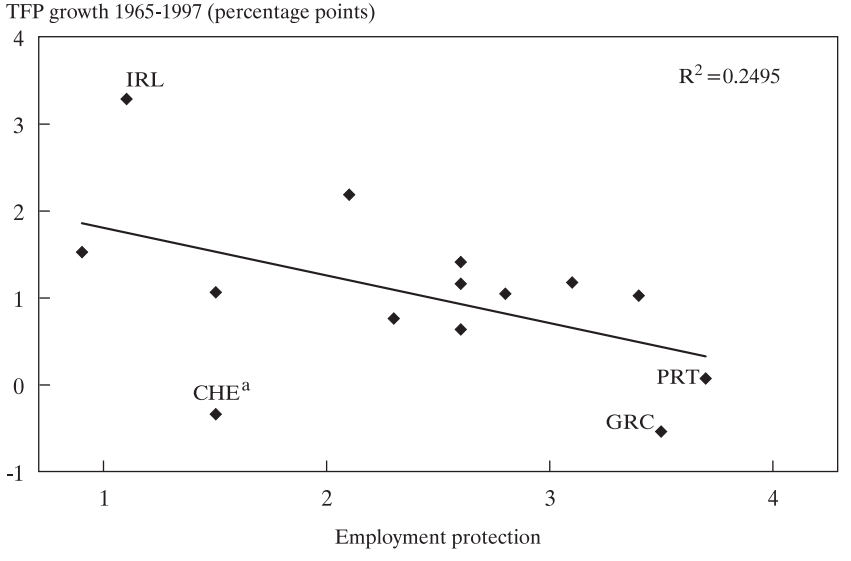
25. OECD (1999, chapter 3).

**Figure 3-9a. Employment Protection and Growth in Output per Worker, 1980-1997**




SOURCE: OECD (1999) and authors' calculations.
a. Switzerland.

**Figure 3-9b. Employment Protection and Growth in TFP, 1980-1997**




SOURCE: OECD (1999) and authors' calculations.
a. Switzerland.

the 1990s, as well as and the increase in the public/private relative wages in the 1980s (Demekas and Kontolemis, 1996). These two factors may have contributed to raising workers' effective reservation wages and in depressing private sector employment.

Greece does not stand out in most other dimensions of labour market performance. It has a modest unemployment insurance programme, both in terms of the replacement rate and duration; the minimum wage is about 50 per cent of the average wage in manufacturing, and union membership equals about one third of wage and salary employment. Until 1999, the rate of long-term unemployment was consistently below the EU average. One major uncertainty, however, is the extent to which the official data capture the full magnitude of the informal sector. A major response of both employers and employees to the strictness of EPL measures and high employment taxes should be to move into the informal sector. For example, the proportion of the workforce that is self-employed, 25 per cent of the civilian non-agricultural workforce, is higher than for other economies at comparable stages of development. This may reflect efforts to avoid labour market regulations.[26] We conclude that the strictness of EPL has been part of the explanation for Greece's low rate of growth relative to the rest of Europe, but it alone cannot account for the severity of the deterioration in the 1980s.

In a broader context, a recent study by Koedijk and Kremers found much stronger evidence of a negative relationship between an extended measure of economic regulation and growth.[27] They relied on a different set of 11 European countries and included measures of both product and labour market regulation. They report a large inverse correlation ($R^2 = 0.70$) between the ranking of regulation and economic growth. The relationship is strongest between product market regulation and growth; but their finding of a correlation with labour market regulation is more significant than we report for the EPL variable. There is close correspondence in the ranking of countries that are in both samples, and they agree in classifying Greece as having a very restrictive regulatory environment.[28] The differences in overall conclusions are the result of the countries that are not common to the two samples, emphasising the dangers of relying too heavily on results from a small number of cases.

26. Other factors, such as the desire to avoid taxes, have undoubtedly played a role in the growth of the informal sector; but Greek taxes are not particularly high relative to other European countries.

27. Koedijk and Kremers (1996).

28. Greece is classified as having highly regulated product markets because of a high degree of public ownership in the late 1980s and a lagging performance in the implementation of the Single Market initiative as of 1995. Both of these characteristics have changed somewhat in recent years.

**Table 3-2. Macroeconomic Indicators for Greece**
Annual average

| *Period* | *Growth of GDP* | *Inflation CPI* | *Unemployment rate* | *Budget balance*[a] | *Current account balance*[a] | *Real exchange rate* |
|---|---|---|---|---|---|---|
| 1960-70 | 8.5 | 2.1 | 5.1 | 0.7 | -2.6 | na[c] |
| 1970-80 | 4.6 | 14.3 | 2.2 | -1.6 | -3.9 | 91.3 |
| 1980-85 | 0.1 | 20.7 | 6.7 | -8.7 | -5.5 | 102.3 |
| 1985-90 | 1.2 | 17.3 | 7.4 | -12.1 | -3.1 | 95.7 |
| 1990-95 | 1.2 | 13.9 | 9.1 | -11.7 | -1.4 | 106.3 |
| 1995-98 | 3.1 | 6.1 | 10.2 | -6.1 | -3.3 | 113.7 |
| 1999[b] | 3.4 | 2.7 | 10.3 | -1.8 | -2.9 | 114.9 |
| 2000[b] | 4.0 | 3.1 | 10.2 | -0.8 | -3.7 | 113.1 |

SOURCES: Bank of Greece, International Monetary Fund and JP Morgan.
a. As a per cent of GDP.
b. Indicates estimate.
c. Not available.

## IV. Future Directions

The macroeconomic policies of Greece have come a long way over the past five years. As shown in Table 3-2, inflation has been reduced from the double-digit rates of the prior two decades to a less than 3 per cent rate. The fiscal deficit has been cut from an astounding 12 per cent of GDP in 1990-95 to below 2 per cent in 1999, with a projected surplus by 2001, and interest rates have been steadily converging towards the European norm. In addition, the current account deficit has stabilised at about 3 per cent of GDP. Thus, by most standards, Greece has met the criteria for admission to the euro area and it is scheduled to become a participant on 1 January 2001.

Those macroeconomic gains have translated in an improved growth-performance, at least as compared to the performance of the prior quarter-century. Over the 1995-2000 period, gains in GDP averaged 3.3 per cent annually and labour productivity grew about 2.1 per cent per year. The growth of TFP also averaged about 1.2 per cent per year, though some of that gain may reflect a cyclical recovery from the very depressed conditions of the mid-1990s.

This rate of growth should be sustainable in future years. While labour force growth will probably average less than one per cent, the higher educational attainment of younger workers suggests that Greece will continue to experience significant growth in the effective labour force of about 1.5 per cent per year. The combination of employment growth and trend increases in TFP of 1-1.5 per cent per year would yield an overall rate of growth in out-

put of 3 to 3.5 per cent annually.[29] The capital stock measure (including housing) that we have used implies a relatively high capital-output ratio of about 3 and an annual rate of depreciation of 5 per cent, or a required investment rate of about 24 per cent of GDP (.03+.05)(3). That compares to an actual 1999 investment rate equal to 23 per cent of GDP.

However, the current rate of economic growth implies little or no convergence with average living standards in the rest of Europe. Unless Greece can begin to do better, it will continue to languish at the bottom of the European income distribution. Having stabilised the macroeconomic environment, the next stage for Greece is to find the means to sharply accelerate the rate of rise in living standards. And, although in the short run Greece has a pool of unemployed labour, the longer-term task is fundamentally one of raising the rate of growth in labour productivity.

One might hope that the Greek experience would more closely follow that of Ireland, where an equivalent set of macroeconomic reforms was followed by a dramatic acceleration of economic growth. Ireland did experience a significant lag between the stabilisation programme, which was initiated in 1987, and the acceleration of economic growth, which became most evident after 1993. Thus, it might be reasonable to argue that the benefits to Greece of the macroeconomic stabilisation might be more substantial in future years.

A closer examination of the Irish experience, however, suggests that it is unlikely to serve as a model of what to expect in Greece. As discussed more fully in Appendix 3, Ireland is primarily a story of an export-led economic expansion that is being promoted by foreign firms using Ireland as an export platform to the rest of Europe. It was well positioned to take advantage of the Single Market initiative, with a long tradition of involvement by foreign firms, particularly those of the USA; and a depreciated exchange rate created a situation in which its manufactures could be very competitive within the EU.

*Trade sector*. Greece might try to emulate Ireland in attracting foreign firms; but it would be starting from a very low level and it lacks some of the advantages of language and easy access to the major European markets. The restrictive regulatory environment, particularly with respect to labour markets, also makes Greece less attractive as a base for foreign firms. For example, the same OECD study that ranked Greece 24th out of 26 with respect to employment protection legislation, ranked Ireland 5th. Yet, without the

29. A current 11 per cent rate of unemployment would permit a fast rate of growth for a few years if it were accommodated by a higher rate of capital formation.

intervention of foreign firms, it is difficult to visualise a source of the funds and management skills needed to revitalise the export sector. In addition, as an exporter of low-technology, labour-intensive manufactures, Greece is likely to be faced with intensified competition from the transitional economies of Eastern Europe.

Most importantly, the decision to join the euro area without an undervalued currency would seem to rule out a policy of export-led growth. As was shown in Figure 3-7, exports of goods accounted for a declining share of GDP from the mid-1980s to the mid-1990s, the trade deficit exceeds 12 per cent of GDP, and the stabilisation programme of the last five years, with its emphasis on monetary restraint, has put upward pressure on the real exchange rate (Table 3-2).[30] In terms of exports of goods and services, their share in GDP declined until 1996, before rebounding. The trade deficit in terms of goods and services is about 8 per cent of GDP. However, Greece was severely constrained by its desire to enter EMU at the beginning of 2001: it had very little margin for error in meeting the inflation targets, and a larger devaluation risked an acceleration of inflation above the Maastricht criterion. By entering at the current rate, the government apparently decided that the benefits of early membership in the euro area were worth rejecting the option of using a undervalued currency as a tool for promoting a more export-oriented growth strategy.

Given the export sector's weak competitive position, it is difficult to perceive a situation in which this sector would provide the major impetus for an accelerated growth rate. Instead, the process of convergence will have to emphasise growth in the domestic economy. The convergence will also probably have to be attained without substantial involvement of foreign firms.

*Labour force.* According to statistics from the OECD, Greece has made substantial gains in upgrading the educational attainment of its workforce (Table 3-3). The educational attainment of individuals aged 25-34 is dramatically higher than that of older cohorts, comparable to that of Ireland, and above that of Spain and Portugal. However, public expenditures on education, expressed as a percentage of GDP, are still well below the OECD average (3.7 versus 4.7) and below those of comparable European economies. Nor do the existing measures of educational attainment make any adjustment for the quality of the training. Particularly at the tertiary level, the educational system is overcrowded and faculty salaries are very low by

30. One additional point of contrast is to note that relative unit labour costs in Greece rose by 15 per cent in the 1993-99 period compared to a 27 per cent decline in Ireland. Some alternative measures of the exchange rate position are provided in Figure 3A-2.

**Table 3-3. Specific Level of Education Attained, by Age Group (1996)**
Per cent of population

| | *Greece* | *Ireland* | *Portugal* | *Spain* | *OECD average* |
|---|---|---|---|---|---|
| *Age* | *At least upper secondary education* | | | | |
| 25-64 | 44 | 50 | 20 | 30 | 60 |
| 25-34 | 66 | 66 | 32 | 50 | 72 |
| 35-44 | 52 | 54 | 24 | 34 | 65 |
| 45-54 | 36 | 38 | 15 | 20 | 55 |
| 55-64 | 22 | 30 | 9 | 11 | 42 |
| | *At least university-level education* | | | | |
| 25-64 | 12 | 11 | 7 | 13 | 13 |
| 25-34 | 16 | 14 | 11 | 19 | 15 |
| 35-44 | 14 | 11 | 9 | 15 | 14 |
| 45-54 | 11 | 9 | 6 | 10 | 12 |
| 55-64 | 6 | 6 | 4 | 6 | 8 |

SOURCE: OECD. 1998. *Education at a Glance: OECD Education Indicators,* Table a1.2a. Paris.

European standards. Given the high level of unemployment, there are few incentives to complete one's education in a timely fashion.[31]

It also appears that labour market regulations have repressed the normal wage returns to education. During the 1980s, Greece maintained a wage indexation system that systematically narrowed wage distribution. While indexation was eliminated in the early 1990s, national bargaining continues to exert strong influence on the wage structure. A paper by Kanellopoulos (1997) used information from household surveys to document the compression of the wage structure over the 1974-94 period. Between 1974 and 1982, there was a large reduction in the distribution of earnings: the log variance of male earnings declined by 40 per cent and the difference in earnings at the 90th and 10th deciles was reduced by 30 per cent. The distribution remained basically unchanged in subsequent years. One cost of this policy was a decline of about 40 per cent in the return to both a tertiary and upper-secondary education over the 20-year period. [32]

A substantial deregulation of labour markets and increased spending on education could improve future growth prospects by improving the quality

31. According to the OECD, the average duration of tertiary education studies exceeds 6 years in Greece compared to an OECD average of 4.1 years (OECD, 2000, table B4.4).

32. According to Kanellopoulos, the wage premium of higher education/secondary education declined from 1.5 in 1974 to 1.23 in 1994. A comparable average from the OECD in the mid-1990s is 1.60 (OECD, 2000, table E5.1)

**Table 3-4. Infrastructure Indicators in Selected Industries**

| | *Telecommunications, 1995* | | *Phone charges, 1996 PPPs* | |
|---|---|---|---|---|
| | *Main lines per 100 inhabitants* | *Degree of digitalisation*[a] | *Business charges*[b] | *Residential charges*[c] |
| Ireland | 36.7 | 79.0 | 1,176.7 | 601.0 |
| Portugal | 36.1 | 70.0 | 1,661.3 | 714.0 |
| Spain | 38.5 | 56.0 | 1,207.7 | 538.0 |
| Greece | 49.4 | 35.3 | 1,159.0 | 605.6 |
| OECD | 47.2 | 82.8 | 893.8 | 408.5 |
| | *Airlines*[d]*, 1996* | | *Railways, 1994* | |
| | *Transported passenger-kms/employee* | *Revenue tonne-kms/employee* | *Productivity*[e] | *Revenue per employee* |
| Ireland | na | na | 163.0 | 35.0 |
| Portugal | 1,157.0 | 135.0 | 486.0 | 12.2 |
| Spain | 1,155.0 | 138.0 | 596.7 | 21.3 |
| Greece | 850.0 | 93.0 | 160.2 | 6.1 |
| OECD | 1,868.3 | 290.3 | 525.4[f] | 31.6[f] |
| | *Postal system (1998)* | | *Electricity* | |
| | *Percentage delivered within 3 days* | *Objects per employee (thous.)* | *GWh/employee* | |
| Ireland | 56.1 | 65.4 | na[g] | |
| Portugal | 52.1 | 65.5 | 1.2 | |
| Spain | 48.1 | 65.4 | 3.5 | |
| Greece | 11.9 | 42.9 | 1.5 | |
| OECD | 60.7 | 62.4 | 6.6 | |

SOURCE: Mylonas and Joumard (1999).
a. Percentage of digital mainframes on the fixed network.
b. Average annual spending by a business user, based on a common basket of calls, 1995 USD excluding tax.
c. Average annual spending by a residential user, based on a common basket of calls, 1995 USD excluding tax.
d. Countries represented by national airline. OECD is average of Lufthansa, Air France, British Airways & Delta Airlines.
e. Productivity is traffic unit per employee, i.e. (passenger-kms plus tonne-kms)/employee.
f. Average of 11 European countries.
g. Not available.

of the Greek workforce. Despite some modest recent changes, Greek labour markets are still heavily regulated, and the high level of employment taxes drives many workers into the informal sector. These are particularly important barriers to the participation of foreign firms.

*Public infrastructure*. Greece also lags behind the rest of Europe in the development of its public infrastructure. Some measures of the productivity gaps in specific industries are shown in Table 3-4. Greece appears particularly weak in transportation, the postal service, and electricity generation. While government has received large transfers from the EU to upgrade infrastruc-

ture, in past years large portions of these transfers were use to subsidise public enterprises. During the 1990s, the government took steps to sell or liquidate many of the enterprises that it had assumed responsibility for in the 1980s, but the legacy is a decade or more of lost investment. Furthermore, given the budgetary strains, there is little choice but to pursue a more extensive and faster pace of privatisation to provide the resources for modernisation.

*Financial sector*. Considerable progress has been made in the reform of the system of state-owned banks. However, the Greek financial system remains highly inefficient relative to the rest of Europe, with very wide loan-deposit rate spreads, and Greece has a low rate of financial intermediation.[33] A more dynamic and competitive banking system would improve the utilisation of scarce saving and promote efficiency gains in industry. Having cleaned up the balance sheets of many of the state banks, Greece should be in a position to move ahead with an aggressive programme of privatisation of those banks and expansion of private securities markets.

Finally, if Greece is successful in stimulating a more rapid pace of improvement in TFP, it will need to find a means of achieving a parallel increase in the rate of capital formation. Monetary union will reduce some of the risks of foreign investment in Greece but reliance on foreign saving seems questionable in view of the existing current account deficit, a historically-demonstrated weak capacity to export, and the prior difficulties of attracting foreign direct investment. Instead, Greece needs to find a means of raising its own national saving. In general, the experience of other countries suggests that tax incentives and other means of stimulating private saving are ineffective; and an increase in the public budget surplus is the most certain means of achieving a higher rate of overall saving.[34]

In summary, Greece has implemented a very successful programme for stabilising the macroeconomic environment, but it is still in the process of developing an effective strategy for promoting economic growth. It has no well-defined areas of comparative advantage in the international sphere, and it has not yet implemented the institutional changes that would create competitive pressures for a faster pace of innovation and efficiency gains in the domestic economy. For example, it has no sector like the export-oriented electronics in Ireland that could serve as a leading source of growth. If the

33. OECD, 1998, p. 89.

34. It is true that the reduction in the reported public sector deficit over the past half decade has not translated into an equivalent rise in national saving. However, as indicated in the earlier discussion of saving, the relationship between public and private saving has been severely distorted by the interaction between a large public debt and rapid changes in the inflation rate.

country is not going to pursue the traditional route of using the tradeable goods sector as the driving force for growth, it needs to articulate an alternative approach based on a rapid upgrading of domestic services industries.

## Appendix 1: Construction of the Growth Accounts

Growth accounts provide a framework for decomposing economic growth into the contribution of factor accumulation and a residual measure of gains in the efficiency with which the factors are used. We used data from the OECD to construct indexes of real output, the capital stock, and a measure of the education-adjusted labour force of Greece and thirteen other Member States of the European Union for the period of 1965-98. We define the growth in total factor productivity, denoted by a(t), as the growth in output, q(t), less the share-weighted growth of the factor inputs, k(t) and l(t):

$$a(t) = q(t) - s_k\, k(t) - sl\, l(t). \qquad (1)$$

As much as possible, we have focused on the business sector, excluding the general government sector from our measures of output, the capital stock and employment. Except for Greece, the national accounts data are drawn from the OECD Statistical Compendium. The data for Greece are from the National Statistical Service of Greece (NSSG). Output is defined as real GDP of the business sector, and labour inputs include employees and the self-employed. Furthermore, we have used data on the number of years of schooling, compiled by Barro and Lee (1994), to adjust for changes in the educational skills of the workforce.[35] Thus, the index of labour inputs is actually employment times the index of educational attainment. The index of capital inputs is also based on the OECD estimate of the capital stock in the business sector.[36]

The final step involved the specification of the weights for aggregating the factor shares. In a competitive economy those weights could be represented by factor-income shares that would vary across countries and time. However,

35. In effect we have used a relationship between the wage rate and years of schooling to weight the proportions of a country's adult population that had attained different levels of schooling ranging from the primary through the tertiary level. Details of the construction of the index are given in Bosworth and Collins (1996).

36. We had to construct estimates of the capital stock for Greece, Ireland, Portugal and Spain. For all four countries, the capital stock is set at 1.5 times GDP in 1960 and cumulated forward with a a geometric rate of depreciation of 5 per cent per year. We have made no allowance for land since variations in agricultural land would have only a small effect on the estimates.

for most of the countries we did not have measures of factor shares that incorporated the labour input of the self-employed. Instead, national accounts data typically assign the income of the self employed to the capital input. Thus, we have opted to use a fixed capital income share of 0.3 with constant returns to scale.[37] While this is a restrictive assumption, it is unlikely to have a significant effect on the results because there is little evidence of a secular trend in the factor shares of those countries that provide income estimates. Thus, we report our results in a form that decomposes the logarithmic growth in output per worker (q/l) into the contribution of the growth of physical capital per worker (k/l), the growth of education per worker (h) and the growth of total factor productivity (a).

$$q/l = .3(k/l) + (1 - .3)h + a \tag{2}$$

## Appendix 2: The Revised National Accounts

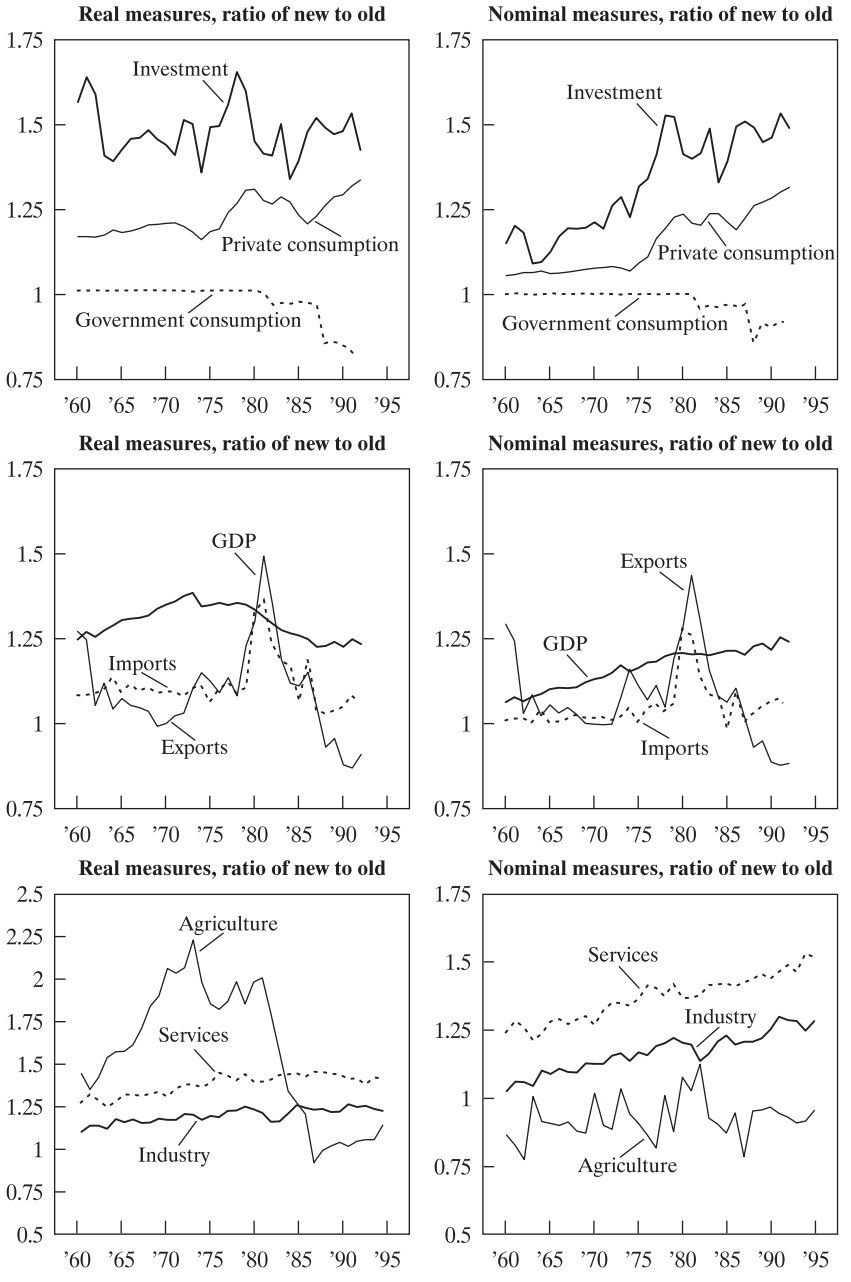
Conclusions about the pattern of economic growth in Greece are severely hampered by the low quality of the available statistical series. In recent years, the NSSG has undertaken a comprehensive revision of the national accounts to bring them into line with the standards of the European System of Accounts (ESA).[38] This revision began with 1988 and resulted in a large upward revision in the level of Greek GDP, 22 per cent in 1988, largely as a result of increased efforts to capture the role of informal sector. However, the distribution of the revisions among the major expenditure categories and major industries on the income side suggests a very diverse set of discrepancies between old and new accounts.

In addition, the NSSG has undertaken to provide a revised set of historical accounts that extend back to 1960. However, the historical revisions incorporate some major changes in the pattern of Greek economic development over the prior quarter-century. These changes are highlighted in the various panels of Figure 3A-1, which show the ratio of the new to the old series for several components of the national accounts. First, on the expenditure side, the largest percentage revisions are made for investment, which is raised by approximately 50 per cent; but, whereas the adjustment tails off

37. Maddison (1987, p. 659)

38. This analysis is based on the revised set of national accounts as published in August 1998. More recent changes have been made to convert to ESA 95. However, these changes do not significantly affect growth rates for the real aggregates.

**Figure 3A-1. Comparison of National Accounts Data, Greece, Base of 1988 and Base of 1970**




SOURCES: National Statistical Service of Greece data of August 1998, and authors' calculations.

in nominal terms as the investment series is extended back to 1960, it remains large in volume terms. Thus, there are significant changes in the estimated price deflators, as well as the expenditures themselves. Smaller percentage adjustments are made for consumption of the private and the public sector, but there are very large revisions in the external trade data for the early 1980s, exceeding 25 per cent in some cases.

The revisions are equally large for the GDP of the major industrial sectors. For both industry and services the percentage adjustment to the level of output is large in the late 1980s,but it is gradually reduced as the revisions extend back in time. In addition, the magnitudes of the revisions are similar in both the nominal and real data. The real puzzle lies with the series for agriculture. In nominal terms, the level of agricultural output has been revised downwards, but the general trend of output has been maintained. The volume measure, however, reports a dramatic new interpretation of the trend of Greek agricultural output. Real output has been left unchanged for the late 1980s, but doubled relative to the old series in the 1970s. Thus, while the old series implied a slowly growing agricultural sector throughout the 1960-90 period, it is now shown to have expanded very rapidly up to the 1980s and then to have shrunk to less than half its prior size within a six-year period. At the same time, any statistical discrepancy between the expenditure and income-side measures of the accounts has been subsumed into the individual series. As a result, the largest revisions to real GDP by industry are in agriculture, whereas nominal revisions are concentrated in services and industry. This result seems puzzling in view of the revisions to the expenditure-side estimates.

## Appendix 3: The Greek-Irish Comparison

Both Ireland and Greece are examples of economies that languished throughout the 1970s and 1980s, with average income levels near the bottom of the European distribution. They are similar in that both have made major efforts over the last decade to restructure their economic policies, and they have both received liberal financial assistance upon entry to the European Union. Yet, Ireland stands out with an extraordinary degree of success in the 1990s. Why the difference and does it have any implications for the future direction of Greek policies?

The surge of growth in Ireland is unusual because of the large role played by the increase in labour inputs, which fully accounts for the post-1993 acceleration. In the 1993-99 period, output grew at an average annual rate of 8.8

per cent and employment expanded at a 5.5 per cent rate. This reflected both a very high initial rate of unemployment —15 per cent of the labour force— and an atypical demographic situation. Ireland is among the youngest countries in Europe with a low old-age dependency rate and a rapidly growing population of labour force age. The improving economic situation has also promoted a large reversal of net migration, as prior emigrants respond to an improved labour market situation. The result was an extraordinary growth in the pool of potential workers. In contrast, Greece has much less potential for expanding the workforce. Its population is among the oldest in Europe, with a growth rate of only about one per cent annually. Unemployment increased in the 1990s, but it is still well below the peak reached in Ireland; and the labour force participation rate is only modestly below that of Ireland.

An acceleration of productivity growth is a surprisingly small part of the Irish story. The growth of labour productivity in the business sector has remained relatively constant at about 4 per cent per year for more than three decades. There is an implied acceleration of MFP growth, when it is calculated as a residual, because capital accumulation did not keep pace with the expansion of employment.[39] In the lack of emphasis on capital accumulation, Ireland has also been much different than the rapidly growing Asian economies.

As summarised by the IMF, the research on the Irish boom has emphasised four factors: (1) outwardly-oriented trade and investment policies, (2) the advent of the single market in Europe, (3) a fiscal consolidation that began in 1987, and (4) large inflows of EU structural funds that were used in the 1990s to upgrade physical infrastructure.[40]

The primary source of the Irish boom is a simple demand-side boom, led by very rapid growth in exports and accommodated by an extremely plentiful supply of labour. The country has pursued an open trade and investment policy since the early 1960s, making it difficult to identify that policy change as the cause of the current boom. However, the adoption of the European single market programme in the early 1990s made Ireland even more attractive as a base for American companies that wanted to expand their European operations. While a common language was a strong draw, Ireland also has relatively open, unregulated labour markets (see Figure 3-9) and a new social consensus that translated into wage moderation and a reduction in labour market strife after 1987. According to the OECD, relative unit labour

39. While there is little evidence of acceleration in productive growth, the trend growth rate is very high relative to other countries and it exceeds that of Greece by a wide margin.

40. International Monetary Fund (2000, p. 6), OECD (1999b) and F. Barry (1999).

costs in Irish manufacturing declined at an average annual rate of 5 per cent in the period of 1985-98 (see Figure 3A-2).[41]

In addition, FDI flows into Ireland averaged in excess of 6 per cent of GDP in the 1990s – in part because of attractive tax and other financial incentives offered by the government. 47 per cent of manufacturing employment is in plants owned by foreigners (1995), and 24 per cent is in US-owned plants. 90 per cent of the output of foreign-owned firms is exported compared to 34 per cent for Irish-owned firms.[42] The result for Ireland has been a demand-side boom led by a very rapid expansion of exports to Europe. Total exports soared from 57 per cent of GDP in 1990 to 88 per cent in 1999. The export sector is centred around skilled-labour-intensive industries such as electronics, software and pharmaceuticals.

In contrast, there has been a substantial deterioration of Greek competitiveness. As mentioned previously, exports have declined as a proportion of GDP over the past 20 years, Greece is steadily losing market shares within the EU and FDI has averaged only about one per cent of GDP. Furthermore, by most measures, there has been a relative deterioration in the price competitiveness of Greek exports (Figure 3A-2). While relative unit labour costs in manufacturing have been roughly constant, the real exchange rate, as measured by the J.P. Morgan trade-weight index, has appreciated by about 20 per cent since the late 1980s. As mentioned earlier, the restrictive regulatory environment surrounding Greek labour markets also makes it a relatively unattractive location for foreign firms.

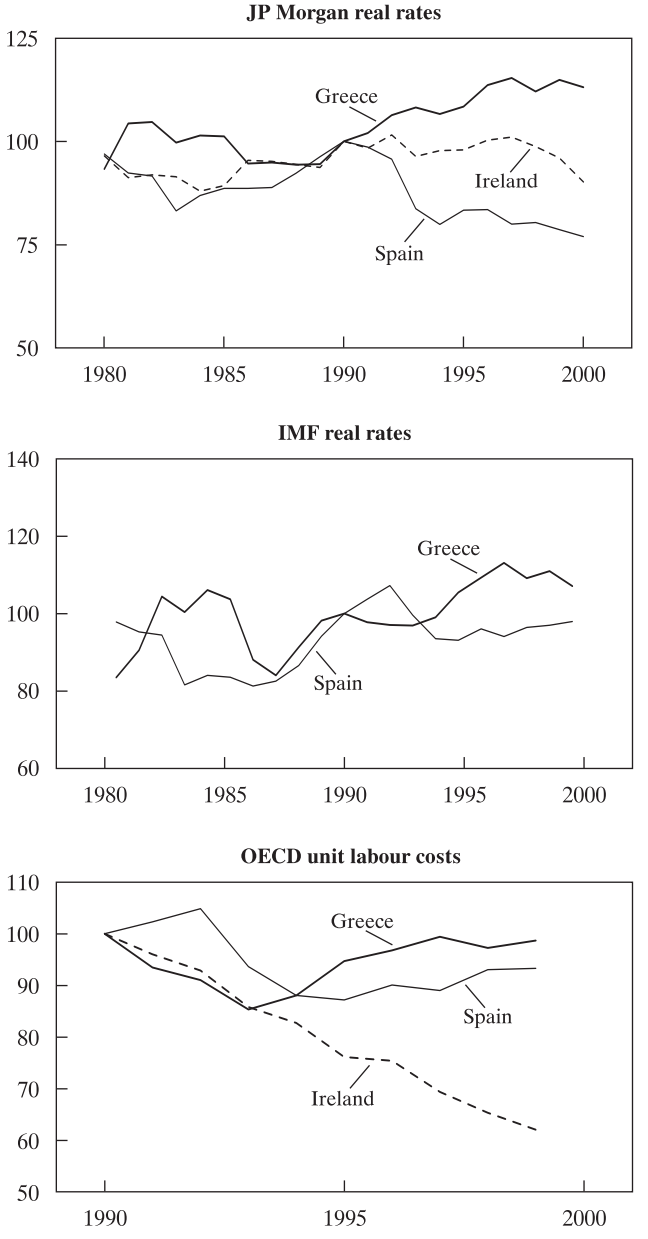
Improvements in educational attainment are often cited as a factor behind the acceleration of growth in Ireland. The OECD reports a large gap in the educational attainment of younger relative to older workers, and that gap is used as an indicator of changing human capital or improvements in the quality of the workforce. Somewhat surprisingly, the pace of educational improvement, measured on the same basis, is even more rapid in Greece. As shown in Table 3-3, Greece has a slightly lower overall proportion of the population age 25-64 with a secondary education, but the gap between workers aged 25-34 and 55-64 in the two countries is even larger. Greece appears to be doing slightly better than Ireland in terms of the proportion of its population with a university-level education. However, Ireland spends a larger share of its GDP than Greece on educational institutions, 5.3 per cent in 1995, compared with 3.7 per cent.[43]

41. An alternative measure of the real exchange rate, the J.P. Morgan trade-weighted index, remains basically unchanged between 1987 and 1999.

42. OECD (1999b, p. 55).

43. OECD (1998b, Table B1.1a).

**Figure 3A-2. Alternative Exchange Rate Measures Index[a]**




SOURCES: JP Morgan web site for trade-weighted exchange rates; International Monetary Fund, International Financial Statistics CDROM; and OECD, Economic Outlook Database.
a. Rise equals appreciation, 1990=100.

Greece has also undertaken a fiscal adjustment programme comparable with that of Ireland, although it started much later, 1995 compared with 1987. However, a substantially larger portion of the Greek adjustment has been in the form of tax increases rather than expenditure reductions. There is a similar difference in the timing of the shift in monetary policy to a lower inflation regime. Ireland, together with some other countries that have enacted reform programmes, provides evidence of a significant lag between the achievement of macroeconomic stabilisation and a pickup of economic growth. It may be that with the passage of time the results for Greece will also look more favourable; but we are more inclined to believe that the significant difference lies in the role of the foreign sector.

Finally, Greece and Ireland have received large transfers from the European Union. Both countries are recipients of funds under the Common Agricultural Policy; but the claim has been made in several studies that the regional policy (The Regional Development Fund and the Cohesion Fund) has provided substantial benefits to Ireland in improving infrastructure. The funds have been used to finance improvement in the road and rail system and have contributed to the expansion of education and job training programmes. The long-run increase in aggregate supply is estimated in these studies at about 2 per cent of GDP.[44] However, the optimistic assessments of the Irish experience are based on the application of assumed rates of return to expenditures rather than on any direct evidence of a contribution to growth. On that basis, we could reach a similar conclusion for Greece, since the magnitude of the transfers has been comparable as a per cent of GDP.

However, these funds are inherently fungible, and the critical question is the extent to which the transfers substituted for domestic finance. According to OECD data, government investment fell sharply in Ireland during the 1980s as a share of GDP and remained depressed in the 1990s. Government investment has remained at a relatively constant 3 per cent share of GDP in Greece since accession to the EU, slightly above that of Ireland in the 1990s.[45] Thus, it is not evident that EU transfers represented a net addition to infrastructure investments in either country.

In summary, while Greece and Ireland offer many interesting similarities and contrasts, Greece is not likely to follow the Irish path of relying on

44. Barry *et al*., 1999.

45. For Greece, fixed investment in the general government sector averaged 2.8 per cent of GDP in the 10 years prior to EU accession, 2.9 per cent in 1981-90, and 3.4 per cent in 1991-2000. Meanwhile, net EU transfers were 2.3 per cent of GDP in 1981-90 and 4.4 per cent in 1991-2000. The failure of investment to rise in line with the growth of transfers suggests a large amount of substitution with domestic funds.

export-led growth. Nor does it have a similar situation with respect to the supply of labour. Its population at labour-force age is expanding relatively slowly and Greece currently has a much more regulated labour market.

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## Comment by John F. Helliwell

This paper provides an interesting report of the main features of the Greek growth record over the past forty years, with special focus on the disappointing years since 1973. When comparison is made relative to the performance of other European members of the OECD, the 1973-1980 period looks less exceptional and the start of the disappointment lines up more closely with 1981, the date of Greece's accession to the EC, a change of government and the start of a bad patch in inflation and public sector deficits. There is some contrast between the fairly pessimistic review of growth in this paper and the more upbeat interpretation of the growth record in the paper by Garganas and Tavlas (G&T). The latter make much, and rightly so, of the fact that Greek growth over the last five years of the 1990s equalled or bettered that in the rest of the EU. The Bosworth and Kollintzas paper makes due note of this stronger growth record of the past five years and argues that it should be sustainable. I would like to see a more detailed analysis of the recent growth record, ideally decomposed into factor accumulation, utilisation, and TFP, that would help to tie their paper more closely with the GDP growth track recorded by G&T, and seen by them as the long-sought yield from the macroeconomic reforms.

In my comments, I shall not review in detail the work of Bosworth and Kollintzas, since it establishes the growth record in a helpful way and outlines the list of usual suspects in the search for reasons underlying the lack of convergence over the past twenty years. In their summary, even after noting recent growth matching the EU average, they emphasise that equalling the EU average will not be enough to enable catch-up to take place. Now that macroeconomic stability has been bought, paid for, and delivered, Bosworth and Kollintzas focus their prescriptions on the labour market rigidities that are also the focus of other papers at the conference. I shall try to broaden the canvas and to make a more direct attempt to assess the growth prospects for Greece as a newly minted member of Euroland.

Bosworth and Kollintzas make extensive and helpful bilateral comparisons with other OECD economies with somewhat similar *per capita* incomes in 1973: Spain, Portugal and Ireland. Over the whole period from 1973 to 1998, output per worker grows fastest in Ireland (4.1 per cent), followed by Spain (2.6 per cent), Greece and Portugal (both 0.9 per cent). Of the four countries, Greece was the only one not to have had an increase in foreign direct investment (FDI) after accession to the EC. These growth and FDI statistics lie at the heart of the authors' investigation, which attempts to

answer why EC membership was followed by stagnation rather than convergence. In this respect, the FDI inflow is treated as a barometer of the extent to which the Greek economy seemed to provide an attractive base from which to serve EC and global markets.

Several suspects are brought in for questioning: a fixed exchange rate set high enough to make Greek cost levels high in international terms, inadequate infrastructure in some key areas (especially transportation, postal service, and electricity generation) and the rigidity of Greek labour markets. I would like, in my comments, to extend their analysis in three ways. First, I shall explain the comparative growth performance in terms of the recent literature linking trade and growth to distance and national borders. Then I shall consider the extent to which institutional factors are likely to play a role, on their own and in combination with increased openness. Finally, I shall try to tie together their analysis and mine in an effort to consider some of the growth prospects and possibilities for Greece as a full-fledged euro-using member of the EC. The likely effects of the euro on Greek growth and trade will be considered in the context of the final section on growth prospects.

## Borders, Distance, Language, Trade Pacts, Trade and Growth

Sparked by the finding of McCallum (1995) that trade flows in 1988 were twenty times as intense among Canadian provinces as between Canadian provinces and US states of similar size and distance, research over the subsequent years has shown that national economies are economically still very cohesive. Thus, although EU membership has been estimated to increase trade between EU member countries by about 40 per cent, and a common language to have a somewhat larger effect, domestic trade intensities in the EU countries still remain several times greater than between EU partner countries (Helliwell, 1998, chapter 3, Nitsch, 2001). It has also been noted (Grossman, 1997, Hazledine, 2000) that the same gravity models used to show large border effects also reveal that distance diminishes trade intensities much faster than can be explained by any reasonable estimates of transportation costs. Since the distance effects are much larger than can be explained by transportation costs and the border effects are much larger and more pervasive than can be explained by either tariffs or non-tariff barriers to trade (Head and Mayer, 2001), it seems likely that networks of various types are denser and less costly to use when they are close by and well-understood. The likely role of social capital and institutions will be discussed below. In this section, it is enough to note the prevalence of these distance

and border effects and ask what their implications are for the Greek growth puzzles posed by Bosworth and Kollintzas.

The strong importance of distance and language means that it should not be surprising if accession to the EU gives a much bigger boost to trade for countries that are closer than is Greece to the economic centre of gravity of EU and transatlantic trade. To the extent that Greece has a comparative geographical advantage, it lies with trade to and through countries to the east of the current members of the EU, an issue that will be addressed in the final section. Consideration of footloose foreign direct investment adds additional impetus to the foregoing arguments, since countries establishing a new base for their EU operations are more likely to choose a location close to the geographical centre. For US-based companies, the common language feature is likely to provide a special draw to Ireland or the United Kingdom.

Turning to the growth puzzle posed by Bosworth and Kollintzas, to what extent is slower growth of trade likely to lead to slower growth? In a well-known paper, Sachs and Warner (1995) divide developing countries into sub-samples described as closed and open and find that growth and convergence is higher among their sample of open economies, suggesting that some levels of openness are important for assuring access to better ideas and for harnessing the countries' most important comparative advantages. However, Greece meets their criteria for openness and is hence in their terms a candidate for rapid convergence. Beyond that point, how important is increased trade to achieving higher growth? One way of answering this question is to compare levels of GDP *per capita* among large and small industrial economies. Given the importance of national border effects, the large economies have, by reason of their large size, much denser trading networks than do smaller economies. If there were large untapped gains from trade, then one would expect to find that smaller OECD economies would have systematically lower levels of GDP *per capita*. Yet GDP *per capita* is not systematically larger in smaller than in larger OECD economies, suggesting that further expansion of the density of international trading networks among the industrial economies is not likely to lead to large increases in GDP *per capita.*[46] Whether more trade in itself can generate more growth, given a country's location, institutions and comparative advan-

46. Frankel and Rose (2000) argue, on the other hand, that countries that trade more have higher levels of GDP *per capita*. However, their results can more simply be interpreted as showing that small countries that are close to large and productive neighbours are likely to have higher GDP *per capita* than are other small countries less centrally situated. This result would be consistent with the spillover evidence of Keller (2000) and would help to explain the Greek experience. However, if the higher GDP *per capita* flows from a country's location and not from whether its trade is larger or smaller than its location would predict, then simply trading more intensely would not provide a spur to growth.

tages, I regard as an unsettled issue, both theoretically and empirically. A location close to large and knowledgeable neighbours could well have positive spillovers for growth and output, while also being responsible for additional trade, without the trade itself being the cause of or the conduit for the spillover.

The prevalence and size of the distance and border effects mean that, for most countries, growth will depend primarily on domestic factors. This does not mean that openness will not have important consequences for the nature and patterns of growth, as will be shown after first considering the importance of domestic economic, political and social institutions.

## The Importance of Institutions and Social Capital

The importance of strong domestic institutions as a support for growth has been increasingly recognised over the past decade. The strikingly large shrinkage in the economies of Eastern Europe and the former Soviet Union has drawn attention to the importance of many institutions and features that were so well established and of such long standing among the industrial countries that their existence was taken for granted. These range from the rule of law to interpersonal trust and include such varied features of daily life as corruption in the public and private sectors, availability and safety of transport and the quality of health care and education.

How prepared were and are Greek institutions to support further development? Studies of social capital (Putnam, 1993, 2000) emphasise the importance of horizontal social and personal ties, with close ties helping to increase and support high levels of interpersonal trust that are widely seen to contribute to the efficiency and quality of economic and social life. The World Values Survey (Inglehart, 2000) has, during the last 20 years, co-ordinated three waves of surveys including more than fifty different countries and the resulting estimates of the extent of interpersonal trust have been argued to have an instrumental effect in supporting economic growth (Knack and Keefer, 1997, Knack, 2001, Temple, 2001). Unfortunately, Greece was not included in these surveys, so that it is not possible to assess the extent to which Greek growth prospects have been well supported by social capital.

However, there has also been a large World Bank effort to collect and analyse measures of the quality of governance for more than 150 countries in the 1990s. The authors (Kaufmann, Kraay, and Zoido-Lobatoni, 1999a, 1999b) summarise and interpolate data collected by others for an average of more than 25 different indicators of the quality of governance, divided into six separate aspects: voice and accountability, stability and lack of violence, gov-

ernment effectiveness, the regulatory framework, the rule of law and the control of corruption. For each group of indicators, the measures are scaled to have a mean of zero across all of the countries included and a range from +2.0 to less than –2.0. An aggregate formed by summing the five measures to a single index of the quality of governance has a mean of 0.11 and ranges from 1.72 for Switzerland at the top to –2.02 for Iraq at the bottom. The score for Greece is 0.63, ranking 37th among the 154 countries. The comparison countries emphasised by Bosworth and Kollintzas have the following scores, with ranks in brackets: Ireland 1.40 (13); Portugal 1.20 (18) and Spain 1.11 (19).

Another way of assessing Greek governance is relative to the average for the 36 countries with higher ranking. These measures vary among the six aspects of governance under review. For voice and accountability, the Greek score is 1.07, 85 per cent as large as the average for the 36 countries ranking higher on the overall index. For stability and lack of violence, the score is 0.19, 26 per cent of the 36-average. The remaining component scores are 0.56 (46 per cent) for governmental effectiveness, 0.61 (71 per cent) for the regulatory framework, 0.50 (39 per cent) for the rule of law and 0.83 (63 per cent) for the control of corruption. The Greek aggregate measure is 0.63, 54 per cent as large as the average for the 36 countries ranking higher by that measure. These index values and rankings are subjective, imprecise and variable from one source to another. For each of the six components, the standard error across the different measures of the same component for the same country is of the order of 0.3, comfortably small in relation to the range from –2 to +2, but large enough to make country rankings uncertain.

The surveys used by the World Bank authors include many collected by international business groups. Since the direct experience of the respondents may be limited, there may be a corresponding lack of objective accuracy. However, since the groups surveyed include many of those undertaking and advising on new foreign direct investments, the results may add to the explanations already provided by Bosworth and Kollintzas, and by me above, for the fact that Greece has attracted less foreign direct investment than Spain and Portugal and much less than Ireland. All three countries rank above Greece in all six of the component measures. Spain and Portugal have scores very close to the average for the top 36 countries for each of the six components, while Ireland is above the 36-country average for all components.

The quality of governance, as measured by the above indicators and others like them, has been found to have a significant effect on economic growth (Kaufmann, Kraay, and Zoido-Lobatoni, 2000). Studies with World Values Survey data also show that the aggregate index of governance reported above significantly increases individual life satisfaction even after taking into account

the effects of good governance on individual and national levels of GDP *per capita* ( Helliwell, 2001a).[47] Thus, further investments in the quality of governance offer the promise of both economic and non-economic benefits.

## The Interactions Between Openness and Institutions

For countries wanting to improve their living standards and trying to choose the best ordering and pace of reforms, the experiences of the countries of the former Soviet Union provide useful cautionary examples. After the fall of the Berlin Wall in 1990, it was widely hoped and expected that the combination of high levels of education and significant linguistic and cultural links to emigrant communities would facilitate convergence in living standards between Eastern and Western Europe (Marer and Zecchini, eds., 1991). Instead, over the following decade real GDP *per capita* fell substantially throughout the countries in the former Soviet Bloc, in some cases by more than 50 per cent. A decade that saw a doubling of real GDP in China saw it cut in half in Russia. The 1990 levels of institutional quality did not differ very much between China and Russia. Educational levels were much higher in Russia and after 1990 openness increased much faster in Russia than in China.

If education, governance and openness are all good for growth, how can we explain a decade during which Chinese GDP roughly quadrupled relative to that in Russia? The answer, I think, lies in the interaction between openness and institutional quality. If there is not a sufficient quality of institutions in place, then openness has the potential for allowing the importation of more evil than excellence. In the absence of trust (Raiser, 1999) and the rule of law, business investors may look for sales in the new markets, but they are likely to shy away from making direct investments and long-term commitments. On the other side of the law, ventures that use violence and bribery to achieve their ends are likely to flourish and the absence of the rule of law enables them not only to produce and sell a form of private law, but to acquire strangleholds on what might otherwise have been the industrial base from which convergence could be launched.

The examples provided from Eastern Europe are not directly relevant to Greece, which by all measures had then and still has much more efficient and stable domestic institutions. However, the examples do show that openness can attract bad ventures as well as good ones, and that each country may well

47. For additional evidence on the effects of the quality of governance on subjective well-being, see Frey and Stutzer (2000).

have a distinct preferred structure and rate for integration with world markets. Domestic institutions and governance have to be strong enough to take advantage of the opportunities, to attract responsible ventures and to deflect the bad ones. If domestic institutions are not of adequate quality, then openness may well do more harm than good and divergence rather than convergence may be the immediate consequence of increased openness.

## Growth Prospects for Greece

The foregoing suggest several additions to the Bosworth and Kollintzas outline of the prospects for Greek growth in the decades ahead.

(1) The primary well-spring for growth is likely to continue to be based on domestic resources and institutions applied to meet domestic demands.

(2) Since Greece has never had a major industrial sector, it has the potential to move more smoothly than many other economies from agriculture into services (Papatheodorou, 1989, 1991). To make this transition successful, even more attention will need to be paid to the essential inputs for a modern service economy, including especially high-quality and widely accessible education and communication. These requirements have been well emphasised by Bosworth and Kollintzas.

(3) Greece's revealed international comparative advantage has been in shipping and tourism. Location and climate have combined with history to make both of these good prospects for the future as well. Shipping has previously been oil-shock dependant and may continue to be so. To the extent that Greek tourism has been made attractive by price rather than quality, that situation can and should be changed. Greece has much more than sun and beaches and should be aiming at the more affluent and educated tourist market that wants much more than sun, with or without five star hotels. The focal point for this can in part be the spectacular island geography, but the combination of history and geography is likely to be much more potent and to be the basis for a tourism that has more respect for Greek culture and history, and hence to leave a friendlier footprint.

(4) Thinking geographically, we would expect to find comparative advantage in extensions to the east, exploiting Greece's cross-road history and geography. Investments close at hand are based on better knowledge and more secure contacts and are hence likely to offer a better package of risk and return. This is especially true if there are relatively few other countries poised to jump at the same time. This has so far been illustrated by the recent patterns of outbound Greek FDI, in banking and other industries. As

other potential partner countries in Eastern Europe and the Near East in their turn start to converge, there may be more projects that use Greece as the platform for EC production, just as Ireland has been a recent platform of choice for US firms looking for an EC base.

(5) The accession of Greece to the EU was not followed by rapid convergence. The accession of Greece to the euro area is likewise not likely to itself induce a major spurt in either trade or growth. The interesting evidence of Frankel and Rose (2000) suggesting a much bigger bang from adopting a common currency is likely to be an over-estimate.[48] If there is to be a resurgence in investment and growth in Greece, it is more likely to flow from Greece's favoured position and contacts in and to the north and east of the Mediterranean. As these regions eventually recover from the 1990s and much of the preceding century, Greece will be well placed as regional centre, entrepot and source of capital, advice and entrepreneurship.

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48. Their estimate of currency-induced trade is not based on the results of countries joining currency unions, but on the high levels of trade between small units, mainly islands, and the major countries that are the focus of their institutions, economies and often their politics and history. There is also the counter-evidence of Thom and Walsh (2000) showing no significant drop in trade between Ireland and the UK when Ireland left currency union with the UK. The output effects of trade found by Frankel and Rose are more likely to reflect spillovers from large well-off neighbours, rather than a consequence of trade itself (Helliwell, 2001b). The issue merits further research, especially based comparisons of the recent experiences of the euro and non-euro members of the EU.

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## Comment by George S. Tavlas and Nicholas G. Zonzilos

The paper by Bosworth and Kollintzas deals with two of the most challenging questions about the long-run growth performance of the Greek economy: (1) when did the big structural break in the growth rate of real GDP occur?, and (2) what factors caused the slowdown in real growth until the mid-1990s?

Regarding the issue of when the structural break occurred, the authors point out that, following a 25-year period of very rapid growth in the aftermath of World War II and the civil war, real GDP growth slowed to an average rate of only 1.5 per cent in the period 1973-95, before subsequently accelerating.[49] Bosworth and Kollintzas observe that there has been some debate about the timing of the break. Alogoskoufis (1995), relying on casual inspection of the data, puts it around 1973, while Christodoulakis, Dimeli and Kollintzas (1996), using the method of recursive residuals, argue that the more pronounced break in the growth rate of *per capita* GDP occurred around 1980. Christodoulakis, Dimeli and Kollintzas (1995) attribute the change in structure beginning in the early 1980s to a fall in investment resulting from the uncertainty created by the political cycle. We discuss the Alogoskoufis thesis below.

The results presented by Bosworth and Kollintzas suggest that the more pronounced break occurred around 1980 rather than in 1973. According to the authors, trends in real output per worker and multi-factor productivity vis-à-vis the rest of Europe, and in real wage growth relative to productivity growth, support this view. Regarding the causes of the growth slowdown in the 1980s, the authors cite the following culprits: the deterioration of macroeconomic policies; an over-regulated labour market; the shock of entry into the EU combined with a lack of competitiveness in the tradeable goods sector; and subsidies to inefficient enterprises.

Regardless of the exact timing of the break, there is no doubt that a break in GDP growth occurred in the years following the fall of the Greek military dictatorship in 1974 and the first oil price shock of 1973-74. Additionally, all the factors cited by Bosworth and Kollintzas in accounting for the decline in the growth of multi-factor productivity were essential in contributing to the

49. The period 1973-95 includes an outlying observation; real GDP fell by about 6.5 per cent in 1974, mainly because of political factors. For the period 1975-95, real GDP growth averaged 1.7 per cent.

break. Except for a two-year stabilisation programme, introduced in October 1985, the stance of macroeconomic policies in the period from the mid-1970s through the early 1990s was overly accommodative.[50] Moreover, structural rigidities appear to have increased during this period, reducing the growth of potential output. An interesting issue, which we pursue below, is whether there is any evidence that the downward shift in potential output growth has been reversed following the change in policy regime around 1994.

First, however, we would like to make a few comments about the post-1973 period. There is another factor —one not mentioned by the authors— that contributed importantly to the break in the GDP growth data. Specifically, the growth performance of 1960-73 was, to a significant extent, inflated and unsustainable, pushed up by the command economy under the military dictatorship during 1967-74. The unsustainable growth rates of the dictatorship period sowed the seeds of the subsequent slowdown. In statistical terms, the observed data on real GDP were subject to positive measurement error until 1973 and to negative measurement error after 1973. As a result, any attempt to deduce the trend of the "true" series on the basis of the observed series is subject to statistical bias. This bias is captured in the error term of the measured series, resulting in serially-correlated errors.

The unsustainability (and artificiality) of the growth performance under the dictatorship has been argued forcibly by Alogoskoufis (1995, p. 154): "During the dictatorship some aspects of the institutional regime were driven to unsustainable extremes. Demand was also expanded excessively. By 1969 the economy was operating near full capacity and bottlenecks emerged. Administrative controls prevented any immediate effect on wages and prices". According to Alogoskoufis (1995, p. 156) "the excesses of the dictators" contributed to the weak economic performance which followed the fall of the dictatorship. This circumstance, however, was not the only factor which altered the path of potential growth. Thus, Alogoskoufis goes on to show that the transition from the high-growth regime to the low-growth regime was a gradual process, one that took hold under the conservative (New Democracy) party:

"The restoration of democracy in 1974 saw [former Prime Minister Constantinos] Karamanlis make a triumphant reentry to Greek politics and rule for another [six] years. The party he founded, New Democracy (a grandchild of the People's Party), remains one of the two major parties in Greece. However, the institutional changes that took place during his second [six-]

50. The two-year stabilisation programme significantly reduced macroeconomic imbalances. Also, real wages in manufacturing declined by a cumulative 14 per cent in 1986 and 1987. For a discussion, see Garganas and Tavlas (2001), in this volume.

year term resulted in a *completely different regime than the one that had existed prior to 1974* (italics supplied). The peg to the dollar was abandoned in favour of an accommodating crawling peg exchange rate. The need for large defence expenditures, and the popular demand for a larger state and income redistribution, led to large increases in government expenditure, real wages and business taxes. Given lax fiscal and monetary policies, price controls were used extensively, at the same time as the emergence of powerful labour unions led to high wage increases. The role of the state in the economy was expanded significantly, through widespread nationalisations" (Alogoskoufis, 1995, p. 155).

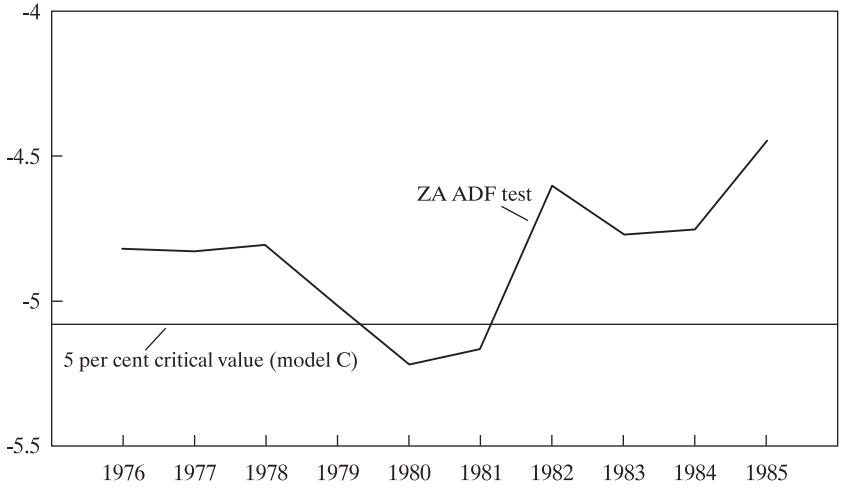
Bosworth and Kollintzas do not use formal methods to test for the endogenous determination of a statistical break. Thus, their supposition that a break occurred around 1980 reflects an informal inspection of their Figures 3-1a and 3-1b, which suggest that the growth of multi-factor productivity slowed in the early 1980s, and their Figure 3-2, which suggests that the growth of real wages in the manufacturing sector accelerated markedly beginning in the early 1980s. Moreover, their estimates of productivity growth during 1960-2000 and the sub-periods 1960-73 and 1973-2000 are based on the actual data. The authors do not attempt to filter out irregularities, such as those which may have occurred during the military dictatorship.

It is possible, however, to formally test for the occurrence of statistical breaks in growth performance during 1960-2000. To demonstrate, the Zivot-Andrews (1992) test is applied to annual real GDP growth data. It allows an endogenous determination of the time of a shift, while testing for stochastic non-stationarity. The null hypothesis is that the GDP series follows a random walk process without a structural break. One alternative hypothesis is that the GDP series involves a change in slope and a change in the constant term. Another alternative hypothesis is that there is a change in slope but not a change in the constant term. Both alternative hypotheses were tested.

We wish to investigate two issues: (1) Did a break occur either in the 1970s or the 1980s? (2) Was there another break corresponding to the implementation of stability-oriented macroeconomic policies around 1994? Effectively, we aim to determine whether two separate breaks occurred. The Zivot-Andrews test, however, can only determine whether a single break occurred. Therefore, to investigate whether there were two breaks, we split the sample into two subperiods, 1960-90 and 1980-2000, and apply the Zivot-Andrews test to each subperiod.[51] Use of the former subperiod will help deal with the issue of the timing of the break following the collapse of the dicta-

51. In these calculations and the calculations that follow, Bank of Greece forecasts of the relevant variables in 2000 are used.

**Figure 3B-1a. Sequential ZA Unit Root Tests for Real GDP (Factor Cost), 1960-90**




SOURCE: Author's calculations based on Ministry of National Economy and NSSG data.

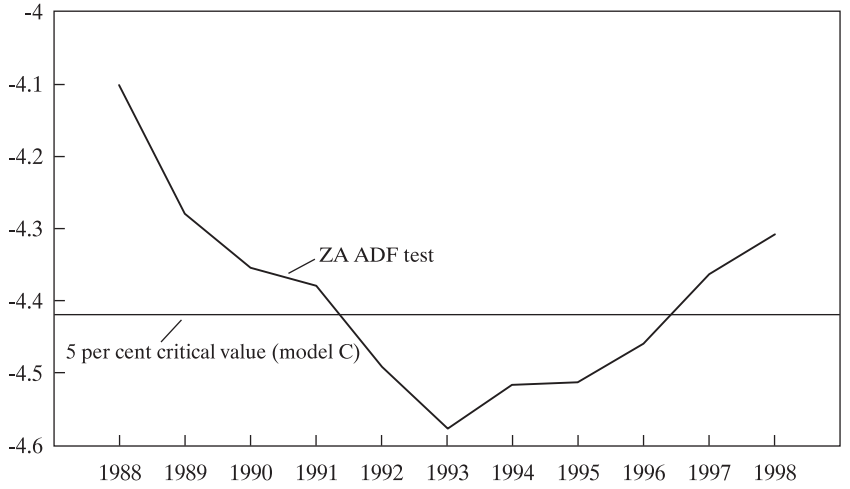
torship. Use of the second subperiod will address the issue of whether there has been a second output-regime change. The results are shown in Figures 3B-1a and 3B-1b, respectively. As shown in Figure 3B-1a, an estimated breakpoint in the GDP series (at the 5 per cent critical level) occurs in the early 1980s, confirming the view of Bosworth and Kollintzas, as well as that of Christodoulakis, Dimeli and Kollintzas (1996). The Zivot-Andrews test over this subperiod shows both a change in slope and a change in trend. For the period 1980-2000, the Zivot-Andrews test shows a change in slope, but not a change in the constant term. As shown in Figure 3B-1b, the test shows that a second breakpoint occurs around 1994.

Given that statistical breaks appear to have occurred around 1980-1981 and 1993-1994, what were the growth rates of potential GDP and total factor productivity during the subperiods 1960-80, 1981-93 and 1994-2000? To shed light on the issue, we need measures of potential output and total factor productivity. To derive such measures, assume that output is determined by a Cobb-Douglas production technology in labour and capital as follows:

$$\log(Y) = b^*\log(L) + (1 - b)^*\log(K) + \log(TFP) \qquad (1)$$

where Y is real GDP at factor cost, K is the capital stock, L is total employment, and TFP is total factor productivity. The coefficient b is the share of

**Figure 3B-1b. Sequential ZA Unit Root Tests for Real GDP (Factor Cost), 1980-2000**




SOURCE: See Figure 3B-1a.

labour income in value added. Equation (1) is calibrated for b=0.65, which is the average share of labour in GDP. From the calibrated model (1) an index of total factor productivity is derived according to:

$$\log(TFP) = \log(Y) - b\log(\mathrm{L}) - (1-b)^*\log(K) \qquad (2)$$

The estimated residuals from equation (2) are then smoothed by the Hodrick-Prescott (HP) filter[52] to give a corresponding measure of trend total factor productivity denoted by TFT. This measure of trend total factor productivity is then substituted back into the same production function along with the capital stock, K, to give a measure of the potential output Y*:

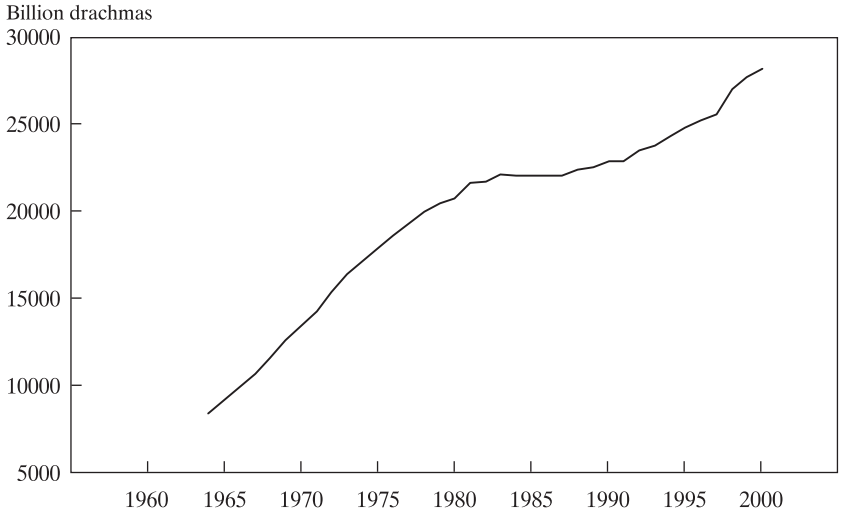
$$\log(Y^*) = b^*\log(L^*) + (1-b)^*\log(K) + \log(TFT) \qquad (3)$$

where L* is the full employment level of employment (i.e. the level of employment that corresponds to the non-accelerating wage rate of unemployment, or NAWRU). L* is estimated by:

$$L^* = LF^*(1 - UN^*) \qquad (4)$$

52. The HP filter is a two-sided linear filter that computes the smoothed series, s, of y by minimising the variance of y around s subject to a penalty that constrains the squared second difference of s.

**Figure 3B-2a. Greek Potential Output**




SOURCE: See Figure 3B-1a.

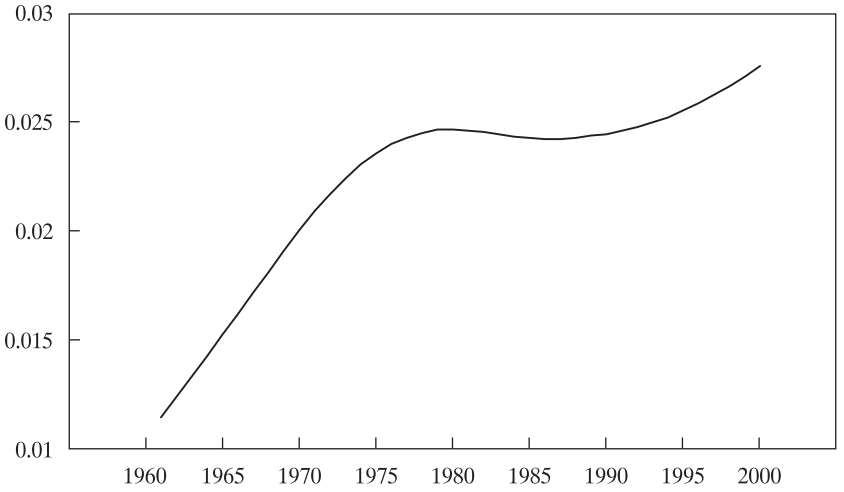
where LF* denotes the labour force and UN* is the NAWRU of unemployment. The labour force is also smoothed by the HP filter in order to filter out irregularities in the data. The calculated series for potential output and total factor productivity are shown in Figures 3B-2a and 3B-2b, respectively.

Based on those estimates, filtered to remove irregularities (to the extent that this is possible), we can calculate the average growth rates of potential output and total factor productivity over the three subperiods. The results are reported in Table 3A-1. As shown, both potential output growth and the growth of total factor productivity declined sharply during 1980-93, but have subsequently rebounded markedly.

The estimates of growth of total factor productivity are consistent with those calculated by Bosworth and Kollintzas. (Bosworth and Kollintzas do not attempt to estimate potential output growth.) Thus, whereas the above table shows TFT growth of 4.6 per cent during 1964-80, Bosworth and Kollintzas (Table 3-1 of their paper) estimate a 4.9 per cent growth of multifactor productivity for 1960-73. For the period 1981-93, the above table shows TFT growth of 0.1 per cent; Bosworth and Kollintzas estimate a (negative) growth rate of –1.1 per cent for 1980-90.[53] For the period 1990-2000,

53. Christodoulakis (1998), using a similar methodology as that used in this paper, found that the average rate of growth of total factor productivity was 3.72 per cent for the period 1960-69, 1.89 per cent for the period 1970-79 and then turned negative 0.04 per cent in the period 1980-92.

**Figure 3B-2b. Total Factor Productivity**




SOURCE: See Figure 3B-1a.

**Table 3A-1. Average Growth Rates of TFT and Potential Output**

| | *TFT* | *Potential output* |
|---|---|---|
| 1964-1980 | 4.57 | 10.50 |
| 1981-1993 | 0.12 | 1.03 |
| 1994-2000 | 1.54 | 2.64 |

SOURCE: See Figure 3B-1a.

Bosworth and Kollintzas estimate a growth rate of 0.6 per cent. However, the Zivot-Andrews test results reported above indicate that the period 1990-2000 encompasses data from two distinct regimes. As shown above, TFT growth rebounded to 1.5 per cent during 1994-2000 (from 0.1 per cent during 1981-93). The 1.5 per cent TFT growth rate for 1994-2000 is above the European average (1.1 per cent) calculated by Bosworth and Kollintzas for the 1990-2000 period.

What accounts for the break beginning around 1994? As Bosworth and Kollintzas point out, macroeconomic policies have played a crucial role. Thus, the fiscal deficit-to-GDP ratio, which was about 10 per cent in 1994, is expected to fall to around 1 per cent in 2000. Monetary policy has been tight, with real interest rates kept above the 5 per cent level and the exchange rate used as nominal anchor to provide a focal point for expectations. Incomes

policy has been tightened and structural reforms have been undertaken. As a result, inflation has fallen from about 11 per cent in 1994 to an estimated rate of under 3 per cent in 2000. Real growth, which averaged about 1 per cent during 1991-94, rose to about 3 per cent annually during 1995-99; it is expected to reach 4 per cent in 2000 and to accelerate further in 2001.

The downward trend since the early 1980s in the share of exports of goods and services in GDP, which Bosworth and Kollintzas attribute to a decline in competitiveness, has reversed course since 1996; the share has risen from 11.4 per cent in 1996 to 18.9 per cent in 1999.[54] Contributing to this rebound in export performance was the devaluation of the drachma in March 1998, though this circumstance is not mentioned by the authors in their discussion of competitiveness. Yet, the devaluation was both backward and forward looking; it took account of past inflation differentials between Greece and other EU countries and prospective differentials in the period leading up to Greece's expected entry in EMU.

Bosworth and Kollintzas argue that more needs to be done to enhance competitiveness by improving educational attainment,[55] deregulating labour markets, developing public infrastructure, and creating a more efficient financial system. We agree that more structural measures need to be implemented to attract foreign direct investment. Many sound measures have been suggested in the papers presented at the conference, including that of Kollintzas and Bosworth. Further reforms will help ensure that the upward break in growth potential that occurred around 1994 will be sustained in the years ahead.

In sum, the economy of Greece has changed direction since 1994. The evidence presented in this paper clearly demonstrates that a shift in the policy regime has occurred as well as a shift in the statistical GDP-growth process. During the period since 1994, macroeconomic policies have produced stability, and structural reforms have been implemented. Further structural reforms will help lock in, and build upon, the substantial gains that have been achieved in recent years.

54. These estimates are based on the Bank of Greece's balance of payments data. See Tsaveas (2001), in this volume.

55. The small contribution of education to growth has long been a problem. Caramanis and Ioannides (1980) found that the problem existed in the high-growth 1961-70 period. Also, while Greece has not in the past been able to provide abundant high-quality training, Greeks get high-quality training by studying abroad.

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# 4 The Determination of Wage and Price Inflation in Greece: An Application of Modern Cointegration Techniques

Stephen G. Hall and Nicholas G. Zonzilos

GREECE has enjoyed considerable success in controlling inflation in recent years, but this success has neither been achieved easily nor has it happened in a continuous or uniform way. It is always true that statistics are most informative when a data set contains considerable variation. Thus, we may learn little about the process of inflation from a country such as Germany, while Greece may be much more informative. Greece has moved through periods of full indexation, strong incomes policy, unstable policy regimes and exchange rate and intermediate monetary targeting. In many ways, therefore, the case of Greece is a natural economic experiment and undoubtedly deserves to receive much more academic scrutiny than has so far occurred. This paper seeks to bring the tools of modern econometric analysis to bare the Greek experience partly for the inherent interest of the unusual data set and partly because of the obvious interest and relevance of the results to policy makers and politicians in Greece and elsewhere.

The issue of identification in cointegrated systems has received considerable attention in recent years and we now have a thorough understanding of the theoretical underpinnings of the identification issue. Recent work has also concentrated on the twin issues of the practical application of these theoretical ideas and on the effects of structural change on cointegrated systems, notably Greenslade, Hall and Henry (1999) and Hall, Mizon and Welfe (1999). This paper will apply these techniques to the case of Greece with a particular view to examining the effects of the various policy regimes which have been attempted in Greece over the last 20 years. We will argue

This paper reflects the views of the authors and does not represent the official view of the Bank of Greece. Any errors are solely the responsibility of the authors.

that the major factor contributing to Greek success has been the stance of policy. While policy has not always been positive or effective, for most of the time it has operated in a positive way. We will be able to use the final model to evaluate the NAIRU (Non-Accelerating Inflation Rate of Unemployment) for Greece and to investigate both how inflation and the NAIRU might have changed if various policy episodes had been either shortened or lengthened.

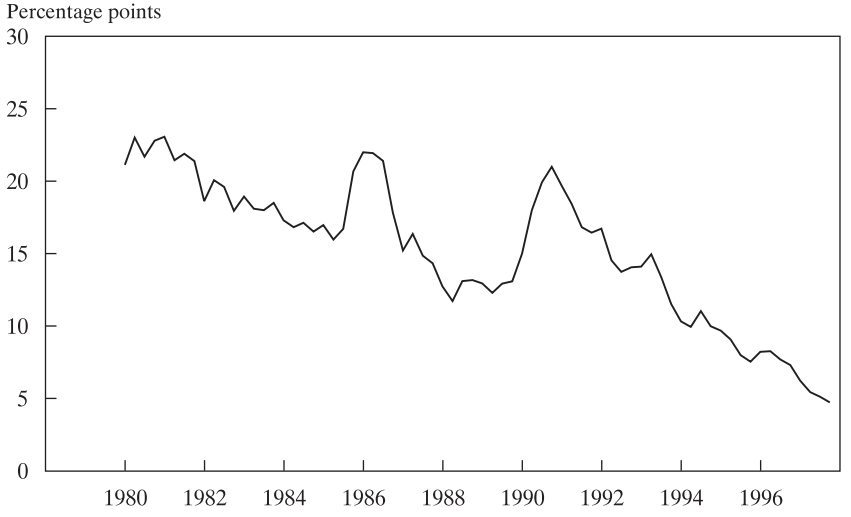
## Recent Greek History and Policy Regimes

If there is one single indicator that summarises the progress made in Greece over the last fifteen years it is the inflation rate (Figure 4-1). Inflation shows a decline from an annual rate of almost 25 per cent in the early 1980s to well under 5 per cent by the late 1990s. There are two major breaks in this trend and they are well explained by shifts in policy. In the remaining part of this section we briefly review the macroeconomic developments in Greece in the last two decades, putting particular emphasis on developments in wages and prices and on the prevailing policy regimes.

The macroeconomic record of Greece in the 1980s and the early 1990s was not impressive. Real GDP in the period 1980 to 1993 grew at an annual rate of 0.75 per cent against 2.6 per cent in the period 1973-79. The average growth rate of real business investment was effectively zero in the period 1980-94, and unemployment, which stood at about 4 per cent in 1981, rose more steeply than it did in the other EU economies, reaching 8 per cent of the labour force by the early 1990s. The effective nominal depreciation of the Greek currency was around 70 per cent between 1981 and 1990. Despite the large depreciation of the drachma, the external sector was a binding constraint to economic growth in Greece. The current account deficit deteriorated sharply in 1985 (4.5 per cent of GDP) and 1989-90 (4.7 per cent of GDP). A possible factor which can be identified as a main cause of the high current account deficits were the large fiscal deficits, which remained persistently high throughout the 1980s and the early 1990s. Fiscal deficits reached 12 per cent of GDP in 1985 and 16.5 per cent in 1990. The evolution of key macroeconomic variables is presented in Figures 4-1 to 4-4.

We now turn to a more detailed examination of wage and price developments (Figures 4-1 to 4-3). After the second oil price shock, most EU countries adopted restrictive economic policies. In Greece, however, after 1981 official policy guidelines emphasized income redistribution and generous minimum wage increases. Full wage indexation was established in 1982 as

**Figure 4-1. The Annual Rate of Inflation in Greece**

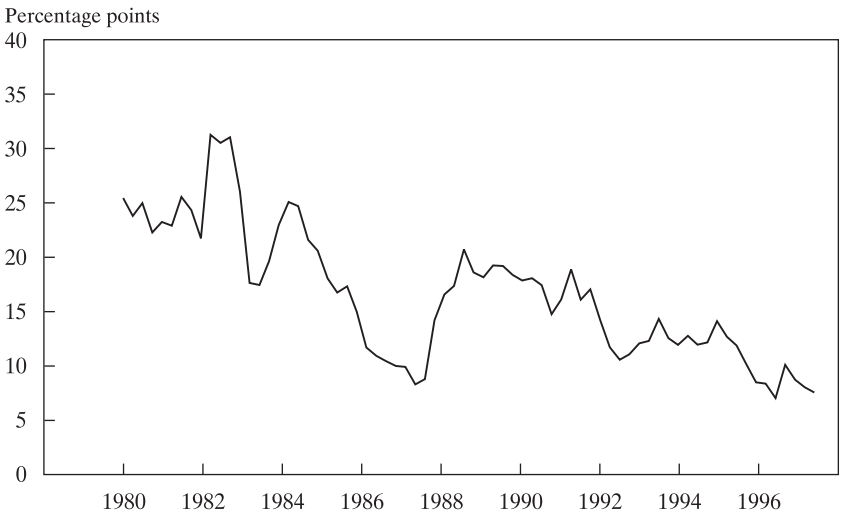



SOURCES: National Statistical Service of Greece (NSSG) and Bank of Greece.

the official policy and, at the same time, price control was strengthened. As we would expect with real wage growth exceeding productivity growth, the wage-price system was highly unstable. At the end of 1985, with an inflation rate of 25 per cent, the government was faced with an inflation rate three times as high as the EU average and a sharp deterioration of the current account. In autumn 1985, a two-year stabilisation programme was initiated; it aimed to restore macroeconomic stability and put the country on a path to convergence with the other EU countries. The main elements of the programme included a restrictive incomes policy, a devaluation of the drachma, the application of an import deposit scheme and a reduction in public spending (mainly infrastructural investment). Full wage indexation was abolished in October 1985 and replaced by a forward looking indexation scheme which excluded imported inflation. As a result, led wages fell by 13 per cent during 1986-87 and inflation was reduced to 15 per cent by the end of 1987. The sharp drop in real earnings, however, led to considerable political tensions, resulting in the abandonment of the stabilisation programme. Consequently, the policy of wage restraint ended at the end of 1987.

In 1988, while real wages inevitably bounced back, the rise did not eliminate a large part of the reductions made during the course of the stabilisation programme. Thus, although real wages resumed their former trend growth, they did so from a lower level. Nevertheless, the rise in real wages

**Figure 4-2. Wage Inflation in Greece**



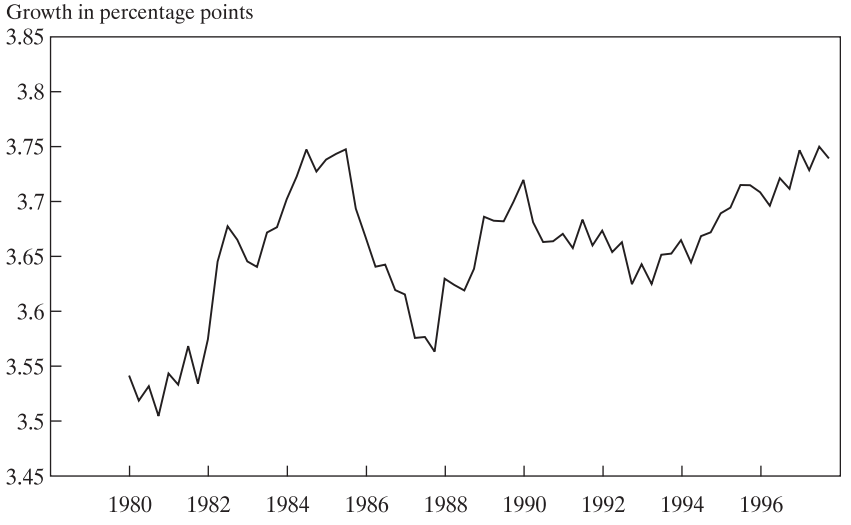

SOURCES: NSSG and Bank of Greece.

contributed to an acceleration of inflation, which peaked at 23 per cent at the end of 1990.

Beginning in the early 1990s, the authorities attempted to stabilise the economy. Incomes policy was tightened and the real exchange rate appreciated as an implicit exchange rate target was followed (see Figure 4-4). Policy again managed to control real wage growth. However, economic performance was weak: inflation remained high at rates above 15 per cent, output grew at a low pace and unemployment rose to 8.7 per cent in 1992.

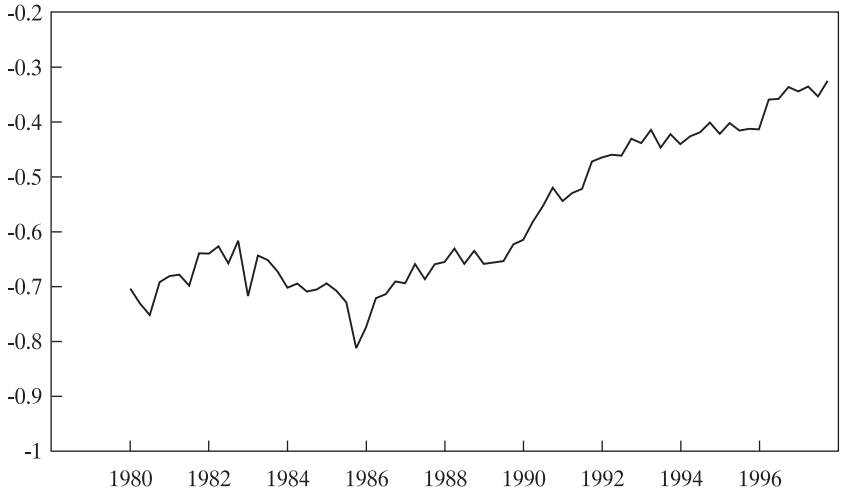
Since 1994 the performance of the Greek economy has improved considerably. The implementation of stabilisation policies proved very effective. Inflation has been reduced to the low single digits, real growth has picked up sharply and fiscal deficits have been reduced dramatically. Until joining EMU, economic policy relied on the following mix: (1) a commitment to a hard-drachma policy involving very high real interest rates within the ERM; (2) a moderate incomes policy aimed at keeping real wage increases lower than productivity growth; (3) an effective fiscal restraint. Additionally, the government has implemented a number of structural reforms, which have enhanced the supply side of the economy and, hence, have improved both inflation performance and the economy's productive capacity. The above factors have been the key elements for the achievement of an inflation rate of 2 per cent in August 1999.

**Figure 4-3. Real Wages in Greece**




SOURCES: NSSG and Bank of Greece.

**Figure 4-4. The Log of Real Exchange Rate**




SOURCES: NSSG and Bank of Greece.

## Identification in VECMs

In this section, we summarise recent developments in the identification of cointegrated systems. Beginning with the contribution of Davidson and Hall (1991), it has become increasingly apparent that the structural identification of cointegrated systems is a crucial step in making economic sense of any statistical system which includes more than one cointegrating vector. In his original contribution, Johansen (1988, 1991) used purely statistical criteria to achieve identification in the general case of multiple cointegrating vectors, with the assumption of orthogonality between the vectors. Phillips (1991) presented a more structural approach in that the set of variables was partitioned into an exogenous and an endogenous subset of variables with a recursive structure and this provided sufficient restrictions to give formal identification. Johansen (1992) considered the imposition of restrictions on the cointegrating vectors directly and proposes an algorithm for estimating some cointegrating vectors conditional on restrictions placed on others. Saikkonen (1993) discussed the complete identification of a vector equilibrium correction model (VECM) with an exogenous split similar to the Phillips (1991) system. Most recently, Pesaran and Shin (1994) and Johansen (1995) have developed a full theory of identification for a general unrestricted model along with some suggestions for an estimation and testing strategy.

To explain the main issues, we begin by setting out the complete or closed form, VAR.

$$D(L)Z_t = V_t \tag{1}$$

where Z is an N-dimensioned vector which may be partitioned in general to give $Z_t = (Y_t, X_t,)$ where Y is an Mx1 vector of endogenous variables and X is a Qx1 vector of weakly exogenous variables (N = M + Q), while D(.) is a suitably dimensioned matrix in the lag operator. We may then state the VAR as a structural VECM as:

$$A_0\Delta Z_t = \sum_{i=1}^{p-1} A\Delta Z_{t-i} + A^*Z_{t-p} + u_t \tag{2}$$

where there are r cointegrating relations in Z, and r < N, which implies that A* is of rank r. This rank may be imposed in the usual way by defining $A^* = \alpha^*\beta^{*\prime}$; here both and $\alpha^*$ and $\beta^*$ are Nxr matrices. However, it is important to stress that $\alpha^*$ and $\beta^*$ are the structurally identified loading weights and the cointegrating vectors, as defined by Davidson and Hall (1991) as the target relationships, not the unidentified ones which are produced in unrestricted estimation.

The structural VECM (2) will normally be estimated as an unrestricted version of the reduced form, given as:

$$\Delta Z_t = \sum_{i=1}^{p-1} \Gamma_i \Delta Z_{t-i} + \Pi Z_{t-p} + \nu_t \tag{3}$$

where $A_0^{-1} A_i = \Gamma_i$, $A_0^{-1} u_i = \nu_t$ and $\Pi = A_0^{-1} A^*$. Identification in the presence of cointegrating vectors is different from that traditionally used for stationary VARs (i.e. the Sims or Blanchard-Quah identification criteria); this is discussed in detail in Robertson and Wickens (1994). In particular, there are now two parts in the identification problem. Given that we impose the cointegrating rank of the system r by the standard decomposition of the long run matrix $\Pi = \alpha\beta'$ where both $\alpha$ and $\beta$ are Nxr matrices, we need to consider both the identification of the contemporaneous coefficient matrix $A_0$ and the identification of the long-run coefficients $\beta$. Restrictions on the long-run coefficient matrix can in general tell us nothing about the identification of $A_0$, as this can only come from the dynamic part of the model using information either from $\Gamma_i$ or $\alpha$. In a similar fashion, the dynamic part of the model can not help us, in general, to identify the long-run structure, $\beta$. This may be seen easily as $\Pi = \alpha\beta' = A_0^{-1}\alpha^*\beta^{*\prime}$. Therefore, even if we knew $A_0$, this would not allow us identify $\beta^*$ without additional restrictions on $\beta$. For this reason, Pesaran and Shin (1994) set out a formal theory of the identification of the long run structure in isolation.

In general the complete exact identification (or overidentification) of the system will involve a combination of four types of restrictions.

a) Restrictions on the cointegrating rank of $\Pi$, $r < N$
b) Restrictions on the dynamic path of adjustment (the $\Gamma_i$)
c) Restrictions on the cointegrating vectors, $\beta$, where $\Pi = \alpha\beta'$
d) Restrictions on the exogeneity or long-run causality of the system, which will imply restrictions on $\alpha$.

The conventional VAR conditions (see Robertson and Wickens, 1994) for identification apply to the dynamic identification of the system and, as long as a combination, of restrictions across the $\Gamma_i$ and $\alpha$ matrices meet the standard conditions, then the model is identified with respect to the dynamics. These restrictions can come from a number of sources. Some models have theoretical restrictions on the adjustment process, which may be used to simplify the $\Gamma_i$ matrix; the well-known quadratic adjustment cost model is one such restriction. The alternative practice in the absence of theoretical restrictions is to base the restriction process on a data-based set of simplifications of the dynamics. In either case, some further restrictions may be necessary to identify $A_0$.

The formal identification of the long run is the main subject of Pesaran and Shin (1994). They demonstrated that the identification of $\beta^*$ requires

**Table 4-1. The Size of Overidentifying Restriction Tests**

| | |
|---|---|
| General unrestricted VAR | 3.8 |
| VAR with weak exogeneity imposed | 58.5 |
| VAR with weak exogeneity and restricted dynamics | 77.0 |

SOURCE: Greenslade, Hall and Henry (1999).
This table shows the percentage of times the true overidentifying restrictions were accepted at a 5 per cent critical value in the Monte Carlo simulations.

knowledge of r and then there is a necessary condition equivalent to the order condition which states that exact identification of the long-run coefficients requires $k = r^2$ restrictions. Thus, the number of restrictions necessary to identify the long run is a direct function of the number of cointegrating vectors. Pesaran and Shin (1994) also give a necessary and sufficient rank condition for exact identification, which is also a function of $r^2$. In general, if the number of available restrictions is $k < r^2$ , the system is underidentified; if $k = r^2$ , the system is exactly identified; if when $k > r^2$ the system is overidentified, according to the order condition, and these overidentifying restrictions may be tested. Based on asymptotic results from Phillips (1991) and Johansen (1991), Pesaran and Shin also demonstrate that the standard likelihood ratio test of the overidentifying restrictions follows a $\chi^2 (k - r^2)$ distribution.

This suggests that the long run may be estimated and identified and the overidentifying restrictions may be tested from the unrestricted VECM without identifying the model's dynamic structure. Greenslade, Hall and Henry (1999) (GHH) argued that, while this is certainly true asymptotically, there may be very severe problems with the performance of the tests (both in terms of size and power) in realistic samples. It is worth noting that if we have 8 variables with 6 lags in the VAR we will be estimating around 350 parameters from a typical data set of 100 observations. In this context, small sample problems may be crucial. To illustrate this, GHH perform a series of Monte Carlo experiments, which show that the performance of the tests for cointegration and weak exogeneity both have very poor power and size. They then go on to investigate the performance of the tests of the overidentifying restrictions. Table 4-1 summarises their main results.

This table illustrates that if the tests of the overidentifying restrictions are imposed at the start of the testing procedure before assuming that any of the variables are weakly exogenous and on the basis of the complete unrestricted VAR, then the true overidentifying restrictions are accepted less than 4 per cent of the time. If a set of weak exogeneity assumptions are correctly imposed, then this acceptance rate increases to nearly 60 per cent and, if the dynamics of the VAR are also simplified, this proportion increases to nearly 80 per cent. The argument put forward by GHH is therefore that the order

of the testing procedure is crucial in a successful implementation of these techniques in small data samples. The following broad estimation strategy is then recommended and will form the basis of the application here.

(i) Use economic theory to decide what the split between endogenous and weakly exogenous variables should be and to verify this by testing the matrix.
(ii) Then determine the cointegrating rank of the conditional system.
(iii) Find a parsimonious representation of the dynamic terms in the system.
(iv) Then test the overidentifying restrictions on the long-run coefficients and test any further restrictions on the loading matrix $\alpha$ to arrive at the final, fully restricted model of the form given in (3).

## The Model

As a starting point for this analysis we take the standard bargaining model of wages and prices due to Layard, Nickell and Jackman (LNJ) (1991); recent implementations of this model include Henry, Nixon and Williams (1997), Greenslade, Henry and Jackman (1998) and Greenslade, Hall and Henry (1999). LNJ provide basic models for wages and prices (W, $P_c$). In addition, because of the obvious openness of the Greek economy, we also wish to allow for the interaction of the exchange rate and imported goods prices. We, therefore, postulate a third equation (No. 6 below) for import prices ($P_m$) and a fourth equation (No. 7 below) for the exchange rate. In schematic form, the long-run structural (static) form of the equations is (variables in logs, except for the unemployment variables):

$$W = \alpha_0 + \alpha_1 P_c + \alpha_2 PROD + \alpha_3 u + \alpha_4 u^L + \alpha_5 PR \qquad (4)$$

Equation (4) is a standard wage equation. The basic variables are consumer price ($P_c$), productivity (PROD), unemployment (u), and the ratio of long- and medium-term unemployed to the total number of unemployed ($u^L$). In addition, we introduced a policy regime variable PR,[1] which is

1. The policy variable combines a number of policy regimes in a single parsimonious variable so as to economise on degrees of freedom. It comprises four split time trends to account for the changing regimes and a differential effect in long- and short-run unemployment to capture the labour market reforms and the general improvement in labour market efficiency and the reduction in overmanning. The four policy regime periods are the period of rapid growth in real wages prior to 1985, the 1985-1987 strict wage policy period, the rebound period from 1987 to 1990 and then the period of labour market reform and increasing stability from 1990 onwards.

designed to capture the effects on real wages of the various policy regimes outlined previously in the paper. Equation (5) specifies that consumer prices depend upon unit labour cost (ULC, defined as W-PROD, variables in logs) and import costs.

$$P_c = \beta_0 + \beta_1 ULC + \beta_2 P_m + \beta_3 Z_{pc} \tag{5}$$

In equation (6) import prices depend upon the nominal effective exchange rate (E) and world prices (PW).

$$P_m = \gamma_0 + \gamma_1 E + \gamma_2 PW \tag{6}$$

Finally, the exchange rate is driven in the long run by a purchasing power parity (PPP) effect and possibly by another policy variable. Thus:

$$E = \delta_0 + \delta_1 P_m + \delta_2 PW + \delta_3 EP, \tag{7}$$

where EP is a variable capturing exchange rate interventions of the policy maker. Note that (6) and (7) may not be distinct cointegrating vectors and the same basic PPP relationship may be governing the evolution of both sectors. This is not unusual in a reduced-rank cointegrating system. Each equation allows for additional factors as appropriate.

In terms of theoretical restrictions, we would expect that the following restrictions should hold:

In (4), $P_m$, E, PW, ULC, EP and $Z_{pc}$ are excluded and $\alpha_1 = 1, \alpha_2 = 1$.

In (5), u, $u_L$, E, PW, PROD, EP and PR are excluded and $\beta_1 + \beta_2 = 1$.

In (6), $P_c$, W, Prod, u, $u_L$, ULC, EP and $Z_{pc}$ are excluded and $\gamma_1 = 1, \gamma_2 = 1$, and the same restrictions apply in (7).

These are, of course, only the cointegrating target relationships of the model. The full model will be in vector equilibrium correction form with a complete set of dynamics.

## Estimation Results

### *Weak Exogeneity and the Cointegrating Rank*

The full set of variables consists of nine variables. We begin by assessing the cointegrating rank of the system, noting our theoretical prior that there should be at least three cointegrating relationships. Table 4-2 gives the

**Table 4-2. Test of the Cointegrating Rank of the System**

| *R* | *Asymptotic LR test* | *Small sample LR test* | *Critical value* |
|---|---|---|---|
| 0 | 512.9 | 205.1 | 192.9 |
| 1 | 388.8 | 155.5 | 156.0 |
| 2 | 289.7 | 115.9 | 124.2 |
| 3 | 201.1 | 80.45 | 94.15 |
| 4 | 148.0 | 59.20 | 68.52 |
| 5 | 100.2 | 40.06 | 47.21 |
| 6 | 55.66 | 22.26 | 29.68 |
| 7 | 25.20 | 10.08 | 15.41 |
| 8 | 6.318 | 2.527 | 3.762 |

results for both the standard likelihood ratio test of the number of cointegrating vectors and the small sample correction for this test.

On the basis of the standard asymptotic test we would be led to conclude that there are nine cointegrating vectors. This result would suggest that all the variables in the model are in fact stationary, which is clearly untrue. This result is completely in line with the Monte Carlo findings of GHH, who suggest that the tests find far too many cointegrating vectors. If we consider the small sample adjusted tests, we would strictly be led to conclude that there are only two vectors. However, the test for the third vector is quite close to its critical value and again GHH suggest that the small sample adjustment tends to find too few vectors and so we feel reasonably safe in proceeding on the assumption that there are, in fact, three vectors.

We now turn to the issue of simplifying the model through conditioning the system on a subset of weakly exogenous variables. In Table 4-3, we begin by showing the Wald test for weak exogeneity on the basis of eight cointegrating vectors and we are unable to accept the hypothesis that any of the variables is weakly exogenous. This is again compatible with the GHH Monte Carlo results, even if some of the variables are weakly exogenous. The second column of the table repeats the test on the assumption that there are three cointegrating vectors. This allows us to accept the hypothesis that the wage policy variable and the short-run and long-run unemployment differential are weakly exogenous. We can repeat the test on the remaining variables, conditional on this assumption, and then productivity may be accepted as weakly exogenous. Imposing this assumption and repeating the test again does not allow us to further simplify the system (with the exception of dropping wages, which would clearly be undesirable). However, at this point we decide to view the world price level as exogenous, on prior

**Table 4-3. Test of Weak Exogeneity**

| | *r=8* | *r=3* | *r=3* | *r=3* | *r=3* | *r=3* |
|---|---|---|---|---|---|---|
| Consumer prices | 97.83 | 33.8 | 23.9 | 15.3 | 22.9 | 23.6 |
| Exchange rate | 92.3 | 118.9 | 84.4 | 85.2 | 79.8 | 55.8 |
| Foreign prices | 118.4 | 50.76 | 35.9 | 33.0 | - | - |
| Import prices | 152.0 | 80.5 | 47.8 | 49.1 | 25.3 | 18.1 |
| Productivity | 98.01 | 31.9 | 9.1 | - | - | - |
| Wages | 119.6 | 38.9 | 20.6 | 5.2 | 22.5 | 32.0 |
| Wage policy | 79.55 | 10.9 | - | - | - | - |
| Unemployment | 66.89 | 25.3 | 31.1 | 41.7 | 12.4 | - |
| Long-/short-term unempl. | 42.71 | 11.3 | - | - | - | - |

theoretical grounds, and then repeat the test on this assumption which allows us to view unemployment as weakly exogenous. Finally, repeating the test on this assumption, we are left with four endogenous variables, prices, wages, import prices and the exchange rate.

### *The Dynamic Model*

Having achieved a suitable marginalisation of the model and determined a cointegrating rank which we believe makes economic sense for this marginalisation, we now proceed to derive a simplified set of dynamic terms for the model, based on the unrestricted set of cointegrating vectors produced by the Johansen procedure.

The following shows the estimates for the parsimonious dynamic model. We report the dynamic part only at this stage, as the just identified long-run part of the model has not been interpreted in economic terms so far.

$$\begin{aligned}
\Delta W &= \underset{(3.9)}{-0.46} + \underset{(7.5)}{0.72}\Delta P_{ct-4} + \underset{(1.3)}{0.09}E_{t-1} + \underset{(4.7)}{0.68}\Delta PW + \underset{(3.3)}{0.006}u^{L} \\
\Delta P_{c} &= \underset{(0.27)}{-0.027} + \underset{(2.5)}{0.28}\Delta P_{ct-1} - \underset{(2.25)}{0.18}\Delta W_{t-1} \\
\Delta P_{m} &= \underset{(1.2)}{-0.07} + \underset{(2.4)}{0.2}\Delta P_{mt-1} \\
\Delta E &= \underset{(0.55)}{-0.05} + \underset{(1.34)}{0.05}\Delta E_{t-2}
\end{aligned}$$

The model also contains dummy variables for outliers in 85Q4, 90Q3, as well as centred seasonal dummies. The value of the likelihood function for this model is –166.91.

As can be seen, the dynamics of the restricted model are quite parsimonious, especially in comparison with the general VECM. This reduction in the parameterisation of the model is a considerable advantage in achieving reasonable performance of the tests of the long-run structure.

### *Tests of Long-Run Restrictions*

The next stage of the modelling process is to identify the long-run structure of the model according to the theory set out in equations 4-6. To do this, we reestimate the complete model subject to a set of overidentifying restrictions, holding the dynamic structure constant but reestimating the parameter values. This yields the following set of long-run restrictions (we will not present the new dynamic parameter values, as there is no significant change here):

$$\begin{aligned}
&\text{ECM1} \qquad W = P_c + \underset{(25.1)}{1.8}PR + \underset{(5.5)}{1.2}PROD - \underset{(9.0)}{0.1}u + \underset{(1.1)}{0.002}u^L \\
&\text{ECM2} \qquad P_c = \underset{(8.8)}{0.44}W + \underset{(0.15)}{0.03}PROD + (1 - 0.44)P_m \\
&\text{ECM3} \qquad P_m = \underset{(76.0)}{-1.15}E + \underset{(46.2)}{0.65}PW
\end{aligned}$$

The value of the likelihood function for this restricted model is –174.34, which gives a likelihood ratio test of the restrictions of 14.9. There are nine overidentifying restrictions in this model so the restrictions are accepted at the 5 per cent level (the critical value is 17).

The first equilibrium correction term is the wage relationship, which is homogeneous in prices, has a near-unit coefficient on productivity and finds a significant role for the wage policy variable and significant negative unemployment effects. The second equilibrium term is the price mark up equation, which is again homogeneous in prices (wages and import prices) with a coefficient of just under half on wage costs. The third equilibrium term is not homogeneous in prices and, indeed, if we try and impose homogeneity, this restriction is significantly rejected. The interpretation we give to this relationship is as follows. If we renormalise this relationship, we can write it in terms of the nominal exchange rate:

$$E = -0.87P_m + 0.56PW$$

If the two coefficients were respectively –1 and 1, then the nominal exchange rate would move in line with prices to maintain a constant real

**Table 4-4. The Loading Weights for the Fully Identified Model**

| | *ECM1* | *ECM2* | *ECM3* |
|---|---|---|---|
| Wages | -0.17 | 0.21 | -0.26 |
| | *(16.6)* | *(5.2)* | *(3.3)* |
| Prices | -0.06 | -0.06 | -0.04 |
| | *(4.0)* | *(2.0)* | *(0.8)* |
| Import prices | -0.1 | 0.06 | 0.17 |
| | *(11.1)* | *(2.9)* | *(2.9)* |
| Exchange rate | 0.019 | 0.04 | -0.18 |
| | *(1.9)* | *(2.8)* | *(4.3)* |

exchange rate. These coefficients instead indicate that the nominal exchange rate will not fully reflect changes in prices and so, for example, as domestic prices rise, the exchange rate will not fully accommodate these changes; thus a real appreciation will result (as is shown in Figure 4-4). This non-homogeneity may then be viewed as a second stabilising influence on the part of the monetary authorities.

The final part of the full model which needs to be reported is the loading weights of the identified equilibrium correction terms. These are presented in Table 4-4.

It is interesting that almost every element of the $\alpha$ matrix is significant, as we would expect given the endogeneity of all four variables and the reduced form we are working with (see equation 3).

As evidence that the model is congruent with the data and reasonably well specified dynamically, we report (see Table 4-5) a set of diagnostics for each of the equation residuals.

This table shows no sign of serial correlation or heteroscedasticity. There are some small signs of non-normality in the price and exchange rate equations which could not be removed without adding a fairly large number of extra dummy variables, which was decided against on the grounds of parsimony.

A final issue to address within this model is the presence of derivative homogeneity. This is simply a restriction that the long-run solution to the model is independent of the growth rate of the variables. It is often imposed on theoretical grounds, e.g. as in most of the work of Layard and Nickel. However, if we now estimate a version of this model imposing derivative homogeneity across the system, this is easily rejected with a likelihood ratio test value of 208 against a critical value of 9.5 [$\chi^2(4)$]. This is not really surprising given that all the dynamic coefficients reported above are clearly significantly different from homogeneity.

**Table 4-5. Residual Diagnostics for the Full Model**

| | *Wages* | *Prices* | *Import prices* | *Exchange rate* |
|---|---|---|---|---|
| Bera-Jarque(2) | 0.74 | 7.3* | 2.6 | 14.6* |
| ARCH(4) | 5.2 | 1.8 | 4.5 | 4.5 |
| LM(4) | 6.5 | 5.1 | 4.4 | 3.8 |
| Box-Pierse(1) | 0.9 | 1.1 | 0.7 | 0.5 |
| Box-Pierse(4) | 7.6 | 5.6 | 3.7 | 3.3 |
| Box-Pierse(8) | 10.4 | 10.5 | 6.1 | 7.3 |
| Standard error | 0.008 | 0.011 | 0.0086 | 0.0099 |

* Significant at the 5 per cent level.

To conclude this section: We have developed a fully identified dynamic system for wages, prices, exchange rates and import prices for the Greek economy. There are two major policy influences on this system; the first is the explicit variable in the wage equation, which has allowed us to capture the effects of deliberate intervention in the labour market. The second is the highly significant non-homogeneity in the exchange rate-import price relationship, which has meant that in the long run domestic inflation is not fully accommodated by nominal exchange rate movements. A final, third policy route, which is not fully explored here, is the interaction of unemployment with the wage-price system. Clearly one conventional stabilisation tool which policy makers use to control inflation is the rate of economic activity and unemployment. Our model captures this in part, as unemployment affects wages but unemployment itself is not modelled here and so the full feedback of inflation control through unemployment is not captured. However, in the next section we will be able to simulate the model to investigate the relative trade-off which exists between unemployment, wage policy effects and the exchange rate determination.

## Some Policy Experiments with the Model

In this section we explore some of the basic properties of the model we have estimated, with the objective of both understanding the effects of past economic policies and the way policy may operate in future. Within our model, policy essentially operates in three main ways; there is the real-wage policy variable, which proxies the effects of the wage policies which have been conducted in the past; there is the non-homogeneity in the long-run relationship between exchange rates and import prices; and, finally, there are the movements in unemployment. In a full model of course there would

be various policy feedbacks, which would act to stabilise the model. Interest rates would respond to target inflation. Fiscal policy would respond to maintain a sustainable long-term government deficit. This would imply that unemployment would respond to economic events more generally and would play a role in closing the system. Unemployment would then be one of the main stabilising effects on the economy. Our model is conditioned on unemployment, so we do not model this feedback nor any of the other complete model policy responses. We strongly argue however that this does not negate the usefulness of the model as a policy tool. For many purposes, a policy maker wishes to know the partial effect of the instruments under his control. He does not wish to know the full general equilibrium response of the economy to a policy, when this response includes the policy maker's future behaviour. So a natural question is "what would happen if I raised interest rates?". The general equilibrium response would include the future response of interest rates to the rise, which might include an immediate reduction in interest rates. This, we argue, is not interesting. What matters is the partial response of the economy as to what would happen if a central bank could raise interest rates and hold them fixed.

Of course the answer in this case may well (even probably will) be an unstable outcome, but the timing and eventual size of this response is precisely what a policy maker needs to know. Therefore, in this section we are effectively estimating the size and timing of the response of the economy to various changes, on the assumption that these changes are maintained indefinitely. For this reason we will present simulations over an arbitrary 10-year period. These will show our estimates of both the timing and size of the economy's response to these policy changes. It is also worth stressing that this model is inherently a unit root system with a near-homogeneous price system. This means that shocks and policy changes can have lasting or even permanent effects on the levels of the system and these effects can be very slow to build up. One of the lessons from these simulations is that policy is effective but it is not necessarily fast-acting. Attempts to change things too quickly may lead to high instability and unsustainable policies.

We now turn to investigating these three effects, in turn.

## The Effect of Changing the Wage Policy Regime Variable (PR)

Figures 4-5 and 4-6 show the effect of reducing the real wage by 9 per cent, which was the historical fall in real wages achieved between 1986 and 1987, and maintaining this relative cut for 10 years. The simulation actually shows

the effect of a step fall in the real wage rather than the actual fall, which happened fairly smoothly over the two-year period. We see in Figure 4-6 that there is a large impact on wage inflation due to the initial effect of incomes policy. Of course, this does not immediately fully feed through into prices and so the initial fall in wage inflation is not maintained. Since wage inflation is less than the original base level, the level of wages always remains lower and wage inflation also remains lower than the base. Over time, however, we see in Figure 4-5 that price inflation also begins to fall as a result of the reduced wage inflation and so the fall in both wage and price inflation subsequently increases steadily as the dynamics of the system develop. Overall, the impact of the simulation is long-lasting and substantial; after 10 years the rate of inflation is reduced by more than 10 percentage points.

## The Effect of Changing Unemployment

Throughout most of the 1980s, the unemployment rate in Greece was very stable at around 7.5 per cent. During the first five years of the 1990s it rose fairly steadily to around 10 per cent, an increase of one third. In this section we will simulate a step increase of 33 per cent in unemployment. This is unrealistic, because a such a large step increase would be unreasonable. Also, we are not allowing any feed-through from short-run to long-run unemployment, which would mitigate the overall effect. The essential objective here, however, is to calibrate the overall size of unemployment changes in Greece and their dynamics on the price system.

The results of this experiment are shown in Figures 4-7 and 4-8. Once again we see the complex interaction of the dynamics of wages and prices. Figure 4-7 shows that wages initially respond more strongly than prices and so real wages decline. This causes the initial fall in wage inflation to be larger than the effect after one or two years. As the effect on price inflation begins to cumulate, however, we see that the fall in wage inflation begins to accelerate until a virtuous wage price spiral builds up. After five years the general fall in inflation is of the order of 10 per cent.

## The Effect of Dampening the Exchange Rate Response

The final form of policy intervention which we believe has taken place over the simulation period is the less than complete pass-through of price effects onto exchange rates. That is, as Greek prices have risen, the exchange

**Figure 4-5. Wage-Restraint Effect on Inflation**

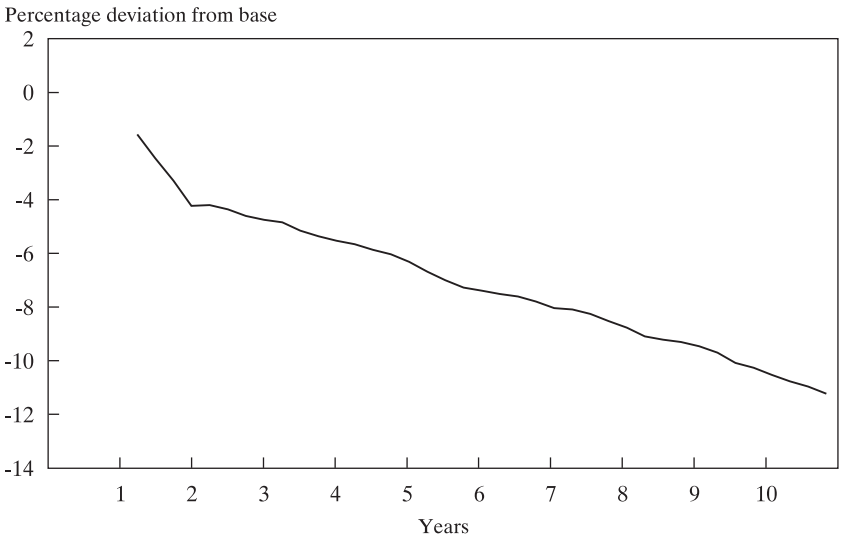
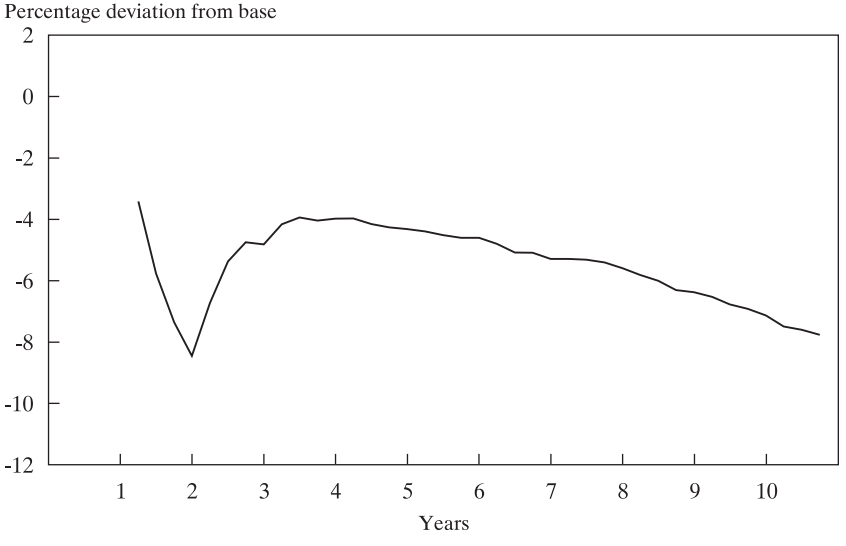



**Figure 4-6. Wage-Restraint Effect on Wage Inflation**




rate has not been allowed to depreciate to fully reflect the price change and thus a steady rise in the real exchange rate has occurred. The effect of this on the system is to formally remove the unit root from the price system and thus to dampen the effect of any inflationary shock which occurs. We illus-

**Figure 4-7. Unemployment Effect on Inflation**

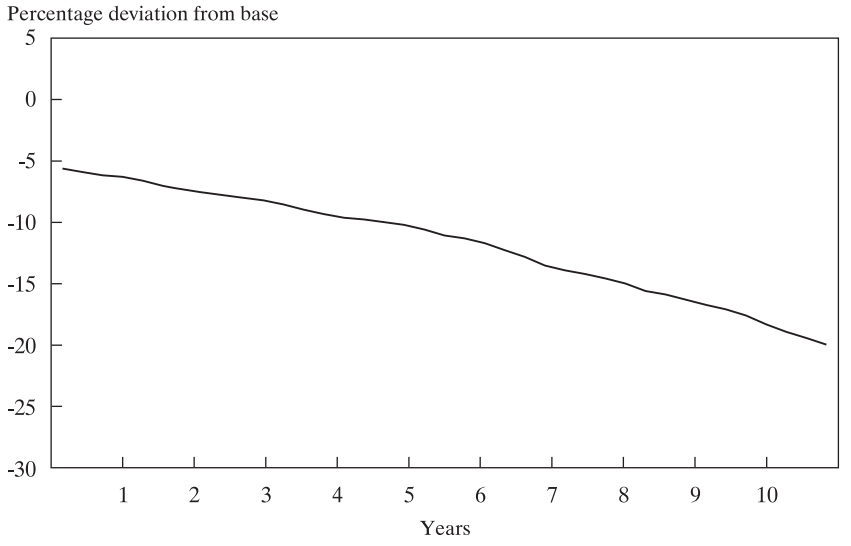
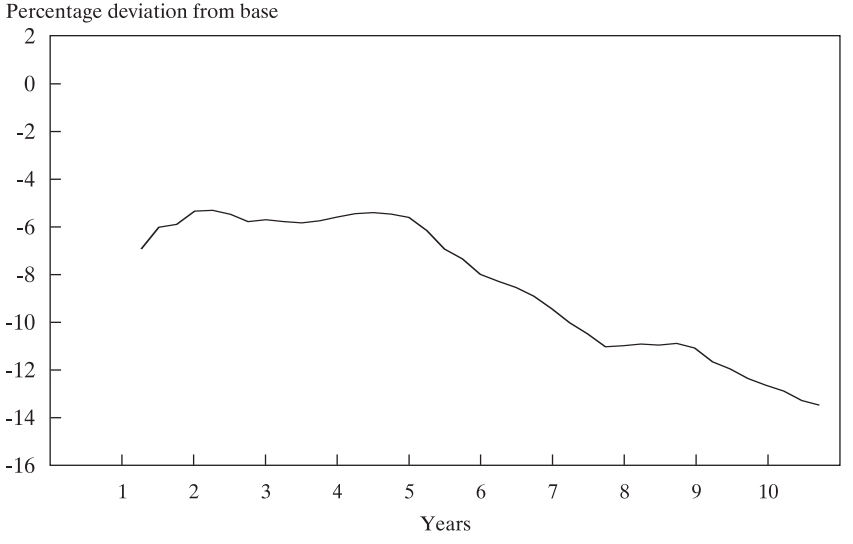
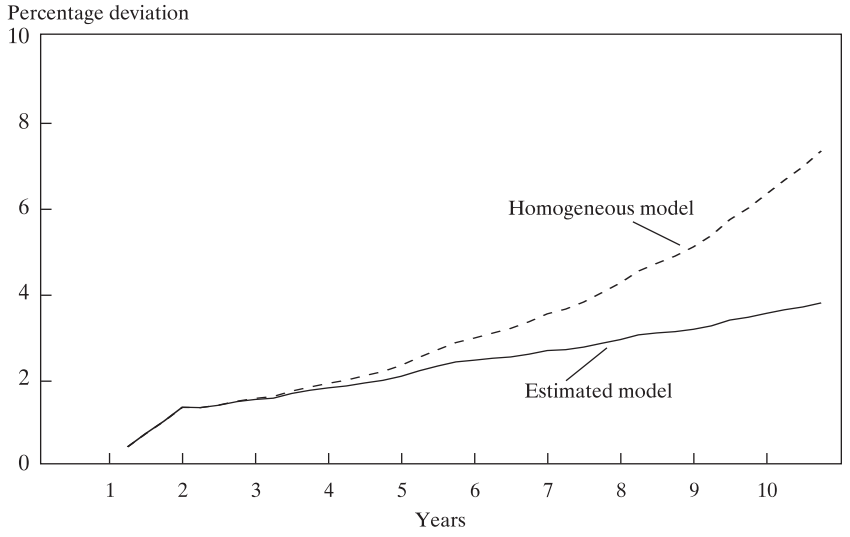



**Figure 4-8. Unemployment Effect on Wage Inflation**




trate this in Figure 4-9, which shows a simulated increase in real wages under two conditions: first, the model as we have estimated it; and, second, the same model except that we have replaced the coefficients in the exchange rate cointegrating (ECM3) vector with –1 and 1 to produce a fully homoge-

**Figure 4-9. The Inflation Effect of Stabilising the Exchange Rate**



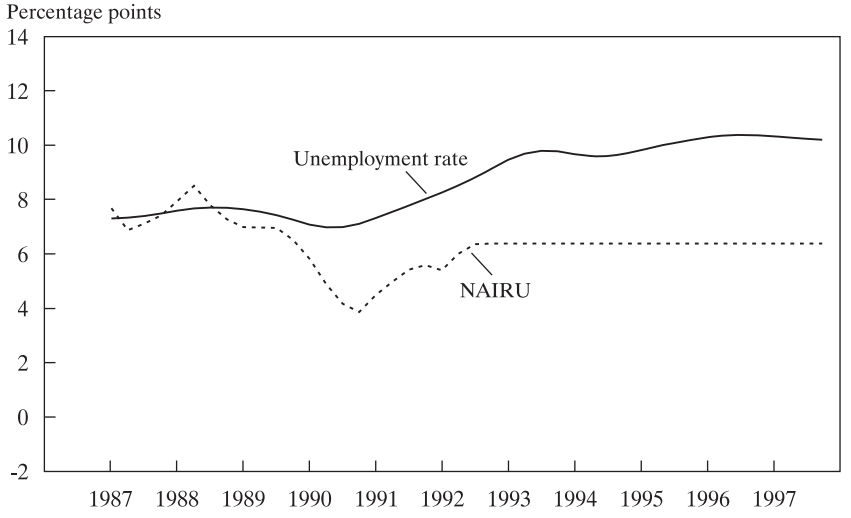

neous system. This figure shows that, while over a three- or four-year period the effect of a price shock is very similar, as we look further ahead the homogeneous model is much more inflation prone. After 10 years, the inflation effect is halved in the estimated model by the dampening effect coming from the exchange rate relationship.

Those results illustrate the important long-term effect that exchange rate behaviour has had on controlling the inflationary process. It is not possible to evaluate the contribution of this policy in isolation from incomes policy and unemployment effects, as the simulations outlined in Figures 4-5 to 4-8 are done as a combination of exchange rate behaviour and the particular policy change being investigated. Figure 4-9 does, however, stress the importance of this part of the model for the overall long-term developments in Greece.

## A NAIRU Calculation

Finally we use our model to evaluate the non-accelerating inflation rate of unemployment (NAIRU) for the Greek economy. There are a number of technical problems with the conventional way of calculating the NAIRU for our model. In particular, most models used for NAIRU calculations are homogeneous in both levels and rates of change. If this is not the case, then the NAIRU becomes a function of both the level of prices and the rate of infla-

**Figure 4-10. The NAIRU in Greece**




tion. To avoid these difficulties, we have used our model to numerically calculate the rate of unemployment in each quarter that would have kept the inflation rate at a constant level for the following five years. This means that we take full account of all the non-homogeneities in the model by using actual data and the model. However, as we need to know the inflation rate five years ahead, we have chosen to project a constant rate of base inflation beyond the end of our data period and this leads to a constant rate towards the end of the period. The results of this calculation are reported in Figure 4-10. The figure shows that, in the late 1980s, actual unemployment was close to the NAIRU. During the early 1990s, however, the NAIRU actually fell, while unemployment rose to produce a 3-4 percentage point gap between the two. While, as noted above, we cannot bring the NAIRU calculation fully up to date with this data base, it would seem to be clear that there is some scope for a reduction in unemployment without undue inflationary pressures.

## Conclusions

As discussed above, the reduction of inflation over the past 15 years has been dramatic. What are the factors contributing to this disinflation? This paper has presented results showing that macroeconomic policies and incomes policies have played crucial roles in this process. Although the

model estimated in this paper does not include a direct effect of monetary policy through real interest rates, the results suggest that the exchange rate tool contributed crucially to disinflation during the 1990s. Additionally, the change in policy regime resulting from the changed orientation of monetary policy in the 1990s appears to have modified wage behaviour so that it reinforced the disinflationary dynamics.

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## Comment by Peter Pauly

I liked this paper, although I must say that I found myself to be rather more sympathetic with the conclusions than with some of the intermediate steps. The paper provides evidence that the seeds of the enormous reduction in Greek inflation during recent years had been planted in the mid-1980s, as a result of policies implemented at that time. In particular, in October 1985 a two-year Stabilisation Programme was implemented. Steve Hall and Nick Zonzilos find that the Programme had an enduring impact on inflation dynamics. Specifically, the authors find that the presence of unit roots in the system caused the policies of the mid-1980s to have a long-lasting, but gradual, effect on the economy. I have a lot of sympathy for this story. I do, however, have several concerns regarding the way the empirical evidence has been produced.

With respect to the model, the authors approach the problem within the framework of a standard, long-run equilibrium cointegration system. Steve Hall, himself, has contributed importantly to this literature, including recent work showing how to properly identify the long-run system in the presence of small data samples.

The analysis starts with a standard bargaining framework of the labour market, which models wages, prices, the exchange rate, and import prices. The model does not, of course, attempt to provide a linkage to aggregate supply and unemployment. This strategy, I believe, is quite appropriate from an econometric point of view. In this connection, a minor issue is whether the simulation results properly capture the interaction between the wage-price sector and economic activity and unemployment since no linkage is specified. A more substantial issue concerns the one important constructed variable in the model. In particular, I refer to the policy regime variable that seems to drive a lot of the real wage behaviour. The authors do not, however, provide much information about how this variable has been constructed.

The empirical results appear to be quite sensible. The authors end up with a standard equilibrium relationship with three cointegrating vectors.

The marginalisation identifies as weakly exogenous those variables that you would expect to be exogenous. Productivity, long-term unemployment and the policy regime are weakly exogenous. World prices are also exogenous as would be expected for a small, open economy.

The parameter estimates in the implied long-run structure are quite satisfactory. Many of the theoretical restrictions are supported, except for the purchasing-power-parity relation on the exchange rate and relative price side, and the fact that the authors have not imposed a coefficient restriction on the productivity variable in the price equation. Consequently, the productivity coefficient in the price equation is not significantly different from zero, which is what you would expect in the reduced-form price equation with the coefficient of productivity in the wage equation having been restricted to equal unity.

These restrictions, however, do not appear to have any significant effect on the results. As I noted, what really drives the results is that the most significant variable in the long-run relation is the policy regime variable. Thus, a lot of the results derive from how the policy regime variable is constructed and to what extent it can actually capture the changes in regime and their magnitude. In the long-run price equation, inflation is homogeneous of degree zero in productivity. There is a bit of a Phillips-curve relationship and a bit of an open-economy effect. Importantly, the price equation is dependent on the policy regime with an elasticity of about 1.4 or 1.5. The latter elasticity underpins the results. In the simulations, a ten per cent change in the policy regime generates an about 14 per cent reduction in the inflation rate in the long run. It does take a very long time for this effect to work itself through the system given the unit root characteristics of the model. In my view, there is a plausible story underlying this scenario. I can think of a situation where changes in expectations and changes in credibility will ultimately change the structure of the economy so that you get this result. Thus, the results depend upon the inclusion of the policy variable. The authors believe that this variable captures the actual policy regime of the Greek economy.

From an empirical perspective, the crucial point is how one should quantify the fundamental shifts in behaviour in the policy regime. The authors chose to approach this issue by modelling such shifts by way of exogenously determined dummy variables that produce, what are to me, the desirable features of the long-run properties of the model. It might have been interesting to have applied a time-varying intercept instead of imposing a change in regime.

A further issue concerns the implications of this model for the prospects of the Greek economy. As the authorities will no longer be able to use the nominal exchange rate as an instrument, there will be increased pressure on

the other two mechanisms identified in the model as driving inflation behaviour. The model would seem to imply that Greece needs continued structural reform to reduce the natural rate of unemployment. Additionally, the country will need to have sufficient wage discipline under the new regime to lock-in the gains made in reducing inflation in previous years. The results suggest that the success attained in reducing inflation from the policy regime is permanent. In my view, there is some question whether in the new regime, in which some policy instruments are no longer available, there will be sufficient stability in wage behaviour to actually maintain and preserve the credibility gains that have been achieved as a result of the fundamental structural change in policy regime.

# 5 Issues in the Transmission of Monetary Policy

Sophocles N. Brissimis, Nicholas S. Magginas, George T. Simigiannis and George S. Tavlas

## I. Introduction

IN FORMULATING their monetary policy, monetary authorities need to have reliable information about how changes in policy affect economic activity. Therefore, accurate information on the transmission mechanism is crucial for the implementation of monetary policy. The monetary transmission mechanism consists of the various channels through which monetary policy decisions are transmitted into changes in real GDP and inflation. Two broad stages of the mechanism can be distinguished (ECB, 2000). In the first stage, changes in the stance of monetary policy lead to changes in financial market conditions. In the second stage, the changes in financial market conditions affect the spending, saving and investment decisions of individuals and firms in the economy.

This paper examines the operation of the transmission mechanism and the implementation of monetary policy in Greece over the period 1987 to 1999. There are several reasons why it is constructive to form a better understanding of the Greek transmission mechanism. First, the period under review provides a variety of data for examining the nature of the transmission of monetary policy, as it encompasses both a regulated financial system (the early part of the period), under which financial prices were subject to controls, and a deregulated financial environment (in the latter part of the period), under which financial prices were free to adjust to market clearing values. Second, knowledge of how the transmission mechanism operates allows more informed judgements to be made about the timing and extent

We would like to thank Heather Gibson, Stephen Hall, Lawrence Klein, Frank Smets and the participants of the Conference for their helpful comments and Konstantina Manou for able research assistance.

of changes in the stance of monetary policy which might be needed in order to keep inflation in check (Bank of England, 1999; ECB, 2000). With Greece entering the third stage of EMU, knowledge of the transmission mechanism will form an additional input into the ECB's decisions on monetary policy.

The remainder of this paper is divided into four sections. Section II provides an overview of the channels through which monetary policy operates. Section III briefly discusses issues related to the implementation of monetary policy in Greece. In this connection, the section describes changes in the strategy of monetary policy from monetary targeting to exchange rate targeting as the financial system became increasingly deregulated. The section also discusses the problems encountered with large, and at times volatile, capital inflows. These inflows can make it difficult to identify a monetary policy impulse that sets in motion the transmission mechanism. Section IV provides evidence on the Greek transmission mechanism using the vector autoregression (VAR) methodology, which has served as an important input for research on the transmission mechanism in a number of countries. Section V concludes.

## II. The Channels of Monetary Policy

To understand how the transmission mechanism operates, first consider what is meant by a monetary policy impulse.[1] In conducting monetary policy, central banks have typically focused on two broad frameworks for generating monetary impulses (Taylor, 1995). First, central banks can change the money supply by a given amount and let interest rates take a course implied by a stable money demand function; interest rates, therefore, adjust so as to equate the changed supply of money with aggregate money demand. This framework crucially depends on an aggregate money demand which is a stable function of the interest rate and income. Second, central banks can take actions in the money market to guide the short-term interest rate in a particular way, i.e. central banks can adjust the supply of high-powered money in order to achieve certain desired movements in money market interest rates (Taylor, 1995). While both strategies have been used in Greece, in recent years the second strategy has gained importance in light of the ability

1. In general, the quantitative effect of a monetary impulse on financial markets and economic activity will depend on the extent to which the policy change was anticipated and how the impulse affects expectations of future policy (Bank of England, 1999; ECB, 2000). We assume here that the monetary impulse is not expected to be reversed quickly and that no further impulses are expected.

of interest rates to provide more reliable signals about the stance of monetary policy in a deregulated financial system.

With these two broad frameworks for generating monetary impulses as a backdrop, monetary policy can affect economic activity through both price and quantity channels. The price channels include the interest rate channel, wealth effects and the exchange rate channel. The quantity channels operate primarily through bank lending. In what follows we discuss each of these channels in turn.

## *Price Channels*

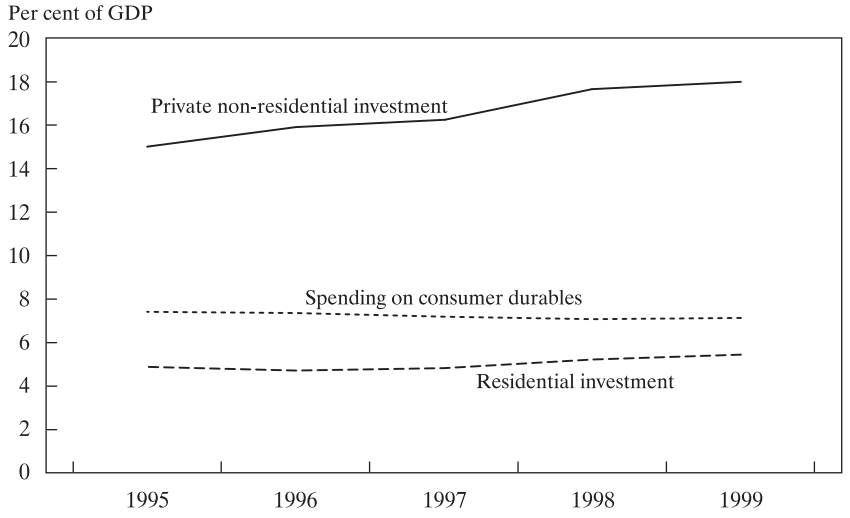
### *The Interest Rate Channel*

Consider a change in the stance of monetary policy that leads to an increase in the overnight interest rate. The expectations theory of the term structure provides the link through which short-term rates affect long-term rates.[2] According to this theory, the long-term rate is approximately given by the average of the current and the expected future short-term rates appropriate for the maturity of long-term financial instruments, say long-term bonds. Thus, if the central bank takes an action to raise the short-term interest rate and the market expects the short-term rate to decline gradually back to the starting value in the future, then the long-term rate will rise less than the short-term rate and *vice-versa*. If prices are assumed to be sticky in the short run, long-term real interest rates would also increase, raising the cost of capital. This would reduce various categories of investment spending and spending on consumer durables, leading to a decline in aggregate demand and a fall in output. In the long run prices would adjust (Mishkin, 1995; Bank of England, 1999).

The magnitude of the cost of capital channel depends on both the interest sensitivity of expenditures and the relative importance of such expenditures in an economy. Figure 5-1 provides data for Greece on the share (relative to GDP) of residential investment, private non-residential investment and spending on consumer durables during 1995-99. The aggregate share of these three interest-sensitive spending categories amounted to about 30 per cent in 1999, suggesting that a significant part of the Greek economy is potentially responsive to interest rate changes.

2. Though a change in the overnight rate unambiguously moves other short-term rates in the same direction, the impact on long-term rates could go either way. This is because the actual effect on long-term rates of an official rate change will partly depend on the impact of the policy change on inflationary expectations (Bank of England, 1999, p. 164).

**Figure 5-1. Interest-Sensitive GDP Components**

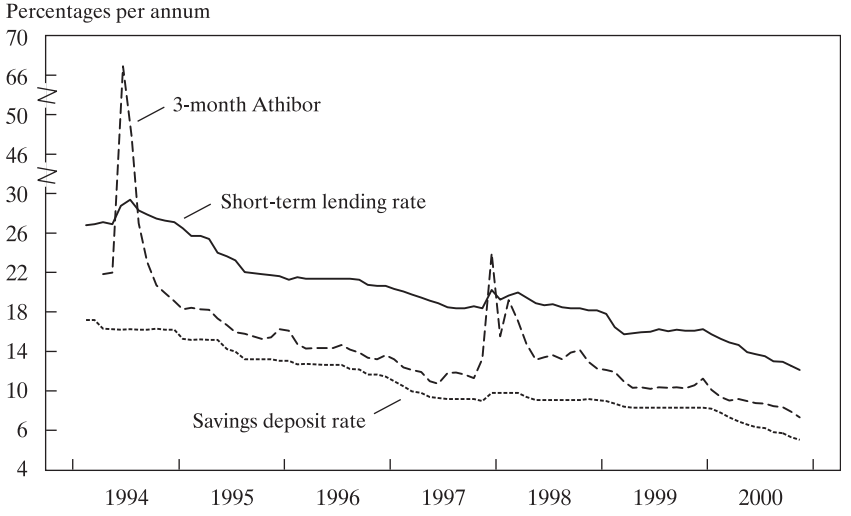



SOURCE: Ministry of National Economy.

While the effectiveness of the interest-rate or cost-of-capital channel depends on the interest rate sensitivity of investment and consumer durables expenditures, it also depends on the pass-through from money market interest rates to retail (both deposit and lending) interest rates. A number of structural factors, including competition in the financial services industry, influence the adjustment in retail bank markets. As can be seen in Figure 5-2, the relationship between retail bank interest rates and money market rates in Greece has strengthened somewhat in recent years, reflecting the deregulation of the banking sector. Correspondingly, the spread between bank lending rates and deposit rates has narrowed; in the six years to 2000, the differential declined by about 200 basis points (Figure 5-2).

The effectiveness of the cost of capital channel also depends on the substitutability among assets in the public's portfolio (Park, 1972). An open market purchase, for example, increases the supply of high-powered money and decreases the amount of short-term financial assets (e.g. three-month T-bills). The lower the substitutability between high-powered money and T-bills, the greater the required change (decline) in interest rates to induce the public to hold the increase in money. The greater the substitutability between T-bills and other financial instruments, the greater the rippling

**Figure 5-2. Bank Interest Rates, January 1994 - October 2000** [a]




SOURCE: Bank of Greece.
a. Monthly averages.

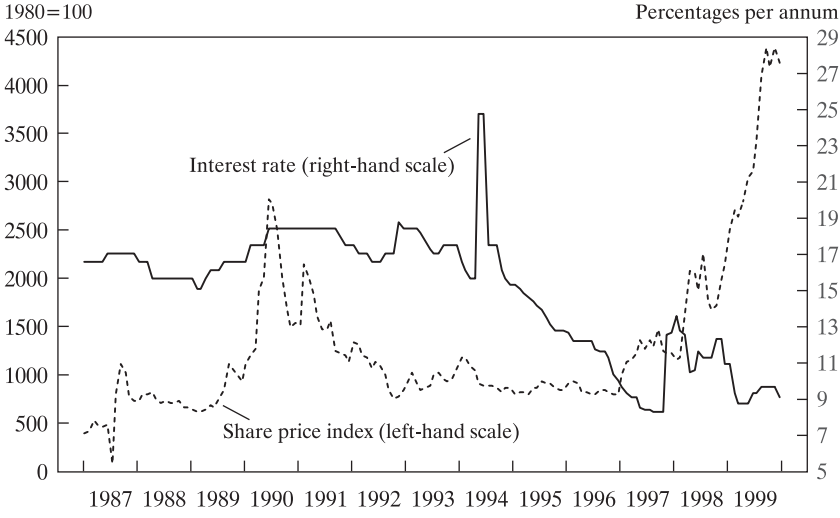
effect of a change in interest rates on T-bills and rates on other instruments.[3]

The above discussion suggests that monetary policy operates via its effect on the cost of capital, which is typically assumed to be proxied by the long-term government bond rate. A somewhat different story is that monetary policy operates through changes in the market valuation of equities; the equities represent claims on existing real assets, such as plant and equipment (Tobin, 1978; Mishkin, 1995). According to this view, the equity yield is a key indicator of the stance of monetary policy (Park, 1972; Mishkin, 1995). An expansionary monetary policy, for example, leads to a reallocation of portfolios in favour of equities, reducing their yields and generating a positive discrepancy between the valuation of real assets in equity markets and their costs of production (i.e. the marginal efficiency of capital). The discrepancy provides an inducement for firms to expand production of capital goods.[4]

3. Keynes (1936) focused on a single interest rate, i.e. the yield on government consols. He, therefore, assumed perfect substitutability between consols and other assets.

4. Tobin assumes that the rate of return on money is constant. Therefore, when the supply of money increases, the entire burden of adjustment falls on the prices of other assets. All other rates must decline so that the demand for money can increase.

**Figure 5-3. Share Price Index[a] and Interest Rate,[b] January 1987 - December 1999**



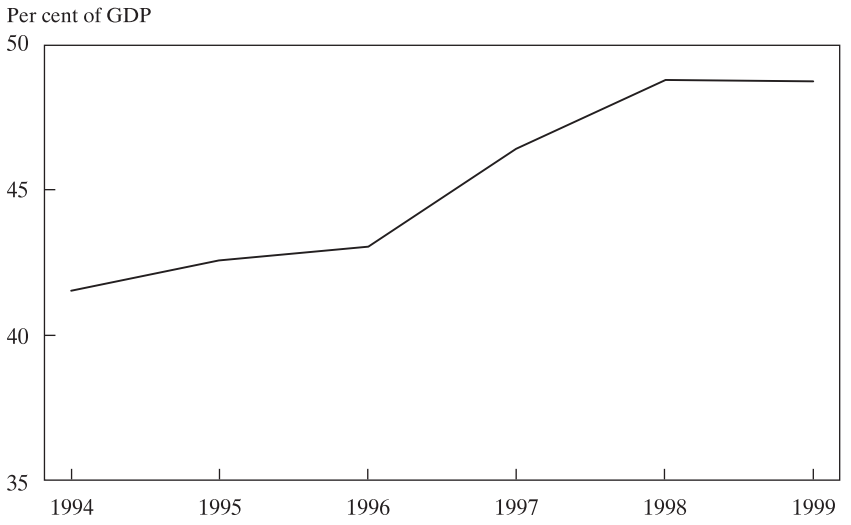

SOURCE: Bank of Greece.
a. Athens Stock Exchange composite share price index.
b. 3-month Treasury bill rate.

In the case of Greece, for much of the period under review the stock market was not a primary source of financing for firms. In the past, participation in the stock market was mainly confined to large-scale enterprises. Most medium-sized and smaller firms relied on bank financing and/or retained earnings to undertake investment spending. With the broadening and deepening of the Athens Stock Exchange in recent years, however, share market prices may have provided an increasingly important channel for the transmission of monetary policy (Figure 5-3).

### *The Exchange Rate Channel*

The liberalisation of international transactions and the adoption of flexible exchange rates by a large number of countries (Mussa *et al*., 2000) have increased the interest of policy makers in the transmission of monetary policy through the exchange rate channel. This channel also involves interest rate effects. Other things being equal, an increase in the nominal short- term interest rate would make domestic currency deposits more attractive relative to deposits denominated in foreign currencies (Mishkin, 1995; Taylor, 1995).

**Figure 5-4. Imports and Exports of Goods and Services**

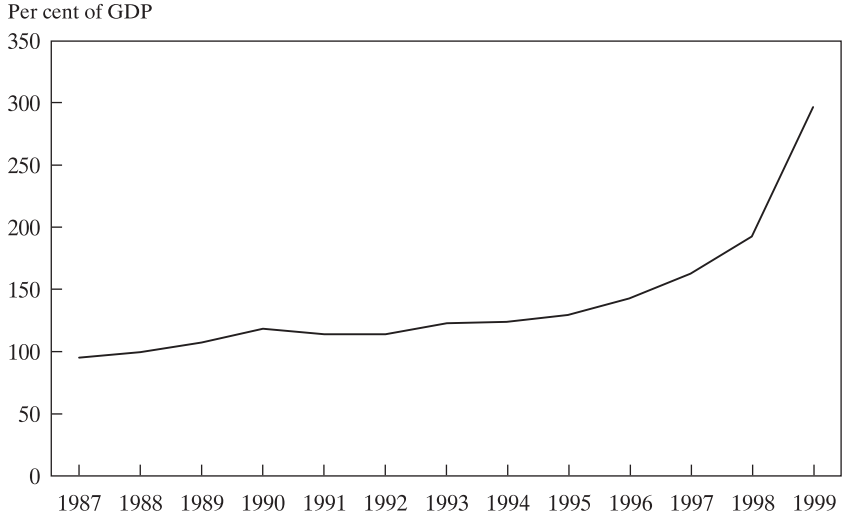



SOURCE: Ministry of National Economy.

This would lead to an appreciation of the nominal exchange rate and, assuming price rigidity, to an appreciation of the real exchange rate (in the short run). As a result, net exports (and hence aggregate demand) would decline. In the long run prices would also adjust.

Whether the exchange rate channel is significant depends in part upon whether the exchange rate is flexible or is used as a policy target. The significance of this channel also depends on the degree of openness of the economy. In Greece, the exchange rate of the drachma against the currencies of the other EU countries was used as a policy target for much of the period under review. Therefore, the exchange rate did not operate fully as an independent financial asset price. Nevertheless, the currencies of the other EU countries floated against other major currencies such as the US dollar and the Japanese yen, suggesting some scope for an exchange rate channel. Another consideration bearing on the exchange rate channel is the fact that Greece is a small, open economy. As shown in Figure 5-4, the share of exports and imports of goods and services relative to GDP is close to 50 per cent. Consequently, variations in the nominal exchange rate were typically followed by a relatively quick pass-through to domestic costs and prices, so that movements in the nominal exchange rate were to some extent offset by relative price movements.

**Figure 5-5. Private Non-Bank Sector Financial Assets**




SOURCE: Bank of Greece.

### *The Wealth Channel*

The link between the net wealth of consumers and consumption is featured in the life-cycle hypothesis, which holds that consumers allocate consumption over their lifetime, given initial wealth (including financial wealth), a rate of time preference and expectations regarding labour income (Ando and Modigliani, 1963; Mishkin, 1995). The price of bonds is inversely related to the long-term interest rate, so that a fall in long-term interest rates raises bond prices. If the private sector considers only a fraction of total interest debt as a liability (to be financed with future tax liabilities), then a rise in the price of bonds will increase net private wealth and, thus, aggregate demand (Park, 1972). Lower interest rates also raise other security prices, such as those of equities. Therefore, a rise in financial asset prices raises financial wealth, which increases consumption. Additionally, monetary policy can impact on wealth through its effect on land and property values (Meltzer, 1995).

Figure 5-5 provides an indication of the importance of financial wealth in the Greek context. As shown, the ratio of private non-bank financial assets to GDP tripled (rising to 300 per cent) between 1987 and 1999, indicating that financial wealth played an increasingly important role in spending decisions of private economic agents.

## *Quantity Channels*

The above price-oriented approach to the monetary transmission mechanism has been criticised on the following grounds (Mishkin, 1995; Taylor, 1995). First, the significance of the interest rate channel has been questioned (Mishkin, 1995). Second it has been argued that, since there are several interest rates in the economy, it is difficult to identify which particular rate matters for investment. As a result of these (and other) criticisms, in recent years a number of studies have focused on quantity-based channels of monetary transmission.

### *The Credit Channel*

The credit channel approach posits that asymmetric information and costly enforcement of contracts create agency problems in financial markets.[5] According to advocates of the credit channel, changes in bank assets as well as bank liabilities influence the course of the economy. Monetary policy, it is argued, affects not only the general level of interest rates, but also the external finance premium, which is the difference between the cost of funds raised externally (by issuing equity or debt) and the cost of funds generated internally (by retained earnings). Two basic channels arise as a result of agency problems in credit markets and affect the external finance premium: (1) the bank lending channel and (2) the balance-sheet channel.

The bank lending channel emphasises the special role played by banks in the financial system, particularly their role in financing small firms, for which the problems of asymmetric information can be especially pronounced (Mishkin, 1995, p. 7). If, for some reason, the supply of bank loans is disrupted, bank-dependent borrowers may not be completely excluded from credit, but they might well have to incur costs in finding a new lender and establishing a new credit relationship (Bernanke and Gertler, 1995, p. 40). Thus, monetary policy will have an impact on economic activity through its effect on these borrowers by affecting bank reserves and deposits. In addition, monetary policy can affect economic activity through its impact on firms' balance sheets. A decline in equity prices caused by contractionary monetary policy lowers the net worth of firms and thus increases adverse selection and moral hazard problems, which, in turn, reduce bank lending.

5. Overviews of the credit channel are provided in Bernanke and Gertler (1995) and Mishkin (1995). The above discussion draws on these studies.

The decline in net worth reduces the borrower's collateral and, therefore, the creditworthiness of the borrower. Furthermore, a contractionary monetary policy that raises interest rates reduces cash flow and thereby worsens the firm's balance sheet. Because many firms rely on net cash flow to finance inventories and other working capital, the effect of monetary policy via net cash flows can potentially be quite important (Bernanke and Gertler, 1995).

The above credit channels imply that capital markets do not function perfectly. Imperfections, such as asymmetric information, lead to quantity adjustments. A closely related channel is the credit rationing channel; under regulated capital markets, interest rates charged to borrowers by financial intermediaries, including commercial banks, may be controlled by institutional forces, and may not change when there is a change in the demand for funds. In these circumstances, lenders may ration the available supply of credit by various non-price terms (Park, 1972). Accordingly, the demand for credit may be limited not by the borrowers' willingness to borrow at the given rate but by the lenders' willingness to lend; funds may be rationed among potential borrowers. This channel would seem to have been of some importance in the highly regulated Greek financial system of the 1980s.

## III. Implementation of Monetary Policy

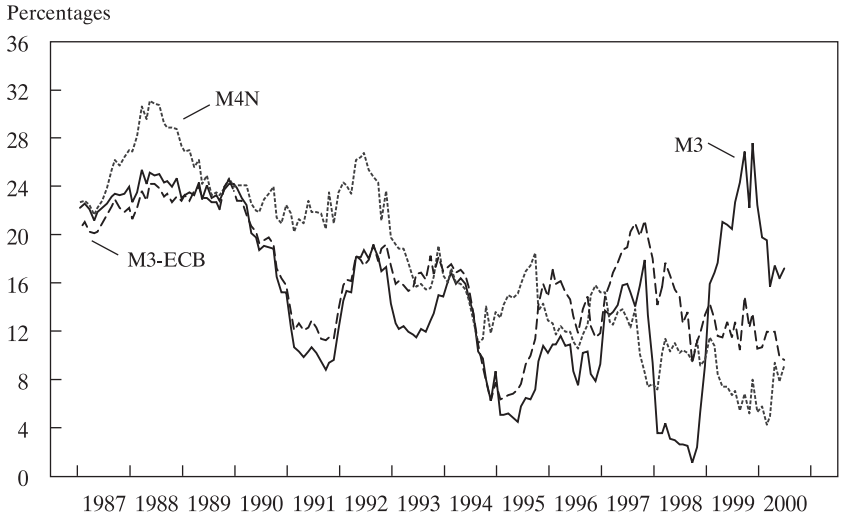
Greece's monetary-policy strategy underwent considerable change during the period 1987-99. In the first part of the period, the basic policy framework typically included a target for M3 growth, a credit target and an implicit exchange rate target. During the latter part of the period, the exchange rate target assumed overriding importance. The remainder of this section describes the evolution of the policy strategy and discusses problems in the implementation of monetary policy that arose with the lifting of controls on capital flows and the adoption of a nominal-anchor exchange-rate objective.

### *Monetary Policy Strategy: A Historical Overview*

#### ***Monetary Targeting***

As was the case in a number of industrial countries during the 1970s, in 1976 the Greek authorities began setting targets (specific values) for the growth rates of the monetary (and credit) aggregates. Initially, targets were set for M0, but, as the narrow aggregates proved to be unstable, in the early

**Figure 5-6. Monetary Aggregates, January 1987 - June 2000[a]**




SOURCE: Bank of Greece.
a. Percentage changes over same month of previous year.

1980s the Bank of Greece placed increased weight on other aggregates; from 1983, targets were announced for M3.

For about the next ten years, the monetary targets were missed more often than not. One recurring feature underlying the difficulties in controlling the monetary aggregates was the role played by financial innovation, especially after the liberalisation of the financial system from 1987 onwards (Garganas and Tavlas, 2001). This led to the adoption (in 1988) of target ranges for the monetary aggregates. This latter approach encompasses the view that it is difficult to attain precise monetary targets in any one period, even though the trend for any particular aggregate might be compatible with low inflation. Also in 1998, the Bank began emphasising additional indicators, such as M4. In 1999, the broader aggregate, M4N, replaced M3 as an indicator variable. Figure 5-6 traces the growth rates of the main aggregates.[6]

With the entry of the drachma into the ERM in 1998, intermediate monetary targets were discarded. Instead, developments in monetary aggregates and credit were monitored in relation to indicative projections. These projections were calculated so as to be consistent with an inflation target. One

6. In recent years, the behaviour of M4N has fairly closely followed the behaviour of the Greek M3 aggregate under the ECB's definition (Figure 5-6).

reason underlying the progressive deemphasis given to monetary targets was the unpredictability of money demand (Brissimis *et al*., 2001).[7]

### *Exchange Rate Targeting*

Another reason why monetary targets received less attention was the increased prominence given to the exchange rate commitment. Under conditions of free capital mobility, an exchange rate target implies that the monetary aggregates are endogenous. In Greece, the last controls on capital flows were removed in 1994. With exchange rate targeting gaining a more prominent role, monetary aggregates became less subject to control.

Beginning in 1989, the exchange rate was used as an implicit target. Until 1994, the aim was to set a rate of depreciation of the drachma that did not fully accommodate the inflation differential between Greece and its main trading partners, i.e. chiefly EU countries. As noted above, however, the growth of monetary aggregates remained the main focus of monetary policy. With the full liberalisation of capital movements (in May 1994), the Bank of Greece stipulated a specific exchange rate target; the Bank announced that the drachma's depreciation would be limited to 3 per cent against the ECU. For the subsequent two years, the Bank aimed to keep the drachma broadly stable against the ECU.[8] In the event, the drachma's nominal depreciation against the ECU was contained to 0-2 per cent. When the drachma joined the ERM (in March 1998), its exchange rate against the ECU/euro continued to be the main intermediate target of monetary policy.

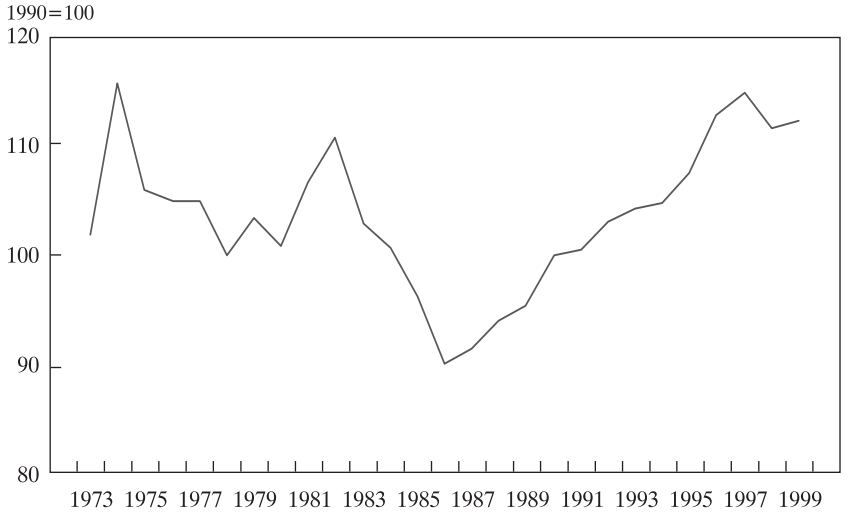
## *The Capital Inflows Problem*

As discussed above, an exchange rate target has been part of the Bank of Greece's disinflation policy since 1989, although the exchange rate did not

7. The behaviour of M3 in 1998 was characteristic of this particular case. M3 growth slowed considerably and for almost the entire year was around 3-4 per cent, well below the monitoring range of 6-9 per cent. In the last month of 1998, however, the growth rate shot up (to 8.9 per cent). For the most part, the low growth of M3 reflected the fact that the private non-bank sector was placing its savings in assets not included in M3, such as short-term financial derivatives (synthetic swaps carried out through foreign currency deposits held in Greece), government securities and foreign exchange deposits. After the taxation of repo yields was abolished (in September), placements in synthetic swaps decreased and M3 growth bounced back (Figure 5-6).

8. In 1997, the Bank of Greece defined its exchange rate target in terms of the currencies comprising the ECU rather than the ECU itself and allowed increased variability around the target.

**Figure 5-7. Real Effective Exchange Rate of the Drachma [a]**




SOURCE: Bank of Greece.
a. CPI-deflated.

become the preeminent target until 1995. To this end, the real exchange rate was allowed to appreciate (Figure 5-7) and real interest rates were allowed to reach high levels (Figure 5-8). The policy of using the exchange rate as a nominal anchor was accompanied by its own particular set of problems. It was underpinned by large (nominal and real) interest rate differentials between Greece and its main trading partners and market perceptions that the Bank's exchange rate target would be attained. As a result, the nominal anchor policy had to deal with large capital inflows during much of the period and, at times, sharp reversals of capital flows.[9] The capital inflows created a need for sterilisation in order to avoid an easing of the monetary policy stance.[10] The inflows also made it difficult at times to identify monetary impulses which set the transmission mechanism in motion.

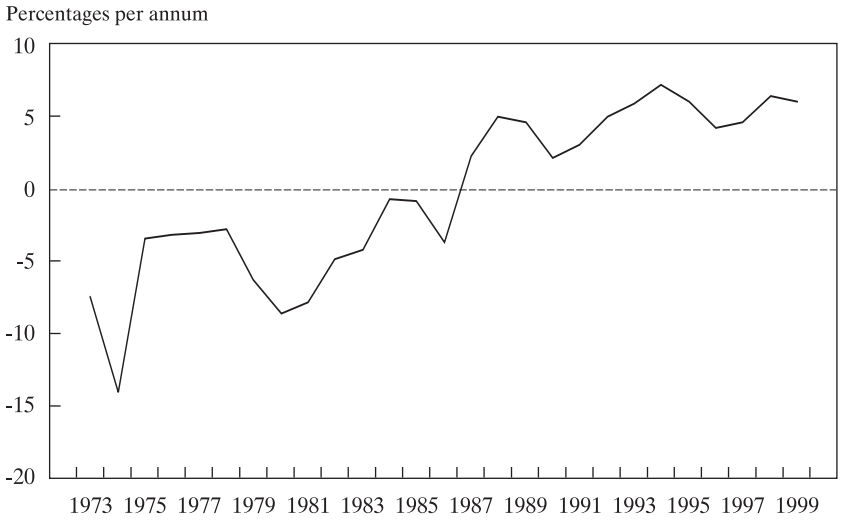
To provide some context to the foregoing discussion, consider some specific episodes.

- A major episode of foreign exchange market turbulence was experienced in May/June 1994. Market expectations arose that the lifting of the

9. For a further discussion of the capital inflows problem in Greece see Brissimis and Gibson (1997) and Gibson and Tsakalotos (1999).

10. The correlation coefficient between changes in the domestic and external components of the monetary base was as high as 0.9 in the period 1994-1999.

**Figure 5-8. Real Interest Rate [a]**

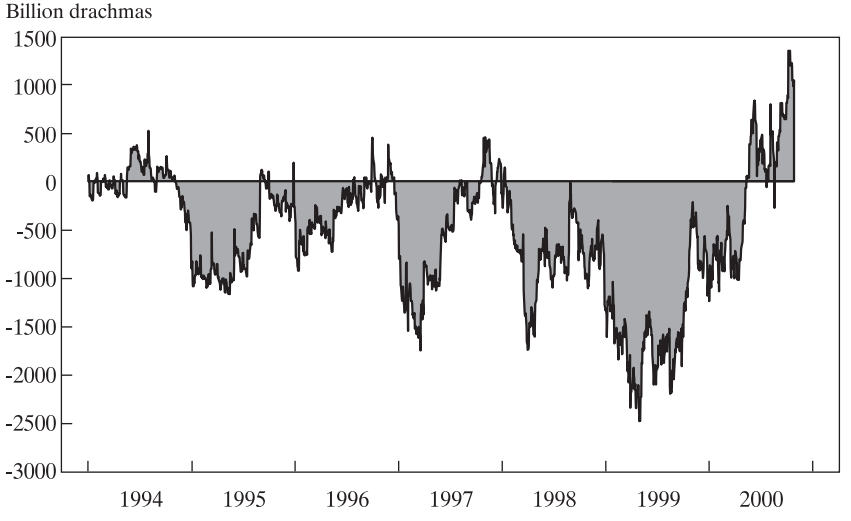



SOURCE: Bank of Greece.
a. 12-month Treasury bill rate. Calculated as $(i-\pi)/(1+\pi)$, where i=nominal interest rate and $\pi$=the inflation rate.

remaining controls on capital movements, scheduled for July 1, 1994, would be accompanied by a devaluation of the drachma. Capital outflows ensued, and the authorities responded by bringing forward the timing of the liberalisation to mid-May. Also, the Bank of Greece raised its intervention rate to very high levels and imposed an additional surcharge on banks' overdrafts, bringing the cost of borrowing in drachmas to extremely high levels (as much as 180 per cent). As a result of these actions, capital outflows were reversed and interest rates returned to pre-turbulence levels (Figure 5-2). By the end of the year, reserves reached a historically high level ($15.4 billion).

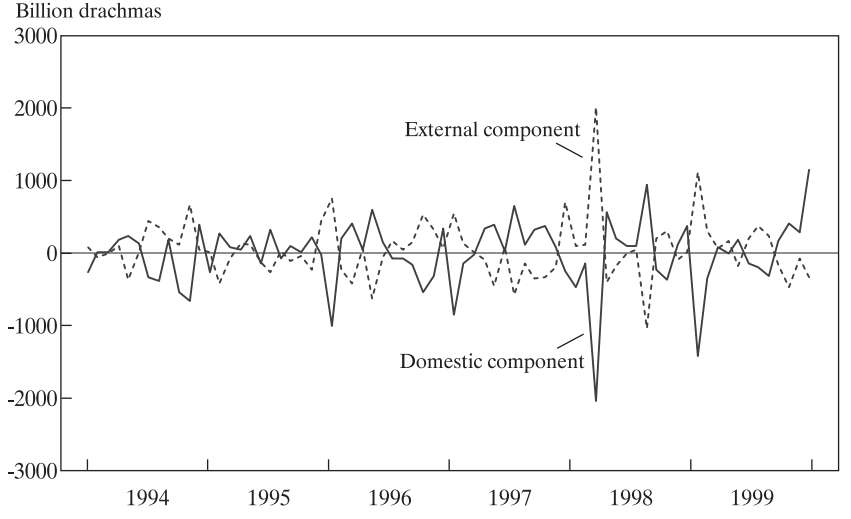
- Net capital inflows continued in 1995 and 1996 in light of large interest rate differentials in favour of drachma-denominated financial instruments. The inflows threatened to interfere with efforts to reduce inflation. The Bank of Greece responded by intervening heavily in the foreign exchange market, leading to a further increase in reserves (to $19.2 billion at the end of 1996). As a result, the monetary base increased, creating excess liquidity in the interbank market at prevailing interest rates. The main response of the Bank was to sterilise this liquidity through a reduction in the domestic component of the monetary base. The extent of this sterilisation is shown in Figures 5-9 and 5-10, which depict interventions by the Bank in the domestic money market and changes in the external and the domestic components

**Figure 5-9. Bank of Greece Interventions in the Interbank Market, January 1994 - October 2000** [a,b]




SOURCE: Bank of Greece.
a. Daily outstanding balances.
b. +(−): provision (absorption) of liquidity by the Bank of Greece.

**Figure 5-10. Domestic and External Components of the Monetary Base, January 1994 - December 1999** [a]




SOURCE: Bank of Greece.
a. Changes in billion drachmas.

of the base, respectively. The Bank also increased the reserve ratio on several occasions in 1995 and 1996, bringing it to 12 per cent, and broadened the coverage of reserves to include *inter alia* liabilities to non-residents.

- Although capital inflows continued in the early part of 1997, by October of that year the contagion of the East Asian crisis had spread beyond Asia. In Greece, an abrupt reversal of capital flows occurred as foreign financial institutions liquidated their holdings of Greek government bonds and other investments (mainly funds placed in the interbank market). The capital outflows led market participants to question the sustainability of the drachma's exchange rate in light of a widening current account deficit and an increase in the levels of private and public external debt (Bank of Greece, 1998).[11] The Bank of Greece raised its intervention rates, maintaining them at high levels for about six months, and reintroduced a penalty for the banks' overdrafts from their current accounts with the Bank. The period of speculative pressures and capital outflows ended in March 1998 with the drachma's entry into the ERM with a ±15 per cent band (see Garganas and Tavlas, 2001).

- Subsequently, sizeable capital inflows resumed, contributing to an increase in reserves to USD 20.4 billion at the end of March 1998. The Bank sterilised the excess supply of liquidity in the domestic interbank bank (Figure 5-9). In an attempt to moderate these inflows, the Bank allowed the drachma to appreciate relative to its central rate in the ERM, making use of the wide fluctuation band. The drachma remained appreciated within a range of 6.5 per cent to 9 per cent above its central rate.[12]

- Capital inflows continued towards the end of 1998 and during (especially in the first part of) 1999, spurred by market perceptions that Greece would take part in EMU in early 2001. The inflows created the need for further sterilisation by the Bank (Figure 5-9). Towards the end of 1999 and into 2000, there were renewed downward pressures in the foreign exchange market, although not nearly as strong as those prior to ERM participation, originating from uncertainties over the timely fulfilment of the inflation criterion and whether the drachma's central rate against the euro[13] would be the

11. After the crisis of October 1997, the one-year forward exchange rate exceeded the corresponding spot rate by 15 per cent (Arghyrou, 2000).

12. A notable exception occurred during the financial turmoil in Russia at the end of August 1998, which elicited capital outflows that had their origin in the restructuring of portfolios by international investors wishing to make up for the losses in the Russian market. These outflows caused Greek interest rates to rise temporarily and led to a reduction in the drachma's appreciation to 4 per cent.

13. The central rate had been revalued by 3.5 per cent on January 17, 2000 to reduce the inflationary impact of the drachma's expected depreciation towards its central rate during 2000.

conversion rate at the end of 2000. The decision by the ECOFIN Council in mid-June that the conversion rate would be the central rate stabilised expectations and contributed to the creation of a favourable climate.

Overall, Greece's experience on the road to EMU demonstrates that monetary authorities should be prepared to deal with the consequences of large capital inflows and their reversals. In the case of Greece, as the above discussion has shown, the Bank of Greece used sterilisation operations to deal with capital inflows and raised interest rates, at times sharply, in periods of turbulence. In terms of disinflation, while monetary policy bore the brunt of the disinflationary efforts in the early stages of these efforts, fiscal policy and incomes policy were tightened progressively in the later stages. Although the drachma was ultimately devalued, the gains made in reducing inflation were maintained.

## IV. Evidence on the Transmission of Monetary Policy

Our analysis of the transmission mechanism is based on an augmented vector autoregressive (VAR) model of the form:

$$\chi_t = \sum_{i=1}^{p} Z_i \chi_{t-i} + Kw_t + \varepsilon_t \qquad t = 1,2,...., T$$

where $\chi_t$ is an $m \times 1$ vector of jointly determined dependent variables, $w_t$ is a $q \times 1$ vector of deterministic and/or exogenous variables, $Z_i$ (with i = 1,2,3,...p) and K are the $m \times m$ and $m \times q$ coefficient matrices, respectively, and $\varepsilon_t$ is a vector of m unobserved errors, which have zero mean and constant covariance matrix $\Sigma$.

The following standard assumptions (see, among others, Pesaran and Shin, 1998) are made:

i) $E(\varepsilon_t) = 0$ and $E(\varepsilon_t \varepsilon_t') = \Sigma$ for all t, where $\Sigma = \sigma_{ij}$, with i,j = 1,2,....,m, is an $m \times m$ positive definite matrix and $E(\varepsilon_t \varepsilon_t') = 0$ for all and $E(\varepsilon_t | w_t) = 0$

ii) All the roots of $\left| I - \sum_{i=1}^{p} Z_i z^i = 0 \right|$, where I is the identity matrix, fall outside the unit circle.

iii) $x_{t-1}, x_{t-2},...., x_{t-p}, w_t$, with $t = 1,2,....T$, are not perfectly collinear.

Under assumption ii, the VAR system has an infinite moving average representation of the form:

$\chi_t = \sum_{i=0}^{\infty} A_i \varepsilon_{t-i} + \sum_{i=0}^{\infty} G_i w_{t-i}$ with t = 1,2,....T, on the basis of which impulse response analysis can be conducted.

We first estimated the VAR model following the standard convention in the empirical literature on the transmission of monetary policy of including three variables (Gerlach and Smets, 1995; Ramaswamy and Slok, 1998): real output, the price level, and a short-term interest rate. In an attempt to capture elements of the transmission mechanism related to the openness of the Greek economy, we added the nominal effective exchange rate to this specification. As noted above, however, for much of the period under review the exchange rate was a target variable, as monetary policy responded to changes in the exchange rate of the drachma against other EU currencies. In an effort to examine the reaction of an exchange rate that was not included in the central bank's reaction function, we also used the drachma/US dollar bilateral rate in lieu of the effective rate. As shown below, the bilateral rate provides a more plausible story of the transmission process. In light of the role played by the M3 aggregate in the Bank's monetary policy strategy, we then extended the basic model by including that aggregate.[14] Next, we included the real share price index as a sixth variable to get a measure of the wealth effects of monetary policy. Finally, to gain some understanding on the workings of the credit channel, we estimated a seven-variable VAR that includes the four basic variables, plus M3 and two variables from the asset side of banks' balance sheets: credit to the private sector and securities.[15]

The complete set of endogenous variables used in the various VAR models is as follows: real output (GDP), consumer prices (CPI), a short-term interest rate (3-month Treasury bill rate – TBR), the nominal effective exchange rate (NEER, defined as units of foreign currency per unit of domestic currency), the drachma/dollar rate (USER), M3, the real share price index (SPIR), real credit (CRER) and real holdings of securities by the banking sector (SHR). The exogenous variables used in all VARs were the following: a world commodity price index, the US industrial production index, the US federal funds rate and a set of impulse dummies, to control for developments in the international economic environment.

14. The following monetary aggregates were also used: the adjusted monetary base (defined as the monetary base calculated at constant reserve ratios), M1 and the recently introduced M4N. These results were not always economically plausible.

15. The latter two variables were used by Bernanke and Blinder (1992) in their study of the credit channel.

The sample period is from 1987 to 1999 and the data frequency is monthly; monthly data provide sufficient degrees of freedom to test for richer lag structures. In order to improve the statistical properties of our specification, we used six lags (five lags in the case of the seven-variable VAR), even though the lag selection criteria (Akaike Information Criterion, Schwartz Bayesian Criterion) indicated shorter optimal lag structures. Prior to estimation, we conducted a full set of single and system equation specification tests, namely tests for serial correlation, normality of residuals, heteroscedasticity and autoregressive conditional heteroscedasticity. The diagnostic tests revealed the possibility of non-normally distributed residuals, especially in the case of the interest rate equations.[16, 17] The results of these tests, however, need to be interpreted with caution as they are only valid for stationary processes and their reference distributions are asymptotic; thus they may not constitute a good approximation to the small sample distributions (Jacobson *et al*., 1999). All variables are in logs (except for the interest rate) and are seasonally adjusted (with the exceptions of the interest rate and the exchange rate).

The augmented Dickey-Fuller (ADF) and the Phillips-Perron tests were used to determine the order of integration of the variables. These tests indicated that all of the variables are I(1), except for the price variable, which is I(2), and the interest rate variable, which is I(0). We chose to estimate the models in levels and not in vector error correction form, given that imposing inappropriate cointegration relationships can lead to biased estimates and, hence, biased impulse response functions. Furthermore, the main objective of the empirical exercise was to derive an estimate of the short-run interactions among the variables in the system and not to identify long-term relationships.

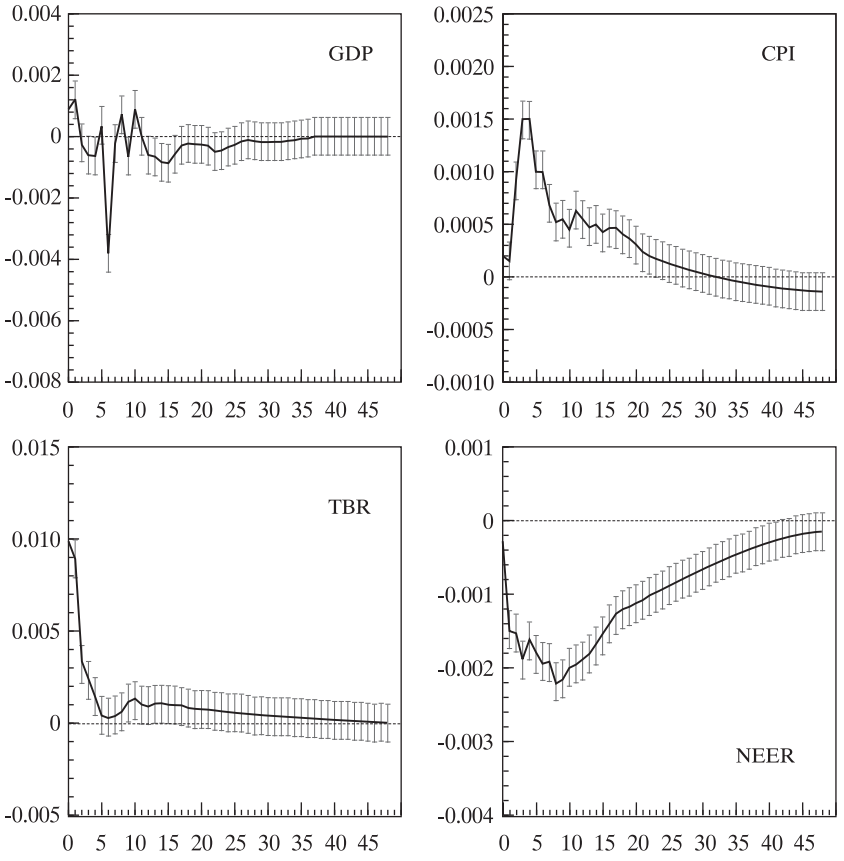
Monetary policy shocks are identified as innovations in the equation for the short-term interest rate, which in our model is the 3-month Treasury bill rate.[18] These innovations can be used to isolate "exogenous" monetary disturbances,

16. The implementation of a system diagnostic test suggests non-normally distributed residuals.

17. Diagnostic tests of the preferred specification are presented in Table 5A-1 (page 267). The results of diagnostic tests for the other specifications discussed in the paper are available on request.

18. Most studies of the transmission mechanism use a short-term money market rate as the monetary policy variable (e.g. Kim and Roubini, 2000). In our case, the only money market rate available for the whole sample period is the overnight rate. This rate displays a regime shift making it inappropriate for use as a monetary policy variable: large variability in the early period of the sample when the Bank of Greece was not intervening in the market is succeeded by a smoothened interest rate path reflecting central bank's intervention (see Figure 5A-1, page 267). For a discussion of the operation of the interbank market, see Brissimis and Gibson (1998). The approximation of the policy rate with the 3-month Treasury bill rate seems reasonable, as this rate was significantly affected by the Bank of Greece's policy. For a similar identification of the monetary innovation for Italy, see Fanelli and Paruolo (2000).

**Figure 5-11. Generalised Impulse Responses to One Standard-Error Shock in the Equation for the Interest Rate**




SOURCE: Authors' calculations.

provided that the set of variables included in the VAR reflects to a sufficient degree the informational content of the central bank's reaction function. The policy shock in our model is identified through a "generalised" decomposition proposed by Pesaran and Shin (1998); the decomposition permits impulse response analysis without orthogonalisation of shocks (as in the Choleski decomposition) and is invariant to the ordering of the variables in the VAR.[19]

19. It has been shown (Pesaran and Shin, 1998) that the orthogonalised and generalised impulse responses coincide only in the case of the impulse responses of the shocks to the first equation of the VAR.

The results of the basic four-variable model (with the effective exchange rate) are shown in Figure 5-11, which gives the response of GDP, CPI, TBR, and NEER to one standard-error shock in the equation for the interest rate. An unexpected, temporary, rise in the short-term interest rate of 100 basis points tends to be followed by a statistically significant[20] decline of GDP after 5 months (of the order of 0.4 per cent). The trough in output reduction is reached faster compared with the findings for other EU countries; it is also small in magnitude.[21] The behaviour of prices exhibits the pattern of the so-called "price puzzle" (Sims, 1992), whereby the price level increases immediately after a monetary shock. In our model, it peaks after three months (the increase being 0.15 per cent), remaining at a higher (statistically significant) level until the 19th month. Peersman and Smets (2001) also find a price puzzle for the euro area in a four-variable VAR, which includes a real exchange rate variable and a German interest rate as a common monetary policy indicator. One (typical) interpretation of the price puzzle proposed in the literature is that central banks have better forecasts of expected inflation than do private agents; the central banks forecast on the basis of a wider set of variables, some of which might not be included in our model. In response to what central banks foresee as impending inflation, they raise their interest rates, although to a lesser extent than necessary to completely offset inflationary pressures (in case they are interested in smoothening interest rates).[22] Another explanation (Stiglitz, 1992) of the price puzzle is that in an imperfectly competitive environment firms have an incentive to raise their prices after a monetary tightening in order to increase their cash flows before economic activity declines, transferring the cost of their behaviour into the future. Christiano *et al*. (1996) have succeeded in solving the price puzzle for the US, by introducing the commodity price index in the set of endogenous variables just before the interest rate variable in the Choleski decomposition of shocks. However, our inclusion of the commodity price index in the set of exogenous variables does not eliminate (or even weaken) the perverse response of prices.[23]

The exchange rate displays a similar perverse reaction to a contractionary monetary shock, i.e. it shows a statistically significant depreciation for about two and a half years. Analogous behaviour was observed for Italy by Barran

20. The error bands define a confidence interval of +/– two standard deviations.

21. Barran *et al.* (1996) report that the lowest effects on output are found in the countries where the trough is reached faster.

22. In overview, this explanation contains a particular asymmetry problem, whereby central banks have access to superior information and models than those accessed by the private sector.

23. The small country assumption justifies *a priori* the exogeneity restriction.

*et al*. (1996), who attributed the result to adjustments of the interest rate to defend the parity of the Italian lira in the ERM that were not sufficient to counter speculative pressures. Peersman and Smets (2001) also find this perverse effect for a number of EU countries (Austria, Belgium, Netherlands, Spain, Italy), but not for the euro area as a whole, when an area-wide average interest rate is used as an indicator of common monetary policy. However, when the German interest rate replaces the average interest rate, the results are characterised by a more pronounced exchange rate puzzle coupled with a price puzzle as discussed above.

The price and exchange rate puzzles encountered in our basic VAR model may be an indication that an important variable has been omitted; an obvious candidate is the M3 aggregate. The results from the VAR estimation with the monetary aggregate included as a fifth endogenous variable are presented in Figure 5-12. As in the previous experiment, a monetary policy shock is defined as a one standard-error increase in the innovation of the interest rate equation. As shown in Figure 5-12, the use of M3 helps deal with (but does not entirely eliminate) the price puzzle.[24] After the fourth month, the price level decreases gradually, remaining 0.1 per cent below its baseline path until the end of the time horizon. However, the exchange rate puzzle remains.

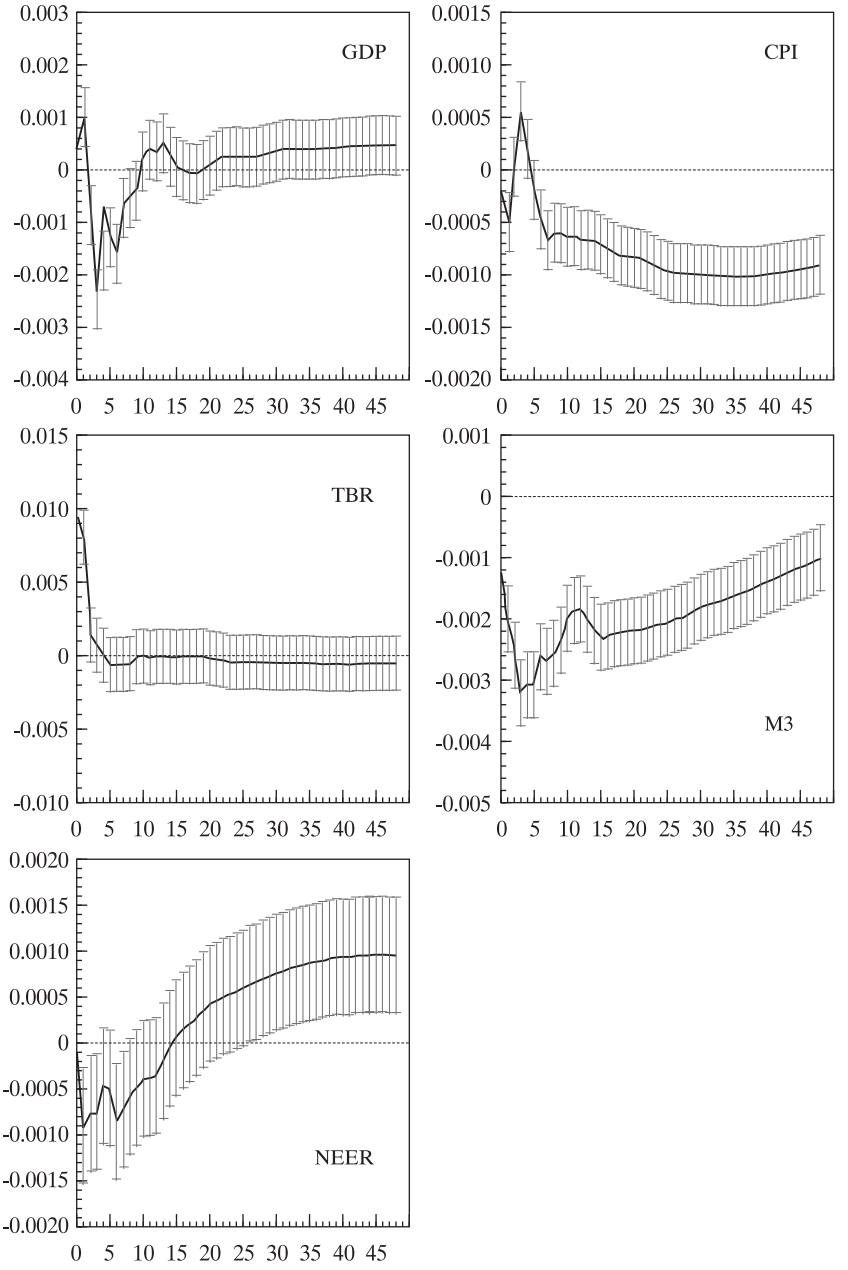
It is worth noting that the interest rate innovation implies a liquidity effect for M3 which persists over the whole time horizon, weakening, however, to about 0.1 per cent towards the end of the horizon (Figure 5-12). This negative response can be explained in terms of a substitution effect which dominates the positive effect that the short-lived rise in the general level of interest rates may have on saving behaviour. The direction of this substitution effect is a consequence of the fact that the short-term interest rate used as an indicator of monetary policy stance is a Treasury bill rate; as such, it represents an opportunity cost for holding M3.

GDP shows a clear negative response that begins almost immediately after the interest rate shock and is statistically significant for almost three quarters (Figure 5-12). Additionally, the impact of the interest rate shock on output in the short run is stronger than the impact of a shock of the same size on the price level, a result which is consistent with the findings of other studies (e.g. Kakes and Pattanaik, 2000).

As noted at the beginning of this section, the effective exchange rate is likely to have a significant information content for the monetary authorities'

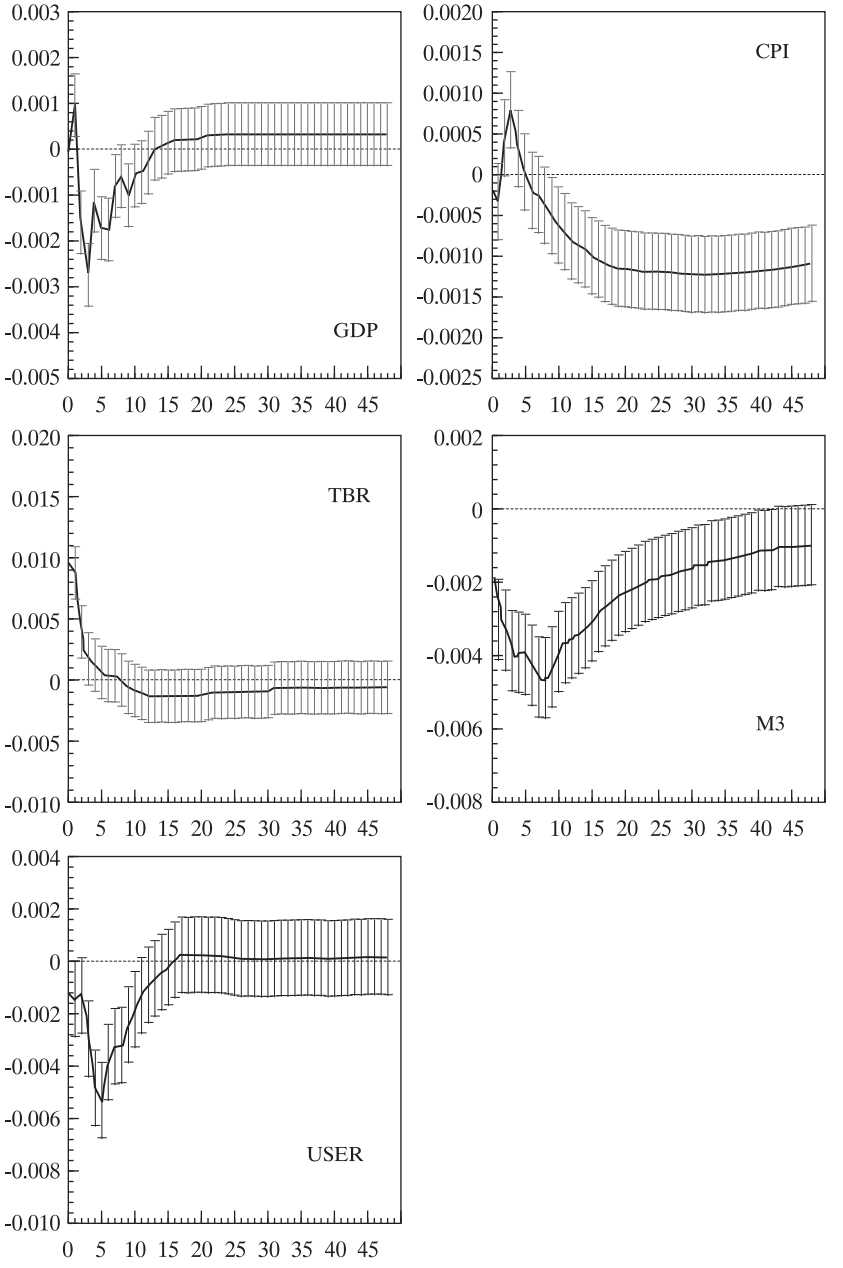
24. As indicated in the previous section, M3 has been used as an intermediate target/indicator during most of our sample period.

**Figure 5-12. Generalised Impulse Responses to One Standard-Error Shock in the Equation for the Interest Rate**




SOURCE: Authors' calculations.

**Figure 5-13. Generalised Impulse Responses to One Standard-Error Shock in the Equation for the Interest Rate**




SOURCE: Authors' calculations.

reaction function in view of the exchange rate targeting practice of the Bank of Greece. To help deal with this problem of identifying a truly exogenous monetary policy shock, we substituted the drachma/US dollar bilateral rate for the effective rate in the five-variable VAR which includes M3. The results are reported in Figure 5-13. As shown, this specification eliminates both the perverse price and exchange rate effects.[25] The interest rate innovation is followed by a significant domestic currency appreciation, reaching a peak after 5 months and remaining statistically significant for 5 more months. All other variables exhibit responses that are similar to those derived from the system including the effective exchange rate.

Next, we examined the response of the system to shocks in the bilateral exchange rate. The exchange rate shock represents an initial nominal exchange rate appreciation of about 2.5 per cent (one standard error). After the shock, the exchange rate returns gradually to its baseline level, remaining statistically significantly above it until the 8th month (Figure 5-14). By investigating the effect of the exchange rate shock on output and the price level, we focus on one dimension of the exchange rate channel of monetary transmission.[26] The response of output to an exchange rate shock does not exhibit a clear-cut direction. Output initially contracts (with a maximum effect of 0.20 per cent), but its movement is quickly reversed, recording a peak of about 0.12 per cent in the 10th month. It converges to its baseline path after 17 months. *A priori*, and based on traditional theoretical arguments, one would expect that GDP would fall after an appreciation of the nominal effective exchange rate. As Detragiache and Hamann (1999) note, this reaction is typical in countries seeking to stabilise their economy by targeting the growth rate of one or more monetary aggregates.[27] On the other hand, exchange-rate-based stabilisations may have positive effects on growth, associated with higher domestic demand, mainly through an improvement of the terms of trade and a corresponding rise in personal disposable income.[28]

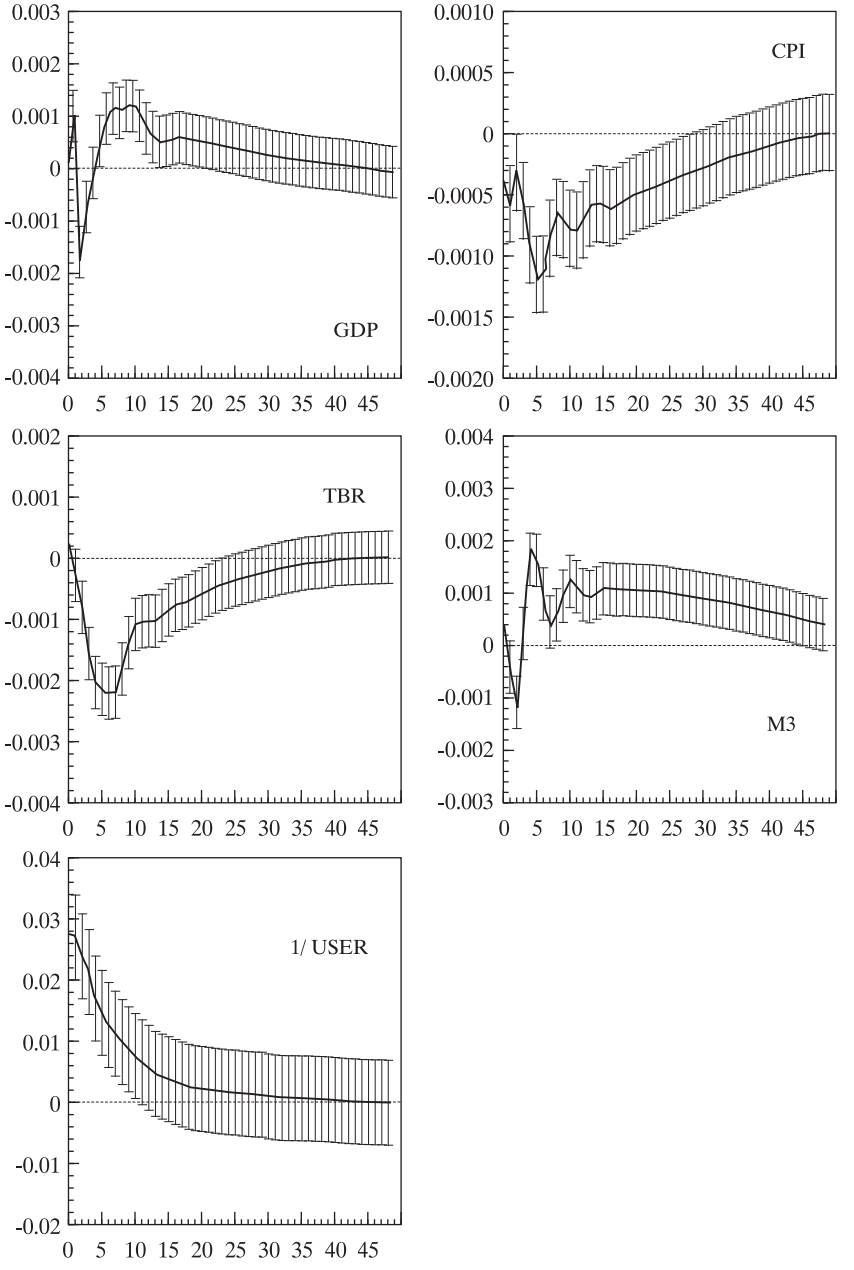
25. Price begins to decline after the fourth month.

26. The other dimension, i.e. the effect of the interest rate innovation on the exchange rate, has been considered above.

27. Kakes and Pattanaik (2000) found that for the euro area as a whole a (real) appreciation of the euro results in a fall in real activity. This may be seen as an implication of the fact that the anchor country of the system (Germany) has been targeting a monetary aggregate during most of the post-Bretton-Woods period.

28. Papazoglou (1999) argues that a (real) exchange rate appreciation may influence positively the total supply of goods and services by reducing the cost of imported raw materials, which are an important component of domestic production cost in a small open economy. Papazoglou found such a positive correlation to exist in the Greek economy for the period 1980-1997.

**Figure 5-14. Generalised Impulse Responses to One Standard-Error Shock in the Equation for the Bilateral Exchange Rate**




SOURCE: Authors' calculations.

Following the appreciation of the exchange rate, the price level falls significantly below its baseline level for about two years, with the maximum decline occurring in the 5th month. This result underscores the effectiveness of the hard-currency policy, which worked mainly through enhanced credibility effects.[29] It is also suggestive of a significant exchange rate channel. The negative response of the interest rate to an exchange rate appreciation, working through the reduction of inflation and the exchange risk premium, is an indication of credibility gains originating from a stability-oriented monetary policy.

As a next step, we extend the previous five-variable specification (with the bilateral exchange rate) by using the real share price index (nominal index deflated by the consumer price index) as a proxy for real wealth.[30] The impulse responses to an interest rate shock from this system, shown in Figure 5-15, do not appear to appreciably change compared with those from the five-variable system. The real share price index has the expected negative reaction to a monetary tightening and, interestingly, the response on impact is 25 per cent larger than the interest rate shock itself. This response remains significant for about 15 months, giving some indication about the existence of a wealth channel.

Finally, to examine aspects of the credit channel[31] we modify the five-variable VAR used above by replacing nominal with real M3 and including two bank balance sheet variables: (1) real credit to the private sector and (2) real bank holdings of securities.[32] The relative behaviour of bank credit and securities after a monetary tightening was used by Bernanke and Blinder (1992) to test for the existence of a distinct effect of monetary innovations through the supply of credit on real activity, beyond that obtained through the traditional interest rate channel.[33] If a credit channel is present, we would expect bank securities to respond with a faster and more pronounced effect than bank loans to a monetary policy shock, reflecting the special role that bank credit plays and, therefore, its imperfect substitutability with other balance sheet items. The

29. Cf Brissimis *et al.* (2000). Apart from its role in reducing inflationary expectations, the hard-currency policy operated through two additional channels: (a) by reducing the price of imported raw materials and final goods and (b) by imposing a discipline on Greek firms regarding the containment of their costs and their pricing behaviour. See Arghyrou (2000).

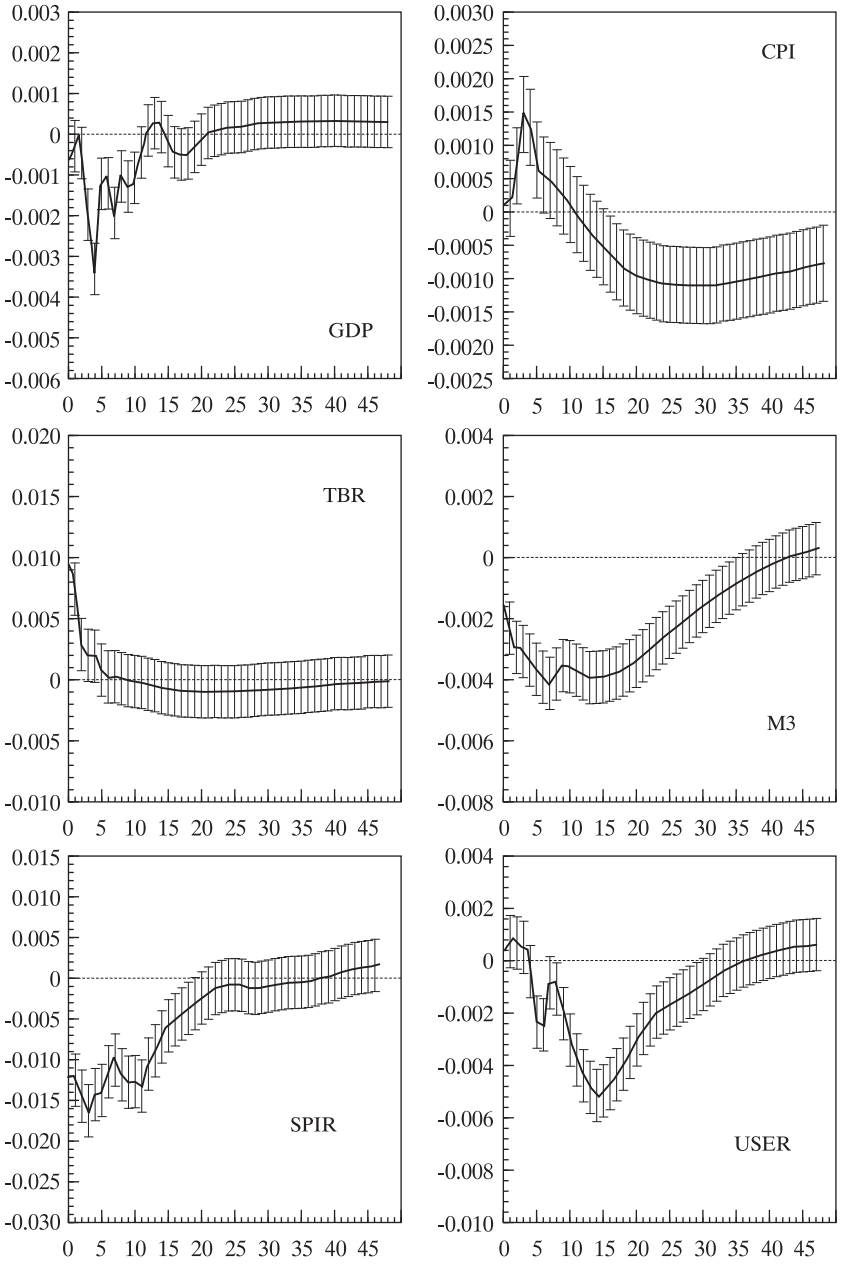
30. For a similar use of the real share price index, see Dhar *et al.* (2000).

31. Studies by Moschos and Zonzilos (1996) and Brissimis and Kastrissianakis (1997) examined the credit channel for the Greek economy using cointegration techniques. A theoretical discussion of the credit channel is provided by Voridis (1995).

32. Only a component of total bank portfolio of securities is used in the VAR, namely holdings of shares, since government paper was held, during a large part of our sample period, compulsorily in fulfilment of a secondary reserve requirement. This requirement was gradually phased out until the beginning of 1994 when the second stage of EMU started.

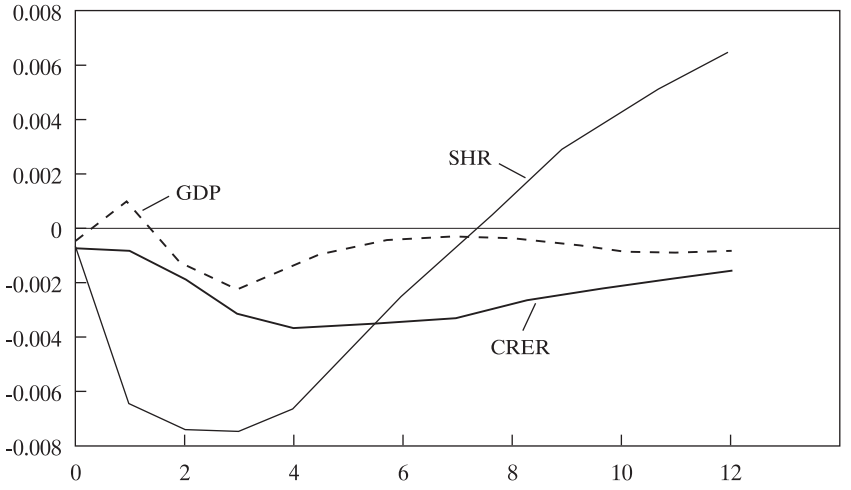
33. Contributions to the analysis of the credit channel include Bernanke and Gertler (1995), Kashyap *et al.* (1993) and Kashyap and Stein (2000).

**Figure 5-15. Generalised Impulse Responses to One Standard-Error Shock in the Equation for the Interest Rate**




SOURCE: Authors' calculations.

**Figure 5-16. Generalised Impulse Responses to One Standard-Error Shock in the Equation for the Interest Rate**




SOURCE: Authors' calculations.

results from the seven-variable system, shown in Figure 5-16, are generally in line with this aspect of the credit view of monetary transmission.[34] Indeed, the effect of a contractionary monetary policy shock is stronger and more immediate on bank securities than is the corresponding effect on bank loans. The time profile of GDP conforms with the respective profile of the effect of the policy shock on loans, while the magnitude of GDP reaction is considerably larger than what we get from the VAR without the bank credit variable. An alternative interpretation of the above results might be that the observed pattern could represent the purely passive response of loans to a falling demand for credit as a result of the initial monetary tightening. This line of argument, however, does not justify the observed changes in bank portfolio composition.[35]

## V. Conclusions

This paper examined issues in the implementation of monetary policy and the operation of the monetary transmission mechanism in the Greek economy. The main conclusions are as follows:

34. Unlike Bernanke and Blinder, we observe a less pronounced difference in the time profiles of these two balance sheets variables.

35. A similar view has been expressed by Bernanke and Blinder (1992) in the US context.

1. After the removal of the remaining restrictions on capital flows, the Bank of Greece had to deal with large capital inflows and occasional reversals of capital flows. The Bank's sterilisation operations were crucial in the implementation of the disinflationary strategy.

2. Regarding the transmission mechanism, there is evidence of an interest rate channel. A positive shock to the interest rate produces a significant, but short-lived, effect on real GDP. The effect of the interest rate shock on the exchange rate is not clear-cut and depends upon the particular specification used. A specification that includes M3 and the effective exchange rate shows a negative (perverse) relation between interest rate shocks and the exchange rate. This perverse effect is eliminated, however, when the drachma/US dollar rate is substituted for the effective exchange rate.

3. An appreciation of the exchange rate produces a gradual (negative) impact on the price level. At the same time, the exchange rate shock does not appear to have any significant effect on output. A plausible interpretation of these results is that the Bank's use of the exchange rate as a nominal anchor was viewed as credible by the markets, so that an appreciation of the exchange rate reduced prices, but not real growth.

4. The wealth channel appears to be of some significance. A shock to the interest rate has a strong, negative impact on real wealth. Although the behaviour of the other variables is quite similar when wealth is excluded from the VAR, the results of including wealth suggest that the wealth channel is a source of transmission of monetary policy shocks to economic activity.

5. Two variables were used to examine the existence of a credit channel – real credit extended by banks to the private sector and the real value of banks' security holdings. There is some asymmetry in the reaction of those two variables to a monetary shock. This outcome reflects the fact that the two variables are not perfect substitutes. The use of the credit variables produces a more persistent effect on real GDP compared with a VAR that does not include the credit variables, thus providing some evidence of a credit channel.

In sum, the VAR methodology has provided evidence with respect to the operation of the monetary transmission mechanism. Compared with the results of other studies, monetary innovations have a relatively fast effect on real output and prices in the Greek economy. Thus, the results form a basis for a comparison of the Greek transmission mechanism with analogous studies for other countries.

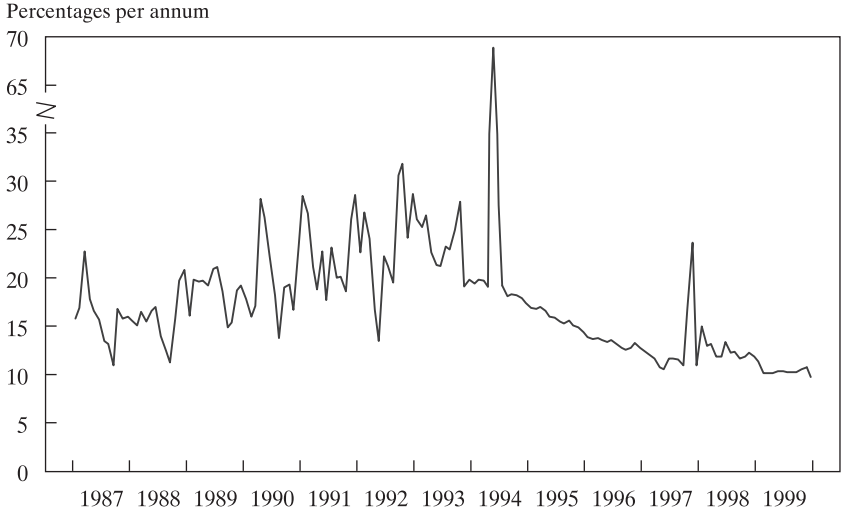
**Table 5A-1. Diagnostic Tests**[a]

| *Single equation tests* | | | | |
|---|---|---|---|---|
| *Variable* | *Autocorrelation AR 1-7, F(7,104)* | *Normality $\chi^2(2)$* | *ARCH F(7,97)* | *Heteroscedasticity ($x^2$) F(65,45)* |
| GDP | 0.4610 [0.8606] | 13.143 [0.0014] * | 0.4965 [0.8350] | 0.4259 [0.9992] |
| CPI | 0.4975 [0.8340] | 1.4913 [0.4744] | 2.3160 [0.0315] | 0.7137 [0.8944] |
| M3 | 0.7595 [0.6223] | 4.1539 [0.1253] | 1.2017 [0.3093] | 0.8685 [0.7021] |
| USER | 0.4325 [0.8798] | 1.9638 [0.3746] | 0.3371 [0.9350] | 0.5249 [0.9914] |
| TBR | 1.2228 [0.2970] | 290.2 [0.0000]** | 0.0670 [0.9995] | 0.2596 [1.0000] |

| *System tests* | |
|---|---|
| Vector AR 1-7 | F(175,362 ) = 1.0803 [0.2709] |
| Vector normality | $\chi^2(10)$ = 297.53 [0.0000]** |
| Vector $x^2$ | F(975,529) = 0.5108 [1.0000] |

a. AR 1-r is the Lagrange multiplier test for rth-order residual autocorrelation ; the normality test is the Doornik and Hansen (1984) test; ARCH is Engle's (1982) test of autoregressive conditional heteroscedasticity; $x^2$ is White's (1980) test for heteroscedasticity. the numbers in brackets are P-values. *(**) denotes rejection of the null hypothesis at the 5 per cent (1 per cent) level.

**Figure 5A-1. Overnight Interest Rate**




SOURCE: Bank of Greece.

## Appendix: Data Definitions and Sources

- GDP: Gross domestic product at constant market prices. As a monthly series on GDP is not available, this series was constructed on the basis of annual national accounts data and available monthly indicators of economic activity for the following sectors: agriculture (monthly values derived by dividing quarterly values by three; Ministry of National Economy, Quarterly National Accounts of Greece), mining, manufacturing and energy (sub-indices of the industrial production index, National Statistical Service of Greece – NSSG), construction (volume of construction permits and cement production, NSSG), transport and communications (passenger-Kms, freight ton-kms and telephone units charged, Bank of Greece, *Bulletin of Conjunctural Indicators*), trade (retail sales volume index, NSSG), banking (bank deposits and loans deflated by the consumer price index – CPI, Bank of Greece, *Monthly Statistical Bulletin,* and NSSG), housing (housing rents sub–index of CPI, deflated by CPI), other services (number or nights spent in hotels, Bank of Greece, *Bulletin of Conjunctural Indicators*), net indirect taxes (indirect taxes minus subsidies), deflated by CPI, Ministry of Finance, State General Accounting Office).
- CPI: Consumer price index, 1995=100 (NSSG).
- TBR: 3-month Treasury bill rate (Bank of Greece).
- NEER: Nominal effective exchange rate, 1995=100 (IMF, *International Financial Statistics* (IFS), line neu).
- USER: Drachma/US dollar exchange rate (IFS, line rf).
- MBA: Adjusted monetary base, calculated at constant 1979 reserve ratios (Bank of Greece).
- M1: Currency in circulation plus sight deposits (Bank of Greece).
- M3: M1 plus private drachma savings and time deposits, repos and bank bonds (Bank of Greece).
- M4N: M3 plus deposits in foreign currency by residents, units of money market mutual funds, and government securities with an initial maturity of up to one year (Bank of Greece).
- SPI: Composite share price index, 1980=100 (Athens Stock Exchange).
- CRE: Bank credit to private sector (Bank of Greece).
- SHR: Banking sector holdings of shares of non-banking firms (Bank of Greece).
- Commodity price index, non fuel comm. (IFS, line 001).
- US industrial production index (IFS, line 66..c).
- US federal funds rate (IFS, line 60b).

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## Comment by Frank Smets

A good understanding of how changes in the monetary policy stance affect the economy is important for an efficient implementation of a forward-looking monetary policy. Estimates of the strength of the monetary transmission mechanism (MTM) allow the central bank to calibrate the necessary actions to maintain price stability. Estimates of the lags involved can give an idea about how forward-looking policy needs to be and how much policy is still in the pipeline. Finally, a good understanding of the various transmission channels can help to monitor the effects of policy and provide information about which indicators should be used to measure the stance of policy. Now that Greece has joined the Eurosystem, it is also important to understand how changes in the single monetary policy will affect the Greek economy. This study is an important step in improving our understanding and I very much enjoyed reading the paper.

The paper of Brissimis *et al*. is structured in three parts. In the first part (Section II) the various channels of monetary transmission are described and their likely importance for the Greek case is examined. The second part (Section III) gives a quick overview of the changes in the policy strategy and framework over the estimation period and describes the capital inflows problem. Finally, the third part provides an empirical analysis of the effects of an interest rate change on the Greek economy using VAR analysis. In these comments I will concentrate on the third part.

Pioneered by Sims (1980), VAR analysis has been used extensively in order to study the MTM. For example, Christiano *et al.* (1998) survey the evidence for the United States, while Peersman and Smets (2001) examine results for the euro area. As emphasised by Sims (1980), the big advantage of the VAR approach is that one can let the data speak. No incredible identifying assumptions are necessary to estimate the effects of monetary policy changes. Nevertheless, it is important to recall two limitations. First, in order to interpret the VAR residuals as structural policy shocks, one needs to impose identifying restrictions. In the literature, there is a wide variety of possible identification schemes to distinguish domestic monetary policy shocks from other disturbances to the economy. These restrictions often seem to matter for the estimated impulse responses. In addition, modelling choices regarding which variables to include, how many lags to use, etc. must be made, which may also affect the results.

Second, because the VARs are non-structural in the sense that they do not allow to retrieve the structural parameters of the underlying behavioural equations, it is generally difficult to distinguish between differences in the structure of the economy and differences in the policy regime, when explaining estimated differences in the strength and lags of the MTM. This makes cross-country comparisons using VARs not easy. It also poses limits to what one can learn regarding the importance of the various transmission channels. For example, when the authors find that credit falls following an interest rate increase, it is impossible to distinguish between credit supply or credit demand effects.

This paper is a nice illustration of both the strengths and the weaknesses of the VAR approach in analysing the MTM. To solve the identification problem the authors use the generalised impulse response functions promoted by Pesaran and Shin (1998). This identification scheme permits an impulse response analysis which is invariant to the ordering of the variables in the VAR. As the authors note, the generalised impulse responses only coincide with the orthogonalised responses generated by the traditional Choleski decomposition in the case of impulse responses to the shock in the first equation of the VAR.

The authors show that a simple VAR in output, prices, the 3-month Treasury bill rate and the nominal effective exchange rate does not deliver satisfactory results. Following a tightening of monetary policy as captured by an increase in the short-term interest rate, output falls but not very significantly, prices rise and the exchange rate depreciates (Figure 5-12). The basic model therefore exhibits a price and exchange rate puzzle. This may be due to an identification problem. When the estimated shock is really a response

to speculative pressures, such as those experienced in 1994 and at the end of 1997, then one could expect such a shock to be followed by an exchange rate depreciation, a rise in prices, small output effects and a very temporary interest rate rise.

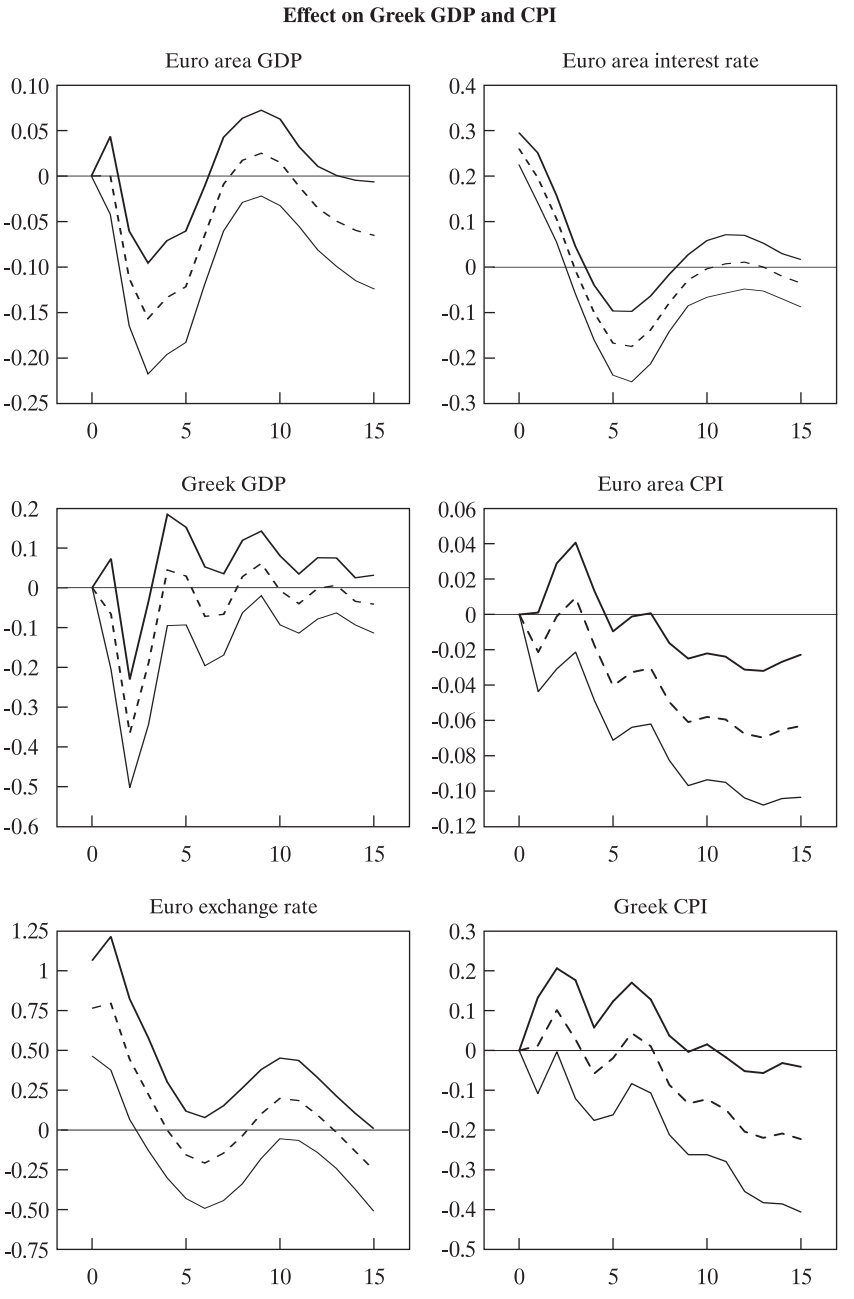
The authors solve the price and exchange rate puzzle in the basic model, by including M3, which was an important intermediate target during most of the period under consideration, and by replacing the nominal effective exchange rate by the US dollar/drachma bilateral exchange rate. Although the dollar exchange rate appreciates following a monetary policy tightening, it would be nice to see how the nominal effective exchange rate behaves in this case (e.g. by including both of them). Another possibility to solve these problems would be to change the identification assumptions. An example is given in Mojon and Peersman (2001) (see below).

Let me add two further remarks. In Section III, the authors document how the monetary policy regime has evolved over the sample period from one in which policy was geared towards monetary aggregates to one in which the stability of the exchange rate was of primary importance. Such changes in regime are likely to make the VAR unstable. It would therefore be nice to see some stability tests to that effect. It would also be nice if the authors could make the link between the periods of monetary policy tightness identified by the VAR (e.g. through the historical contribution of the policy shocks to the interest rate) and the description of the monetary policy framework in Section III.

Overall, the estimates of the extended VAR model behave remarkably well. This is confirmed by the extensions which show that a policy tightening also leads to a fall in share prices and a fall in bank credit and securities. While it is difficult to assess the relative importance of the various channels, this confirms that, following the process of financial deregulation, the Greek economy responds very much like most market economies to changes in monetary policy. Another interesting result the authors obtain is that a change in the exchange rate very quickly feeds through into prices and has only limited effects on output. This is likely to reflect the openness of the Greek economy and the fact that, due to the experience with high inflation, changes in the exchange rate strongly affect inflationary expectations.

How relevant are these results for Greece's participation in EMU? An important question is whether changes in the single monetary policy will have similar effects on the Greek economy as on the rest of the euro area. If not, the single monetary policy could itself be a source of macro-economic instability. This question is difficult to answer on the basis of the results presented. First, as discussed before, the results are regime-dependent. In particular, the

**Figure 5B-1. Euro Area Interest Rate Shock**




SOURCE: Author's calculations.

methodology captures the effect of an interest rate increase in a regime of exchange rate targeting with a relatively high inflation rate. In contrast, the EMU regime is characterised by price stability around a low inflation rate and much less concern with exchange rate developments. Second, the transmission mechanism analysed in this paper relates to a unilateral domestic monetary policy shock. In the context of EMU the effects of a common monetary policy shock in the euro area on the Greek economy will be of relevance. As a result, trade within the euro area will tend to smooth out differences in the impact effects of a euro area monetary policy shock.

In order to assess the robustness of the results, it is therefore important to also consider alternative evidence. One piece of evidence is presented in Mojon and Peersman (2001), who use an alternative identification scheme to compare the transmission of monetary policy in the euro area countries. Mojon and Peersman (2001) estimate a quarterly model over the period 1980-1999 and find that, if anything, the effects of an interest rate increase in Greece are somewhat larger than those in the euro area on average. Mojon and Peersman (2001) also do not find an exchange rate puzzle as the DM-drachma exchange rate appreciates immediately following a tightening of policy.

In order to see whether the picture changes when the effects of a euro-area-wide monetary policy shock are considered, it is interesting to extend the basic model in Peersman and Smets (2001) with Greek output and price variables. The impulse responses to an area-wide monetary policy shock are shown in Figure 5B-1. The estimation period is 1980-1998. A comparison of the output and price effects in the two economies shows that the output effect is quicker and stronger, but less long-lived in Greece. The figure also shows that, while the price effects take about the same time to become significant, they are much larger in the Greek economy.

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## Comment by Lawrence R. Klein

As Greece enters the European monetary union, it is important to recognise the achievement and to assess the framework for analysing the channels of monetary policy. It has been a singular achievement for Greece to put the economy in order for qualification in the system. Performance has been noteworthy in that inflation has been brought to very low levels, while real expansion of production has been consistently good, although not enough to reduce unemployment to the best of world standards.

In the joint paper (Brissimis, Magginas, Simigiannis and Tavlas) the authors lay out channels of transmission of monetary policy. It is my opinion that they focus on the right channels, such as interest rate, exchange rate, wealth, and credit, but it is my feeling that a suitable framework of analysis needs to be further developed for implementation of policy. More disaggregation than they propose will also be needed.

The market expectation, term structure, and capital flows need to be analysed in a more detailed way in order to cope with the ongoing features of financial innovation. A modelling system to deal with the complexities and interrelationships of modern financial markets should, in my opinion, be reconsidered.

By analogy, for studying demand and supply flows of goods and services through the economy at large, it is fruitful to formulate national income and product accounts (NIPA) to cover major demand and income or production flows to generate such totals as GDP, national income, personal income, types of national expenditures, types of national income. The system would then be rounded out with market-clearing relationships to determine prices, wage rates and various other financial market rates.

At a second stage of analysis, on the supply side of the economy, there are input-output accounts that show the flows from any one sector of the economy to be used in all other supplying sectors of the economy, and also appropriately related to original factor inputs, on the one hand, and final demand sectors, on the other. This accounting statement shows the internal structure of production, to accommodate the NIPA, and is proving to be very important in analysing technical change that is presently taking place on a large scale on the productivity side of the economy. The laws of production are embedded in the input-output accounts.

Finally, we come to a third set of accounts that depict the financial flows of funds throughout the economy. (Table 5B-1 presents a flow-of-funds matrix

**Table 5B-1. Flow-of-Funds Matrix for Lithuania, 1995**
Million Lithuanian Litai

| | *A* | *B* | *C* | *D* | *E* | *F* | *G* | *H* | *I* | *J* |
|---|---|---|---|---|---|---|---|---|---|---|
| | *Central government* | | *Banking sector* | | *Private sector* | | *Rest of world* | | *Total* | |
| | *U* | *S* | *U* | *S* | *U* | *S* | *U* | *S* | *U* | *S* |
| Gross capital formation | 925 | | - | | 4,464 | | | | 5,389 | |
| Gross saving | | 368 | | 120 | | 3,529 | | 1,372 | | 5,389 |
| Surplus/deficit[a] | -557 | | 120 | | -815 | | 1,372 | | - | |
| Changes in: | Fin. assets | Fin. liab. | Fin. assets | Fin. liab. | Fin. assets | Fin. liab. | Fin. assets | Fin. liab. | Fin. assets | Fin. liab. |
| Foreign claims, net | | | 424 | | | | | 424 | 424 | 424 |
| Central gov't debt | | 980 | -75 | | 279 | | 776 | | 980 | 980 |
| Private credit | 461 | | 651 | | | 1,808 | 696 | | 1,808 | 1,808 |
| Money+quasi money | | | | 1348 | 1,348 | | | | 1,348 | 1,348 |
| Misc. & discrep. | | 38 | | -468 | | 754 | 324 | | 324 | 324 |
| Total | 1,386 | 1,386 | 1,000 | 1,000 | 6,091 | 6,091 | 1,796 | 1,796 | 10,273 | 10,273 |

SOURCE: Dawson (1998).
a. On line 3, positive values show a surplus and represent net lending, negative values show a deficit and represent net borrowing.

for Lithuania.) This accounting system, as a balanced statement for the macroeconomy, has not been as fully developed as the NIPA and input-output accounts, but it is extremely important, both for providing insight into the market determination of many key rates such as short-term money market rates (overnight and up to a few months), yearly rates, 5-year, 10-year, 20-year and longer rates. For risk-free securities, these spell out the important US Treasury yield curve and are central for monetary policy formulation. But the yield curve in the US is highly variable and not capable of providing simple estimates of rates by maturity. In addition the sources and uses of financial funds are significant for understanding the determination of currency exchange rates, mortgage rates, medium-to-high bond yields, bank lending rates, broker loan rates and other financial market indicators, including even equity market prices or rates of return.

The sources and uses or flow-of-funds accounts are essentially tabulations that follow financial flows "from-whom-to-whom" by classes of instruments. The latter are bank deposits, bonds, loans, equities and all their main derivatives that are traded on established markets. They indicate key spreads, such as those between short-term rates and longer-term rates, between rates on risk-free securities and risky securities of the same maturity, or between rates on inflation-protected securities and unprotected securities. In fact, the latter spread provides important objective insight into the subjective concept of inflationary expectations.

Another way of looking at flow-of-funds accounts is that they are the first difference (in time units) of the balance sheets of the major financial institutions and their customers. At a convenient macroeconomic level, these institutions are central banks, commercial banks, investment banks, insurance companies, real estate companies, trading companies, non-financial companies, households, Treasuries and partner countries in trade.

They can be arranged in matrix layouts in such a way that the entries in the matrices are functions of market variables, such as the whole spectrum of rates on instruments. Market transactions clear in such a way as to determine these rates by balancing supply against demand for the separate financial instruments.

It is my belief that the channels of monetary policy should be studied through construction of the implied matrices, period-by-period, in samples of statistical data and that equations be estimated to display the inter-relationships among the fund flows. Such analysis is far more revealing about the workings of the monetary mechanism than are automatic VAR relationships among assorted money market variables. The latter are unguided by structure —legal, accounting, behavioural structure. At a time when there is signi-

ficant technological change taking place in the functioning of financial markets, it is more sensible to study the channels of monetary policy guided by the accounting structure of flow-of-funds than by searching for unstructured correlations.

In the accounts for private domestic companies, the instruments whose flows are being tracked by a flow-of-funds system are holdings of portfolio equity investments, bonds, lines of credit, foreign direct investments, specific bank borrowing, grants-in-aid and borrowings from the central bank or international institutions.

The domestic monetary sector holds foreign reserves, credit extended to foreign firms, credit extended to domestic firms, deposit liabilities and reserves with the central bank.

Such accounts in terms of instruments supplied or instruments used show how funds are acquired or put to work and the first differences show the corresponding flows. At a higher stage of formal model building, these accounts need to be integrated with the NIPA and input-output systems.

The financial crises that arose in Latin America, East Asia and the former Soviet Union are best understood by tracking financial flows of different types through such systems as are described above and showing how key rates are market-determined through supply-demand clearing of available instruments.

Admittedly, the data problem in constructing a usable historical record of fund flows and in maintaining it on a timely basis for the future constitutes a big order, but a vibrant central monetary authority can do this more readily than anyone else. In the new world of *technical* change in financial operations and *institutional* change on the European continent, it would seem that this could be a research task of high priority for the individual national member participants.

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# 6 EU Transfers and Greece's Real Exchange Rate: A Naked Eye View

John Spraos

## I. Introduction

TRANSFERS from the European Union (EU, formerly EC and EEC) to Greece peaked at 4.4 per cent of GDP in 1993 and have hovered around the 4 per cent mark ever since (Table 6-1).[1] They ought to make a good case study of the effects of transfers on the real exchange rate that so fascinated leading economists in the inter-war years.

In practice there is a major difficulty which makes econometric testing unpromising: economic influences on the exchange rate were mediated by policy makers' decisions and there is enough anecdotal evidence to suggest that they could not generate quarterly or even annual observations which exhibit regularities in relation to underlying events, even though, over longer intervals, policy responses could be presumed to have kept in step with economic forces at work. An alternative way of saying this, only half in jest, is that so many policy dummies would be needed that there would be few degrees of freedom left. This leaves on the table the naked eye approach, which is being attempted here, and counterfactual simulation, such as the one reported in the Appendix.

The presumption established in the inter-war analysis of unilateral transfers, which was conducted in the context of war reparations, was that the

The warm thanks due to the discussant A. Philippopoulos have to be mixed with strong apologies to him and to other participants at the conference for ending up with a paper radically different in content, though not in subject, from that presented at the conference. Warm thanks are also extended to the following members of the Economic Research Department of the Bank of Greece who were consulted and/or helped with data advice and collection: E. Emmanouil, G. Hondroyiannis, N. Karabalis, K. Karsikis, A. Manassaki, B. Manessiotis, B. Rodi, I. Sabethai, N. Tsaveas, P. Tzamourani, G. Zombanakis, and N. Zonzilos.

1. The 3.3 per cent recorded in Table 6-1 for 2000 is an aberration associated with bureaucratic delays in the disbursement of funds. See Section III, Step Three. When corrected for that, the 1999-00 average comes to 4.1 per cent.

**Table 6-1. Net EU Transfers[a]**

| *Year* | *Per cent of GDP* | *Year* | *Per cent of GDP* |
|---|---|---|---|
| 1981 | 0.3 | 1991 | 4.4 |
| 1982 | 1.2 | 1992 | 4.1 |
| 1983 | 2.0 | 1993 | 4.3 |
| 1984 | 1.7 | 1994 | 4.3 |
| 1985 | 2.1 | 1995 | 4.3 |
| 1986 | 2.9 | 1996 | 4.1 |
| 1987 | 3.0 | 1997 | 3.8 |
| 1988 | 2.9 | 1998 | 3.9 |
| 1989 | 3.8 | 1999 | 3.6 |
| 1990 | 3.4 | 2000 | 3.3[b] |

SOURCES: Bank of Greece, Balance of Payments data and (for GDP) Ministry of National Economy (2001). For GDP in 2000, Ministry of National Economy, *Stability and Growth Programme of the Year 2000, 2000-2004.*

a. Settlements data. Net transfers = gross inflow minus national contribution to EU budget.

b. See footnote 1.

transfers would cause the real exchange rate of the transferee country to appreciate. This will be labelled hereafter the "classical" analysis or hypothesis.[2] It was wholly demand-driven. The Greek case differs in that it has a supply dimension that would be expected to push the real exchange rate in the opposite direction. The consequent ambiguous prediction adds some spice to the empirical investigation.

Section II sets out in very broad strokes some theoretical guidelines. It has two parts: II.1 covers the classical case and II.2 adds transfer-fuelled growth. The basic empirical donkey work is done in Section III. It is, unsurprisingly, a long section. Section IV draws the basic conclusion and a few closing observations are made in Section V. The Appendix reports on the simulation exercise and assesses the consistency of its results with those obtained through the naked eye analysis.

## II. A Theory Primer

For many decades now, the literature on transfer theory and related empirical work has been concerned with the welfare aspects of transfers (Brakman and Van Marrewijk, 1998), but it was the balance of payments and real exchange

2. It is classical in that it assigns an important adjustment role to a relative price change (Viner, 1937, Ch. VI) but, as used here, it allows also for the demand consequences of the income redistribution effected by the transfer. The usage here comes closest to that of Johnson (1956).

rate aspects which had earlier preoccupied Keynes, Ohlin, Pigou and others. The present paper falls in the latter tradition. An extensive literature over the last thirty years on the so called Dutch Disease has points in common but is not featured here. (See, however, footnote 6.)

### *II.1 The Classical Story*

The demand-driven classical theory which emerged was perfectly encapsulated in a pithy statement by Keynes (1929): "If £1 is taken from you and given to me and I choose to increase my consumption of precisely the same goods as those of which you are compelled to diminish yours, there is no Transfer Problem". Relative prices stay constant and the external current account between our respective countries (inclusive of transfers) remains unchanged. But, typically, our respective consumption habits are biased in favour of home goods. The transfer, therefore, raises (lowers) the demand for the transferee (transferor) country's goods and so the transferee's relative prices rise and/or its external current account (inclusive of transfers) improves. This is the classical prediction, at least for countries which are not very small and have a reasonably diversified production range, where the postulated demand bias obtains.

The demand bias, together with an additivity assumption (see below), is sufficient to lead to the famous and much loved by textbooks (for example, Winters, 1985) criterion: $m + m^* < 1$ (where m is the marginal propensity to import and the asterisk denotes the transferor), which says that the sum of our import changes (my increase and your reduction) falls short of the transfer and so the transfer generates excess demand for my goods, from which the real exchange rate/current account result follows.

The additivity assumption is satisfied if my spending stream is increased and yours decreased by the full amount of the transfer. This may fail to happen. For example, the transfer may provide finance which substitutes for other fiscal funding. The data on public investment lend themselves to such an interpretation (Table 6-2). But offsetting changes under other fiscal headings can occur. So, in the end, checking for additivity requires answering the counterfactual question: what would have been the fiscal balance had there been no transfers? This looks like an unanswerable question, but over the long term it is not. For the overriding long-term fiscal constraint for Greece has been the attainment first of the Maastricht Treaty fiscal criterion (deficit less than 3 per cent) and, subsequently, of the target of the EU

**Table 6-2. EU and National Funding of Public Investment and Agricultural Support**[a]
Per cent of GDP

| | *Public investment* | | *Agricultural support* | |
|---|---|---|---|---|
| *Year* | *Government-funded*[b] | *EU-funded* | *Government-funded*[c] | *EU-funded* |
| 1975 | 4.2 | | 1.0 | |
| 1976 | 4.1 | | 0.9 | |
| 1977 | 3.9 | | 0.8 | |
| 1978 | 3.7 | | 0.4 | |
| 1979 | 3.7 | | 0.5 | |
| 1980 | 3.1 | | 0.4 | |
| 1981 | 3.7 | | 0.6 | |
| 1982 | 3.6 | | 0.4 | 1.5 |
| 1983 | 4.4 | | 1.4 | 2.1 |
| 1984 | 4.6 | | 1.2 | 1.9 |
| 1985 | 4.7 | | 1.6 | 2.2 |
| 1986 | 4.1 | 0.4 | 1.4 | 3.0 |
| 1987 | 3.7 | 0.5 | 1.4 | 2.9 |
| 1988 | 3.5 | 0.5 | 1.1 | 2.6 |
| 1989 | 3.5 | 0.4 | 1.1 | 2.9 |
| 1990 | 2.9 | 0.6 | 1.1 | 3.1 |
| 1991 | 3.0 | 0.7 | 0.9 | 3.3 |
| 1992 | 2.9 | 1.0 | 0.7 | 3.3 |
| 1993 | 2.1 | 1.3 | 0.7 | 3.9 |
| 1994 | 2.1 | 1.2 | 0.4 | 3.7 |
| 1995 | 2.4 | 1.2 | 0.5 | 3.1 |
| 1996 | 1.8 | 1.8 | 0.6 | 3.3 |
| 1997 | 1.5 | 2.1 | 0.4 | 2.9 |
| 1998 | 1.4 | 2.5 | 0.3 | 2.6 |
| 1999 | 1.8 | 2.6 | 0.3 | 2.8 |
| 2000 | 1.8 | 2.8 | 0.3 | 2.9 |

SOURCES: Ministry of National Economy, Indroductory Report on the Budget (various issues). Elaboration of data by Bank of Greece Economic Research Department. Conversion to percentage of GDP based on GDP data sourced as in Table 6-1.

a. Budget-based data. Not comparable with Table 6-1 which is settlements-based and net of national contribution to EU budget.

b. Total public investment *minus* EU-funded.

c. Total budgetary support *minus* CAP funds channelled through Budget.

Stability and Growth Pact (close to balance). This implies that total fiscal spending could (and, in practice, would) be higher to the full extent of the transfers, in effect, full additivity.[3]

A simple formula almost invariably comes at the price of some strong assumptions. Two need to be highlighted here: (a) only two countries – trans-

3. The counterfactual is a Budget close to balance but no EU transfers. Note that most CAP funds do not pass through the Budget. Nevertheless, there could be an associated reduction in farm support from the Budget (see Table 6-2), but, if so, the macro-additivity argument would still apply.

feror and transferee; (b) only one homogeneous product in each country. These assumptions need to be confronted but with due regard to the need to keep complications under tight control.

Assumption (a) can be retained, fairly innocuously, by aggregating the transferor country and the rest of the world (the "transferor" label now applying to the combined entity), while choosing a real exchange rate index that has a wide coverage of the transferee's trading partners and at the same time focusing on a comprehensive (not a regional) external current account balance.

Assumption (b) suppresses the useful distinction between tradeables and non-tradeables, which has been of long standing but acquired pronounced analytical prominence long after the classical analysis was formulated. Admitting this distinction adds the relative price between tradeables and non-tradeables to the terms of trade (previously coterminous with the real exchange rate) in the price adjustments triggered by the transfers. Much theoretical literature of recent decades discards the terms of trade by making them invariant, thanks to the "small country" assumption. The real exchange rate then becomes identified with the relative price between tradeables and non-tradeables. But a small country in this technical sense must be getting more and more difficult to find, as even primary products are increasingly branded and as goods go through chains of production and distribution which are held together by more than price. There is, thus, a role, for both relative prices.[4]

In the spirit of the classical analysis, the transferee's real exchange rate, which now has two parts, responds to the transfers by appreciating on account of both: the terms of trade improve and the price of non-tradeables relatively to tradeables rises. The latter induces resources out of tradeables and thus contributes to creating the deficit in the external current account (excluding transfers) that is needed to match the inflow of transfers, bringing about a new equilibrium. But it need not necessarily be the case that both prices pull in the same direction, a matter that will be considered below.

The choice of index to represent the real exchange rate is critical. It must capture both parts. The CPI-deflated real effective exchange rate (REER) index best fits the bill. It will be designated REER(C).

4. The relative price of non-tradeables is an average of relative prices vis-à-vis importables and exportables respectively, with the shares of the last two in the consumption basket or in GDP acting as implicit weights. As the shares change with changes in the terms of trade, there is some conceptual fuzziness here that cannot be avoided.

The REER(C) index fits best but does not fit perfectly. The problem is that the shares of non-tradeables and importables/exportables in the CPI index need not coincide with the relative importance of the two relative prices in the adjustment process (which depends on income and substitution elasticities as well as shares). If quantification were the object, which it is not, this would be serious. In a qualitative assessment, which seeks to discern only the direction of movement, there is no problem if both prices pull in the same direction, as they do in the scenario of the penultimate paragraph. But, conceivably, they may not.

This can be seen as follows. Under the small country assumption, a rise in the relative price of non-tradeables is unambiguously predicted in response to transfers, given that the terms of trade are firmly tied to unchanging foreign prices. But suppose that the gravitational pull of foreign prices is weak and that the propensity to consume non-tradeables out of the transfers is very low. The terms of trade will then greatly improve (mostly via a rise in export prices if the transferor is a much bigger country) but the relative price of non-tradeables could decline. The latter hinders the adjustment process and the improvement in the terms of trade will have to be sufficient to compensate for that. When the parts are properly weighted, the combined effect shows up as an appreciation of the real exchange rate. But, with a severe misalignment of weights, the REER (C) index may show a false negative. (A false negative could also arise from a combination of terms of trade that deteriorate and a relative price of non-tradeables which rises.) A false positive is also conceivable. It may be possible to show that such results are inconsistent with a dynamically stable system [in the sense of Samuelson (1947, Ch. IX)]. In the meantime, the reservation of a possible false reading has to be kept in mind, a reservation, however, which rests on a confection of extreme parameter values.

To keep track of prices of traded goods, a REER index deflated by export prices will be used in addition to the REER(C) index. This is not in order to pursue the points raised in the previous paragraph, which are generally too small to be identifiable, but so that some of the other things that did not stay equal can be traced through.[5]

5. Many other REER indices are published: deflated by the GDP implicit deflator (European Commission), by the wholesale price index (Bank of Greece; J.P. Morgan) and by unit labour costs in manufacturing (Bank of Greece; European Commission; IMF; OECD) and in the whole economy (European Commission). There is also an index deflated by the consumption implicit deflator (European Commission) that correlates reasonably with the REER(C) indices but, like all the indices computed by the European Commission, does not go back further than 1983.

### *II.2 Transfer-Fuelled-Growth*

In the classical analysis no supply shift is generated by the transfers. They just affect consumption, and the demand-driven mechanism follows from that. In the context of war reparations, in which the theory was formulated, this was probably reasonable. But it is insufficient in the present context. The loosening of the national budget constraint, thanks to the transfers, may be reflected in higher investment. Indeed, from the mid-1980s, an increasing, and ultimately very substantial, fraction of EU transfers has been tied to structural projects, including major infrastructural works with big supply-boosting potential.

Suppose, for the sake of argument, that the entire transfer is fully devoted to more investment. The classical mechanism is still at work as the investment outlays translate into household incomes. But, additionally, the growth rate increases. (Think, if you wish, of an endogenous growth scenario.) Reverting for the time being to the assumption of one good per country, supply-propelled growth shifts the transferee's offer curve outwards: at each terms of trade (coterminous again with the real exchange rate, while the one good assumption lasts) more of the transferee's good is supplied and, thanks to higher incomes, more of the transferor's good is demanded, relatively to the baseline. The transferee's real exchange rate depreciates and the depreciation is cumulative.

Now bring back non-tradeables. The previous story stands if the shifts in output (productivity) and in demand are unbiased, i.e. if the transfers-induced productivity growth is sectorally equiproportionate and all income elasticities equal one. In such a case the relative price of non-tradeables is not affected by the growth effect of the transfers, and tradeables and non-tradeables can be aggregated into one good.

But deviations from the assumption of unbiased growth arise because productivity rises faster and income elasticity is higher in tradeables than in non-tradeables. Taking these as stylised facts (though the second cannot be taken for granted in the case of Greece – see Section III, Step Four), it is evident that they enhance the depreciating force of the growth effect on the real exchange rate by boosting the supply of exportables and the demand for imports. (All this refers to the incremental growth rate generated by the transfers. Of the observed total growth rate, by far the largest part is exogenous in the present context and deviations from growth rate norms are addressed in Section III, Steps Three and Four.)

Thus, the growth effect, in clearly pushing towards real depreciation, clashes with the classical hypothesis.[6] At this level of abstraction the net effect is, therefore, ambiguous.

An interesting complication in the EU context is that the release of structural funds is conditional on national co-financing. The rules are complex but, *ex post*, Greek public funds in co-financed projects have reached 60 per cent of EU funds in recent years.[7] At the micro level it seems that the system has a built-in super-additivity, yet at the macro level this is not inconsistent with substitution, as projects which would have been financed wholly domestically are either discarded or switched to co-financing. The evidence of macro-substitution is rather striking (Table 6-2) and will be given some emphasis in Section IV. Such substitution reduces the potency of the supply side and, in thus limiting the magnitude of the growth effect on the real exchange rate, it creates a certain presumption that the classical effect will be dominant. (The additivity question looked at from the demand side has been considered in II.1.)

## III. The Naked Eye at Work

In testing with the naked eye whether the classical hypothesis was dominant, four steps need to be taken.

Step One. Calculate the change in the real exchange rate over the relevant period.

Step Two. Make needed adjustments to the measured change.

6. In the extensive Dutch Disease literature, which deals with a problem analytically close to that of unilateral transfers, one of the stories that is told is the following. A country becomes the recipient of a recurrent, foreign currency-denominated, gift of nature, say North Sea oil. Its real exchange rate appreciates and squeezes its tradeables sector. But tradeables offer scope for Learning by Doing. This can be captured by relating the growth rate of non-oil GDP to the share of tradeables in non-oil GDP. As the share in question is reduced by the influx of oil, the non-oil growth rate declines. (Van Wijnbergen, 1984, was the first to articulate this. But see Torvik, 2001, who challenges the assumption that Learning by Doing is especially associated with tradeables.) As this is not consistent with the proposition advanced here —that transfers raise the growth rate— a few comments may be in order. It is implicit in the said oil story that nature's gift is all consumed (or, if invested, its effect on growth is transitory, as in the neoclassical growth model, and small), whereas here the context is of transfers which, through investment, accelerate growth. Second, the effect on growth in the oil story is a consequence of the real exchange rate change that is generated. Therefore, unlike the argument in this paper, growth cannot affect the direction of the exchange rate.

7. Increasingly, private financing has been pencilled-in in EU-supported projects, rising to a projected 20 per cent of the total in the third CSF programme (2000-06). Foreign capital is eligible but so far it has not had a strong presence. Private participation is encouraged by the EU but, unlike public participation, it is not a requirement.

Step Three. Correct for incomparabilities at the two ends of the period.
Step Four. Investigate the "other things" which may not have stayed equal between the two ends.

### *Step One*

As previously indicated, the chosen measure of real exchange rate movements is the REER(C) index. Its path registers vividly a succession of policy episodes[8] since the effective beginning of EU transfers in 1982. But the episodes have come and gone, they are now water under the bridge. To bypass them, the change of the REER(C) that will be deemed relevant will be between a "point" just preceding the start of the EU transfers and the nearest point to the present. Reliance on a comparison between end points is not, in general, statistical best practice. But objections would be alleviated if the end points could be rid of accidental encumbrances. An effort will be made to do just that. Random disturbances of limited duration will be (hopefully) smoothed out by averaging over a period of time and identifiable exceptional phenomena or abnormalities that survive the averaging, including deviations from fundamental equilibrium, will be removed or adjusted for.

It happens that, at the near end, the devaluation of the drachma by 12 per cent in March 1998 can be construed as aiming at establishing a (central) parity as close to fundamental equilibrium as it is possible to get, since it was intended as the parity at which the Greek economy was to be locked-in on joining the euro area on 01.01.01. Adjusted for certain unintended deviations, the average of the REER(C) index in 1999-00 will be taken, for the time being, as standing at the ("revealed") fundamental equilibrium level. This is convenient for expository reasons and in due course it will be tested against the criteria for fundamental equilibrium.

The concept of fundamental equilibrium is elusive in practice but, keeping things at their simplest, it will be taken to mean an exchange rate consistent with an acceptable external current account balance and a satisfactory growth

8. In 1982 there was a very big rise in nominal wages accompanied by indexation. This was followed in 1983-84 by a temporary postponement of the indexing, in turn followed, in late 1985, by a devaluation of 15 per cent and a severe incomes policy. The incomes policy was relaxed in 1988 and a long period of a hard-drachma policy began, mild at first, but tough by the mid-1990s. *De jure* the hard drachma ended in March 1998 with a devaluation of the central parity by 12 per cent vis-à-vis the prospective euro (later reversed by a quarter), but *de facto* the drachma remained above its central parity, though to a decreasing extent, until the end of 2000.

**Table 6-3. Real Effective Exchange Rate Index Deflated by CPI**
1990=100

| *Year* | *Bank of Greece* | *Year* | *Bank of Greece* | *IMF* | *Year* | *Bank of Greece* | *IMF* |
|---|---|---|---|---|---|---|---|
| | | 1980 | 100.9 | 102.5 | 1990 | 100.0 | 100.0 |
| | | 1981 | 106.7 | 106.1 | 1991 | 100.5 | 101.7 |
| | | 1982 | 110.8 | 110.1 | 1992 | 103.0 | 104.0 |
| | | 1983 | 102.9 | 101.9 | 1993 | 104.3 | 105.5 |
| | | 1984 | 100.6 | 98.8 | 1994 | 104.8 | 106.7 |
| 1975 | 106.0 | 1985 | 96.3 | 95.5 | 1995 | 107.6 | 110.2 |
| 1976 | 105.0 | 1986 | 90.1 | 89.5 | 1996 | 112.8 | 115.1 |
| 1977 | 105.0 | 1987 | 91.4 | 91.5 | 1997 | 114.8 | 116.1 |
| 1978 | 100.0 | 1988 | 94.1 | 93.9 | 1998 | 111.6 | 112.9 |
| 1979 | 103.5 | 1989 | 95.4 | 94.9 | 1999 | 112.3 | 113.1 |
| | | | | | 2000 | 106.5 | 106.2 |

rate – specifically a deficit of the order of 3 per cent of GDP for the former and 4 per cent for the latter.[9] To allow for growth rate enhancement by the EU transfers, the immediate pre-EU fundamental equilibrium growth rate will be taken as 3.5 per cent. A 0.5 per cent enhancement is overgenerous[10] but for the credibility of the exercise it will be better to overrate it than to underrate it.

Regrettably, *post* devaluation, there are no more than two years to be averaged, 1999-00, in order to smooth out random distortions.[11] For symmetry, two years will also be averaged at the other end – 1980-81. With a short averaging period, unsmoothed distortions will intrude more and a greater burden will be placed on adjusting for them later (Step Three).

9. In *Stability and Growth Programme, 2000-2004* (Ministry of National Economy, December 2000) the projected GDP growth rate for 2001 to 2004 ranges from 5.0 to 5.5 per cent but this includes a reduction of one percentage point per year in the unemployment rate, which is a transitional feature. A four per cent growth rate is widely viewed as the minimum consistent with the general aspiration to converge in real terms to EU average living standards at a tolerable pace. The 3 per cent current account deficit is based on the historical experience of long-term autonomous capital inflow. In the 1980s there was widespread consensus on this; it is now viewed as more debatable. When a country is a member of a monetary union, the rationale for a current account condition for fundamental equilibrium rests not on financing concerns but on the long-run debt burden and on growth and employment concerns.

10. It implies a marginal product ranging from a little under 20 per cent to 50 per cent or more, depending on whether the gross flow of 1999-00 EU structural funds is taken or the net increase in public investment. In terms of the calculations which follow, the difference in fundamental equilibrium growth rates between the two ends of the period affects the demand side only. The supply side (productivity effects) is assumed to diffuse itself in the economy and to be reflected in the REER(C) index regardless of the recorded growth rate.

11. At the time of writing, some data for 2000 consist of estimates made late in that year.

Two REER(C) indices are on offer, computed by the Bank of Greece and the IMF respectively. They are set out in full in Table 6-3. Though there are some differences in the underlying methodologies, they are well correlated, especially as between the two end-biennia. Nothing is lost in averaging the two indices in calculating the change between the two ends. The arithmetic yields between 1980-81 and 1999-00 an **average appreciation of 5.2 per cent.** This is the "measured" appreciation.

### *Step Two*

It cannot be presumed that at the near end the level of the REER(C) index was consistent with the authorities' fundamental equilibrium exchange rate, which the devaluation of the drachma's central rate of March 1998 was intended to achieve. For the latter was not fully reflected in the recorded nominal effective exchange rate. This needs to be adjusted for, which means that the change of the REER(C) between the end-biennia will need to be adjusted.

Three main factors were at work, not all pulling in the same direction. Pressure for revaluation by Greece's EU partners was one. As a result, the central rate of the drachma (at which it was to enter the euro area) was revalued by 3.5 per cent in January 2000. The second was the very large short-term capital inflow (playing on the convergence of Greek interest rates to EU levels) which forced an appreciation of the drachma to levels above even the revised central rate by an average (over the two years) of 2.8 per cent.[12,13] The third was the depreciation of the euro, which was not anticipated at the time of the drachma devaluation in March 1998. A comparison of the European Commission's nominal effective exchange rate indices of the drachma vis-à-vis the euro area on the one hand and vis-à-vis the most comprehensive grouping of trading partners on the other, reveals a clear difference of the order of 2 per cent in the change recorded between 1997 and 2000. The last item goes against the other two, so the net deviation from the intended nominal exchange rate is (3.5+2.8-2.0=) 4.3 per cent. To arrive at the percentage by which the REER(C) has to be adjusted, it is necessary to scale down the

12. As it happens, the authorities, after a time, were happy to live with and, when necessary, sustain the overvalued drachma, thus restoring temporarily the hard-drachma policy, as part of the struggle to attain the Maastricht inflation criterion.

13. This does not mean that the first point did not bite. It did during 2000 by reducing the depreciation needed to bring the rate to the level at which the euro area was to be entered on 01.01.01. And it did also by affecting the exchange rate expectations that influence the prospective return on unhedged capital flows.

4.3 per cent by a factor which, at its lowest, would be the proportion of goods and services to GDP (28 per cent, excluding excess imports – see Step Three) and, at its highest, the proportion of tradeables (say, as much as 45 per cent), giving a range of between 1.2 and 1.9 per cent. The latter allows for a safety margin, so it will be used to lower the 1999-00 REER (C) index. In consequence the appreciation will be reduced from its measured level to (5.2-1.9=) **3.3 per cent, which is the "adjusted" appreciation** and can be presumed to be more in keeping with the authorities' intended ultimate result.

It may be helpful to view this adjustment in the context of the big drop in the REER(C) index by more than 5 per cent between 1999 and 2000 (see Table 6-3). This reflected in part the gradual convergence of the nominal exchange rate to its central parity as entry to the euro area approached. As this was irreversible, the level of the index in 2000 is more representative, in a fundamental equilibrium perspective, than its level in 1999 and should carry more weight. The averaging over the two years in Step One was unweighted. But now the adjustment brings the index closer to the 2000 level —within one per cent of it— *de facto* giving to the latter the extra weight it should properly have.[14]

### *A Non-Step*

In numerous assessments of REER(C) movements all over the world, the impact of the Balassa (1964)-Samuelson (1964) (BS) effect has raised its awkward head. If present, it does not constitute a genuine exchange rate movement —it can leave its mark on the REER(C) index while not affecting the incentive to move resources between tradeables and non-tradeables nor the competitiveness of domestic relatively to foreign tradeables— and needs to be netted out. But to impact on the REER(C) index, the BS effect must differ between home and abroad, i.e. there must be not only faster productivity growth in tradeables than in non-tradeables (against a background of stable intersectoral wage relativities), but the productivity differential itself must be different between home and abroad. The latter is an area where margins are small and hence sensitive to how they are measured. The positioning of the line between tradeables and non-tradeables presents a difficult problem at all times but, when it comes to the productivity differential

14. If the heavy depreciation of the euro persists, the REER(C) index in 2001 will probably dip below its 2000 level. It is also likely that there will be a cyclical dip associated with the two-year wage bargaining cycle.

between them, the faster growth in tradeables is so pronounced that it will not get lost or reversed by moving the line around plausible positions. In contrast, the cross-border differential of productivity differentials is typically much smaller and is sensitive to the positioning of the line. This is especially so in the case of Greece.

Swagel (1999), following conventional practice, excludes services from tradeables and calculates a BS impact on Greece for the years 1990-96 which would cumulatively raise the REER(C) index by 7.4 per cent. Netting this out would send the change in the index between 1980-81 and 1999-00 into negative territory. But, thanks to tourism, Greece's tradeables have a large services component. The share of services in Greece's exports was of the order of 50 per cent in 1999 and 2000.[15] Productivity growth in tradeables will be drastically affected by the inclusion of services (affecting in turn the intersectoral productivity differential and, in a major way, the differential of differentials). This can be seen in the following way. In round numbers, the implicit deflator for goods exports rose by 60 per cent in the years 1990-96 —the period of Swagel's calculation— and for service exports by 100 per cent.[16] Nominal wages roughly doubled in that time, with relativities changing only a little.[17] If the difference in the deflators was due entirely to productivity growth disparity, the margin of disparity would be of the order of 25 per cent. Thus, including the relevant services in tradeables would clearly make a drastic difference to all relative productivity calculations. Granted that the true productivity growth disparity is probably somewhat lower than 25 per cent and that services must also be included in the trading partners' tradeables (but with a lower weight than for Greece), nevertheless the picture is so radically altered that Swagel's estimate of the BS impact is bound to be wiped out. Note that even if productivity growth in tradeable services matched that in goods, a doubling of the share in GDP of what are defined as tradeables would reduce Swagel's estimate by a quarter; the estimate is quite sensitive to this share. In this context, observe that by Swagel's definition (which, as noted, excludes services) the share of tradeables in Greece is well under 20 per cent. This contrasts with De Gregorio *et al.* (1994), who arrive at a share ranging from 40 per cent to 50 per cent for 14 industrial countries (not including Greece).

Reducing on BS grounds the previously calculated change in the REER(C) is, thus, a step not to be taken.

15. Data from the national accounts. The shares were 27 per cent in 1980 and 37 per cent in 1990. At constant (1995) prices, the corresponding shares were 37 and 40 per cent and, for 2000, 50 per cent.

16. Computed from data in the Ministry of National Economy, 2001.

17. Bank of Greece, *Bulletin of Conjunctural Indicators*, April 1998, Annex.

*Step Three*

As previously noted, in interpreting the change in the REER(C), the comparability of the initial and terminal biennia is critically important. To improve comparability, the raw record needs to be adjusted for major accidental distortions which survive the averaging over two years. Components of aggregate demand with accidental elements, but which do not discriminate between tradeables and non-tradeables or between home goods and foreign goods, will not be targeted for individual treatment. They will be captured by the adjustments that will be made for deviations from the fundamental equilibrium growth rate.

The focus will be on the adjustments as they affect the current account balance. Given the close relation between the real exchange rate and the current account balance, changes in the former cannot be evaluated independently of the position of the latter. Hence, implementing in the best possible way the required adjustment of the current account balance is of central importance.

***Biennium 1980-81***

In this biennium the current account deficit averaged 5 per cent of GDP on a settlements basis[18] (Table 6-4), well in excess of the fundamental equilibrium of 3 per cent. But major adjustments are called for because this was a highly disturbed period, with a very large increase in the price of oil, low growth in industrial countries and negative growth in Greece. An exacerbating distortion was the stockpiling of oil in 1981, estimated to have cost 32 billion drachmas (Bank of Greece, *Annual Report 1981*, Athens 1982) or 1.3 per cent of GDP.

The adjustment for the high price of oil is set out in Table 6-5. The price-related excess percentage of oil to GDP over the average recorded in 1977-78 (the two nearest "normal" years), corrected for higher than unity income

18. Here, as elsewhere, (Bank of Greece) data on a settlements basis are being used for the current account balance. Back in the 1980s they were unquestionably the most reliable but in recent years they have undergone changes in both data gathering (as exchange control sources ceased to be available) and in methodology (to bring them into line with current international practice). The changes are drastic and have created difficulties. But, continuity concerns have been largely allayed by the closeness of the recorded current account deficits in the two years (1997-98) for which they are available under both methodologies (Table 6-4). But, for many individual headings in the current account the definitional changes are major and the discontinuities severe.

**Table 6-4. External Current Account Balance[a]**

| | | | | | Per cent of GDP | |
|---|---|---|---|---|---|---|
| *Year* | *Per cent of GDP* | *Year* | *Per cent of GDP* | *Year* | | *New methodology* |
| | | 1981 | -5.4 | 1991 | -1.6 | |
| | | 1982 | -4.1 | 1992 | -2.2 | |
| | | 1983 | -4.4 | 1993 | -0.4 | |
| | | 1984 | -5.3 | 1994 | -0.3 | |
| 1975 | -3.9 | 1985 | -8.2 | 1995 | -2.5 | |
| 1976 | -3.5 | 1986 | -3.9 | 1996 | -3.8 | |
| 1977 | -3.5 | 1987 | -2.3 | 1997 | -4.1 | -4.1 |
| 1978 | -2.5 | 1988 | -1.5 | 1998 | -3.2 | -3.2 |
| 1979 | -4.0 | 1989 | -4.0 | 1999 | | -4.1 |
| 1980 | -5.0 | 1990 | -4.4 | 2000 | | -6.9 |

SOURCES: Bank of Greece, Balance of Payments data and (for GDP) Ministry of National Economy (2001). For GDP in 2000, Ministry of National Economy, *Stability and Growth Programme of the Year 2000, 2000-2004.*
a. Settlements data. Negative sign indicates deficit.

elasticity, is deducted from the recorded deficit, which is thus reduced to 2.4 per cent of GDP in 1980 and 2.3 per cent in 1981 (Table 6-5, column 4).

If all the extra spending on fuels (except stockpiling – presumed to be debt-financed) was switched from other goods and services, a part would have been from imports. So, when the excess fuel imports are taken out, a fraction of that should be added to other imports. If, on the other hand, the extra fuel spending was entirely at the expense of saving, other imports need not be adjusted. As there is some evidence for the latter[19] and as it is expositionally much simpler, it will be the chosen alternative. This means that the adjustment for the oil price distortion stops here.

The choice is not, however, critical. The calculation under the other alternative has been made (but not reported) and it yields an ultimate result that is little different. And this will be so for any mix of the two alternatives. The reason is the following. Any additional imports from the rever-

19. The share of private consumption in GDP rose from 64 per cent in both 1977 and 1978 (taken earlier as the nearest normal two years) to 64.9 per cent in 1980 and 66.3 in 1981. But as 1980-81 was a poor growth biennium —significantly negative growth in 1981 for only the second time in more than twenty years— some rise in the consumption ratio would be equally consistent with "permanent income" behaviour à la Friedman (1957) or asymmetric savings behaviour over an economic cycle à la Duesenberry (1949). Associated with this will be a widening of the current account deficit, along the lines of "intertemporal" models of the current account. But in a non-output-constrained economy, the spillover into deficit is only a fraction of the extra consumption. As indicated earlier, this, alongside other non-discriminatory aggregate demand effects, is captured by the adjustment for deviations from the fundamental equilibrium growth rate.

**Table 6-5. Current Account Adjustment for Exceptional Fuel Price**
Per cent of GDP

| | *Net fuel imports* | | *Current account balance* | |
|---|---|---|---|---|
| *Year* | *Actual (1)* | *Excess over 77-78 average[a] (2)* | *Actual (3)* | *Adjusted [(3)–(2)] (4)* |
| 1980 | 5.8 | 2.6 | 5.0 | 2.4 |
| 1981 | 6.4 | 1.8+1.3[b] | 5.4 | 2.3 |

SOURCES: Bank of Greece, Balance of Payments data, and author's calculations.
a. Allows for income elasticity of 1.85.
b. Stockpiling (see text).

**Table 6-6. Adjusting for Growth Deficiency**

| | *Greece* | *Industrial countries* |
|---|---|---|
| (1) Actual growth rate, 1980-81 average *(in per cent)* | -0.5 | 1.4 |
| (2) Assumed equilibrium growth rate *(in per cent)* | 3.5 | 2.5 |
| (3) Growth rate deficiency [(2)-(1)] | 4.0 | 1.1 |
| Income elasticities | | |
| (4) Exports[a] | 2.0 | |
| (5) Imports | 1.3 | |
| Shares in GDP, 1980-81 average *(in per cent)* | | |
| (6) Exports of goods and services | 24.8[c] | |
| (7) Imports of goods and services[b] | 25.1[c] | |
| Correction for growth rate deficiency *(in per cent of GDP)* | | |
| (8) Exports [second column of (3)x(4)x(6)] | 0.5 | |
| (9) Imports [first column of (3)x(5)x(7)] | 1.3 | |
| (10) External current account balance [(8)-(9)] | -0.8 | |

SOURCES: Greek GDP and exports and imports: Ministry of National Economy (2001).
GDP of industrial countries: IMF, *International Financial Statistics Yearbook*.
Income elasticities: based, but with some author's discretion, on Bank of Greece (1992).
a. Roughly converted to elasticity with respect to GDP from elasticities with respect to other activity variables in source.
b. Excess fuel cost (column 2 in previous table) is deducted.
c. The closeness of export and import shares in GDP in the 1980-81 biennium is a feature of the national accounts data which are being used in this table.

sal of expenditure switching (under the first alternative) must be associated with a concurrent expansion of GDP, since home goods will also be demanded. Allowing for that, as part of the oil price adjustment, reduces the correction needed for growth rate deficiency, which will be undertaken next. The alternative chosen affects the combined adjustment by less than 0.1 per cent.

To proceed now to the adjustment for deficient growth, income elasticities will be postulated which are based on the Garganas macroeconomic

model of the Bank of Greece[20] and the "normal" GDP growth rates to be assumed are 2.5 per cent for industrial countries (a typical estimate of growth potential) and 3.5 per cent for Greece (as indicated in Step One). The arithmetic is set out in Table 6-6 and the result (bottom row) is an increase of 0.8 per cent of GDP in the current account deficit.

Adding the growth deficiency adjustment to the current account balance, as corrected for the exceptional oil price, yields **an adjusted current account deficit for the 1980-81 biennium of (0.8+2.3=) 3.1 per cent of GDP,[21] marginally over the 3 per cent deficit criterion for fundamental equilibrium**. As this was calculated in the context of a 3.5 per cent growth rate, which was postulated as the fundamental equilibrium growth rate for that period, both criteria are satisfied. So, the bottom line is that **the level of the REER (C) index in 1980-81 constitutes a fundamental equilibrium benchmark for the real exchange rate**. This is to be borne in mind when making comparisons with the 1999-00 biennium to which attention turns next.

### *Biennium 1999-00*

With recorded growth rates of 3.4 per cent in 1999 and 4.1 per cent in 2000, there was no big deviation from the 4 per cent growth rate that was postulated as a fundamental equilibrium criterion for this period and such as there was (in 1999) will be adjusted for in due course. The big apparent deviations were in the external current account, with deficits of 4.1 and 6.9 per cent in 1999 and 2000 respectively. But in this biennium too there were exceptional events —a big rise in the price of oil once again, though more modest than in 1980-81, and a very large increase in car imports triggered by two successive reductions of indirect taxes on cars, easier access to consumer credit and, towards the end of the biennium, substantially lower real interest rates— and they need to be adjusted for. There was also a disbursement delay with respect to a large sum from the EU.

20. The name of its architect is attached to the model to distinguish it from the later and smaller Bank of Greece model that is used in the Appendix. The estimates of the Garganas model are used here, though they are more than ten years old, because they come from the only source of comprehensive and internally consistent parameter estimates. References to estimates from other sources are made in footnotes.

21. Brissimis and Leventakis (1989), while not covering services, supply a comprehensive set of trade-related parameter estimates for goods. Separating goods from services and applying to the former their elasticity estimates, raises the adjusted deficit to 3.3 per cent of GDP. Although their individual elasticity values differ considerably from those of the Garganas model, the differences largely cancel out.

The oil price rose to $28.4 in 2000, having been no higher than $23 for nearly 15 years and in most of these years having stood markedly lower. The big increase in car imports is likely to have been largely a stock adjustment response. So, adjusting for these two factors is justified on the grounds of transitoriness. But transitoriness is speculative until borne out by the passage of time and no time had elapsed at the time of writing. Additionally, a non-speculative argument, applicable to the oil price and the tax reductions, runs as follows. Neither the rise in the oil price nor the tax reduction on cars was within the reference frame of the authorities when arriving at the 12 per cent devaluation of March 1998.[22] As stated earlier, the devaluation is deemed to have attained a real exchange rate consistent with fundamental equilibrium, in preparation for euro area entry. Subsequent "surprises" are not relevant to that, though they will need to be confronted with appropriate measures, in due course, if they persist. Excluding the surprises will be consistent with what was done in Step Two, where the REER(C) index was adjusted for unintended nominal exchange rate developments.

The needed adjustment is calculated in Table 6-7. In the alternative scenario an oil price of $18 per barrel is assumed, which is based on the ten year average oil price prior to 1998, while, with regard to cars, only the expansion associated with income growth is included, but based on a high income elasticity,[23] plus a rise in the dollar unit value to allow for a drift upmarket. (The latter is less than the recorded rise in 1999-00 which was associated with the tax cuts.) As there is no evidence of an increase in the share of private consumption in GDP, it is assumed that the higher spending on cars and oil was a case of expenditure switching. So the adjustment exercise must include switching back, which means more imports (Table 6-7, column 8) and more spending on domestic goods. The latter raises the 1999 growth rate by 0.4 of a percentage point, to 3.8 per cent, which is close to the postulated fundamental equilibrium growth rate of 4 per cent, removing the need for any further tinkering with GDP in that year. For 2000, on the other hand, the switching-back effect is aborted. A higher growth rate than the recorded 4.1 per cent would be inconsistent with fundamental equilibrium. The switching back would have to be met by offsetting, demand-restraining, action. This is

22. A recourse to an indirect tax cut was in the public domain since the summer of 1997 (Committee on Long-Term Economic Policy, 1997), but the decision to concentrate it mostly on one product and one which is wholly imported was not taken until much later.

23. Assumed to be 2.5. It compares with 2.96 for cars and motorcycles in the Garganas (1992) model. Of all the parameter values borrowed from the model, this is the only one that has been significantly modified. The relevant equation of the model was estimated on 1963-88 data. Since then, growth of car imports has slowed down relatively to GDP on account, *inter alia*, of a market saturation effect. The adopted elasticity of 2.5 almost certainly errs on the high side.

**Table 6-7. Adjustments for Leaps in Car and Oil Imports**
1998=100

| Year | Car imports: Volume (1) | Car imports: Unit value USD (2) | Car imports: Unit value Drachmas (3) | Car imports: Value per cent of GDP (4) | Oil imports (net): USD price per barrel (5) | Oil imports (net): Value per cent of GDP (6) | Car and oil imports per cent of GDP [(4)+(6)] (7) |
|---|---|---|---|---|---|---|---|
| **RECORDED HISTORY** | | | | | | | |
| 1999 | 146.8 | 121 | 125 | 2.1 | 17.9 | 1.2 | 3.3 |
| 2000 | 165.4 | 121 | 150 | 2.6 | 28.4 | 2.5 | 5.1 |
| **ALTERNATIVE SCENARIO** | | | | | | | |
| 1999 | 109 | 110 | 114 | 1.4 | 18.0 | 1.2 | 2.6 |
| 2000 | 120 | 110 | 136 | 1.7 | 18.0 | 1.6 | 3.3 |

SOURCE: Bank of Greece.

ASSUMPTIONS: Cars – income elasticity: 2.5; relative price elasticity constrained at zero.
Oil – actual volume augmented in line with a relative price elasticity of –0.27 as per Garganas (1992) model. In Brissimis and Leventakis (1989) the elasticity is –0.16.

| Year | Recorded history minus alternative scenario | | | Switching-back effect on imports[a] (8) | Total adjustment [(7)-(8)] (9) |
|---|---|---|---|---|---|
| **THE ADJUSTMENT** | | | | | |
| 1999 | 0.7 | 0.0 | 0.7 | 0.2[b] | 0.5 |
| 2000 | 0.9 | 0.9 | 1.8 | 0.0[c] | 1.8 |

a. See text.
b. Column (7) x marginal propensity to import. Latter calculated by multiplying rows (5) and (7) of Table 6-6.
c. Constrained by GDP growth rate being restricted to its actual rate of 4.1 per cent. See text.

not about opting for aggregate demand fine tuning; it is dictated by the requirement that the counterfactual must be constrained to a fundamental equilibrium growth rate.

The total adjustment for the oil and car factors together is given in column (9) of Table 6-7: 0.5 has to be deducted from the current account deficit in 1999 and 1.8 in 2000, bringing down the respective deficits to 3.5 and 5.1 per cent of GDP respectively.[24]

A further adjustment —big but simple to make— relates to the EU transfers themselves. In 2000 the recorded inflow from this source was 3.3 per cent of GDP. But a sum equal to 1.3 per cent of GDP which was included in the 2000 budget of both the European Commission and the Greek government failed to be transferred within the calendar year. For bureaucratic reasons this happens but usually on a smaller scale. In this instance, three quarters of the overdue sum was transferred in April 2001 and the remainder was expected before mid-year. Crediting the overdue sum to 2000, where it properly belongs, lowers further the adjusted deficit for that year to 3.8 per cent of GDP.[25] The average for the biennium is now 3.7 per cent.

Another adjustment is in the opposite direction. Growth rates in the industrial countries in 1999-00 averaged 3.5 per cent (Table 6-8), one per cent in excess of the potential growth rate which was postulated earlier. The removal of this excess reduces Greek exports by 1.0x2.0x0.2 = 0.4 of GDP[26] (where the first factor is the excess growth rate abroad, the second is the income elasticity, as in Table 6-6, and the third is the share of exports of goods and services in Greek GDP).

24. The oil price adjustment was alternatively calculated along the lines followed for 1980-81, where the key feature was the share of oil imports in GDP in the nearest "normal" two years. Taking these to be 1996-97 —the oil price was abnormally low in 1998— the calculation yielded a smaller adjustment than in the table but the difference was small and almost wholly accounted for by the fact that the average price in 1996-97 was $20 per barrel instead of the $18 assumed in the table.

25. Total EU transfers in 2000, as adjusted, came to 4.6 per cent of GDP. This coincides with the percentage which comes out when the planned total transfers under the third CSF programme are averaged over the programme's seven years (2000-06) and the (roughly steady) annual sum of agricultural transfers is added. In this calculation annual GDP growth of 4 per cent is assumed and zero inflation. The growth assumption means that, if distributed equally over the programme period, the annual average of EU transfers comes to 5.1 per cent of GDP in 2000 and 4.1 per cent in 2006. As broad orders of magnitude, these figures were known by the autumn of 1997. No account is taken of the penalties levied on Greece for not having in place an adequate control mechanism for the agricultural grants and subsidies. The penalties are increased with the passage of time and could become significant if the problem is not resolved.

26. It has to be accompanied by compensatory demand expansion at home, to maintain growth at its fundamental equilibrium rate.

Adding this to the previous average raises the adjusted deficit for 1999-00 to 4.1 per cent of GDP, or 1.1 per cent in excess of the fundamental equilibrium level of 3 per cent.

Some excess is to be expected, given that in the biennium there was a noticeable deviation of the nominal exchange rate from the central parity established in March 1998. The deviation was described in Step Two and the REER(C) index was adjusted accordingly. A matching adjustment needs to be made to the current account balance, to make it commensurate. The deviation from the central parity set in March 1998 having been estimated at 4.3 per cent (after allowing also for the unexpected depreciation of the euro), how much smaller would the deficit have been in its absence?

On the "naïve" assumption that the relative prices of exports will fall vis-à-vis foreign goods and of imports will rise vis-à-vis home goods in proportion to a depreciation of 4.3 per cent and adopting –1.0 and –0.5 as the relative price elasticities for imports of goods and for exports of goods and services respectively, the improvement in the current account will equal 0.6 per cent of GDP.[27]

If the relative prices of imports and exports end up by changing by a lesser proportion because prices are (partly) dragged towards international prices as the nominal exchange rate changes,[28] the demand effect will diminish but, as an offset, a supply effect will kick-in as resources are switched to exports and to import substitutes in response to their relative price change vis-à-vis other home-made goods. One estimate, relating to exports only, suggests that this supply effect is powerful,[29] sufficient to compensate for the diminished demand effect.

So, a deficit of (4.1-0.6=) 3.5 per cent of GDP is left. In terms of this paper's framework, the Greek authorities can be said to have missed the target of a fundamental equilibrium exchange rate, which they were presumed

27. In the Garganas model, on which the elasticities are based, there is no elasticity estimate for the import of services because no meaningful price indices for them could be constructed. In consequence, zero is assumed here but note that services have a small share in total imports – 18 per cent most recently. In arriving at the improvement in the current account, excess imports attributed to the car and oil factors have been deducted from recorded imports. The higher elasticities obtained by Brissimis and Leventakis (1989) would have yielded a much higher current account improvement.

28. A depreciation of 10 per cent leads to a reduction in the foreign currency price of exports by 7 per cent in the Garganas (1992) model, by 6 per cent in Brissimis and Leventakis (1989) and by 4 per cent in Zombanakis (1997).

29. Brissimis and Leventakis (1989). They estimate an elasticity of 3.0 for the volume of goods exports with respect to (the component of the Greek wholesale price index known as) the price of domestically produced goods for home consumption, having controlled for the price of exports.

to have set out to achieve with the central rate they set in March 1998 – a miss by 0.5 per cent of GDP, as measured by the current account balance.

### *A Like-with-Like Comparison*

The miss is small. But, even at only 0.5 per cent of GDP, this deviation from the fundamental equilibrium level of the current account balance leaves an element of non-comparability between the end-biennia, given that in 1980-81 the adjusted deficit was very close to 3.0 per cent. The 3.3 per cent appreciation of the REER(C) index arrived at in Step Two was, thus, not derived from comparing like with like with respect of the current account. To address this, some appreciation of the REER(C) index has to be traded off against the excess deficit. The terms of the trade-off have already been established: a 4.3 per cent nominal exchange rate change was (a) translated in Step Two into a REER(C) change of 1.9 percentage points and (b) calculated as yielding a change in the deficit (with an opposite sign) of 0.6 per cent of GDP (see prepenultimate paragraph). (a) and (b) together imply that, to bring the 1999-00 deficit down to 3.0 per cent of GDP, the surrender of two of the 3.3 percentage points of the REER(C) index's adjusted appreciation (as calculated in Step Two) will be more than enough. The appreciation which is left after that is not significant and will be rounded down to zero.

Thus, **on a like-with-like comparison, the result is that there is no change in the REER(C) index between the two biennia.**

In Step Four the other things that did not stay equal between the two biennia will be addressed. They will be critical to the ultimate conclusion, given that, in entering the last lap, a zero appreciation of the REER(C) is being carried forward.

## *Step Four*

Before turning to the other things in earnest, it may be helpful to indicate the drift of the argument. If the other things, which changed between the end-biennia, tended to push towards real depreciation, the fact that the REER(C) index shows zero change would imply the presence of an appreciating influence and would be consistent (or, more austerely, not inconsistent) with the EU transfers having played this role, in line with the classical hypothesis.

The argument will proceed by looking first at the broad headings of the external current account and will then visit the tradeables/non-tradeables front.

**Table 6-8. GDP Growth: Greece, EU, Industrial Countries**

| | *Greece* | | *European Union* | | *Industrial countries*[a] | |
|---|---|---|---|---|---|---|
| *Year* | *1990=100* (1) | *Per cent* (2) | *1990=100*[b] (3) | *Per cent* (4) | *1990=100* (5) | *Per cent* (6) |
| 1980 | 93.4 | 0.7 | 78.9 | 1.4 | 74.5 | 1.0 |
| 1981 | 91.9 | -1.6 | 79.0 | 0.1 | 75.7 | 1.6 |
| 1982 | 90.9 | -1.1 | 79,7 | 0.9 | 75.6 | -0.1 |
| 1983 | 89.9 | -1.1 | 81.1 | 1.7 | 77.8 | 2.9 |
| 1984 | 91.7 | 2.0 | 83.0 | 2.4 | 81.6 | 4.8 |
| 1985 | 94.0 | 2.5 | 85.2 | 2.6 | 84.6 | 3.7 |
| 1986 | 94.5 | 0.5 | 87.5 | 2.8 | 87.1 | 3.0 |
| 1987 | 92.4 | -2.3 | 90.1 | 2.9 | 90.0 | 3.3 |
| 1988 | 96.3 | 4.3 | 93.8 | 4.1 | 93.9 | 4.4 |
| 1989 | 100.0 | 3.8 | 97.1 | 3.5 | 97.4 | 3.6 |
| 1990 | 100.0 | 0.0 | 100.0 | 3.0 | 100.0 | 2.7 |
| 1991 | 103.1 | 3.1 | 101.8 | 1.8 | 101.5 | 1.5 |
| 1992 | 103.8 | 0.7 | 102.9 | 1.1 | 103.4 | 1.8 |
| 1993 | 102.2 | -1.6 | 102.5 | -0.4 | 104.6 | 1.2 |
| 1994 | 104.2 | 2.0 | 105.3 | 2.7 | 107.8 | 3.1 |
| 1995 | 106.4 | 2.1 | 107.8 | 2.4 | 110.4 | 2.4 |
| 1996 | 108.9 | 2.4 | 109.6 | 1.7 | 113.6 | 2.9 |
| 1997 | 112.7 | 3.5 | 112.4 | 2.5 | 117.1 | 3.1 |
| 1998 | 116.2 | 3.1 | 115.4 | 2.7 | 120.0 | 2.5 |
| 1999 | 120.1 | 3.4 | 118.2 | 2.4 | 124.1 | 3.4 |
| 2000 | 125.0 | 4.1 | 122.1 | 3.3[c] | 128.5[c] | 3.6 |

SOURCES: Greece: as for GDP data in Table 6-1. EU: OECD, *Economic Outlook*, December 1996 (for 1980-83) and December 2000. Industrial countries: IMF, *International Financial Statistics Yearbook*, 2000.

a. Group comprises EU members, Iceland, Norway, Switzerland, USA, Canada, Japan, Australia and New Zealand.

b. Calculated from column (4).

c. Author's estimate.

Of course, a hundred and one other things have not remained equal over the two decades. To attempt to trace them one by one will be (to paraphrase a saying) worse than foolish, it will be over-ambitious. In a disaggregation that is deliberately parsimonious but also very convenient, a separation will be made between goods and services, which are, broadly speaking, price-sensitive, and the other items in the current account —incomes and transfers— which are not. The latter will be referred to as autonomous. Any shifts in the demand for, or supply of, goods and services or any changes in the autonomous items must be accommodated by the goods and services component of the current account via equilibrating price movements. Establishing the direction which these movements would have had to take, as a result of the changes, is the objective.

The much bigger cumulative growth of GDP abroad than in Greece —55 per cent in EU countries and 72 per cent in industrial countries as a whole

**Table 6-9. Imports and Exports of Goods and Services[a]: Greece's Relative Record**
1990=100

| | *Imports* | | | *Exports* | | | |
|---|---|---|---|---|---|---|---|
| | *(at constant prices)* | | | | | | |
| *Year* | *Greece's partners[b] (1)* | *Greece (2)* | *Relative record [(2)/(1)] (3)* | *Greece (at constant prices) (4)* | *Market share [(4)/(1)] (5)* | *Relative price[c] (6)* | |
| | | | | | | (a) | (b) |
| 1980 | 64.3 | 61.5 | 95.3 | 87.1 | 135.5 | | |
| 1981 | 65.1 | 65.5 | 100.6 | 94.4 | 145.0 | | |
| 1982 | 64.2 | 63.8 | 98.3 | 78.9 | 122.9 | | |
| 1983 | 65.9 | 65.5 | 99.4 | 74.2 | 112.6 | 128.9 | |
| 1984 | 70.8 | 64.1 | 90.5 | 82.4 | 116.4 | 121.3 | |
| 1985 | 72.8 | 66.9 | 91.9 | 83.9 | 115.2 | 115.9 | |
| 1986 | 74.7 | 76.2 | 102.0 | 98.0 | 131.2 | 106.7 | |
| 1987 | 79.4 | 77.8 | 98.0 | 103.8 | 130.7 | 103.1 | |
| 1988 | 86.9 | 83.5 | 96.1 | 101.6 | 116.9 | 101.5 | 96.1 |
| 1989 | 94.0 | 92.3 | 98.2 | 103.6 | 110.2 | 100.0 | 95.0 |
| 1990 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| 1991 | 102.7 | 105.8 | 103.0 | 104.1 | 101.4 | 96.3 | 100.1 |
| 1992 | 115.9 | 107.0 | 92.3 | 114.6 | 98.9 | 96.8 | 101.9 |
| 1993 | 115.0 | 107.6 | 93.7 | 111.6 | 97.0 | 94.9 | 99.8 |
| 1994 | 120.8 | 109.3 | 90.5 | 119.8 | 99.2 | 94.7 | 100.6 |
| 1995 | 132.6 | 119.0 | 89.7 | 123.4 | 93.1 | 95.2 | 103.2 |
| 1996 | 135.7 | 127.4 | 93.9 | 127.7 | 94.1 | | 106.5 |
| 1997 | 143.0 | 145.1 | 101.5 | 150.9 | 105.5 | | 106.6 |
| 1998 | 153.6 | 161.5 | 105.1 | 159.9 | 104.1 | | 104.4 |
| 1999 | 158.2 | 167.8 | 106.1[d] | 170.3 | 107.6 | | 106.9 |
| 2000 | 171.4 | 180.2 | 105.1[d] | 183.9 | 107.3 | | 102.0 |

SOURCES: Column (1): IMF (supplied by Greek desk).
Columns (2) and (4): as for GDP in Table 6-1.
Column (6): European Commission, *Price and Cost Competitiveness*.

a. National accounts data.
b. Weighted by shares in Greek exports.
c. REER deflated by price deflator for exports of goods and services. In the source, base year for (a) is 1987 and for (b) 1992.
d. See footnote 30.

between 1980-81 and 1999-00, against 34 per cent in Greece (Table 6-8)— conjures an image of the foreign offer curve shifting outwards faster than the Greek offer curve, thereby exerting pressure for real appreciation in Greece. But the story on the ground is different. The market share of Greek exports has shrunk (Table 6-9, column 5). Although some of the damage has been repaired since 1997, the market share index stood lower in 1999-00 than in any year in the 1980s and much lower —by about a quarter— than in 1980-81. There was clearly a failure to reap the full benefits of expansion abroad. The other side of the same coin is observed on the import side. Measured from

the 1980-81 average to the 1999-00 average, Greek imports rose faster than trading partners' imports. The difference was not big[30] but what is striking is that it should happen in the context of relative growth figures such as those just quoted.[31] At the same time, the price of Greek exports relatively to trading partners' exports has fallen or at best not risen between the early 1980s and the most recent years (Table 6-9, column 6).[32]

Inferior performance in terms of export volume, combined with falling or non-rising relative price, points to laggard demand growth as the dominant influence in Greek exportables (eclipsing supply shifts). There are a number of considerations which can reconcile this with faster GDP growth abroad. Non-price factors —quality, marketing etc.— and high vulnerability of Greek tradeables to competition from industrialising countries can be cited. An additional point of some importance is the phasing out of protection in the years 1987-92. Tariffs on imports were reduced by an average of 8.6 percentage points over all goods imports (Georgacopoulos, 1993) and subsidies to exports by 15.6 percentage points (Maroulis, 1992).

Whatever the reason, a demand drift away from Greek goods and services (in the aggregate) as a dominant factor seems unmistakeable. Clearly it exerted an influence towards real depreciation. This is an important point to retain.

Turn to the autonomous items: cross-border income flows and private transfers. The relevant data from the National Accounts are set out in Table 6-10. Private transfers (in the shape of emigrants' remittances) have been very substantial in Greece's balance of payments accounts for a very long time. On incomplete data, the inflow at the near end could be 0.6 of a percentage point of GDP higher than in 1980-81. But net income flows declined by about the same amount. The combined change is clearly negligible. Settlements data, however, suggest that the net change in the autonomous items was negative. While, as noted earlier (footnote 18), individual current account items on a settlements basis are subject to discontinuity problems, this does not apply to emigrants' remittances: they show little change between the two biennia

30. When excess car imports, as computed in Table 6-5 in Step Three, are excluded, the two bottom rows of Table 6-9, column (3) become 103.7 and 102.2. There is no case for excluding excess oil imports because the phenomenon was shared with other countries.

31. The aggregation of goods and services risks creating misleading artefacts about volume change in the aggregate entity because the much faster increase in the price of services gives rise to substantially different price weights, depending on the base year chosen. Goods and services were therefore separated on the Greek side and reaggregated with weights from some alternative years. It made no significant difference.

32. The wording is hedged, the statistical evidence being somewhat hazy because the series starts only in 1983 and is subject to a major discontinuity. Effectively, though, the evidence is more emphatic than it looks because services, which rise faster in price on account of lower productivity growth than in goods, have a high share in Greek exports.

**Table 6-10. Net Private Transfers and Cross-Border Incomes**
Per cent of GDP

| | *National income data* | | *Settlements data* | | | |
|---|---|---|---|---|---|---|
| | | | *Emigrants' remittances* | | *Interest, dividends and profits*[a] | |
| *Year* | *Private transfers* | *Incomes* | | *New methodology* | | *New methodology* |
| 1980 | 2.3 | 3.5 | 2.2 | | -0.6 | |
| 1981 | 2.2 | 3.0 | 2.4 | | -1.3 | |
| 1982 | 1.9 | 3.2 | 2.2 | | -1.4 | |
| 1983 | 2.2 | 2.8 | 2.2 | | -1.9 | |
| 1984 | 2.3 | 1.7 | 2.2 | | -2.3 | |
| 1985 | 1.8 | 1.4 | 1.9 | | -2.8 | |
| 1986 | 2.0 | 0.8 | 2.0 | | -2.6 | |
| 1987 | 2.6 | 1.4 | 2.4 | | -2.5 | |
| 1988 | 3.0 | 1.2 | 2.6 | | -2.3 | |
| 1989 | 2.6 | 1.4 | 2.0 | | -2.3 | |
| 1990 | 2.7 | 2.7 | 2.2 | | -2.0 | |
| 1991 | 2.9 | 3.1 | 2.4 | | -1.8 | |
| 1992 | 2.9 | 3.4 | 2.4 | | -2.0 | |
| 1993 | 2.8 | 3.1 | 2.6 | | -1.6 | |
| 1994 | 2.9 | 3.1 | 2.6 | | -1.3 | |
| 1995 | 3.1 | 3.2 | 2.6 | | -1.3 | |
| 1996 | 2.9 | 2.8 | 2.4 | | -1.6 | |
| 1997 | 2.9 | 2.3 | 2.4 | 2.4 | -1.3 | -1.3 |
| 1998 | 3.1 | 2.6 | | 2.7 | | -1.3 |
| 1999 | 2.9 | 2.6 | | 2.2 | | -0.8 |
| 2000 | | 2.8 | | 2.3 | | -1.1 |

SOURCES: First two columns: as for GDP data in Table 6-1.
Last two columns: Bank of Greece.
a. Negative sign indicates outflow.

(Table 6-10). Investment incomes (interest, dividends and profits) are also largely free of discontinuities and here too the 1980-81 and 1999-00 levels are closely matched (Table 6-10). Seamen's remitted earnings, however, used to be buried under "transportation" and here the discontinuity is pronounced (data not tabulated). But it is known that this important item has been on the decline. Hence, on balance, the settlements data point towards a negative change in the autonomous items. So, the autonomous flows (other than EU transfers) were either neutral (national accounts data) or they contributed a depreciating influence to the real exchange rate (settlements data).

**Overall, the current account items pushed towards real depreciation. The contribution of goods and services stands out in that respect** but reinforced, perhaps, by the autonomous items.

Just one other thing of major relevance remains to be looked at. A demand shift from tradeables to non-tradeables could raise the relative price of the latter and cause the REER(C) index to appreciate. Of course, this refers to an exogenous shift, not to an endogenous switch that could be generated by the chain of events unleashed by the EU transfers. It is not an easy subject to tackle but some strong pointers stand out.

To push the REER(C) towards appreciation, it is not sufficient that there be a demand shift towards non-tradeables in Greece; it needs to be bigger in Greece than the corresponding shift in its trading partners. This could happen (a) because of a more pronounced change of tastes in favour of non-tradeables in Greece. But in a world of globalised fashions the presumption must be against it.[33] It could happen (b) because, with income growth assumed equal, income elasticities differ from unity and also differ between home and abroad.[34] A higher than unity income elasticity for non-tradeables is usually inferred from evidence relating to services (Bergstrand, 1991). The legitimacy of the inference is open to question when, as in Greece, services are very important in tradeables[35] but, at the least, high service intensity of exportables suggests a lower income elasticity for non-tradeables in Greece than in its trading partners, sending the relative demand shift between tradeables and non-tradeables in the wrong direction, as income grows. And it could happen (c) because rates of real income growth differ between home and abroad. Under identical but above unity income elasticities for non-tradeables, the country/region with the smaller growth of income per head will experience the lesser shift of demand towards non-tradeables. Here the story is quite unambiguous: the World Bank calculates (World Development Report 2000/2001) that between 1980 and 1998 private consumption per capita grew at an average annual rate of 1.9 per cent in Greece against

33. To illustrate: if, thanks to the globalisation of fashion, there is a probability of 1/3 that there will be no relative change of taste, while a relative change in either direction is equiprobable (1/3, 1/3), the probability against a more pronounced shift towards non-tradeables in Greece would be 2/3.

34. This is not inconsistent with globalised fashions. Tastes, as represented by utility functions, can be identical but income elasticities will differ if the utility functions are non-homothetic and incomes are different. Income elasticities can also differ if the boundary between tradeables and non-tradeables is not located identically at home and abroad, which, in the context of Greece, is not unimportant because of the country's high share of services in tradeables. The second reason is abstracted from in (a) but, if it were allowed for, it would strengthen the point being made there.

35. De Gregorio *et al.* (1994) offer an *a priori* argument for a higher than unity income elasticity for non-tradeables that does not hinge on services being excluded from tradeables and they obtain a result which they interpret as empirical confirmation. But see comments by de Menil (1994).

2.2 per cent in "high income countries" (USD 9,266 per capita or more), giving cumulative rises of 40 per cent and 48 per cent respectively. Finally, the fact that Greece's imports grew faster than imports in the industrial countries despite its lower GDP growth, while not conclusive in itself, suggests the unlikelihood of a bigger shift of demand towards non-tradeables in Greece than abroad.

Cumulatively these points imply with some force that **the influences which operated in the tradeables/non-tradeables interface did not contribute to an appreciation of the REER(C) index, rather the reverse**. This too is important and needs to be carried forward to the *finale* in the next section.

## IV. What Has Been Sighted

The conclusion can be simply drawn. The adjusted REER(C) index shows no change between the biennium that immediately preceded the effective start of EU transfers (1980-81) and the biennium which is the most recent at the time of writing (1999-00). This result is not vitiated by incomparabilities between the two biennia; adjustments were made with the aim of getting as close as possible to comparisons of like with like. Other things (other than EU transfers) did not stay equal in the long interval between the two biennia, but an examination of all the major aggregates in the external current account established clearly that a depreciating influence had been exerted on the REER(C) index from that source. This was not offset and was probably reinforced by the influence emanating from the tradeables/non-tradeables interface. To offset the depreciating influence, some other factor must have been at work. The EU transfers, as the residual factor, can lay a claim on this role. In conventional language, **the evidence is consistent (or not inconsistent) with the EU transfers having exerted an appreciating influence on the real exchange rate. This is in keeping with the classical hypothesis. The growth effect, presumed to have been pushing in the opposite direction, has been outweighed.**

Naked eye methodology does not lend itself to tests of robustness but in a number of stages the evidence was handled conservatively to create a margin of safety. Nevertheless, the conclusion must be treated with due caution. In Step Three of Section III, fundamental equilibrium counterfactuals were created and there is always an element of art in counterfactual creations.

The conclusion relates, of course, to a specific context. It may not generalise. It is only in the last couple of years that as much as half of the (gross) inflow of EU funds was attached to structural projects and, as previously

noted, they were under-additive: total public investment in the two years, 1999-00, was higher by less than 1.5 percentage points of GDP than in the biennium prior to EU access (1980-81), when structural funding by the EU in 1999-00 reached nearly three percentage points of GDP (Table 6-2). It is not possible to say how much of this was strict substitution, since there was fiscal tightening going on at the same time. Moreover, the substitution process became (after some notable hiccups) efficiency-enhancing, as more productive displaced less productive projects. Nevertheless, if all EU transfers were project-oriented and there was no substitution, the growth effect on the real exchange rate would have been bigger and the net result could have been different. And it could have been different if the growth enhancing transfers had been running for longer. This is important because, while the growth effect on the real exchange rate can be expected to be low each year, it is cumulative. But project-oriented funds exceeded a quarter of farm grants and subsidies for the first time only in 1992 and one half in 1996. Bearing in mind the early inefficiencies and the long time-lags in infrastructural projects, it is evident that the growth effect has not been cumulating for long.

An important specificity on the demand side, with substantial result-influencing potential, is the fact that the marginal propensity of Greece's partners as a whole to import from Greece must be very small because of Greece's small size. This means that, in the formula in II.1, m* is close to zero, making the demand-driven effect of the transfers more emphatic and thus helping the classical hypothesis to dominate.

## V. Closing Observations

On the evidence of the naked eye, Greece has made a double gain: directly from the resources transferred and indirectly from the appreciation of the real exchange rate.[36] This matches the argument, prominent in the discussions of the 1920s and 1930s, that war reparations implied a double loss for Germany. The question of how well the extra resources were used was not in the remit of this paper. In using them, initially, to prolong, in effect, an

36. Had the growth effect dominated, the consequent depreciation of the real exchange rate would have had higher productivity growth on the other side of the balance sheet. While immiserising growth can be easily conceived in other circumstances, it is difficult, though not impossible, to conceive when unilateral transfers are the initiating factor. The welfare-reducing scenaria which abound in the literature on aid to developing countries are usually associated not with immiserising growth but with growth failing to materialise due to poor governance, non-additivity, etc.

ultimately unsustainable, consumption-promoting, fiscal deficit and in running into clear inefficiencies in the early years of the structural programmes, the nth best use (n>3) of a good part of the transferred resources can hardly be denied. Matters have improved since. But the ultimate gain and loss balance cannot be struck until, in the fullness of time, it is known how well Greece adjusts to the (remote but ultimately certain) winding down of the EU transfers.

Inevitably, given its unconventional methodology, this paper is about the method almost as much as it is about the EU transfers. Since, for the reasons stated in the Introduction, the use of econometrics would be suspect in this case, it is worth knowing that some mileage can be gained through the naked eye approach.

The methodology requires attention to much detail. This is an advantage because it gives a feel for the situation on the ground, an advantage often foregone in quick number-crunching exercises.

The naked eye view is supplemented by a simulation exercise in the Appendix. It has been undertaken in a Bank of Greece middle-sized model. Broadly the results are not inconsistent with the conclusion arrived at via the naked eye.

## Appendix: A Simulation Exercise: Greece without EU Transfers, 2000-06

(The simulation was undertaken by Panayiota Tzamourani and Nikos Zonzilos of the Bank of Greece. The author bears sole responsibility for the commentary.)

In the main text the question posed was what was the effect of adding EU transfers to the Greek economy, with the focus on the real exchange rate. Here the question is reversed: what is the effect of subtracting all EU transfers from the economy over the period of the third CSF (CSF3) programme, 2000-06?

In the baseline, the model —a medium-sized model developed by the econometric forecasting unit of the Bank of Greece— incorporates EU transfers, allocated to sectors/activities in accordance with the details of the CSF3 programme and also to farmers as income support. The model generates forecasts for a large number of variables. But the deviations from the baseline, under a no-transfers scenario, which will be reported here, are a bare minimum because the simulation plays just an auxiliary role. It is expected that a full paper focused on simulations will be generated in due course.

**Table 6A-1. Scenario with no EU Transfers**
Deviations from baseline

| | *2000* | *2001* | *2002* | *2003* | *2004* | *2005* | *2006* |
|---|---|---|---|---|---|---|---|
| Real GDP *(per cent)* | -4.27 | -4.49 | -5.04 | -5.48 | -5.79 | -6.01 | -6.19 |
| Inflation rate *(difference)* | 0.01 | -0.007 | -0.015 | -0.030 | -0.048 | -0.070 | -0.092 |
| Current account as per cent of GDP *(difference)* | 1.38 | 1.77 | 1.91 | 1.98 | 2.05 | 2.13 | 2.20 |

The following assumptions, consequential on the withdrawal of all EU transfers, have been made:

(1) EU-financed structural spending is not substituted by other budget-financed expenditure;

(2) half the EU-financed income support for farmers is substituted by national (budgetary) financing;

(3) to maintain fiscal balance, the extra spending on (2) is offset by a reduction in non-EU budget-financed investment;

(4) private investment which is programmed to be associated with EU-financed projects is reduced by half.

The fiscal constraint incorporated in (3) is a requirement of the EU's Stability and Growth Pact. The other assumptions are arbitrary but are designed to reflect some political realities. Cuts in investment are politically the easiest to make. This is reflected in assumptions (1) and (3), while assumption (2) reflects the fact that reducing farmers' support is less easy.

The structural component of EU transfers is substantially higher in the period of CSF3 than in earlier periods. Together with the investment assumption incorporated in (3), it must lead to the growth effect on the real exchange rate having an increased role compared to earlier periods.

The deviations from the baseline under the no-transfers scenario are set out in Table 6A-1. The change in the real exchange rate can be read directly from the inflation row since the exchange rate of the euro is not affected (Greece cannot influence it), the effective exchange rate is equally unaffected and at the same time foreign price levels also stay at the baseline level. The inflation rate quoted in the table is measured by the private consumption deflator. The sign attached to inflation is negative, signifying a real depreciation. This is in keeping with the hypothesis of the main text –that the demand-driven classical effect dominates.

Note, however, that the model, in common with most models of its kind, does not incorporate a direct link between investment and total factor pro-

ductivity. The latter is changed exogenously to reflect a guesstimate of the investment-productivity relation. The exogenous productivity growth affects the price level via the price equation. This is how the growth (or supply-side) effect impacts on the real exchange rate. Under the assumptions underlying the table, its price-raising implications, following the withdrawal of all EU transfers, are outweighed by the price-lowering demand-side effect. But the balance is very narrow and the negative sign of the inflation rate is not robust. It turns positive with a modest change in the exogenous intervention. Nevertheless, the message is still strongly consistent with the hypothesised dominance of the classical effect. The evidence lies in the external current account balance. The balance recorded in the table improves by some two per cent of GDP but this is the balance in goods and services. The overall current account balance, including transfers, experiences a substantial deterioration, given that EU transfers of the order of 4 per cent of GDP are being withdrawn. Implicit in the external deficit is a significant real depreciation; it is needed to restore equilibrium. By its size, this is the dominant, the overriding, feature and remains that way for any variations of total factor productivity that can be reasonably inserted to reflect (the withdrawal of) EU structural funding.

The combination of a small relative price change and a large current account deficit is understandable. The model, having had its parameters estimated from data covering a period during most of which a flexible nominal exchange rate performed an equilibrating function, is prone to switch to volume changes when the exchange rate cannot be manipulated under a currency union. This is reflected in the big drop in real GDP —four per cent in the first year— as well as in the current account imbalance.

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# Comment by Apostolis Philippopoulos

## I. Introduction

Professor Spraos has written a stimulating and ambitious paper on a hot issue: the effects of transfer payments from the European Union (EU) on Greece's exchange rate in particular, and the macro-economy in general. This is an important issue both from a theory and a policy point of view. In addition, there has been a long and lively debate in the Greek press and mass media about the use of those transfer payments.

Before we start, some institutional information is necessary (see Christodoulakis and Kalyvitis, 2001, for details): Most of the transfer payments have been channelled to Greece through the Community Support Framework (CSF) and, to a smaller extent, through the Cohesion Fund of the EU. The second CSF took place during 1994-2000 and its scale was much larger than the first one, which took place during 1989-1993. Before 1989, most of EU transfers were used for support of agricultural income and rural areas.

This note is organised as follows. Section II summarises the methodology and the results of John Spraos' paper. Section III makes some critical remarks. Section IV adds some politico-economic effects, which may weaken the positive impact of EU transfers. A short conclusion will summarise.

## II. Methodology and Main Results of the Paper

We first list the main direct macroeconomic effects on the recipient country. Foreign aid and transfer payments are expected to have both demand and supply effects. Demand-side effects include increases in income of households and firms involved. They also include substitution effects towards consumption expenditure, as well as crowding-out effects due to higher interest rates and exchange rate appreciation. Supply-side effects arise when better infrastructure and training provide positive externalities to microeconomic factors, and hence increase their productivity.

John Spraos distinguishes, explicitly or implicitly, the following four effects: (a) The "classical transfer effect": If the transferee's consumption basket is biased toward goods produced by itself, the transfer payment increases the

I thank Sarantis Kalyvitis for helpful discussions. Any errors are mine.

demand for home products and this results in a real exchange rate appreciation that crowds out net exports. (b) The "Dutch disease effect": The increase in wealth leads to an increase in the demand for services and consumer goods. The price of services relative to manufactures will rise. Also, the price of domestically produced manufactures will rise relative to foreign ones. The resulting increased demand for services, and the real exchange rate appreciation, will shift resources out of manufacturing and into services. This implies short-term adjustment and distribution problems.[37] (c) "Supply-side effects": If transfer payments are used to finance infrastructure and training, this will generate positive externalities to private firms and households, and hence stimulate economic growth.[38] (d) If transfer payments stimulate economic growth, we might also have "growth transfer effects". That is, higher growth leads to higher demand for imports, higher supply of home goods offered for exports, and this can cause a real exchange rate depreciation.

Professor Spraos has focused on demand-side effects. In particular, in order to explain the stylised facts of the Greek economy since the early 1980s, he uses the predictions of the effects (a), (b) and (d) listed above. By using these theoretical tools, he then gives the following interpretation (we focus on the period after 1987).

### *The Sub-Period 1987-1993*

The main stylised facts during this sub-period are: (i) Increasing EU transfers with emphasis on agriculture. (ii) Low economic growth. (iii) Real exchange rate appreciation of the Greek drachma. (iv) Smaller current account deficits.

The interpretation offered by the paper is: (a) These facts are consistent with the classical effect above. (b) The narrowing of fiscal deficits helped to improve the current account and this caused a real exchange rate appreciation.[39] (c) Real exchange appreciation became stronger due to the hard-drachma policy followed by the Bank of Greece. The author emphasises the importance of (a) during that early sub-period.

37. See, for instance, the case of the UK after the North Sea oil effect in the 1980s (Bean, 1987).

38. See Barro's (1990) influential model of endogenous growth generated by public production services.

39. See the Mundell-Fleming model with fixed nominal exchange rates and less than full capital mobility.

*The Sub-Period 1994-Today*

The main stylised facts during this sub-period are: (i) EU transfers stopped to increase, but they remained at a high level; however, the emphasis now is on infrastructure development projects. (ii) Higher economic growth. (iii) Again, the real exchange rate appreciated. (iv) Clearer reversal of fiscal deficits.

Then, the interpretation offered by the paper is: (a) EU transfers stimulate economic growth (see the growth effect above). (b) The hard-drachma policy can explain the real exchange rate appreciation. (c) There is evidence of the Balassa effect. The author emphasises the importance of (a) and (b) during this sub-period.

## III. Critical Remarks

I think that the paper suffers from three things:

(i) The author has focused on demand-side effects. This is a pity because (as argued above) the main purpose of EU transfers has been to finance infrastructure projects in most main areas of economic activity and improve the quality of human capital via training. Positive supply-side effects are therefore the main goal of EU transfers.

(ii) Econometric work is needed to check the relative importance and duration of different effects, channels and causalities. At the moment, as the author himself admits, there is only a "naked eye" analysis. But this can lead to inaccurate conclusions and policy recipes. For instance, what caused the observed real exchange rate appreciation? Was it the demand-side effects, the hard-drachma policy, or simply the relatively high rate of domestic price inflation? These are important questions, whose answer requires formal econometric testing. Here, there is already some work done. For instance, Pereira (1997) has calculated the impact of EU transfers on the balance of payments of four recipient countries by using a numerical analysis. Also, Christodoulakis and Kalyvitis (2001) have simulated a macroeconomic model for Greece for the time-period in question and their results show that, while demand-side effects are very soon evaporated and can be even negative for some types of transfers,[40] supply-side effects are expected to have more long-lasting positive effects.

40. This was clearly true during the early period, when EU funds were allocated to small, uncoordinated projects, and the main aim was just to absorb the funds rather than how to use them productively. See Christodoulakis and Kalyvitis (2001).

(iii) Even if one takes into account the possible supply-side effects in a proper macro-econometric study (see Christodoulakis and Kalyvitis, 2001), there are other indirect politico-economic effects, which I think are equally important and can weaken the positive impact of supply-side effects in the medium-run. We discuss these effects in the next section.

## IV. Politico-Economic Effects

Let us start with a seemingly trivial question "Does the Greek economy really need these Structural Funds?" Although this sounds to be just a rhetorical question, its careful answer can help us to understand better the effects of EU transfers. Basically, this is a question about the rationale of foreign transfers. We know from economic theory that when there are market failures (e.g. externalities, public goods, monopolistic structures, influential lobbies, rent-seeking activities), policy intervention is needed to correct these failures, and EU transfers can play this very important role. Actually, in the case of Greece, there is a clear list of market failures that call for policy intervention. These include the poor condition of infrastructure, the inadequate capital formation in the private sector, the poor quality of education and training, the backwardness of the public sector, etc. (see Christodoulakis and Kalyvitis, 2001, p. xii).[41] Then, EU transfers can be a heaven-sent opportunity for correcting these market failures, e.g. for modernising infrastructure, the industry and the human capital.

Therefore, there is little doubt about the existence of market failures, and hence the rationale of EU transfers, in the Greek case. However, I believe that attention should be also given to their effectiveness (see Rodrik, 1997, p. 424). Then, in addition to the demand and supply effects analysed above, the effectiveness of transfers depends also on the existing politico-economic environment.

The issue of effectiveness of transfers is strongly related to the so-called policy failures. The general idea is that, while government intervention is needed to correct market failures, it also implies its own inefficiencies and hence leads to its own failures, called policy failures (e.g. pre-election euphoria, rent-seeking bureaucracies, political corruption).[42] Therefore, there is a

41. The same authors also point out on p. 86 in their book that "in the case of Greece, aid via Structural Funds, is of critical importance for achieving the goal of growth and real convergence with the rest of European countries, and this is because the private sector would never engage in financing the large-scale infrastructure investment that is required".

42. See e.g. Alesina (1999), Persson and Tabellini (1999) and Drazen (2000). Thus, political competition between selfish politicians cannot lead to efficient policies.

tradeoff between greater efficiency obtained by allowing powerful policy instruments to policymakers and less power by restricting on the contrary those instruments. It is this tradeoff that determines the optimal size and roles of the government.[43] To understand this tradeoff, and hence the design of optimal policies, one has to understand the interaction among the various economic agents involved. This basically requires to understand their incentives. After all "the political economy is ... the study of the incentive problems due to delegation of economic policy to politicians treated as economic agents" (see Laffont, 1999, p. 668).

I believe that these general politico-economic lessons are very much related to the effectiveness of EU transfers in the Greek case. In Greece, the public sector was already "too big" (measured not only by the government expenditure-to-GDP ratio but also by its role and bureaucratic structure). There is, for instance, econometric evidence of policy failures in the form of short-sighted policies from the society's point of view.[44] For a country that already had a relatively big government sector, further increases —implied by EU transfers— in the size and role of government can further increase the existing policy failures and hence reduce the effectiveness of EU transfers.

Here are some examples of policy failures which can get worse because of EU transfers.[45] (i) The public opinion in Greece is that these transfers are not well-targeted to correct market failures (infrastructure is a big and welcomed exception). For instance, some transfers can end up financing inframarginal investment and become riddled with rent-seeking activities. Christodoulakis and Kalyvitis (2001, p. 87) also point out the importance of fungibility of foreign aid by saying that "foreign aid may release resources for other purposes, thus ending up in financing undesirable activities". (ii) Although EU transfers are officially based on co-financing between the EU and the Greek government, "implemented" public investment is significantly lower than "budgeted" public investment. The former has been decreasing, while the latter has been increasing since 1994 (see Table 6-2 in the paper). We do not know the quantitative importance of this "time-inconsistency" for the Greek economy, but I feel that Christodoulakis and Kalyvitis (2001, p. 87)

43. See e.g. Laffont (1999). For instance, while an efficient bureaucracy can promote growth and more generally welfare, a rent-seeking bureaucracy can lower them. Also, Tanzi and Schuknecht (1997) provide evidence that "big-sized" governments are not associated with better economic and social indicators. For a survey, see Drazen (2000).

44. See Alogoskoufis and Christodoulakis (1991) and Lockwood, Philippopoulos and Tzavalis (2001).

45. I fully realise that these are just claims. That is, econometric evidence and formal testing is needed to support my claims. However, for those who live the Greek experience, these are "common sense" claims. In any case, they can be thought as testable hypotheses.

share this worry when they say that "foreign aid should not alter public investment policies, but rather increase the amount available for investment". (iii) Even if the above are not actually true, such fears can easily become self-fulfilling. That is, if private economic agents believe (wrongly) that most of EU transfers have (also) favoured powerful political and industrial groups, they behave accordingly and this leads to "bad" equilibrium outcomes. In other words, tax evasion, corruption, under-investment, lack of trust, social fragmentation etc. become self-fulfilling. Thus, expectations are very important. (iv) Thanks to the transfers, political administrations have felt no immediate need to undertake the much-needed stabilisation and modernisation of the Greek economy. Thus, these transfers have given the opportunity to political administrations to postpone the burden of stabilisation and continue the "war of attrition" they have been playing in the last decades (see Drazen, 2000). (v) Recent years have been characterised by an increase in income inequality. EU transfers are believed to have reinforced this tendency by increasing the incomes of specific social and business groups. But it is known that inequality, and more broadly social instability and fragmentation, can be harmful to economic growth.[46] (vi) Moral hazard problems are unavoidable. State-contingent EU transfers can distort incentives, in the sense that each member country has an incentive to look relatively poor to enjoy these transfers. Then, apart from the known problems of under-investment and under-growth, moral hazard behaviour can lead to multiple equilibria, where "bad policies-low growth" and "good policies-high growth" are equally possible.[47]

## V. Conclusions

John Spraos' paper has given us the opportunity to think about the important issue of the effects of EU transfers on the Greek economy. In this note, I have argued that to evaluate their effectiveness one should take into account not only the standard demand- and supply-side effects, but also the existing politico-economic failures. These "policy failures" can get worse because of EU transfers, and this can reduce the effectiveness of foreign aid. The good news is that the situation has been improved during the second Community Support Framework, 1994-2000: namely, since 1994 most EU funds have been devoted to infrastructure projects with positive supply-side effects on growth.

46. See e.g. Rodrik (1997) and Drazen (2000) for empirical evidence.
47. See e.g. Helpman (1989) and Park and Philippopoulos (2001).

I close with three rules of thumb that can improve the effectiveness of EU transfers: (i) It is important to carefully define market failures, and in turn clearly assign EU transfers to market failures, areas and projects. Thus, it is necessary to make crystal clear the rules of the game (i.e. how these transfers are being allocated and what for) in order to establish the right incentives, and hence break the vicious cycle of bad policies, low effort and poor economic performance. (ii) Contracts, objectives and possible penalties have to be studied on a case-by-case approach. (iii) A key feature of EU transfers should be "conditionality": namely, making transfers conditional on Greece pursuing a specific set of economic policies. This is because foreign aid and domestic reforms are complements for economic growth.[48]

Summing up, EU transfers are a big opportunity for the modernisation of the Greek economy and the country cannot afford to lose it. Also, a general equilibrium analysis is required to evaluate the effects of EU transfers. Partial equilibrium models can easily overestimate or underestimate their benefits.

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48. This argument is supported by evidence from the impact of foreign economic aid to less developed countries. This impact is not broadly positive. Specifically, recent results indicate that the impact is positive only when aid is conditioned on the quality of domestic policies being followed at the same time. For a survey, see Drazen (2000, chapter 12).

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# 7 Greece's Balance of Payments and Competitiveness

Nicholas T. Tsaveas

AT LEAST since 1953, Greece has experienced persistent current account deficits, indicating a shortfall of domestic saving relative to domestic investment. To a significant extent, these deficits were due to a very rapid growth rate, which, during the Bretton Woods period, was one of the highest in the world. In common with other European countries and Japan, Greece's high growth rate during the Bretton Woods era was, in part, a catching-up after World War II. Also in common with many other countries, Greece emerged in the aftermath of the war with an extensive network of controls on current and capital flows, which were not fully dismantled until 1994.

This paper discusses the evolution of the main elements of Greece's current account during the period 1975-2000. It describes the pattern of Greece's exports and imports —including the possible trade diversion towards EU members in the early 1980s and towards East European transition economies in the 1990s— and the increasing role of trade in services and of transfers in supporting Greece's external position. The paper also assesses the evolution of the drachma's real exchange rate and the implications of Greece's entry into EMU for future competitiveness and the sustainability of Greece's external position. For the most part, this paper deals with developments in the current account and its components, as reliable and detailed data for the capital account are not available for much of the period considered (especially prior to 1997).[1]

I would like to thank George Tavlas and John Spraos for their many and helpful comments on previous drafts.

1. In this paper, we use the term "capital account" to refer to what is now termed "financial account" under the new IMF/ECB statistical methodology. Also, the current account, as used here, includes all transfers, both capital and current ones.

## General Trends

Greece has registered continuously current account deficits since 1953. It was only reasonable for a fast-growing economy in the process of catch-up to run current account deficits, as domestic resources were insufficient to finance the required investment. Therefore, when an economy is growing quickly, current account deficits are often evidence of strength, signalling confidence in its prospects.

Following a 50 per cent devaluation of the drachma against the US dollar in 1953, Greece's current account deficits proved to be sustainable during the entire Bretton Woods period. Persistent current account deficits did not pose financing problems, as net capital inflows allowed them to be financed, while foreign exchange reserves remained at comfortable levels. The network of extensive controls also helped prevent sudden reversals in trade and capital flows. An indication of the strong balance of payments position is that Greece was not forced to devalue its currency for a second time against the dollar until after the first oil shock, or adopt an IMF-supported programme.

After averaging less than 3 per cent of GDP during 1960-73, the current account deficit increased to 6.2 per cent of GDP in 1973 and averaged 4.2 per cent during 1973-80; the deficit also averaged 4.2 per cent of GDP during 1981-90, before falling to 2.9 per cent of GDP over the period 1991-2000. As discussed below, these broad trends conceal considerable annual variations. Underlying the widening of the current account deficits beginning in 1973 were the two oil price shocks of the 1970s. Also contributing to the widening of the current account deficits were accommodative policy responses following each of the two rounds of oil price increases, which locked in higher rates of inflation. Reductions in trade barriers after Greece's entry into the European Economic Community (EEC) in 1981, which eroded profit margins in the traded goods sector, were also blamed for the widening trade and current account deficits, although it should be recognised that most of the trade liberalisation was backloaded towards the end of the 1980s, whereas the process of widening deficits started earlier.

Additionally, the adoption of an accommodative fiscal stance in the first half of the 1980s contributed to some extent to an exacerbation of external imbalances. In this circumstance, the current account deficit widened further, peaking at 8.0 per cent of GDP in 1985. Subsequently, reflecting the implementation of a two-year stabilisation programme in October 1985, as well as lower world oil prices, the deficit dropped to 1.5 per cent of GDP in 1988. However, the post-1985 narrowing of the deficit was reversed in 1989 and 1990 as policies again turned accommodative. A deceleration of real

**Table 7-1. Greece – Investment and Consumption**
As a per cent of GDP

| | | | *Sources of financing* | | |
|---|---|---|---|---|---|
| *Year* | *Gross investment* | *Private sector saving* | *Public sector saving* | *Amortisation*[a] | *Current account* |
| 1980 | 28.6 | 19.0 | -0.1 | 11.1 | 1.5 |
| 1981 | 26.1 | 21.0 | -5.6 | 13.6 | 2.9 |
| 1982 | 23.6 | 19.9 | -4.3 | 6.9 | -1.1 |
| 1983 | 25.3 | 16.8 | -3.8 | 10.0 | -2.2 |
| 1984 | 20.4 | 18.8 | -4.4 | 4.0 | -2.1 |
| 1985 | 22.0 | 21.2 | -7.4 | 4.3 | -3.8 |
| 1986 | 22.8 | 19.3 | -6.0 | 6.5 | -3.1 |
| 1987 | 21.6 | 16.2 | -6.5 | 11.4 | -0.5 |
| 1988 | 21.5 | 20.1 | -7.6 | 8.0 | -1.1 |
| 1989 | 22.5 | 20.3 | -10.1 | 8.7 | -3.6 |
| 1990 | 23.1 | 19.9 | -9.4 | 8.5 | -4.1 |
| 1991 | 22.6 | 18.5 | -6.5 | 7.2 | -3.2 |
| 1992 | 21.3 | 18.3 | -7.0 | 8.6 | -1.3 |
| 1993 | 20.3 | 17.7 | -8.0 | 8.6 | -1.9 |
| 1994 | 18.6 | 17.7 | -7.1 | 8.3 | 0.2 |
| 1995 | 18.6 | 15.8 | -6.8 | 8.8 | -0.9 |
| 1996 | 19.5 | 13.5 | -5.2 | 8.8 | -2.4 |
| 1997 | 20.0 | 10.4 | -1.5 | 8.7 | -2.3 |
| 1998 | 21.6 | 9.1 | 0.0 | 8.6 | -3.9 |
| 1999 | 22.5 | 8.4 | 2.0 | 8.9 | -3.2 |

SOURCE: National Accounts.
a. Including changes in stocks and statistical discrepancies.

growth to about 1 per cent (on average) during 1991-94 contributed to a narrowing of the deficit, which fell to 0.1 per cent of GDP in 1994. During the period 1995-2000 the deficit displayed again a widening pattern, as Greek economic growth outpaced that in Greece's main trading partners.

Greece's willingness and ability to pay its external debt was never seriously questioned during the years of rapid economic growth and, therefore, its ability to find external financing was not compromised. In the years up to the first oil shock (1960-1973), Greece was able to achieve an average growth rate of about 8.5 per cent, significantly above world real interest rates. The situation began to change at the time of the first oil shock as the current account widened. The failure of tradeable goods industries to develop, and shrinking transfers from Greeks living abroad, began to impose a constraint on growth. The slow growth in the 1980s (it averaged just 0.7 per cent), in connection with high world real interest rates, obviously put in some doubt Greece's willingness and ability to service an external debt whose burden was now increasing faster than real GDP. The surge of debt service costs resulting from the

high current-account deficits of the early 1980s exacerbated the situation. As a result, Greece was forced to devalue the drachma on two occasions, by 15 per cent in 1983 and again by 15 per cent in 1985.[2]

Greece's permanent current account deficit has been the mirror image of high investment levels. Greece has been characterised by a relatively high (gross) investment ratio, which has stayed above 20 per cent of GDP most of the time, peaking at 33 per cent in 1979. The private sector's saving ratio (as a percentage of GDP) was correspondingly high until the mid-1990s. After reaching a maximum of 28 per cent of GDP in 1973, it hovered at 15-20 per cent through the early 1990s. Public consumption was contained at around 10 per cent of GDP until the late 1970s and the public sector made a positive contribution to national saving up to 1979. Thereafter, we have seen a gradual increase in public consumption and increasing public sector dissaving that reached a maximum of 10.1 per cent of GDP in 1989.[3]

Between 1989 and 1999 a significant turnaround in saving behaviour occurred. While the public sector achieved an increase in its saving of more than 12 percentage points relative to GDP, private sector saving as a percentage of GDP declined by almost exactly the same amount. During the same period, total gross investment remained stable as a per cent of GDP. Therefore, while in the 1980s (excluding the period of the stabilisation programme) the high current account deficits stemmed from fiscal expansion, they recently have reflected falling private saving.[4]

Adjusting to the new conditions and opportunities offered by the accession to the EC in 1981 proved difficult, especially for sectors that had been accustomed to high protection, and Greece had to rely on foreign borrowing to finance the growing fiscal and external deficits. The combination of accommodative monetary and fiscal policies and the substantial wage increases awarded in the early 1980s contributed to the widening current-account deficits. Also, the increased state involvement in the economy, in the form of proliferating regulations, reduced the private sector's ability to adjust to the new conditions.[5] In fact, policy slippages had started earlier, and many of the rigidities were inherited from the past, including a corporate sector with a very high gearing ratio, partly as a result of directed lending by state-controlled financial institutions.

Following accession to the EEC, Greece undertook to gradually remove all controls on international transactions under pressure from the EU, but also

2. See Garganas and Tavlas (2001).

3. Bank of Greece's data on the balance of payments and National Accounts data are estimated on different bases and may occasionally diverge.

4. For a similar view, see Alogoskoufis (1995).

5. See Giannitsis (1988) and Katseli (1990).

because they were ineffectual. Indeed, one can doubt the effectiveness of capital controls in an economy with large flows from emigrants and the merchant navy. This process of gradual payments liberalisation is described in Box 7-1.

**Box 7-1. External Liberalisation, 1985-1994**

The process of gradual external liberalisation started in earnest in 1986, after the end of Greece's adjustment period in the EU, and usually under pressure from the Community.

***1986***

- The rule was introduced that regarding liberalised current and capital flows, the central bank could only examine their consistency with the legal framework, not their economic justification.
- Capital flows were liberalised with immediate effects for non-residents. For residents, only investments in EEC and EIB bonds were allowed.

***1987***

- Manufacturing, mining and hotel companies were allowed to borrow in foreign exchange under certain conditions and without prior approval by the Bank of Greece.

***1988***

- Direct investment in EU Member States by Greek residents was widely liberalised.
- Further liberalisation of payments for tourism. Use of credit cards abroad was allowed.

***1989***

- Exporters are allowed to keep accounts in foreign exchange and use them to settle their foreign obligations.
- Residents are allowed to maintain foreign exchange accounts in relation to their work contracted with EU institutions.

***1990***

- Conditions for borrowing in foreign exchange were further liberalised and extended to the services sector.

(*Box continued)*

**Box 7-1** ***(continued)***

- The time period necessary for the repatriation of the proceeds from direct investments was shortened for EU residents.
- Non-residents of Greece were allowed to buy bonds (with a maturity of at least two years) issued by unlisted Greek companies.

***1991***

- Greek residents were allowed to buy shares, mutual funds and bonds (with a maturity of at least two years) issued by EU resident companies.
- Greek residents were allowed to buy real estate in the EU.
- Further liberalisation for travel-related payments, payments related to study abroad and use of credit cards.
- Full liberalisation of the repatriation of profits from direct investments by non-EU residents.
- Liberalisation of the payment of pensions to residents abroad.
- Liberalisation of the repatriation of rents from real estate investments.

***1992***

- **All remaining current account restrictions were removed**. Greece accepted the obligations of Art. VIII of the IMF's Articles of Agreement.
- Greek residents were allowed to buy shares, mutual funds and bonds (with a maturity of over two years) issued by non-EU resident companies.
- Greek residents were to maintain foreign exchange accounts without restrictions.

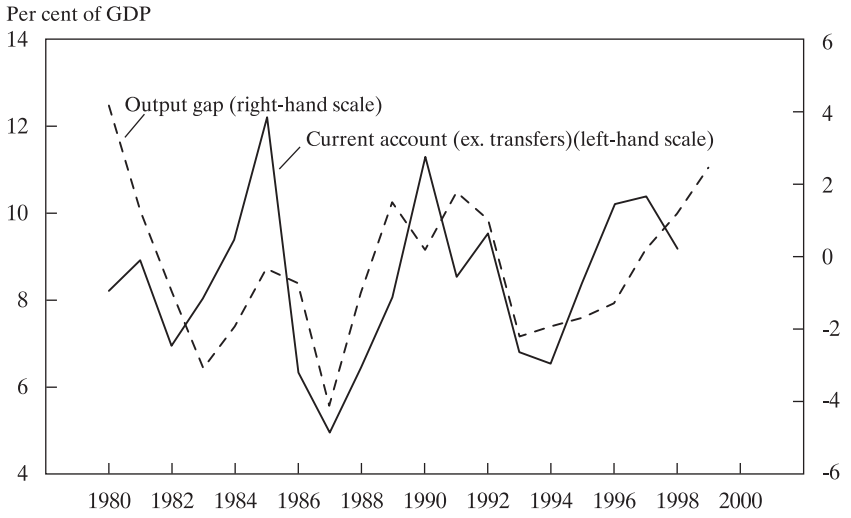
***1993***

- All capital account restrictions were removed for transactions with counterparties in EU Member States with exceptions for (a) sight deposits and bank accounts with a maturity of less than one year and (b) loans and capital account transactions with a maturity of less than one year.

***1994***

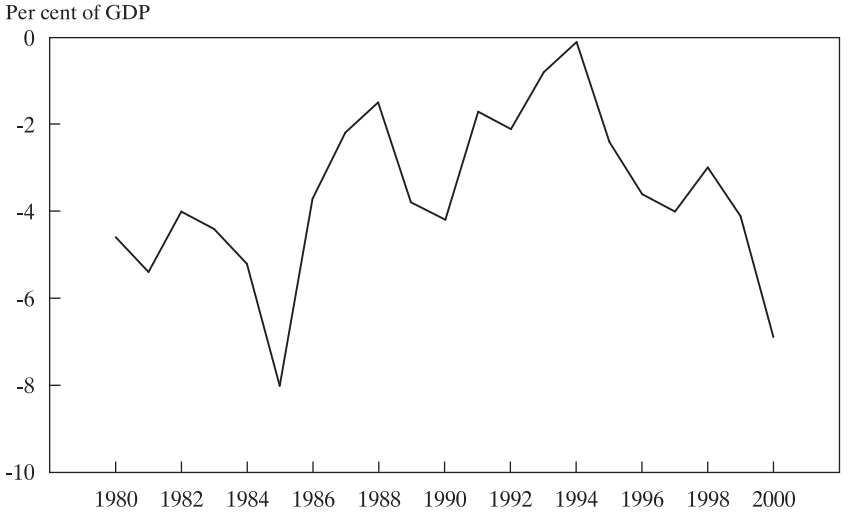
- In order to provide confidence to the markets, and in the face of pressures on the drachma, **the government fully liberalised, ahead of schedule, all remaining capital account transactions** (with exceptions relating to the national interest and similar reasons).

**Figure 7-1. Current Account Deficit (Excluding Transfers) and Output Gap**




SOURCE: National Accounts.

**Figure 7-2. Current Account**




SOURCES: National Accounts and Bank of Greece.

**Figure 7-3. Coverage of Imports of Goods and Services [a]**

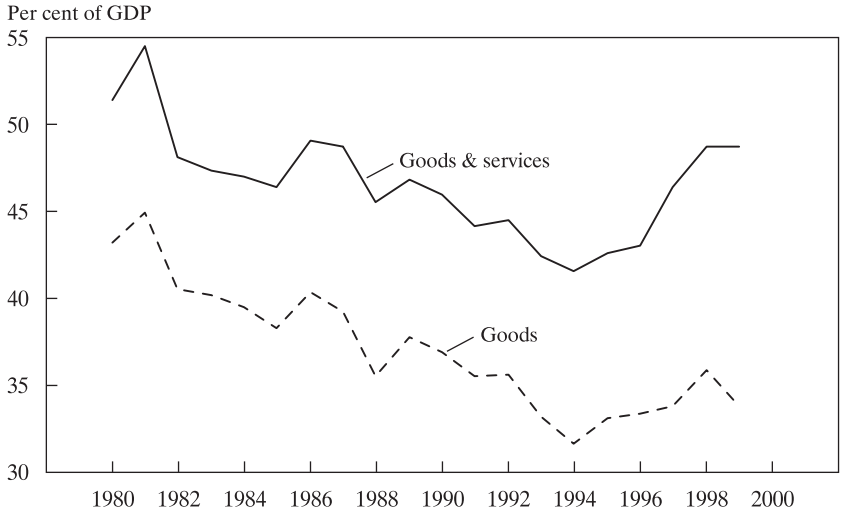

SOURCE: National Accounts (2001).
a. Respectively, exports of goods as a percentage of imports of goods, and exports of goods and services as a percentage of imports of goods and services.

One component of the widening of the current account deficits in the aftermath of the first oil shock was an increasing trade deficit. In this connection, the coverage of imports by exports, which increased gradually through the 1970s, from around 40 per cent in 1970 to above 60 per cent in 1980, reversed trend and fell back to 45 per cent by 1990, before stabilising and improving somewhat in the late 1990s.

An interesting feature of Greece's balance of payments is that the country did not become more open, as measured by the ratio of the sum of exports and imports relative to GDP, after its accession to the EU in 1981 and the ensuing trade liberalisation. While imports of goods remained relatively stable at around 24 per cent of GDP and those of goods and services at around 27 per cent of GDP, exports fared differently. Exports of goods declined from about 17 per cent of GDP in 1980 to less than 9 per cent of GDP by 1999. This was partly compensated by the better performance of services exports, which hovered around 6-7 per cent of GDP until the mid-1990s, but subsequently increased, reaching about 10 per cent of GDP in 1999.[6]

6. Data from other sources (e.g. settlement data from the Bank of Greece and customs data) show a somewhat different picture. Nonetheless, the bottom line is very much the same; there has been a progressive deterioration of all the indicators of trade performance since the early 1980s, and some improvement in the late 1990s, although the extent of the variations and the turning points differ.

**Figure 7-4. Openness of the Greek Economy** [a]




SOURCE: National Accounts (2001).
a. Sum of exports and imports of goods, and of goods and services, respectively, as a percentage of GDP.

Nonetheless, by EU standards Greece is a not very open economy, and one that is not highly integrated with its partners. Undoubtedly, this situation is partly attributable to Greece's geographical position; Greece is the only EU member that does not have common borders with any other EU partner. The situation was exacerbated in the 1990s as the conflicts in the Balkans interrupted the main routes of Greek exports towards EU partners. One should also take into account that Greece's closest neighbours are either countries that are only now emerging rather slowly from socialism or countries that have had a crisis-prone economy (e.g. Turkey).

### *Trade*

In parallel with the liberalisation of external payments, Greece moved to liberalise its trading system and bring it in line with EU directives. This change meant reducing external tariffs and other forms of non-tariff barriers. Yet, the rise in the current account deficit should not be attributed to the trade liberalisation. The latter was delayed as long as possible (see Box 7-2) and was quite backloaded, whereas the widening current-account deficits began in the early 1980s. Also, Greece did not experience a surge of

**Box 7-2. Trade Liberalisation**

The process of trade liberalisation in Greece started as far back as 1961, with the first agreement with the EEC. This process had moved sufficiently during the preaccession period, but still, by 1981, Greek duties on imports exceeded the Community's Common External Tariff (CET) by a substantial margin. During an adjustment period, Greece was allowed to maintain import duties in excess of the CET. Essentially, during the adjustment period stretching until the late 1980s, Greece was levying the CET, which was treated as community revenue, plus a variety of domestic taxes and duties, which were treated as national revenues.

Regarding imports from the Community, following Greece's accession to the EC in 1981, import duties on Community-produced goods were progressively cut over the period 1981-1986.[1] Import duties were reduced by 10 per cent in each of the first two years after accession and by 20 per cent annually thereafter, until they were totally eliminated.

At the same time, Greece undertook to harmonise its external tariff regime with that of the EC. Prior to accession, there was a multitude of various levies, taxes, and other charges, together with certain administrative procedures (e.g. arbitrary determination of import values). In July 1984, the multiplicity of taxes and levies on imports were consolidated in the single "regulatory tax", that was designed so as to impose initially the same overall burden as the pre-existing regime.

This "regulatory tax" was reduced progressively over the period July 1984-January 1989. Again, liberalisation was significantly backloaded, with one quarter of the reduction taking place only in the last year.

Based on the information for 1985, the first full year when this tax applied, we can have an estimate of the average applied tariff rate as a percentage of imports. Taking into account that this regulatory tax was already reduced by 20 per cent relative to its pre-1984 period and that it affected only non-EU imports (about 35 per cent of the total), we can calculate that the added burden on imports from third countries, over and above the EU's tariff schedule, was about 18.5 per cent at the time this tax was introduced. This "back-of-envelope" calculation, indicates that, as late as 1984, Greece's (most-favoured nation) import duties were on average three times as high as the EU's, which were estimated at below 10 per cent overall.[2] (*Box continued)*

1. See Manessiotis (1990).

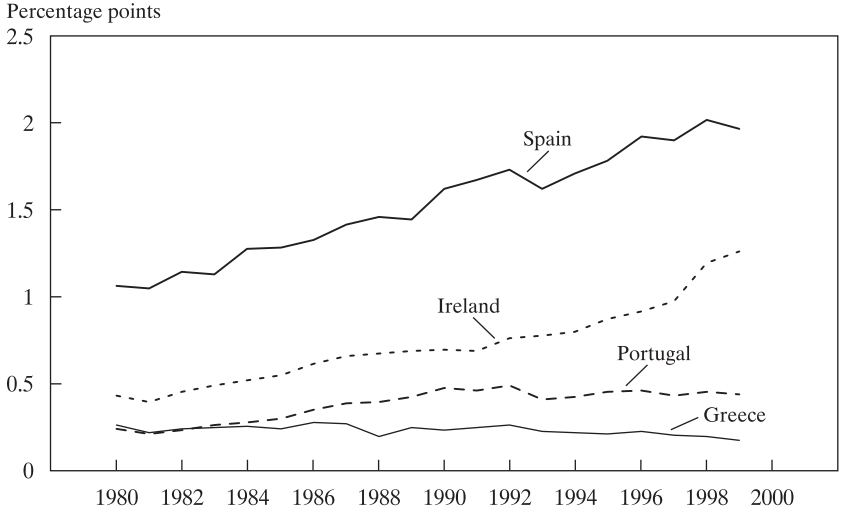
2. Giannitsis (1988) and Katsos and Spanakis (1982) also reach similar results, estimating the overall tariff burden at slightly below 30 per cent. There was no appreciable tariff escalation, with capital goods occasionally being taxed more than intermediate and consumer goods, especially towards the end of the adjustment period.

**Box 7-2** ***(continued)***

In any case, by 1986 practically all import taxes and duties above the EU level had been eliminated in practice, and we can say that the protection of Greek industry had fallen (with minor exceptions) to the European average.

In 1985-1987 there was a temporary reversal of the trade liberalisation process. In view of the sharp widening of the current account deficit in 1985 and in order to reverse the rapid growth of imports, the government imposed the obligation on importers to maintain for six months an interest-free deposit with a commercial bank equal to 40-80 per cent of the imported goods' value. This measure, which was eliminated within two years, did not dent appreciably the import growth, as importers found ways to circumvent it.

**Figure 7-5. Share of World Trade**

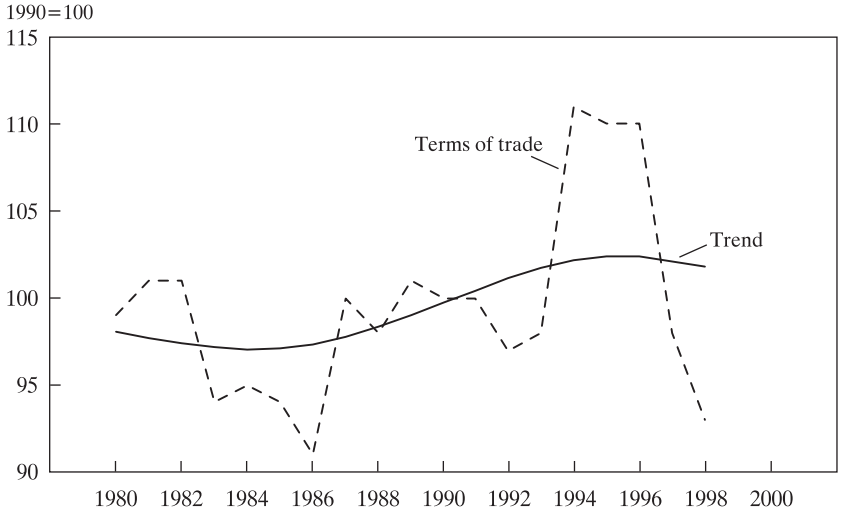



SOURCE: IMF, *International Financial Statistics* (IFS).

imports, as a percentage of GDP, as one would have expected after the reduction of trade barriers, but rather a decline in exports. The latter should have increased, *ceteris paribus*, as barriers to Greek exports towards the EU were reduced and eventually abolished.

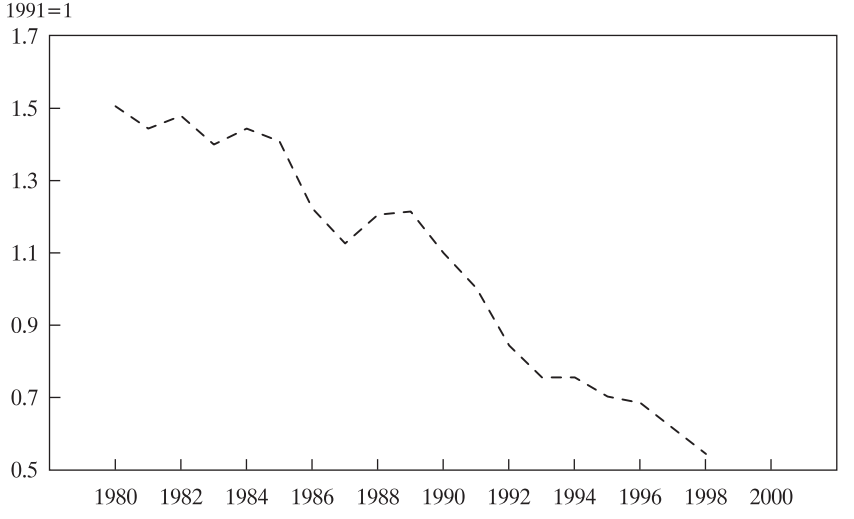
The export performance of Greece, discussed above, has led to a decline in the share of international trade. Over the period 1980-1999, world trade increased by 190 per cent and EU exports (including intra-EU trade) by 310

**Figure 7-6. Terms of Trade**




SOURCE: Bank of Greece.

**Figure 7-7. Prices of Exportables Relative to the CPI**




SOURCE: Bank of Greece.

per cent. Greek exports, however, increased by only 90 per cent. This latter increase is by far the lowest registered in the EU. For example, in 1980, Greek and Portuguese exports stood at about the same level, but in 1999 Portuguese exports were twice as high as those of Greece. The only other European countries that registered such low export growth were some of those of Eastern Europe (e.g. Romania, Poland).[7]

The increase in the trade deficit occurred without any long-term change in Greece's terms of trade, which showed significant variability over the period 1980-1998, without any clear trend. Mostly, the terms of trade followed the movement of oil prices, worsening in the early 1980s and improving slightly thereafter.

Over this period there has been a continuous decline of tradeables' prices, relative to the domestic consumer price index. This price decline was especially pronounced after the initiation of the "hard-drachma" policy in the mid-1990s. It shows how this policy contributed to disinflation in part by squeezing the prices of the tradeable sector. (The deceleration of inflation in the tradeable sector may also be attributed to the credibility of this policy.)

In light of the declining share of exports in GDP and the stable share of imports, the trade deficit widened from under 10 per cent of GDP at the start of the period to about 14 per cent in 1999. Traditionally, there have been two sources of current inflows that have helped partially to offset the trade deficit: (1) gross receipts from tourism and (2) transfers from abroad with foreign transfers playing an increasing role after 1988, when the introduction of the structural funds led to a significant increase in public transfers.

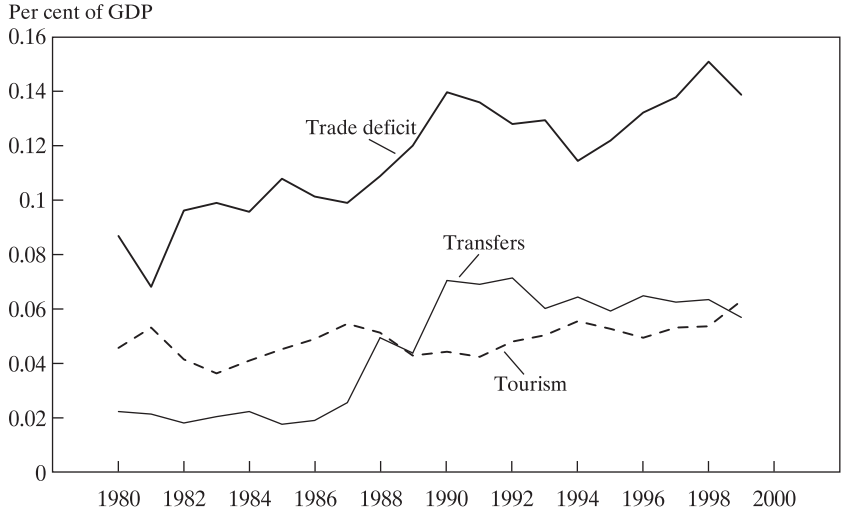
### *Services*

Trade in services plays a very important role for the Greek external sector. The services balance traditionally shows significant surpluses because of receipts from tourism and, to a lesser (but increasing) degree, transport, including shipping.[8] Whereas a typical country's services exports are about 20-25 per cent of total exports of goods and services, in Greece services account for more than half of total exports (WTO, 2000). Thus, Greece is an outlier in international comparisons, with no other European country's exports

7. The elimination of subsidies has often been blamed for exports' disappointing performance. In fact, subsidies, which peaked in 1981, remained stable at around 2 per cent of GDP until 1989, and were then eliminated over a short period.

8. While Greek-owned merchant ships form the largest fleet in the world, revenues from maritime services are mostly not repatriated, or enter the balance of payments in other guises (e.g. transfers).

**Figure 7-8. Contributions of Tourism and Net External Transfers Relative to the Balance of Payments**




SOURCE: National Accounts (2001).

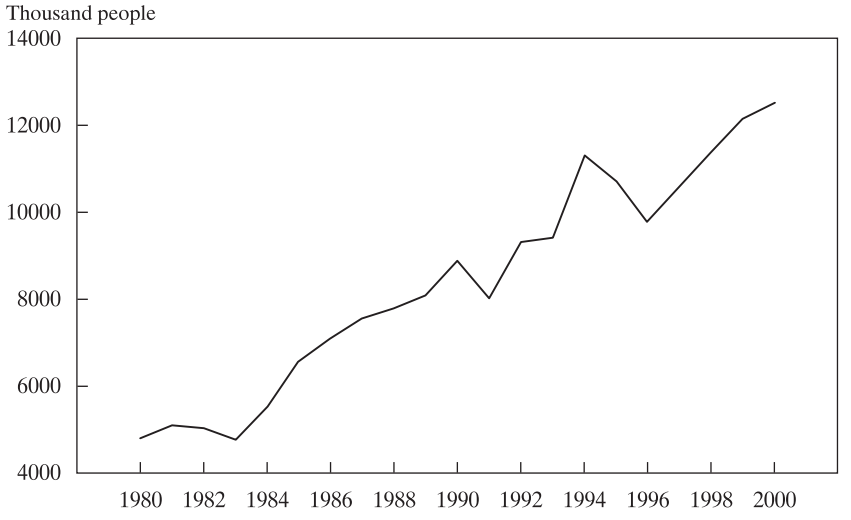
of services accounting for more than 35 per cent of exports of goods and services. In 1999, Greece was the 29th largest exporter of commercial services, with a share of 0.7 per cent of world trade in services, more than twice its share in exports of goods. As a share of total imports, Greece's imports of services are near the world average.

Tourism, which accounts for between one half and two thirds of total services receipts, has been the one internationally competitive sector that has stood up well over the last twenty years, as the share in world tourist arrivals has not declined. In 1999, Greece was the 15th most popular destination in terms of tourist arrivals in the world, and the tenth largest in terms of tourism receipts. The share of tourist revenues in total GDP increased from about 0.8 per cent in 1980 to about 1.5 per cent in recent years. Arrivals increased steadily from under 5 million in 1980, to about 12 million in 1999.[9]

This growth has kept pace with the growth of international tourism, with Greece maintaining a share of world arrivals in the range of 1.8-2.0 per cent, while its share of European arrivals has also stayed relatively stable at around 3 per cent. While Greece has not been able to keep pace with emerging tourist

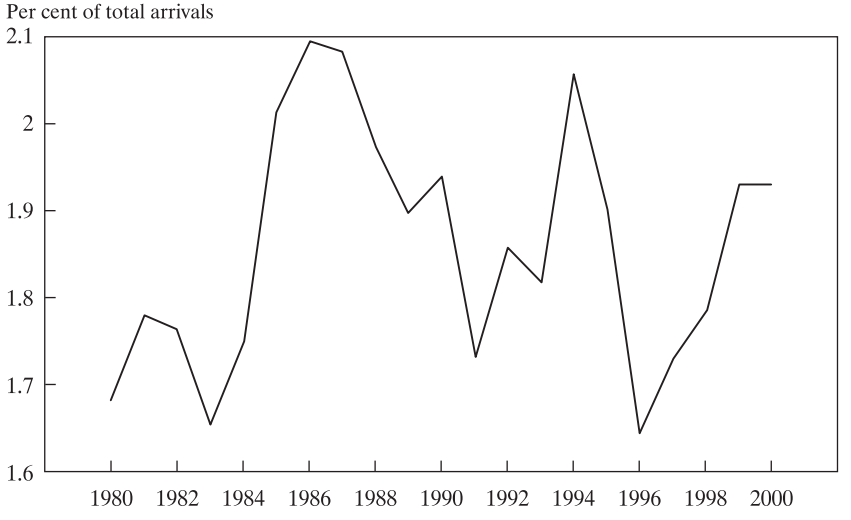
9. The arrivals data need to be viewed in the context of Greece's problem with illegal migration. Illegal migrants increasingly enter the country posing as tourists, thereby inflating the numbers of arriving tourists.

**Figure 7-9. Tourist Arrivals**



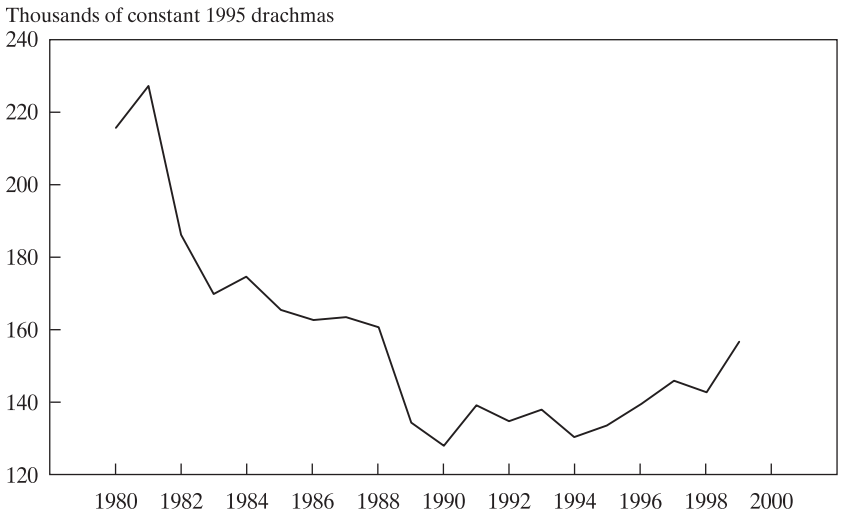

SOURCES: National Tourism Organisation (EOT) and Bank of Greece.

**Figure 7-10. Greece's Share of International Tourism**



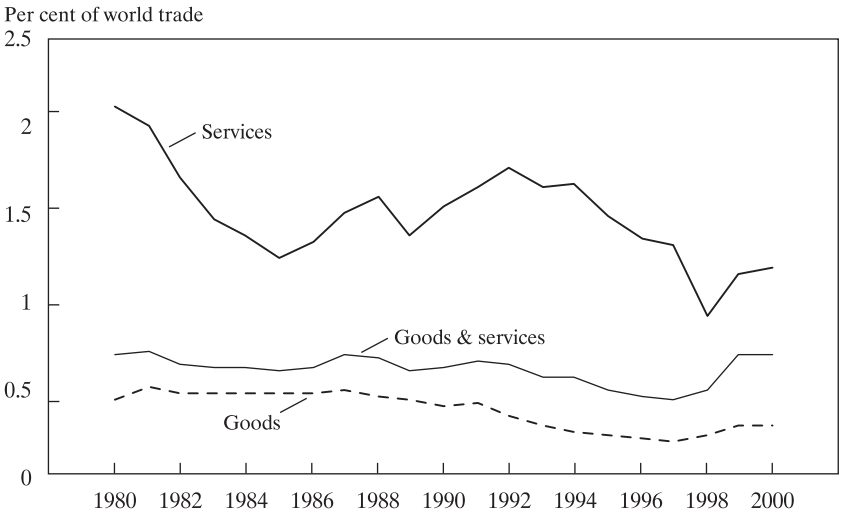

SOURCES: World Tourism Organisation and EOT.

**Figure 7-11. Real Expenditure per Arriving Tourist**




SOURCES: EOT and National Accounts.

**Figure 7-12. Share of Greek Exports of Goods and Services**




SOURCES: IFS and Bank of Greece.

markets (such as Turkey or, to a lesser extent, Portugal), it can be seen as a stable tourist destination that can retain its competitiveness.

Interestingly, there appears to be a "quality" improvement (defined as real spending per arriving tourist) in recent years. Real expenditure per arrival, which was constantly falling through 1994, has subsequently shown signs of an upward trend. As this upward trend in expenditure per arrival has not been due to longer stays, which have fluctuated, without trend, at slightly less than five nights per arriving tourist, an inference can be drawn that the increase in expenditure per arriving tourist has been due to tourists with higher incomes than in the past.[10]

Overall, on the basis of Greek data, there appears to be an improvement in Greece's external competitive position since 1997 as measured by its share of world trade in goods and services. It is notable that all the increase results from the rapid growth in transport receipts, which rose from a level of around $2 billion in the early 1990s to $7.9 billion in 2000.

### *Transfers*

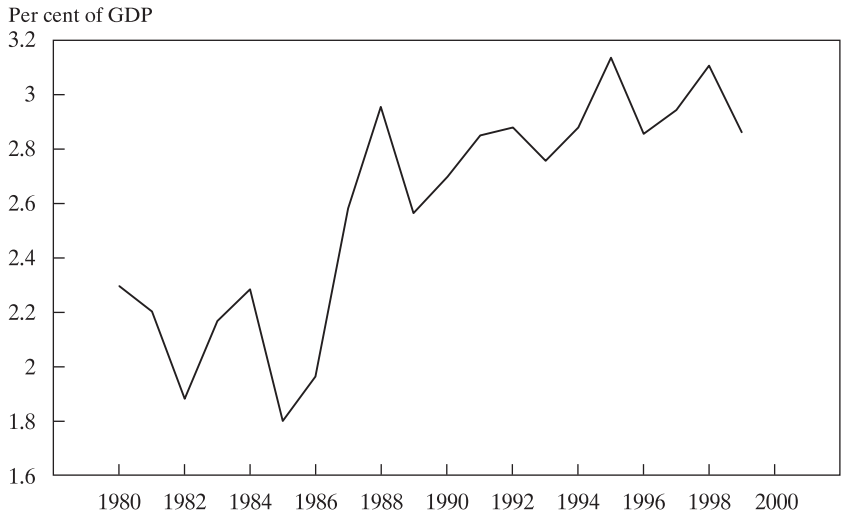
Prior to about 1988, practically all external transfers consisted of private transfers, from seamen and emigrants. Those transfers, although widely fluctuating, showed little trend, reverting to around 2.5 per cent of GDP. On the other hand, public transfers, now practically all from the EU, have risen dramatically since Greece's accession. The introduction of the Mediterranean Programmes in 1988 and the Community Support Frameworks after 1992 added much to EU transfers, which previously consisted almost exclusively of Common Agricultural Policy (CAP)-related subsidies. Such structural programmes reached a peak of almost 4 per cent of GDP in 1990 and have remained above 3 per cent since then. Total EU transfers increased from $145 million in 1981, the first year of Greece's membership of the EU, to $4.5 billion in 1997.

Net private transfers have also shown a gradual upward movement since 1985, reversing a long-term decline that had started about ten years earlier. They now stand at about 3 per cent of GDP, roughly at their average level for the period 1960-1975.

The turnaround after 1985 may be indicative that private transfers are responsive to economic and political factors. They tended to fall during election years (1981, 1985, 1989 and 1993), possibly as a reaction to political uncertainties. They also tended to fall in anticipation of eventual devalua-

10. This "quality" improvement is probably underestimated, as the number of arriving tourists most possibly includes increasing numbers of economic immigrants.

**Figure 7-13. Net Private Transfers**




SOURCE: National Accounts (2001).

tions and rebound after them (1983, 1985, 1997). The drachma's real appreciation after 1987, with a combination of high interest rates and diminished expectations of large devaluations, may have been behind the restoration of confidence and the significant and permanent increase in those transfers. In that sense, private transfers have behaved like capital flows, in that they were affected by the same factors that typically affect capital flows.

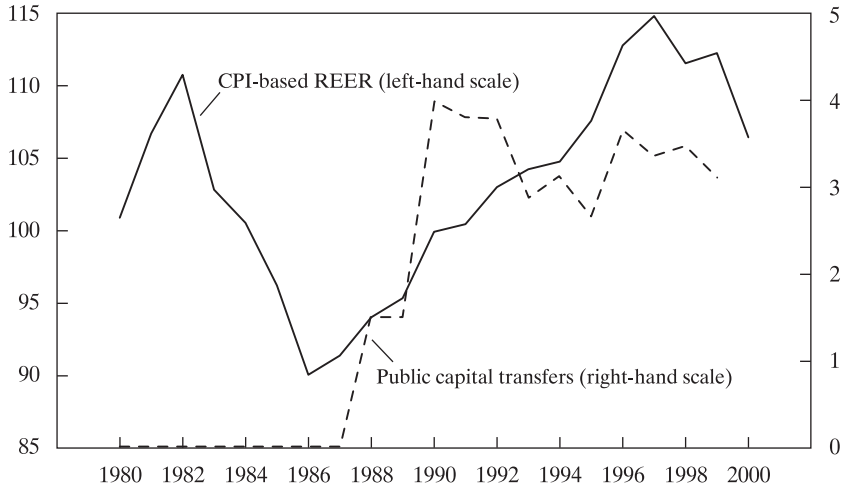
The analytical question is whether those transfers have caused a "Dutch disease" in Greece. The argument would be that such transfers, to the extent they resulted in an overall appreciated real exchange rate, may have discouraged the production of tradeable goods and services. The fact that Greece became a less open economy and its share of world exports declined during a period when both private and public transfers were increasing constitutes obviously a *prima facie* evidence in that direction.[11]

It is also interesting to note that the period of appreciation of the CPI-based REER coincides roughly with the period of the rapid increase in capital transfers from the EU associated with the Structural Funds.[12] It is inter-

11. This is the line taken by Gylfason (1999) and Zoega and Herbertsson (2000).

12. Transfers associated with CAP should be examined separately. First of all, they show much less variability and, secondly, they directly subsidise a tradeable sector, unlike the structural funds whose immediate effect is mainly on the non-tradeable sector (infrastructure, public services, etc.).

**Figure 7-14. Capital Transfers from the EU, and the REER[a]**




SOURCES: National Accounts and Bank of Greece.
a. Public capital transfers as a per cent of GDP, and CPI-based REER.

esting to note that the process of REER depreciation was reversed just as the Structural Funds were introduced, and again that the process of real appreciation was halted around the time those Funds levelled off.

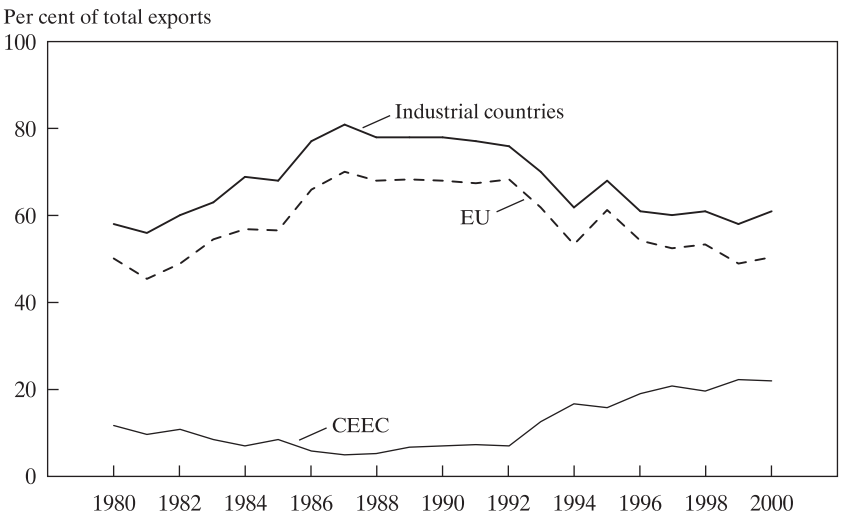
At the same time, tourism has not declined relative to GDP during this period; unlike goods exports, tourism has not lost market share, as measured by Greece's share of total arrivals. As noted above, the tourist industry has prospered and increased its share in GDP. (For a detailed analysis of the effects of the transfers, see Spraos, 2001).

## Structure of Trade

### *Geographical Orientation*

Greece's pattern of trade has fluctuated significantly. After 1980, following the country's accession to the EU, there was an upward trend in the share of Greek exports directed to its EU partners, rising from about 50 per cent in 1980 to a plateau of just under 70 per cent in 1988, where it stayed until 1994. Thereafter, we see a progressive decline in the EU's share to about the pre-accession levels. On the other hand, exports to the former socialist economies of Central and Eastern Europe, which fell from 11 per

**Figure 7-15. Direction of Greece's Exports**




SOURCE: IMF, Directorate of Trade Statistics (DOTS).

cent in 1980 to 5 per cent in 1988, subsequently recovered and now stand at around 20 per cent of total exports. Exports to non-EU industrial countries, though much more erratic, show more or less the same trend as those towards Central and Eastern European countries (CEEC), falling progressively until 1996 and recovering thereafter.

Greece's main trading partners are shown in Tables 7-2 and 7-3. In the last few years, there is some indication of a reorientation of exports towards nearby countries (Bulgaria, the former Yugoslav Republic of Macedonia, Turkey). This reorientation is surely related to trade liberalisation in those countries. For example, Turkey entered into a customs union with the EU, Bulgaria joined the WTO. The reorientation away from EU markets may also be related to the conflicts in the Balkans, which disrupted the trade routes of Greek products towards its EU partners. There is some indication that this process of trade redirection is ending. After increasing rapidly in the early 1990s and peaking in 1997, the share of Greek exports to Central and East-European transition economies fell in 1998 and 1999 as a percentage total Greek exports.

Viewed from the perspective of Greece's share in the imports of the European transition economies, the picture is very much the same. Following accession to the EU, Greece's share in those countries' imports fell from around 2.0 per cent in 1980 to around 0.5 per cent by the mid-

**Table 7-2. Direction of Greek Exports**
As a per cent of total exports

| | *1980* | *1985* | *1990* | *1995* | *1999* |
|---|---|---|---|---|---|
| European Union | 50.2 | 56.5 | 68.1 | 61.2 | 49.0 |
| *Germany* | *18.5* | *20.1* | *22.2* | *22.3* | *15.0* |
| *Italy* | *9.7* | *11.3* | *17.1* | *14.2* | *12.9* |
| *UK* | *4.1* | *7.0* | *7.3* | *6.2* | *6.2* |
| USA | 4.1 | 11.2 | 7.6 | 6.3 | 8.6 |
| Developing countries | 40.8 | 30.7 | 20.9 | 32.0 | 41.8 |
| *Bulgaria* | *1.2* | *1.0* | *0.7* | *4.1* | *4.2* |
| *Cyprus* | *1.6* | *1.8* | *2.5* | *3.0* | *4.2* |
| *FYROM* | *–* | *–* | *1.5*[a] | *0.0* | *4.3* |
| *Turkey* | *0.4* | *1.2* | *1.4* | *2.0* | *3.4* |
| *Middle East* | *20.7* | *14.2* | *5.7* | *8.3* | *5.8* |

SOURCE: DOTS.
a. Data for 1993.

**Table 7-3. Origin of Greek Imports**
As a per cent of total imports

| | *1980* | *1985* | *1990* | *1995* | *1999* |
|---|---|---|---|---|---|
| European Union | 44.8 | 51.0 | 68.0 | 70.2 | 65.7 |
| *France* | *6.2* | *6.5* | *8.1* | *8.2* | *8.9* |
| *Germany* | *13.9* | *17.0* | *20.8* | *16.6* | *14.8* |
| *Italy* | *8.5* | *9.4* | *15.4* | *18.8* | *15.1* |
| *UK* | *4.6* | *3.8* | *5.3* | *6.5* | *6.2* |
| USA | 4.6 | 3.2 | 3.7 | 3.2 | 3.3 |
| Japan | 11.1 | 6.1 | 5.9 | 2.7 | 4.5 |
| Developing countries | 35.1 | 36.0 | 19.4 | 21.4 | 23.6 |
| *Korea* | *0.6* | *0.3* | *0.6* | *1.3* | *2.6* |
| *Bulgaria* | *0.9* | *0.3* | *0.6* | *1.9* | *1.4* |
| *Russia* | *–* | *–* | *2.5*[a] | *2.5* | *1.8* |
| *Turkey* | *0.1* | *0.2* | *0.7* | *0.8* | *1.4* |
| *Oil-exporting countries* | *10.7* | *22.1* | *5.6* | *3.9* | *4.0* |

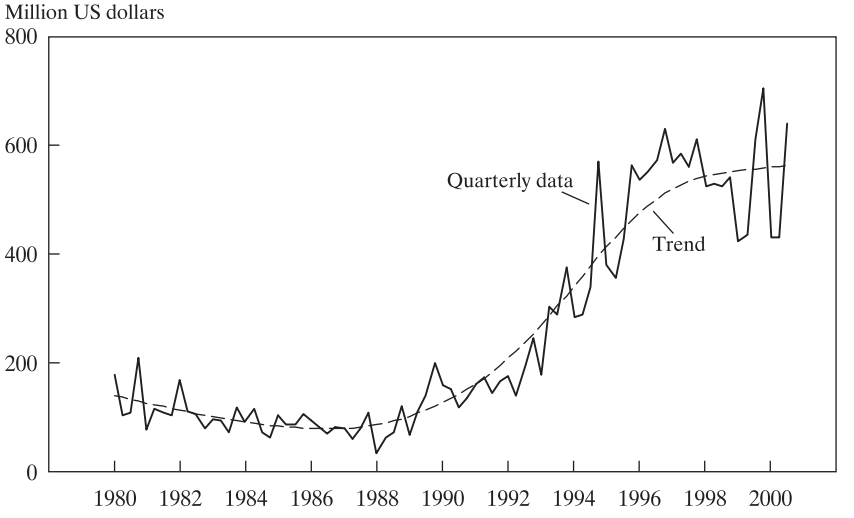
SOURCE: DOTS.
a. Data for 1993.

1980s.[13] After the fall of communism, Greece's share recovered to more than one per cent by the mid-1990s, but has since levelled off and started to fall slightly.

Greece's share in its other proximate market, the Middle East, has not fared well either. Although the share of Greek exports in Middle-Eastern imports has fluctuated widely, it has halved between 1980 and 1999, falling

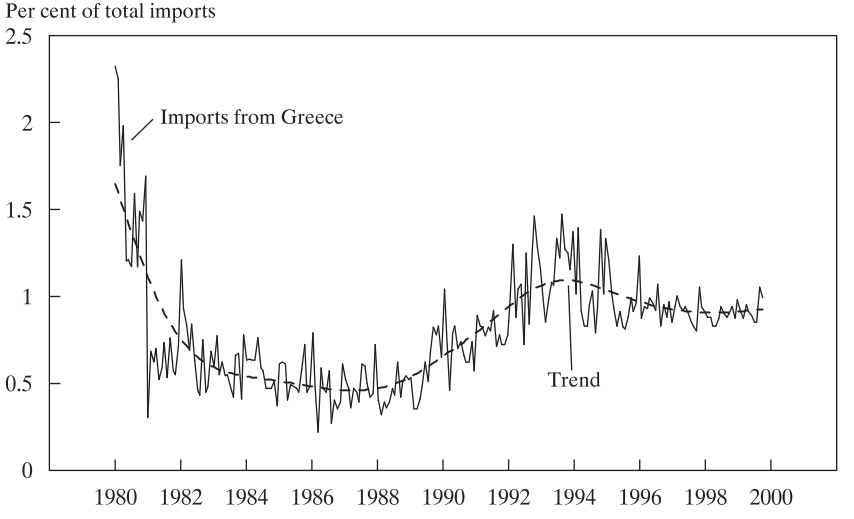
13. This change may also be related to changes in the marketing of Greek agricultural products around the same time.

**Figure 7-16. Greek Exports to Central and Eastern European Countries**



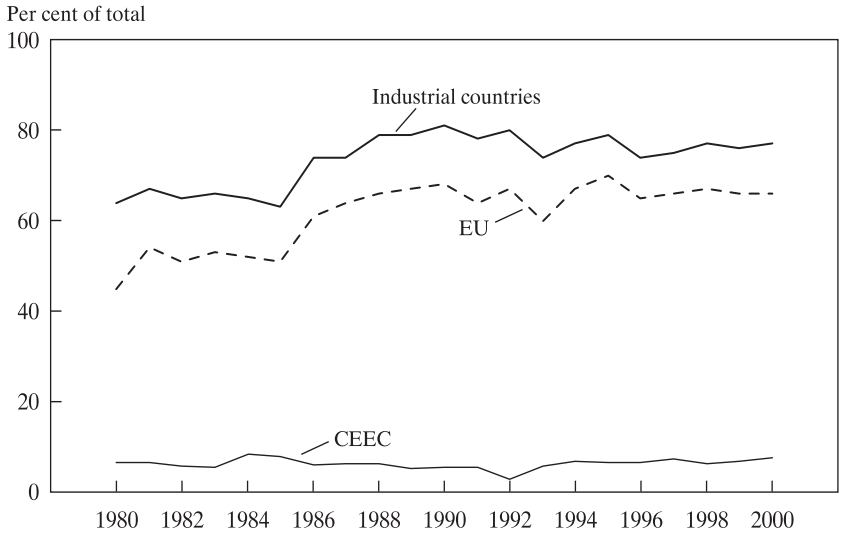

SOURCE: DOTS.

**Figure 7-17. Greece's Share in European Transition Markets**




SOURCE: DOTS.

**Figure 7-18. Origin of Greek Imports**



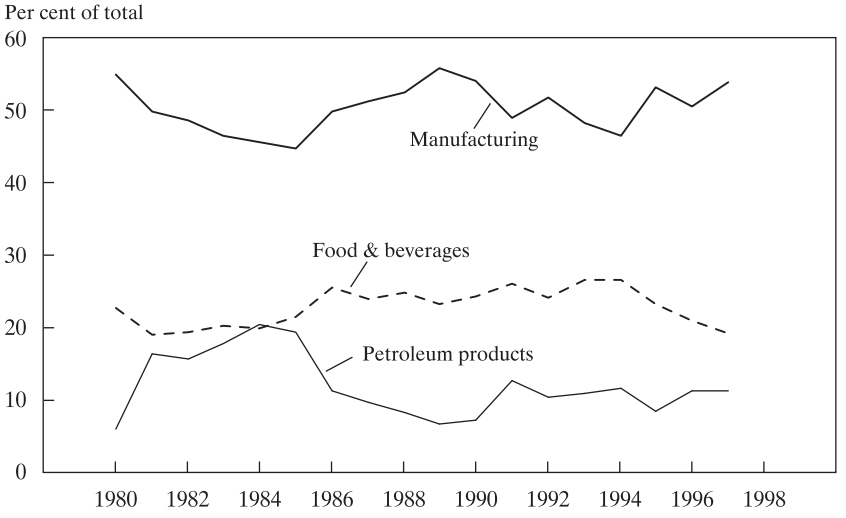

SOURCE: DOTS.

from 1.1 per cent in 1980 to less than 0.4 per cent in 1999. Interestingly, Greece's share in exports to Turkey seems much more steady, remaining about 0.8 per cent of Turkish imports.

The geographical structure of imports showed less variability, with practically no trend in imports from the CEEC. Accession to the EU pushed the share of EU imports from around 45-50 per cent to above 65 per cent, but there is no sign of reversal of this effect with the opening of Central and Eastern European markets. The significant decline in the share of imports from Japan to 4.5 per cent in 1999 from 11.1 per cent in 1980 may be an indication of trade diversion towards EU-produced goods.

A similar reorientation, in common with goods exports, can be found in tourism receipts, namely an initial redirection towards EU tourists in the 1980s and a reorientation away from them and towards other tourists in the 1990s. The share of tourists originating in EU countries increased from around 37 per cent of the total in the 1960s and 1970s, to 57 per cent in 1980 and peaked at 71 per cent in 1990. It fell to 61 per cent of the total in 1997, the last year for which data are available. The share of US tourists has been on an almost continuous downward trend since the 1960s; American tourists, who accounted for 19 per cent of total arrivals in the 1960s and 1970s, are now just over 2 per cent of the total, despite the dollar's recent strength.

**Figure 7-19. Structure of Greek Exports**




SOURCE: Bank of Greece.

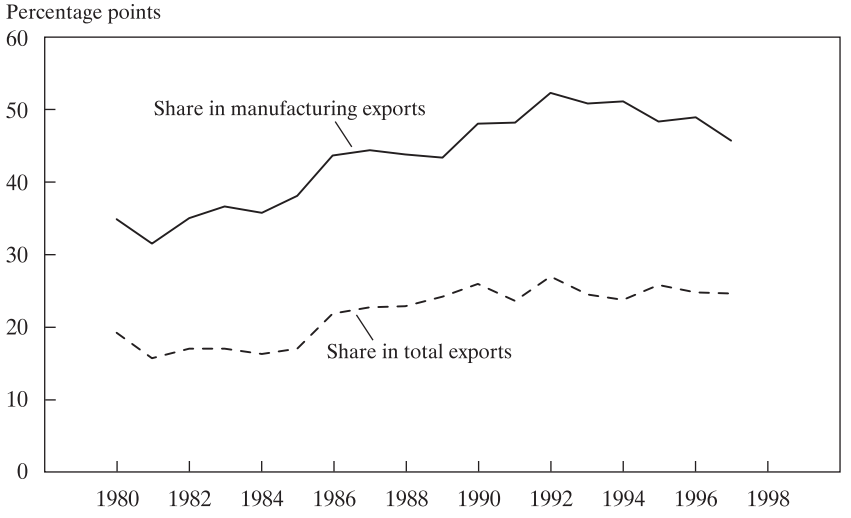
## *Product Structure of Greek Exports*

Despite wide fluctuations from year to year, and some widely reported "success stories", the structure and composition of Greek exports has shown remarkable stability during the period under consideration.

Manufacturing has consistently accounted for just over half of the total value of exports but without any appreciable upward trend, while food and beverages, and petroleum products have been the next two most important categories of exports. It is remarkable that tobacco, probably the most traditional export product, has shown surprising resilience; after successive falls in the 1980s from 4.7 per cent in 1980 to 1.4 per cent in 1989, its share has rebounded and accounted for 3.3 per cent of total Greek exports in 1997.

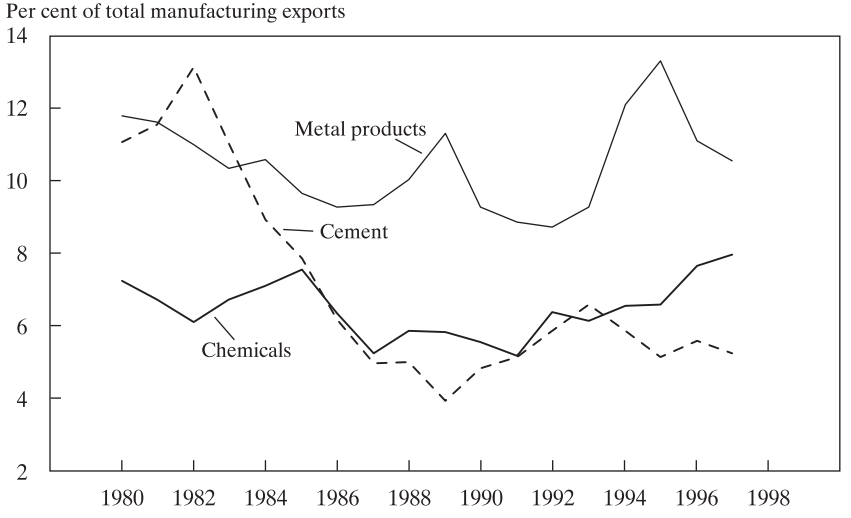
Even within manufacturing, there is little evidence of substantial restructuring during the period 1980-1997 (the last observation for which detailed data are available). Textiles account for almost half of manufacturing exports. They showed a gradual but marked increase up to 1992, but have since retreated. Their share in manufactured exports rose from 34.9 per cent in 1980 to a peak of 52.3 per cent in 1992, but has since fallen to 45.8 per cent in 1997. Metal products have maintained a share of total manufacturing exports of around 10 per cent of manufactured exports. Cement exports

**Figure 7-20. Textile Exports**




SOURCE: Bank of Greece.

**Figure 7-21. Main Manufacturing Exports**




SOURCE: Bank of Greece.

have shown a gradual decline, from 11.1 per cent of manufactured exports in 1980 to 5.3 per cent in 1997. The above-mentioned three product categories, plus alumina and aluminium, constituted about 80 per cent of Greek manufacturing exports in 1997.

Greece's share of world trade in manufactures declined from 0.18 per cent of world trade in 1990 to 0.12 per cent in 1999. On the other hand, the Greek share of world trade in agricultural products has been rather stable, at around 0.6 per cent of world trade.[14]

## Capital Account

The analysis of the capital account is hampered by the availability of comparable statistical data. Up to 1997, the available statistical data provide information on private capital flows based on broad categories that correspond to the regulatory framework of the time but cannot be easily related to economic concepts, like foreign direct and portfolio investment.[15] Practically all medium- and long-term private capital flows were classified under the categories of "entrepreneurial capital"[16] and "real estate investment". Short-term capital flows to the banking system also constitute a large item, although it is again not possible to determine how those flows were used. Information on public capital flows is much more complete and allows for a fuller analysis.

### *Public Capital Flows*

Public capital inflows have been an important source of financing the current account deficits. On average, they covered 80 per cent of the current account deficit over the period 1980-1998. As a result of accumulated borrowing, amortisation of public debt increased from $400 million in 1980 to $6.7 billion in 1998. In relative terms, their burden increased from 10 per cent of exports of goods in 1980 to 120 per cent in 1998.

14. WTO (2000).

15. For a review of the new statistical methodology, see Pantelidis (1997).

16. Entrepreneurial capital is defined as capital imported by private enterprises (whether under Legislative Decree 2687/53 or not). It is not possible to break down this inflow into direct investment and working capital (the latter being roughly equivalent to short-term obligations).

### *Private Capital Flows*

Net private capital inflows have played an equally important role in the financing of the current account. They have averaged just over $1.5 billion during the period 1980-1998. What is interesting is that such capital flows started falling post-1997, after increasing sharply between 1994-1996. This development was, to some extent, an expected reaction after a period of significant speculative capital inflows, when investors wanted to benefit from the higher nominal yields in Greece compared with most other advanced economies.

About one third of the capital flows during this period were used for the purchase of real estate, usually by Greeks living abroad. The so-called "entrepreneurial capital" (net of amortisation) accounted for just over one half of private capital flows. Information on foreign direct investment (FDI) is available on a consistent basis only for the period after 1997.[17] The available sources of information indicate that Greece has not been a significant recipient of FDI.[18] During the 1990s Greece absorbed only about one per cent of FDI directed to OECD members.[19]

UNCTAD[20] compiles a series on inward and outward forward direct investment. The coverage of this series is uneven and suffers from problems of comparability over time. The data for Greece do not include reinvested earnings. The picture the country presents is one where foreign direct investment increased rapidly from $200m in 1974 to $1.1bn in 1980, and has since fluctuated around the $1bn level. It peaked again at $1.5bn in 1988 and then fell to $700m in 1998. The latest estimates indicate a rebound in 1999 to $900 million.

According to UNCTAD data, Greece did not follow the fast increase in foreign direct investment flows in the 1990s. Whereas inward foreign direct investment in the EU increased by a factor of three between 1990 and 1999 (and faster in the world as a whole), in Greece it fell by 10 per cent over the same period. In general, Greece's share in world foreign direct investment flows parallels the share of Greek exports in world trade, i.e. a long period of decline followed by indications of recovery in the late 1990s.

All available information (both from the UNCTAD and the Bank of Greece) indicates that outward investment from Greece has been quite small.

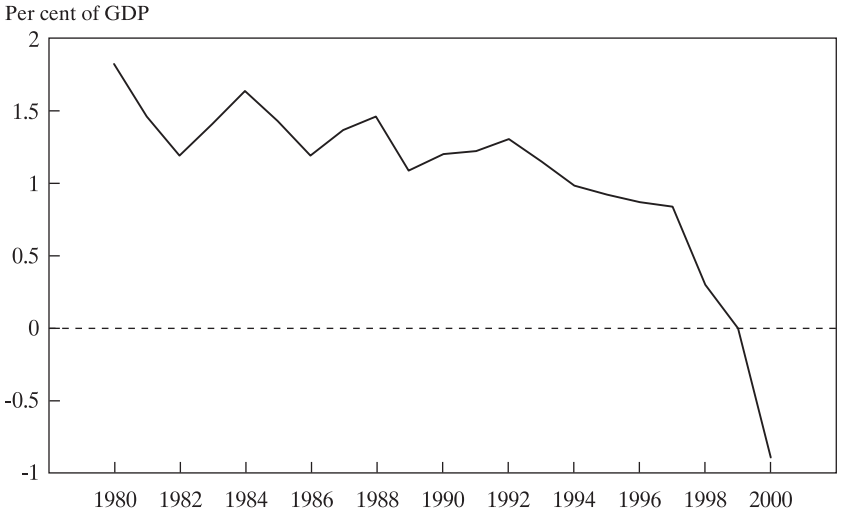
17. Occasionally, the entry for "entrepreneurial capital" is interpreted (e.g. by the OECD) as corresponding exactly to the notion of foreign direct investment. This is not correct, as this entry also includes working capital.

18. IMF (2001).

19. OECD (2000).

20. See UNCTAD (2001) and the accompanying Country Fact Sheet.

**Figure 7-22. Net Foreign Direct Investment**




SOURCE: IFS.

UNCTAD data indicate that outward investment has hovered around zero, reaching a maximum of $150m in 1985, and has been negative (indicating a repatriation of investments abroad) since 1998.

### *Reserves*

In the early 1980s, Greece held a rather low level of reserves, covering about one and a half months of imports. After the crisis of 1985-86, it started building its reserve position, helped by the high nominal interest rates that were necessary for the stabilisation effort and structural fund inflows. Import coverage increased to the very comfortable level of nine months of imports. Overall reserves rose from $1.3 bn. in 1980 to $14.5 bn. in 2000.

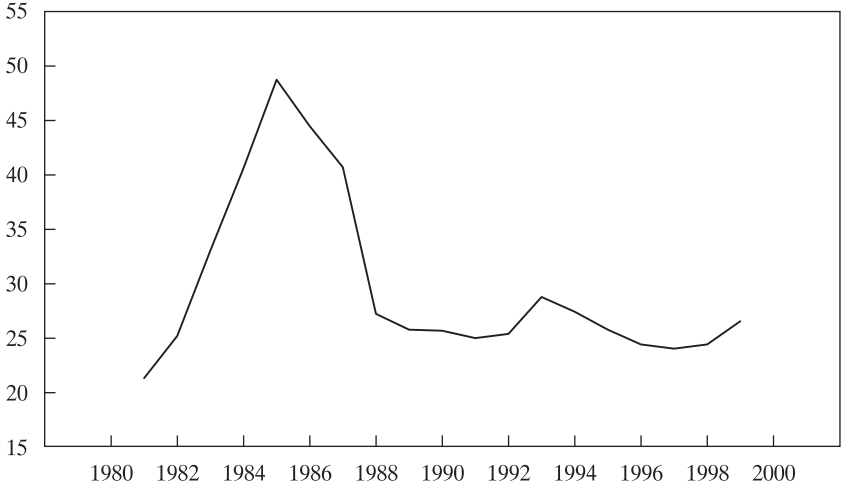
### *External Debt*

As a result of widening current account deficits and the external borrowing needed to finance them, the external debt increased rapidly from just over 22 per cent of GDP in 1981($7.9 billion) to 50 per cent of GDP in 1985 ($14.8 billion). As a result, the government reversed course and endeavoured to finance

**Figure 7-23. Foreign Exchange Reserves**


SOURCE: Bank of Greece.

**Figure 7-24. External-Debt-to-GDP Ratio**




SOURCES: Bank of Greece and IFS.

its own fiscal deficits from the domestic market. The external debt fell equally fast to 28 per cent of GDP by 1988 and has fluctuated between 25 per cent and 30 per cent since then. Total external debt stood at $33.8 billion in 1999.

It should be noted that, during the 1990s, while the government was financing its deficits mainly with the issuance of domestic T-bills and bonds, those were bought to a significant extent by foreign investors, with the corresponding flows being recorded under different headings (such as inflows of private capital) of the capital account.

## Competitiveness and the Real Exchange Rate

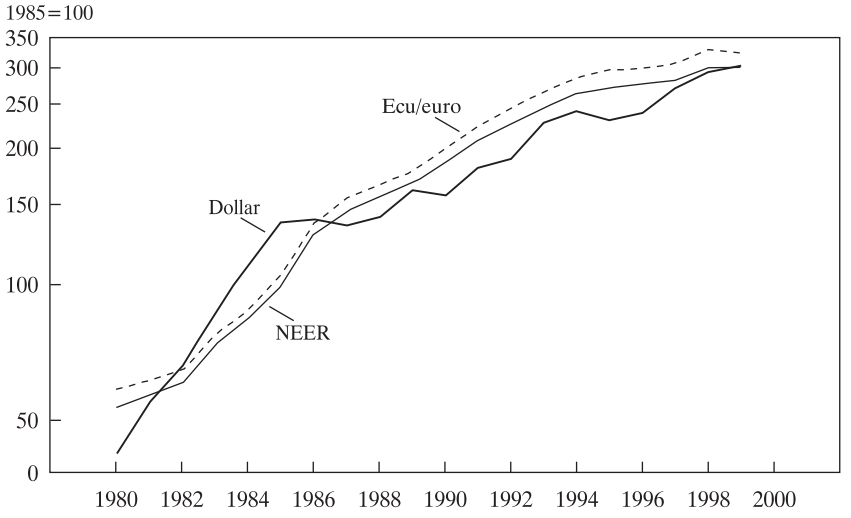
The drachma had been a rather "strong currency" during the Bretton Woods period of fixed exchange rates, in that it was not devalued against the US dollar after an initial devaluation in 1953. The 1970s, after the first oil crisis, and the early 1980s saw a period of relatively weak drachma, during which the authorities were preoccupied with maintaining the external competitiveness of the Greek economy and accepted whatever sliding or devaluation was thought to be necessary to preserve this competitiveness. As noted above, there were two step devaluations in the 1980s, one in 1983 and the second in late 1985.

There are three available measures of Greece's real exchange rate, based on the consumer price index (CPI), unit labour costs (ULC) and (post-1989) the wholesale price index (WPI). They all tend to tell the same story, at least for the period after the devaluation of 1985. The first two show that at the end of 2000 Greece's real exchange rate was about 22 per cent above the level reached in the aftermath of the 1985 devaluation, while the WPI-based index shows a slower appreciation after 1989. Indeed, there has been some improvement since 1997, as a result of the drachma's nominal depreciation against the ECU/euro and the weakness of the euro.

It should be noted that the Greek experience has not been much different from that of Spain or Portugal. All these countries experienced a significant real appreciation of their currencies during the time of their stabilisation efforts. Spain and Portugal's appreciations were more abrupt than that of Greece, occurring over a shorter period. Spain is the only country where the currency's real appreciation was subsequently reversed to some extent.

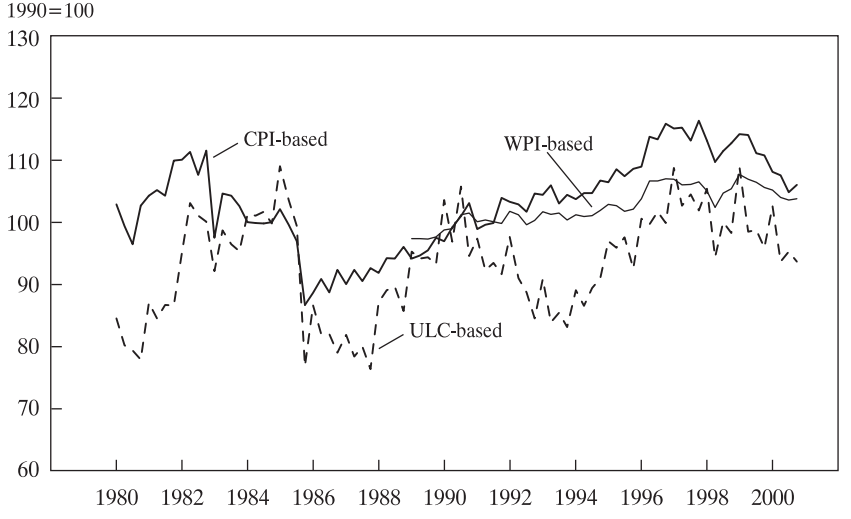
It would be easy to attribute Greece's slow export growth to the real exchange rate appreciation. Yet, the loss of competitiveness has been less that what is implied by the real exchange rate movements. In light of productivity differentials, as Greece's economy was catching up, in terms of *per capita*

**Figure 7-25. Nominal Exchange Rate of the Drachma [a]**



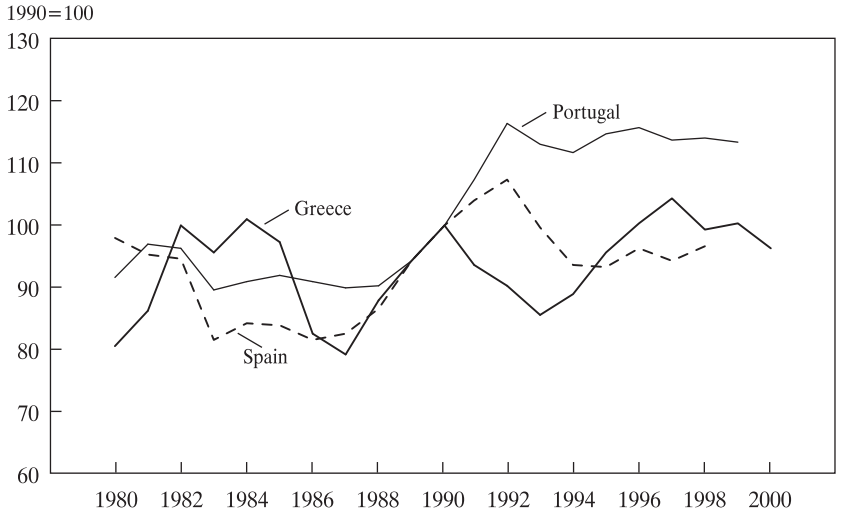

SOURCE: IFS.
a. Average annual nominal exchange rates against the ECU/euro and the US dollar.

**Figure 7-26. Measures of Real Effective Exchange Rate**




SOURCE: Bank of Greece.

**Figure 7-27. Comparative Evolution of the Real Exchange Rate [a]**




SOURCES: Bank of Greece and IFS.
a. For Greece and Portugal, ULC-based; for Spain, CPI-based.

income, with its main partners and the Greek economy's productivity gains occurred mainly in the tradeable sector, one should expect a Balassa-Samuelson effect to lead to higher inflation in the nontradeable sector.[21] As we have seen, Greece has seen a substantial decrease of the price of tradeables over the last twenty years. The wholesale-price-index-based measure of the real exchange rate, which is a better measure of the tradeable sector's competitiveness (as it does not include non-tradeable services), shows a much smaller erosion of competitiveness than the consumer-price-index-based measure.

While the drachma appreciated in real terms after 1987, a rising real exchange rate is the typical experience of countries attempting macroeconomic stabilisation. To explain the loss of market share and the inability to become a more open economy, one must look at domestic rigidities and inefficiencies in labour and product markets. Katseli (1990) identifies domestic rigidities as the root cause of Greece's lacklustre performance during the 1990s. In particular, she singles out the prevalence of "soft" budget constraints (both for the public sector and private firms) as the reason that prevented the exit of inefficient firms and the entry of more efficient ones. As a result, the mix of Greek firms

21. A study by the IMF (2000) indicates that traditional measures of the real exchange rate overstate the loss of competitiveness by 1 per cent a year. It should be noted, however, that, given the importance of trade in services in the case of Greece, estimates based only on trade in goods might overestimate the magnitude of the Balassa-Samuelson effect.

became more inefficient, therefore hampering its production of tradeable goods. In this sense, the strong drachma (together with the monetary and fiscal policies required to support it) may have provided a welcome change for the economy as a whole by hardening the constraints facing the Greek economy.

## The Current Account in a Monetary Union

With Greece's entry into the Economic and Monetary Union (EMU), the significance of the balance of payments changes in important ways. Although statistical information on the balance of payments can be compiled for a country that is a member of a monetary union, the importance of the balance of payments is altered, as the country does not have any instruments (such as the interest rate or the exchange rate) to affect it directly, but also does not face any problem in financing it.

Current account deficits in a monetary union are financed by capital inflows (including recourse to the union's total reserves if the union does not follow a free float). In this sense, a widening current account deficit in one country cannot create pressures for devaluation, unless it is large relative to the union's current account position, thus putting pressure on the union's currency. A country's current account deficit cannot create external financing problems as such, although individual borrowers (including the government) may face financing difficulties of their own if they are not considered creditworthy. This will be reflected in an increased default risk premium being charged on their borrowing.

The importance of the information contained in the balance of payments stems from the latter's nature as a measure of the discrepancy between saving and investment in the economy. Since national accounts data in Greece are published with a much longer delay than balance of payments data, the balance of payments can act as an "early warning system" of such macroeconomic imbalances. The relevant question concerns the effects of the widening current account deficit on the economy.

It is important to note that this widening of Greece's current account deficit has occurred at a time when the public sector's deficits have been reduced; therefore, the fiscal stance of the public sector has not been the cause of the current account deficit. The recent fall of the private sector's gross saving is probably due, to some extent, to the relaxation of regulatory credit constraints for many households and to falling interest rates, capital gains from appreciating assets (stock market or, more recently real estate), and perhaps optimistic expectations about future incomes.

Since 1995, overall investment has increased at a rate above the GDP growth rate and is projected to accelerate in the medium term. The tendency of domestic nominal interest rates to fall towards EMU levels has obviously helped investment by improving companies' cash-flow. Also, the elimination of the devaluation risk and of the stress it imposes on the financial sector has also been a positive factor for investment. The greater predictability of economic policies, because of both joining EMU and removing the devaluation risk and the associated risk of financial distress,[22] has likely reduced the risk associated with investing in Greece and led to higher investment. At the same time, a number of regulatory reforms that are being implemented will have a positive effect on productivity, improving investment prospects.

If there were a widespread consensus that the current external borrowing is unsustainable, we should see a worsening of Greek entities' (including the government) credit ratings and an increasing reluctance to lend to Greek borrowers. This has not been the case. This widening of the balance of payments is also happening at a time when the budget constraint has hardened, with the loss of the monetary financing of fiscal deficits since 1994 and the loss by the Bank of Greece of its ability to act as lender of last resort.

The situation would be different if it were deemed that market participants were behaving irrationally. One could make several arguments in this direction. Domestic banks (and the suppliers of their funds) may not have fully realised the implications of the Bank of Greece's inability to act as lender of last resort. In this sense, they may feel more comfortable than warranted in assuming greater risks. Similarly, increased competition among financial institutions may have led them to turn to riskier projects in order to compensate for falling profit margins elsewhere.[23]

Suppose that the markets are wrong. Why should there be concern? An unsustainable level of borrowing would risk leading to a situation where an abrupt reduction of spending (at least by some economic agents) is needed in order to avoid default. This reversal in consumption levels would risk inducing an economy-wide slump. Therefore, avoiding unsustainable current account deficits and, equivalently, savings-investment disequilibria, is necessary in order to avoid future problems and smooth the evolution of income and consumption.

At this point it is also necessary to stress that the financing instruments used have different implications regarding the sustainability of current account

22. This is the point made (in a different context) in A. Berg and E. Borensztein: "The Pros and Cons of Full Dollarization, IMF Working Paper 00/50, March 2000.

23. This is a concern currently voiced in many other countries.

deficits. If such deficits are financed through direct or portfolio investments, the dangers are much reduced, as the obligations emanating from such financing are linked essentially to the performance of the economy, and a worse-than-expected economic performance would tend to reduce their burden.

The present levels of the current account deficits have been financed easily and the interest rate spread between Greek and German yields has been steadily narrowing. Evidence that the markets do not perceive this level as worrisome is that the spread on 10-year bonds fell by more than 15 basis points in the first half of 2001.

A recent study by the IMF[24] shows that the Greek drachma was at the end of 1999 almost at equilibrium vis-à-vis the relatively undervalued euro. Another, much quoted, study by the EU,[25] using mostly the same methodology, concludes that the drachma is overvalued by 30 per cent relative to a level that would guarantee the long-term viability of the current account, but acknowledges that "estimation results for Greece are very unstable." The real exchange rate situation has been helped with the recent depreciation of the euro and the drachma's slide towards its EMU entry rate. All in all, there is no clear evidence that Greece is facing an unsustainable current account deficit. Although Greece has been accumulating net foreign obligations, as evidenced by the recent current account deficits, there are also indications of a revival of productivity growth, which is running at a rate of about 2.5-3.5 per cent annually.

Overall, the present level of the current account deficit is not unsustainable, but is high enough to warrant careful policy actions. Since Greece no longer possesses the instrument of devaluation, the focus should be on measures to increase output and productivity. Also, the government should not depart from its tight fiscal policies, which have reduced public dissavings, while the contribution of public investments to productivity growth should be scrutinised and a relatively high interest rate be used for their appraisal.

## Conclusions

- Greece has an unusual pattern of balance of payments, with unusually heavy reliance on services (tourism) and transfers, both public and private.
- Greece's export performance (as measured by its share of world markets) has been below that of its EU partners. Although there are signs that

24. Alberola *et al.* (1999).
25. Hansen and Roger (2000).

the loss of world market share has been arrested and possibly reversed (in the case of services), further improvement should be achieved.

- Tourism has been the area where Greece's performance has been most successful. Nonetheless, as Greece has now become an established tourist market, significant further improvement may not be easy to achieve.
- While the current account is no longer an immediate impediment to growth, the avoidance of accumulation of further net foreign liabilities will necessitate a permanent and significant improvement in Greece's external performance achieved through faster productivity growth.
- Demand-led growth may lead to a fast worsening current account, unless accompanied by supply-side improvements.

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# 8 The Greek Pension System: Strategic Framework for Reform

Axel Börsch-Supan and Platon Tinios

## I. Introduction

PENSIONS are the dominant part of social security and they form a significant component of the entire Greek macro-economy. They account for more than 12 per cent of GDP, while this share is predicted to exceed 20 per cent of GDP within 20 years as the Greek population ages (OECD, 1997). Pensioners make up already a large share of the population and are an important influence in political economy; their share in consumption will increase more than in proportion to their numbers as workers retire who have longer and more productive work histories than their parents' generation.

The Greek pension system, incrementally enacted since the 1950s, was a success story in terms of limiting social exclusion. This function will also be needed in the future. There are, however, serious troubles ahead. Major pension reform has stalled since 1992, although the population ageing process is taking off rather steeply after 2005, only five years ahead. The PAYG-financing mechanism has repercussions on labour and capital markets that will hamper future growth. Additional pressure will be put on the Greek pension system indirectly through the EMU deficit ceilings.

The Greek system can, in many ways, be taken to be representative of the "Mediterranean Welfare state" (Ferrera, 1996). It is extremely fragmented, characterised by "islands of privilege in a sea of insufficient provision". Its

All views expressed in this paper are personal and do not reflect policies or opinions of organisations or institutions with which the authors may be associated.

development over fifty years and resilience to change make it an important and interesting test case.[1]

In the run-up to the April 2000 election, the governing party declared unequivocally that "*the modernisation of the social protection system demands the cutting of the Gordian knot of pension reform*".[2] In the eve of pension reform, the aim of this paper is to describe the Greek pension system, to analyse its ability to weather future challenges, and to offer a possible strategic framework for the coming reform.

Thus, the paper consciously avoids being a complete "blueprint for reform". It prefers instead to offer a link between an analytical reading of the history of the current system and possible options for its transformation to cope with new tasks and take advantage of new opportunities. A complete blueprint, in any case, must be rooted in a complete quantification of the challenges which, in the absence of well-specified projections, can only be sketched impressionistically. Such a projection, at the time of writing, is not available.[3]

Our main results are: Indeed, reform is badly needed. This need does not arise because of financial viability considerations alone, but also for wider reasons, both social and economic. The Greek pension system still has a window of opportunity for reform that lasts until about 2005, when the ageing curve will get steeper. Pension reform can be made a win-win game for public policy. Because of the growth-enhancing effects of a reform, it is not, as is often claimed, a zero-sum game across generations.

The paper is structured as follows. Section II describes the Greek pension system and its features. Section III analyses the economic status of pensioners and the aged, drawing partly on the Appendix (The Transition from Work to Retirement). Section IV shows the main problems that are likely to undermine the still much needed social security and social protection role of the Greek pension system. Section V describes the political economy of pension reform. Section VI outlines broad reform alternatives, ranging from parametric reform of the existing PAYG system to a partially funded, mixed system.

1. A further aspect of the Mediterranean welfare state, which here is not dwelt upon, is the organisation of the hospital system on a universalistic ('Beveridge') basis. Its coexistence with primary health funds organised as social insurance ('Bismarck' basis) in practice has facilitated cross subsidisation.

2. PASOK, 2000, p. 94. This reform is understood to involve "*the safeguarding of the viability of the system, the correction of today's injustices, and* [the need] *to place generational solidarity on a sound basis*". Equivalent statements were repeated in the new government's programme statement in Parliament, in May 2000. The reform is expected in 2002.

3. The Greek Government outsourced the construction of a projection model, following an international tendering procedure, in 2000. Preliminary results were released in March 2001 and form the basis for the work of EPC 2001. The projection results are awaited in March 2001.

We do *not* consider a fully funded system feasible and advisable for Greece. However, neither do we consider a continuation of the current system as a feasible policy. We finish with a brief summary of our policy conclusions.

## II. Institutions

This section describes the Greek pension system in a nutshell. We begin by its most prominent characteristic, its fragmentation, which would make a complete description of the system crowd out all other place in this volume. We then describe coverage, financing, eligibility for, and computation of, benefits granted by the main pension providers, and end this section with a brief assessment of how the public pension system fits in the overall Greek social policy environment, and on the effects which the public pension system is likely to have on the Greek economy as a whole.

### *II.1 Fragmentation*

One of the most prominent characteristics of the Greek pension system is its fragmentation. The fragmentation reflects the history of the Mediterranean welfare state, which began in a corporatist rather than in a state-oriented tradition.

The fragmentation of the Greek pension system has three dimensions.[4]

- *First*, a *sectoral* dimension. There is a multitude of pension providers[5] by sector of employment or occupation. Even within providers, there are sharp differences on a sectoral basis regarding contributions or pension entitlements.
- *Second*, differentiation according *to tier of protection*. The system has three tiers of benefits consisting of a primary pension, a supplementary pension and a separation payment. The distinction between primary and supplementary pensions is largely historical and their economic function similar in providing defined benefit annuity income in retirement.[6] Separation payments are a one-time lump sum paid at the time of retirement entry. The three tiers are almost always in different accounts, in most cases even in different institutions.

4. For a description of the system, see OECD, 1997 or Spraos Report, 1997.
5. The common term "pension fund" is misleading, as almost all financing is pay-as-you-go.
6. The term "Supplementary" pensions, sometimes translated as "auxiliary", must be sharply differentiated from the usage of the same term in EU legislation, which refers to occupational, funded schemes deemed to be part of the wage remuneration package, and hence subject to EU legislation. The confusion arises as the same term is used in Greek to cover both concepts.

**Table 8-1. The Greek Pension System**

| *Population category* | *Tiers of protection* | *Organisation* | *Source of finance* | |
|---|---|---|---|---|
| **1. Uninsured over 65** | Universal pension (to be phased out for farmers) | OGA | State subsidy | |
| **Farmers** | subsidised contributory ('new farmers' pension - 1997) | | Contributions, State subsidy as a percentage of contributions | |
| **2. (A) Civil Servants** | Primary, supplementary (often twice), sep. payment | State budget | State budget | *NEW ENTRANTS SYSTEM (LAW 2084/92)* *Uniform retirement age (65), contributions as in IKA, tripartite financing, maximum replacement 60 per cent (primary), 20 per cent (supplementary). Membership of sectoral funds. However, no separate accounts are kept.* |
| **Military** | | Supplementary funds (35 funds) | Contributions + tied taxes | |
| **(B) Autonomous state organisations** | Primary, supplementary, sep. payment | IKA for primary | | |
| **3. Private sector employees** | | | Contributions+ State transfers+ | |
| **(A) IKA: (i)** | Primary | IKA | deficit financing | |
| **(ii)** | Primary+supplementary | IKA+TEAM<br>IKA+other supplementary | Contributions<br>Contributions+ tied taxes | |
| **(iii)** | Primary+ supplementary + sep. payment | As above +separation funds | Contributions | |
| **(B) Sailors** | Primary+ supplementary + sep. payment | NAT, KAAN etc. | Contributions+ State transfers+ tied taxes | |
| **4. Employees of State sector (public enterprises, banks)** | Primary+ supplementary + sep. payment | "Special Funds" (by enterprise) | Contributions (larger employer share) | |
| **Public Power Corp.** | | IKA+Special Fund for supplementary | Financing of deficits by employer | |
| | | PPC budget (no fund exists) | Contributions + all deficits by the enterprise | |
| **5. Self Employed** | Primary | TEVE, TAE, TSA (To be unified) | Contributions (fixed in drachma terms) | |
| | Primary+supplementary | As above +Suppl. Fund | State transfers + tied taxes | |
| **6. Professions** | Primary | Lawyers', doctors', engineers' funds, | Tied taxes, contributions | |
| **(A) Self-employed** | Primary+suppl. | As above | (fixed in drachma | |
| **(B) Employees** | 2 primary pensions (frequent occurrence) | + Local lawyers' fund | terms)<br>Income from property | |

**EKAS (Pensioners' Social Solidarity Supplement)**
Paid after a means test to all low-income pensioners over the IKA age limits in the urban sector, regardless of pension provider affiliation). First paid in 1996 and subsequently much increased in value.

**Honorary pensions: War, Resistance, Local Authority, personal etc.**

**Table 8-2. The Top-10 of Greek Social Security, 1998**

| *Name* | *Tier[a] provided* | *Sector of employ-ment[b]* | *Type of finance[c]* | *Number of con-tributors (thousands)* | *Number of primary pensions paid* | *Total expen-ditures (per cent of GDP)* | *Pension payments (per cent of GDP)* |
|---|---|---|---|---|---|---|---|
| IKA+TEAM | P+S+H | W, G+P | E+M+S | 1,855 | 810 | 6.1 | 4.5 |
| OGA | P+H | SE | E+S | 1,135 | 759 | 1.8 | 1.3 |
| Government (Ministry of Finance)[d] | P+H | W, G | E+D | 423 | 350 | 2.6 | 2.2 |
| TEVE | P+H | SE | E+S+T | 541 | 155 | 1.0 | 0.7 |
| TAE | P+H | SE | E+S+T | 207 | 30 | 0.2 | 0.2 |
| NAT | P | P | E+M+D+T | 46 | 62 | 0.7 | 0.4 |
| Engineers | P+S | SE,W, G, P | E+T | 75 | 10 | 0.1 | 0.1 |
| OTE | P | W, G | E+M+D | 47 | 32 | 0.4 | 0.3 |
| TSA | P | SE | E+T+S | 74 | 44 | 0.2 | 0.2 |
| PPC[e] | P+S+H | W, G | E+M+D | 34 | 25 | 0.4 | 0.3 |
| Entire system[f] | All | All | All | 4,161 | 1,923 | 17.8 | 12.0 |

SOURCES: Social Budget, government budget and National Statistical Service of Greece (NSSG), 2000.
a. P=Primary pension, S=supplementary, H=health.
b. W=wage employed, SE=Self-employed, G=public sector, P=private sector.
c. E=employee contributions, M=employer statutory contributions, S=State contributions, D=deficit financing, T=Tied tax.
d. Pensions and health expenditure paid out of government budget. Employees' contributions are collected but are added to general revenue.
e. PPC employees' social security is paid out of the company budget. New fund set up in 2000.
f. Entire system excludes secondary health care, but includes most primary health care.

- *Third, a cohort dimension.* Fragmentation occurs even within occupational groups and pension providers: Frequently, grandfathering rules, takeovers of providers and other legal changes have created a multitude of subdivisions among the insured population according to age or length of service. The chief cohort difference to which we will often return is that of the "new system" of post-1993 entrants (see Box 8-1 below).

Adding yet another layer of complication to the system is the fact that many pension providers also provide health care benefits in cash and in kind.

The fragmentation makes the Greek pension system intransparent and subject to political manoeuvring through inconspicuous cross-subsidies. Cross-subsidies were amplified by the lack of a clear separation of the budgets for pensions and health care benefits, adding to the intransparency of the budget situation.[7]

7. Freezing in nominal terms of the *per diem* paid to hospitals by social security providers from 1983 to 1990 resulted in health insurers running huge surpluses mirrored by hospital deficits, in turn financed by government subsidies. Providers where health and pension coexisted (such as IKA) used this to pay for pensions. Independent health funds used the windfall to add to their property.

Many pension providers lack the most basic statistics. Though a few actuarial studies exist, their results are seldom discussed and compared.[8] The intransparency extends to statistical information on pensioners. The lack of a unique personal identifier makes it impossible to track pensioners in receipt of multiple pensions and hence to have a complete picture of pensioners' well being.[9]

Table 8-1 provides an idea of the fragmentation by occupational status and by type of pension and financial arrangement.

The ten largest pension providers, ranked both by number of members and expenditure, are listed in Table 8-2.

The single largest pension provider is IKA ("Institution for Social Security"), which caters primarily to private sector employees and provides more than a third of all pension benefits. IKA was set up in 1936 and was designed to form the backbone of the social security system through the gradual absorption of sectoral funds. IKA offers primary pensions, primary health care, sickness benefits in kind and in cash. Since 1978 a branch of IKA, TEAM, has been offering supplementary pensions. In 1983, TEAM was made compulsory to all wage employees not already covered by other supplementary providers. Within IKA alone, there are over 300 major pathways to retirement, some absurdly specific (see the Appendix on retirement age). Separation payments are paid by special providers or directly by the employer.[10]

### *II.2 Coverage*

Inclusion in the pension system is mandatory for all workers, including the self-employed who have their own providers. Civil servants, the military, priests and other smaller categories are covered directly by the State (Ministry of Finance) for primary pensions and health, but have independent providers for supplementary pensions and separation payments.

Although the Greek system is related to the formal labour market insofar as pensions are related to earnings histories, coverage extends further, since

8. The General Secretariat of Social Security commissioned a survey of the 174 studies submitted between 1993 and 2000 (Zampelis and Kentouris, 2000). According to the survey, most studies were conducted in order to justify benefit enhancements and hence they were not concerned with system viability.

9. Law 2084/1992 provides for such an identifier, but its coverage to this date is rather narrow. For data problems see Tinios (1999).

10. Workers not covered separately by a separation fund are entitled to the amount they would have received had they been made redundant. Law 2112/1920 deems the employer to be solely liable for this benefit, which is calculated as a multiple of montly payments, equal to the employee's service years with the firm. See NSSG (2000).

the rural pension subsystem also provides a means-tested pension for persons over 65 with an insufficient earnings history, currently paid to 34 thousand persons. Since Greece has no general safety net such as a universal social assistance programme, these agricultural pensions work as a last resort for aged persons who have not acquired pension rights.

The Greek pension system therefore appears to cover essentially *all* elderly persons. Unfortunately, there are no good statistics on the *actual* coverage of the system. Adding up all pension payments received by persons aged 70 and over exceeds the population in this age class by some 200 thousand persons (see Figure 8-4).[11] This is caused by multiple pension eligibility, most frequently by widows.

### *II.3 Financing*

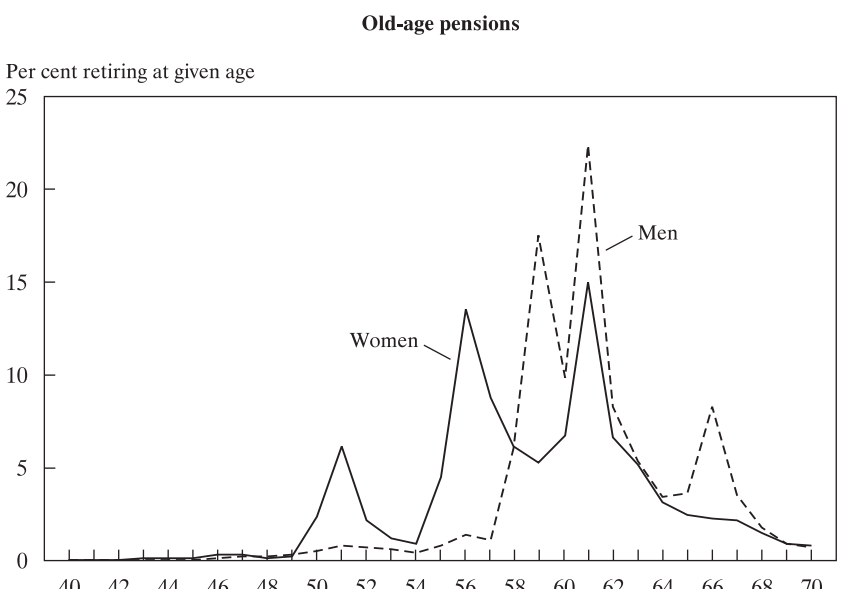
Pension benefits are financed by three parties: Employer and employee share contributions in proportions varying by provider, and the State adds subsidies. In 1997, employer and employee contributions made up about 66 per cent of total receipts, leaving 34 per cent to the State (Spraos Report, 1997, Table 6.1). State subsidies take the form of formal tripartite finance for the "new system", *ad hoc* transfers, earmarked taxes and, indirectly, the form of subsidies by public enterprises. Since there is no formal process determining this State subsidy, pension providers have a soft or even non-existent budget constraint since additional subsidies were historically granted on *ad hoc* criteria and without involvement of the Parliament. Figure 8-1 depicts employer, employee and State contributions to pensions and health insurance as a percentage of GDP and shows the increasing share of State financing since 1985.[12] The data include only those payments, listed as income; they exclude, for instance, financing of civil service pensions through the government budget. State support of the pension system is one of the main determinants of the primary public sector balance; even allowing for a complex picture on the financing side, pension policy must account for a good part of the overall accumulated public sector debt.

Contributions to IKA are on average 26 per cent of gross income (Spraos Report, Table 3.5). For the 'new system' contributors, there is no upper cei-

11. Similarly, the number of people covered by health insurance exceeds the population by more than 20 per cent.

12. State financing is underestimated, as it does not include cross-subsidies from health to pensions. Equally, the effect of the State taking over Pension Fund accumulated debts in the early 1990s is not reflected.

**Figure 8A-1. New Pension Awards by Age of Entry, IKA, 1997**



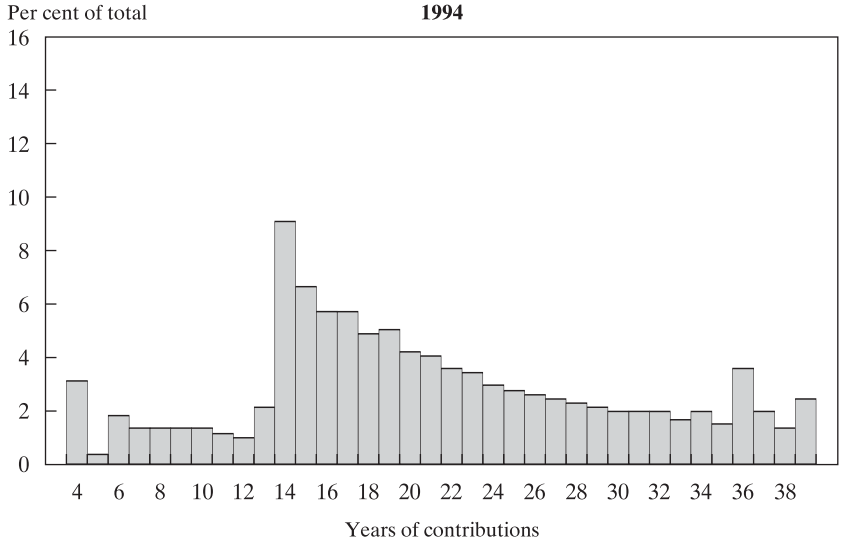

ling on contributions, although there is a cap on benefits; the old system though has ceilings on both contributions and pensions. However, evasion is widespread and takes many forms, ranging from not insuring entire establishments (less common), to not declaring particular workers, whereas underreporting of hours worked or wages received (i.e. income) is almost universal. The link to benefits is therefore weak (see below). Consequently, the IKA's statutory contribution rate, while high compared to other EU countries, does not reflect the effective contribution rate.

## *II.4 Eligibility for Benefits and Retirement Age*

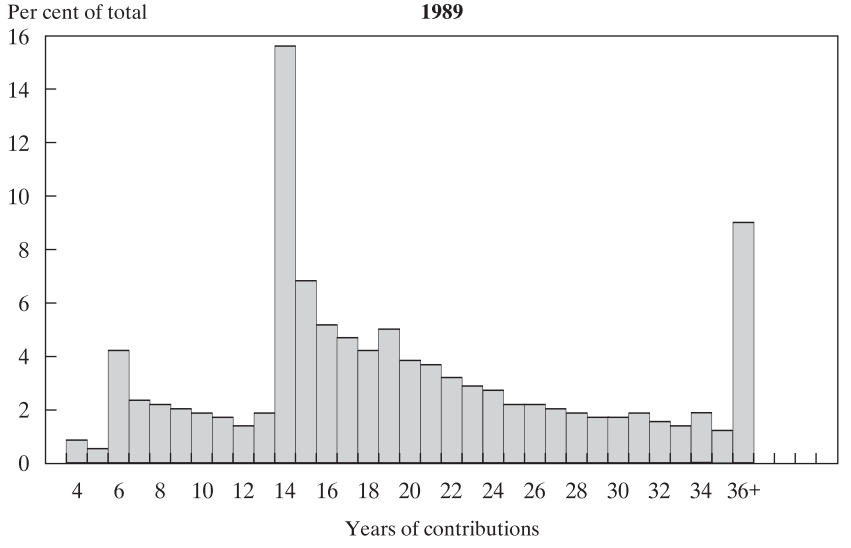
Eligibility for pensions depends on years of service and age. We start with the "normal" case in IKA. This worker can obtain a full pension at age 65 (age 60 for women) after at least 15 years of service. He can retire from age 60 on (age 55 for women) with an adjustment of about 6 per cent per year before age 65, which is roughly actuarial.[13]

13. If the actuarial reduction takes the pension receivable below the (rather high) minimum pension, the pension paid is the mimimum. *For the majority of cases, thus, there is no actuarial reduction at all*.

**Figure 8-2. New Pension Awards in IKA by Years of Service, 1989 and 1994** [a]




Total number of pension awards: 35,698.




Total number of pension awards: 33,870.

SOURCE: Spraos Report, Figure 3.4.
a. Old age and disability combined.

However, this "normal" entry is the exception because only about 20 per cent of new pensioners in 1997 use this pathway to retirement. The remaining 80 per cent of workers use one of the many exceptions, some of which are listed in the Appendix. The exceptions are thus actually the normal case for IKA. The many exceptions and the prevalence of evasion are the likely causes for the skewed distribution of service years reported at the time of pension entry; this is visible in Figure 8-2.

The distribution depicted in the figure features a sharp peak at 15 years both for men and women. It is rather unlikely that this distribution reflects the true distribution of years worked in life; rather, it points to the prevalence of evasion or to a coexistence of work and pension receipt and the receipt of multiple pensions. Interestingly, the distribution in 1994 appears a little less skewed than that of 1989.

The long list of "exceptions" also creates a low average retirement age in IKA, which was 59.7 years for men and 57.5 years for women in 1997, although there is also a considerable number of workers aged 65 and above who still have not fulfilled the 15 year eligibility criterion (Figure 8A-1, page 434). Figure 8A-1 exhibits the distribution of ages at retirement entry with the characteristic spikes at age 50 (mothers), 55 and 60 for women, and at age 58 (heavy occupations plus long service pensions), 60 and 65 for men.

In the public sector, eligibility is even more generous. It is still possible to leave work after 15 or 20 years of employment with no restrictions on the actual age of retirement, although after 1990 a minimum age for the *collection* of pensions was introduced. Thus, many public sector employees left the public sector early, picked up a private sector job and then had the time to be entitled to collect two separate (consecutive) pension rights.

### *II.5 Benefits*

While the level of benefits varies by provider, there are some common features. Following the principle of equivalence, primary and supplementary pensions as well as the separation payment are determined by the pension base income and the years of service. However, equivalence between contributions and benefits is distorted for two reasons. *First*, the base income for benefit calculations is commonly the average salary of only the last 5 years in IKA.[14] In other employee funds and in the public sector it is the last salary only. This narrow window for the computation of the base income gives rise

14. Raised from 2 years in 1990.

to the above-mentioned underreporting of incomes earned in earlier years since it is profitable for both employers and employees to save on contributions without doing harm to later pension benefits.

*Second*, there are several mechanisms that provide for a minimum pension. IKA, the largest provider, has a formal minimum pension which until 1990 was set as a multiple of the official daily minimum wage. It is currently set (1999) at about 110,000 drachmas. Because of underreporting and few contribution years, more than 60 per cent of all IKA pensioners receive this minimum pension. Thus, though contributions are a function of income, for the majority of IKA beneficiaries benefits are essentially flat-rate.[15]

In addition, the agricultural pension system, represented by OGA, provides the already mentioned basic pension of last resort (currently 47,000 drachmas[16]) to all farmers over 65, regardless of contributions. Elderly without acquired pension rights and farmers who reached 65 prior to 1987 received the basic pension. Farmers currently retiring receive a contributory pension, as a result of a new scheme, which started in 1997.

In 1996, the Greek government also introduced a means-tested supplement, called EKAS, which grants a fixed amount to low-income pensioners after cross-checking (see Box 8-2). EKAS was the first successful instance of the use of means tests in the Greek pension system, and can be thought to open the way for wider use of targeting. (See Spraos Report, 1997, chapter 5).

On the other hand, there is a formal cap on *total* pension benefits, set at roughly 7 times the IKA minimum pension. However, since crosschecking between providers is impossible, given the absence of a unique identifier, the caps and limits are rarely if ever enforced. The coexistence of work and pension receipt and multiple pensions are thought to be widespread (see Section III). Separation payments paid by dedicated providers have been capped in nominal terms, though this cap has been challenged in the courts.

It is notable that the Greek tax system treats pensions as if they were normal earnings, unlike some other European tax systems.

### *II.5.1 Replacement Rates*

Statutory replacement rates with respect to the pension base at normal retirement age, 65 (60 for women) and normal years of service are high compared to international standards (see Table 8-3 for the most important providers).

15. Tinios (1999a) provides a statistical overview of minimum pension recipients.

16. This amount is received by all *persons* over 65. Thus, a rural couple both over 65 would receive 92,000 drachmas plus family allowances.

**Table 8-3. Statutory and Effective Replacement Rates**
Percentage points

| | *Statutory* | | *Effective* | |
|---|---|---|---|---|
| | *Total* | *Primary* | *Total* | *Primary* |
| Private sector (IKA+TEAM) | 90-110 | 70-90 | 62 | 49 |
| Seamen (NAT) | 100 | 80 | 65 | 53 |
| Small entrepreneurs (TEBE) | 90 | 90 | 54 | 54 |
| Professionals | na[a] | 80 | 90 | 55 |
| Farmers (OGA) old | | | 20 | 16 |
| new | 70 | 70 | ... | ... |
| Civil servants | 152 | 80 | 109 | 80 |
| Public enterprises and banks | 100 | 80 | 98 | 80 |
| Post-1992 entrants | 80 | 60 | ... | ... |

SOURCE: Mylonas and de la Maisonneuve (1999), Table 3. "Effective" at 35 years of contributions.
a. Not available.

Total *statutory* replacement rates (primary and supplementary pension) can frequently exceed 100 per cent of the pension base, in some cases even 120 per cent, if the separation payment is taken into account. However, these high replacement rates mainly reflect the skewed distribution of actual service years that was visible in Figure 8-2. Minimum pensions in IKA, once added to minimum TEAM pensions, give rise to combined pension receipts well above the minimum monthly industrial wage, especially if the calculation is performed net of social security contributions: A pensioner in 1997 would receive a monthly minimum sum equivalent to 25.8 times the daily industrial minimum wage.

Because of the low number of service years at the age of pension entry, the *actual* or *effective* replacement rates are much lower for workers who are above the minimum pension. At the same time, the distribution of *actual* replacement rates with respect to the average wage is wide and uneven. Table 8-3 (reproduced from OECD, 1997) reports wide divergences between statutory and effective replacement rates. This reflects not only the wide distribution of years of service but also the many special benefit computation rules that have accumulated over time as pointed out in the Appendix below. In addition, the minimum pension provides a mechanism of redistribution increasing decisively the replacement rates for the lower part of the income distribution.

Table 8-4 provides a set of examples for typical benefit computations for different providers, based on a stylised earnings history starting at age 25 with an annual real earnings growth of 2 per cent. The 'rate of return' reflects the extent to which total expected benefits exceed total payments, expressed as if the pension contract was an asset purchase. Thus the 'asset purchased' by an IKA contributor after 35 years at the average wage and at today's contribution

**Table 8-4. Implicit Real Rates of Return on Contributions**

| *Scenaria* | *IKA* | *Civil servants* | *PPC* | *TEVE* | *OGA* | *New system* |
|---|---|---|---|---|---|---|
| **A. Baseline (2 per cent wage growth and 2 per cent rate of discount)** | | | | | | |
| - No survivors | 1.1 | 4.9 | 2.7 | 1.7 | 2.3 | 0.3 |
| - Survivors | 2.1 | 5.3 | 3.1 | 2.6 | 2.3 | 1.3 |
| **B. Baseline (4 per cent wage growth and 4 per cent rate of discount)** | 0.7 | 4.8 | 2.6 | 0.6 | 1.1 | -0.2 |
| **C. Work 25 years; retire at 50** | 3.2 | 7.3 | 4.4 | 4.2 | 6.3 | 2.1 |
| **D. Work 25 years; retire at 60** | 0.7 | 6.6 | 3.8 | 1.7 | 3.7 | -0.4 |
| **E. Minimum pension at IKA (15 years work)** | | | | | | |
| - No survivors | 5.2 | | | | | |
| - Survivors[a] | 8.8 | | | | | |

SOURCE: Adapted from Mylonas and de la Maisonneuve (1999).
Baseline refers to 35 years of service between age 25 and age 60.
a. Including rights to survivors' benefits.

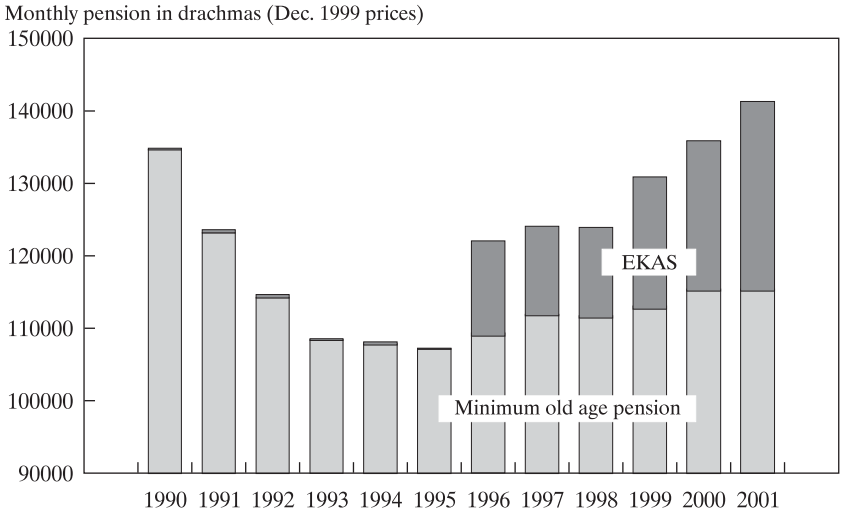
rates earns him a rate of return on capital of 1.1 per cent per annum. In contrast, the government 'asset' is worth 4.9 per cent to the civil servant.[17] The table shows the extent of redistribution between providers and categories of workers, as well as the relative generosity of the different funds. The highest rate of return is attained for the case of the least years of contributions and eligibility for the minimum pension, an interesting fact that shows how strong the incentives are for contribution evasion. The very low, and frequently negative, returns of the "new system" for post-1993 labour force entrants are also remarkable.

### *II.5.2 Indexation*

Since 1990, primary pension benefits of employees have been indexed to the salary of public employees, which effectively ended indexation in proportion to labour productivity and resulted in a real decline of pension ben-

17. These rates do not reflect actual wage histories or contributions, but are steady states based on current magnitudes. "Historical" rates of return would be far more favourable, reflecting the grandfathering which is widespread.

**Figure 8-3. Monthly Minimum IKA Pension and EKAS, 1990-2001**




SOURCE: Authors' calculation.

efits of over 20 per cent between 1990 and 1993. Partially, this was offset by an increase in supplementary pensions of the richer providers. Figure 8-3 shows real receipts of IKA minimum income pensions, including the effect of EKAS, the low-income pension supplement.

## *II.6 Pensions and the General Social Policy Environment*

The pension system is in many ways linked to the general social policy environment in Greece. As mentioned above, the minimum pension was formally set in proportion to the minimum wage until 1990.

Private pensions —occupational or enterprise pensions as well as individual retirement saving accounts— are rare in Greece. One likely cause for the virtual lack of enterprise pensions is the omnipresence of the Greek mandatory system that is generous for the clientele which is usually served by this kind of pensions in other countries. Table 8-5 is compiled from data contributed by insurance firms on occupational pensions (from NSSG, 2000). Though the data probably underestimate the true extent of activity, it appears that this kind of pensions is certainly not unknown, and in the four years from 1993 to 1996 they exhibited extremely rapid growth in income. Nevertheless, compared to public PAYG pensions, these magnitudes are infinitesimal.

**Table 8-5. Private Collective Occupational Schemes, 1993-1996**[a]
Billion drachmas

| | *1993* | *1994* | *1995* | *1996* |
|---|---|---|---|---|
| Total expenditure | 7.8 | 10.0 | 11.9 | 15.0 |
| Benefits in cash[b] | 4.4 | 5.6 | 6.6 | 8.8 |
| Benefits in kind[c] | 3.4 | 4.4 | 5.3 | 6.2 |
| Total income | 12.6 | 17.3 | 20.7 | 29.4 |
| Employers' contributions | 11.9 | 16.5 | 19.6 | 27.9 |
| Employees contributions | 0.6 | 0.9 | 1.1 | 1.5 |

SOURCE: NSSG, based on a questionnaire sent to insurance companies.
The orders of magnitude are indicative.
a. Pension schemes provided by employers on behalf of their employees.
b. Primarily pensions or separation payments.
c. Primarily health benefits.

The problem that social protection data lack transparency is highlighted by the 1998 report of the NSSG Committee to re-examine the application of the European System of Social Protection Statistics (ESSPROS) to Greek social protection expenditure (reproduced in NSSG, 2000). The report states that, due to system fragmentation, social protection expenditure, as previously collected, accounted for only 2/3 of actual outlays: total expenditure was revalued from 16 per cent to 24 per cent of GDP. Interestingly, many of what are thought to be striking characteristics of Greek social protection were seen to be due to statistical problems (Tinios, 2000).

### *II.7 Interactions Between the Pension System and the Economy as a Whole*

Similar to enterprise pensions, individual retirement saving, though more common, is also rare by European standards. All this is a strong indication that the public system has crowded out private savings in the middle- and upper-income distribution part of the population; however, a formal analysis is lacking. On the lower income distribution part, in particular in rural areas, family networks appear to still be important for the provision of old-age support.

Pensions, i.e. money transfers, also appear to have crowded out in-kind transfers in the form of direct services to the elderly. Only 0.12 per cent of GDP appears to be directed to in-kind old age benefits (NSSG, 2000). Judging from the development in other EU countries and the US, these services are likely to become more demanded when the population ages and becomes richer.

On the other hand, changes in the economy will also affect the pension system in ways that are difficult to forecast. Because the system is so frag-

mented, changes in the overall economy, in particular changes in the labour market, can have unexpectedly large effects on the pension system, more so than in less fragmented systems.

To see an example, the migration of agricultural workers to the urban private sector or, more markedly, to a state sector bank, will entail the multiplication of their pension entitlements by a factor exceeding four: the IKA minimum pension is three times greater than the agricultural pension, it is received on average 6 years earlier, and gives rise to a right for a survivor's pension. The internal migration that peaked in the 1970s should thus lead to very important echo effects in pension expenditure.[18]

More generally, the fragmentation of the system in sectoral and cohort lines implies that the dynamics of the system can be dominated by composition effects. Such composition effects arise as echoes of several key events:

- The disruptions caused by the War and in the immediate post-war years.
- Internal migration transferring population from the (uninsured) rural sector to the cities and IKA. The migration began in the 1950s and reached its peak in the 1960s and the 1970s.
- External migration to Australia and the US (of a permanent nature – 1950s) and to Germany and Europe (1960s). The latter gave rise to a return migration in the 1980s and 1990s, frequently of pensioners.
- The increase in female labour force participation, through the post-war period.
- The expansion of the public sector and public sector employment from the late1970s.
- Waves of Greeks returning to Greece from Egypt, Turkey in the 1950s and the 1960s and from the ex-Soviet Union in the 1990s.

Other composition effects arise from changes in social security legislation. The key events were:

- The formation of IKA in the 1950s and its gradual geographical expansion to cover the entire country.
- The obligatory participation of all wage employees in supplementary pension schemes by 1983.
- The social security reform laws of 1990-92 introduced new differentiation, creating new cohorts, primarily in the public sector. Civil servants recruited before 1983 have lower retirement ages, while their pensions are

18. These echo effects can be held to have been responsible for some of the rapid deterioration in the IKA demographics during the 1980s, at a time when the overall dependency ratio was stable or falling.

calculated according to a different formula. The laws of the period preannounced a gradual increase in retirement ages for old system contributors, starting from 1998.

- Law 2084/92 led to the creation of a new, considerably less generous system for labour force entrants (see Box 8-1).

Most of these composition effects will lead to expenditure increases, while some of them simply reflect the natural maturation of a pension system. Only the last two events, which are related to the pension reforms of 1990/92 work in the opposite direction and will dampen future expenditure increases.

**BOX 8-1. The New Entrants' System and the Political Economy of Pensions**

Under Law 2084/92, all labour market entrants since 1 January 1993, regardless of sector of employment or membership of social security fund, are subject to common legislation regarding the levying of contributions, retirement ages, replacement rates and minimum guarantees. The new system is considerably less generous than the old one and is, furthermore, subsidised to about a third by general revenue, through explicit tripartite financing. (OECD, 1997, pp. 86-87, provides a description of the new system.) Some of the key characteristics are:

- Age limit at 65 for men and women.
- Contribution rates as at IKA, but levied on all earnings and with no ceiling on earnings, regardless of fund.
- Tripartite financing for primary pensions and health, equal to a third of total contributions.
- Maximum replacement rates (on a linear schedule) of 60 per cent for primary and 20 per cent for supplementary pensions.
- Eligibility to multiple pensions is sharply curtailed.
- Sharply reduced minimum pension entitlement, equivalent to less than 25 per cent of the IKA minimum. The minimum was raised in 1998, but, at approximately 60,000 drachmas, it is about half that of IKA.

Actuarial calculations undertaken at the time apparently showed that the new system, taken *separately*, was broadly in balance. Given that no separate account was set up for the new system, new system participants subsidise their predecessors, while the new system is precluded from building any reserves.

The existence of sharply reduced entitlements of the cohort corresponding to the new system is corroborated by all calculations. Two workers of the same age and the same earnings, one employed on 30 December 1992 and the other

(*Box continued)*

**Box 8-1** ***(continued)***

two days later, could be eligible for total entitlements with a difference possibly exceeding 60 per cent.[1] On the other hand, differences *between* occupational groups of the same cohort are sharply reduced.

Equally significant are the *distributional* implications of the new system. Those who lose out most are today's minimum pension recipients: Whereas in 2001 their entitlement in IKA is 124,000 drachmas, their receipts under the new system will be around 60,000 drachmas, less than half. In contrast, *effective* replacement rates of those earning higher amounts could actually rise in the new system, as they will be calculated on a wider base. Given the preponderance of minimum pensions in today's pensioners, it is fair to say that this group bears the brunt of the adjustment needed, while it is reasonable to expect a deterioration in the distribution of pensions.

Towards the end of the present decade, around the year 2010, approximately *half* of the labour force will participate in the new system. In this way, an increasing proportion of the population will be subject to uniform conditions, considerably altering the probability of general consolidation and public perception of legislative changes.

1. The difference will arise through retirement ages up to 15 years later, replacement rates 25 per cent smaller, contributions on a wider income concept, and a mimimum pension half the size. It remains to be seen whether differences of this size can pass muster if legally challenged...

## III. Living Standards of the Greek Elderly

The pension system was designed to deal with concerns about poverty of elderly people. This section attempts to derive and reconcile some stylised facts about the living standards of the elderly. In particular, it first examines what, frequently contradictory, evidence exists. Are the old poor? Is old age, in itself, a factor leading to poverty and deprivation in Greece? Is the distribution of income more or less unequal among the old? What is the impact of the pension system on this distribution? Secondly, it speculates on how far the present situation can be projected in the future. Will the old of the future be equally at risk, or will they face different problems?

The key question to be answered in this context, is: Are the troubles of the current generation due to specific problems they faced during their lives, or are they due to general problems linked to old age in Greece? The evidence

shows rather clearly that the important reason is the first, a cohort effect, rather than a general lack of pension generosity in present-time Greece.

### *III.1 The Stylised Facts*[19]

Table 8-6 shows the poverty risk of individuals of different groups in the European Union. It is derived from the European Community Household Panel and is based on declared income information *per capita*. A value of the poverty risk factor equal to 100 would mean that the particular population group faces a probability of living in a household with *per capita* income below the poverty line equal to that of the average of the population (defined by Eurostat to be 60 per cent of the population median income). A value exceeding 100 means that the population group is at greater risk than the population as a whole.

Table 8-6 shows that the poverty risk in Greece is almost exclusively linked to age. People over 65 are almost two and half *times* as likely to fall below the poverty line as the average. Significantly, the only other group with above-average poverty risk is individuals between 50 and 64. All other groups are below par. Interestingly, poverty affecting children is very low in Greece (index=59), a figure matched only by Denmark and Portugal, while the EU average is showing that child poverty is a fact of major concern elsewhere.[20]

The pattern of poverty in Greece is sharply at variance with the experience of other countries of the European "South", which could, *a priori*, be expected to face similar problems with Greece. Spain and Italy have below par poverty risk for the over-65s, only Portugal being closer to Greece.

The prevalence of poverty among the old, and old age as a poverty risk, is a well known finding in all studies of living standards in Greece (Sarris and Zografakis, 1999, Mitrakos and Tsakloglou, 1998). Though it is usually stated in terms of the head of household being old, this finding holds even when household composition is taken into account (using equivalence scales – see Tsakloglou and Panopoulou, 1998), or when consumption (total expenditure) is used instead of income. Comparing equivalent studies over time, the prevalence of aged households among the poor stays roughly the same (Sarris and Zografakis, 1999). This effect remains, though to a slightly reduced extent, when sub-sets of the population (rural/urban) are examined separately. The

19. This section draws on Tinios and Zografakis (2001).

20. The most plausible explanation of the finding on child poverty would ascribe it to the impact of low fertility. It would appear that couples in Greece only have children when they are sure that those children can be provided for adequately.

**Table 8-6. Relative Exposure to Poverty Risk by Age Groups, EU 1995**

| | *By sex* | | *By age* | | | | |
|---|---|---|---|---|---|---|---|
| | *Male* | *Female* | *-16* | *16-24* | *25-49* | *50-64* | *65+* |
| **Greece** | **92** | **108** | **72** | **94** | **58** | **104** | **239** |
| EU-15 | 94 | 106 | 128 | 137 | 79 | 81 | 116 |
| Spain | 95 | 102 | 130 | 116 | 87 | 100 | 88 |
| Ireland | 95 | 105 | 151 | 96 | 77 | 71 | 97 |
| Italy | 85 | 104 | 128 | 150 | 83 | 93 | 80 |
| Portugal | 91 | 109 | 110 | 72 | 65 | 105 | 211 |
| Belgium | 95 | 105 | 103 | 143 | 76 | 96 | 134 |
| Denmark | 95 | 105 | 50 | 216 | 63 | 58 | 242 |
| Germany | 92 | 107 | 135 | 143 | 85 | 74 | 111 |
| France | 95 | 104 | 112 | 185 | 71 | 88 | 114 |
| Luxembourg | 88 | 111 | 142 | 127 | 88 | 83 | 82 |
| Netherlands | 94 | 106 | 124 | 258 | 81 | 58 | 72 |
| Austria | 92 | 107 | 133 | 98 | 97 | 74 | 96 |
| UK | 99 | 110 | 154 | 78 | 71 | 59 | 160 |

SOURCE: Eurostat, based on the European Community Household Panel (ECHP), 1995.

Statistical Appendix to the National Action Plan for Inclusion (2001) confirms these findings for the 1999 HES.

Though most of the studies define the "old" in terms of the household *head* being over 65, the poverty findings remain if the total population of over-65s is examined, including those cohabiting with their offspring. Table 8-7 from the 1994 Household Expenditure Survey shows the effect of different definitions of income on the relative poverty risk. The poverty finding is very robust, though the relative risk is reduced when allowance is made for size of family and when measures of income including non-market variables (chiefly housing) are examined.[21]

The conclusion that poverty in Greece is mainly a problem of the old must be tempered when one considers the information contained in Table 8-8. Table 8-8 is derived from income tax information on all those declaring at least 1 drachma of income from pension. Normally, tax statistics classify as 'pensioners' only those who derive more than 50 per cent of their income from pensions. This seemingly technical difference actually changes the interpretation of the link between old age, poverty, and pensions to a significant extent.

21. Marlier, 1999 offers a fuller analysis of the ECHP data contained in Table 8-6. Households benefiting from pensions have a standard of living 10 per cent below the average in 1995, compared with 4 per cent for the EU as a whole. In Italy (a country with equivalent pension generosity) the comparable figure is 4 per cent *above* the average.

**Table 8-7. Poverty Risk of the Aged, Subject to Different Income Concepts[a]**

| | *Poor as a per cent of total (percentage which falls below 60 per cent of the median)* | | | | | |
|---|---|---|---|---|---|---|
| | *Using the household variable* | | | *Per capita variables* | | |
| | *Income* | *Expenditure* | *Consumption* | *Income* | *Expenditure* | *Consumption* |
| Population | 17.8 | 17.5 | 15.2 | 25.1 | 23.8 | 22.3 |
| Total aged *households* | 41.1 | 44.1 | 38.8 | 28.6 | 32.8 | 26.4 |
| Total aged *people* | 42.9 | 47.2 | 41.6 | 30.1 | 34.4 | 27.5 |
| Pensioners | 37.8 | 40.4 | 35.5 | 27.1 | 30.3 | 24.4 |
| **Relative poverty risk** | | | | | | |
| General population | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| **Aged people** | **241.8** | **269.8** | **273.9** | **119.9** | **144.5** | **123.5** |
| **Pensioners** | **212.8** | **230.6** | **234.3** | **107.8** | **127.1** | **109.4** |
| *Poverty line* | *132.9* | *142.6* | *174.4* | *49.1* | *50.6* | *78.6* |
| *Mean income concept* | *347.1* | *270.4* | *290.6* | *100.5* | *108.5* | *131.1* |

SOURCE: HES 1994, from Tinios and Zografakis (2000).
a. Household expenditure survey data.

A number of observations can be made with reference to Table 8-8:

- The data obtained in Table 8-8 are representative. The total number of pensioners filing income tax declarations, at 1,240,000, compares well with the total urban sector pensioners of 1,380,000 for the same year. The difference of 140,000 could either be pensioners not submitting tax declarations, or those collecting multiple pensions. A number of holders of multiple pensions accounting for 10 per cent of the total is very plausible. The 800,000 pensioners of the Farmers' Insurance Fund (OGA) can safely be assumed not to be filing tax declarations.
- In the same year the minimum IKA old age pension was 75,000 drachmas. The minimum daily industrial wage was 4,400 drachmas, giving monthly earnings of about 90-95,000 drachmas. The average income of low-income pensioners (95,065 drachmas, see Table 8-8) is thus approximately equal to the monthly minimum income.
- The size of average declared pensions, when compared to average primary pensions for the same year (average IKA plus TEAM for 1993 was 103,000 drachmas), implies that the majority of pensioners in 1993 had access to supplementary pensions and did not have to rely on their primary pensions alone.
- What is striking in Table 8-8 is the extent to which pensioners have access to other income. Fully 54 per cent have other income, a figure that is

**Table 8-8. Pensioners' Other Income, 1993**

| | *All* | *Low pensions* | *Middle pensions* | *High pensions* |
|---|---|---|---|---|
| **All pensioners** | | | | |
| Number | 1,238,695 | 553,751 | 488,308 | 196,636 |
| Average income | 142,360 | 95,065 | 140,605 | 279,904 |
| **Pensioners with only pension income** | | | | |
| Per cent of total | 46.2 | 29.1 | 61.9 | 55.1 |
| Average income | 122,576 | 54,858 | 114,860 | 244,913 |
| **Pensioners with other income** | | | | |
| Per cent of total | 53.8 | 70.9 | 38.1 | 44.9 |
| Average income | 168,693 | 133,296 | 173,588 | 315,748 |
| Pension as a per cent of income | 52.1 | 30.1 | 63.9 | 79.6 |
| Average pension income | 87,889 | 40,122 | 110,993 | 251,335 |

SOURCE: Personal income tax data, 1993. From Tinios (1999).
Pensioners defined as all those declaring at least 1 drachma as deriving from pensions.
Low pensions: Pensions up to 1 million drachmas p.a.
Middle pensions: Pensions from 1 million to 2.5 million drachmas p.a.
High pensions: Pensions over 2.5 million drachmas p.a.

higher at the two opposite ends of the distribution. Those receiving relatively low pensions would presumably rely more on employment income (many of them will be quite young), while those receiving higher pensions would have income from property, mainly rents.

- Other income is on average almost half of pension income (48 per cent, see Table 8-8), a figure higher for pensioners with low pensions.
- Pensioners who only declare their pension have higher pensions than the ones with other income (except the high pensions group). Nevertheless, the poorest group in the population with an average income of only 54,858 drachmas in Table 8-8 is composed of those with only pensions. Referring to IKA data on contribution years (see Table 8-9 below), the overwhelming share of these elderly is likely to be older in age. This will be our next point.

### *III.2 Interpretation: A Problem of the Past*

There appear to be a number of confusing and conflicting indications:

- Poverty is indubitably concentrated among the old, especially in the rural sector.

- Pensions as a percentage of GDP (Greece: 12.1 per cent) are above the EU average (10.5 per cent).[22]
- The percentage of old people in the population is not different from the EU average.
- Replacement rates for given contribution years of the main pension funds are remarkably high by EU standards (see Section II).
- Pensioners appear to have access to other sources of income to a surprisingly large extent.

These observations can be reconciled by three arguments. First, poverty appears to be overstated in the data, and especially so among pensioners; second, the operation of the pension system is unequal; third, poverty has strong cohort effects, i.e. the data reflect the troubled careers of today's older generation more than current and/or future problems. We discuss each in turn.

### *A. Poverty is Overstated in the Data, Especially Among Pensioners*

- The data neglect asset holdings and non-market consumption, particularly own-occupation of housing (97 per cent in rural areas), consumption out of own production, and non-market exchanges between households.
- Much of the data neglect solidarity between households (e.g. remittances to parents living in the village) and the effect of household composition as a solidarity mechanism (aged parents living with their offspring).
- In the cases of very small-scale production (in agriculture, but also in small and medium-sized enterprises in the industrial sector), record keeping is such that the notion of income is not well defined.
- The operation of tax evasion; whereas in systems with a low income guarantee there is an incentive to declare some income, in the Greek context people try to be below the tax declaration threshold.[23]

### *B. The Operation of the Pension System is Unequal*

- Poverty is concentrated in the rural sector, where non-contributory pensions in 1994 were roughly one quarter those of minimum IKA pensions.

22. Both numbers refer to 1998. Source: ECOFIN (2000).

23. When blown to national level and compared with administrative sources of income transfers, the ECHP data for Greece show an underestimation of the order of 20 per cent.

**Table 8-9. Average Years of Contributions of new Pension Awards in IKA, 1960-98**

| *Year* | *Old age* | *Disability* | *Survivor* | *Own right* |
|---|---|---|---|---|
| 1960 | 11.1 | 9.6 | 9.3 | 10.1 |
| 1970 | 17.8 | 10.9 | 14.2 | 14.9 |
| 1980 | 23.7 | 12.6 | 16.4 | 18.2 |
| 1985 | 22.1 | 11.9 | 16.3 | 18.2 |
| 1990 | 22.2 | 13.5 | 17.9 | 20.9 |
| 1995 | 22.8 | 13.5 | 18.5 | 21.1 |
| 1998 | 24.2 | 14.3 | 19.3 | 22.6 |

SOURCE: IKA. Own right=Old age plus disability.

- Pension ages, especially of the more generous funds, are very low. Thus the pension bill has to "accommodate" many more than the aged. Similarly for the large number of disability pensions.
- Poverty is concentrated in the older groups of pensioners. (a) They are less likely to have access to supplementary pensions. (b) They have been subjected to real income erosion for a longer time.

### *C. Poverty Data Reflect the Troubled Careers of Today's Older Generation*

- Today's over-65s could be thought to be "unlucky". They had to face the war and civil war years, while many migrated to the urban sector well into their careers.
- Partly as a consequence of the above, the low pension phenomenon is due to few years of contribution, some due to broken contribution histories, but some also due to contribution evasion. Already, pensioners are coming into retirement with more years of contribution and are entitled to higher pensions, see Table 8-9, based on IKA data on the years of contribution.

The table shows that, taking a long-term view, the years of contribution increased for all pension types. The respite of the 1980s, caused by using pensions as a social policy instrument, appears to have been reversed after 1990.

- Older pensioners in many cases do not have access to supplementary pensions. Wage employees who did not already have access to supplementary pensions had to begin contributing to the TEAM scheme in 1983.
- In the last few years a number of developments have taken place which will have a direct impact on future poverty.
- The means-tested pension supplement, EKAS, was introduced in 1996 and is now collected by 350,000 low-income urban pensioners. In 2000, the

level of EKAS was raised to 21,000 drachmas, which is over 15 per cent of the IKA minimum pension (110,000 drachmas in 2000), and is to rise to 28,000 drachmas in the year 2001.

- Basic agricultural pensions were increased in real terms by over 30 per cent since 1996, while the introduction of a contributory scheme for farmers is already giving rise to a flow of pensioners with entitlements similar to IKA.
- New pensions of self-employed have also increased decisively in real terms since 1993, partly reflecting the increased popularity of the respective funds.

It would thus seem that a good deal, if not all, of the current poverty problem of today's old may not be readily projectable into the future, but may be a problem of past cohorts. The poverty problem that will remain is likely to be more localised and not to affect the generality of future pensioners.

## IV. Pension Problems

As the previous sections demonstrated, pension provision is the cornerstone of social services in Greece: The pension system is a key element of social solidarity, both *within* generations (through its social welfare function) and *between* generations (through its income replacement function). Despite the many problems it has faced, its resilience most probably indicates that the balance of costs and benefits for the system as a whole must have been positive. Indeed, in many individual cases during the past two generations, the pension system was able to give solutions,[24] second best in nature, but nevertheless not lacking in ingenuity, to many social and economic problems.

The provision of these solutions was not costless. The social solidarity "purchased" through the pension system implied a range of costs to society; these costs may be thought of as the "price of social solidarity". Part of this price is visible and transparent, such as social security contributions, or, perhaps less so, public subsidies to finance deficits, or earmarked taxes. Another part of the price is more difficult to measure: the cumulative operation of

24. Many of these problems were not immediately connected with pension issues, but consisted in the alleviation of problems of particular sectors of the economy. One may mention here the transition to lower levels of employment in agriculture, overcoming the initial problems of integrating women in the labour force, dealing with the social problems of Greeks returning from abroad etc. Finally, the special treatment of many industrial sectors, both in contribution collection, but also in pension entitlement as a part of non-wage remuneration, played a major role in post-war industrial policy.

the pension system over the decades and in particular the necessity to resort to less-than-perfect second best solutions has led to serious efficiency problems. These problems could impede the process of growth seriously and hence cancel out the original gain.

The lesson that emerges from the history of the pension system is that the price for social solidarity was, and still is, worth paying.

A positive balance of costs and benefits to date does not of necessity mean that this situation will *remain* so in the future. Indeed, evidence is mounting that the price connected with operating the system in its current form will rise considerably in the future. These effects will operate in a number of ways:

- Through a rise in the financing costs of the system due to long term demographic changes; the implicit taxes needed to finance the system will rise.
- Through a reduction in the usefulness of some of the benefits of the system in terms of social policy; many of the benefits of the system are either not likely to be in as much demand or can be achieved in other, less costly or less distortionary ways.
- Through an increase in the significance of some of the "hidden costs" of the system – in the form of efficiency losses in the labour market, but also in intertemporal allocation and savings behaviour.

### *IV.1 Demography*

Pension systems, in one form or another, redistribute purchasing power from those working to those not working. Given that workers are overwhelmingly in the age groups between 20 and 65 and retirees are typically older, pension systems are particularly sensitive to demographic changes. These effects are most direct in systems with pay-as-you-go financing, where the ratio of contributors to pensioners lies at the heart of the system's operations. (See Section VI.1 for a more formal treatment of this ratio's impact.) Ageing of the population, by reducing this ratio, increases the burden of the pension system on production.

Table 8-10 shows key demographic variables for Greece and benchmarks them against other EU countries. Figures 8-4 to 8-6 (reproduced from the Spraos Report, 1997) portray population pyramids for Greece, plotting numbers of people at different age groups, by gender. Within each pyramid we also sketch the area corresponding to those working, using the 1994 age-specific labour force participation rates for each of the two sexes. Figure 8-4

**Table 8-10. Key Demographic Variables**

| | *Old age dependency ratios 1995-2050* | | | | | | *Fertitily* | *Life expectancy 1995* | |
|---|---|---|---|---|---|---|---|---|---|
| | *1995* | *2000* | *2005* | *2010* | *2020* | *2050* | *1995* | *Male* | *Female* |
| **Greece** | **25.5** | **28.3** | **30.6** | **31.8** | **35.6** | **53.0** | **1.40** | **75.3** | **80.2** |
| **EU-15** | **25.3** | **26.5** | **28.1** | **29.6** | **34.7** | **51.7** | **1.45** | **73.9** | **80.4** |
| Spain | 25.2 | 27.1 | 27.7 | 28.6 | 32.5 | 61.8 | 1.24 | 74.0 | 81.4 |
| Ireland | 21.1 | 20.1 | 19.7 | 20.6 | 27.0 | 47.9 | 1.90 | 73.0 | 78.5 |
| Italy | 26.4 | 28.7 | 31.4 | 33.5 | 38.7 | 60.8 | 1.22 | 74.8 | 81.3 |
| Portugal | 24.3 | 25.0 | 25.9 | 26.6 | 30.0 | 48.4 | 1.45 | 71.0 | 78.2 |
| Belgium | 26.2 | 28.0 | 29.1 | 29.6 | 35.7 | 47.9 | 1.57 | 73.6 | 80.2 |
| Denmark | 25.1 | 24.0 | 24.4 | 26.9 | 33.3 | 41.7 | 1.79 | 72.9 | 78.0 |
| Germany | 24.4 | 25.4 | 29.1 | 31.9 | 34.6 | 51.0 | 1.28 | 73.4 | 79.7 |
| France | 25.4 | 27.1 | 27.8 | 28.1 | 35.9 | 51.1 | 1.66 | 74.0 | 81.9 |
| Netherlands | 21.1 | 22.0 | 23.0 | 24.8 | 32.8 | 45.0 | 1.58 | 74.6 | 80.5 |
| Austria | 24.4 | 24.8 | 25.4 | 28.1 | 31.1 | 48.4 | 1.39 | 73.6 | 79.9 |
| UK | 26.7 | 26.5 | 26.5 | 27.3 | 32.7 | 47.1 | 1.73 | 74.1 | 79.5 |
| Sweden | 30.2 | 29.4 | 29.2 | 31.2 | 36.9 | 41.8 | 1.74 | 75.9 | 81.3 |
| Finland | 23.4 | 24.2 | 25.5 | 27.2 | 38.5 | 46.3 | 1.84 | 72.3 | 79.8 |

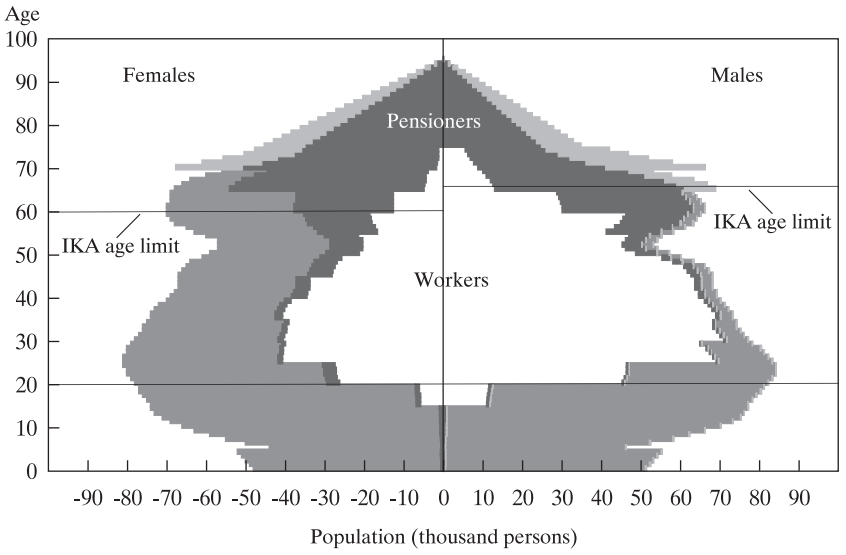
SOURCE: Eurostat.

also shows the effect of multiple pension entitlements. These multiple entitlements expand the number of pensions paid to people over 75 far beyond the population of people of that age, by 205 thousand people. Of note is also the existence of large numbers of pensioners at ages far below the 'statutory' IKA age limit.

A number of stylised facts stand out from an analysis of Table 8-10 and the three population pyramids:

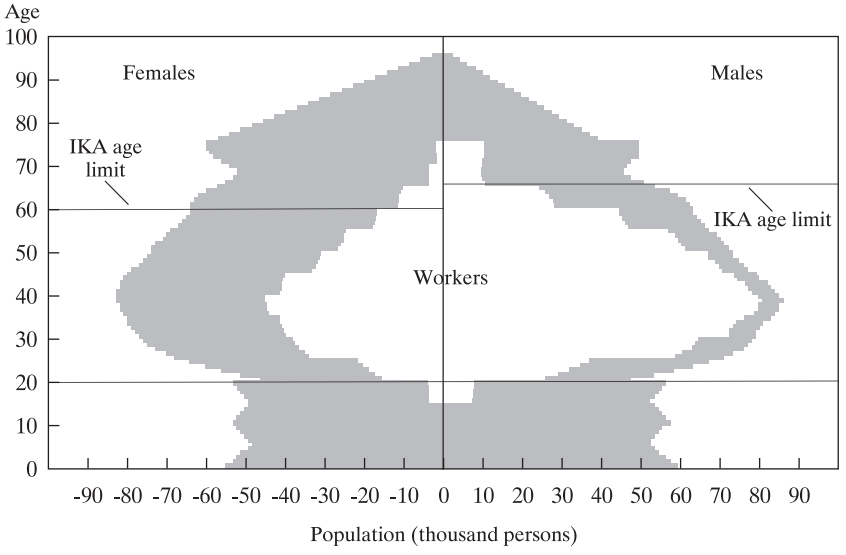
- The key influence in demography is a disastrous fall in fertility rates after 1980. This fall will act as the driver for labour market developments in the current decade, as children born after the turning point are due to enter the labour market from 2000 onwards, while the full effect will be felt after 2005. It should be noted that, even if the fertility rate were to rise, this cannot have any beneficial effect for at least 20 years; in the meantime public finances will have to accommodate a further deterioration in overall dependency ratios.
- The Greek population is marginally younger than the West European average and is ageing fast. By 2005 only Italy will have a worse dependency ratio. Thus, the social security problem of today largely predates the demographic problem. Demography will make worse a situation that is already considered to be difficult.

**Figure 8-4. Demographic Pyramid, 1995**



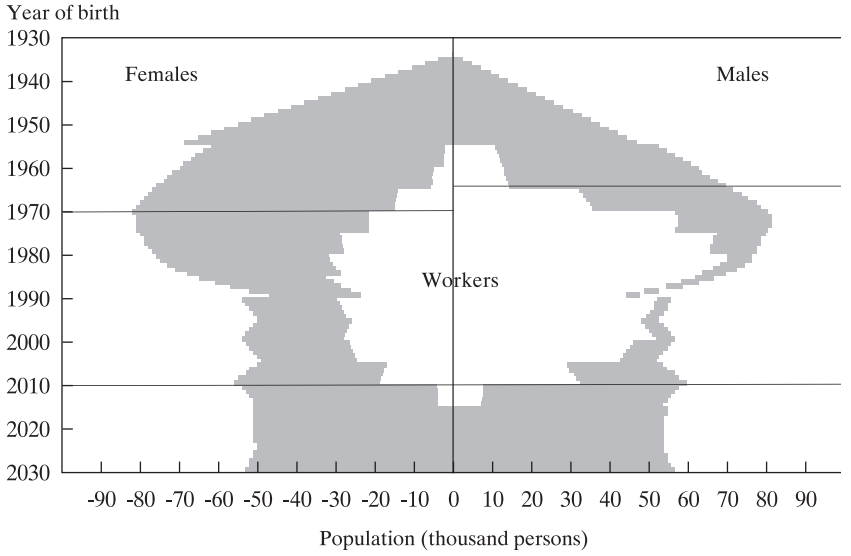

SOURCE: Spraos Report (1997).

**Figure 8-5. Demographic Pyramid, 2010**




SOURCE: Spraos Report (1997).

**Figure 8-6. Demographic Pyramid, 2030**




SOURCE: Spraos Report (1997).

- An important factor is the delayed effect of the rural-urban migration of the 1960s. High-pension groups are increasing much faster than low-pension ones (mostly farmers). In general, the current generation is paying the price for problems postponed a generation ago.[25] Today's workers are already yesterday's "future generation".
- The situation may become explosive after *2005*, given that ageing will be complemented by reductions in the population of working age in absolute terms. The other side of the coin is a relative lull in the number coming up to pensionable age until about 2005. This means there could exist a "policy window of opportunity" for the next 4-5 years. The window can be utilised to discuss, prepare and implement corrective measures.
- There are, however, two positive future influences whose effects are still uncertain: (a) The effect of long-term in-migration after 1990, mainly from the Commonwealth of Independent States (CIS), but also from the Balkans;[26]

25. The generation retiring up to the 1990s can be seen to have been "grandfathered" in the sense of having received a more generous package than the one that it would have been "entitled to". A number of good economic arguments can be advanced for such favourable treatment: rapid economic growth up to the early 1970s, easing of the effect of urbanisation, the absence of other social benefits enjoyed by this group etc.

26. Tsimbos (2001) concludes that the estimated population may be overstated by as much as 6 per cent, due to the underrecording of immigrants. This has the effect of delaying the point at which working population begins to decline.

(b) The potential for major increases in female labour participation.[27] Both these effects lead to an immediate rise in contribution revenue. The legalisation exercise of some 300 thousand immigrants in 1998-1999 was an important boost to IKA finances. Likewise, an increasing female labour force could have similar effects. However, a full analysis must take into account the creation of entitlements. Given the generous treatment of women, under unchanged rules, female participation increases will *widen* deficits in the long term. Similarly, given that almost all the immigrants are from neighbouring countries which will in the long term join the EU, it is reasonable to assume that full social security rights must be accorded to immigrants. Thus, even rapid favourable change in those parameters may, at most, postpone demographic problems, without altering their essence.

The demographic effects can be quantified and the likely shape of the pension system's finances projected into the future. In addition to demographic factors, shifts from low- to high-pension groups considerably affect the outcome; moreover, the exact time scale of the reduction of the agricultural labour force from today's 20 per cent to levels comparable to those of the EU average (of the order of 5-7 per cent) is an important assumption for the projections.[28]

Figure 8-7 reproduces the results of the OECD (1997) projection, as reported in greater detail in Mylonas and de la Maisonneuve (1999). Total expenditure rises from its present value (of around 12 per cent in Greece) faster and, unlike the case of Portugal, reaches levels well in excess of 20 per cent. The period of fastest growth appears to be that between 2005 and 2030. Proportionately the system showing the fastest increase is that of public enterprises and banks, though the "self-employed" is the area with the steepest expenditure increase (which in their case is tempered by a faster rise in revenue). General government pension payments fall initially, reflecting a hump in age limits of civil servants, as well as the delayed effects of Law 2084/92. Finally, and perhaps most significantly, the increase in the proportion of "new system" contributors does not lead to an appreciable deceleration in expenditure trends.

System fragmentation is thus a factor for the projections.[29] Various studies, e.g. IMF (1992), OECD (1997) and the Labour Institute (INE) of the Gen-

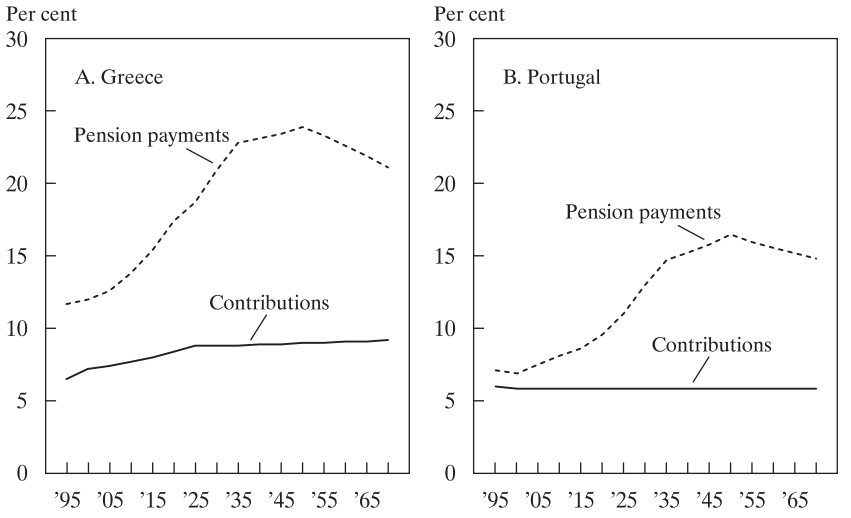
27. See Coomans (2001) and Fotakis *et al. (*2000). It should be noted that increases in female labour participation are not independent of changes in pension arrangements.

28. Provopoulos and Tinios (1993) provide a qualitative analysis of these factors. See also Spraos Report (1997).

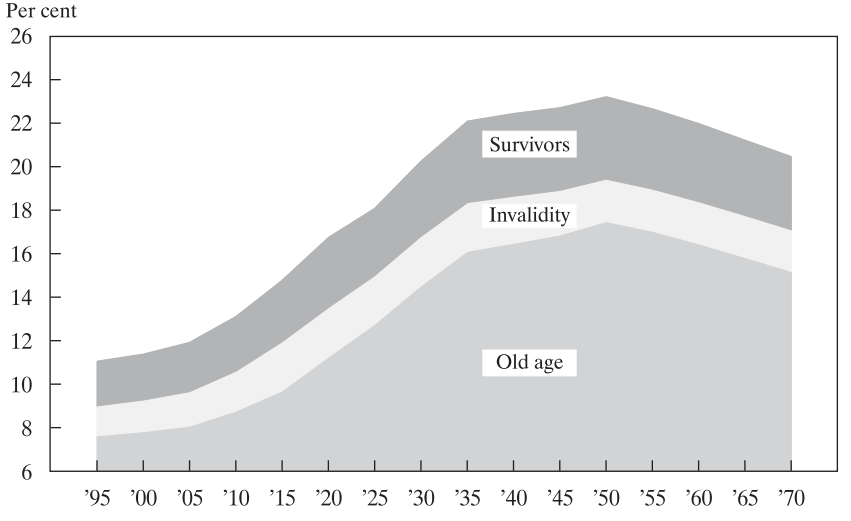
29. It should be noted that no projections take into account the asymmetric behaviour that is likely to result with system fragmentation; i.e. that favourable demographics of one population sector, through self-selection, lead to an increase in entitlements, while unfavourable demographics elsewhere do not lead to falls. See Provopoulos and Tinios (1993) and Tinios (1992) on the problems raised by a sectorally based PAYG system.

**Figure 8-7. The OECD Pension Projections as a Per Cent of GDP per Annum**

**A. Overall system expenditure and receipts, Greece and Portugal compared**

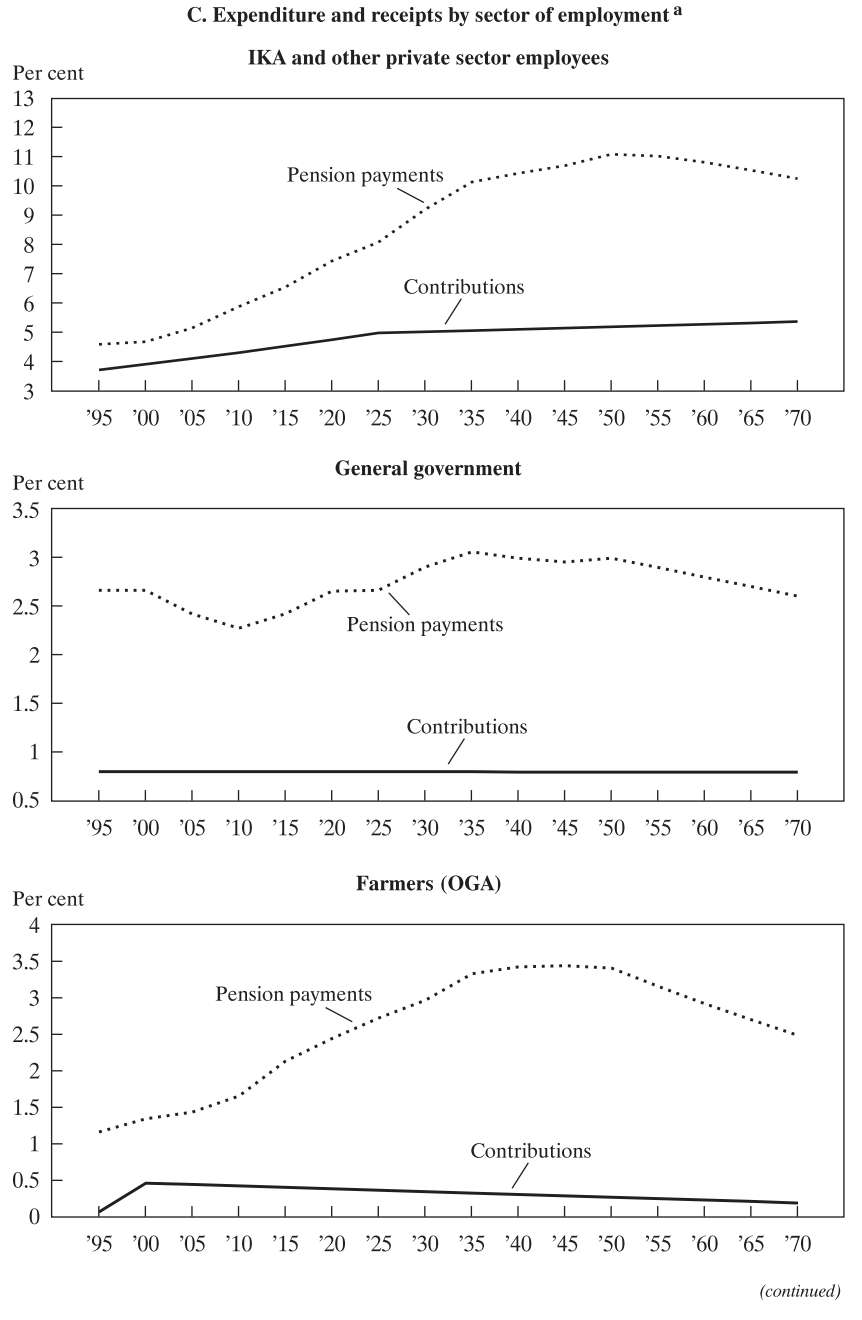



**B. Greece: pension expenditure projections, by type of pension**




*(continued)*

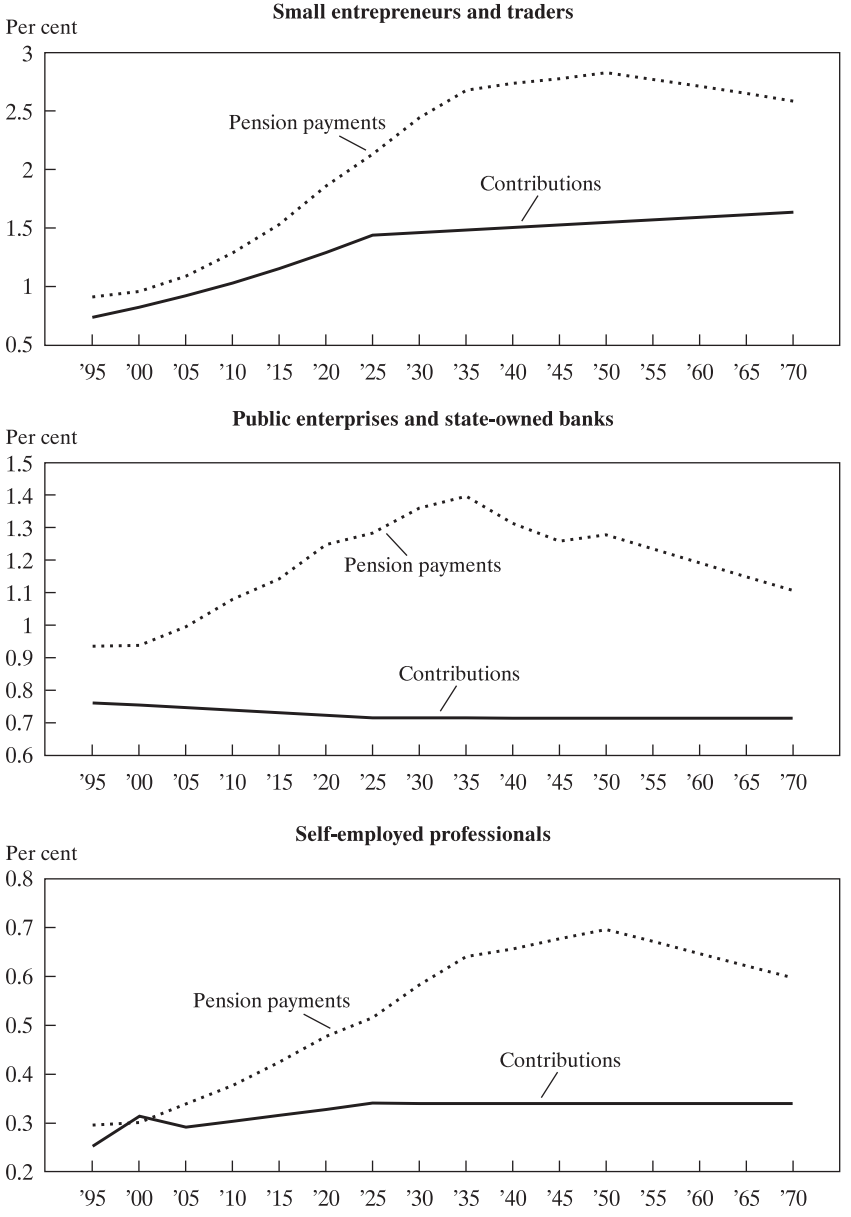
**Figure 8-7** *(continued)*




*(continued)*

**Figure 8-7** ***(continued)***

**C. Expenditure and receipts by sector of employment** [a] *(continued)*




SOURCE: Mylonas and de la Maisonneuve (1999).
a. Includes primary and supplementary pensions.

**Table 8-11. Implicit Debt of the Greek Pension System (OECD)**
Present value of pension minus contributions[a]

| | *Base scenario* | | *Alternative scenarios (per cent of 1994 GDP)* | | |
|---|---|---|---|---|---|
| | *Per cent of 1994 GDP* | *As a per cent of total expenditure* | *50 per cent increase in contribu-tions from 2010* | *Reduction of replace-ment rate by 50 per cent from 2010* | *Increase in contrib. years by 5 years from 2000* |
| IKA & employees | 61 | 52 | 27 | 11 | 30 |
| NAT (sailors) | 12 | 424 | 11 | 9 | 10 |
| Self-employed | 13 | 42 | 4 | 0 | 6 |
| Professions | 1 | 16 | -1 | -1 | 1 |
| OGA (Farmers) | 45 | 469 | 42 | 36 | 45 |
| Civil servants[b] | 53 | 296 | 48 | 37 | 43 |
| Public enterprises, banks | 11 | 62 | 6 | 5 | 5 |
| TOTAL | 196 | 96 | 137 | 97 | 140 |

SOURCE: OECD, report on Greece (1997, p. 93).
a. OECD estimates exclude all non-contribution sources of revenue.
b. Financing of the state as employer excluded (civil service pensions assumed to add to deficit).

eral Confederation of Labour of Greece (GSEE) (1999), attempt to quantify future shortfalls in the form of "implicit debt" calculations. Those calculations essentially account for pension promises already given and likely to be given in the future and weigh them against likely future sources of income.

The studies, despite their different provenance, optimism in assumptions etc., conclude that implicit debt is no smaller than some 128 per cent of GDP and can be as much as 200 per cent of GDP.[30] Even the more conservative and optimistic of these figures places Greece in the top range of countries for which such calculations have been performed (Table 8-12).[31] This must inevitably mean that the system will place greater burdens on future taxpayers.

The extent of the pension burden to be borne by future taxpayers is heavily understated by the implicit debt calculations. The "system for new entrants" of Law 2084/92 was designed in order to finance, through cross subsidies, some of the generosity pertaining to older generations; the balance for members of the new system is thus *already* heavily negative. All implicit debt calculations take this transfer from future to current generation as given and calculate uncovered liabilities over and above the existing intergenerational

30. The calculations further mean that measures over and above those taken in 1990-92 are necessary.

31. The lowest figure of 127.6 per cent of GDP is that of INE-GSEE (1999, p. 153) and is dependent, among other assumptions, on the existence of pension fund assets amounting to 5 trillion drachmas.

**Table 8-12. Implicit Debt of European Pension System (OECD)**
Present value of pension minus contributions (per cent of GDP)

| | | | |
|---|---|---|---|
| **Greece** | **196** | Austria | 93 |
| | | Belgium | 153 |
| Spain | 108 | Denmark | 235 |
| Ireland | 18 | Finland | 65 |
| Italy | 60 | France | 102 |
| Portugal | 109 | Netherlands | 53 |
| | | Sweden | 132 |
| Germany | 62 | UK | 24 |

SOURCE: Rosevaere *et al*., OECD (1996). Estimates exclude all non-contribution sources of revenue.

subsidy provided for by Law 2084/92 . If these *additional* liabilities are to be borne by today's 30-year olds, as it will be inevitable if reforms are postponed, the negative returns this group faces will be reduced further.

The imposition of much larger burdens on one generation raises important issues of intergenerational equity. Moreover, it evokes the key danger that should worry today's beneficiaries, namely the unilateral default (or rapid devaluation) of pension obligations, on the plausible grounds that it is not reasonable to pay for something far more generous than these beneficiaries themselves will be entitled to.[32]

## *IV.2 Social Adequacy*

### *IV.2.1 The Position of Pensions in Social Protection*

Pensions form the centrepiece of the Greek social protection system. According to the Eurostat data on social protection, in Greece various kinds of pensions account for almost 52 per cent of total social protection. In the "old age" function, monetary transfers accounts for 98 per cent of total expenditure in 1997. Table 8-13 presents the situation in Greece in comparison with other EU countries.

The other side of the coin is that other kinds of social services, even those directed towards the aged, play a very small part. What exists is the result of uncoordinated local initiatives by isolated local authorities or philanthropic institutions (frequently the result of past bequests), it is very poorly documented and leaves such gaps in coverage so that it cannot be called a "system". In terms of the *supply* of such services, the overwhelming bulk of them

32. This is the key point of Tinios (1996).

**Table 8-13. Pension Expenditure as Share of GDP and of Total Social Expenditure**

| *BE* | *DK* | *DE* | ***GR*** | *ES* | *FR* | *IE* | *IT* | *LU* | *NL* | *AT* | *PT* | *FI* | *SE* | *UK* | ***EU*** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.5 | 10.2 | 11.3 | **12.1** | 9.3 | 12.1 | 3.0 | 14.2 | 10.6 | 8.2 | 14.6 | 9.8 | 10.5 | 9.5 | 5.3 | **10.5** |
| 31.7 | 30.4 | 40.7 | **51.9** | 42.9 | 41.2 | 15.9 | 57.3 | 40.5 | 26.5 | 49.5 | 45.4 | 35.8 | 33.0 | 19.1 | **28.3** |

SOURCES: ECOFIN (2000) and Eurostat (2000).
First row refers to pension expenditure as a per cent of GDP; second row refers to pension expenditure as a per cent of social expenditure as defined by ESSPROS.

is provided informally, either within the (nuclear or extended) family, or the local community. Private provision of such services exists, but even at the higher end of the market problems arise in guaranteeing quality.[33]

Another aspect of the same picture is the small amount devoted to, and the limited number of beneficiaries of, non-pension social transfers. The analysis in Marlier, 1999, is instructive: Whereas 42 per cent of all households in Greece benefit from pensions (EU average: 30 per cent, Italy: 39 per cent), only 18 per cent benefit from other transfers (EU average: 52 per cent, Italy: 17 per cent). Total non-pension transfers account for 2 per cent of total income in Greece (EU average: 9 per cent) and 11 per cent for the bottom quintile (EU: 50.5 per cent; Italy: 17 per cent).

The importance of pensions and the underdevelopment of other parts of social policy are not incidental or fortuitous, but are part of the design of the system. They can be held to account for the system's resilience. In other words, these design features played useful social roles during the system's history by addressing important social problems. It is to these problems that we now turn.

### *IV.2.2 An Effective Answer to Problems of the 1950s*

The Greek pension system evolved gradually over the period of post-war reconstruction in the early 1950s until the end of its expansion in the mid-1980s. The portrait of the old-age pensioner, whom the system was designed to help, would be as follows:

- For much of day-to-day help and for social assistance he/she would rely on the family, in the typical case of living together with offspring.

33. There are private for-profit residential institutions (old age homes). The (private) field of home help is dominated by personal services, uncoordinated and unsupervised, relying on individual networks. The development of the latter market is hampered by the existence of labour market regulations, as wages are low and much of the remuneration is given in kind. Law 2676/99 introduced a new mimimum social insurance class to correct the disincentive of social security contributions exceeding 50 per cent of wage income.

- His/her contribution history would appear broken, either because he/she had moved recently from a village (agricultural work was not subject to contributions), or because of a spell of emigration. The accumulated pension rights would therefore be limited.
- Wealth holdings would be small, for three reasons: (a) In the early part of the period, inflation and the war had led to loss (or destruction) of property and widespread suspicion about the financial system. (b) The custom of dowries and other parental transfers meant that much of wealth holdings were transferred *inter vivos*.[34] (c) Very rapid economic growth up to the 1970s had led to older age cohorts falling behind in the income (and hence life-cycle wealth) distributions.
- For wage employees at any rate, the sole source of income apart from employment was the pension received. It was reasonable to assume that no other income or monetary source of sustenance (other than the family) existed.

To these characteristics should be added the reluctance of governments of the 1950s and 1960s to proceed with the construction of a welfare state, despite the decisive step of the establishment of IKA.[35]

As a result, the task of protecting older people's living standards was left to pre-existing sectoral pension funds, leading to the fragmentation of the system already analysed. An important implication of fragmentation was the paucity of information on the economic status of the aged; the necessary information was split among a number of institutions and could not be combined with information from other bodies, such as information from other funds or tax information. These administrative considerations ruled out the implementation of means tests as means of directly tackling the problem of poverty of the aged.

When in 1981 the plight of the aged was brought to the fore, increasing minimum pensions was the only realistic instrument to 'reach' the urban aged poor. Minimum pensions were thus raised decisively. As a result, 70 per cent of IKA pensioners received the minimum pension, *regardless* of their contribution histories.

Recapitulating, the Greek pension system played a key role in the social inclusion of the aged during some very troubled times for the Greek society

34. Campbell, 1964. In the Greek rural context a dowry is an inheritance mechanism and not a bride-price.

35. IKA was founded in 1936 on plans prepared earlier by E.Venizelos. The implementation of the law was hampered by the war years and the institution was essentially re-founded in the 1950s. The speed of its spread and the extension of its coverage were much slower than had been originally foreseen.

and certainly up to the mid 1980s. It owed its usefulness to some key characteristics:

- There was no available administrative and informational basis on which to exercise a policy of poverty prevention.
- The majority of the aged had no other source of income than pensions. Their wealth position was equally precarious.
- Non-monetary needs of the aged could be safely assumed to be met by informal networks.

The basis of the success and the lasting acceptance of the Greek pension system were thus due to the fact that it fulfilled a social need which, realistically, could not be met in any other way in the period up to the mid-1980s.

### *IV.2.3 Can It Still Work Tomorrow?*

Section III indicated that the problem of social inclusion of the aged should still be a policy priority. Old age is still a factor that decisively increases the risk of an individual being in poverty. However, as we showed in that section, the nature of social exclusion has altered, while old age is being joined by other risk factors which can have more pernicious social results. Insufficient or non-existent access to the informal support and care mechanisms can arguably have a more serious effect on frail aged individuals than the current (not the past!) level of pension income. In this respect, the Greek pension system can no longer be an *effective* mechanism to prevent social exclusion of the old.

Moreover, there is a distinct danger of the system increasingly harming economic *efficiency*. During its evolution through the 1980s, the Greek pension system was placed in the familiar second-best position of being the single instrument to tackle *two* goals, namely income replacement (a saving function) and poverty prevention (a social welfare function). While one could interpret the instrument of a minimum pension as one, and the earnings-related pension as a second instrument, the second instrument was secondary because 70 per cent of IKA pensions were minimum pensions.

The persistence of second-best solutions often leads to inefficiencies. In the case of pensions these arose from the severance of equivalence between contributions and pension entitlements. The character of the social security contract was radically altered, leading, among other results, to a rise in contribution evasion.

These considerations argue that the pension system may no longer be an effective as well as an efficient means of protection against social exclusion.

More direct mechanisms, better suited to the new social realities of the country, must be designed and implemented. At the same time, the costs connected with the second-best nature of the current arrangements are likely to increase.

This evaluation is based on three empirical considerations:

- *First*, the long-term effects of urbanisation and demography on the structure of the Greek family. A growing time period separates the average family from its rural roots, a factor that can be expected to lead to lower cohesiveness and to pose problems to the operation of informal support networks. This development is reinforced by the (mechanical) operation of persistently low fertility, as tomorrow's 65-year olds will have fewer children to look after them. This, combined with the increasing number of the infirm old (the number over 80 is expected to triple), will increase the demand for social services for the old. The need for 'formal' social protection services will undoubtedly rise.

- *Second*, the financial situation of people entering retirement is very different and far more secure from what it was a generation ago. Career incomes are higher, while accumulated pension rights imply that new retirees are typically entitled to higher replacement rates.[36] Pensioners also have considerable wealth holdings, frequently in the form of housing capital. Thus, the usual presumption that the pension is the sole regular source of income for pensioners is no longer true. We have seen this in Table 8-8, which was based on tax returns, showing that 54 per cent of pensioners had other sources of income. For those who have other income, pensions only account for about 55 per cent of total income. Low-income pensioners are more likely to have other sources of income, which account for more. According to the information of Table 8-8, the instrument of pensions is therefore *not* an effective way to reach those with lowest income, as they are most likely to rely on other incomes; equally, the possibility of 'leakage' to people of relatively high total resources is considerable.

- *Third*, in contrast to the earlier period, means testing is no longer infeasible as a way of tackling poverty in old age. In 1996 a means-tested pension supplement, EKAS, was granted to all pensioners over 65, regardless of membership of pension fund, who met uniform criteria regarding income and wealth (see Box 8-2 below). The successful delivery of EKAS to 350 thousand pensioners without major administrative problems proved that a means test was both administratively feasible and received widespread social acceptance.

36. Apart from the automatic effect of a longer contribution history, all of today's new pensioners are entitled to supplementary pensions. Furthermore, the 'new" OGA contributory system means that periods of employment in all sectors 'count' towards entitlement.

**Box 8-2. EKAS: The Introduction of the Concept of a Means Test**

In the 1980s, concern about poverty among older people led to large increases to minimum (primary) pensions. As a result, almost 70 per cent of IKA beneficiaries were paid the minimum pension, regardless of their contribution histories. Basing income supplements on a richer source of information rather than the pension itself was hampered by three factors: (a) Widespread tax evasion made income tax returns unreliable. Basing entitlements on declared income would serve as a reward for non-declaration. (b) The absence of a unique social security number meant that information could not be shared between social security funds. This was especially a problem in the case of supplementary pensions. Moreover, widows and others who received two pensions would be counted twice. (c) The fragmentation of the pension system meant that it was difficult to use uniform criteria to implement means testing.

In 1996, in public debate there was considerable pressure to recoup real pension losses by increasing minimum pensions across the board.

The government's response to these concerns was to institute a means-tested supplement known by its acronym, EKAS. (The report that paved the way for instituting EKAS is reproduced in Tinios, 1999). The means test was applied on information contained in the income tax declaration, giving emphasis on total pension income. The income tax declaration is the only point that collects information on pensions paid from all sources and funds. The choice of pension income was justified, as low-income pensioners would in most cases be eligible for tax refunds, and hence the incentive for evasion was absent; progress in combatting evasion since the early 1990s also meant that the income information was in any case more reliable. EKAS relied on three (cascading) income tests:

1. A test on the individual's total *pension* income. This was set in such a way as to exclude those in receipt of supplementary pensions and was in most cases the decisive test. As a result, rather than including 800 thousand pensioners with primary pensions under 100,000 drachmas, the targeted population was around 250,000, who were demonstrably those most in need.

2. A test on the individual's total income from *all sources*, including income from employment and property income.

3. A test on *family* income, which included income calculated on the system of presumptive taxation (which deals with evasion as well as asset ownership).

Tests 2 and 3 were included on the basis of fairness, and the cut-off points were designed to be generous, excluding only a small number of individuals. For the first time in the pension system, a uniform age limit was imposed, regardless of the eligibility requirements of the separate pension funds.

(*Box continued)*

**Box 8-2** ***(continued)***

Apart from the fairness of the criteria, a key part of the success of the measure lay in its implementation, which relied to a very large extent on self-declaration and *ex post* checks, which allowed the application and payment process to be fast and non-bureaucratic. After the second year of the system's operation, the system relied on automatic electronic links with the tax authorities to decide on eligibility. Careful indexation of cut-off points according to pension increases implied that eligibility could only be lost through a genuine increase in income.

A key role for the acceptance of EKAS was played by improvements in the veracity of income tax information. However, EKAS has also shown that it is possible to share information *within* the social security system. Hence, one can go beyond seeing isolated pension claims ('pension cheques') in order to build a more complete picture of an individual's circumstances.

This information could thus be utilised in order to construct more complex means-testing systems. Such systems hold the promise of separating the income replacement and poverty prevention functions of the pension system and hence to move away from the second-best towards the first-best solution. One possible idea that has been mooted is the so-called "National Pension", which would replace the IKA minimum pension by a means-tested, tax-financed "citizenship pension".[37]

To recapitulate, comparing the portrait of the future pensioners of the 2010s with that of the pensioners of the 1960s, three differences appear:

- The **social** situation and social problems of the former pensioners will be more serious.
- Their **financial** situation will be much improved.
- **Administrative** feasibility considerations will no longer apply.

## *IV.3 Economic Hidden Costs – Efficiency Losses*

An effective pension system that was operational in the context of the 1950s and the 1960s needed to have been a compromise. Such is the nature of realistic policy making, which has to make use of second-best methods in

37. The "National Pension has frequently been cited in public discussion. It is usually taken to mean, though, a benefit over and above currently paid pension benefits, rather than a way of rationalising existing payments. See Spraos Report (1997, chap. 5) for a discussion.

order to attain a particular goal. It is always sound practice to re-examine second best solutions periodically, to test for the following factors:

- In the intervening period, the reasons preventing the first best may not hold, and the second best is no longer necessary.
- The factors governing the direction, size and relevance of side effects and efficiency losses may have changed, hence leading to the need for re-design. In particular, the situation may change so that factors which once could safely be assumed unimportant take on significance.
- New side effects and losses may transpire which need to be accounted for.

The hidden costs of the system may be sought in three different areas, each of which will be examined in turn: The product market, the labour market, and savings and capital markets.

### *IV.3.1 Product Market Distortions*

Social security is usually thought to impact on the product market through influencing non-wage labour costs. However, in the Greek context there are additional product market distortions. These arise through the following mechanisms:

- The widespread preference in previous decades to seek additional funding for sectoral funds through the imposition of tied taxes on the product of the fund. Examples (some verging on the comical) are: A percentage on the price of candles and incense for the now defunct priests' and monks' fund; a few tenths of a drachma on the price of salt for IKA; a boatmen's surcharge levied on ship tickets still dedicated to the seamen's funds, decades after boatmen were replaced by Roll-On/Roll-Off ferries. The majority of tied taxes have been abolished. However, as recently as 1994 new tied taxes were imposed, while they are frequently cited in public discussion as reform options.
- The existence of enterprise-specific funds (primarily in the public sector). These funds exhibit much higher statutory (employer) contributions, as well as the tendency by employers to cover any shortfalls in revenue through deficit financing, leading to a soft budget constraint for pensions. The existence of oligopoly in the product markets meant that ultimately it was the *consumer* who bore the cost of social security entitlements over and above the "normal" level. These "*supernormal social security entitlements*" have much in common with "supernormal profits" in economic theory, given that essentially they are simply another way of distributing economic surplus or monopoly profits.

The progress of deregulation in the product markets and opening up of previously protected markets has led to a change of incentives governing the

question of the finance of "supernormal pension entitlements". When a hitherto protected company is facing competition in the product market, the necessity to finance pensions becomes an added burden on its competitiveness. While previously there was no perceived budget constraint, the company pension scheme suddenly appears to have acquired one. The soft budget constraint hardens.

This has the interesting corollary that the negative effect of pension finance as a threat to competitiveness becomes immediately visible and is internalised in the company. The link between pension generosity, pension finance and growth potential of the economy is at the heart of the pension debate. That link at the *macro* level is indirect and not visible to the individual, who is thus able to separate his two identities, as a current producer and a prospective pensioner.

In the case of a company suddenly facing competition, the necessity to finance an over-generous pension package is immediately seen to threaten the company's survival. The member of the company's pension plan can immediately see that if he does "too well" as a pensioner, he may not have a job from which he may be pensioned.[38]

Pension rights are therefore seen as hypothetical and conditional on the economic and financial success of the company. The link between generosity and company prospects is internalised, for the firm.

It is interesting that, owing to the existence of this mechanism, the pension sectors which were previously most resistant to institutional change have been led to demand changes most vociferously now. The example of the Public Power Corporation is a case in point (see Box 8-3 below). Equivalent discussions are also being undertaken for bank employees and other sectors.

38. See Tinios (1999c) for a general statement of this point and the role of accounting standards.

**Box 8-3. The Public Power Corporation: Disentangling the Different Functions of the State**

The Public Power Corporation (PPC) is still the monopoly producer and distributor of electric power in Greece. It is a highly vertically integrated company, the largest employer in the country, covering all aspects of electricity generation and distribution.

Since 1966 the company has been responsible for all social security functions to its workforce and pensioners. PPC employees do not belong to a Social

(*Box continued)*

**Box 8-3** ***(continued)***

Security Fund. For much of the period since 1966 no explicit employer contribution was levied; employees, on the other hand, contributed regularly to the general company budget (no book reserves were kept). Initial (imputed) surpluses were invested in electrical plant; in recent years, maintaining social insurance payments was a (large) net charge on the company budget, which was legally responsible for meeting all health and pension obligations, and was largely passed on to the consumer.

The situation of the PPC relied on the confusion of three roles (functions) of the State: The role of the State as a regulator of the electricity market; the role of the State as the sole shareholder and hence the employer to its labour force; and the role of the State as a regulator and guarantor of social security.

Developments external to the company meant that the various roles of the State had to be disentangled: The liberalisation of the electricity market under EU legislation meant that the monopoly of the PPC had to be ceded. The PPC would therefore have to compete against new entrants. At the same time, the necessity to tap new capital meant that the company would have to participate in an Initial Public Offering (IPO) and offer shares to the public for the first time.

In order to proceed with the electricity sector strategy, an evaluation of the liabilities (including pension liabilities) is necessary. The possibility of tapping funds from the international market implied adherence to **International Accounting Standards (IAS-19)**, which give detailed guidance on the methodology to be followed in evaluating a company's pension liabilities. The PPC, acting in consultation with the Government, engaged an international firm of actuaries to estimate the position of the company if it were to apply IAS.[1] IAS-19 does not recognise the legal situation where a company undertakes, on behalf of the State, some of the State's functions; instead, it essentially treats pension obligations as a form of loan to the company from its labour force, offsetting them with any dedicated assets, of which in the case of the PPC there were none.

In that case, applying IAS-19 would constitute a major obstacle in the competitive position of the PPC against potential entrants, as the necessity to service the accumulated pension "debt" would have to be added to personnel costs, increasing them considerably. In contrast, competitors can insure their workforce in the State PAYG system, counting as a cost only *current* outlays for con-

(*Box continued)*

1. The Consultants' report was submitted by the Minister of Industry to Parliament. PriceWaterhouseCoopers (PWC) (1998).

**Box 8-3** ***(continued)***

tributions and not the corresponding (implicit) debt of the State system. In terms of incentives to PPC employees, the evaluation of pension liabilities under IAS-19 made visible their separate interests as future pensioners and future employees; ensuring the company's future progress would further their interests in both ways. Pension reform is thus clearly and visibly a positive-sum game.

As a partial result of the actuary's report, and following negotiations, all sides agreed in late 1999 to form a new social security fund, operating explicitly under legislation governing State-controlled social security funds, *separately* from the PPC (hence treating the PPC symmetrically in social security terms with its competitors). The new fund will be endowed with a given percentage of receipts from the IPO. This steps towards separating the notional functions of the State and was passed as part of wider legislation governing the supervision and operation of the electricity sector in the soon-to-be-liberalised electricity market (Law 2773/1999).

The exact operation of the new PPC fund, the way it will be governed, or financed and its relationship with the remaining social security system have yet to be finalised. However, considerable progress in a short period of time has been marked in an issue thought to be intractable.

### *IV.3.2 Labour Market Distortions*

Distortions regarding the labour market are usually considered to be the main source of inefficiencies caused by social security systems. They essentially are the result of the effect of payroll taxes (social security contributions) increasing non-wage labour costs.

In the Greek context we need to distinguish between *two* types of effects:

- Macro effects, which arise from the overall effect on the cost of labour and its impact on international competitiveness, but mainly on the overall level of employment and hence the rate of unemployment.
- Secondly, micro effects, which arise due to the sectoral inequalities of non-wage costs and other aspects of social security.

**Macro effects** arise due to the size of social security contributions and other charges, which affect payroll costs. Non-pension payroll surcharges are of considerable size in Greece and relate to: Health insurance, unemployment insurance, housing contributions, contributions to the Workers' solidarity funds, military service contributions, and various kinds of surcharges for particular categories of workers (e.g. the so-called "arduous and unhy-

gienic occupations"). Separate surcharges are destined for separate organisations, yet in some cases in the private sector they are collected by IKA. In other cases there might be separate collection agencies, a fact which increases compliance costs to employers.

Average Greek total non-wage costs are relatively high, almost as high as the EU average (see Table 8-14). One would have expected substantially *lower* non-wage costs in Greece due to two reasons: First, high non-wage costs essentially only cover the IKA sector, i.e. the private urban sector. Second, the presence of evasion and ceilings on contributions would also lead one to expect low *effective* rates. Nevertheless, a rate as high as 40 per cent implies a considerable burden, which cannot but have an influence on the overall level of unemployment. Disturbingly, progress in combatting contribution evasion will make the effects on unemployment *worse* and the incentive constraints more binding.

**Micro** effects occur as a result of alterations to incentives. Three effects are particularly large or especially prominent in Greece: early retirement incentives, sectoral distortions, and impediments to labour mobility.

The incentive that most often is cited in this respect is that of **earlier retirement,** leading to a fall in labour market participation. The operation of this incentive in Greece must be tempered by the observation that the cessation of employment is *not* a legal prerequisite of the receipt of a pension. Receiving a pension can have an important income effect on the decision to engage in further employment (by altering the reservation wage); it also leads to considerable income tax evasion, as declaring above a certain amount can lead to the pension being reduced drachma for drachma. The complex legal situation governing ages of retirement implies that the individual is often "forced" to quit by violent swings in the entitlements.[39] The system similarly does not allow for gradual withdrawal from the labour market; on the contrary, basing pensions on the last few pay packets puts pressure on workers to earn as much as possible in the closing years of their career. This imposes a considerable strain and is unfair for manual workers and for others with a humped age-earnings profile.

A different, and a peculiarly Greek effect, arises due to **sectoral differences** in non-wage costs or, more generally pension arrangements. These differences would distort relative costs of production and could have a differential impact on different categories of insured persons.

It is hard to summarise differences in overall costs. However, the following stylised facts apply:

39. An example are mothers of underage children who must exercise their right to early retirement before their underage child becomes old enough for military service.

**Table 8-14. Non-Wage Costs as Shares of Total Labour Compensation**

| *BE* | *DK* | *DE* | ***GR*** | *ES* | *FR* | *IE* | *IT* | *LU* | *NL* | *AT* | *PT* | *FI* | *SE* | *UK* | ***EU*** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 47.6 | 20.0 | 45.1 | **40.1** | 45.4 | 48.2 | 28.6 | 50.7 | 31.0 | 43.8 | 49.5 | 43.8 | 45.1 | 41.2 | 28.6 | **44.1** |

SOURCE: OECD, *Employment Outlook*.

- Manufacturing, especially that oriented towards exports, bears a higher cost.
- The highest costs are borne by enterprises which are either recently privatised or are due to be privatised.
- The contribution base is wider for post-'93 labour market entrants, owing to the abolition of ceilings and the inclusion of greater parts of the total salary in the contribution base. High-wage, new-economy firms employing younger workers will be at a particular disadvantage.
- Compliance costs can be significant, especially for firms which have dealings with many funds.[40]

Combinations of the above factors can lead to widespread differences in labour costs across sectors. Interestingly, in the past the existence of these imperfections played only a small role for the majority of industry, which is small and was able to avoid the regulations easily through underdeclarations,[41] non-declarations etc. Progress in capturing taxable capacity through computerisation, crosschecking with tax declarations and measures against evasion makes for the first time the existence of differences relevant to employers. What was thus in the past *not* an impediment to economic activity becomes one *now*, given the tendency to enforce regulations which were previously only laxly enforced.

The existence of large non-wage costs is leading to a form of disintermediation, as more and more employers and employees are appearing to favour non-standard employment contracts which are not classified as wage employment and are hence not subject to IKA rates.[42] Thus one fund of the self-employed (TAE) has since 1992 exhibited a growth of 17 per cent in the number of those insured, whereas IKA had to make do with under 3 per cent. This has enabled the funds of the self-employed to increase the real

40. The definition of the pension base can be radically different from fund to fund: e.g. the bakers' supplementary fund still counts pension rights not in terms of periods of work but in kilos of flour purchased.

41. In the smaller private sector companies the practice was for the vast majority to be declared to be working at the minimum wage.

42. The other side of the coin, of course, is that those workers do not enjoy the extent of employment protection which is provided for wage workers.

value of pensions, while IKA has not reduced its pensions. Disintermediation can thus be a force towards expenditure increases.

Of equal importance are problems induced to **labour mobility** by the existence of multiple sets of pension entitlements and pension funds. Though time spent contributing to one fund can in principle be used to justify pension eligibility in another fund, workers are reluctant to shift out of an occupation (or position) enjoying more generous arrangements to one less generous.

Transfer from, say, a state-owned bank with its own pension fund to a private one can lead to massive loss of pension entitlements. As an example, in the National Bank of Greece male employees are entitled to retire at 55 at total replacement rates, which can reach 120 per cent; their pensions are even transferable to unmarried or divorced daughters. If they shifted to a private bank, they would be subject to IKA rules, retirement at 65, replacement rates not exceeding 100 per cent and subject to binding ceilings. As a result, in the typical case, employees in mid-career wait to attain pension eligibility *first*, collect their pension, and transfer to a private bank as working pensioners.[43] Pension rules allowed such changes until recently, as well as the possibility of pensioners working as long as they were not employed in an occupation insurable under the pension fund of origin.

The existence of very generous arrangements, especially regarding pension ages but also the calculation of replacement rates,[44] diminishes the adverse effects on labour mobility (at considerable expense, it must be admitted). Tightening pension rules, whether by increasing ages of retirement, reducing replacement rates for early leavers or imposing restrictions on pensioners' employment[45] all make the constraints caused by the lack of labour mobility more binding.

Given the top-heavy age structure of employment in public enterprises (and in the civil service), tightening pension eligibility is translated into a problem for the firms, which are all pursuing programmes of early retirement to facilitate staff turnover. Similarly in the civil service, tightening pension eligibility, in association with stringent hiring rules (such as "one new hire for every five departures"), is combining with changes in working modes

43. In this way Greek public enterprises subsidised to a considerable extent the labour force of their competitors.

44. An important part of the mechanism of transfer is played by formulae defining replacement rates as a linear function of years of employment —enjoyed by employees hired before 1983 in the public sector.

45. Law 2676/99 introduced across the board restrictions on pensioners' employment, primarily as a disincentive to early retirement. Restrictions are graduated inversely by age of retirement.

in the government (e.g. use of computers, less interventionist policies) to lead to major skill shortages.

### *IV.3.3 Intertemporal Distortions and Economic Growth*

Saving for one's old age is the most potent of motives for saving for an individual. Harnessing this force in order to finance the expansion of the society's productive potential through investment can be a major contributory factor towards economic growth.

The debate on whether pension systems and, more specifically, their mode of finance have an effect on aggregate saving and, if so, the debate on the magnitude of the effect have been unfolding for decades. (See, for a survey of the theoretical and econometric evidence, Feldstein, 1973, 1996, Barr, 2000.) The argument of this section does not depend on the evaluation of that evidence. As in other sections, the position is that the current pension system and its mode of finance was a sensible second-best solution in the 1960s and the 1970s. However, under current conditions, the costs and foregone opportunities involved in maintaining such a system outweigh its benefits.

The situation of Greece in the 1950s and the 1960s closely resembles the "Aaron-Samuelson condition" for a pay-as-you-go (PAYG) system to be preferable to a funded one (Samuelson, 1958). The growth rate of the wage bill exceeded the market interest rate, because population and labour force growth was rapid,[46] especially in those sections paying pension contributions. Thus, society could "invest" in its own *human* capital and do better than creating a fund and relying on the return of the *physical* capital to finance pensions. At the same time the growth of output *per capita* meant that contribution revenue in a PAYG system would be extremely buoyant.

The other side of the coin was the underdevelopment of the capital market. The population, emerging from the traumatic experience of war devastation followed by hyperinflation, was extremely sceptical of financial instruments. Private savings were initially directed to gold (gold sovereigns were thought a particularly good store of value) and later on to real estate. Finding the finance for large-scale industrial development in the 1950s and the 1960s, (following the prevailing ideas about economic development) was a serious policy concern.

46. Indeed, the problem was of surplus labour, as evidenced by waves of external migration to Australia, the US and later, in the 1960s, to Western Europe. Internal migration to the cities gave rise to a classical Lewis model-type growth.

Existing sectoral pension programmes had not weathered the period before 1950 well. Most had their assets seriously eroded and had to turn to PAYG finance. Financial market underdevelopment meant that fund management would have been very difficult, while supervision mechanisms were non-existent. Finally, pension funds faced the major hurdle of providing adequate finance for old people reaching retirement with few accumulated rights, a problem solved by "grandfathering" the early cohorts.

The lynchpin of the system of finance in the first three decades of operation of the system was Law 1651/50, which forced all pension fund assets and surpluses to be held at the Bank of Greece at a nominal (small) interest rate. This allowed a form of forced savings, as pension fund surpluses were directed to finance industrial development. Savings were therefore partly "nationalised". This mechanism has been subjected to widespread criticism (e.g. see, for a sophisticated version, Provopoulos, 1985), on the grounds that it "robbed contributors and funds of their future". Many go on to blame that law for the present financial problems of the funds, stating that, had pension funds been free to invest their funds, there would have been no deficits.

As the analysis of this section showed, this criticism is ahistorical and logically flawed. Successful financial management on that scale would not have been feasible. Given the lack of supervision, many funds might have not only secured high returns, but might have lost their capital.[47] Finally, the operation of the Aaron-Samuelson condition would mean that funds would have got "their money back" through the rising volume of contributions paid by workers of the new industries.[48]

In the field of finance and intertemporal allocation, we thus again see the social security system having delivered ingenuous second-best solutions to pressing economic problems in the past. As in the other areas, the changed circumstances mean that a better compromise may now be available.

Compared to the 1950s, a number of developments have to be noted:

- The first-best may now be feasible. Modernisation of the financial system has been extremely rapid since 1987. A wide range of savings instruments exist, while the operation of the stock exchange offers a sure way for private savings to be translated to productive capacity. Membership of EMU removes the last remaining currency and inflation risks.

47. Thus, if the above law were not in operation, budget constraints might have been harder, and pensions far less generous. This observation escapes the critics of the law.

48. Forced saving through the social security system was advocated widely by the development economics orthodoxy of the time, and by the ILO. It would certainly appear to be less onerous than the Stalinist drive to industrialisation in the 1930s....

- The labour situation has changed. Greece is no longer a labour surplus country. The Aaron-Samuelson condition has been reversed. Returns on capital are now higher than the growth rate of the wage bill and the associated pension contributions. Population ageing will ensure that this will be increasingly so.
- There is concern about the productivity of investment. In the 1980s a number of commentators worried about a low and falling incremental capital to output ratio. This was linked to the size of the public sector and therefore highlighted the need for mechanisms directing the available funds to their most productive use. In contrast to the 1950s, state-controlled large-scale industrial investment is not the lynchpin of development. Economic growth in the new century appears to depend more on sophisticated intermediation mechanisms of the kind that private capital markets can provide.

The response to ageing populations must be to ensure that workers of the next few decades are as productive as possible.[49] This means that they must be endowed by capital stock and that economic structures and the structure of production should favour competitiveness.

The current structure of social security finances is clearly a burden and not a help in this direction. Both direct costs, as the necessity to finance deficits, and indirect costs associated with foregone opportunities, argue for the need to change. Social security must once again be actively involved in economic development processes.

## V. Political Economy: The Case for Reform

The problems discussed in the previous section are not new. They have been pointed out in several studies, e.g., Spraos Report, 1997 and OECD, 1997, to name the most prominent. This section describes why we have seen so little reform until now.

Political discussions on the Greek pension system can be characterised by the presence of *four* paradoxes:

1. The coexistence of low pensions for the majority of pensioners and a high percentage of GDP devoted to pensions.

2. The existence of very high payroll taxes together with the constant necessity of deficit finance.

3. Problems of the system are very frequently cited, yet there are hardly any concrete suggestions for reform.

49. See for example, Spraos and Tinios (1998).

4. The imminent demise of the system has been announced at regular intervals for 40 years; yet the system appears to be able to proceed unimpeded.

These together combine to the central question of the political economy of pensions: How is it possible that a system for which no one has a kind word to say can remain essentially unchanged a full 40 years after change was declared "extremely urgent"?[50]

And thus the linked question, "*Why should this time be any different?*"

The answer to this question has two sides:

- The balance of costs and benefits of changing the *status quo* has dramatically altered in recent years.
- The public perception of the problem which governs the political economy of reform will undergo an equally dramatic change in coming years.

## *V.1 Balance of Costs and Benefits*

As mentioned in the previous section, the pension arrangements can be seen as ingenuous second-best reactions to the conditions prevailing a generation ago. The lack of transparency of pension arrangements enabled the cross-subsidisation and transfer of funds to serve three purposes:

- Industrial policy, in particular the transfer of funds towards rapid industrialisation.
- Intertemporal transfer of funds in a climate deeply suspicious about the financial system.
- The integration in the political system of specific occupational groups, through sectoral privileges.

The last was possibly the most important reason for the continuing fragmentation of the system and, in the political climate prevailing, it enabled the pension system to play a key role in clientelistic politics. Occupational groups could negotiate for themselves privileged arrangements and see to it that their costs were not borne by themselves. Interestingly, the inauguration of privileges was not resisted by *other* groups, who saw the privileges as smoothing the way for placing their own demands for privileges. This process is widely understood and cited in public debate as "equalisation upward". In such a way the *overall* social security problem is fragmented into a multitude

50. In a report of the Ministry of Coordination submitted in 1958, quoted in Spraos Report (1997, pp. 119-20).

of special sectoral problems, the sum of which appears to add to *less* than to the problem facing society. Hence the apparent paradox of a general societal problem which does not appear to concern anyone in particular.[51]

All three of the second-best benefits are no longer relevant to the current conditions of the Greek economy and society. This negates the erstwhile benefits of preserving the system, while leaving the costs to be faced by society.

As was outlined in the previous section, the indirect costs generated by the system are *increasing* in magnitude. Interestingly, the efforts to improve the governance of the system, particularly regarding the revenue side, make the side effects, on the labour market and investment, *more* significant and harder to bear.

The current system thus leads to an interesting trade-off: With an unchanged structure of the system, the reduction of deficits implies a worsening of the side effects on the functioning of the economy. The adjustment that will be necessitated by demographic developments is probably of such a size that the side effects will be prohibitive. The dilemma may only be solved by seeking a *different* structure, which generates fewer side effects.

Using the analogy of a house, the system's basic structure was determined and the house built in the 1950s. Since then, problems were met piecemeal, *within* the original structure. The arrival of new problems and the change in the external environment mean that the old structure cannot accommodate new needs so easily. There comes a point where it is simpler, easier and more effective to build an altogether new structure, using new architectural blueprints, which can deal with the new situation.[52]

### *V.2 Perception of the Problem*

One of the key problems of the operation of PAYG pension systems is the absence of a visible budget constraint. In contrast to prefunded systems, the internal logic of PAYG, relying as it does on solidarity between generations, does not bind expenditure to available funds. In the context of sectorally divided PAYG systems, such as the one in Greece, the lack of fiscal discipline caused by the absence of a constraint that arises through intertemporal transfers has been amplified by transfers between sectors of employment.

In the resulting maze of cross-subsidies the complete separation of entitlements and financing needs, which is so characteristic of the Greek social

51. This phenomenon is referred to by Tinios (1998) as the privatisation of social welfare.
52. This is the essential point of Fotakis *et al.* (2000).

security discussion, reaches its highest expression. Hence the very common practice of discussing legal claims of entitlements independently of economic considerations. Very frequently, legal discourse on pensions proceeds completely independently of any economic effects.

The reality summarised by the fable of the "hen which laid the golden egg" cannot, of course, be legislated away. The non-transparency and complexity of individual (and sectoral) budget constraints leaves the *overall* macro public finance constraint as the only visible and apparently operative constraint on individual behaviour. In this way, though, the conditions are maintained for a classical prisoners' dilemma in individual behaviour.[53] Whatever the others do, each sector will attempt to maximise its entitlements and shift the costs to others. The fact that the overall budget constraint appears confused and nebulous only makes the evasion of financial discipline easier.[54]

In the coming years, a number of effects will operate in the direction of making that budget constraint more visible and effective and hence altering the political economy of discussion.

*Firstly*, developments increasing competition in the product markets reduce the scope for sectoral cross-subsidisation greatly. In the *labour* market, the persistence of entrenched structural unemployment, especially among labour force entrants, gives new visibility for policies reducing non-wage labour costs, and hence an awareness of the effects of payroll taxes.

*Secondly*, participation in EMU and operation within the confines of the Stability and Growth Pact alters significantly the possibilities of shifting the costs of social security to future generations. Supervision of EMU public finances has the object of precluding costs to be shifted over time or across borders. The Stability Pact limits the overall public sector deficit to 3 per cent of GDP. Thus, overruns of expenditure in one sector have to be matched by reductions in other items so that the overall 3 per cent is not exceeded. In consequence, pension prospects play a major role in the "fiscal sustainability" of EMU debate.[55]

*Finally*, the establishment of the "New Entrants' System" will gradually change the political economy of the entire system. The participation of all Greek labour force entrants since 1993 in a new far less generous system of entitlements means that there is a growing part of the labour force which will

53. It is *not* an assurance game as, even if one is assured that everyone will play by the rules, it is still in his/her interest to break them.

54. The task of the projection exercise commissioned by the Government and due to be released in 2001 will essentially be to make the budget constraint clear, as well as to apportion it between different categories of the insured population.

55. See for instance, ECB (2000), EPC (2000) and Balassone and Franco (2000).

be resistant to pension generosity. People belonging to the "New Entrants' System" will find themselves in a majority in the labour force (and hence in labour unions) by 2010. With some lag, the same development will take place in the context of the electorate.[56]

This new entrants' system will be a force towards consolidation. It will help to overcome the chief characteristic of the Greek pension system: its fragmentation. As we have pointed out in Section II, fragmentation in organisational terms is mirrored by diversity in pension rights such as retirement ages and replacement rates, by widely varying rates of return to contributions and by various other sectoral privileges. Fragmentation was an instrument to entrench these privileges. It permitted the lack of transparency of rights and obligations and allowed for widespread cross-subsidisation between sectors of employment and categories of beneficiaries. Fragmentation is therefore one of the key causes for the system's resistance to change, especially to consolidation.

### *V.3 A Note of Caution – Obstacles Ahead*

The above analysis could lead to an underestimation of the problems ahead. Two illustrative points will be made in order to introduce a measure of sobriety.

First, a comparison with Italy and the Italian experience is instructive. (The parallel with Italy is analysed by Featherstone, 2001). Greece began the 1990s with two apparently decisive moves, the laws of 1990 and 1992, roughly equivalent to the "Amato" reforms of Italy in 1995 (see Tinios, 2001). Greece thus appeared to have a head start by 3-5 years over Italy, while facing problems of comparable nature and magnitude. As Featherstone points out, Italy used the effort to meet the Maastricht criteria for EMU in order to push for major structural change, which in the pension field was the "Dini" reforms of 1998. In Greece, in contrast, attempts to restart serious pension debate, such as the Spraos Report, faltered.

Secondly, anyone concerned with pension reform must first come to grips with the picture presented in Table 8-15 (reproduced from Walker, 1999).

To the question on whether population ageing might necessitate retiring later, all other Europeans, including those in the South, appear to be aware of a potential problem in 1992, an awareness which has grown in 1999. Even though

56. The new entrants will be consolidating a majority in the workforce just as the bulk of the more generous old system beneficiaries will start collecting their pensions, between 2005 and 2012. The effect of the new system in reducing pension entitlements will not be felt until at least a decade later – 2020-2030.

**Table 8-15. Eurobarometer Opinion Surveys, 1992 and 1999[a]**

| | *1992* | *1999* |
|---|---|---|
| Denmark | 26.8 | 53.8 |
| Finland | ... | 67.1 |
| Sweden | ... | 80.5 |
| Luxembourg | 25.1 | 40.6 |
| Netherlands | 47.8 | 50.7 |
| UK | 24.8 | 31.8 |
| Austria | ... | 67.8 |
| Belgium | 28.8 | 40.8 |
| France | 41.6 | 60.5 |
| Germany | 45.5 | 41.2 |
| Ireland | 29.7 | 25.9 |
| "South" | | |
| Italy | 32.9 | 40.4 |
| Portugal | 22.9 | 25.1 |
| Spain | 29.0 | 37.3 |
| EU 12 (1992) EU 15 (1999) | 35.2 | 40.1 |
| **GREECE** | **13.6** | **5.9** |

SOURCE: Walker (1999).
a. Percentage saying that, in the future, people will have to retire later.

in some countries this percentage is approaching unanimity (80 per cent in Sweden), even in the "South" the problem is perceived as more relevant in 1999.

In sharp contrast, Greeks, alone among Europeans, appear to be completely oblivious of any compulsion. What was already a very low percentage (13 per cent positive reply) was more than halved in 1999. Between 1992 and 1999 there intervened the discussion on ageing populations internationally, the publication of major reports on Greece (OECD, 1997, Spraos, 1997), as well as the repeated statements by governments and even by the social partners that measures are needed to safeguard pension availability. The combined effect of all these developments was apparently to reassure the 13 per cent who thought they might have to retire later and bring the proportion *down* to 6 per cent....

## VI. Reform Options

In Section IV, we argued that pension reform in Greece is badly needed and in Section V we showed that the political economy is gradually changing in a way that makes the case for reform more palatable to the elec-

torate. But what are the specific reform options? This is the subject of this section. Does it suffice to change the parameters of the current system, which almost exclusively relies on pay-as-you-go (PAYG) financing, or does Greece need a more incisive step to a partially funded system? We strongly advise the latter.

### *VI.1 Parametric Reform Options*

As we have seen in Table 8-10, the demographic dependency ratio will about double between 1995 and 2040. This exceeds past changes by far. The main problem for the Greek pension system is therefore the demographic change that will dramatically deteriorate the budget situation of the Greek PAYG system.

In a pure PAYG system, expenditures equal income from contributions and taxes; neither is there a reserve built up from excess income, nor are debts incurred due to excess expenditure. Hence the budget equation looks like

**Contributors × Earnings × Contribution Rate = Retirees × Pension Benefits**

**Receipts = Expenditures**

which can be re-written as

**Contribution Rate = (Pensioners/Contributors) × (Benefits/Earnings)**

**= System Dependency Ratio × Pension Level**

As long as receipts equal expenditures, the *contribution rate* must thus be the product of the *pension level* relative to earnings and the *system dependency ratio*. These are the three core parameters of a PAYG system.

All three parameters are subject to public policy and can be employed to solve the pension problems. However, the relationship between the contribution rate and the pension level in a PAYG system cannot be freely chosen by the political process. As the above equations show, the relationship is dictated by the system dependency ratio. Hence, public policy has four options:

1. Increasing the contribution rate in order to accommodate rising expenditures.

2. Reducing the pension level in order to keep the current contribution rate constant.

3. Changing the system dependency ratio by increasing employment and decreasing the number of pensioners.

4. Escaping the budget constraint altogether by financing an increasing share of pension expenditures via debt.

We will discuss each option in isolation although one can easily combine elements of all four options.

### *VI.1.1 Increasing Contributions*

With constant age-specific employment rates, the change in the demographic dependency ratio translates in twice as many retirees per employed person, or a doubling of the system dependency ratio. Consequently, providing the same retirement income as today in the PAYG system will require a doubling of the contribution rate to old-age pensions.

Since health expenditures and other social expenditures are in a similar fashion related to the age structure of the population and since child- and education-related expenditures are very unlikely to fall in order to compensate (OECD, 1998), chances are dim that the employed electorate, a rather large constituency, will accept the policy of such high contribution burdens. The change in the age distribution of the Greek population is simply too large to be financed only by a tax and contribution increase without reducing the generosity of the system.

### *VI.1.2 Reducing Pension Levels*

The other extreme policy, namely a reduction of the pension level in proportion to the increase of the dependency ratio, is similarly infeasible. As we have seen, 70 per cent of IKA pensions are at the minimum guaranteed level. Reducing this level to a half (or, equivalently, taxing pensions so that net pensions are only a half of the current level) will not be a policy which any government can introduce – it would lose the entire old-age constituency.

Note that a "fair" combination of this policy —which levies all the demographic burden on the pensioners and leaves the contribution rate unchanged— with the previous policy —which put all the burden on the younger generation and left the pension level unchanged— is still unlikely to be a political winner. If the burden were shared equally between generations, the contribution rate would increase by 41 per cent, while the pension level would be reduced by the same amount. A 41 per cent change is lower that a 100 per cent change, nevertheless we would argue that this way the government would lose *all* constituents, not only the employed or the aged.

### *VI.1.3 Lowering the System Dependency Ratio*

A way out of this dilemma is to break the relation between the *demographic* dependency ratio (persons aged 65+ to persons aged 20-64) and the *system* dependency ratio (pensioners to contributing workers) by increasing employment and/or decreasing the number of pensioners.

Note that past history does not augur well for this policy. Particularly the decreasing retirement age (Figure 8A-3) has simultaneously decreased the proportion of the population that pays contributions to the PAYG system and increased the number of beneficiaries from the PAYG system, so that the system dependency ratio has risen more steeply than the demographic dependency ratio. Note that IKA in 1985 had 3.5 contributors per pensioner, a figure which is now reduced to 2.3.

Increase in contributing employment cannot be simply decreed. The only direct institutional lever is the raising of the retirement age, e.g. by raising the so-called "normal" retirement age and/or by restricting the various early retirement and pre-retirement rules. Because the demographic changes are so large, an offset of the ageing burden by a change in the retirement age alone would require an increase of about 9 years in the *effective* retirement age.[57] The problem is amplified by the fact that an increase in the retirement age has to be phased in and cannot be implemented all of a sudden. Also note that raising the retirement age corresponds to paying longer and benefiting shorter, thus to a decrease in the value of lifetime pension benefits. A dramatic change in the retirement age might understandably not be very popular with the electorate.

Other employment changes that might help are an increase in female labour force participation. Again, the numbers do not work out;[58] in addition, including more contributors without a corresponding decrease in beneficiaries will broaden the tax base but also implies more expenditures in the future when these new contributors will claim benefits. The same reasoning applies, by the way, also for migrants.

Only if migrants would pay contributions, but must leave Greece once they were eligible for pensions, would such a policy work. This is at odds with

57. See OECD (1997). While one might consider some of the OECD projections as overly pessimistic, this number corresponds to simulations for Germany (Börsch-Supan, 1998), which faces a similar change in the demographic dependency burden. Note that changing the statutory retirement age will not suffice since there will always be leakage through the disability system and other quasi early retirement provisions (accounting currently for 85 per cent of all retirement pathways, see Appendix).

58. See OECD (1997).

EU-regulations, given that the home countries of most immigrants into Greece are likely to become EU-members over the next generation. Similarly to the earlier points, we arrive at the conclusion that the problem of ageing population in Greece is simply too large to be solved by parametric changes within the PAYG framework.

#### *VI.1.4 Increasing Debt-Financed Subsidies*

Subsidising the PAYG system by general revenue which is financed by taxes is equivalent to the first solution – contributions are simply replaced by taxes which might change the incidence but not the general burden on the economy. One way to escape the PAYG framework, however, is by taking up debt to finance the state subsidy to the pension system.

Financing a substantial portion of aggregate consumption by debt is an extremely dangerous route. Currently, pension expenditures exceed 10 per cent of the Greek GDP. The doubling of the dependency burden implies an approximate doubling of this share. Financing annual flows of GDP of such magnitudes by debt creates a very quickly rising debt which would undo all the efforts that Greece undertook to enter EMU.

Financing even a small part of the increasing pension burden by debt would hit the 3 per cent of GDP limit of permissible budget deficits under the Stability and Growth Pact. Since the Greek debt-to-GDP ratio is already high, a further increase to an extent that would contribute to a substantial alleviation of the pension burden is simply impossible within EMU. As a matter of fact, it would also lead to serious financial problems *without* EMU, as the Italian example of the late 1980s has shown.

### *VI.2 Transition to a Partially Funded System*

The greatly restricted possibilities for a solution within the PAYG system call for an approach which is reverse to debt-financing, namely prefunding part of the ageing population burden. Prefunding creates the escape route out of the strict PAYG framework without the dangers of debt-financing; it provides the additional flexibility by spreading the demographic burden over a longer term and exploiting the higher returns on the capital market vis-à-vis the implicit returns that will prevail in a PAYG system due to population ageing.

Such mixed prefunded/PAYG pension systems are not new at all. Some of them have been introduced recently, see Table 8-16 below. They have

**Table 8-16. Recent Multipillar Pension Reforms**

| *Through 1985* | *1993/94* | *1996-1998* | *1999+* |
|---|---|---|---|
| Chile | Argentina | Bolivia | Croatia |
| Switzerland | Australia | El Salvador | Latvia |
| | Colombia | Hungary | Romania |
| | Denmark | Kazakstan | Venezuela |
| | Peru | Mexico | |
| | United Kingdom | Poland | |
| | | Sweden | |
| | | Uruguay | |

SOURCE: Börsch-Supan, Palacios, and Tumbarella (1999).

been realised in various forms. They include systems in which the employer plays a central role (Netherlands, Switzerland), systems in which private savings contracts have become important (United States) and systems in which there is a wide variety of individual choices (United Kingdom). Some recently changed systems make usage of recognition bonds in order to speed up the transition process (Hungary, Latvia, Poland). There is also the attempt not only to introduce partial funding but also to make the remaining PAYG part as transparent as possible (Sweden).

Proposals for an introduction of a partially funded system are being made with increasing frequency in Greece. Tinios (1995) proposes a model for a fast transition incorporating the idea of giving working cohorts a choice as well as a mechanism of "recognising" entitlements built up under PAYG. The mixed system proposed by Nektarios (1996) has many points in common. In contrast, Bitros, Xafa and Avrantinis (2000) have sketched a system relying exclusively on funded individual accounts. Zampelis (1998) and Leandros and Loufir (1998) have also advocated a wider reliance on funding.

Our position is that fully funding the Greek pension system is neither feasible nor advisable. It is not feasible since there is not enough time to accumulate a capital stock that finances a share exceeding 20 per cent of GDP within 30 years. It is not advisable since it would concentrate all return risks on the capital market. Diversification calls for a mix between the political and human capital risks of a PAYG system and the physical and financial capital risks of a funded system. Further, a fully funded system cannot redistribute income and hence cannot serve as an instrument of poverty alleviation, while the increased administrative costs could be a serious efficiency loss.

All prefunded systems work through the same principle: Each generation has to provide some part of their retirement income by own savings, in addi-

tion to the share of retirement income that is financed by taxes and contributions from the younger generation. It is important to stress that all savings in a prefunded system have to be savings in real capital in the production sector of the economy; savings in government bonds are not a meaningful way of funding a pension system because the pension savings by households are offset by an equivalent amount of government debt. This government debt has to be repaid through future taxes just as much as a PAYG system must be paid through future contributions. Hence, any truly funded system must invest in productive capital, such as in stock or industrial bonds.

While we will argue that partial funding is the only feasible way to alleviate the future pension burden, also this "third way" cannot be attained without costs. The main drawbacks of funding are the transition costs which have to be borne by those who have to save for themselves and to contribute to the older generation, and macroeconomic feedbacks which reduce the rate of return of an increasingly funded pension system. They are offset by positive repercussions, e.g. feedback effects that improve the operation of capital markets. We will discuss each in turn, not without remarking that there is no free lunch in solving the pension problem, but lunches that are harder and lunches that are easier to digest.

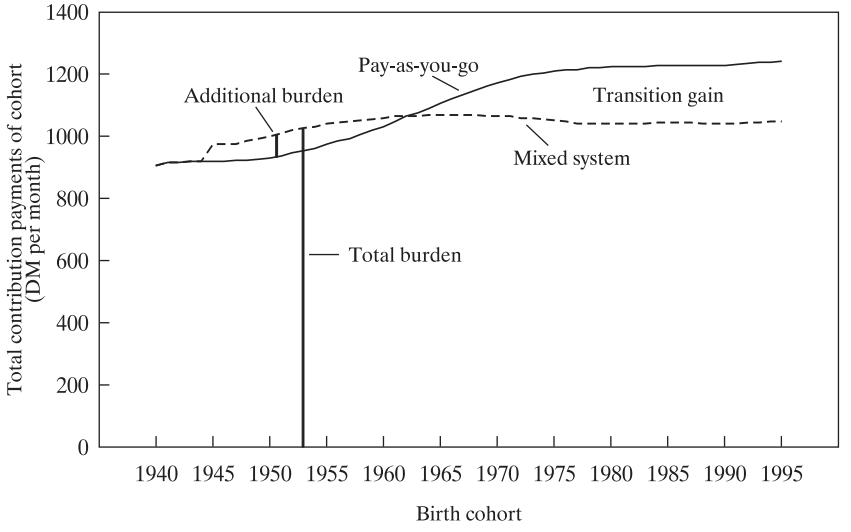
### *VI.2.1 The Transition Burden*

The gradual transition from an almost pure PAYG system such as the Greek pension system to a pension system which is partially funded affects the various cohorts differently. Three groups can be distinguished:

- Existing pensioners are generally not affected at all; probably, they will face greater security about their own pensions and will therefore be better off.
- A limited number of cohorts of new entrants after the start of the transition will face a transition burden, i.e. they will pay more under the partially funded system than under the PAYG system. We will discuss below, why a transition might be advantageous also for those cohorts. One might consider giving them the option of switching, thereby ascertaining that every member of this generation will be better off;
- All cohorts that are younger than those affected by the transition burden will pay less under the partially funded system than under the PAYG system.

Schematically, total contributions to the remaining PAYG system, combined with the new funded part of the system, evolve as depicted in Figure 8-11 for the various birth cohorts.

**Figure 8-8. The Transition Burden**

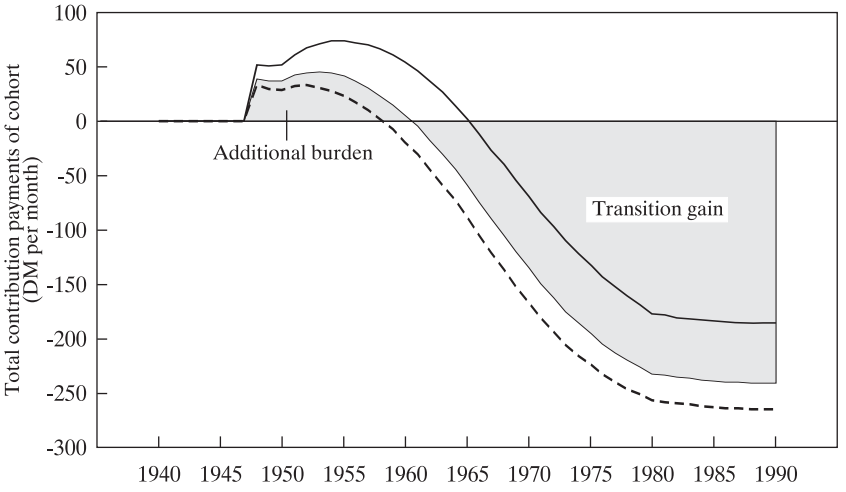



The magnitudes in Figure 8-8 are not arbitrary. The numbers on the left vertical axis are monthly contributions of a German worker in DM (2 DM is approximately 1 euro) and are based on a detailed simulation study for a gradual and partial transition of the German pension system (Birg und Börsch-Supan, 1999). This transition will replace one third of the current PAYG system by a prefunded system. Note that Germany has a path of population ageing very similar to that of Greece (see Table 8-10) and a similar philosophy of earnings-related pensions.[59]

In this figure, birth cohorts born before 1948 are not affected at all by the transition, cohorts between 1948 and 1960 will pay a transition burden, and cohorts born after 1960 will pay less under the new system than in the old pure PAYG system. The transition burden arises because the cohorts between 1948 and 1960 have to save some part of their income for their own pension but also pay the contributions for the full pension of the previous generation. However, as long as the rate of return on the capital market is higher than the implicit return of the PAYG system, replacing parts of the PAYG system by prefunding will eventually be cheaper than the old system, making younger cohorts (the cohorts born after 1960 in Figure 8-8) better off.

59. The main transition parameters are as follows: The transition starts in 2007; a third of the PAYG system is replaced in about 25 years; the rate of return on the capital market is 4.5 per cent, while the annual productivity increase remains at 1.5 per cent.

**Figure 8-9. Sensitivity of the Transition Burden to the Rate of Return**




SOURCE: Birg and Börsch-Supan (1999).
Upper line denotes a return of 3.0 per cent, middle line 4.5 per cent, lower line 5.5 per cent.

The magnitude of the transition burden depends on several factors, starting with the most critical:

- the extent to which future pensions are funded: the higher the degree of funding, the higher the transition burden;
- the relative rate of return in the capital market: the higher the rate of return, the lower the transition burden;
- the speed of population ageing: the higher the speed of ageing, the lower the transition burden;
- the design of the transition path: the faster the transition and the shorter the announcement period, the higher the transition burden.

the additional burden is approximately linear in the extent of prefunding; replacing two thirds of the system entails a burden that is twice as large as replacing only a third. This also holds for the transition gain: younger cohorts profit twice as much under a transition to a two-thirds prefunded system than under a system in which two thirds remain PAYG.

This sensitivity to the rate of return is shown schematically in Figure 8-9.

A precise computation of the transition burden for the Greek pension system requires a detailed simulation study which is beyond the scope of this paper. However, a few qualitative points can be made, based on the above-mentioned simulation study by Birg and Börsch-Supan (1999) for a partial transition of the German pension system:

- A transition to a fully funded system is infeasible in the short run. Since the ageing problem sets in soon, one needs to strike a compromise between the magnitude of the transition burden and the degree of funding. The Greek demography permits a degree of funding between 33 per cent and 50 per cent, gradually phased in over the next 25 years, if the additional burden were to be less than 3 per cent of gross income. Note that an additional burden of less than 3 per cent to finance more than a third of pensions is a reasonable deal; the additional burden is much less than a *double* burden.
- Key parameter is the difference between the rate of return on the capital market and the implicit rate of return of the Greek PAYG subsystems. Since the Greek population ageing process is rather sharp, the implicit rate of return of all Greek PAYG systems as a whole will be negative.[60] Hence, even under conservative estimates of future capital market returns, the transition burden will affect only a few cohorts, while the advantages for the younger generation are large. With a rate of return differential of 3.0 per cent between capital return and PAYG return, total contributions (payments to remaining PAYG system plus savings for prefunded part of system) will be about two thirds of the contributions that would be necessary in a pure PAYG system.
- Given the speed and the pattern of the ageing process in Greece, in particular the fact that there will be a distinct shift in the dependency ratio soon after the year 2005 (see the population pyramids in Figures 8-4 to 8-6), a transition needs to be enacted very soon in order to reap the benefits mentioned in the last point before the ageing burden sets in.

The magnitude of the transition burden also depends on many other features of the prefunded system to be introduced. This is not the place to discuss at greater length the many design issues of a mixed PAYG/partially funded pension system. It might be helpful, however, to mention a few strategic design features underlying the above estimates.

*First*, funded pensions need to cover the same biometric risks (old age, survivorship, invalidity) as the PAYG pensions which they replace. In the simulations in Birg and Börsch-Supan (1999), this is done with the purchase of an augmented whole life and disability insurance. Moreover, funded pen-

60. Some individual pension providers in Greece are likely to generate positive implicit returns even a generation ahead because they are cross subsidised by other providers and the State; note that this worsens the other providers' situation. As all systems have to add up to the population, and the population ages, the existence of an above average provider necessitates that another provider has returns even lower than the Greek pension systems average (see Subsection VI.3).

sions carry a capital market risk. The downsize risk is limited by a guaranteed minimum rate of return of 3.25 per cent, the legal requirement for German whole life insurance contracts. The costs of this insurance are included in the above estimates.

*Second*, administrative costs of funded pensions can be very high. Examples in Chile and the United Kingdom, where costs as high as 25 per cent of the premium were not uncommon, show which mistakes can be made, while the experience in the Netherlands and Switzerland proves that administrative costs can be around 3.5 per cent when pensions are run through employer-based group contracts. The above estimates are based on a 6 per cent cost share.

*Third* and operating in the opposite direction, there is need for competition among several private pension providers in order to keep the rates of return high. Pensions based on mutual funds without clear ownership (such as the provident funds in South-East Asia or, even stronger, funds managed by government or parafiscal institutions such as in the Middle-East), or pensions which must be based on the capital of the company in which the worker is employed (such as the reserve account systems in Germany) are unlikely to escape governance problems that will reduce capital returns below the competitive level and hence lead to low pensions.[61]

The political economy of the transition of course crucially rests on the transition burden. As mentioned above, older persons are not affected at all, and the young will gain. However, why should the middle generation, which carries the transition burden, vote for a transition? We offer three reasons. Note that the transition generation, born between about 1948 and 1960, is the generation of people who still have children living at home. First, this middle generation will profit from escaping generational conflict when in about 10-15 years Greece will have to decide between low pensions and high contributions in a pure PAYG system (see Subsections VI.1.1 and VI.1.2). Second, at least some of them might trade their additional burden with the much higher gain of the generation of their children, e.g. by adjusting bequests accordingly. Third, positive macroeconomic feedback might finance a great deal of the transition burden by an increase in economic growth (see below in Subsection VI.2.3).

In summary, there is already a substantial experience on which Greece can build upon. Resting on this, a partial transition appears the only feasible "third-way" out of the Greek pension problem, offering advantages for all involved cohorts.

61. Barr (2000) stresses the importance of governance issues.

### *VI.2.2 Negative Macroeconomic Feedbacks to the Rate of Return*

The higher returns of funded pensions as compared to the implicit returns in a PAYG system are not only a transition phenomenon of an ageing population, but they are systematic, reflecting the dynamic efficiency of an economy. Nevertheless, current rates of return on the capital market are not necessarily indicative of future capital market returns for several macroeconomic feedback reasons:

- *First*, an ageing population will depress returns because the higher capital intensity, which is necessary in an economy that has fewer workers and needs more capital, implies decreasing marginal returns.
- *Second*, the capital stock of the funded system itself will be substantial and has to be absorbed by the economy, again potentially reducing the rate of return.
- *Third*, when the pension capital is taken out in order to finance retirement consumption, stock prices may tumble when the baby boomers sell their shares.

The evaluation of these effects is difficult and requires assumptions about the macroeconomy, mainly assumptions on the production structure. It also has to be made on an EMU- or even EU-wide basis. A detailed study applicable to the Greek economy requires a macroeconomic model (in order to incorporate feedback mechanisms e.g. along the lines of Leandros and Loufir, 1998, or Loufir and Tragaki, 2001). However, simulations in the United States (Cutler *et al.*, 1990) and Germany (Börsch-Supan, 1996; Birg and Börsch-Supan, 1999) show that these feedback effects are very small. Moreover, the first two effects almost vanish when capital markets are sufficiently open to permit a free flow of capital between countries that age at different speeds. The third effect is much smaller than one might think because the (negative) supply effect is offset on the capital market by a (positive) demand effect generated by the need to make an ageing economy more capital intensive.

### *VI.2.3 Positive Feedbacks to Economic Growth*

In fact, these negative macroeconomic feedback effects are likely to be dominated by positive feedbacks:

- Distortions on the labour market are minimised;
- Funded pensions deepen the capital market and improve economic growth.

PAYG pensions create labour market distortions through micro incentives. As shown earlier in Section II, they distort the choice of retirement age. Yet, more important are the distortions created when contributions to the PAYG system are perceived as taxes, not as insurance premia. Polls in the United States and Germany, both of which have strongly earnings-related PAYG benefits schemes, nevertheless reveal that almost all workers perceive their contributions as taxes. In a system as intransparent and fragmented as the Greek system, this should be the case *a fortiori*. Transiting from PAYG to prefunding minimises these distortions because contributions to funded pensions, like to any other whole life insurance, are perceived as premia.

A transition to more prefunding also deepens the capital market. By doing this, it not only increases capital intensity and thus labour productivity. Moreover, it permits a smoother working of the capital market for several reasons, such as economies of scale and better corporate governance. Capital market imperfections appear still to be important in Greece. If liquidity and diversification constraints are abolished (Pestieau and Possen, 1998), or if production technology changes and capital productivity is positively affected by changes in the corporate governance and the capital markets at large (Corsetti, 1994; Corsetti and Schmidt-Hebbel, 1995; Holzmann, 1997; Börsch-Supan, 1999b), the resulting "side effects" of a transition change the growth path of an economy and therefore have very large effects in the longer run.[62] The balance between these positive side effects and the transition costs plus negative feedbacks is likely to be positive and provides room for a genuine welfare improvement of a transiting economy.

Nevertheless, it must be stressed that the issue of partial funding and the exact way this can be achieved raises many other issues that need to be addressed before any decisions are made. An (incomplete) list of questions to be addressed would be:

- mandatory versus voluntary provision of funded pensions,
- the issue of fiscal privileges for private funded pensions,
- public versus private administration of funded schemes,
- occupational versus personal funded pensions,
- defined-contribution pensions versus defined-benefit funded pensions,
- internal versus external funding,

62. Long-term institutional investors such as pension funds benefit the capital market by increasing the demand for long-term instruments such as bonds and equities. Since existing saving may be low, they may also lead to increases in saving *per se*, by forcing individuals to save. Financial liberalisation may, however, offset this effect if it reduces liquidity constraints, enabling individuals to borrow more readily in order to offset such "forced" saving.

- portfolio regulation versus prudent man rules for funded pensions and
- mandatory indexation or discretionary indexation of benefits.

### *VI.3 Fixing the Baseline for a Partial Transition*

The changeover of (part of) of existing pension entitlements from the PAYG system to funded arrangements alters the legal bases of pension claims drastically. Under PAYG pension promises are essentially conditional and the debt arising as a result only contingent. PAYG pension promises are not legally enforceable, they are not alienable and, under most legal systems, can be altered by subsequent Acts of Parliament in essential respects, as long as certain constitutional principles are not infringed. Funded pensions, especially those based on individual accounts, are far more closely associated with the individual and share many more of the characteristics of other assets held by individuals. Conversion of a PAYG entitlement to an equivalent entitlement to a funded pension will involve a considerable welfare gain for the individual involved. The other side of the coin is that it involves a far greater public outlay.

Under this reasoning, unless it is the objective to benefit the current generation even more, pension entitlements under PAYG should be made considerably less generous *before* they are transferred.[63] Otherwise the public finance implications of the transfer could be such as to mortgage public finances for many years to come. In other words, one needs to fix the baseline first, before the actual transition to more prefunding can start.[64] The kind of changes considered are frequently labelled 'parametric' changes. Because prefunding needs a brief time between announcement of reform and the actual introduction (such that the first cohort has a minimum time to accumulate capital), this "fixing the baseline" is not a major procedural problem. As Barr (2000) makes clear, parametric and systemic changes are complements and not substitutes.

In thinking of the PAYG implicit debt it is necessary to differentiate conditions affecting entire age cohorts and those affecting specific "privileged"

63. An argument pointing in that way is that pension entitlements under PAYG hardly ever were preceded by actuarial studies; they could thus be held not to have been granted in perpetuity, byt were meant to address particular age cohorts, because of special circumstances pertaining during their working careers. Such could be historical events or participation in the social security system at a time when that did not cover the entire population.

64. A way this is often expressed is as going ahead with 'parametric' changes in the existing system, as opposed to more thorough-going systemic change, in the spirit of Chand and Jaeger (1996). See also Barr (2000).

occupational categories. In this context, it is perhaps useful to distinguish between "general debt" corresponding to rights enjoyed by *all* members of a cohort and "specific debt" corresponding to rights enjoyed by particular subsections of the population. Cogent arguments could be made that "general debt" should be financed by society at large through general revenue. On the other hand, for "specific debt" ways of finance involving a larger part of the burden to be borne by the groups concerned should be sought.[65]

The approach of distinguishing between "general" and "specific" debt was investigated by the consultants' report on the PPC pension arrangements (see Box 8-3, PWC, 1998). In the actuarial study, the overall balance affecting PPC pensions was evaluated, first under current arrangements and then under the hypothetical arrangement that PPC personnel was insured (as other electricity producers will be in future) by IKA-TEAM for primary and supplementary pensions. The "specific" part accounts for only about a third of pension liabilities, which gives a measure of the extent of generosity of both the general system and the extent of "privileges". Their recommendation was for PPC to be integrated in financial terms into IKA (so as to receive the PAYG guarantee) and for the over-IKA part to found a new funded pension fund following the rules for (private) occupational insurance. For the general part, PPC employees will be treated symmetrically to all private sector workers. Finance for the pension fund could be sought by transfer of assets from the PPC, from shareholders and from contributions.

The approach of distinguishing between general and specific entitlements could be pursued further. In particular, it could allow occupational groups to exercise a choice between relinquishing particular "privileges" or financing them from within the occupational group. Under this idea the State would signal in a clear way that it can underwrite pension entitlements only up to a certain maximum (which could differ by cohort), which (as in the PPC case) could correspond to the IKA-TEAM entitlement. Occupational groups would be allowed a period of 1-2 years in which to decide whether to found new funds to finance the excess or whether to opt for the (gradual) abolition of the offending details. In such a way, it would also be feasible to handle the issue of co-ordinating negotiations with hundreds of occupational groups and factions.

The dimensions that could be explored in order to reduce the outstanding implicit debt have not been outlined in an exhaustive fashion by anyone. OECD (1997) provides some ideas. Such measures could include:

65. This idea was first broached by the Spraos Report (1997). It is discussed in greater detail by Tinios (1999c).

- Disallowing differences between men and women in retirement ages. In particular abolishing provisions favourable to mothers of underage children, unmarried or divorced daughters. Part of the savings to be directed towards providing child care facilities for working mothers.
- Radically overhauling the list of "Arduous and Unhygienic" occupations. Adding some new occupations, removing the vast majority. Combining the removal of pension privileges with a return of the capitalised value of the arduous surcharge for those declassified.
- Adjusting accrual rates so as to reduce replacement rates.
- Altering the regulations, which serve as the gateway for earlier retirement, such as various kinds of long-service rules (most commonly 35 years).
- Rationalising the system of minimum pensions. Minimum pension protection to cover all the population, but under strict means test (instituting the so-called "national pension"). Protection to vary with age.
- Stricter controls for working pensioners and multiple primary pension receivers.
- Pension indexation to be to prices only for a specified number of years (for all kinds of pensions). Indexation arrangements to be reviewed after the passage of n years.
- Expanding the critical period for pension evaluation from 5 to 10 years in IKA. Other funds to follow suit in a specified number of steps.

## VII. Conclusions

The Greek pension system is in many ways a typical product of the "Mediterranean Welfare state". It is extremely fragmented, characterised by "islands of privilege in a sea of insufficient provision". When it was enacted in the 1950s, it was a success story in terms of limiting social exclusion. This function will also be needed in the future.

There are, however, serious troubles ahead. Pension expenditures, now already more than 12 per cent of GDP, will exceed 20 per cent of GDP within 20 years as the Greek population ages. The pure PAYG-financing mechanism has repercussions on labour and capital markets that will hamper future growth. Additional pressure will be put on the Greek pension system indirectly through the EMU deficit ceilings. Nonetheless, major pension reform has stalled since 1992, although the population ageing process is taking off rather steeply after 2005, only five years ahead.

We have tried to show in this paper that reform is indeed badly needed. This need is not due to financial viability considerations alone, but also results from

wider reasons, both social and economic. We have also shown that the Greek pension system still has a window of opportunity for reform that lasts until about 2005 when the ageing curve will get steeper. Pension reform can be made a win-win game for public policy. Because of the growth-enhancing effects of a reform, it is not, as is often claimed, a zero-sum game across generations.

Pension reform needs to fix the baseline first. This means that the PAYG system needs to be actuarially fair, transparent and restricted to a size that delivers a reasonable standard of living but not a full replacement of income – in particular for the upper half of the income distribution.

Pension reform then needs to introduce funded pillars to top up the PAYG pensions to the level of generosity that the populace is accustomed to. Such funded pillars can be occupational pensions based on group accounts and/or private pensions based on individual accounts.

Greece is not the first country facing severe demographic problems and contemplating pension reform. Switzerland and the Netherlands have introduced multi-pillar systems some 15 years ago; they now have lower contribution rates and nevertheless higher multi-pillar replacement rates than their neighbouring Germany. Germany has begun to understand the message, albeit slowly. A major multi-pillar pension reform, resembling our computations in Section VI, was introduced by the Red-Green coalition in Germany and passed by the Bundestag (parts of it admittedly in a watered-down form). Nevertheless, after a long period of inactivity, Germany now is a country where a multi-pillar pension reform is firmly on the agenda.

Indeed, Boeri *et al.* (2001) have shown in a recent paper that Germany is not an isolated case. Using survey data they show that a political majority for pension reform can be forged in Italy and in Spain as well, provided that the transition burden is stretched in a suitable way across cohorts, if the funded mechanisms such as occupational pensions manage to involve all employees and if the populace is sufficiently informed over the win-win situation vis-à-vis the otherwise unavoidable increase in contribution rates and taxes.

For Greece, the necessary, at the same time realistic and promising policy steps are therefore threefold: First, inform the populace about the current situation. As we have shown, Greece is —falsely— particularly optimistic about the future of its pension system. Second, fix the PAYG system. And third, extend the monolithic PAYG system into a multi-pillar system.

Similarly to the Netherlands and to Switzerland, such a reformed pension system will be able to continue to guarantee social protection in a future characterised by an ageing population. At the same time, such a mixed system will provide the platform for further economic growth by reducing the inefficiencies on labour and capital markets which the current pure PAYG system creates.

## Appendix: The Transition from Work to Retirement

The age of retirement is one of the most important parameters in a pension system. Extending the retirement age simultaneously increases the number of contributors and decreases the number of beneficiaries and thus has a double impact on the finances of a pension system. At the same time, the retirement age is one of the factors in the Greek pension system which are most misrepresented in the political and scientific perception. In many sources compiling international co mparative information, retirement ages are listed in Greece as 65 for men and 60 for women. How far does this correspond to reality?

The answer is: very little. The main reason is the huge difference between **statutory** (decreed by law) and **effective** (actual) retirement age. Most international comparisons use the **statutory** retirement age as the normal case. As pointed out in the main text, this "normal route" has a retirement age very much in line with the other OECD countries, plus an actuarially adjusted early retirement option. However, there are many other legal bases for earlier retirement without actuarial adjustment, creating strong incentives to retire earlier, and thus causing an enormous additional financial burden on the Greek pension system.

Table 8A-1 depicts the main pathways to retirement in IKA, based on the distribution of the about 45,000 new pensions that were awarded in 1997, stratified by their legal basis.

A number of interesting observations result from Table 8A-1:

- What is thought as "the normal case" of 65 years retirement for men and 60 for women affects only 15 per cent of men coming up for retirement and 30 per cent of women (20 per cent in total). A further 8 per cent of men choose the reduced pension at the age of 60. While benefits in this case of early retirement are actuarially adjusted, it is important to note that the actuarial reduction is not applied to the minimum pension. Since about 70 per cent of all IKA pensioners receive the minimum pension, it follows that the actuarial adjustment is not applied in the majority of cases.
- Over 40 per cent of men (16 per cent of women) are subject to variants of the "heavy and unhygienic" rules, giving the right to retire at 58 or earlier.
- An important minority of men (6 per cent) is entitled to long service pensions (35 years at 56).
- Approximately 10 per cent are subject to a very large number of special regimes. Examples would be the Olympic Airways flying personnel, who receive full pensions at ages before 45 (each year of contributions counting for double) returning Greeks from Egypt, Romania, etc.

**Table 8A-1. New Pension Awards by Legal Basis, IKA, 1997**
(Per cent of total)

| | *Men* | *Women* | *Total own right* | *Survivors* |
|---|---|---|---|---|
| **Old age pensions** | | | | |
| "Normal case" | | | | |
| (65/60; 15 years of service) | 15.4 | 31.3 | 20.6 | 32.1 |
| Actuarially reduced (60/55) | 8.5 | 18.0 | 11.6 | 6.2 |
| Parent of underage (55/50) | 0.1 | 10.0 | 3.4 | 0.1 |
| Arduous and unhygienic | 28.7 | 15.4 | 24.4 | 17.7 |
| construction workers | 13.1 | 0.1 | 8.9 | 3.0 |
| Long service | | | | |
| (35 years at 58/56 or less) | 6.0 | 0.5 | 4.2 | 1.7 |
| Other special cases | 10.5 | 9.1 | 10.1 | 12.1 |
| **Total old age** | **82.5** | **84.3** | **83.1** | **72.9** |
| **Disability pensions** | | | | |
| Disability over 80 per cent | 5.8 | 3.3 | 5.0 | 5.7 |
| Normal disability (67 per cent) | 2.1 | 0.6 | 1.6 | 0.6 |
| Blind & paraplegic | 1.5 | 2.5 | 1.9 | 0.0 |
| Accidents | 0.5 | 0.2 | 0.4 | 3.2 |
| Other cases | 6.1 | 7.4 | 6.5 | 17.4 |
| Psychiatric | 1.4 | 1.7 | 1.5 | 0.2 |
| **Total disability** | **17.5** | **15.7** | **16.9** | **27.1** |
| **Total pensions** | **100.0** | **100.0** | **100.0** | **100.0** |
| Total new pension awards | 45,223 | | | |

SOURCE: IKA.

• Finally, an important proportion (17 per cent for men and women) are able to claim disability pensions, mostly in the categories that entail equal rights with old age pensioners. (Under Law 1902/90 disability *under* 80 per cent entitles one to 75 per cent only of the old age pension. This reduction applies to minimum pensions as well.)

• The column on survivors has the original legal basis used by the deceased, so it is useful as showing how far current pensioners differ from their predecessors. Notable is the far larger importance of "normal" cases among survivors, the small size of long service pensions, as well as the larger prevalence of disability cases. The system as a whole thus appears to be well on the way to maturity.

The public sector provides even more privileges. This is apparent in Table 8A-2, which charts new pension awards for the government sector by years of service:

**Table 8A-2. New Pension Awards by Legal Basis and Years of Service, Government Sector, 1997**

| | | *By years of employment (per cent of total)* | | | | |
|---|---|---|---|---|---|---|
| *Category* | *Total* | *<20* | *20-24* | *25-29* | *30-34* | *35+* |
| Military | 1,850 | 4.3 | 2.2 | 8.4 | 55.1 | 30.0 |
| Civil servants | 6,640 | 4.4 | 14.8 | 19.0 | 38.1 | 23.6 |
| Local government | 561 | 24.8 | 3.9 | 18.4 | 32.3 | 20.7 |
| Church | 125 | 4.0 | 8.0 | 17.6 | 3.2 | 67.2 |
| Total | 9,176 | 5.7 | 11.5 | 16.8 | 40.7 | 25.3 |

SOURCE: IKA.

In the government sector (as well as in public enterprises such as the PPC, banks, etc.) retirement ages as such do not exist. Contributors have to complete a minimum number of years of employment, which in the case of mothers can be as low as 15 years, but in the usual case is 25. Since 1990, members have to reach a particular age (42 for mothers, 50-55 for men) to **collect** the pension. They thus have the option to secure the right to a pension with the minimum employment period and either to seek employment elsewhere or stay at home. Many women, though few men, exercise this option.

The multiplicity of statutory rights makes clear that the "normal retirement age" is not representative of actual retirement behaviour. This can be seen in the breakdown of the **effective age of retirement** of new entrants into the pension system, shown in Figure 8A-3.

Figure 8A-1 depicts the distribution of ages at retirement in IKA, separately for old age and for disability pensioners. The upper panel, for **old-age pensions**, shows that the vast proportion of women have retired already well before the statutory age of 60. A similar situation holds for men, who leave well before the statutory age of 65 and even before the age of 60. On the other hand, a significant minority of men retires after the statutory age of 65. The spikes of the distribution are readily explainable. For **women**:

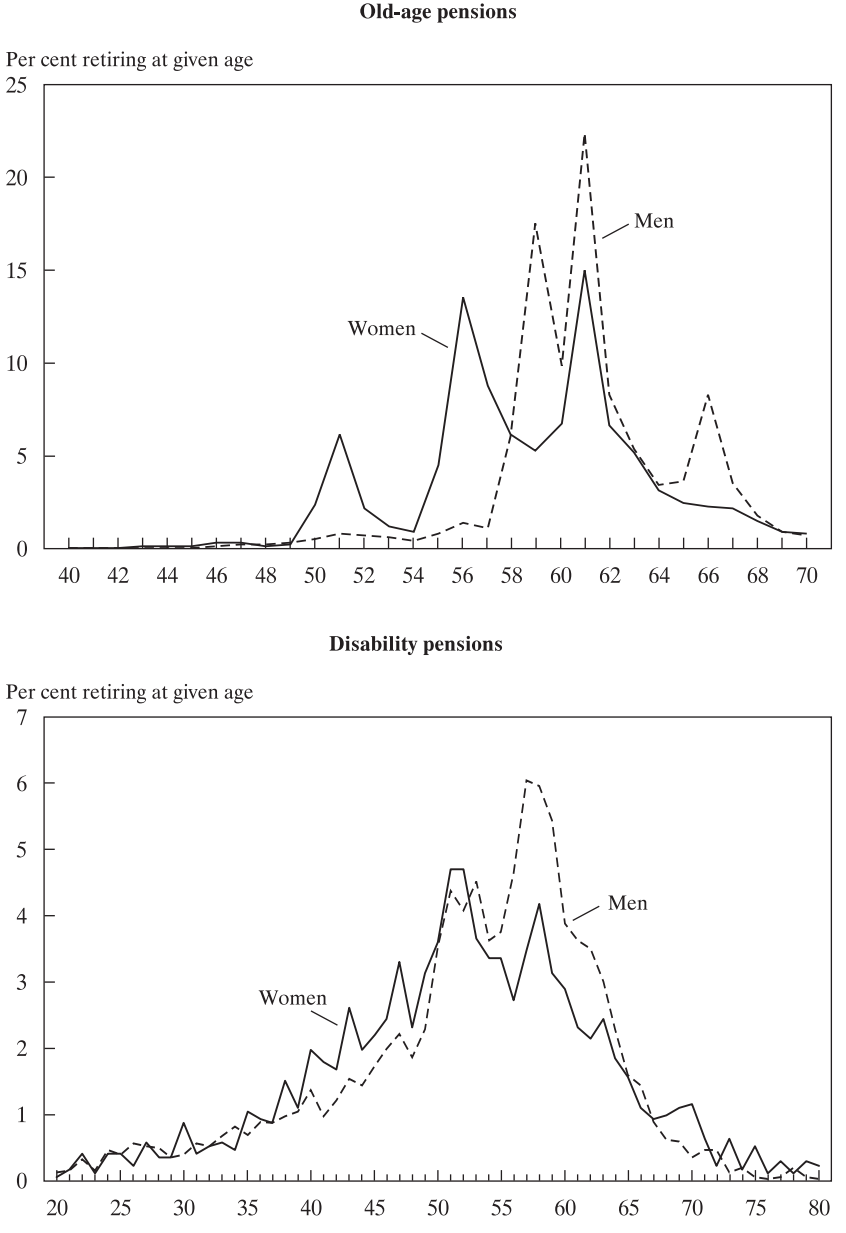
- Age 50, reduced pension for mothers of underage children.
- Age 55, full pension for mothers, reduced for normal case.
- Age 60, normal case for women.

For **men**:

- Age 58, for long service pension and arduous and unhygienic jobs.
- Age 60, for reduced pension of the normal case.
- Age 65, for full pension of the normal case.

Notable for both sexes is the large number of employees who choose to retire *after* the maximum retirement age. This group has the effect of increasing the average age of retirement substantially.

**Figure 8A-1. New Pension Awards by Age of Entry, IKA, 1997**




SOURCE: IKA.

**Figure 8A-2. New Pension Awards by Age of Entry, Civil Service, 1997**

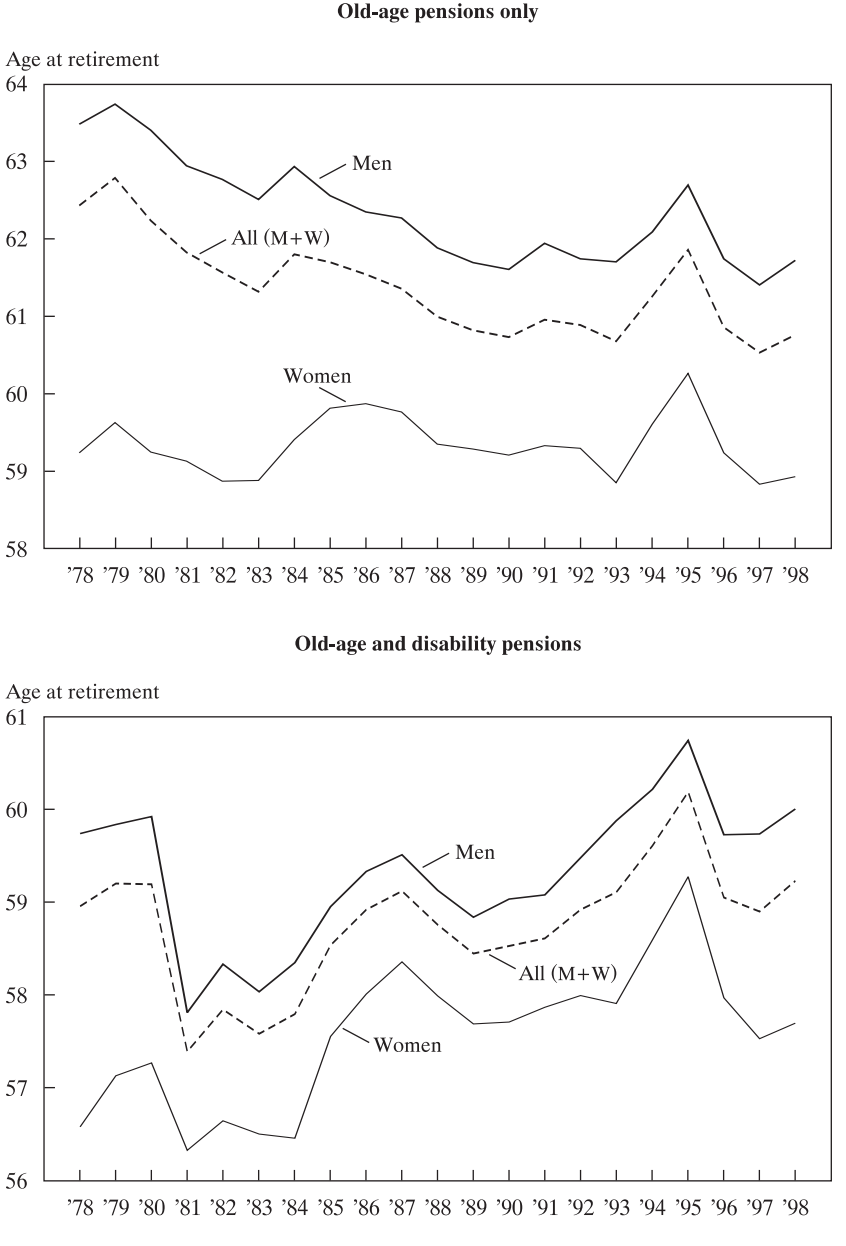

SOURCE: IKA.

The lower panel shows the equivalent age distribution for **disability** in IKA. The striking fact is that disability appears to follow closely the concentration of old age pensions, and in an important minority to postdate them. The modal value is actually *greater* than for old age pensions, while some 'new' pension awards occur at ages *above* 70. Thus disability pensions appear to play the role of substituting rights for those who do not have enough contribution years to secure an old age pension. The minor spikes reflect kinks in the legal entitlements. In general, the picture of disability pensions (with the exception of those at ages below 40) is not consistent with their interpretation as being caused primarily by health status.

Figure 8A-2 shows the equivalent distribution for a sample of pensioners who receive their pensions from IKA, but are subject to the legal framework of the **civil service**. Such workers (e.g. at the National Tourism Organisation) can be taken to be representative of civil servants (though not of *teachers*, who form a large group); their membership of IKA implies that age information is available, a kind of information that the Ministry of Finance does not publish. (The sample size is approximately 1,000.)

Figure 8A-2 thus gives an idea of the retirement behaviour in the government sector and closes the data gap caused by the fact that the government does not publish distributions of pensioners by sex and age. The data in Figure 8A-2 have to be treated with some caution, as they result from a

**Figure 8A-3. Average Retirement Age, IKA, 1978-1998**




SOURCE: IKA.

sample of around 1,000 pensioners and may not be representative. According to the figure, women civil servants appear to be in a hurry to leave the service the soonest possible. Many men do likewise (peak at 55), but important minorities stay on well past 65 years of age.[66]

The preceding analysis of retirement behaviour shows conclusively why to talk of *'the'* retirement age is a gross simplification. The centrality of the age of 65 in public discussion is out of all proportion to its significance in retirement. Indeed, a reduction of '*the*' retirement age to 64 would involve *delaying* retirement by more than 2-3 years for over 80 per cent of men applicants for pensions, in some cases by almost 8 years.

The discussion above makes the declining trend of retirement ages readily understandable (see Figure 8A-3).

Taking old age pensions alone, the period of 1978-1993 is characterised by a gradual fall in average retirement age, by more than 2 years on average. Women start from a far lower base and do not appear to exhibit a marked trend. In 1993, as a reaction to the 1990/2 legislation, a sharp increase in retirement ages occurs, followed by a reversal after 1995, which returns the average age to its trend line. The total pensions average age, which includes disability pensions, exhibits much greater volatility, caused by swings in the ease by which disability pensions are granted, as well as by the ratio of disability to old age pensions. The electoral cycle is also readily apparent. The increase after 1990 is more marked due to tighter enforcement of curbs on fraudulent disability pension claims. Nevertheless, the post-1995 fall is *more* marked.

Data such as those portrayed in Figure 8A-3 are especially worrisome for the system's prospects. They show that there are very strong in-built tendencies towards early retirement, which will be very hard to counter by legislation alone. For anyone understanding the incentives the system gives for early retirement, a picture such as that in Figure 8A-3 should come as no surprise. Such strong incentives may only be strengthened by what may be a very strong income effect resulting in a preference to leisure.

Reversal of the tendency towards earlier retirement should be a top priority of policy.

66. Certain civil servants, notably academics, have been known to falsify their birth certificates in order to be able to work beyond the compulsory retirement age of 68.

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## Comment by E. Philip Davis

This is a fine and comprehensive paper and I have very little substantive quarrel with the subject matter. It is however incomplete in its own terms. Moreover, I feel that the paper should go further in specifying the issues and options in pension reform, in order to be a framework for reform in the fullest sense. Hence my comments will be divided into two parts. The first notes what remains to be done to complete the proposal and provides detailed comments on the existing work. The second seeks to indicate how much further and more detailed thinking on structures and regulations must be undertaken before a true blueprint for pension reform has been created, and how crucial such choices can be to the success of funding.

As regards the comments I have on the paper itself, the paper is in itself incomplete as a reform proposal. There are various illustrations, e.g. from

the German experience, which need to be made on the basis of Greek information. Notably there is a need for simulation of patterns of plan financing and broader macroeconomic feedbacks, owing to the continuation of the current regime, and effects of transition to partial funding.

Some detailed points in the text are as follows:

First, how far can immigration help to eliminate problems of existing pension systems? This can in principle improve the Aaron condition by raising wage growth and reducing the old age support ratio. The overall ageing pyramid can be improved in shape, meaning that the problem is not merely postponed to the future. Of course there may be political difficulties for extensive immigration, even to a rapidly ageing society. But the issue is increasingly on the table at an EU level.

Second, I acknowledge that increased fertility can only help in the very long run. Nevertheless, I also note that authors appear to assume that fertility cannot be influenced by public policy. I am intrigued by the fact that the Scandinavian countries have the highest birth-rates in Europe, which may indicate that an attack on the opportunity cost of having children (e.g. by crèches, appropriate school hours) may have a contribution to make.

Third, on the fiscal side, it would be interesting to know more about the extent to which the large public debt in Greece relates to the cost of the pension system. There are further effects of EMU beyond the stability pact *per se* that should encourage reform. We can expect EMU to increase market discipline on the government owing to the fact that credit risk on government debt comes to the fore, putting downward pressure on ratings of governments with high future obligations, while domestic institutions are free to diversify across the euro area – although admittedly experience to date suggests that the effects of elimination of exchange rate risk may offset such effects on the cost of government debt finance.

Fourth, there are clearly offsetting forces identified in the text as to pressures for reform. On the one hand we are told that the new entrants system is a force towards consolidation of the pension system. On the other hand, it is pointed out that the window for opportunity for reform ends in 2005 when the ageing of the population will worsen. Which of these is likely to predominate?

Fifth, I would go further than the authors in citing reasons why a wholesale shift to funding is not advisable. While I agree that the diversification case is key, I would also note that only PAYG is able to redistribute income for poverty alleviation (acknowledged to be important in the Greek situation), that PAYG has lower administrative costs than funding and that occupational funded schemes may hinder labour mobility. The quality of the annuities market is crucial to the success of defined contribution pensions.

Sixth, to the benefits of the capital market, I would add that long-term institutional investors such as pension funds benefit the capital market notably by increasing the demand for long-term instruments such as bonds and equities. Since existing saving is reportedly low, they may also lead to increases in saving *per se*, by forcing individuals to save. Financial liberalisation may, however, offset this effect if it reduces liquidity constraints, enabling individuals to borrow more readily in order to offset such forced saving. More generally, while a degree of capital market development is needed for pension reform to be successful —and the regulation of the market needs close attention— there are also feedbacks of pension reform on the capital market, as the example of Chile has shown (Holzmann, 1997).

Finally, I may add that the UK pension cost illustration is only valid for personal pensions. Occupational funds offer much more economical provision, as will the government initiative on "stakeholder" personal pensions, where charges are to be limited to 1 per cent (Davis, 2000a).

I am, as noted, in thorough agreement with the thrust of the proposal in respect of partial funding. It seems to me to be much the best solution for the current Greek situation. I am also in agreement with the broad arguments given about benefits and costs of funding. But I felt that the coverage of this aspect left many questions unanswered. I was left asking, for example, whether the authors favour defined-benefit or defined-contribution pensions and whether personal and occupational ones. On the authors' side, I note that they are not unaware of this issue (they suggest that "this is not the place to discuss the many design issues of a mixed system"). But since such choices may have a crucial impact on the financial success or political acceptability of a strategy of funding within a given national context, I insist on their importance. I suggest that the questions to be addressed over and above the balance of PAYG and funding include the following:

- mandatory versus voluntary provision of funded pensions,
- the issue of fiscal privileges for private funded pensions,
- public versus private administration of funded schemes,
- occupational versus personal funded pensions,
- defined contribution versus defined benefit funded pensions,
- internal versus external funding,
- portfolio regulation versus prudent man rules for funded pensions and
- mandatory indexation or discretionary indexation of benefits.

I would like first to make some remarks on portfolio regulations illustrating the potential importance of design features to the financial success of funding, before suggesting a more general framework in which the costs and benefits of the different choices can be addressed.

**Table 8B-1. Estimated Returns on Pension Funds' Portfolios (1980-95)**
(Percentage points)

| | *Nominal return* | *Standard deviation* | *Real return* | *Standard deviation* | *Memo: 1970-1995 real return* | *Memo: 1970-1995 standard deviation* |
|---|---|---|---|---|---|---|
| UK | 15.8 | 8.7 | 9.8 | 9.7 | 5.9 | 12.8 |
| US | 13.2 | 9.2 | 8.4 | 10.9 | 4.5 | 11.8 |
| Germany | 9.7 | 7.0 | 6.7 | 6.9 | 6.0 | 5.9 |
| Japan | 8.9 | 9.1 | 6.9 | 9.4 | 4.4 | 10.2 |
| Canada | 124 | 10.0 | 7.5 | 10.6 | 4.8 | 10.0 |
| Netherlands | 9.2 | 6.3 | 6.3 | 6.7 | 4.6 | 6.0 |
| Sweden | 11.5 | 15.2 | 4.9 | 15.9 | 2.0 | 13.1 |
| Average | 11.5 | 9.4 | 7.2 | 10.0 | 4.6 | 10.0 |
| Prudent person | 11.9 | 8.7 | 7.8 | 9.5 | 4.8 | 10.2 |
| Prudent person (excluding Japan) | 12.7 | 8.6 | 8.0 | 9.5 | 5.0 | 10.2 |
| Restrictions | 10.6 | 11.1 | 5.8 | 11.4 | 4.0 | 9.5 |

SOURCE: Davis (2000b).

**Table 8B-2. Comparing Pension Fund Real Returns with Benchmarks**
(Percentage points)

| *Real return on pension funds less* | *50-50 domestic bonds and equities* | *Global 50-50 bonds and equities* | *Real earnings growth* |
|---|---|---|---|
| Canada | 0.9 | -3.2 | 7.2 |
| Germany | -3.7 | -2.6 | 5.3 |
| Japan | -2.7 | -2.0 | 5.5 |
| Netherlands | -5.0 | -3.5 | 6.2 |
| Sweden | -5.4 | -5.6 | 4.6 |
| United Kingdom | 0.6 | -0.4 | 6.9 |
| United States | -0.3 | -1.6 | 9.2 |
| Average | -2.2 | -2.7 | 6.4 |
| Prudent person | -1.8 | -1.9 | 6.9 |
| Prudent person (excluding Japan) | -1.6 | -1.8 | 7.4 |
| Restrictions | -4.6 | -4.1 | 4.9 |

SOURCE: Davis (2000b).

On the appropriate regulation of portfolios of pension funds, as the authors point out, the difference between the return on capital market instruments and the return to PAYG is a key aspect of the benefit of funding. There is of course a range of arguments on both sides for and against different types of regulation, see Davis (2000b). Tables 8B-1 and 8B-2, drawn from that paper, show the difference that portfolio restrictions have (limiting investment in volatile but high-return assets) as opposed to pru-

dent man rules (which focus on the process of investment, insisting that they be carried out as if by a prudent person managing its own investments).

Points to note are that sectors with asset restrictions have much lower returns than those with prudent man rules and that these shortfalls are even greater when the opportunities available in the domestic capital market ("benchmarks") are taken into account. Nor is it only a question of returns. Risks are much higher in the case of restrictions that prevent international investment, which force pension funds to incur unnecessary systematic risk, which could be eliminated by diversifying globally. A note of caution is that the level of returns shown in the tables may not be sustainable over the long term.

Turning to the more general question of how to consider the implications of the various choices, costs and benefits arising from each of these aspects can be addressed in several frameworks, including the following:

- retirement income security,
- financing issues,
- effects on labour markets,
- effects on capital markets.

There are also countries for each choice which warrant close attention in the light of their own past experience of pensions and pension reform.

Of course, it would be inappropriate for me as a discussant to present my own work in detail on this subject (see Davis, 1998). But to illustrate an approach to the types of question that need to be addressed and concluded in the next stage of the work, I highlight my recommendation in respect of the approach with material relating to one of the choices set out above, namely that of fiscal privileges for pension funds.

**The issue**: Pensions may be taxed at three points, when money is contributed, when investment income is earned and when retirement benefits are paid to scheme members. Should saving for (funded) pensions benefit from tax privileges or are these undesirable and unnecessary? The privilege considered is exemption of asset income (the expenditure tax). The alternative is to tax investment income (comprehensive income tax). A subsidiary choice is whether to tax contributions or benefit payments. The taxation of benefit payments offers benefits of tax deferral to recipients, and also gives a larger "pool" of saving on which income is earned.

**Assessment**: Whether there is a case for special treatment of pensions relative to other forms of retirement saving may depend on the view taken that contractual annuities, as offered by pension funds, have unique features in retirement income provision, absent from other forms of saving. Inability to dissipate pension funds prior to, and in most cases after, retirement is the

**Table 8B-3. Benefits and Costs**

| | *Privileges* | *No privileges* |
|---|---|---|
| **Retirement income security** | Increase the likely take-up of funded pensions when provision is voluntary, thus ensuring that post retirement living standards are maintained.<br>By appropriate provisions, can ensure that saving is in the form of contractual annuities which are the best means of protection against longevity risk (owing to myopia and consequent disregard of longevity risk, most people would not voluntarily save in this manner).<br>*Tax-privileged schemes often include tax-free lump sums, which are easily dissipated rather than being used for retirement income purposes.* | *Reduce the likely take-up of funded pensions when provision is voluntary.*<br>*If the tax authorities do not make the distinction between nominal and real returns (i.e. nominal returns are taxed) a comprehensive income tax also induces a growing distortion dependent on the rate of inflation which may impact on overall saving.* |
| **Financing issues** | *Increase the costs to the public finances of providing a given level of funded benefits, although an offset can be provided by lower social security burdens due to increased 'opting out' of state provision and/or means testing.*<br>*Are more likely to benefit high-income earners (i.e. tax benefits may be regressive).* | If there are no tax benefits and provision is compulsory, the costs to the State are reduced without loss of coverage.<br>*Increase the costs to the individual or the company of providing a given level of benefits.*<br>*Taxation of funds pooled across individuals with varying marginal tax rates is administratively complex and costly.* |
| **Effects on labour markets** | By encouraging development of occupational funds as a means of saving, enable the employer to take advantage of the uses of such funds for managing the workforce. | |
| **Effects on capital markets** | Minimise distortion of saving decisions (technically, with an expenditure tax the post tax rate of return equals the pre tax rate, and consumption is taxed at the same rate now and in the future)<br>May increase or reduce saving, depending on the income and substitution effect (distribution of target savers) and the effect on holdings of other financial instruments.<br>*If not universally applied, distort the choice of saving instrument towards pensions and away from other forms of saving.* | Treat equally the different uses to which income may be put —saving is seen as just another commodity, like consumption— and hence maintain neutrality between consumption and saving.<br>As a "second-best option" to an expenditure tax, maintain equal treatment for all types of saving<br>*However, they also reduce the incentive to save by driving post-tax rates of return below the pre-tax rate.* |
| **Country examples** | United Kingdom, United States, Netherlands. | Australia, Denmark, New Zealand. |

SOURCE: Davis (1998).

key feature in this regard. We consider the advantage of contractual annuities decisive and hence suggest that pension funds should be tax advantaged even if other forms of saving are not, as long as most or all of pension payouts are in annuity form. Measures to minimise abuse of tax privileges by high earners are nonetheless clearly justified, as are limitations to the degree to which benefits may be taken as lump-sums.

One may add that there are many other questions to address besides those mentioned, some of which are also relevant to pay-as-you-go schemes. These include the appropriate contribution rate, the floor and ceiling on contributions and benefits, the normal retirement age and any exceptions to it, treatment of civil servants and the self employed, sharing of costs between workers and employers, disability insurance, means testing, payroll and general taxation and treatment of survivors.

As noted above, besides the pension reform itself, more general aspects of capital market and financial institution structure and regulation need close attention. The areas in question include banking, insurance, payment services, the securities markets and issues in the legal, accounting and auditing areas. Although, as noted above, pension funds may spur capital market development, some preconditions still exist, although most should not be problematic for Greece. In more detail:

Local personnel skilled in asset management may be scarce, implying a potential need for joint ventures with foreign firms (Vittas, 1994). Pension funds, even if they benefit from tax privileges, may only be attractive when other financial assets such as deposits and bonds are (effectively) taxed. Laws governing prudence, self dealing, and other aspects of fiduciary behaviour and concerning enforcement of financial contracts, settlement of property disputes and bankruptcies are necessary prior to introducing funding to prevent excessive financial risks (Turner and Rajnes, 1995). To be effective, social security and pension reform requires a streamlining of the regulatory framework, with independent regulators having the right to intervene, including not only regulators of pension providers themselves but also providers of other financial services such as banking, insurance, payment services, the securities markets and issues in the legal, accounting and auditing areas.

A sound banking sector is an essential precondition for pension reform, as funded pensions typically hold some bank assets and hence weak banks threaten retirement income security (Mitchell, 1997); banks are also necessary (as providers of collateral, clearing, settlement and other services) for securities markets to grow and provide alternative pension fund investments. Efficient and liquid government bond markets are also essential, given the role such bonds play as pension fund investments in the early stages of finan-

cial sector development. The Asian experience shows that, lacking government bond markets, corporate bond issuance may also be hard to develop. Long-term debt requires a sound legal system so that contracts may be enforced or renegotiated. Also, a strong insurance sector —and a profession of actuaries— is needed in order to provide a competitive annuity market which is an essential counterpart to a defined-contribution pension fund sector, if individuals are to be protected against longevity risk. And sound macroeconomic policies and financial stability —which Greece should enjoy under EMU— are essential counterparts. Institutional investors such as pension funds and life insurers cannot function properly in a highly inflationary environment unless they are based on real assets such as equities and property and/or fully indexed debt contracts.

Clearly, difficulties relating to domestic capital market development may to some extent be overcome by allowing pension funds to invest offshore, raising issues as those noted in the main text. International investment may be essential if a reform is to commence in a situation where capital markets have not yet developed at all. It may also have external benefits such as helping funds to take advantage of modern accounting, regulatory and risk pricing techniques (Mitchell, 1997).

As regards my own overall preferences, I tend to favour the "World Bank" mixed solution of a pay-as-you-go system at a low level to redistribute and protect against old-age-poverty, with other retirement income needs fulfilled by a funded system. A mixture of both approaches has a benefit with regard to the diversification of investment, insolvency and political risks. Among other choices, I tend to prefer a voluntary to a mandatory funded scheme, benefiting from fiscal privileges, with assets administered privately, mainly occupational funds which may be of either the defined-benefit or the defined-contribution type, being externally funded, having prudent man rules for asset allocation and limited mandatory indexation of benefits.

It is important to add, though, that the optimal choices are likely to differ strongly between countries depending on the underlying structural situation; notably, the state of the existing pay-as-you-go scheme, the development of capital markets, existing private schemes and willingness to allow international investment. In other words, pension reform must be carefully tailored to the existing circumstances of a country. For example, portfolio restrictions may be appropriate as a temporary measure early in the process of financial development; occupational schemes require a financially viable corporate sector. So careful crafting in the light of the Greek situation will be required.

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# 9 The Greek Labour Market

Gary Burtless

IN THE FIVE YEARS after 1995 the Greek economy grew at an annual rate of 3.2 per cent, substantially faster than the rate of growth in the European Union as a whole and faster than Greek growth during the previous 15 years. In spite of this impressive performance, Greece remains a relatively poor part of western Europe. A recent survey of the Economic Commission for Europe notes that real GDP per capita in Greece is now a smaller fraction of per capita GDP in the European Union than it was in 1973 (Economic Commission for Europe, 2000, p. 166).

Greece's lagging economic progress since the 1970s can be traced in some measure to problems in its labour market. In part, these problems are reflected in high joblessness. Unemployment has risen dramatically since 1973. It averaged 2.3 per cent in the 1970s, 6.6 per cent in the 1980s, and 9.0 per cent in the 1990s. Other European countries have suffered much worse rates of unemployment, but few have combined such a disappointing performance on joblessness with such slow progress in improving the average productivity and living standards of workers.

This paper examines the structure and institutions of the Greek labour market to find clues that might explain the experience of the past two decades. The first section describes the legal framework that regulates the rights and responsibilities of workers, employers and labour unions. It explains the system of social and legal protection defining employer responsibilities towards workers in the formal sector. The section also describes collective bargaining, employment protection and Greece's costly system of

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social insurance. The second section considers evidence on the evolving labour market structure and trends in the job-holding rates of different classes of potential worker. It compares the Greek labour market with other labour markets in southern Europe and the United States. It investigates the reasons that output per person in Greece falls so far below output levels in other industrialised countries. The paper concludes with brief recommendations for reform.

In common with most European countries, Greece has established a variety of institutions to regulate the behaviour of employers and to protect the interests of workers employed in the formal sector. Hours and conditions of employment are subject to extensive government regulation. Workers must receive advance notice before they can be dismissed. They must be offered paid vacations, sickness pay, and severance allowances after they have worked in a job for only a few months. Greece has created an expensive and complicated system of public social insurance to assure that workers receive compensation when they become injured or unemployed, health insurance benefits when they are sick and pensions when they become disabled and reach old age.

None of these features of worker protection is especially unusual in the European context. What makes the Greek system interesting is that it was largely adopted when the average productivity and living standards of Greek workers were far below those in the countries where these institutions were first developed. When extensive worker protections were first introduced, a large percentage of the Greek workforce was employed in small-scale farming and in modest family businesses. The striking feature of today's labour force is that so much of it remains in small-scale farming and in modest family businesses. The share of Greek workers who are self-employed is the highest in the OECD. The percentage which works as unpaid assistants in a family business is the highest in the European Union. In 1997 just 55 per cent of the Greek workforce was employed in wage and salary jobs. The comparable percentage in Spain was 76 per cent. In the United States, it was 92 per cent.

Greece has established a legal and regulatory environment that is not friendly to the creation of wage and salary employment. The unfriendly environment for dependent employment would not represent a problem if the alternatives to this kind of employment relationship were equally efficient. In many cases, they are not. Sole proprietorships and family businesses are efficient producers in some circumstances. But they are poorly equipped to take advantage of economies of scale in production. A vast range of empirical evidence, including evidence from Greece, suggests small firms pay lower wages

and produce less output per hour of labour input. The experience of the richest industrialised countries shows that larger firm size is closely associated with improvements in productivity. Large firms have greater scope for worker specialisation, have better access to capital financing and have more resources to invest in research, development and worker training. Sole proprietorships and family firms enjoy one big advantage over larger companies. They do not need to observe the legal restrictions that regulate workers' wages, hours, vacation and sickness compensation, separation allowances and dismissal. Perhaps even more important, they are much more efficient than large firms in evading contribution requirements for social insurance. If the cost savings of these advantages are sizeable, small firms will continue to prosper even though they are less efficient than large firms in production.

By creating hurdles to the creation of wage and salary jobs, Greek institutions have favoured employment creation in the informal and small business sector. This has slowed the reallocation of labour towards more productive uses.

## I. The Greek Legal Environment

The institutional framework regulating the formal labour market in Greece is the product of a long tradition of state intervention in industrial relations, employment protection and worker benefits.[1] In many respects, the specific features of the Greek environment should be familiar to observers from other European countries, for they mirror the institutional arrangements that exist in many other societies. This summary focuses on four main aspects of Greek labour market regulation and worker protection: the system of collective bargaining; the determination and evolution of the minimum wage; regulation of job security and hours at work; and social insurance protection.

### *Industrial and Labour Relations*

The goal of collective bargaining is to resolve disputes between employers and workers with respect to pay and other conditions of employment. The basic framework for collective bargaining in Greece was established by Law 3239 of 1955. Although the law was superseded by Law 1876 of 1990, its main

1. The following discussion of Greek labour market institutions draws heavily on Sabethai (1986, 1996 and 2000).

provisions were influential in determining labour-management relations during most of the post-war period. The 1955 law applied to all wage and salary employees in private employment contracts, including workers in private companies and state-owned enterprises, and non-permanent civil servants.

The law distinguished among four types of labour agreement: national general agreements; national agreements in a single industry or occupation; local agreements in a single industry or occupation; and special agreements. The current labour law, enacted in 1990, adds a fifth type of agreement, the enterprise agreement. Of these the most important is the national general agreement, which is negotiated between the General Confederation of Greek Labour and the three major employer organisations. It establishes the rate of increase of minimum pay in the nation as a whole, which is crucial in determining wage gains in the more specialised labour negotiations. In particular, the national general agreement determines the level of the Greek minimum wage, which acts as a legal floor on wages negotiated in lower-level agreements. Somewhat less important are single-trade agreements, which set contractual rates of pay in major industries or occupations, and a handful of special agreements, which set wages in a few major firms and public utilities. Agreements at the enterprise level have become more important since the early 1990s.

If negotiations between unions and employer associations are unsuccessful, the contending parties can request mediation from the government. Until 1991, if mediation failed to resolve a labour dispute, the controversy was put to compulsory arbitration. The task of arbitrating disputes fell to tribunals made up of a judge and representatives of the government, trade unions, and employers' associations. In practice, the government-appointed members determined the outcome of the arbitration by favouring either the union's or employer's position. Obviously, government-appointed members of tribunals were decisively influenced by the government's current policy towards acceptable pay increases. The power of the government over wage settlements was overwhelming in 1983 and again in 1986-87, when the wage policy of the administration was made legally binding on the parties to the negotiation. In those years, negotiated wage increases above and beyond those allowed by the government were declared void. Public or private enterprises that granted prohibited pay increases were subject to financial penalties, and strikes that were declared in order to obtain a better settlement than was provided by law were declared abusive and illegal.

Although the compulsory arbitration system in effect from 1955 to 1990 might seem to have weakened the position of unions, in many cases union negotiating strength was actually enhanced by the system. Unions which had

little popular support among private sector workers could make implausible demands on employers, see their proposals rejected by the other side and then demand government arbitration of the dispute. Unions without any real claim to represent a large fraction of the workforce could gain negotiating power on the strength of their formal right to be a party to collective bargaining negotiations. Even though the ultimate (arbitration-imposed) settlement of their dispute might be far less favourable than the union's original demands, it might be far more advantageous than the one the union could have secured if it had to depend on workers' willingness to participate in a strike.

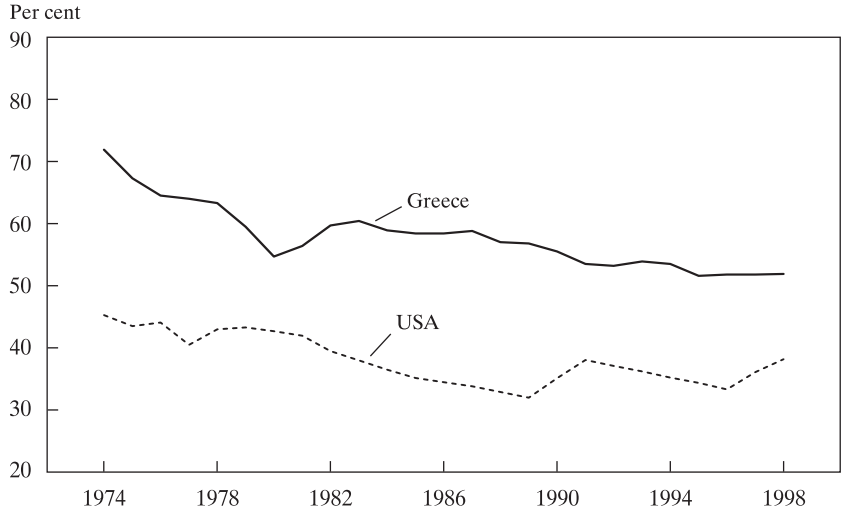
The 1990 law freed collective bargaining from direct government control by abolishing compulsory arbitration. This reform has had a noticeable impact on the outcome of collective bargaining negotiations. From 1975 to 1990 there were more than 5,000 collective bargaining agreements. One-half of the agreements were reached as a result of negotiation or mediation, while the remaining one-half were imposed by compulsory arbitration panels. Seven of the seventeen national collective labour agreements were imposed by a tribunal. Since 1991 collective agreements have been the product of voluntary negotiation or mediation rather than arbitration. Since 1990, all collective bargaining disputes at the general national level were resolved through negotiation or mediation. Most observers agree that today's environment for resolving Greek labour disputes is far healthier for both unions and employers than it was before 1990, when compulsory arbitration was the norm. Both unions and managers have a greater stake in proposing plausible bargaining positions and engaging in serious negotiation with the other side. They have less reason to offer impractical proposals that have little appeal except possibly to a politically appointed arbitrator. Significantly, the number and impact of strikes have dropped sharply since 1990.

According to ILO estimates, union membership in Greece currently includes about 25 per cent of the country's wage and salary workforce. This represents a drop of roughly one-third compared with union density in the mid-1980s (Bureau of Public Information, International Labour Office, [http://www.ilo.org/public/english/bureau/inf/pkits/wlr97.htm], World Employment Report 1997-1998, Table 2).

### *The Minimum Wage and Wage Formation*

The Greek minimum wage is determined by the legally binding national general collective agreement, negotiated by the major employers' associations and the General Confederation of Greek Labour. That agreement estab-

**Figure 9-1. Minimum Wage as a per cent of Average Wage in Manufacturing, Greece and USA, 1974 - 1998**




SOURCES: Bank of Greece, Greek National General Collective Labour Agreements and US BLS.

lishes a minimum daily wage for blue-collar employees and a minimum monthly salary for salaried workers. The minimums are applicable to all private-sector employers and public enterprises. The negotiated minimum wage can be improved in lower-level bargaining, but a lower-level agreement cannot produce a lower wage than the nationally negotiated minimum. In most cases, the industry-specific and occupation-specific minimum wages are above the level set in the national general agreement.

The evolution of the national minimum wage is displayed in Figure 9-1. To calculate the numbers in the figure I divided the minimum daily wage payable to unmarried, inexperienced workers in private employment by the average gross hourly earnings (multiplied by 8) of blue-collar employees in manufacturing. For purposes of comparison, the figure also shows the US federal minimum wage divided by hourly gross earnings of production workers in US manufacturing. In relation to the average wage of production workers in manufacturing, the Greek minimum wage is substantially higher than the US minimum. Between 1974 and 1998 the Greek minimum wage averaged 58 per cent of the average manufacturing wage, while the US minimum averaged just 38 per cent of the average US manufacturing wage.

This difference understates the relative impact of the minimum wage on formal sector employment in Greece. Because mandatory employer contri-

butions represent a much higher percentage of money wages in Greece than in the United States, Greek employers face a legally binding constraint on compensation for lower productivity workers that is much higher relative to average productivity than is the case in the United States. US employers are obliged to make a contribution for social insurance that represents roughly 10 per cent of a worker's money wages. They are not required to offer sickness or vacation benefits that reduce the percentage of time paid that is actually spent by employees at work. Formal sector employers in Greece must contribute almost 30 per cent of money wages for social insurance, and they are required to give employees paid vacation benefits that are generous relative to those provided (voluntarily) by US employers. In the United States, an employer paying the average manufacturing wage is likely to provide non-wage compensation that represents 20 per cent to 24 per cent of cash wages. Less than half of this is a compulsory contribution for public social insurance or legally mandated benefits. Most US employers pay workers for more hours than are actually worked, but this is voluntary or negotiated with labour unions rather than a matter regulated by law. Because low-wage American workers typically receive few fringe benefits that are not required by law, a minimum-wage US worker receives a much smaller percentage of average US compensation than is implied by comparing the minimum wage to the average money wage. By contrast, in Greece the ratio of the minimum wage to the average money wage is a much closer approximation to the ratio of total compensation paid to a minimum wage worker and the total compensation paid to an average worker.

In both Greece and the United States the minimum wage has drifted downward in relation to average blue-collar wages in manufacturing. In the fifteen years after 1983, the ratio of the Greek minimum wage to the average manufacturing wage fell 8.5 percentage points, dropping from 60.4 per cent in 1983 to just 51.9 per cent of the average blue-collar wage in manufacturing. Perhaps surprisingly, most of the decline occurred before 1991, when the compulsory arbitration provisions of the labour relations law gave the government a large influence on the terms of the national collective agreement. The parties to the national wage negotiations were acutely aware of increasing Greek unemployment, which more than doubled between 1981 to 1998, climbing from 4 per cent to 10.8 per cent. The economic and political pressures stemming from higher joblessness placed an obligation on negotiators to offer employers greater flexibility in setting starting wages of inexperienced and low-skilled workers. However, some of this flexibility with regard to minimum money wages was offset by higher mandated contributions to social insurance funds (see below).

In the Greek private sector the earnings of a typical worker are made up of the basic wage and of various benefits or allowances that are calculated as a percentage of the basic wage. The most common allowances are the seniority allowance (5-10 per cent of the basic wage for every three years of work with the same employer), the family allowance (another 10 per cent of the basic wage for married workers), the allowance for arduous work (another 10 per cent or 15 per cent of the basic wage) and the higher education allowance (another 20 per cent of the basic wage for white-collar workers with post-secondary degrees, such as university diplomas). A given collective agreement provides for a range of basic wages for different categories of skill and responsibility. In most of the private sector, contractual earnings negotiated in collective agreements represent minimum daily or monthly payments. These minimums can be exceeded by the actual wages that employers promise to pay individuals in their individual employment contracts. In the public sector, actual earnings paid to a worker always coincide with the contractual earnings amounts.

The previous section described the role of the government in mediating or arbitrating disputes between unions and employer associations, both before and after the compulsory arbitration provisions of the law were changed in 1990. Up to 1981 the government formulated incomes policy guidelines every year, which were then enforced through legislation (which determined the wages of permanent civil servants), through moral suasion on unions and employer associations and through the compulsory arbitration process that has already been described. The guidelines took the form of either a uniform rate of increase for all wages or differentiated pay increases that favoured one class of worker over another. In 1980, for example, the guidelines allowed for 15 per cent wage increases in the private sector and an 11 per cent increase in the public sector.

In 1982 the guidelines formulated by the new PASOK (Socialist) administration were tilted heavily in favour of workers earning low wages. Workers were to be given wage increases that were inversely proportional to the level of their monthly earnings, with workers in the lowest earnings category receiving a 35 per cent hike, workers with average wages receiving a 10 per cent hike, and workers in the highest earnings categories receiving no pay increase at all. Following these pay increases, the guidelines provided for the introduction of a partial indexation system, which gave workers wage increases at four-month intervals linked to the consumer price index. The portion of a worker's wage below 35,000 drs. per month was fully indexed, and components of the worker's pay above that amount were indexed at successively lower rates. The portion of wages above 80,000 drs. per month was not indexed at all. Depending

on the rate of price inflation, this scheme could obviously produce substantial compression in wages. The thresholds were adjusted in later years, and the government changed the indexing formula to reflect inflation targets rather than actual past inflation. The basic goal of reducing pay disparities was a prominent feature of the government guidelines over the next few years, however.

If individual earnings had been entirely determined by the government's guidelines, pay disparities would have declined sharply between 1981 and 1986. At the end of 1981, earnings for an "average" worker were 2.4 times the minimum wage. By 1986, the government guidelines implied that average earnings should be just 1.9 times the minimum wage. In 1981, earnings for a "high-wage" worker were 5.3 times the minimum wage. Under the government guidelines, by 1986 they should have been just 3.1 times the minimum wage. As can be seen in Figure 9-1, the government guidelines were not fully reflected in actual wage settlements. Already in 1984 the trend towards narrower pay differentials had begun to reverse. By the early 1990s, all of the compression in wages that took place between 1980-1983 had been eliminated, at least if we measure pay differentials using the percentage gap between the minimum wage and the average wage in manufacturing. Nonetheless, the wage compression of the early 1980s placed enormous pressure on formal sector employers, especially with respect to hiring low-skilled workers and retaining high-skilled workers. Because the relative cost of low-skilled and inexperienced labour was pushed up rapidly in an era of shrinking aggregate demand, formal sector employers' willingness to hire unskilled workers almost certainly declined, contributing to the sharp rise in Greek joblessness during that period.

### *Job Security Law and Regulation of Hours at Work*

According to a new OECD survey, Greece maintains some of the most restrictive employment protection laws in the industrialised world (Nicoletti, Scarpetta, and Boyland, 2000, p. 46). Laws dating back to 1920 regulate the dismissal of workers who have regular employment contracts, that is, who are permanent employees. A worker on a regular contract who is employed for two or more months may not be dismissed without prior written notice of 5 to 60 days, depending on the worker's job tenure at the time of dismissal. Blue-collar workers receive severance pay equal to at least 5 days' pay in the case of a worker who has been employed less than a year. Blue-collar workers receive 125 days' pay if they have been employed at least 25 years. Mandatory severance pay is even more generous for white-collar

(salaried) workers, ranging from one month's up to twenty-four months' salary depending on the worker's tenure at the point of dismissal. If an employer gives workers sufficient advance warning of termination, these payments can be cut in half (European Commission, Labour Market Studies: Greece, 1997, p. 60). The different standards for calculating severance pay for different classes of worker make it more expensive to terminate salaried than hourly wage workers. The severance payment amounts to 3.5 per cent of a blue-collar worker's cumulative pay if he is dismissed after six months on the job; the payment represents 17 per cent of a white-collar worker's salary if he is dismissed after six months.

The law on mass dismissals is even more restrictive (Law 1387 of 1983 as modified by Law 2874 of 2000). Establishments with 20 to 199 employees can only fire up to 4 employees per month. Larger establishments have the right to fire up to 2 per cent of their employees every month. If the number of a firm's terminations exceeds the limits set by law and regulation, the dismissals are considered invalid and the workers are restored to their previous labour contracts. Companies can apply to the Ministry of Labour for exemption from the limits, but exemptions are hard to obtain and infrequently given. Companies that face financial difficulties can lay off workers for up to 3 months per year, but they must pay laid-off workers one-half their wages. In effect, the law on temporary layoffs permits employers to reduce their labour input by up to 25 per cent while allowing them to cut their wage bill by half this amount, or 12.5 per cent.

The strict laws on individual and mass dismissals deter companies from shrinking their payrolls to accommodate a slump in product demand, but they also provide powerful disincentives to expand payrolls when demand is rising. Thus, employers were usually induced to respond to rising demand by adding to overtime hours or the number of fixed-term-contract (temporary) workers instead of the number of company employees. The Greek law on overtime hours places restrictions on firms' ability to use overtime to accommodate an increase in demand, however (see below).

The Greek regulations on temporary employment are regarded by OECD analysts as among the most restrictive in the industrialised world. All industrialised countries recognise that employers must sometimes offer fixed-term contracts for a period that might cover specific projects, seasonal work or temporary replacement of permanent employees who are on leave. Greek law permits short-term labour contracts under these circumstances. However, it does not provide employers much flexibility to offer temporary contracts under other circumstances in which temporary employment is usually permitted in industrialised countries. As an additional bar on the cre-

ation of temporary jobs, Greece also prohibits temporary work agencies, although this prohibition is being reconsidered by the government (Nicoletti *et al.*, 2000, p. 59).

*Work hours and vacations*. The maximum normal workday is 8 hours for employees on a 5-day-per-week work schedule. Overtime work must be compensated at a higher rate of pay than the one negotiated for standard hours, and Greek labour law imposes complicated limits on the amount of overtime hours that may be worked. Employers must report their use of overtime hours in excess of 8 hours per week to the Labour Inspectorate, and their use of overtime within any six-month period cannot exceed limits set by the Ministry of Labour. In effect, overtime beyond 8 hours and 39 minutes per week is considered illegal (which simply means that the required pay premium is higher than it is for standard overtime). Employees who work on Sundays or public holidays must receive a supplement to their normal pay equal to 75 per cent of the negotiated wage (European Commission, 1997, pp. 62-63).

Part-time work is regulated by laws passed in 1990 and 1998. These laws require that part-time work be remunerated on a strictly pro-rata basis. The same holds for social insurance contributions and benefits for workers on part-time schedules. However, contributions for part-time employees cannot be lower than those corresponding to daily earnings equal to 28 per cent of the minimum daily wage. While these constraints on part-time pay and contributions seem innocuous, the employment of workers on part-time schedules is not very common in Greece. In 1999, for example, the proportion of Greek women on part-time schedules was less than one-third the fraction on part-time schedules in the other EU-member countries.

Greece also requires employers to provide workers with paid vacation leave. Workers employed continuously for at least a year must be offered a minimum of four weeks' paid vacation time, and this amount rises slightly with tenures longer than one year. With special holiday bonuses, the daily rate of pay for vacation leave is actually higher than it is for standard work hours (European Commission, 1997, pp. 63-64).

## *Social Insurance Contributions and Benefits*

Greece provides social insurance protection to workers who are wage and salary workers as well as to farmers and the self-employed. Employees who are affiliated with approved occupational and establishment funds that provide benefits equivalent to those provided under the general system are exempt from the basic system. Of course, the cost of providing equivalent or

superior benefits under a separate system is often greater than the cost of the general system. The social insurance system provides a variety of different benefits, each financed with an earmarked contribution from employers, employees, and, in some cases, the government. The basic system provides old-age, permanent disability and survivor benefits to insured workers and their dependents, sickness, medical care and maternity benefits, protection against earnings loss from injury on a job, unemployment compensation and family allowances. The following discussion focuses on unemployment benefits and old-age and survivor pensions.

*Unemployment benefits*. By the standards of northern Europe, Greece offers parsimonious unemployment compensation. To collect unemployment benefits, workers must have been employed for at least 125 days in the first 12 of the most recent 14 months before becoming unemployed, and they must have lost their jobs through no fault of their own. (Job seekers who are between 20 and 29, who have been unemployed for more than a year and who have never held a job qualify for very small benefits. In addition, workers who have been employed 60 days in the past year may also be eligible for small lump-sum payments after they have been unemployed at least 3 months.) The standard unemployment benefit can last up to one year. It is calculated by reference to the worker's earnings in the period before unemployment began. Hourly wage workers can receive a benefit that is up to 40 per cent of their pre-layoff wages, while salaried workers collect benefits amounting to 50 per cent of their previous salaries. These percentages are somewhat theoretical, because the benefit is capped at a limit that is set by ministerial decree. The current cap is slightly more than half of the minimum wage. Workers typically receive less than the specified amounts if their earnings patterns prior to unemployment were erratic. Although the basic benefit is comparatively meagre, a supplement equal to 10 per cent of the benefit is paid for each of the jobless worker's dependents (European Commission, 1997, pp. 66-67). The eligibility criteria for unemployment benefits imply that only about half of Greece's unemployed are eligible for benefits. The majority of unemployed have been jobless for more than a year, so they are not currently entitled to basic benefits even if they received compensation at some time in the past (OECD, *Employment Outlook*, 2000a, p. 220). Many of the rest are young new job seekers who have not yet gained eligibility for benefits.[2]

2. In the mid-1990s, about half of the Greek unemployed received jobless benefits, although as many as two-thirds collected benefits in the early 1990s when the percentage of unemployed in long-term unemployment was substantially smaller (European Commission, 1997, p. A31).

It seems unlikely that over-generous Greek unemployment benefits can provide an explanation for high Greek unemployment, although it is possible that poor enforcement of the work test might boost the number of employed people who claim that they are jobless for purposes of collecting an unemployment benefit. Because the informal sector in Greece is large, it is feasible (though illegal) for people who work in the informal sector to claim they are unemployed and thus eligible for unemployment benefits. Meagre unemployment benefits might spur jobless workers to look diligently for jobs, but, if the jobs they find are in the informal sector, some of them might continue to report their status as "unemployed."

*Old-age and invalidity pensions*. Old-age and disability pensions are almost entirely the preserve of the public sector in Greece. Few workers are covered by a private pension plan. The public pension system is extremely segmented and complex. According to a 1997 survey by the OECD, the Greek system contained over 300 individual funds, with a wide variety of government regulations covering the accrual of pension rights in each fund (OECD, Economic Surveys: Greece, 1997, pp. 66-67). Law 2676, enacted in 1998, led to the consolidation, unification, or abolition of more than 60 pension funds, but the Greek pension system remains highly fragmented.

Most analysts classify the pension funds into five major types, with each covering an important segment of the Greek labour force. (Many workers obtain pension rights under more than one system.) The five classes of pension funds are displayed in Table 9-1, which also lists the principal groups of workers covered by each type of fund. The table shows the proportions of workers and other groups in the Greek population which derive social insurance coverage under the different types of funds, either directly —as a result of current or past contributions to the funds – or indirectly— as a result of the contributions of another family member. For active workers, the most common type of social insurance protection is provided by the Social Insurance Fund (IKA), the pension system that covers wage and salary workers in the private sector. The public employee pension system and special systems that cover wage and salary workers in public enterprises each cover roughly the same number of active workers. Almost one-third of workers are covered by the two pension systems for the self-employed, one covering farmers and the second covering proprietors, entrepreneurs and independent professionals outside of agriculture. Just 5 per cent of the employed and 6 per cent of the general Greek population have no coverage at all under the social insurance system.

The top panel in Figure 9-2 shows the distribution of average equivalent income in households insured under the five main types of social security plan. Some households contain members insured under more than one plan,

**Table 9-1. Distribution of Pension Coverage by Employment Status**[a]
Per cent

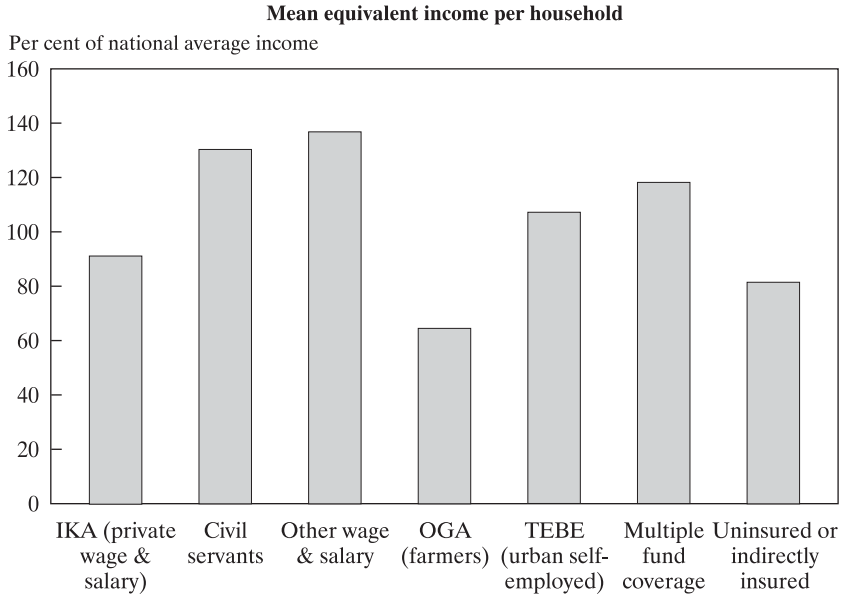
| *Type of insurance coverage* | *Active workers* | *Unemployed, retired, or disabled workers* | *Other* | *All persons* |
|---|---|---|---|---|
| (1) IKA - Private sector wage and salary workers | 38.2 | 33.9 | 1.4 | 26.2 |
| (2) Civil servants | 12.6 | 8.9 | 0.4 | 8.1 |
| (3) Other social security funds - public enterprises | 11.5 | 8.9 | 0.5 | 7.6 |
| (4) OGA - Self-employed farmers | 16.5 | 29.9 | 5.4 | 16.6 |
| (5) TEBE - Self-employed outside agriculture | 12.3 | 3.7 | 0.5 | 6.6 |
| (6) Indirectly insured under one of the funds | 4.2 | 6.9 | 86.7 | 29.3 |
| (7) Uninsured | 4.7 | 7.8 | 5.1 | 5.6 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |

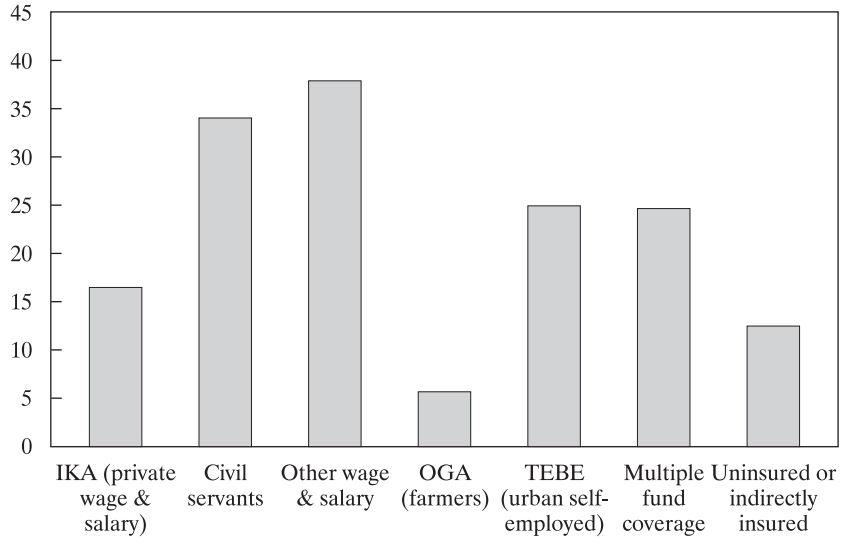
SOURCE: Tabulations of 1999 Greek Household Budget Survey.
a. Greek population 14-years old and older, 1999.

and those households are included in a separate category. Households containing a wage and salary worker employed by the state or state-affiliated enterprises receive the highest equivalent incomes. Households containing members insured under the system for the urban self-employed and households with a member insured under more than one system receive equivalent incomes that are closer to the national average. Surprisingly, households without an insured member receive incomes that are only one-tenth below those of households with a private-sector wage and salary worker. Not surprisingly, Greek farm households have equivalent incomes that are far below the national average. The lower panel of Figure 9-2 shows the percentage of households in each insured group which enjoys equivalent consumption that places them in the top one-fifth of the consumption distribution. These percentages correspond closely with those in the top panel of the figure. More than one third of households containing a state or state-enterprise employee enjoy a level of consumption that places them in the top one fifth of consumption distribution. Only 5 per cent of farm households enjoy a level of consumption that is this high.

Not only is the Greek social security system complicated, it is also very costly. Employer contributions for the main social insurance system, IKA, amount to almost 29 per cent of the gross money wage of a worker who is paid

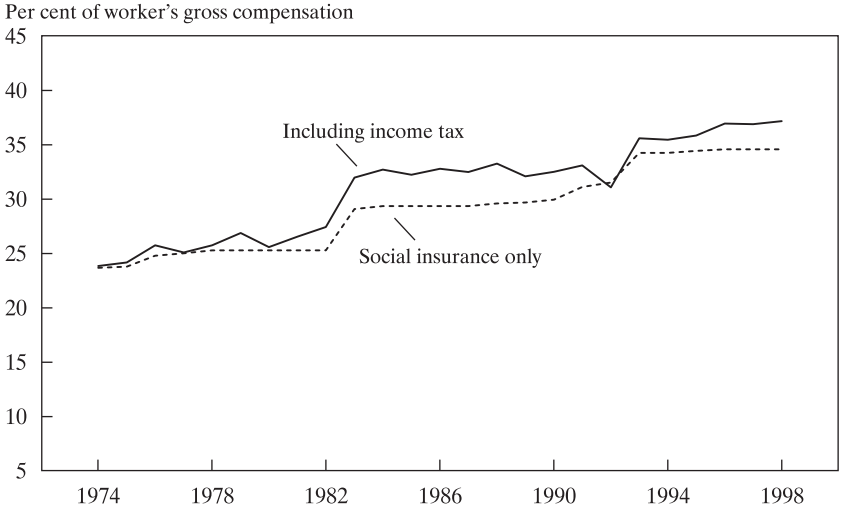
**Figure 9-2. Equivalent Income and Consumption Among Greek Households, by Social Insurance Plan, 1999**




SOURCE: Tabulations of 1999 Greek Household Budget Survey.

**Figure 9-3. Social Insurance Contributions and Income Tax Payments for Worker with Average Wage, 1974-1998**




SOURCE: Author's tabulations using historical data on mandatory employee and employer contributions to IKA social insurance fund for worker with average earnings.

the average wage. Worker contributions to IKA represent an additional 16.5 per cent of the gross wage. The combined employee and employer contribution to social insurance thus represents more than one third of gross compensation [(29 + 16.5): 129]. The contributions pay for health insurance premiums as well as primary and supplementary pension coverage.[3] Figure 9-3 shows the trend in social insurance contributions for an average-wage worker insured in the IKA system over the period since 1974. Contributions are measured as a percentage of the total hourly compensation paid by employers. The higher line reflects the total social insurance and income tax wedge faced by average-wage workers. It differs little from the tax wedge attributable to social insurance alone, because the income tax liabilities of average-wage workers are small. Because of the rising financial requirements of the Greek pension system, IKA contributions for the average-wage worker have risen by almost half since 1974, climbing from less than 24 per cent to 35 per cent of compensation.

3. The contributions also pay for sickness and maternity benefits, work injury insurance, unemployment compensation and family allowances. Because of large deficits in the main pension fund, a sizeable government transfer is needed to keep the system solvent. Thus, the total cost of the insurance programmes exceeds the combined contributions of workers and employers.

Although in principle the social insurance system covering the self-employed is similar to that covering wage and salary workers, the difficulty of collecting contributions from the self-employed makes their system in some sense voluntary rather than compulsory. Traders and self-employed business people in urban areas are insured under their own system. Most contributors to this system rationally declare that they have low incomes in order to minimise their contributions. In comparison with contributors to the IKA system, they make smaller contributions, although they typically do so for a greater number of years because the effective retirement age in their system is closer to 65 than it is to 60, the typical retirement age in IKA. Self-employed professionals are usually covered by their own occupational funds, which have rules that are broadly similar to those of the main fund for the urban self-employed. Their contributions to occupational funds are often supplemented by earmarked taxes or fees imposed on consumers, which sometimes produce more revenues than the participants' own contributions. Farmers are enrolled in still another social insurance programme, one that also requires its members to wait until 65 to collect an old-age pension. (Disability pensions may be collected at a younger age.) Farmers receive flat pensions that are substantially smaller than those paid to wage and salary workers and the urban self-employed. Until recently, however, they did not have to make contributions to collect a pension. The system covering farmers was financed out of the central government budget and earmarked taxes, rather than farmers' contributions.

If social insurance benefits were directly linked to each worker's contributions, the high contribution rate would not represent a heavy burden on dependent workers or their employers. Instead, it would simply reflect the percentage of total compensation that is paid to workers in a form other than money wages, for example, as future pensions or current health benefits. For many Greek workers, social insurance benefits are only weakly linked to contributions, however. Wage and salary workers and their dependents become eligible for health insurance as a result of contributing to IKA. This provides an incentive for one family member to make contributions to obtain coverage, but little incentive for other family members to contribute to the same or to other social insurance funds.

The incentive problems created by the pension system are even more severe, because pensions consume a much larger fraction of social insurance contributions than do health insurance benefits. Moreover, when workers become eligible to collect pensions (typically around age 60 for wage and salary workers in the private sector and age 55 in the public sector and public enterprises), the pension creates a direct incentive for workers to leave

formal-sector jobs. The low reported employment rate of older Greek workers suggests that this incentive has the expected effect. Many workers retire from social-insurance covered employment soon after becoming entitled to collect a pension.

The incentives for early retirement are even more pronounced in the public sector, including public enterprises. Pension rules in this sector encouraged early retirement and thus reduced job-holding among older workers, at least in the formal sector. Up until 1990, men in the public sector had the right to collect a pension after 25 years of service, and women could retire after just 20 years of service, regardless of age. Mothers of dependent children could retire after only 15 years of public sector employment. Dependent workers in the private sector can retire with a full pension after 35 years of service, regardless of age, though for workers in arduous occupations the service requirement is shorter. A pension reform in the early 1990s gradually restricted the early retirement privileges of public sector workers, with the aim of equalising the situation of wage and salary workers in the public and private sectors. Full equalisation was scheduled to occur in 1997 for women and 2004 for men (European Commission, 1997, p. 69)

Although many Greek workers complain that pensions are low, the more serious problem is that they are very capriciously linked to contributions. One reason is the existence of a minimum pension, which puts a floor on the benefit a worker can receive, regardless of the contributions he has made. A large percentage of pensioners receives a benefit that is equal to or not far above the minimum pension. Many workers qualify for a pension at the normal retirement age by making contributions for only the required minimum number of years (13.5 years until recently, when the qualification period was raised to 15 years). The normal retirement age in the IKA system is age 65 for men and age 60 for women.[4] By making contributions for an additional number of years above the required minimum, workers can boost their monthly pension, but in many cases the pension improvement is negligible. The OECD reports that a worker earning modest wages would need to work for 36 years —21 years more than the minimum qualification period— to become entitled to a pension that exceeds the minimum pension. A worker with annual earnings closer to the national average needs to work for 27 years —12 years more than the minimum qualification period— to be enti-

4. Women entering employment after 1993 will have the same normal retirement age as men, 65. Workers in arduous jobs can currently retire at younger ages – 60 in the case of men and 55 in the case of women. Retirement ages are lower for workers who have contributed for a greater number of years (US Social Security Administration, *Social Security Programs Throughout the World* – 1999, p. 145).

tled to a pension that significantly exceeds the pension the worker would receive if employed for the minimum qualifying period. The pension formula thus offers small incentives for many workers to contribute beyond the minimum qualifying period. The result of these incentives should not be surprising. The OECD reported in 1997 that ". . . the number of [new] retirees receiving the minimum pension rose steadily from some 14 per cent of total retirees in 1975 to near 60 per cent from 1985 onwards, so that 70 per cent of the total stock of pensions is currently at the minimum pension." (OECD, Economic Surveys: Greece, 1997, pp. 70-73).

For many workers there is little financial incentive to make contributions on all their labour earnings, since most of the current and future gains to be derived from contributions will be obtained by making the minimum annual contribution. This follows from the fact that many workers will receive the minimum pension regardless of the amount of their annual contribution. This is true for the urban self-employed as well as wage and salary workers in private companies. Even those workers who expect to receive a pension higher than the minimum would be well advised to minimise their contributions except in the last five years of employment, which are the only ones used to determine the worker's pension. (In comparison, the US social security system uses the average of 35 years' earnings to determine workers' pensions.) Workers making minimum annual contributions also become entitled to health insurance coverage, both for themselves and their dependents. The health and pension benefits provided by the Greek social insurance system obviously have substantial value. However, the Greek method of financing benefits provides powerful incentives for workers to evade the high contribution rates while still obtaining coverage under the system. Workers can receive coverage under the system while making contributions on only part of their lifetime earnings – the part earned in social-security-covered employment plus the part of self-employment income that is actually declared to the tax authorities. Greece's large informal sector makes evasion of social security contributions feasible as well as financially attractive. Even in the formal, social-security-covered sector it seems possible to evade part of required contributions. OECD analysts who have examined formal-sector wages using Greek national accounts data reckon that contributions from formal-sector workers fall short of the required amount by 20 to 30 per cent (OECD, *Economic Surveys*: Greece, 1997).

One way to view the Greek social insurance system is by the incentives it provides for different classes of workers to gain coverage under the system. As noted above, workers who have gained coverage by making minimal contributions for a number of years may not receive major rewards from mak-

ing additional contributions. Workers who are already covered as a result of the contributions of another family member may perceive only slight financial gains from obtaining coverage themselves. Thus, it might be much more important for the first family member to gain coverage than it is for a second or third to become covered under the system as a primary worker. Alternatively, both primary and secondary earners in a family may wish to become covered (in order to qualify for the minimum pension), but only one of them may wish to contribute one third of labour compensation to the system after the minimum qualifying period has ended.[5]

### *Interaction of Minimum Wage and Social Insurance Contributions*

Although the Greek minimum wage is among the lowest in the European Union, an undifferentiated minimum wage in combination with high nonwage costs can push up required compensation costs to levels that make it uneconomical to hire inexperienced and other unskilled workers. This outcome could be avoided if the government provided employment and training subsidies or steep discounts on required contributions for targeted workers, including first-time job seekers, who would otherwise be kept out of employment as a result of the minimum wage. Until the mid-1970s, the Greek national general collective agreement provided for a lower minimum wage for young people. This distinction was found to be contrary to both the Greek Constitution and European Community law. Recently Greece has begun to allow private-sector employers to deduct from their taxable income one half of their contributions for newly hired workers, reducing the net cost of hiring inexperienced workers. Minimum-wage workers have also been exempted from part of the employee's required contribution to social insurance (see below).

The latter measure represents the first adoption in Greece of a new approach towards making work pay, that is, providing low-wage workers with improved

5. The payoff from making contributions for an additional year depends on the point in the worker's life at which covered employment began. Workers who do not enter covered employment until middle age probably should aim to contribute for the minimum number of required years to obtain a minimum pension at the normal retirement age. Workers who first obtain a job in the covered sector early in their careers can benefit from early retirement pensions. Men who have worked in IKA-covered jobs for 33 years qualify for a full pension at age 62 rather than 65. Women with 33 years of contributions qualify for a full pension at age 57 rather than 60 (US Social Security Administration, 2000, p. 145). Workers with fewer years of coverage can collect early pensions, too, but the pension is subject to actuarial reduction proportional to the number of months between pension acceptance and the normal retirement age.

incomes in work as opposed to in unemployment. The reform is expected to stimulate labour supply among the least skilled. It is similar to, although much less generous than, a broadly targeted programme in the United States called the Earned Income Tax Credit. That credit provides low-income workers who have children with a refundable tax credit equal to 40 per cent of wages, up to a maximum annual amount of $3,800. For a worker who earns the US minimum wage and is employed on a full-time job, the credit increases hourly take-home earnings by 40 per cent. This approach has been broadly successful in boosting employment rates among low-skill working-age parents, especially single mothers. However, part of its success in the United States is due to the fact that it has been combined with measures to reduce the cash benefits available to working-age people who do not work. So far, Greece has taken modest steps to reduce the adverse impact of a minimum wage that is combined with high mandatory contributions, but it has not gone as far as the United States in scaling back benefits for working-age residents who are not in work.

### *Reform Proposals*

In fall 2000, the Greek government proposed and the legislature adopted modest reforms intended to stimulate employment growth. Law 2874 of 2000 overhauls overtime regulation so as to encourage employers to add to their labour input with new workers rather than overtime hours. To accomplish this, the new law offers employers two options for the regulation of overtime hours. Under the more restrictive option, "unregulated" overtime hours would be reduced from 8 hours per week to 3 hours per week. That is, employers would have to request permission from the Ministry of Labour before imposing work hours greater than 43 hours per week. At the same time, the premium for overtime pay would rise from 25 per cent to 50 per cent. (The premium for "illegal" overtime hours —those greater than 3 hours and 39 minutes per week— would increase from 100 per cent to 150 per cent.) As an alternative, firms can reach agreements with their unions on a system for annualising the calculation of overtime hours. This would give firms greater flexibility in scheduling and compensating up to 138 hours per year of overtime. At the same time, however, firms would have to agree to a reduction in the normal work week, from 40 hours to 38 hours. The goal of these regulatory measures, of course, is to induce employers to add to employment rather than to weekly hours of work when improvements in demand increase their demand for labour. For employers who frequently

use overtime hours, the measures would make this strategy much more costly and might induce some employers to add to their payrolls, even without an increase in demand.

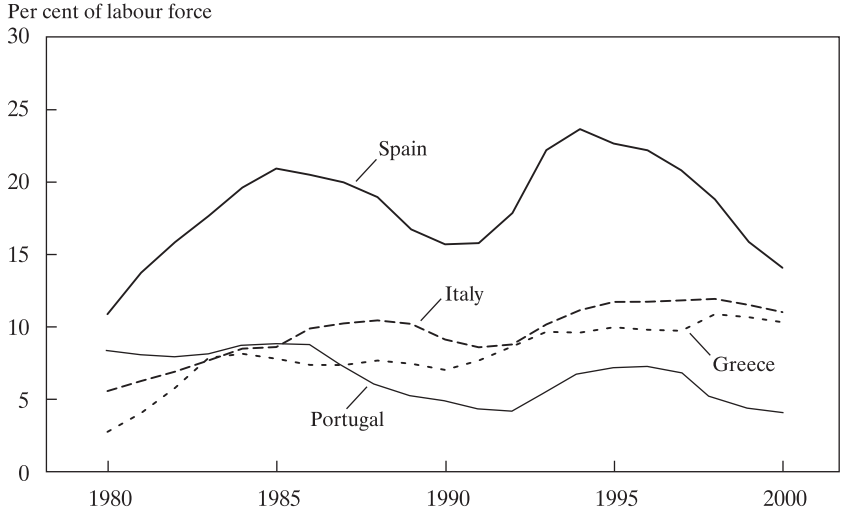
The reasoning behind the new Greek policy would be more compelling in the absence of an informal sector in the job market. Without an informal market, employers and workers would not have any alternatives in scheduling and compensating overtime hours besides those provided under Greek law. In fact, there is a large and apparently prospering informal sector in Greece. This gives workers and employers an option that may not be apparent to policymakers, namely the creation of employment in the informal rather than the formal sector. By giving firms less flexibility in scheduling formal employees' work time, the proposed measures might achieve two things at once – reduced average work time among employees in the formal sector and faster growth of employment and hours in the informal sector.

The government also proposed further measures to make work pay. One of them would allow unemployed workers who find part-time jobs to continue receiving one third of the minimum unemployment benefit for up to a year. Unemployed workers who find jobs where they work less than four hours per day will be able to claim a wage augmented by 7.5 per cent if they earn the minimum wage. A suggested reform that would cut employer costs reduces employers' contributions to the IKA social insurance fund by 2 percentage points for workers earning wages at or near the minimum wage. This measure would apply to all low-wage workers in employment, rather than only to the newly employed. This cuts employer contributions by 7 per cent of the existing contribution, which amounts to 1.56 per cent of employee compensation for minimum-wage workers or 0.2 per cent of the private-sector wage bill.

## II. Trends and Structure in the Greek Labour Market

The Greek labour market shows several characteristics of underdevelopment, especially when compared with labour markets elsewhere in the European Union. In one respect, Greece shares an unfortunate feature common in modern European economies – chronically high unemployment (see Figure 9-4). Greek unemployment reached 11.7 per cent in 1999, about 2 points higher than the jobless rate in the European Union as a whole. The 1999 unemployment rate is more than triple the rate in 1980, when Greece's estimated rate was below 3 per cent. Many of the same factors that pushed western European unemployment to record highs in the 1980s and 1990s

**Figure 9-4. Unemployment Rates in Southern Europe, 1980-2000**




SOURCE: OECD.

were also at work in Greece. The financing system for mandatory labour benefits pushed up employer costs. Strict rules on individual and mass dismissals turned compensation to dependent workers into a fixed rather than variable cost. Employers in shrinking industries scaled back their payrolls. Employers in industries with rising demand showed little enthusiasm for increasing their payrolls in an environment that placed restrictions on their ability to alter workers' schedules and vary the pay premiums offered to different classes of workers.

## *Unemployment and Employment*

Table 9-2 displays labour force statistics for Greece and four other countries in the OECD. Three of the countries are in southern Europe; the fourth is the United States. Greek labour force participation is similar to that in other southern European countries, except Portugal, but substantially below the rate in the United States. An important reason for lower activity rates compared with the United States is the low participation rate of Greek women, especially women under 25 and over 54. Men past the age of 54 also have low employment rates compared with their counterparts in the United

**Table 9-2. Employment and Unemployment in Selected OECD Countries, 1998**

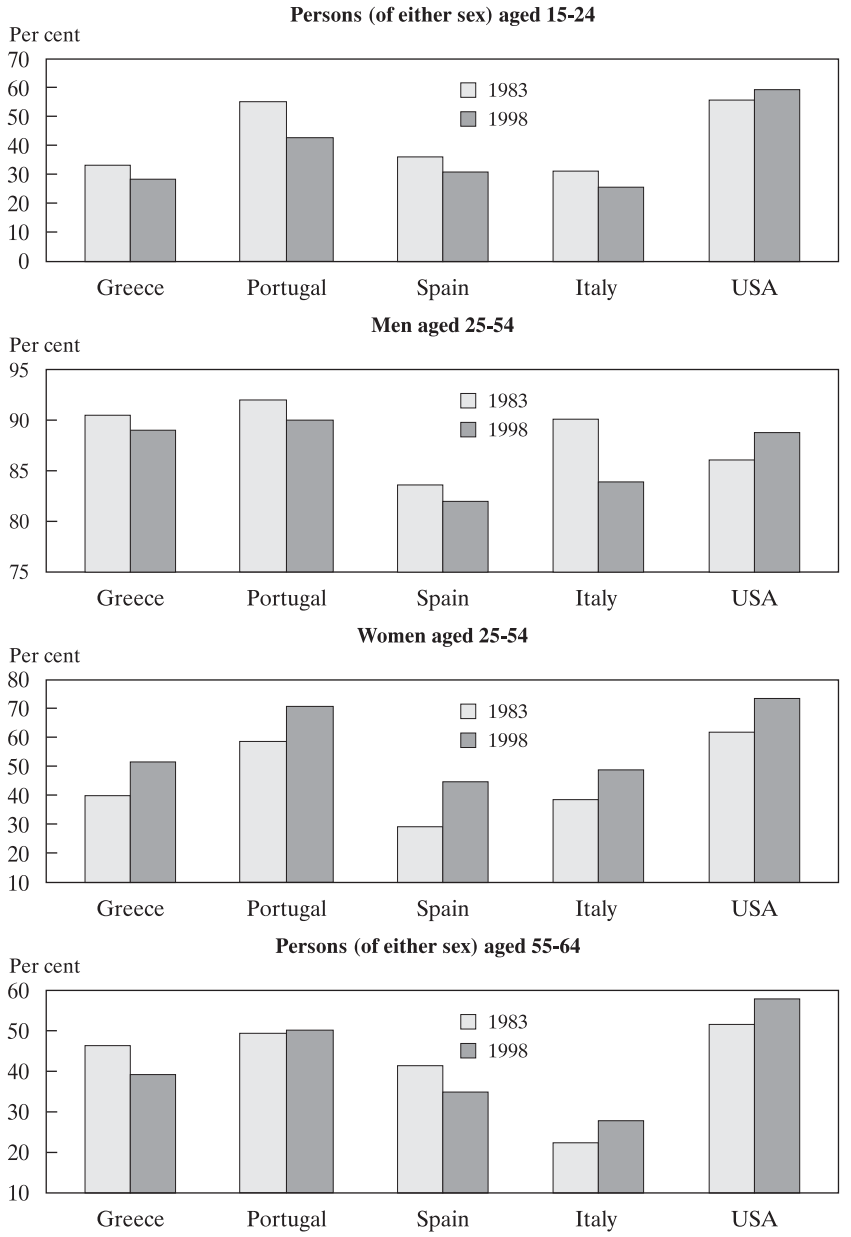
| | *Greece* | *Portugal* | *Spain* | *Italy* | *USA* |
|---|---|---|---|---|---|
| Labour fource *(thousands)* | 4,446 | 4,987 | 16,441 | 23,549 | 138,897 |
| Labour fource paticipation rate *(per cent)*[a] | 61.8 | 70.1 | 63.3 | 58.8 | 77.4 |
| Standardised unemployment rate *(per cent)* | 10.7 | 5.2 | 18.8 | 11.8 | 4.5 |
| Male | 7.0 | 3.9 | 13.6 | 9.3 | 4.3 |
| Female | 16.5 | 6.2 | 26.4 | 17.0 | 4.6 |
| Unemployment lasting at least 12 months *(per cent of total unemployment)* | 55 | 45 | 54 | 60 | 8 |
| Civilian employment *(thousands)* | 3,967 | 4,703 | 13,193 | 20,157 | 131,463 |
| Per cent of employment consisting of: | | | | | |
| Part-time work *(less than 30 hrs/wk)* | 9 | 10 | 8 | 11 | 13 |
| Agriculture | 18 | 14 | 8 | 7 | 3 |
| Industry | 23 | 36 | 30 | 32 | 24 |
| Services | 59 | 50 | 62 | 61 | 74 |
| Wage and salary workers | 55 | 71 | 77 | 72 | 92 |
| Self-employed workers | 33 | 27 | 20 | 24 | 8 |
| Unpaid family workers | 12 | 2 | 3 | 4 | * |

SOURCES: OECD and author's tabulations of US BLS data.
* Less than 0.5 per cent.
a. Persons 16-64 years old who are in the labour force, divided by the 16-64 year-old population.

States (see Figure 9-5). In 1998 the Greek unemployment rate was below the rates in Italy and Spain but well above rates in Portugal and the United States. As in the rest of southern Europe, Greek joblessness is much more serious among women than it is among men. In contrast, American women have essentially the same unemployment rate as American men. One consequence of the low female employment rate is the low use of part-time workers by employers. (A majority of the workers desiring to be employed on a part-time schedule is typically female.) In southern Europe, part-time employment accounts for just 8-11 per cent of total employment, a noticeably lower percentage than observed in the United States and many northern European countries. In the European Union as a whole, part-time employment represents 16 per cent of total employment, and 30 per cent of Dutch workers are employed in part-time jobs (*OECD in Figures 2000*, pp. 18-19).

While Greece's labour force participation and total employment rates are not unusual compared with those in other southern European countries, the structure of its employment is unique. A higher percentage of workers is employed in agriculture than is the case in other rich countries. Eighteen per cent of Greek workers are employed in agriculture, forestry and fishing, compared with just 5 per cent of workers in the European Union as a whole

**Figure 9-5. Employment-Population Ratios in Selected OECD Countries, by Age and Gender, 1983 and 1998**




SOURCE: OECD, *Employment Outlook* (1996 and 2000).

and 3 per cent in the United States. In comparison with other European countries, Greece has an exceptionally small industrial sector. (Industry consists of mining, manufacturing, electric, gas, and water utilities, and construction.) The European Union as a whole has a workforce in which almost 30 per cent of workers are employed in industry. Employment in industry is even higher in other southern European countries. In contrast, just 23 per cent of the Greek workforce is employed in industry. The absolute number of Greek workers employed in industry shrank 13 per cent between 1981 and 1995 (European Commission, 1997, p. A5).

The most striking difference between Greek employment and that in other industrialised countries is the proportion of workers who are either self-employed or unpaid workers in a family business. In 1997 one Greek worker in eight was an unpaid worker in a family enterprise.[6] This rate was three times the one observed in Italy and six times the rate in Portugal.[7] One Greek worker in three is an employer or works on his own account. In the EU as a whole, less than one worker in seven is self-employed; in the United States, only one worker in thirteen is self-employed. The gap between the incidence of self-employment in Greece and in other industrialised countries has narrowed very slowly over the past two decades (see top panel in Figure 9-6).

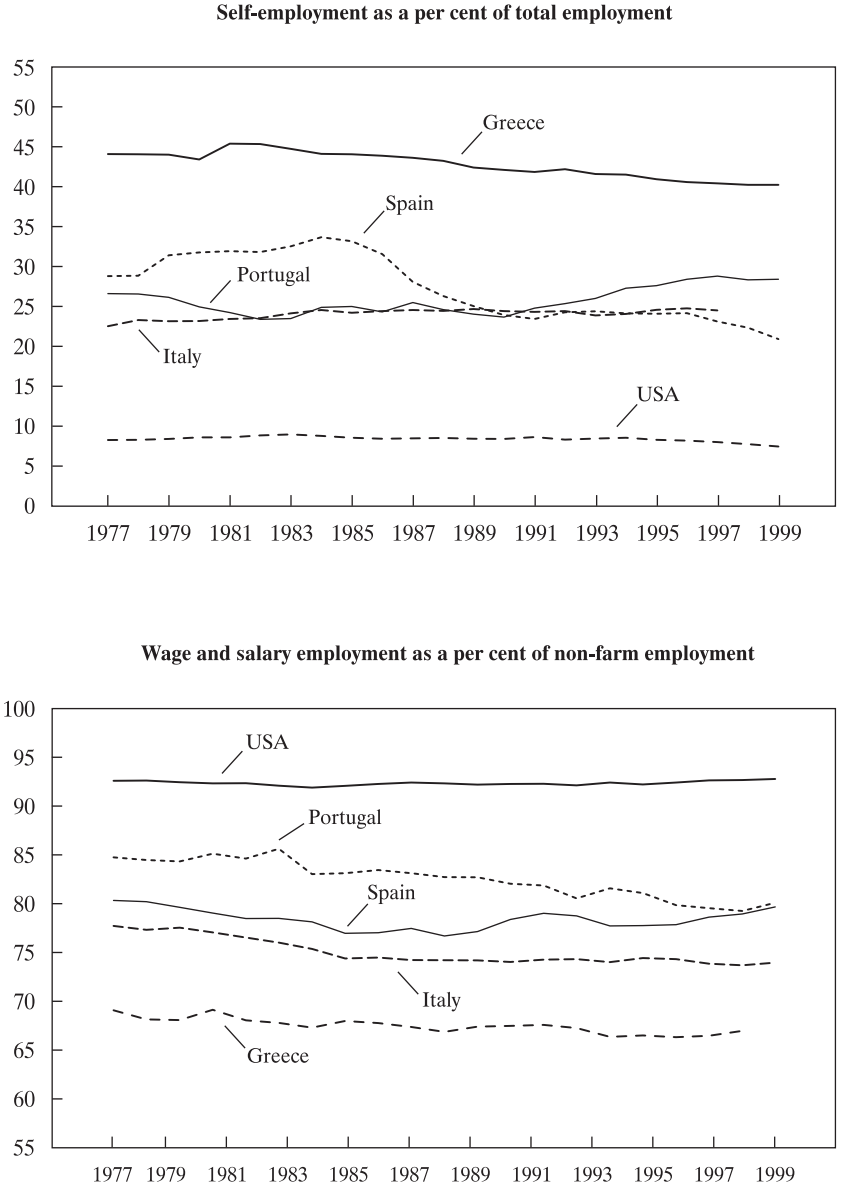
The difference between Greece and other industrialised countries with respect to self-employment stems in part from the continuing importance of agriculture in the Greek economy. To be sure, the percentage of all Greek workers who are wage and salary employees has risen over the past two decades, but virtually all of the increase is due to the gradual decline in employment in the agricultural sector. Farmers and fishermen are much more likely to be self-employed or unpaid family workers than are workers engaged in other industries.

"Non-dependent" employment remains extremely common outside of the agricultural sector in Greece. The lower panel in Figure 9-6 shows the percentage of employed persons in the non-farm economy who are dependent workers, that is, who work as wage or salary employees on permanent or short-term employment contracts. (All remaining workers are either self-employed

6. A change in definition reduced the proportion of Greek workers classified as unpaid family workers to one worker in eleven in 2000.

7. Less than one half of one per cent of the US workforce consists of unpaid workers in family businesses. The US definition of unpaid employment is more stringent than the European one, however. It requires that a person work in the family business at least 15 hours per week. The European definition does not require such a large input of hours. The number of unpaid American workers who work less than 15 hours a week is extremely small, suggesting that the difference in definitions probably accounts only for a small part of the gap in rates of unpaid family employment between Greece and the United States (Sorrentino, 2000, in the MLR).

**Figure 9-6. Self-Employment and Wage and Salary Employment in Selected OECD Countries, 1977-1999**




SOURCE: OECD.

or unpaid workers in a family business.) Greece has by far the lowest percentage of wage and salary workers in this sample of OECD countries. Surprisingly, the percentage of Greek non-agricultural workers who are wage or salary employees has changed little over the past twenty years. Interestingly, there has been a trend away from dependent employment in Italy, Portugal, and, to a lesser extent, Spain. There is no visible decline in dependent employment in the US non-farm sector. Wage and salary employment in the US non-farm sector has ranged between 92 per cent and 93 per cent of total employment since 1968. As far back as 1948, wage and salary employees accounted for 87 per cent of non-agricultural US employment, a percentage that is 20 points higher than the comparable Greek rate in the late 1990s.

The proportions of men and women who are self-employed differ substantially. In the 1995 Greek Labour Force Survey, 34 per cent of men but just 16 per cent of women reported they were self-employed. However, many more women than men report they are unpaid workers in a family enterprise. Just 5 per cent of men but 25 per cent of women said they were unpaid workers in the 1995 survey. As a result, the percentages of men and women who are wage and salary workers are roughly similar (European Commission, 1997, p. A12). Not surprisingly, the prevalence of self-employment and unpaid family employment is highest in agriculture. These two forms of employment are less common in industry and the services sector. Self-employment and unpaid family labour are rare in industries, such as mining and utilities, where the minimum efficient size of an enterprise is large. Over 90 per cent of workers in these industries are wage and salary employees. Much smaller percentages of workers in trade, construction, finance and manufacturing are employed as wage and salary workers; majorities or substantial minorities are self-employed or unpaid family workers.[8]

These patterns suggest that dependent employment is far less attractive in southern Europe, and especially in Greece, than it is in the United States. The earlier description of Greek employment and hours restrictions and the Greek social insurance system in the previous section makes it obvious why this might be the case. The cost to formal-sector employers of meeting the requirements of Greek labour law strongly favours an employment relationship in which the "employers" can determine their own work schedules and rates of compensation without reference to government reg-

8. The percentages of workers employed as wage and salary workers in these industries seem surprisingly small. According to the 1995 Labour Force Survey, the percentages are trade: 42 per cent; construction: 62 per cent; finance: 63 per cent; and manufacturing: 69 per cent (European Commission, 1997, p. A13).

ulation or the oversight of a public official. That employment relationship is called "self-employment."

From the viewpoint of a worker who has already qualified for social insurance protection, either as a result of his own or another family member's contributions, self-employment offers an opportunity to receive hourly compensation that is close to the commercial value of the worker's hourly product. As a wage earner, the same worker would be forced to bear the burden of his own and his employer's contributions to a social insurance fund. For many self-employed workers, the amount of social insurance contribution and income tax liability associated with self-employment earnings is to a large degree a matter of voluntary declaration. Informed observers believe that social insurance payments are made on only a small percentage of the true net earnings of Greek employers, proprietors, and persons who work on their own account. Under these circumstances, dependent employment (that is, wage and salary employment) will be favoured mainly in industries where there are important gains from close coordination and supervision of a number of workers. In addition, dependent employment will be favoured in sectors of the economy that are under close government supervision for reasons that have nothing to do with labour regulation – for example, communications, public transportation, banking and insurance. Because these industries would receive close government scrutiny, even without government interest in labour regulation, it is prudent for employers in these industries to comply with national labour laws. Because the burden of labour regulation and mandatory insurance contributions is much lower in the United States, American workers and employers do not have such persuasive reasons to favour self-employment over a dependent employment relationship.

The earlier discussion of the social insurance system covering wage and salary workers also sheds light on the labour force statistics for Greek women. As noted above, the labour force participation of Greek women is low in comparison with that of women in northern Europe and the United States. The female unemployment rate is exceptionally high. The reason for low rates of job-holding among Greek women cannot be child-rearing responsibilities. The Greek fertility rate, like that in Italy and Spain, is well below the rates in Scandinavia and the United States, where high percentages of women hold jobs. Because women are often secondary earners in a household, they may be particularly sensitive to the labour supply incentives provided by the Greek social insurance system. Many secondary earners gain their health insurance status through the contributions of another earner. The pension system offers excellent returns to workers who become entitled to a minimum pension, but much smaller marginal rewards to average- and below-average-wage workers

who contribute longer than the minimum period. Facing these incentives, married women may seek out jobs that provide them social insurance coverage for the required minimum number of years, but then avoid employment in the covered sector after eligibility for a minimum pension has been achieved. If 15 years of covered employment are needed to qualify for a minimum pension, secondary earners may not wish to hold covered jobs much longer than 15 years. Note that 15 years represent just one third of a full career, assuming that a potential career could last from age 20 to age 65.

Workers with good job qualifications and attractive job prospects will obviously have strong reasons to work longer than 15 years. Even though they and their employers must make heavy social insurance contributions, high net wages and comfortable working conditions can still make career employment appealing. Secondary earners who do not have good job qualifications cannot earn such high wages. After qualifying for a minimum pension, many of them will return to work in the home or possibly in the informal sector where their wages will not be subject to heavy social insurance contributions. A woman who does not expect to remain in the job market long enough to qualify for a minimum pension has good reason to avoid wage and salary employment altogether. In the formal sector, she and her employer would contribute about one third of her compensation to social insurance, even though her family would receive little extra benefit from those contributions. Faced with this prospect, she might choose to spend no time at all in formal sector dependent employment.

Most students of labour supply believe that married women in the richest OECD countries were drawn into paid employment as a result of the improvement in their earnings potential outside the home. Much of this improvement was the product of better wages in the job market, which in turn was the result of rising average productivity in the economy. Higher wages made work outside the home more attractive than work inside the home. As women remained in the job market for a greater fraction of their potential careers, their average earnings rose faster than men's, and employer discrimination against women declined. The decisive factor that first brought women into the job market, however, was the improvement in their earnings potential outside the home. For many women in Greece, potential net wages outside the home do not seem high enough to make market work attractive.[9]

9. In 1994, the wage of a female manual worker in Greek manufacturing was only 78 per cent of the wage of a male (European Commission, 1997, p. 104). While this ratio is higher than it was in the early 1980s, when it was just 60 per cent, the gap between men's and women's wages is still large enough to deter some women from steadily pursuing a career outside the home or family business.

This is partly the result of low market wages, but for many secondary earners it is also the result of heavy required contributions to social insurance.

Many observers have noted that a high contribution rate for social insurance can produce a vicious cycle in which a high rate causes covered employment to decline, putting further upward pressure on the contribution rate (World Bank, 1994, p. 142). If workers are required to make large contributions in exchange for dubious benefits on the margin, some will be deterred from seeking or keeping jobs in the social-security-covered sector. They will seek jobs in the uncovered sector, where their wage comes closer to matching the commercial value of their output. Recognising that some workers find the informal sector attractive, enterprising managers will create jobs in that sector. As informal sector employment expands, formal sector employment declines. The revenue needed to pay for social insurance benefits is almost unchanged, because people drawing social insurance benefits obtained rights to those benefits in the past. To meet the unchanged revenue requirements of a system which has a smaller base of contributing tax payers, the contribution rate must be increased, which further diminishes the attractiveness of employment in the covered sector.

*Recent developments*. Between 1995 and 1999 the Greek labour force grew about 1.7 per cent a year, with faster growth among women than among men. All of the expansion in the male work force is explained by the increased size of the working-age population, whereas a large share of the growth in the female labour force is due to increased activity rates among women. The comparatively rapid expansion of the Greek labour force reflects the legalisation and increased integration of immigrants in the population, the rising participation rate of women and the increased willingness of the working-age people who do not hold jobs to seek employment in an economy where growth has accelerated since 1995. In the most recent couple of years, however, some of the rise in labour force participation has been reflected in higher unemployment rates rather than higher job-holding rates.

Some of the labour force growth may be due to policy reforms. Probably the most important was the decision to legalise the status of illegal immigrants who were present in the country in November 1997. A total of 225,000 non-EU immigrants (out of 373,000 who initially submitted applications) fulfilled all of the paperwork requirements to obtain a special visa allowing them to work. By April 2001, over 201,000 immigrants had been issued the new visas. This means these immigrants can become open contributors to the social insurance system. Following the recommendations of the OECD and other outside observers, the Greek government has also attempted to expand or improve some of its active labour market policies. For example,

a new, multi-purpose employment voucher card was introduced on a pilot basis to allow unemployed workers a choice between receiving unemployment benefits or participating in training or employment subsidisation schemes. Employment Promotion Centres have been established to replace old labour exchanges in order to provide personalised employment services to the unemployed. So far these reforms in active labour market policy have probably had only marginal impacts on job finding.

Potentially more important are recent changes in social insurance contributions. A law passed in 1999 permitted companies to deduct from their taxable income 50 per cent of their social security contributions for newly hired personnel. The deduction could last up to two years, significantly cutting the compensation cost of putting a new worker on a company's payroll. This provision was later superseded by a straightforward cut in employers' required contributions for low-wage workers. A related reform passed in 2000 exempts minimum-wage workers from paying the part of social insurance contributions that finances the basic pension. This contribution is 6.67 per cent of the worker's gross money wage. The exemption from contributions lifts the worker's take-home pay by about 8 per cent.

### *Consequences for Greek Productivity and Living Standards*

Greek incomes are significantly below the average in the rest of the European Union and in the OECD more generally. In its latest estimates of per capita national output, measured with purchasing-power-parity exchange rates, the OECD finds that Greek output per capita is one-third below average output in the European Union as a whole and 57 per cent below per capita output in the United States (OECD in Figures, 2000b, pp. 12-13). Table 9-3 sheds light on the main reasons for the difference between Greek living standards and those in other OECD countries. The comparison is limited to three countries in southern Europe and the United States. The table decomposes the percentage difference between Greek output per person and per capita output in the other four countries in 1998, the most recent year for which appropriate data for the calculations are available.

Portugal is the first country that is compared with Greece (see column 1). Among EU countries, Portugal has living standards that are closest to those in Greece. In 1998, GDP per capita in Greece was 5 per cent below the level in Portugal (top row). The populations of Greece and Portugal have a similar age structure, so the percentages of the total populations which are at working age (15-64) are the same. It follows that none of the Greek-Portu-

**Table 9-3. Explaining the Difference Between Greek Output per Person and per Capita Output in Other OECD Countries, 1998**
Per cent

| | *Portugal* | *Spain* | *Italy* | *USA* |
|---|---|---|---|---|
| Gap in Greek GDP per person[a] | -5 | -14 | -34 | -53 |
| Impact of difference in: | | | | |
| Greek working-age population[b] | 0 | -1 | -2 | 3 |
| Greek labour force participation rate[c] | -15 | 4 | 6 | -19 |
| Greek unemployment rate[d] | -6 | 10 | 2 | -7 |
| Greek productivity per employed worker[e] | 18 | -24 | -39 | -39 |

SOURCE: OECD, *Employment Outlook* (June 2000) and *OECD in Figures* (2000).
y = Output per person measured using PPP exchange rates.
a. (Greek y - other country's y )/(other country's y).
b. Population aged 15-64/total national population.
c. Labour force/population aged 15-64.
d. Unemployed population/labour force.
e. GDP/employed population.

guese difference in per capita GDP is due to a difference in the relative size of the countries' working-age populations. The Greek labour force participation rate is substantially lower than the one in Portugal, however, and this difference reduces the fraction of working-age Greeks who actually work. The lower Greek participation rate, by itself, would explain a 15 per cent gap between Greek and Portuguese average incomes. In addition, the Greek unemployment rate is substantially higher than the Portuguese rate. This factor reduces the average Greek income below the average Portuguese income by 6 per cent. In combination, the lower labour force participation rate and higher unemployment rate reduce Greece's employment/population ratio in comparison with Portugal's. The combined effect of lower participation rates and higher unemployment is to cut Greek output per person by 20 per cent (not shown in the table). Greece enjoys one advantage over Portugal. An average employed person in Greece is more productive, measured at PPP exchange rates, than an average Portuguese worker. This difference offsets part of the disadvantage of the lower Greek employment/population ratio.

The same calculations can be repeated to compare Greek performance with that of Spain, Italy, and the United States. The age structure of the five countries is similar enough so that the age composition of the populations plays little role in explaining the gap in output. Differences in participation rates make a bigger difference, but mainly for the comparisons of Greece with Portugal and the United States. The Greek participation rate is higher than the rates in Spain and Italy, boosting Greek incomes relative to those in Spain and Italy. Differences in the unemployment rate are less important than differences in the labour force participation rate, except for the com-

parison of Greece with Spain. Spanish unemployment is high relative to that in Greece (and other OECD countries). Involuntary unemployment is thus a significant factor in reducing the relative incomes of Spaniards. By far the most important factor in depressing Greek incomes compared with those in the richest OECD countries is the gap in worker productivity. Measured at PPP exchange rates, output per worker in Greece is only 61 per cent of output per worker in Italy and the United States. This factor by itself would explain a 39 per cent shortfall in output per person in Greece compared with Italy or the United States. Essentially all of the gap between Greek and Italian living standards is accounted for by the gap in worker productivity. Almost three quarters of the gap between Greek and US living standards is explained by the productivity gap, but more than one quarter is the result of differences in labour force utilisation. A much smaller percentage of the Greek than of the US population is reported to be employed.

Although the implications of these comparisons will be considered further below, the findings in Table 9-3 should not be taken too literally. PPP exchange rates are not measured with enough accuracy to allow reliable comparisons among incomes in the five countries. Greek per capita GDP might be higher than that in Portugal, for example, and Italian output per worker could be below that in the United States. Even if the PPP exchange rates were assumed to be accurate, the decomposition simply expresses an arithmetic identity; it does not reveal deep economic truths. Part of the productivity "advantage" of low-employment countries is attributable to their low utilisation of labour rather than to their technical prowess in production. Portugal and the United States utilise a much higher percentage of their potential workforces than Greece, Spain, or Italy. Many of the workers added to the employment rolls as a result of a high participation rate are drawn from population groups that are expected to have below-average productivity. Men and women between 25 and 54 have comparatively high employment rates in all five countries. These workers would be expected to have higher productivity than younger, less experienced workers. They probably also enjoy a productivity advantage compared with workers who are nearing retirement. The two high-employment countries, Portugal and the United States, depend much more than the low-employment countries on workers who are drawn from groups with below-average productivity (see Figure 9-5). If the employment rates of young and old workers in Portugal and the United States were reduced to the levels observed in Greece, Spain, and Italy, the remaining Portuguese and US workers would almost certainly have a higher average productivity. Thus, the Greek productivity advantage compared with Portugal is at least partly the result of the low utilisation of potential Greek workers.

Nonetheless, the measured gap between workers in Greece, on the one hand, and Italy and the United States, on the other, is impressively large. One source of the gap might be those aspects of Greek labour law and social insurance protection that discourage dependent employment. If business owners and workers both have strong reasons to prefer self-employment or employment within a family enterprise to the creation of larger firms, Greek producers will find it more difficult to achieve the scale economies enjoyed in other countries, such as the United States, where the legal environment is more congenial to dependent employment.

There are probably many industries, like retailing, where scale economies allow larger firms to enjoy efficiencies that are difficult or impossible to obtain in micro-enterprises managed by owners-operators. Some of the efficiencies of the larger firms are directly connected to their scale. Large firms can arrange for the specialisation of individual workers in different tasks, something that is much harder to arrange in a firm consisting only of an owner-operator and one or two close relatives. Larger firms can also afford the high costs associated with research and development, which may be necessary for technical advance or the application of technological advances that have been pioneered elsewhere. Some efficiencies achieved by larger firms are passed along to their suppliers, because larger firms can buy in bulk, reducing the number of transactions needed for the same volume of production. Finally, larger firms may find it more worthwhile to invest in the acquisition of skills by their employees. The provision of specialised training in larger firms is more efficient, because the large number of workers who are given training in each firm can probably be trained more cheaply and can almost certainly receive training that is carefully targeted to the particular skills needed in their jobs. This probably explains why large firms make bigger investments than small firms in training their employees (Oi and Idson, 1999, pp. 2204-05).

Larger firms pay higher wages. This empirical regularity has been observed in many industries and across several countries (Oi and Idson, 1999, pp. 2172-79). It seems plausible to infer that productivity is also higher in larger firms. Economists are divided on the correct interpretation of the firm size-wage relationship. Some believe that larger firms do not really pay a wage premium relative to small firms after the characteristics of individual workers have been taken into account. Larger firms typically employ workers with better qualifications than smaller firms, so part of the wage differential between a large and a small firm reflects the inherent productivity differences between the two firms' workforces. It appears, however, that the wage premium paid to workers in bigger firms is larger than the difference that

can be explained by differences in the workers' characteristics. A simple explanation for the firm size-wage relationship is that workers in the larger firms, on average, work more productively in more productive jobs than workers in smaller firms.[10] Their higher productivity justifies a higher wage.

In a legal and regulatory environment that is hostile towards dependent employment, firms will find it much harder to achieve the productivity gains that are associated with larger firm size. We have already seen in Table 9-2 and Figure 9-6 that Greek employment is exceptionally concentrated in self-employment and family-based firms, that is, in micro-enterprises. Wage and salary employment is much less common in Greece than it is in those OECD countries, even in countries with similar incomes. Krishna Kumar, Raghuam Rajan and Luigi Zingales recently assembled information on the size distribution of firms in the 15 EU-member countries (Kumar, Rajan, and Zingales, NBER Working Paper No. 7208, 1999). The data for Greece exclude any information about firms run by the self-employed. This evidence suggests that Greece has the smallest average firm size in Europe. As Kumar *et al.* point out, the Greek industrial mix is tilted towards industries in which firm size is smaller than the average in the other EU countries. Even adjusting for this tilt in the industrial mix, the typical dependent worker in Greece is employed in a smaller firm than he would be in any other European country.[11] Not only are micro-enterprises much more common in Greece than they are elsewhere, but the size distribution of firms with dependent employees is also heavily weighted towards small companies.

One hypothesis to account for lagging worker productivity in Greece is that the legal environment discourages creation of wage and salary jobs while favouring job creation in less efficient micro-enterprises. The virtue of the micro-enterprise is that it can be efficiently organised to minimise the burden of taxes and government labour regulation. The workers-managers in micro-enterprises can make minimal contributions to the social insurance system while preserving their rights to draw social insurance benefits. They are not required to observe Greek labour regulations regarding vacation pay, dismissals, work schedules, or limits on overtime hours. In allocating compensation to different family workers, they are not bound to respect the pay

10. The positive association between worker productivity and firm size also appears to hold in Greece. In Greek manufacturing during the 1980s, labour productivity of firms employing more than 50 workers was estimated to be more than twice as high as productivity in firms with fewer than 50 workers (European Commission, 1997, p. 111).

11. As the authors also point out, an oddity of the Greek data biases the analysis towards finding above-average firm size in Greece. Unlike the other European countries, Greece only provided data to the European Commission and Eurostat on firms with at least 10 employees. The other countries did not impose this minimum size limit on the data submitted to the Commission.

differentials mandated by a national or local collective bargaining agreement. These advantages of the micro-enterprise are ones that are created by the Greek legal environment rather than inherent efficiency advantages of this form of business organisation. Household businesses do enjoy some genuine efficiency advantages that have helped them flourish over long periods of time. They are usually able to deal quite effectively with the problem of creating incentives for good performance of difficult-to-monitor tasks. They are generally successful in eliciting the best efforts of family workers to complete assigned jobs, even if the jobs turn out to be more difficult or time-consuming than anticipated.

In many kinds of production, however, the real efficiency advantages of family or personal enterprises are outweighed by a crucial disadvantage. If a line of business is characterised by strong scale economies, a micro-enterprise will not be able to take advantage of them. The micro-enterprise might nonetheless be able to survive competition with a larger firm if its efficiency in avoiding taxes and ignoring labour law restrictions outweighs its technical inefficiency. In that case, the Greek legal environment would hinder productivity improvement by favouring the less efficient over the more efficient business organisation. The importance of this kind of barrier to productivity improvement depends crucially on the burdens imposed by the social insurance system, the Greek system of legally binding national and regional labour contracts and labour law restrictions on work and vacation time and worker dismissal. If the burdens are heavy, then firms that can efficiently evade them will enjoy substantial cost advantages over the firms that must bear them.

Greek policymakers evidently hold a favourable view of micro-enterprises and the potential of small businesses to boost employment. Since the mid-1980s the government entity responsible for active labour market programmes (OAED) has subsidised the creation of small businesses in a programme that is aimed at reducing unemployment, especially in areas where regional joblessness is high. The subsidy differs according to the local unemployment rate and the number of positions created in the enterprise. This programme subsidised an average of 5,400 small businesses per year in the first half of the 1990s (European Commission, 1997, pp. 76 and A33). In addition, the government offers a programme providing aid to small and medium-sized companies, defined as firms employing fewer than 250 workers, with annual revenues or a total balance sheet below designated thresholds. Evidently, smaller enterprises are thought to be more important or desirable in creating employment than larger firms. One reason is that they employ more workers per dollar invested in the firm. Another is that they have been the source of more job creation than large firms in the past.

I have already mentioned some of the reasons that small firms have generated more new jobs than large ones over the past two decades. The legal and tax environment in Greece is less hospitable to dependent employment than it is to micro-enterprises. The fact that employment per dollar invested is greater in small than in large firms is not a very persuasive argument in favour of small firms, if the goal of economic policy is to boost average worker output and Greek living standards. The greater capital intensity of large firms compared with small firms is partly the result of the tendency of large firms to quickly adapt new technologies, technologies which are often embodied in new equipment. In many parts of the world, this would be considered an advantage rather than a disadvantage of larger scale enterprises. Another reason for higher capital intensity in large Greek firms is that they face a less hospitable legal environment than small firms, especially micro-enterprises. It is more difficult for large firms than for small ones to evade social insurance contributions and legal requirements regarding working time and dismissals. This makes labour more expensive for larger firms and naturally pushes them towards substituting capital for workers. It may also induce larger firms to obtain labour and labour-intensive inputs from small firms, which find it easier to evade contributions and the obligations of Greek labour law.

## III. Potential Remedies

In order to make the labour market more congenial to the creation of wage and salary jobs in firms that are appropriately scaled to their industry, Greece must either reduce the private costs of creating employment in large firms or increase the penalties on small firms for evading taxes and social contributions. The OECD has offered a list of recommendations for increasing wage and labour cost flexibility in the formal sector, for revising employment security protections and for increasing the flexibility offered to formal sector employers in scheduling workers' hours. (See OECD, *Economic Surveys: Greece 1998*, pp. 74-75.) Most of these recommendations would increase the relative attractiveness of creating employment in the formal sector rather than the informal sector.

The simplest measure for increasing penalties on informal sector employment is to withhold benefits from self-employed and informally employed workers who do not contribute in full for their social insurance benefits. This can be accomplished in a straightforward way by eliminating all public subsidies, including earmarked taxes, that help pay for pensions and other benefits for the self-employed. Because of the public interest in minimising

poverty among aged and disabled workers who have spent their careers in self-employment, the government could establish a means-tested programme that offers very modest pensions to the indigent.

Eliminating the subsidies to self-employed workers' pension funds does not completely eliminate the implicit subsidy to self-employment or to employment in the informal sector. The system of social protection for wage and salary workers must also be reformed in a way that reduces the large subsidy to non-disabled workers who contribute to social security for only the minimum number of years needed to obtain a basic pension.

This can be accomplished in a defined-benefit pension system by linking the minimum pension to the number of years a worker has contributed to the fund and by calculating pensions on the basis of workers' wages over their full careers. To assure that workers who are employed in the formal sector over a full career receive adequate pensions, regardless of their average earnings, the minimum pension could be calculated as it is under present law, except that workers would only receive the fraction of the minimum pension that corresponds to the percentage of their potential careers they have spent in covered employment. If Greek voters anticipate that a full-career worker will spend 40 years in employment (for example, from age 22 though age 61), then workers who contribute to the fund for at least 40 years could receive 100 per cent of the minimum pension; workers who contribute 20 years could receive 50 per cent of the minimum; workers who contribute the minimum number of years —15— could receive 37.5 per cent of the minimum pension. While protecting workers who spend full careers in covered employment, this formula would eliminate the large implicit subsidy to workers who evade contribution requirements by working in uncovered jobs during much of their careers. Note that the suggested reforms do not require the government to become more effective in uncovering the true earned incomes of the self-employed or informally employed. Such workers would simply be denied the implicit subsidy that the present system provides to employment outside the formal sector.

Many people who are strongly committed to obtaining a more equitable or equal income distribution may object that the reforms just suggested will eliminate some of the important redistributional features of the present system. By making it harder for a worker to obtain a full minimum pension, for example, the reform might increase the prevalence of old-age poverty. The problem with this objection is that the redistributive impacts of a social insurance system are not very clear in the presence of tax evasion and a large informal sector. To be sure, some of the workers who would be denied a full minimum pension under the proposed scheme would receive lower retire-

ment incomes as a result of the benefit reduction. However, many self-employed workers would not fare badly with a lower pension, because they have enjoyed higher net incomes over their careers as a result of evading contribution requirements. By reducing benefits to these workers, contribution rates or benefit levels for full-career workers could be improved. Some full-career, formal-sector workers might be removed from destitution as a result of lower contribution rates or higher minimum pensions. Where tax evasion is a major problem, it is better to accomplish income redistributional goals through carefully targeted means-tested programmes rather than through contributory social insurance schemes. To make employment in the covered sector as attractive as it is in the uncovered (tax-evading) sector, it is necessary to make benefits in the social insurance system correspond more or less exactly to worker contributions.

Employment creation in Greece's modern sector has been extremely slow for two decades. In the richest industrialised countries, an overwhelming share of employment in the modern sector is wage and salary employment in medium-size and large firms. Greek employers are handicapped in creating this kind of employment because of the high regulatory and social insurance costs associated with formal-sector employment. The Greek legal environment favours job creation in sole proprietorships and small family businesses. Greek workers pay an unrecognised price for this favouritism. Small enterprises are often far less productive than larger ones.

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## Comment by Plutarchos Sakellaris

### The Greek Labour Market

The experience of Greece in terms of unemployment in the last two decades has been quite similar to that of many European Union countries. Greek workers have seen the unemployment rate rise to 11.7 per cent in 1999 from an average of 2.3 per cent in the 1970s. The peculiarity of the case of Greece has been, however, that, in contrast to these EU countries, its output per capita and average labour productivity fell below those of other industrialised countries. In 1998, Greek GDP per person was below that of any other EU country and about half that of the USA.

Gary Burtless attempts to explain Greece's lagging labour productivity through the adverse incentives created by its labour laws and regulations. He argues persuasively that this environment has discouraged the creation of wage and salary jobs. The proportion of employment consisting of wage and salary workers is 55 per cent in Greece, 72 per cent in Italy and 92 per cent in the US (see Table 9-2). The flip side of this statement is that Greece has the highest percentage of self-employed and unpaid family workers in the

OECD. An additional, and perhaps related, fact is that the sectorial composition of employment in Greece is unusually tilted towards agriculture and small-sized firms. As the author argues, these firms are more efficient in evading contribution requirements for social insurance while they are less productive in generating output.

Before turning to this argument, I will spend some time on the author's summary of the institutional framework regulating the Greek labour market. The author provides a very informative summary of collective bargaining arrangements, minimum wage legislation, job security law, regulation of hours at work and social insurance.

In some respects, Greece maintains some quite restrictive labour laws. Employment terminations or lay-offs are very costly, providing powerful disincentives to hire when demand is rising. Temporary help agencies are prohibited, and for various reasons fixed-term contracts are rare and part-time employment is low. A related fact is that female labour force participation is low. On the other hand, unemployment benefits are not as generous as in some other EU countries.

As the author points out, the rules surrounding social insurance create some serious distortions. The combined employee and employer contribution to social insurance for the average wage earner is more than one third of gross wage compensation. In fact, this ratio rose dramatically from about 25 per cent in 1982 to about 35 per cent in 1993.

While the cost of social insurance is very high, the benefits are only weakly linked with contributions. There is an extreme non-linearity in the payoff to social insurance contributions. This can be seen best through an example. A male wage earner working in the private sector and insured in the IKA system can retire at age 65. If he had been contributing for 15 years to the system he can earn the minimum pension provided for by law. In order to qualify for a significant increase in his pension he needs to work for 12 more years if his earnings are close to the national average. Additionally, only the last five years of contributions are used to determine this worker's pension provided for by law. Thus, there is an incentive for him to evade high contribution rates. In general, when workers become eligible to collect pensions they have the incentive to leave the formal sector and seek a job in the informal sector or in a position where they can evade contributions to the social insurance system and other employment-related regulations. These incentives create problems both for labour-force participation and for the solvency of the social insurance system.

The author argues, quite persuasively, that the restrictive labour regulation and adverse pension benefits schemes have created a bias for self-

employment in the Greek labour market. Self-employed workers are relatively free of government regulation and to a large degree can evade social insurance contributions and income taxes. As noted earlier, Greece has a relatively low proportion of wage and salary employees in total employment. Another interesting fact contained in the paper is that this proportion has been trending down for twenty years (at least in the non-agricultural sector). Self-employed workers seem to be concentrated in sectors such as trade, construction, finance and manufacturing.

The most novel contribution of this paper is to link the system's bias against formal dependent employment to the low levels of Greek productivity and living standards. Table 9-3 is very telling about the importance of the shortfall in Greek workers' productivity. It shows that the vast majority of the deficit in Greek output per capita compared with that of selected other OECD countries is due to the large differences in average labour productivity. In 1998, average labour productivity was 24 per cent below that in Spain and 39 per cent below that in Italy and the US. Interestingly, however, Greek workers are more productive than their Portuguese counterparts.

The explanation that the author provides is that the organisation of industry in response to labour regulation led to a preponderance of small firms in Greece. Such firms find it more difficult to exploit economies of scale. The author offers several potential sources of such scale economies. 1) labour specialisation, 2) research and development, 3) employee training on the job. It could be argued that all these involve some form of fixed or non-convex cost. The author cites as supporting evidence a paper by Kumar *et al.* (1999), which shows that Greece has the smallest average firm size in Europe. He also refers to a European Commission study providing evidence that larger firms in Greece do have substantially higher labour productivity than smaller ones.

We are not sure, however, why workers in large firms are more productive. Is it simply that they have more capital to work with, or that they are more skilled? Or is it that their firms have higher levels of technology, or enjoy internal scale economies? Finally, and perhaps most importantly, is it that larger firms are more productive or rather that more productive firms get larger? Boyan Jovanovic (1982) provides a very interesting theory of selection and industry evolution in which firms that are *ex ante* more productive survive and grow whereas the less productive ones shrink and eventually fail.

In order to have a chance at answering these questions, it is important to have a clear picture of the dynamics of production choices, input choices and productivity at the establishment level. There is a large empirical literature that studies employment and productivity dynamics at the establishment level

in the US and several other countries. Most of it has sprung up in the last 10 to 15 years. Unfortunately, no such effort has been spent on collecting and studying Greek data. I will discuss briefly some of the findings of the US literature with the hope that it will give some guidance on what are the questions that we need to be asking about establishment behaviour in Greece.

A pervasive result is that there is an enormous variation of productivity across plants even within the same firm producing the same product (see Baily *et. al.*, 1992). This variation seems to be persistent. Another result is that big firms are different. Baily *et al*. (1992) found that larger US manufacturing plants had up to 13 per cent higher Total Factor Productivity (TFP) than smaller plants, after controlling for many other factors.[12] They found that the reason was not Increasing Returns to Scale (IRS) but most likely some form of market power. Large plants are more likely to have a unique product or process technology. Davis and Haltiwanger (1992) found that total job reallocation at small plants was considerably higher than in large plants.[13]

So why are large firms so different? The better productivity performance cannot be attributed to internal increasing returns according to the majority of plant level studies. One possibility stresses the idea that new technology is embodied in new capital. Thus, in order to advance in technology, the plant/firm needs to invest in new equipment. In fact, there is evidence that the rate of growth of technology that is embodied in new equipment is quite high for US manufacturing plants. Sakellaris and Wilson (2000) find that $1 of investment in new equipment is about 12 per cent more productive than $1 of the previous year's investment in equipment. If there exist constraints on financing investment that affect small firms more tightly, then large firms will invest more readily and be more technologically advanced.

Of course, it is not natural to assume that what holds for US manufacturing also holds for the Greek economy. There is, I believe, great value to starting in Greece a systematic study of employment, investment and productivity dynamics at the plant level along the lines of what is being done in other countries.

In the meantime, the authors could use simpler means to go a bit further towards establishing the importance of the firm-size/standards-of-living link.

12. The comparison was between the largest size quartile and the smallest one in a collection of manufacturing industries (see their Table 8, p. 228).

13. The measure of job reallocation was obtained by summing employment losses at shrinking or dying establishments together with employment gains at expanding or new establishments. They found that manufacturing plants that employed up to 99 employees had a job reallocation rate of 30 per cent, whereas plants that employed more than 1,000 employees had a rate of 14 per cent.

It would be nice to have a more quantitative evaluation of the impact of the size distribution on average labour productivity. Consider the following thought experiment: suppose that the size distribution of firms in Greece became overnight identical to that in Spain, for example, while total employment remained unchanged and the productivity of each size group remained at 1998 levels. How much of the gap in average labour productivity between the two countries would be closed? A similar thought experiment could be run for the industry distribution of employment. Such counterfactuals, though clearly lacking a general equilibrium character, would be a useful first step in evaluating the impact of Greek labour market rigidities on productivity.

A closer comparison between countries would be useful also. For example, why is average labour productivity so much higher in Greece than in Portugal? Is Portugal's size distribution even more skewed than the Greek one or are there other more important factors at play? Another line of exploration would be any evidence of a discrete shift in the size distribution towards smaller firms around the time of the productivity slowdown in Greece. Crafts (1992) puts this date at around 1980.

In conclusion, the author provided us with a very useful summary of some important features of the Greek labour market's laws and regulations. He also put on the table a very interesting hypothesis, namely that these regulations provide strong incentives for job creation in the self-employed and less formal sectors of the economy while skewing the size distribution of firms towards smaller ones. This has an adverse impact on Greek labour productivity and living standards. This is an intriguing hypothesis prompting the authors to offer some policy proposals to remedy the slump in Greek productivity. Would these proposals bring real remedy in case they were undertaken? The answer to this question is not at all clear, as we lack a fundamental understanding of the productivity dynamics of Greek establishments. We need to expend a great deal of effort towards achieving that goal.

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# 10 Product Market Reform in Greece: Policy Priorities and Prospects

Paul Mylonas and
George Papaconstantinou

## I. Introduction

ENTRY into EMU presents Greece with major policy opportunities and challenges. There is the opportunity to sustain the more stable macroeconomic environment that Greece has worked hard over the past decade to achieve. Such a favourable environment is usually considered a necessary condition for attaining high growth rates. The challenge is to improve Greece's competitiveness in order to achieve real convergence with the other European countries. By locking the exchange rate against the currencies of the other 11 member countries, Greece has eliminated the option of maintaining or improving competitiveness through a depreciation of the nominal exchange rate. The policy challenge will be to implement structural reforms that enhance the economy's flexibility and productivity and raise average per capita GDP (an albeit crude measure of living standards) to that of Greece's EU partner countries.

To do this in the not too distant future will be a challenge since Greece has not sustained an especially impressive medium-term output growth performance compared with other OECD countries.

— The trend growth of GDP per capita during 1990 to 1997 —at 1.1 per cent— has been among the lowest of all OECD countries (Table 10-1). During 1998-2000, however, it has improved to 2-2.5 per cent.

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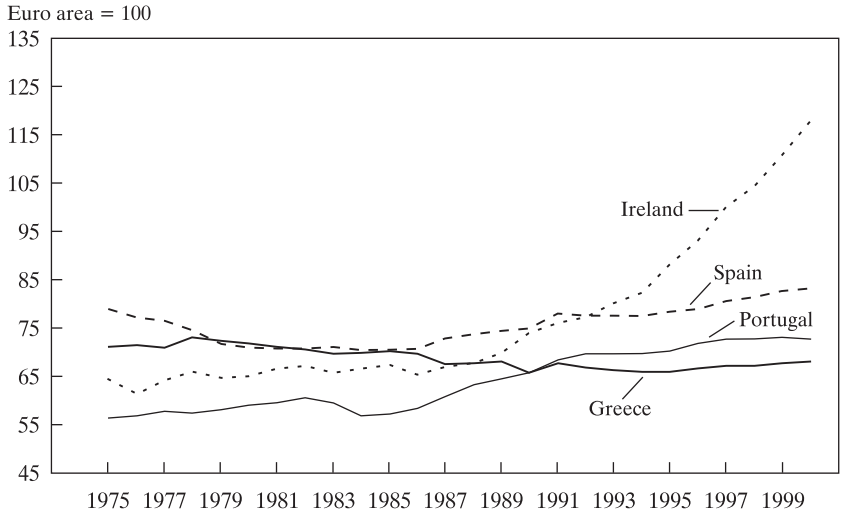
**Table 10-1. Growth in GDP per Capita and its Components, 1990-98**

| | *Working-age population/ total population (1)* | *Labour force participation rate (2)* | *Employment/labour force (3)* | *GDP per person employed (4)* | *Hours worked (5)* | ***GDP per capita growth (1)+(2)+(3)+(4)*** | *Total impact of labour utilisation (1)+(2)+(3)+(5)* | *GDP per hours worked (3)-(4)* |
|---|---|---|---|---|---|---|---|---|
| **Greece**[a] | **0.1** | **0.4** | **-0.4** | **1.0** | **0.1** | **1.1** | **0.2** | **0.9** |
| France | -0.1 | 0.2 | -0.3 | 1.4 | -0.4 | **1.2** | -0.7 | 1.8 |
| Germany[b] | -0.1 | -0.3 | -0.6 | 1.9 | -0.7 | **1.0** | -1.5 | 2.5 |
| Italy | -0.1 | -0.2 | -0.3 | 1.9 | -0.2 | **1.2** | -0.8 | 2.0 |
| Netherlands | -0.2 | 1.2 | 0.2 | 0.8 | -1.0 | **2.1** | 0.3 | 1.8 |
| United Kingdom | -0.1 | -0.1 | 0.2 | 1.8 | -0.1 | **1.8** | -0.1 | 1.9 |
| Ireland | 0.9 | 0.5 | 0.9 | 3.1 | -0.6 | **5.4** | 1.7 | 3.8 |
| Portugal[b] | 0.3 | -0.3 | 0.7 | 1.7 | -0.6 | **2.4** | 0.2 | 2.2 |
| Spain | 0.2 | 0.5 | -0.2 | 1.7 | -0.1 | **2.2** | 0.4 | 1.8 |
| Austria | 0.0 | 0.0 | -0.2 | 1.8 | ... | **1.7** | ... | ... |
| Belgium | -0.2 | 0.5 | -0.3 | 1.7 | -0.4 | **1.7** | -0.5 | 2.2 |
| Denmark | -0.1 | -0.5 | 0.3 | 2.3 | 0.0 | **2.1** | -0.2 | 2.3 |
| Finland | -0.1 | -0.5 | -0.8 | 2.8 | -0.1 | **1.3** | -1.6 | 2.9 |
| Iceland[b] | 0.1 | -0.3 | -0.3 | 1.2 | -0.1 | **0.7** | -0.5 | 1.3 |
| Norway | -0.1 | 0.4 | 0.1 | 1.8 | -0.3 | **2.2** | 0.1 | 2.1 |
| Sweden | 0.0 | -0.9 | -0.5 | 2.4 | 0.6 | **0.9** | -0.9 | 1.7 |
| United States | 0.0 | 0.3 | 0.2 | 1.6 | 0.1 | **2.1** | 0.6 | 1.5 |
| Japan | -0.2 | 0.7 | -0.2 | 1.3 | -1.1 | **1.6** | -0.8 | 2.4 |
| Canada | 0.2 | -0.2 | 0.1 | 1.1 | -0.1 | **1.2** | 0.1 | 1.1 |
| Australia | 0.0 | 0.3 | 0.0 | 2.0 | 0.0 | **2.3** | 0.4 | 2.0 |
| New Zealand | 0.1 | 0.2 | 0.1 | 0.4 | 0.0 | **0.8** | 0.3 | 0.4 |
| Korea | 1.9 | -0.5 | 0.1 | 3.9 | -0.8 | **5.2** | 0.6 | 4.7 |
| Mexico | 1.1 | ... | ... | -0.2 | 0.8 | **1.2** | ... | -1.1 |

SOURCE: OECD, Economics Department Working Paper 21 (2000).
a. 1991-98.
b. 1990-97

**Figure 10-1. GDP per Capita Developments in Greece, Ireland, Portugal and Spain, 1975 - 2000**




SOURCE: OECD.

– The poor performance of trend per capita income growth is due to both low labour productivity growth and low employment growth.

– Among the 30 OECD countries, the level of per capita income is near the bottom –35 per cent below the average of the euro area in 1999 (Figure 10-1), surpassing only that of the new OECD member countries from central Europe, Mexico and Turkey. This differential is also reflected in a productivity gap of a broadly similar magnitude.

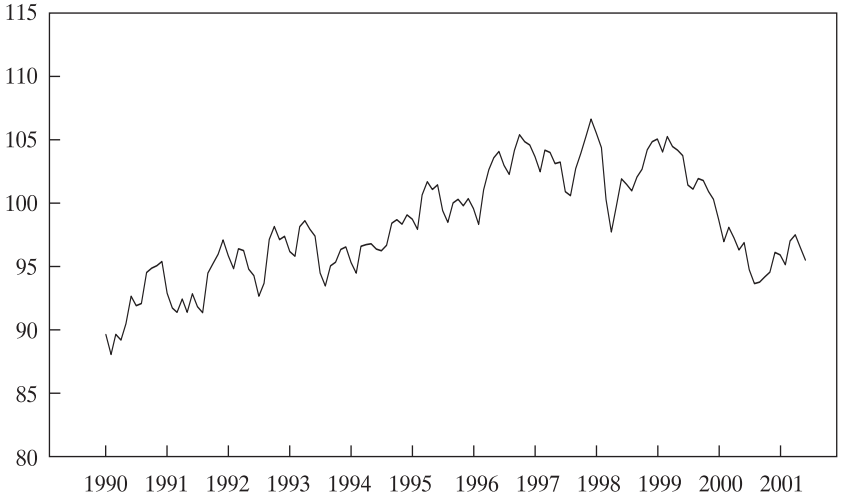
For the OECD countries, average per capita income growth over the period 1990-1998 has been 1.7 per cent. The best per capita growth performance has been achieved in some of the most affluent OECD countries, which also stand out due to their emphasis on structural reform (Australia, Canada, the Netherlands and the United States). It also includes countries that have relatively low levels of GDP per capita, and a "catch up" phenomenon has resulted in high productivity growth (e.g. Ireland, Portugal and Spain).

These results raise some important questions surrounding Greece's output performance over the period in question. The low level of GDP per capita compared with the other OECD countries would suggest that, at least due to the phenomenon of "catch up", Greece should have a higher than average per capita income growth.

It is difficult to pinpoint empirically the policies that will improve productivity and support sustainable high levels of per capita income growth. It

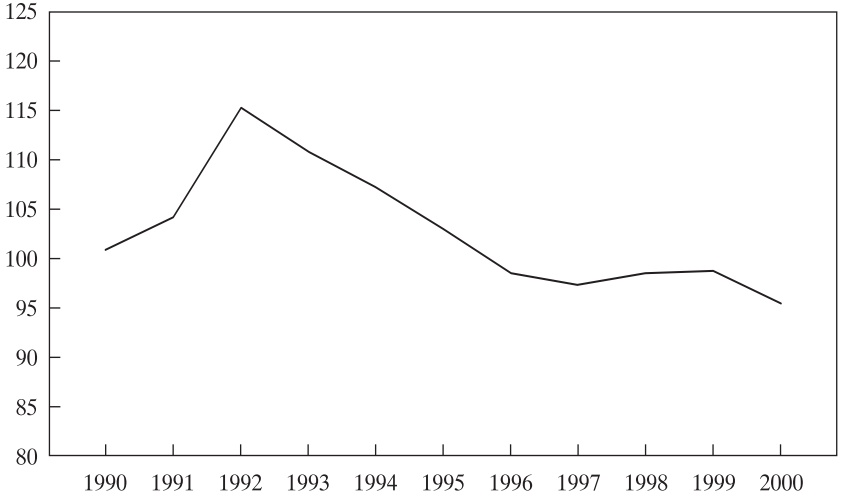
**Figure 10-2. Indicators of External Competitiveness**

**Real effective exchange rate, 1990 - 2001**




SOURCE: OECD, CPI-based, 1995=100.

**Developments of export market share**




SOURCE: OECD. For goods, the growth of export volumes divided by partner country import volumes weighted by export share. 1990 = 100.

is generally agreed, however, that it comprises the synergy of several factors. Among the most important conditions is a stable macroeconomic environment, which Greece has currently achieved (and this is discussed in other conference papers). Perhaps, however, as a consequence of using the exchange rate for almost a decade as a nominal anchor to successfully reduce inflationary expectations, the economy's competitiveness has come under pressure. The real effective exchange rate had appreciated sharply until the strength of the dollar against all EU currencies reversed this trend, at least temporarily (Figure 10-2). Though quantifying an economy's degree of external competitiveness is inherently difficult, several indicators suggest some pressure points. Export market share has been falling consistently over the past few years, despite a boom in exports to neighbouring countries,[1] and the current account widened to 6.9 per cent of GDP in 2000 compared with 2 per cent in the early 1990s. For the most part, the loss in market share has been to the EU – Greece's major trading partner and the destination for about 50 per cent of Greek merchandise exports (down from about 60 per cent earlier in the decade).

Another necessary condition that is generally agreed to be required to sustain high levels of per capita income growth is well functioning markets, i.e. labour markets, financial markets, and product markets. This chapter focuses on product market reform, as other conference papers discuss other areas of structural reform (e.g. that of labour markets). The immediate benefits from product market reform are a more efficient use of resources and, for the consumer, a higher quality of service and lower prices. Empirical evidence strongly supports the existence of such positive benefits in many of the largest industries. In the sectors where the pace of reform has been the fastest (and the easiest to implement), such as telecommunications, air travel, and distribution, the results are quite tangible (OECD, 2000). In electricity and railways, the slow pace of reform is in part linked to difficult technical issues, as well as the weaknesses in the design of the regulatory environment (OECD, 1999).

Aside from reform in markets dominated by publicly-owned companies, product market reform also concerns issues that relate to the functioning of markets dominated by private firms. Among these, some of the most important are: the reduction of barriers to entrepreneurship, such as those relating to the difficulty in setting up new firms (including the availability of

1. Exports to the Balkan countries increased dramatically at the start of the 1990s, but so did imports. It is uncertain whether this broadly balanced trade reflects re-exportation of goods through Greece, or the fact that trade with these countries is predominantly on a barter basis.

financing), as well as exit costs relating to insolvency regulations. Reforms that create a level-playing field, e.g. transparency, accounting standards, and corporate governance issues, are also critical to have in place.

For the main part, the link between product market reform and output growth is considered to be through the same broad channels which link output growth with openness in international trade. First, a greater exposure to competition should result in a more efficient use of resources, the greater diffusion of knowledge and exposure to best practices. Second, a situation of many competing players should enhance the prospects for invention and innovation, as well as the opportunity to learn by doing (the bootstrap approach). The empirical literature investigating the links between product market reform and output growth is small. However, it generally supports the existence of such a relationship (see Gonenc *et al*., 2000, for a survey of this literature).

The full extent of the benefits on output can be significant. The OECD Report on Regulatory Reform contained simulations suggesting one-off increases in GDP in the range of 5 per cent to 6 per cent for France and Germany but only 1 per cent for the United States, where market liberalisation had started earlier (OECD, 1998). A similar exercise for Greece indicated the potential for a gradual one-off increase in GDP of the order of 10 per cent (Mylonas and Joumard, 1999). These potential benefits should be used to offset some of the transition costs (e.g. initial job losses in the incumbent firms – though overall employment is likely to increase subsequently).

Evidence of poorly functioning and uncompetitive product markets is admittedly difficult to obtain. However, Greece has been placed near the bottom of the list of OECD countries as far as product market performance is concerned (Table 10-2).[2] The large output gains contained in the simulations also support this conclusion. It should be noted, however, that these results were based on developments through 1997/1998, and product market reforms have received more attention subsequently. Another partial piece of evidence comes from the close link between labour and product market developments.Though other factors are surely at play, lack of competition in product markets is likely to have been a factor behind the rise in the unemployment rate from below 7 per cent in 1990 to 12 per cent in 1999, before falling to 11.4 per cent in 2000 (Figure 10-3).

Currently, the Greek Government is undertaking several important and ambitious initiatives to improve product market performance. This paper attempts to benchmark individual aspects of Greece's product market reform

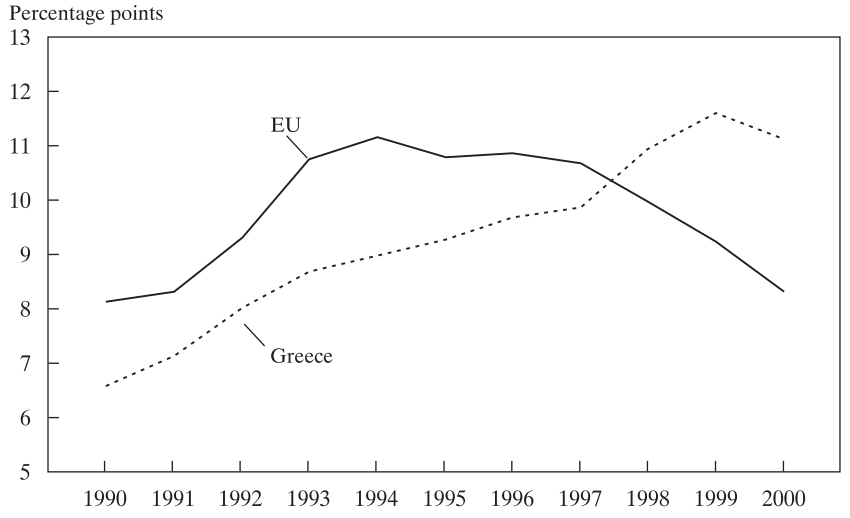
2. The results in Table 10-2 present internationally comparable composite indicators — based on factor analysis — representing the strictness of individual country regulations.

**Table 10-2. Indicators of Product Market Regulation and Competition**

| | *Product market regulation (PMR) in 1998* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *Overall indicator of PMR* | | *Inward oriented policies* | | | | | | *Barriers to trade and investment* | |
| | | | *Overall indicators*[a] | | *State control* | | *Barriers to entrepreneurship* | | | |
| | *Index* | *Rank*[b] | *Index* | *Rank* | *Index* | *Rank* | *Index* | *Rank* | *Index* | *Rank* |
| **Greece** | **2.2** | **2** | **2.7** | **2** | **3.9** | **1** | **1.7** | **7** | **1.3** | **1** |
| France | 2.1 | 3 | 2.7 | 2 | 2.6 | 4 | 2.7 | 1 | 1.0 | 3 |
| Germany | 1.4 | 8 | 1.9 | 6 | 1.8 | 8 | 2.1 | 4 | 0.5 | 8 |
| Italy | 2.3 | 1 | 3.3 | 1 | 3.9 | 1 | 2.7 | 1 | 0.5 | 8 |
| Netherlands | 1.4 | 8 | 1.8 | 6 | 2.3 | 6 | 1.4 | 10 | 0.5 | 8 |
| United Kingdom | 0.5 | 11 | 0.5 | 10 | 0.6 | 12 | 0.5 | 13 | 0.4 | 9 |
| Ireland | 0.8 | 10 | 1.1 | 9 | 0.9 | 11 | 1.2 | 12 | 0.4 | 9 |
| Portugal | 1.7 | 5 | 2.1 | 5 | 2.8 | 2 | 1.5 | 9 | 1.1 | 2 |
| Spain | 1.6 | 6 | 2.2 | 4 | 2.6 | 4 | 1.8 | 6 | 0.7 | 6 |
| Euro area | 1.8 | ... | 2.4 | ... | 2.6 | ... | 2.3 | ... | 0.7 | ... |
| Austria | 1.4 | 8 | 1.8 | 7 | 2.1 | 7 | 1.6 | 8 | 0.5 | 7 |
| Belgium | 1.9 | 4 | 2.7 | 2 | 2.8 | 2 | 2.6 | 2 | 0.6 | 7 |
| Denmark | 1.4 | 8 | 1.9 | 6 | 2.5 | 5 | 1.3 | 11 | 0.5 | 8 |
| Finland | 1.7 | 5 | 2.3 | 3 | 2.7 | 3 | 1.9 | 5 | 0.6 | 7 |
| Sweden | 1.4 | 8 | 1.7 | 8 | 1.5 | 9 | 1.8 | 6 | 0.8 | 5 |
| United States | 1.0 | 9 | 1.1 | 9 | 0.9 | 11 | 1.3 | 11 | 0.9 | 4 |
| Japan | 1.5 | 7 | 1.8 | 7 | 1.3 | 10 | 2.3 | 3 | 1.0 | 3 |

SOURCE: Nicoletti *et al.* (1999).
a. Average of the indices for state control and barriers to entrepreneurship.
b. The 16 countries are ranked from the poorest performers to the better ones; a high number implies a relatively good performer.

**Figure 10-3. Unemployment Rate[a]**




SOURCES: OECD and NSSG.
a. For Greece, only data for the first three quarters of 2000 were available.

against other countries. A major reason for choosing this approach is that it facilitates policy decisions as compared with some of the above-mentioned analysis where the results emerge from a "black box". In Section II, developments in the markets dominated by public enterprises are reviewed, with the focus on the factors affecting enterprise performance and on the design of competition in these markets. In Section III, the role of the regulator in the markets opening up to competition is investigated. Section IV reviews the policy reform needed to enhance competition in markets dominated by the private sector, both for existing as well as new technologies. Section V presents concluding remarks.

## II. Public Enterprises – Key Players in Critical Input Markets

The public sector in Greece has traditionally accounted for a relatively important part of GDP and employment. Directly or indirectly, publicly-owned enterprises have been the main —or only— players in critical markets such as telecommunications, energy, or transport. Their overall influence on output performance is large, as they provide key inputs to the econ-

omy. Hence the conditions under which they have operated are critical in understanding overall output performance.

## *The Main Reason for Poor Financial Results is High Operating Costs*

Public enterprises have consistently required financial support, be it from the Budget or from EU funds, of the order of 3 per cent of GDP annually. The biggest loss-makers are in the transport services [trains – Hellenic Railways Organisation (OSE), Athens Urban Transport Organisation (OASA) and air travel – Olympic Airways (OA)], while the largest financing needs are in the energy sector [electricity – Public Power Corporation (DEH), gas – Public Gas Corporation (DEPA), and petroleum – Hellenic Petroleum]. On the other hand, the Hellenic Telemmunications Organisation (OTE) is the most profitable company in the country (in absolute terms), though it has large gross borrowing needs.

### *Inflexible Labour Arrangements and High Labour Costs*

Productivity indicators for most individual enterprises are very poor in relation to comparable companies internationally.[3]

- DEH produces electricity with approximately 4 to 5 times as many employees as the OECD industry average (1.5 Gwh per employee – excluding employees at lignite mines – versus 5.5 Gwh per employee). For the EU, the ratio is only double, as US and Japanese productivity is quite high.
- For the Water Supply and Sewerage Company (EYDAP), productivity indicators are about 25 per cent lower than those in the UK (3.2 compared with 2.5 employees per thousand connections).
- Olympic Airways has among the lowest number of transported passengers per employee among IATA carriers.
- OSE transports the lowest volume (passengers plus ton-kms) per employee in the EU.
- The Hellenic Post Office (ELTA) has the lowest number of postal objects served per employee in the EU.

3. Mylonas and Joumard (1999) describe individually the sectors containing public enterprises. That paper contains measures of sector productivity in comparison with international ones as well as their development over the past decade.

Only OTE and Olympic Airways have achieved a significant reduction in the number of employees – each by a third over the past 10 years. However, they still have more employees per customer than the international average, though the former is now relatively close.

The excess employment burdening public enterprises, especially of low-skilled workers, is mostly due to their use as employers of last resort, as public enterprises had, until the 1990s, fallen victim to the political cycle. Total employment underestimates the abuse of employment policy in public enterprises, since it does not capture:

i) the poor skill mix resulting from indiscriminate hirings as well as outdated skills due to a rapidly changing technology, and
ii) the fact that public sector employees have lower retirement ages (for most below the age of 55), with the result that the ratio of retirees to employees stands at 1:1.5 compared with a corresponding ratio of 1:2.2 for the economy as a whole (excluding civil servants).

During the 1990s some effort was made to contain the effects of these past policies and employment in public enterprises remained broadly stable. A 1994 law required hiring to be based on merit and most public enterprises are trying to reduce staff through attrition and in a few cases have introduced early retirement programmes (e.g. Olympic Airways and OTE). Experience from these programmes (especially Olympic's) has not been satisfactory —similar to other countries' experience— in that they have often had the undesirable result that highly qualified staff have departed rather than the low-skilled staff, and that the programmes have been very expensive. The reliance on strategies of attrition and early retirement to reduce staff has been due to the political unacceptability of layoffs.

Though a judgement on the appropriate level of compensation in an individual enterprise is difficult, there exist several indications that it is inappropriately high for the average public enterprise employee. Compensation received by the average public sector employee is nearly twice as high as in the private sector (Table 10-3). Moreover, compensation in the labour-intensive and loss-making sectors is as high as in the capital-intensive ones. For example, average compensation of employees in the Athens Urban Transport Organisation (OASA) is higher than that for the telephone company and the electricity company.

The strength of the unions has often resulted in the granting of many other, non-wage, advantages. The most costly ones are pension schemes. Replacement rates for pensions provided to public enterprise employees are the highest in Greece. Statutory gross replacement rates are significantly over 100 per cent of an employee's last monthly salary (apart from, in many

**Table 10-3. Average Compensation per Employee, 2000**[a]

| | *Monthly compensation (thousand drs)* | *Ratio to compensation in whole economy* |
|---|---|---|
| Whole economy[b] | 434 | 100 |
| Public enterprises | 688 | 158 |
| DEH (electricity) | 654 | 150 |
| Hellenic Petroleum (fuels) | 1,098 | 253 |
| OTE (telecommunications) | 612 | 141 |
| OASA (urban transport) | 715 | 164 |
| Olympic Airways Group | 955 | 220 |
| OSE (railways) | 601 | 138 |
| EYDAP (water and sewerage) | 689 | 158 |
| ELTA (post) | 629 | 145 |

SOURCES: Ministry of National Economy and authors.
a. Estimate.
b. National accounts data.

cases, generous tax-free, lump-sum, end-of-service pensions equivalent to two years' salary). Future pension payments will be a major financial headache for public enterprises, especially as they continue to be partly or fully privatised (Mylonas and de la Maisonneuve, 1999).[4] Public enterprise unions have also succeeded in negotiating restrictive labour practices, which add considerably to labour costs. Limitations on geographical and functional mobility, as well as on working time, have forced additional hiring in periods of high or shifting demand. These add greatly to total compensation in the form of overtime, nightshifts, paid rest-time, days-off, and other supplementary payment benefits.

### *Investment Programme*

Despite substantial investment expenditure, which has averaged annually about 3.5 per cent of GDP since the early 1980s, most public enterprises have not succeeded in updating to modern technologies or maintaining their infrastructure and/or equipment. The two main reasons for this situation have been a lack of investment planning and soft budget constraints. Partly due to these modernisation delays, Greece has received derogation from

4. The implicit pension liabilities are an acute problem for DEH and OTE. The Government has recently accepted to dip deep into its pocket to fund their newly independent pension funds.

most EC Directives related to the liberalisation of key sectors such as telecommunications, electricity, natural gas and air transport. Since the beginning of the 1990s, a more significant effort has been made to narrow the existing large investment and technology gaps. To this end, EU funds from the First Community Support Framework (CSF I) and CSF II have played important roles. Regarding the 1994-99 CSF II, the main public enterprises received about €6 billion (equivalent to almost 6 per cent of GDP) out of a total programme worth €29 billion, with over half the financing in the form of grants. Large amounts are also expected from the €44 billion CSF III.

Despite some progress, examples of critical investment lags are the following: OTE has only recently caught up with the OECD average in respect of the share of digital lines, after pursuing a rapid digitalisation programme over the past few years (the share increased from 35 per cent in 1995 to over 90 per cent at present). DEH's spare capacity of electricity depends on hydroelectric plants, which are susceptible to weather patterns and it has built many inefficient plants (especially the hydroelectric plants with a view to assisting agricultural irrigation). The construction of the natural gas pipeline and the upgrading of the rail infrastructure suffered delays and cost overruns. In all transportation sectors (air, rail, and urban transport), the fleets are old and have been purchased from diverse producers, raising maintenance costs and spare part stockage.[5] These developments are partly to blame for public enterprises' unsatisfactory quality of service and the resulting reduced demand.

### *Accounting Practices*

Public enterprises' accounting practices obscure their financial position, and make an analysis of their performance difficult. Most importantly, many enterprises do not have separate accounts for distinct components of their operations, prohibiting an accurate cost appraisal of the different goods and services that they offer. The most striking case is OTE's inability to provide accurate cost accounting so as to facilitate the setting of interconnection charges to its fixed wire network. A similar situation is true for DEH, where the relevant EC Directive opening the electricity market in February 2001 required an accounting unbundling of its various businesses. Moreover,

5. Poor procurement practices, especially in spare part inventories, raise operating costs substantially in many public enterprises, most notably in the transportation sector.

accounts are usually not produced on a timely basis.[6] It is, however, envisaged that separate accounts for individual operations will be established and internationally accepted accounting practices will be implemented. For example, under the new policy initiative by the Government, international auditing firms are being hired, and audits had already been completed for OTE and Hellenic Petroleum prior to their respective initial public offerings. DEH is currently undergoing similar processes ahead of an initial public offering envisaged to occur before end-2001.

### *Pricing Policy*

Changes to the prices of goods and services produced by most public enterprises have lagged developments in underlying inflation, exacerbating their poor financial performance. Moderate price increases often have been related to the government's social objectives, but also reflect attempts to diminish inflationary expectations. However, pricing policy is not the main factor for public enterprises' poor performance, since technological improvements and market liberalisation have led to significant price reductions internationally.

– International and long-distance telecommunication prices were high compared with international standards, until an aggressive re-balancing occurred during the 18 months preceding the opening of the market on January 1, 2001 under the relevant EC Directive.

– Electricity prices are near or above the OECD average, after adjusting for several factors. Industrial prices would be some 15 per cent higher were it not for the large price subsidy to an aluminium company and a nickel mine. Prices to households (excluding taxes) are slightly below average on the international scale. However, both household and industrial prices should be lower if one takes into account the fact that the electricity company:

i) has received EC funds for its investment projects,
ii) does not pay the state for lignite mining rights, its dominant source of energy, and
iii) aims to pass all profits on to the consumer.

– Prices for urban and rail transport are low compared with those elsewhere (though a comparison is made more difficult since monthly discount

6. In addition, it is generally accepted that public enterprises' financial statements and balance sheets are non-transparent.

packages do not provide significant price reductions). Nevertheless, even if raised to international levels, these services would continue to have deficitary accounts.

— Prices for domestic air travel have fallen dramatically in real terms following the competition to Olympic Airways from private carriers after the partial liberalisation of the domestic market in 1992.

### *Government Reform Policy*

The government acknowledges that Greece's real convergence to the level of its EU partners requires, *inter alia*, a successful resolution of these problems and it has therefore placed a renewed emphasis on reforming the public enterprise sector. Prior to 1996, policy moved back and forth on choosing a reform strategy —the need of which has never been in doubt by successive governments— and on the appropriate role for private sector participation, on which governments have often held an ambiguous view. The first round of reform began in the early 1990s, with a considerable delay compared with most other OECD countries. Competition improved markedly in the domestic air transport market and the retail petroleum sector following the moves to liberalise the respective markets. Similar benefits emerged in the telecommunications sector following the introduction of two private and one public operator in mobile telephony and in the media sector following the liberalisation of television and radio licensing. During the same period, the Government initiated efforts to attract foreign capital through Build-Operate-Transfer (BOT) operations; notable results were the contracts for the new Athens Airport at Spata (which was recently completed) and the Rio-Antirio Bridge. The prospects for the Government's 1996 initiative are much improved in view of an apparent shift in popular opinion favouring privatisations, in part due to the positive results from reforms experienced both in Greece and in other OECD countries.

To prepare Greek public enterprises for the challenges posed by an EU-wide competitive environment, as well as to underpin the budget consolidation efforts, the government decided that it will need to improve the quality of service, raise productivity, and attract private participation in their financing. The cornerstone of the latest government initiatives is the 1996 legislation that aims to change public enterprise management. The aim of this legislation is to introduce a management style equivalent to that existing in the private sector. To this end, public enterprises have been transformed into

sociétés anonymes. New managers have been hired through public and competitive tenders. And each enterprise was to prepare strategic and business plans (often with the assistance of international consulting firms). Management independence was to be strengthened through management contracts based on performance criteria consistent with the approved business plans.

International experience has been disappointing regarding the success of management contracts in providing adequate firewalls and preventing conflict of interests between management and short-term government considerations. In many cases, government intervention led to breaches in initial financial targets and left taxpayers the bill, as these contracts are essentially unenforceable. In other cases, the lack of a credible hard budget constraint was the source of similar outcomes.

Dissatisfaction with the model of management contracts has led many countries to use more competitive environments to ensure the efficient operation of public enterprises. This solution obviously requires more participants and thus governments have liberalised the relevant markets so as to attract new participants and have also turned to the private sector for the management and/or ownership of their public enterprises. This tendency has been facilitated by technological innovations, which have reduced the sectors that previously were considered to be natural monopolies, as well as by successful experiments in auctioning the rights to operate public services and to construct infrastructure.

A necessary complement to this approach has been the introduction of independent and powerful sector regulators for the large sectors so as to ensure fair and competitive practices, which also serve to attract more participants. In addition, the existence of an overall competition watchdog has ensured the well-functioning of individual markets as well as permitted arbitration of cross-sector issues. It has also provided a venue for the private sector to address its complaints regarding non-competitive behaviour of public enterprises (see Section III).

The Greek government considers management contracts to be a first step in the reform process. After undertaking the appropriate due diligence procedures, which clarify the financial position of the firm, and preliminary restructuring, the government intends to divest from the financially more viable public enterprises, especially as their markets are opened to competition. The sale of enterprises has been a contentious issue and it is still politically difficult to sell majority shares. Only in late 2000 was legislation passed permitting the sale of more than 49 per cent of OTE, and similar legislation was passed for Olympic Airways in the first months of 2001.

The government's decision to proceed with partial sales in profitable enterprises (either equity or operations for pre-determined periods) should provide the double benefit of injecting more exacting and dynamic minority owners to spur operational efficiency while attracting new capital to support needed investment. Of course, this form of corporate governance would be enhanced by the larger the ownership share held by investors as well as the diversity of ownership. The decision to seek strategic investors, who would operate the firm as well as risk their own capital, would also work towards this objective. However, leaving majority ownership in the hands of what the private sector could consider a whimsical public owner weakens investors' interest. In the case of OTE, a strategic partner is being sought but management is likely to remain in the hands of the Government.

Larger privatisations would also increase public revenues. However, this should be a secondary objective and should not delay the timing of sales in view of opportunity costs. On the contrary, the process should be accelerated. International experience suggests that the biggest gains can come from higher future tax revenues rather than the upfront privatisation receipts. Moreover, clawback clauses in the sales contracts, based on an expected profit stream, can protect the Government from accusations of underpricing the sales.

### *The Design of Contestable Markets*

International experience indicates that it is not easy to introduce a suitably contestable environment, with easy entry and exit for potential competitors. Such pervasive institutional changes are difficult to design and even more difficult to implement. In the case of Greece, its isolated geographical location —reducing potential competition from imports— complicates the problem even further. And if this aspect of the reform fails, private or public enterprises that retain monopoly power will have few incentives to operate efficiently. Most mistakes have been made in designing contestable markets in sectors containing elements of natural monopoly —or in sectors where network effects/externalities exist— (i.e. electricity, natural gas, water, rail service and, to a lesser degree, telecommunications), where Greece is facing important institutional changes (Table 10-4). The most common regulatory flaws have involved third-party access conditions to the network (especially access charges), the failure to reduce the market power of incumbents, and not correctly solving technical issues such as public service obligation and sunk costs (see Box 10-1 below).

**Table 10-4. Industries Featuring Both Competitive and Non-Competitive Components**

| *Sector* | *Activities which are usually non-competitive* | *Activities which are usually competitive* |
|---|---|---|
| Telecommunications | Local residential telephony [a,b] | Long-distance services<br>Mobile services<br>Value-added services<br>Local loop services to high-volume business customers, especially in high-density areas |
| Electricity | High-voltage electricity transmission[c] | Electricity generation |
| | Low-voltage local electricity distribution[a] | Electricity "retailing" and "marketing" activities |
| Gas | High-pressure gas transmission[c] | Gas production |
| | Low-pressure local gas distribution[a] | Gas storage (in some countries) |
| | | Gas "retailing" and "marketing" activities |
| Air services | Airport services such as take-off and landing slots | Aircraft operations<br>Maintenance facilities<br>Catering services |
| Maritime transport | Port facilities | Pilot services, port services |
| Railways | Track and signalling infrastructure[c] | Operation of trains<br>Maintenance facilities |
| Water | Distribution of water and wastewater | Water collection and treatment |
| Postal services | Door-to-door delivery of non-urgent mail in residential areas[a] | Transportation of mail<br>Delivery of urgent mail or packages<br>Delivery of mail to high-volume business customers, especially in high-density areas |

SOURCE: OECD, *Economic Outlook* 67 (June 2000).

a. Services in lower-density, lower-volume residential areas are less likely to be competitive than services to high-density, higher-volume commercial areas.

b. In the case of telecommunications, demand-side or network effects are as important as the underlying cost structure in limiting the number of firms providing local services that could be sustained in the absence of regulation.

c. Scope for competition varies depending on geography and nature of demand, amongst other things.

## Box 10-1. Vertical Integration versus Vertical Separation

A difficult question is whether a separation of the non-competitive segment of the industry from the competitive component will enhance the level of competition and the quality of regulation (Table 10-5).

**Table 10-5. Key Factors Influencing the Choice between Vertical Separation and Integration**

| | *Factors favouring vertical separation* | *Factors favouring vertical integration* |
|---|---|---|
| Economies of scope | Weak or no economies of scope between competitive and non-competitive activities. | Strong economies of scope between competitive and non-competitive activities. |
| Regulated firm has private information regarding costs. | Information about costs in the non-competitive component is difficult to obtain because of the use of internal transfer prices to shift costs and profits around an integrated firm. | Information about costs in the non-competitive activity is readily available and access prices can be reasonably efficient using available information. |
| | In addition, information about costs in the competitive component is difficult to obtain, making the prevention of anti-competitive cross-subsidisation difficult. | Cost information in the competitive activity is easy to obtain and can be used to prevent anti-competitive cross-subsidisation. |
| Regulated firm has private information regarding demand elasticities, capacity or quality. | Efficient pricing requires exploitation of private information in the hands of the incumbent, which it can conceal. | Capacity and quality are readily verifiable. |
| | Incumbent can conceal capacity or quality of the service. Efficient pricing may require auctions of the capacity of the non-competitive component. | |
| Institutional and legal context | Incumbent firm has wide scope for using legal and regulatory process to delay or obfuscate. | Institutions are effective in controlling the incentives for the incumbent to delay or obfuscate. |
| | The legal environment is supportive of long-term contracts. | The legal environment is relatively weak in protecting long-term contracts. |

SOURCE: OECD, *Economic Outlook* 67 (June 2000).

(*Box continued*)

**Box 10-1** ***(continued)***

Vertical separation is a more drastic action. However, the main benefit is that it reduces the incentive for the vertically integrated incumbent to restrict competition (e.g. either by raising the price of access or lowering the quality of access to new entrants in the competitive sector of the industry). In the case of separation, and under the assumption that the price of access is set above marginal cost, the owner of the monopoly segment will have the incentive to provide services to all customers, and it will have the incentive to invest in upgrading the network infrastructure. In this case, only final price cap regulation is necessary to achieve an efficient outcome. With a vertically integrated firm, more complex pricing policies are necessary to achieve optimal outcomes, e.g. two-part tariffs versus long-run average incremental cost. These will depend on the quality of information provided by the incumbent regarding its costs, and the demand elasticities for its products.

In addition, separation can enhance the quality of information regarding transfer pricing and thus prevent cross-subsidisation. Accounting separation, if effectively implemented, could attain the same objective; however, international experience suggests that it has been difficult for regulators to offset fully the ability of the integrated firm to manipulate such information. In the United States, for example, interconnection agreements have been negotiated far more easily between ATT and the baby Bells (owners of the monopolist segment) than between ATT and the integrated firm GTE (Mini, 1999). Moreover, taking accounting separation one step further, and introducing a not-for-profit operator of the monopoly segment of the industry, may also lead to inefficiencies, as this operator will have little incentive to upgrade the infrastructure (e.g. to undertake the necessary technical innovation to allow for number portability and carrier pre-selection).

The main argument against vertical separation is that economies of scope between the upstream and downstream sectors of the industry may be lost (e.g. there exist commonalties in the production of the two products).

Regulatory bodies can be substituted for vertical integration. However, regulation has proven to be difficult, costly and often only partly effective, even if the regulator was endowed with strong powers.

### *Energy Sector*

The reform of the electricity sector is probably the most critical area of reform. It is an essential input for the rest of the economy, and the incumbent monopolist is in a very weak financial situation, with very poor produc-

tivity levels and a deeply leveraged financial position. The 1999 legislation liberalising the sector is broadly in line with the 1996 EC Directive for the sector. However, the current framework is unlikely to generate competition since:

- DEH remains an integrated monopolist;
- the Government and DEH remain in control of important access issues:

i) the systems operator —who will be set up to operate the high-voltage system— is jointly owned by DEH (49 per cent initially) and the Government (51 per cent).

ii) DEH owns and will continue to operate the low-voltage distribution system.

- Pricing policy is left to the Government, and the uncertainty arising from an unspecified pricing policy is likely to deter new entrants, and tariffs set too low will deter the undertaking of private investments by stretching out the pay-back period.

Several other factors also point to the need for a bolder reform so as to attain a rapid creation of a more contestable market. Greece lacks potential competition from imports from other EU countries and its Balkan neighbours due to geographical and economic/infrastructure reasons, respectively. This isolation places a larger onus on stimulating the potential for domestic competition. However, competition between energy sources seems to be jeopardised by cross-sector financial interests between the incumbent public sector enterprises. For example, the Public Power Corporation (DEH) controls the lignite mines. Hellenic Petroleum has a call option to repurchase part of the natural gas company (DEPA), and expects to control 51 per cent of DEPA by end-2001. Finally, there exists a profit-sharing agreement between DEH and DEPA on natural gas operations.[7]

Another important obstacle to competition is the non-transparent and distorted access and pricing for key inputs (natural gas and lignite) as well as the fact that recourse to public resources appears to be highly advantageous to the incumbent and thus provides barriers to entry. Moreover, the vertically integrated incumbent could use the long transition period contained in the EC Directive on electricity to discriminate by charging different prices to captive and competitive markets. Leaving all these impediments to com-

7. DEH has signed a long-term take or pay contract with DEPA for natural gas. To compensate for the high price, a profit-sharing agreement was signed (Mylonas and Joumard, 1999). The contract also reportedly specifies that DEPA can not sell natual gas to a third party at a lower price than what was agreed with DEH.

petition at the initiation of the reform will likely permit the electricity sector to remain an effective monopoly for the foreseeable future.

A bolder reform would also sever the financial links between the natural gas, lignite, petroleum, and electricity sectors. Such separation could promote horizontal competition between substitute products as well as vertical competition for the key inputs to the electricity sector. Specifically, the petroleum sector should not own or control the natural gas company. These are the two main competing sources of energy in Greece. Third-party access conditions to lignite, which is currently the main input for the Public Power Corporation (DEH), would be greatly enhanced if the mines were independent from their main downstream buyer. Finally, the manipulation of the access price for the supply of natural gas to the Public Power Corporation in the agreement between it and the natural gas company (DEPA) is a constraint on potential entrants.

Fair access to inputs and customers would attract new private-sector players to electricity generation. However, the long lags until the entry of competition under the EC Electricity Directive (2005) and the above-described advantages of the incumbent are not encouraging. If there is no immediate interest by private sector participants in the new legislation, additional steps should be made to encourage entry into generation.

– First, a complete separation of DEH's generation operations from distribution ones instead of an accounting unbundling (i.e. the creation of independent companies). The distribution firm(s) would then have the incentive to search for the cheapest source of electricity supply.

– Second, the separation of the generation capacity of DEH into several competing firms.

In Italy, for example, ENEL is required to divest 15 GW of generating capacity by 2002 so as to meet requirements that no firm controls more than 50 per cent of the generation market. The splitting up of generation should not lead to inefficient productivity, since the optimal operating size for generation is not large, as indicated by the advent of micro-power in some countries.

This second step would obviously require a fair distribution of DEH's stranded costs so as to ensure a level playing field; and the example of other countries can be followed to this end. In Spain, for example, cost compensation was achieved through price cap regulation. There was a mechanism for redistributing the "extra" revenue among the firms in relation to their share of the sunk costs (OECD 1997). In other OECD countries, empirical evidence suggests that the financial unbundling of generation and/or transmission has reduced prices and excessive reserve margins (Steiner, 2000).

This strategy would permit the electricity sector to follow the example of the retail side of the petroleum sector. This sector has exhibited the benefits of previous liberalisation. Competition in this sector is now lacking at the level of refining, where barriers to imports arise from storage requirements.[8] Specifically, Greek legislation requires trading (distribution) companies to maintain stocks in Greece equivalent to 90 days of their (previous year's) sales. In contrast to EC Directives, these stocks cannot be kept in other EU countries. As licenses for refined petroleum storage facilities are hard to obtain and the facilities expensive to build, trading companies negotiate agreements with the two large domestic refineries, and these agreements have included clauses requiring the purchase of refined products only from them. As a result, there are no refined petroleum product imports into Greece (except for diesel fuel for which there is a production capacity shortfall), and these entry barriers have resulted in very high inland refining margins. The easiest solution would be to grant licences for the construction of storage facilities. Another option is that the storage facility, which plays the role of the monopoly or network component of this industry, be in the hands of an independent company and be run by the sector regulator.

### *Telecommunications and Transportation*

In the sectors more susceptible to competition, a government strategy of opening up the market to new entrants should provide sufficient impetus for the creation of an environment that efficiently provides low-cost goods and services to the economy. Two prime examples in Greece are air transport and telecommunications. Soon after the respective partial liberalisation of these sectors (mobile telephones and domestic flights), new entrants have provided alternatives to the public monopolist, have given the impetus for improved services and/or have forced a decline in prices for the respective public enterprises. In the case of domestic air travel, private carriers now control approximately 50 per cent of the market, while mobile phones have already achieved a market penetration of about 50 per cent, which is above other European markets that opened much earlier.

In the case of air transport, the 1998 restructuring programme for Olympic Airways, approved by the EC, has apparently failed and the firm now faces bankruptcy. The Government is seeking to find interested buyers, for approx-

8. The other important barrier to competition is the public refinery's role as exclusive supplier to the army and other public enterprises.

imately 65 per cent of the company, with the hope that new ownership would improve operations and import know-how. International experience indicates that few viable options exist for Olympic Airways other than to focus on niche markets, rather than attempting to maintain (or attain) extended markets.

Looking forward, the new Spata airport provides a unique opportunity for Greek airlines to compete in larger markets through international alliances and the establishment of feeder links to other operators. Airport facilities are the monopolistic segment of the industry, and the fact that it is in the hands of an independent firm (by a concession agreement) should help set a level playing field among airlines. For example, the fair allocation of the large increase in the number of slots could be used to enhance healthy domestic competition.

In the case of telephony, OTE's healthy financial position and rapidly changing technology should attract competitors and thus provide a high level of consumer benefits, following market liberalisation. In this sector as well, empirical evidence indicates that, even adjusting for the influence of technological development, product market competition brings about productivity and quality improvement and results in lower prices (Gonenc, 2000). In the event, such positive results have already been observed for OTE owing to the competition from mobile telephone companies and the prospects of opening up the domestic fixed telephony market. Not only have prices fallen (for long-distance calls) but the quality of service has improved tremendously.

In the liberalised environment, for competition to be furthered, interconnection charges need to be based on forward-looking costs and accounting separation must be introduced. Fair and effective competition must be promoted, especially in local markets. The nature and extent of universal service obligations must be defined and a way of funding and delivering it in a cost-effective, technologically neutral way established. The new telecommunications law which has recently come into force offers a timely opportunity to install such pro-competitive regulatory principles. But for this pro-competitive environment to be effective, it must be followed by regulatory rules that are promptly and effectively implemented by a well-empowered independent regulator to develop a fair, transparent and stable competitive environment for all market players.

Looking ahead, the main challenges will be for the sector regulator, the National Committee for Telecommunications and Post (EETT), to insist on fair interconnection charges, which are currently high compared with other European countries,[9] and on timely access to leased lines from OTE by

9. The EC Interconnection Directive permits cost-based pricing of interconnection charges but states a preference for charges reflecting the lower value, consistent with long-run average incremental cost. In Greece, interconnection charges are just below 10 drachmas per minute, which is far above the level of European best practices.

value-added service companies. The speed at which new entrants will arrive to the market may, however, be moderated by several potential drawbacks in the new framework opening up the market:

– First, the delay in the introduction of carrier selection, carrier pre-selection and number portability until 2003.

– Second, final (consumer) prices are to be set by EETT; however, the pricing formulas have not yet been announced (e.g. a price cap formula which would enhance the incentives for innovation).

Concerning the mobile telephone market, competition would be strengthened further through the rapid introduction of a fourth operator. The Government is currently considering doing so at the time of the auction of (third-generation) UMTS licenses. Another competition-friendly decision would be to eliminate the requirement that international mobile calls pass through OTE's network and be charged its high international interconnection rates.

### *Public Service Obligations and Pricing Policy*

Almost all public enterprises have been burdened with uncompensated and ill-designed public service obligations. These are partly to blame for the poor financial situation of some of the largest loss-makers; e.g. rail service, urban transport, air transport, water and sewerage services, and postal services. When restructuring these firms, the government must decide on the extent of the public service obligation and base this decision on a full cost evaluation of the provision of such services. In many cases, current budgetary constraints (combined with commitments to other social objectives) or simple need-based targeting considerations could suggest a more limited public service obligation. Examples are the highly under-used trains in the southern Peloponnese region (especially given the parallel development of road networks), the under-utilised postal offices in rural areas (which can be substituted by lower-cost agencies operating out of local stores), the long-distance flights to countries with Greek emigrants, and extensive public television, which serves less than 10 per cent of the viewing audience.

Regarding pricing, raising ticket prices for urban transport, rail or postal services from the current extremely low level should not be considered as regressive, even if externalities or social considerations suggest that a degree of subsidisation should be maintained. Use of urban transport can be increased through taxation of the competing, socially more expensive, car transport, as has been done in other countries. Raising fuel taxes –which are among the lowest in the OECD area– could serve to raise the cost of opera-

**Table 10-6. Petroleum Dependence**

| | *TPES[a]/GDP 1998* | *Petroleum share in TPES 1998* | *Share of tax in unleaded gas price 1998* |
|---|---|---|---|
| **Greece** | **0.28** | **58.8** | **55.7** |
| France | 0.19 | 35.5 | 72.7 |
| Germany | 0.18 | 40.6 | 70.7 |
| Italy | 0.14 | 56.9 | 67.6 |
| Spain | 0.19 | 54.7 | 62.0 |
| Japan | 0.15 | 51.1 | 56.4 |
| UK | 0.22 | 35.9 | 76.8 |
| US | 0.31 | 38.9 | 24.1 |

SOURCE: International Energy Agency.
a. Total Primary Energy Supply comprises indigenous production + imports – exports – international marine bunkers +/- stock changes.

ting cars towards their social cost to the economy, and thus help reduce the economy's relatively high energy intensity (Table 10-6). More generally, direct means-tested assistance from the budget would probably be a more efficient and cost-effective method of providing subsidies to the truly needy.

In the event, clear contractual agreements with the enterprise stating the service provided (quality, distribution, etc.) and the compensation to be received must replace the policies of residual deficit financing (i.e. soft budget constraints) and the other non-transparent arrangements. Once such clear agreements are reached, the rationale for public operation of the service lessens, and countries experimenting with tenders to private operators for a pre-determined duration period have achieved further efficiency gains. The finite period of the arrangement provides the operator with the incentive to perform well so that the contract will be renewed. In the case of Greece, water and sewerage services, urban transport, rail services, and postal services could all be candidates for tenders. In several sectors, splitting the public monopoly into several competing firms provides the option for benchmarking, which would be another means for judging performance.

Though the infrastructure could probably remain in the hands of the public sector, over the longer run such a division of responsibility skews the incentive for the operator regarding the maintenance of the infrastructure. If sales are linked to infrastructure ownership, then private sector capital could provide significant relief to the budget and supplement EU funds. Moreover, competition by private sector applicants to use EU funds, and the infrastructure to which they apply, could improve the efficient utilisation of these resources and deter cost overruns and completion delays. Such incentives appear to have made the completion of the new Athens airport at Spata

the only large project to have been completed on schedule, and without large cost overruns. Similar structures have been used for the construction of the low-pressure natural gas distribution system and can be extended to electricity distribution as well.[10] Nevertheless, for existing public enterprises, raising additional resources from the private sector will require share capital increases (as equity sales accrue to the State), and, for the new ownership to risk the additional investment, it will be necessary for these enterprises to implement ambitious restructuring plans.

## III. The Role of Regulators

The move from a situation where sectors are dominated by state-run enterprises towards one of competitive markets would benefit greatly from the existence of regulators to act as competition arbitrators, especially in the early stages of the transformation. The experience in other countries has been to develop and strengthen the role of competition agencies, with economy-wide competencies, as well as of sector regulators. In the case of Greece, the role of the latter will be even more important in view of the multitude of situations where liberalisation leaves the incumbents as vertically integrated firms (electricity, natural gas and telecommunications).

### *Competition Committee*

The Competition Committee has had little influence over policy to date. Its major role has been to decide on the appropriateness of mergers involving private firms. Decisions on merger applications are an important activity, but perhaps lower on the list of priorities in Greece, compared with other countries, in view of the large concentration of small firms, comprising only few employees. Thus, in the case of Greece there appears to be a need for consolidation. In recognition of the misplaced emphasis on mergers, legislation passed in August 2000 raised the limit on the market share above which the Competition Committee must be informed in advance of the merger from 25 per cent to 35 per cent.

Moreover, the new legislation gave the Competition Committee more power, since it strengthened its advocacy role. It can now choose the mar-

10. A process which will simplify and thus speed up the approval of privately funded projects is currently being implemented by the government.

kets and sectors for which it can issue opinions regarding the appropriateness of competitive conditions. Previously, a request needed to be made by a set of pre-identified bodies (Parliament, the Ministry of Development, the Ministry of National Economy, associations of trade and industry, unions etc.) before it could proceed on a specific inquiry. The Competition Committee has also been hampered by its low number of staff and their poor qualifications and remuneration. Even its current physical location (in one of the buildings of the Ministry of Development) is a symbol of its past lack of independence.

The staff of the Competition Committee is several times smaller than in other OECD countries, adjusting for the economy's size (OECD, 2001). One consequence is the lack of resources to obtain adequate information so as to make such reports, though the Committee has the right to such information.[11] The August 2000 legislation took a step forward in this regard by granting the Competition Committee financial independence (a 0.001 per cent charge on new listings and capital raisings), and it has its own budget, separate from that of the Ministry of Development (GRD 626 million for 2001). However, staff salaries may still not be sufficient to attract adequate staff and compare very poorly with those offered to staff in the newly created telecommunications sector regulator.

The new legislation has moved the focus of the Competition Committee in the right direction. However, it is too early to tell whether the Committee will attain the stature of similar committees in other countries (e.g. Agencia de la Competencia in Spain and the Office of Fair Trade in the UK). It faces several critical tests in that it has been advised by the Government to investigate the current degree of competition in the domestic passenger ferry market and the petroleum market.

Another challenge that the Competition Committee faces is the interaction with the newly created sector regulators (such as that in the telecommunications sector and in the energy sector). A benefit of having only one economy-wide regulator is that it can perceive cross-sector issues and it is less easily "captured" by the firms it purportedly regulates. On the other hand, sector regulators can specialise in the technical issues relevant to the specific sector. In some countries, sector regulators form a specific subcomponent of the economy-wide regulator. International experience suggests that sector regulators should acquiesce to the view of the Competition Committee in the event of disagreement. The August 2000 legislation leaves

11. The Competition Committee also has the right to impose sanctions, up to 15 per cent of the offending firm's annual gross turnover.

the hierarchy in doubt, since the Competition Committee appears to have the upper hand only on issues delegated to it by the sector regulators (Revision of Article 8 of Law 703/1977 by Law 2837/2000).

## *Sector Regulators*

The Government has created new sector regulators for the telecommunications and energy sectors and there exist sector-bodies with weaker authorities for passenger shipping and air travel. In all sectors, the main issues that the regulator must face are similar. In a market structure with competitive and non-competitive segments, the regulator's task will be to ensure the existence of a competitive framework through its decisions regarding: (i) final prices, (ii) access conditions, including access price, (iii) consumer safety, and (iv) public service obligations.

### ***Telecommunications***

The National Committee for Telecommunications and Post (EETT) was set up in 1994 as an independent authority supervised by the Ministry of Communications and Transport, with functions of a consultative, supervisory, and enforcement nature. From the start, it has faced a number of problems that have seriously hampered its ability to act as an effective independent regulator for the sector. Principal among these are a lack of institutional powers in certain important areas (such as the granting of licences, clarity with respect to the boundaries between the Committee's powers and those of the Ministry, insufficient human resources and lack of relevant expertise).

The new telecommunications legislation, which passed Parliament in December 2000, significantly enhances the powers of EETT. From having a largely advisory role (especially with respect to the granting of licences), it appears that EETT has been provided with powers broadly similar to sister agencies in other countries. Under the new legislation, EETT is responsible for:

— licensing, including the award, amendment, withdrawal, and transfer of individual and general licenses;

— telecommunication tariffs, in particular their cost-orientation in relation to interconnection, local loop unbundling, and leased lines, as well as the implementation of proper cost accounting systems;

– setting the conditions for access to the network leased lines and for their availability;

– ensuring that competition is attained (e.g. by checking inter-firm interconnection agreements);

– the definition, costing, and financing of universal service;

– the management and allocation of frequency spectrum;

– the administration of National Numbering Plan and the allocation of numbers;

– pronouncing opinions on new legislation; and

– arbitrating between firms.

The role and reputation of EETT will develop over time, and old customs will change slowly. For example, in the decision over whether the state-owned electricity company (DEH) should be permitted to participate in the auction for the wireless in the local loop basic telephony licenses – a decision which should have been solely in the hands of EETT – several Ministries attempted to influence the decision.

### *Energy sector*

The new energy sector regulator (RAE), whose mandate includes the electricity market, the petroleum market and the natural gas market, was set up in late 1998 and attained financial independence in August 2000 (by means of its ability to charge fees on firms participating in the energy sector). In contrast to the telecommunications sector, the energy sector regulator has mainly monitoring, advisory and referral responsibilities. True regulatory responsibilities rest with the Ministry of Development, which sets tariffs, gives licenses, and is responsible for the public service obligation. The fact that the Government will remain the majority owner of the integrated monopolist and make most of the key decisions instead of the sector regulator is unlikely to foster a competitive environment in a sector where introducing competitive elements will, in any case, be difficult.

### *Passenger shipping*

The sector is regulated by the Maritime Ministry, which decides on entry (licensing), pricing, route scheduling, the imposition of public service obligations, certification and enforcement. The Ferry Transport Advisory Committee (GEAS) is an advisory body which makes non-binding recommenda-

tions about licenses and prices. It is not an independent agency and is basically dominated by government representatives.

An independent regulator along the lines of that in telecommunications could play a useful role, in view of the end of the derogation granted to Greece at end-2003, regarding the elimination of cabotage restrictions. It should be able to grant licenses and determine the fulfilment of the public service obligations. The Government has recently announced that it will move up the elimination of cabotage restrictions by 15 months, and that it will introduce a strengthened regulator for the sector.

### *Air travel*

This sector is regulated by the relevant Ministry (the Ministry of Transportation), while the Civil Aviation service —YPA— basically has the role of airport authority. In essence, YPA is a service provider as well as an (albeit weak) regulator. It is not an independent organisation and forms part of the Ministry of Transportation. As far as its regulatory powers are concerned, its main role is an advisory one to the Ministry, with market liberalisation proceeding as set out in the relevant EC Directive (2407/93/EC). Regarding the new airport in Athens, it appears that the concession grants the private owner the right to set (and receive) all airport-related tariffs, though it must treat all airlines equally. It is not clear to whom airlines will be able to appeal in the event that they feel that they are unfairly treated by the new airport authorities. In this sector also, an independent regulator could play a useful arbitration role in adjudicating issues between (private and public) airlines and the airport authority. This involves the need for a separation between the two current functions of YPA (that of the service provider and that of the regulator) by setting up two separate organisations.

In summary, the independent Competition Committee and the sector regulators are a relatively new, but certainly welcome development in Greece. To date, only the Competition Committee and the telecommunications sector regulator appear to have powers comparable with those of authorities in other countries. In these cases, time will be the judge as to their effectiveness. Nevertheless, both will need to act and, just as importantly, to be seen to act, independently from the Government, and to push hard for liberalisation. The Competition Committee should not shirk from analysing difficult markets such as electricity, or —more broadly— energy and then making public its findings. As regards EETT, it should aim to move forward the date on which carrier selection and pre-selection will be permitted.

In view of the likelihood of a multitude of complex issues that will arise as several other important sectors are liberalised, legislation providing similar powers to sector regulators in other areas could be useful, though these regulators could be subsections of the Competition Committee. In general, the ruling hierarchy between the Competition Committee and the sector regulators will need to be established.

## IV. The Role of Framework Conditions in Promoting Private-Sector Competition and Entrepreneurship

This paper has so far mainly dealt with the product market reform issues that arise in the context of markets dominated by a few large players, usually public sector firms (telecommunications, energy, air transport), or large private firms (sea transport). Getting structural policy right in these markets is obviously critical for overall output and productivity performance, because of the large weight these sectors have in total GDP. Ownership issues and regulatory structures in increasingly liberalised environments take centre stage in those cases.

There are, however, a number of other product market reform issues that are central to any structural reform agenda. They relate to the role of framework conditions in promoting private-sector competition and entrepreneurship. Such conditions cover a broad range of areas. They relate to entry issues, licensing requirements, closed professions and standards. They cover financing issues, and the availability of bank credit and other capital for new entrepreneurs. They have to do with the institutional and legal framework, which fosters or discourages private sector activity and entrepreneurship, such as the tax systems, the system of corporate governance, insolvency law, etc. Finally, there is a host of issues that revolve around the capacity of an economy to move towards new areas, turning effectively new ideas into new technologies, products and services.

In this context, increasing attention is being paid to the notion of "entrepreneurship", and in particular the ease with which firms enter markets, search for profitable opportunities and exit if they fail. Entry, displacement, search, fast growth and exit from markets drive overall performance; young firms and entry opportunities are key in this process. Such "turbulence" is at the heart of dynamic and competitive economies.

In many countries, reform efforts in this area have included the simplification of business reporting requirements and acceleration of procedures for

obtaining licenses or other types of government authorisation, thus easing the burden on small firms and removing obstacles to business start-ups. Regulatory reviews in many countries have attempted to identify regulations that do not, or that no longer, serve the purpose for which they were adopted or that impose burdens on industry which outweigh their benefits. Consensus-based rulemaking, enhancing public participation in the rule-making process, and using market-oriented approaches to regulation have all been important.

In the case of Greece, one of the difficulties in judging whether such conditions are binding for output growth and economic performance in general is that there is often a wide gap between legislation and practice. Legislation and regulatory conditions whose design is such as to discourage private-sector activity are often not enforceable or enforced, so that in actual practice they have little bearing on private-sector activity. Conversely, other pieces of legislation on regulations, while reasonable on paper, in practice are enforced in such a way as to impose steep costs and effectively act as obstacles to entrepreneurial activity.

Another difficulty relates to the lack of data in some of these areas. This issue is particularly troublesome in the case of Greece. For these reasons — aside from the inherent difficulty in establishing robust one-to-one relationships between such framework conditions and economic performance — the arguments presented below remain to an extent heuristic, resting on evidence that falls short of that which would have been desired.

### *Entry Issues*

Entry issues relate to administrative burdens on start-ups and licensing issues. Regarding administrative burdens on start-ups, the focus of international studies is on the potential delays and costs for company registration. These are seen as a barrier to entrepreneurship and as an indicator of the quality of the administrative and regulatory environment within which firms have to operate.

International comparisons, such as those by the European Commission (2000), paint a poor picture for Greece. Composite indicators, taking into account costs, delays, as well as the number of procedures and of services or government departments involved, show Greece at far below average within OECD countries. In particular, the results show an impressive number of documents required prior to new company registration, a high number of government services involved, and long waiting times and high cost. Nevertheless, some 30,000 new firms —albeit many comprise "one-person" operations— are created on a net basis every year (80,000 on a gross basis), suggesting that another problem may be the lack of potential for growth.

The Greek authorities understand that there exists today an excessive bureaucracy for obtaining what is necessary to start up a company, and that entrepreneurs are faced with too much legislation, which is often complex and overlapping, and poor government administration. For example, getting the articles of association for a new business approved requires several "tos and fros" between the prefecture authorities, the notaries, and the tax authorities, before the articles are published in the government gazette. An effort is underway in this respect for a simplification of procedures and the creation of "one-stop shops".

Licensing issues are also important. OECD work has shown that the removal of obstacles for entry into certain professions as well as of administrative regulation (such as fees set by the state, or restrictions on advertising) have resulted in significant price reductions for professional services, ranging from a few percentage points to 30 per cent in some cases. Some first indications for Greece from an ongoing study suggest that entry into transportation services (trucking and buses) is especially arduous as few new licenses are forthcoming. As a result, both sectors are dominated by many small operators, not operating in a co-ordinated fashion, when in both sectors there are potential gains from economies of scale. Restrictive shopping hours have a similar impact, sustaining less competitive participants in the retail sector.

In addition, for a number of technical professions and liberal professionals (such as lawyers, notaries, architects, pharmacists and mechanical engineers) legislation creates artificial demand or distorts prices. For example, there are requirements for the presence of lawyers and notaries at the signing of contracts which in other countries are deemed too trivial. May 2001 legislation has improved the situation. In the case of pharmacies, the law defines a hefty fixed profit margin (35 per cent) and restricts what products can be sold over the counter and retail (e.g. in supermarkets). On the other hand, price ceilings exist in the drug manufacturing sector —no price higher than the cheapest commensurate product in the EU— which has led to a major downsizing of the industry. Price ceilings exist on private school fees and car insurance premiums (which have created financial problems in the latter sector as they do not compensate fully for risk).

### *Institutional Framework*

The institutional framework is a hindrance to the creation and development of private sector activity, as it impedes entry, growth and exit from markets. Similarly to the cases described in Section II, fair access conditions

are a prerequisite for competition. The main failures of the institutional framework are:

— Labour rules make hiring and firing expensive.

— The tax system contains incentives for firms to remain small and unincorporated.

— The legal system does not provide a level playing field through an adequate enforcement of the rules of the game.

**Labour regulations**: Hiring and firing employees is relatively expensive in Greece, which makes it riskier for a competitor to make the decision to enter the market.[12] The minimum wage is a relatively high share of the average wage,[13] and more importantly, non-wage labour costs, comprising contributions for state pensions, health care and unemployment benefits, increase labour costs to the employer by about 30 per cent. A reduction in the workforce in the event a business is performing less well than planned is also difficult, since Greece has one of the most restrictive employment protection legislations in the OECD (Nicoletti *et al.*, 1999). For example, severance pay for employees can reach 24 months' salary for 28 years of employment —this is among the most generous in the OECD— and there exist monthly firing limits. Finally, there are tax obstacles to more flexible forms of pay, as the tax treatment of stock options until quite recently was unclear (see below).

**Enterprise tax system**: The tax system for enterprises is complex, non-transparent and provides incentives for firms to remain small and unincorporated. The end-result is that it is unlikely firms will attain a size that can compete on a larger scale. Specifically, tax rates are lower for unincorporated firms. The corporate tax rate is 35 per cent for firms listed on the stock exchange, but falls to 25 per cent for general and limited partnerships. The tax system may also provide incentives for self-employment since social security contributions in this case are effectively much lower than for employed workers. It thus appears to be a major factor for the large share of small unincorporated firms in Greece and non-agricultural self-employed.

**Legal system**: The courts are very slow in Greece, and the number of cases that take more than one year to decide have risen dramatically over the past two decades. Without making a judgement as to the quality of legislation pertaining to enterprise law, we note that in practice individuals hesitate to seek

12. Labour market issues are covered in Burtless (2001).

13. The entry level minimum wage is over 50 per cent of the average wage in the manufacturing sector and the minimum wage increases for marriage and years of experience (10 per cent for marriage and 5 per cent for every five years of experience, up to 15 per cent), which pushes this ratio up to nearly 2/3.

retribution in the event of a counterparty's failure to meet contract obligations, since it is unlikely that timely and substantive benefits would result. *Inter alia*, court ineffectiveness stems from the strict bank secrecy laws, which make it almost impossible for the courts to seize bank assets. It is partly for these reasons that one observes the phenomenon of large recourse to guarantees. For example, banks demand collateral worth substantially more than the amount they lend, and suppliers seek post-dated checks as a form of credit or guarantee. In Greece, unlike most other countries, a bounced cheque constitutes an offence punishable with a jail sentence. Indeed, the large circulation of post-dated checks in Greece is impressive (operating as a form of fiat money).

The legal system's treatment of firm bankruptcies appears to add to the creation of an unequal playing field. Bankruptcy is an important means for a firm to exit a market, and there exists a large literature as to the whether a system that favours creditor over debtor rights or vice versa provides the best incentive for the development of firm activity.[14] Overall, it appears that European law is gradually moving towards (though not necessarily to) US-Chapter-11-style bankruptcy proceedings, which support debtor rights. The Greek legal system, on paper, appears to strictly support creditor rights (e.g. the management is automatically taken away from the previous managers and the decision to liquidate is taken by an outside officer). In practice, however, the system favours debtors, for the reasons mentioned above – long delays and the inability to seize bank assets. In fact, it provides incentives for incorporated firms to declare bankruptcy as a way to avoid their contractual responsibilities.[15] On the other hand, as was mentioned above, lower enterprise taxes as well as a less burdensome administrative environment favour the establishment of unincorporated firms. In these cases, firm bankruptcy is equivalent to personal bankruptcy and may thus be a substantial disincentive to entrepreneurship.

### *Financing*

The availability of financing has been considered a major obstacle for SME business performance in Greece and a factor almost twice as important as for the average EU country (Observatory for SMEs, 1999). This is not surprising, since, until quite recently, the financial environment was not conducive to bank lending in general.

14. For a good exposition of this debate, see White (1996).

15. It should be noted that liabilities to the public sector for taxes and social security contributions are never written off, except by a ministerial decision.

**Table 10-7. Sources of Financing**

*A. Banking system, 2000*

| | *Bank credit to the non-bank private sector (per cent of GDP)* |
|---|---|
| **Greece** | **35** |
| United States | 69 |
| Japan | 118 |
| Germany | 118 |
| France | 80 |
| Italy | 60 |
| United Kingdom | 120 |
| Canada | 88 |
| Belgium | 77 |
| Netherlands | 107 |
| Sweden | 103 |
| Switzerland | 167 |
| G-10 | 86 |

*B. Stock exchange*

| *Year* | *1996* | *1997* | *1998* | *1999* | *2000* |
|---|---|---|---|---|---|
| Capital raised through ASE (billion USD) | 0.45 | 2.68 | 3.86 | 13.31 | 9.65 |
| Capital raised through ASE (billion GRD) | 108.4 | 77.4 | 1,141.1 | 4,374.5 | 3,526.6 |
| Capital raised through ASE as a per cent of GDP | 0.4 | 2.2 | 3.1 | 11.2 | 8.8 |
| Commercial bank credit[a] (billion GRD) extended to corporate sector | 696 | 694 | 585 | 591 | 1,938 |
| Per cent of GDP | 2.20 | 2.10 | 1.60 | 1.50 | 4.8 |

SOURCES: Athens Stock Exchange (ASE), International Financial Statistics, Bank of Greece.
a. National Bank of Greece estimates.

– A sustained tight monetary policy had kept interest rates in real terms quite high.

– An uncompetitive banking sector resulted in one of the highest lending to deposit rate spreads among the OECD countries (over 8 percentage points).

– There existed large taxes on loans. EFTE was 4 per cent on the interest payments of a loan, before it was gradually reduced and eliminated starting in 2001. However, a charge of 0.6 per cent still exists on most domestic loans, which goes to subsidise special categories of loans (e.g. exports).

– Large government deficits resulted in banks lending mostly to the public sector (through the purchase of government bonds and Treasury bills).

As a result, Greece is still a relatively underbanked economy, with private sector credit to GDP near 35 per cent, compared with a ratio closer to 100 per cent on average in the other continental European countries (Table 10-7). If one subtracts credit to public enterprises and government-controlled enterprises from total credit to the private sector, credit extension is even smaller. Moreover, credit is mostly extended to large, established firms.

During the past few years, the financial environment has changed with the meeting of the Maastricht criteria, entry into EMU, and an unleashing of strong competitive forces in the banking sector. As a result, credit to the private sector is expanding at a rapid pace, including loans to smaller firms. Moreover, the stock market has developed as an important source of financing and, in fact, over the past couple of years has outstripped the banking system as the key source of financing (despite the recent equity price correction). These developments suggest that it should be far easier for firms to find sources of financing.

### *Dynamic Adaptation to Change – Supporting Business Start-Ups*

Product market reform is often focused exclusively on issues of static efficiency. Dynamic efficiency – the capacity of firms to innovate and thereby create new products and services – is increasingly important as countries are shifting from industrial to post-industrial knowledge-based economies, i.e. economies increasingly based on the production, distribution and use of knowledge and information. Information-intensive sectors as diverse as computers and communications, education, or business services account for up to 50 per cent of GDP in some countries. With the accumulation and efficient distribution of knowledge now recognised as important drivers of productivity and growth, the adaptability to change, continuous learning and more flexible structures are critical for performance and competitiveness.

Policy should, therefore, be directed towards improving opportunities, institutions and framework conditions for an ongoing search process by firms with a view to making it more successful. This includes establishing the necessary infrastructure to facilitate financing of start-ups and young firms (for example through the establishment of venture capital markets). These mechanisms are especially important for new technology-based firms, which operate in a fast-changing environment. In Greece, there is a small number of such business start-ups and a shortage of dynamic small technology-based firms. Among the reasons for this, perhaps the most important is a lack of capital and the underdevelopment of a venture capital industry.

Venture capital —a specific type of finance available to high-risk projects in young companies that are not quoted on the stock market— has been identified as a strategic resource for new firms in knowledge-intensive industries. Venture capitalists do not only provide finance; they also coach new firms and help transform ideas into saleable products. A well-functioning venture capital market seems to be a critical factor for the establishment of new technology-based firms. Such financing should be almost exclusively concentrated in the pre-IPO stage of company development, so that the company takes small risks for a limited time (typically 2-3 years) before an exit through a public offer or a purchase by another company. Venture capital financing in Greece is in its infancy. There are practically no examples of seed capital and early stage financing. In addition, most venture capital firms in Greece today are offshoots of large banks, as opposed to the more specialised (often small) outfits that characterise the venture capital market in most of Europe and the United States, and usually fund relatively established enterprises.

Governments in most OECD countries have actively tried to help the creation of such a capital market. They have used a variety of approaches: direct supply of capital via government equity investment or government loans; indirect financial incentives such as loan and equity guarantees; and changes in investor regulations to allow institutions such as pension funds or insurance companies to invest in venture capital.

The Greek government has recently announced initiatives in order to help the emergence of such a venture capital market, including funding of 'new economy' ventures from privatisation proceeds and from the EU Structural Funds. Such initiatives could accelerate the creation of a well-functioning venture capital market, under certain preconditions. One is that their design should involve risk-sharing between the private and the public sector, with the creation of "hybrid" funds whose management will be in the hands of private sector fund managers, and with the aim that eventually these funds become "self-sustaining", with the state selling off its share. A second is that

any direct or indirect support should be complemented by changes in investor regulations to allow investments in venture capital.

Aside from financing issues, there are a number of other obstacles to the creation of new technology-based firms in Greece. One relates to the very limited use of stock options. Stock options have in many countries proved to be important instruments allowing independent growth of a firm at the early stages of its life and thereby creating more diversity in the sector. They have been used very little in Greece, ostensibly due to their tax treatment.[16] As a result, and combined with the underdeveloped capital market, many new ventures in the information and communications technology field find it hard to develop independently and are quickly bought out by the few large firms in the sector, potentially reducing diversity and future growth in the sector.

Another issue relates to the lack of "spin-off" firms from the university and research community. Unlike in other countries, where successful "new economy" firms are typically the product of a spin-off from a university or a research centre, there are very few such examples in Greece. A recent proposed change in the legal environment for "spin-offs" should go some way towards removing some of the current obstacles and encouraging more such ventures. A major obstacle, nevertheless, will continue to be the very poor legal protection of intellectual property rights. Equally important will be the establishment of "facilitating mechanisms" such as technology incubators that help a research idea mature into a financially viable project. Perhaps the most important issue, however, is the lack of an organised "culture of entrepreneurship" in the university system. Its development is a long-term issue, but it could be helped by providing new incentives to university professors. On the one hand, higher wages could be linked with constraints to higher-priority second and third jobs, such as law, engineering, doctor offices and consultancy firms. On the other hand, performance and promotion could both be linked to grant approvals.

## V. Conclusion

Following nominal convergence and having met the Maastricht criteria for entry into EMU, Greece has set its sights on real convergence – the convergence of real *per capita* incomes to those of its partner countries. Among the conditions mentioned at this conference that are necessary to attain this

16. Greek legislation has only recently attempted to clarify (November 2000) their tax framework; *inter alia*, the type of income (and thus the tax rate) and the timing of the tax liability.

objective, structural reform and the creation of more competitive product markets are among the most important.

In line with EC Directives, Greece is opening up large and important markets that have been dominated by public enterprises. These markets provide critical inputs to the economy such as energy, telecommunications and transportation. In most cases, having been provided with derogation periods, Greece can benefit from the experience of other EU countries that preceded it in their market liberalisation. The main lessons are:

- Public enterprises need to be restructured if they are to attract private sector capital. In the case of Greece, the main problems stem from low labour productivity and high labour compensation, including compensation for pensions. Independent management is also necessary, *inter alia*, for decisions regarding procurement.
- The opening up of markets has resulted in improved quality of service, lower prices and subsequently more demand for these products.
- Most sectors have a network (non-competitive) component, to which access must be fair. Vertical separation of this component from the sectors susceptible to competition is one sure way to greatly enhance the likelihood of a well functioning and efficient sector.
- In the event the incumbent is left as a vertically integrated firm, as appears to be the case in Greece, especially in the energy sector, the creation of independent regulators is especially critical to ensure a level playing field for new entrants.
- Competition should be enhanced wherever possible by lifting obstacles to imports and foreign competitors.
- Competition should also be enhanced by allowing competition among similar sectors, e.g. among the different forms of transportation and, more importantly in the case of Greece where the supply of imports is constrained, among the different sources of energy.
- Both the sector regulators and the Competition Committee should be truly independent, active, and be trusted by all market participants as guardians of a level playing field.

To promote a more dynamic private sector, the Government has an important role to play in eliminating obstacles to competition it has created in the past. Most importantly, this should include re-examining its role as it pertains to bureaucratic requirements for starting up/entering activities. Though financial institutions appear to be adapting to the more competitive environment and firms' access to financing has improved, a fairer application of the rule of law may be necessary. In this regard, the speed and efficiency of the judicial system may need improvement, including the re-exam-

ination of bank secrecy laws as well as of the bankruptcy legislation. Obstacles to entrepreneurship contained in labour and tax legislation may also need to be revisited (respectively, redundancy limits and incentives for firms to remain small). Regarding financial support for the potentially more dynamic sectors of the economy, new institutions, better suited to their needs, appear necessary to be established (the promotion of venture capital, spin-offs, and the protection of intellectual property rights). Here too, the experience of other countries should be used.

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## Comment by Leonard Waverman

My comments are designed to augment and stress certain of the points raised by the authors, mainly with reference to the telecoms sector. I agree wholeheartedly with their analyses and recommendations.

The attached tables provide data on the performance of the Greek telecoms sector relative to other OECD countries, and the OECD average. In fixed main lines per capita, Greece in 1997/98 was not far behind the UK and was above the OECD average, a story not true only seven years earlier. Greece lagged the EU and the OECD in 1997/98 in cellular penetration. Revenues per subscriber are low for main lines and high for mobile ones. Prices however, are higher than average for both fixed and mobile service. In 1997, OTE was the worst performer in the OECD in terms of digitalisation of switches, and an average performer in 2000.

Thus, the 1990s have seen a substantial performance by OTE. Note that Greece had a derogation from telecoms liberalisation from 1998 to 2002. One wonders whether derogations are the best strategy for countries with poor performing utilities.

Investment in telecoms in Greece has expanded rapidly since 1990. However, this investment is still low in annual per capita terms. More crucially, the investment has been undertaken by a monopoly – OTE. A competitive market could likely provide more investment and it would be directed by market forces. Contrast the OTE monopoly over this period with the situation in broadcasting, where Greece has 13 national licensed operators, three public and ten private, and 269 terrestrial radio licences. OTE also appears to be using some of the traditional incumbent tools to ward off competition. For example, OTE claims it was unable to provide accurate cost accounting in order to establish correct interconnection charges. The regu-

**Table 10A-1. Main Lines/Capita**

| | *1998* | *1990* | *Cellular (1998)* |
|---|---|---|---|
| **Greece** | **51.6** | **38.6** | **9** |
| OECD | 48.9 | 39.1 | 16 |
| UK | 54.0 | 44.1 | 14 |
| Netherlands | 56.6 | 46.4 | 11 |
| US | 66.0 | 53.6 | 21 |
| Germany | 55.0 | 40.3 | (Finland) 47 |

SOURCE: OECD.

**Table 10A-2. Telecom Revenues/Mainline**

| | *PPP in US dollars* | *Per cent of GDP* | *Cellular in US dollars* |
|---|---|---|---|
| **Greece** | **237** | **2.74** | **875** |
| Germany | 836 | 2.10 | 815 |
| UK | 1,072 | 2.72 | 806 |
| US | 1,423 | 3.17 | 597 |

SOURCE: OECD.

**Table 10A-3. OTE 1997, Revenue USD 3 Billion**

| | |
|---|---|
| Greater than: | Telecom Eiron, Optus, Orange |
| Two times the revenue of: | Sonera |

SOURCE: OECD.

**Table 10A-4. Digitalisation of Switches**
Per cent of total

| | *1997* | *1999/2000* |
|---|---|---|
| **OTE** | **47.07** | **90** |
| | **Lowest in OECD** | |
| OECD | 89.20 | |
| Portugal | 88.30 | |
| Germany | 100.00 | |

SOURCE: OECD.

latory answer is simple – use the EU average as a benchmark. This may well induce OTE to discover a sudden ability to account.

A key statement in the paper is on page 524: "The Competition Commission has had little influence over policy to date". New legislation passed in August 2000 will help, but, as the authors point out, augmented resources are essential.

**Table 10A-5. Major Areas of PTO Expenditure**
Per cent

| | *Depreciation* | *Wages* | *Taxes* |
|---|---|---|---|
| **Greece** | **18** | **35** | **14.5** |
| OECD | 26 | 28 | 6 |
| UK | 20 | 28 | 8 |
| Germany | 23 | 22 | 6 |

SOURCE: OECD.

**Table 10A-6. Investment/Capita**

| | *USD/capita* |
|---|---|
| **Greece** | **90** |
| OECD | 150 |
| UK | 180 |
| Japan | 260 |

SOURCE: OECD.

**Table 10A-7. OECD Price Basket (PPP)**
US dollars

| | *Residential* | *Business* |
|---|---|---|
| **Greece** | **530** | **1,116** |
| OECD | 427 | 971 |
| Germany | 419 | 983 |
| UK | 367 | 826 |
| US | 340 | 1,036 |

SOURCE: OECD.

Similarly, the telecom regulator, EETT, also has new powers. Given the role of the EU and its directives, these agencies will become a significant force. What is needed now is to ensure that the structure of the regulated sectors is not set in stone before the day when regulators are truly informed and powerful.

For example the authors discuss the state-owned electricity company's attempt to bid for a wireless local loop license. Such attempts must be controlled.

Telecoms is relatively well handled compared with other regulated sectors. In electricity, the authors detail the cross-sector financial ownership, profit sharing arrangements and other constraints on competition. In elec-

**Table 10A-8. International Traffic/Access Line**

| **Greece** | **110** |
|---|---|
| | **(65 per cent to UK, Italy, Germany)** |
| OECD | 115 |
| UK | 170 |
| US | 129 |
| Germany | 106 |
| Portugal | 98 |

SOURCE: OECD.

tricity, the EU cannot be relied upon to do for Greece what Greece is generally unable to do for itself. There is little workable EU deregulation in electricity. Witness France. Here the Greek Competition Committee must step in. In the end, the best source of competition in Greece is the national competition champion – the Competition Committee.

# 11 Greek Banking at the Dawn of the New Millennium

Barry Eichengreen and Heather D. Gibson

GREEK banking at the dawn of the new millennium is being reshaped by three powerful drivers: catch-up, competition, and privatization. By catch-up we mean that, in banking as in other aspects of its development, Greece started out behind the rest of the European Union (EU). In 1997, for example, the country had only 24 bank branches per 100,000 residents, the fewest of any EU member state, only half the unweighted EU average, and less than a third of the branches *per capita* of heavily-banked member states like Belgium. Its 15 ATMs per 100,000 residents were barely a third the EU average and a sixth the density of Spain. But as *per capita* incomes and economic development generally converge with the rest of the EU (as has been occurring since the mid-1990s), so the level of banking services will continue to converge as well. How incumbents and entrants are managing this transformation will determine the shape of Greek banking for years to come.

Normally, a rapidly growing market should create rosy prospects for profitability. In the case of Greek banking, however, the rosy prospects need not follow, for competition is intensifying as the market grows. Interest-rate ceilings have been lifted. Restrictions have been relaxed on the financial activities in which banks and other financial institutions can engage. In little more than a decade, Greece has moved from one of the most restrictive financial environments in the Western world to a largely deregulated market.

European integration will further intensify competition. The Single European Act and the First and Second Banking Directives have already made it easier for banks from other Member States to do business in Greece. Barclays, ABN-AMRO Bank, Credit Commercial de France, and Midland

We would like to thank Iakovos Bachaviolos and Ilias Liapis for taking the time to discuss with us various aspects of banking supervision and structural change in the banking system, and Konstantina Manou for able research assistance. The comments of participants at the Conference were particularly useful in helping us to revise the paper.

Bank plc are only a sampling of the credit institutions already operating in Athens. Consumer credit, mortgage lending, commercial financing, leasing, credit cards, travellers' checks, bankers' drafts, trading for own account or the account of customers, participation in share issues, portfolio management, and custody services are all subject to mutual recognition. No segment of the market will be immune, in other words, from cross-border competition.[1]

Competition will come not just from foreign banks, of course, but also from the markets. With the growth of securities exchanges and derivative financial instruments, corporate and other clients will be able to choose among alternative sources of finance. Individuals once forced to park their savings in deposit accounts will be able to choose among money-market mutual funds and other financial instruments. And Europe's monetary union, of which Greece became a member in January 2001, will further accelerate securitisation and disintermediation by stimulating the growth of deep and liquid bond and equity markets continent-wide.

The most revolutionary transformation will follow from the privatisation of Greece's public banks. After World War II, most banks came under state ownership and control.[2] This trend towards public ownership is now being reversed. The government privatised four small state-controlled banks in 1998 and the larger Ionian Bank and 30 per cent of ETBA (the state development bank) in 1999 and has announced the intention of privatising still others.

Public banks are different from private banks. The former face softer budget constraints. Their management is protected from hostile takeovers. Their loan portfolios, staffing, and technical efficiency differ.[3] There is no question, then, that privatisation, together with the other trends identified above, will alter the face of Greek banking. Ensuring that this transformation is completed without jeopardising stability is the challenge for policy makers going forward.

1. On the determinants of foreign entry into Greek banking, see Galiatsos and Papapetrou (1995) and Hondroyiannis and Papapetrou (1996). Of course, the idea that foreign entry will increase with the creation of the euro area has been disputed, not least because the introduction of the Second Banking Directive did not appear to lead to a decline in market segmentation in the EU. Danthine *et al.* (1999) provide a comprehensive analysis of the likely effects of the creation of the euro area on European banking. See, also, Gibson and Tsakalotos (1993) on the impact of the Second Banking Directive on southern European countries.

2. As late as 1998, nine commercial banks were controlled by the government, directly or through public pension funds and municipalities.

3. Or so the international evidence suggests. See Altunbas, Evans and Molyneux (1997) and Barth, Caprio, and Levine (1999).

## Historical Background and Comparative Context

The modern Greek banking system emerged in the 1920s, when the Bank of Greece was vested with central banking functions and two major state-run credit institutions (the Agricultural Bank of Greece and the National Mortgage Bank of Greece) were established. After World War II, the largest banks and affiliates were all brought under state ownership or control, and in the 1960s the authorities established a trio of development banks. Regulatory obstacles limited entry by new banks, and the government merged and consolidated the institutions under its control, leading to the creation of a concentrated banking system.

The authorities used this system to direct resources to activities and enterprises to which they attached priority: state-owned firms, export-oriented activities, small enterprises, agriculture, urban housing, and infrastructure investment, especially in the south. The development banks supplied long-term credit at subsidised rates to favoured sectors, while commercial banks were required to invest 40 per cent of their deposits in Treasury bills to finance the public sector deficit. The Currency Committee, comprised of ministers with economic portfolios, together with the Governor of the Bank of Greece, provided detailed instructions to each bank.

The private sector, for its part, had few alternative sources of finance. Capitalisation and turnover on the Athens Stock Exchange remained negligible before the 1980s. Bond issues were limited to flotations by the state and public enterprises.

Accession to the European Community in 1981 forced Greece to bring financial supervision and regulation into conformance with European practice. In the second half of the 1980s, controls on the operation of financial markets and institutions were relaxed.[4] The requirement that banks invest 40 per cent of deposits in Treasury bills was removed in 1993.[5] Inward and outward capital flows were liberalised (long-term flows in 1993, short-term flows in 1994). Commercial banks were permitted to offer the entire range of commercial and investment banking services. The development banks, to compete, were permitted to accept deposits, borrow on the interbank market, grant short-term loans, and invest in corporate securities.

4. See Gibson and Tsakalotos (1992) for a comprehensive survey. The last regulatory ceilings on deposit and lending rates were removed in 1993.

5. Although unusually high reserve requirements remained and were lowered to European levels only on entry into the euro area. Also eliminated was the requirement that credit institutions devote ten per cent of their deposits to credit for small and medium-size enterprises and nine per cent to financing public enterprises.

These measures notwithstanding, the Greek financial system is still underdeveloped by most measures. Loans to nonbanks by credit institutions as a share of GDP are the lowest of any EU country, while bank claims on the government sector as a share of their assets are higher than in any country except Belgium.[6] The contrast is as evident for financial markets as for financial institutions. The value of bonds outstanding as a share of GDP is low by EU standards and there is no commercial paper market.

**Catch-Up and Convergence.** Financial development goes hand in hand with economic development. That is to say, the low level of financial intermediation is a corollary, at least in part, of the country's economic underdevelopment relative to the rest of the EU. As *per capita* incomes rise, so will intermediation. The question is by how much. Figure 11-1 provides a picture of the level of financial intermediation in 1995, just after the completion of most liberalisation measures. It juxtaposes three measures of financial intermediation against *per capita* GDP for each EU country.[7] Greece stands out in the top panel, which shows the assets of credit institutions as a share of GDP. While its low *per capita* income helps to explain the low level of bank assets as a share of GDP, Greece is still an outlier.[8] The same is true for investment in mutual funds as a share of GDP (middle panel), although there the divergence is less pronounced.[9]

The implication is that two distinct catch-up dynamics will be at work in the future. The supply of financial intermediation services will approach the levels of the rest of the European Union, if experience elsewhere is a guide, as Greece's *per capita* incomes converge with those of the rest of the EU. But, assuming that convergence more broadly is the rule, we should expect Greek financial markets to converge even faster than *per capita* incomes, since the country's financial sector started out further behind than predicted by the differential in living standards. Once Greece overcomes the legacy of

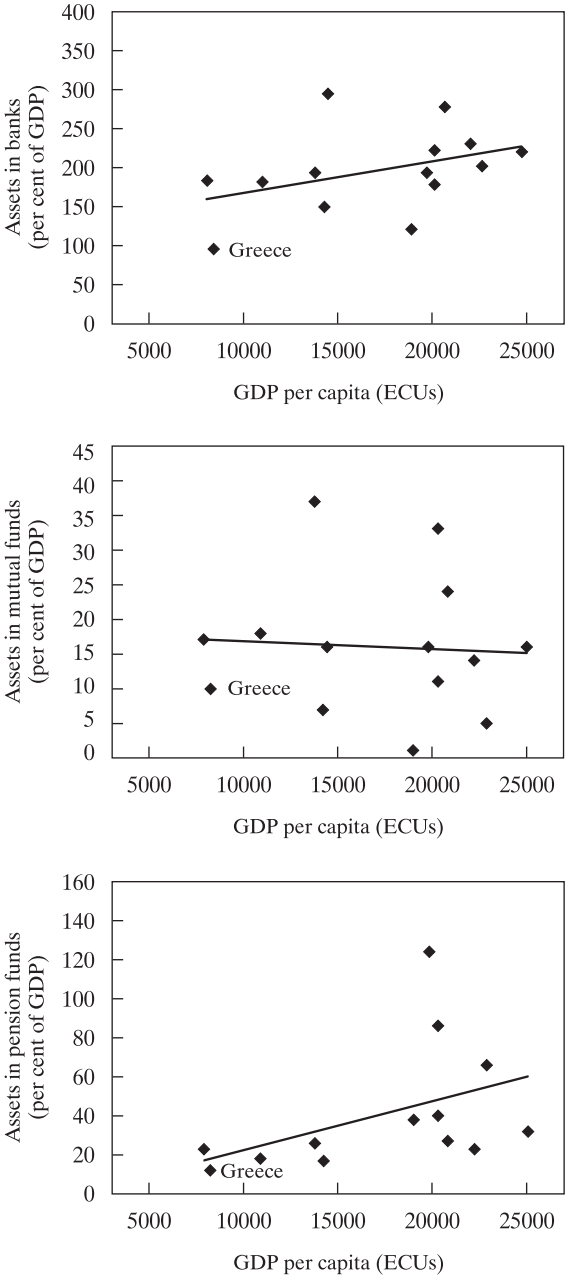
6. Whose unusually high public debt explains the exception.

7. And superimposes the corresponding regression line. The *per capita* GDP figures and the measures of the level of financial intermediation are in ECUs, from Resource Centre for Access to Data on Europe (http://www-rcade.dur.ac.uk). We exclude Luxembourg, since it is an outlier (for obvious reasons) in terms of assets of both credit institutions and investment funds.

8. In other words, it is below the regression line. The difference is not statistically significant at standard confidence levels (it just misses significance at the ten per cent level). This is not surprising given the small number of observations. The other country that is noticeably below the regression line is Finland, which in 1995 was still recovering from its banking crisis.

9. And Greece has plenty of company; the GDP share of mutual funds in 1995 was even lower in both Finland and Denmark. In contrast, while the assets under management of insurance companies and pension funds are the lower in Greece than in any other EU country (bottom panel), this differential is explained entirely by the country's relatively low *per capita* income. In any case, it is the assets of credit institutions that matter in the aggregate, since they account for more than 80 per cent of the assets of financial intermediaries in Greece.

**Figure 11-1. Financial Development in 14 European Countries, 1995**




SOURCE: see footnote 7.

entry barriers, tight regulation, and other restraints on competition, in other words, the supply of intermediation services should expand to match that in countries like Portugal, for example, where *per capita* incomes are similar but the assets of financial intermediaries as a share of GDP are double. Both arguments lead us to expect the supply of intermediation services to expand rapidly in coming years.

## Structure, Conduct and Performance

What is the structure of the industry providing these services? We analyse this question using two sources of information. One is the OECD publication *Bank Profitability*, which enables us to further compare Greece with other EU countries. The other is individual bank reports and accounts, which we collect for both commercial banks and specialised credit institutions for 1980-98.[10] Table 11-1 lists the banks in the sample, which includes the vast majority of banks operating in Greece, public and private, large and small.[11] Figures 11-2 and 11-3 plot Herfindahl-Hirschman indices of market structure, together with three- and four-firm concentration ratios measuring the extent to which the largest banks dominate the industry.[12] The Herfindahl-Hirschman index indicates high levels of overall market concentration but a downward trend since 1985, notwithstanding interruptions in 1993 and 1998.[13] The three- and

10. Before 1993 this information is limited to major accounting aggregates (total loans, total assets, off-balance-sheet items, own capital, total deposits, and profits), while for subsequent years we also have more disaggregated information. The system of presenting the accounts changed in 1994. Since in each year banks publish information for the previous year, we also have 1993 accounts using the new system. It was not possible to derive the aggregates in the new accounts from information published using the old accounting methods.

11. We do not include branches of foreign banks operating in Greece but their business is still limited. For example, in 1997 they accounted for 15 per cent of total assets (Hellenic Bank Association, *1997 Banks in Greece*, 1998).

12. We calculate market shares on the basis of total assets and, alternatively, using total assets plus off-balance-sheet (OBS) items. (The former are presented in Figures 11-2 and 11-3 and Table 11-2). The Herfindahl-Hirschman index is calculated as:

$$HH = \sum_i MS_i^2$$

where $MS_i$ is the market share of bank i. This index, which measures the size dispersion of firms in a particular market, can vary from zero for an atomistically competitive market to 10,000 for a monopolised market.

13. The index using total assets plus OBS items to measure market share shows greater dispersion. This is not surprising since, as we shall see later, it is the smaller (private) banks that have specialised more in OBS activities compared to the larger (publicly-owned) banks. The increase in 1998 reflects the takeover by the National Bank of the National Mortgage Bank, which had a market share of around eight per cent.

**Table 11-1. Banks in Sample and Their Status between 1980 and 1998[a]**

| | | | *Bank no.*[c] |
|---|---|---|---|
| Agricultural Bank of Greece | 1980-98 | Publicly-owned; SCI[b] until 1991; since then, commercial bank. | 1 |
| Alpha Credit Bank | 1980-98 | Privately-owned commercial bank. | 2 |
| Bank of Attica | 1980-98 | Majority owned by Commercial Bank of Greece until 1996 when privatised. | 5 |
| Bank of Central Greece | 1980-98 | Majority owned by Agricultural Bank of Greece until 51 per cent privatised in 1998 and sold to Egnatia Bank. | 6 |
| Bank of Crete | 1980-98 | Publicly-owned commercial bank; in hands of Bank of Greece between 1988 and 1998; privatised 1998 and bought by Eurobank. | 7 |
| Bank of Macedonia-Thrace | 1980-98 | Publicly-owned commercial bank; based in Thessaloniki; 37 per cent purchased in 1998 by Bank of Piraeus. | 8 |
| Bank of Piraeus | 1980-98 | Owned by Commercial Bank of Greece until December 1991 when 2/3 sold; since then, privately-owned commercial bank. | 9 |
| Commercial Bank of Greece | 1980-98 | Publicly-owned commercial bank. | 10 |
| ETBA | 1980-98 | Publicly-owned development bank; become more of an investment bank since early 90s. | 13 |
| ETEBA | 1980-98 | Founded by National Bank of Greece (1963) to undertake investment banking activities. | 14 |
| Ergobank | 1980-98 | Privately-owned commercial bank. | 16 |
| General Bank | 1980-98 | Owned by Army Pension Fund (management appointed by government) until privatised in 1998; bought by Interamerican Insurance Group. | 19 |
| Ionian Bank | 1980-98 | Commercial bank; majority owned by Commercial Bank of Greece. | 22 |

*(continued)*

**Table 11-1** ***(continued)***

| | | | *Bank no.*[c] |
|---|---|---|---|
| National Bank of Greece | 1980-98 | Publicly-owned commercial bank. | 23 |
| Bank of Athens | 1980-97 | Originally Traders' Credit Bank, part of National Bank of Greece Group; changed its name in 1992; privatised in 1993; taken over by Eurobank in 1998. | 4 |
| National Mortgage Bank | 1980-97 | SCI[b], Majority-owned by state pension funds until taken over by National Bank of Greece in 1998. | 25 |
| National Housing Bank of Greece | 1980-96 | SCI* in National Bank of Greece Group until merged with National Mortgage Bank in 1997. | 24 |
| Investment Bank | 1980-92 | Absorbed by its majority shareholder, the Commercial Bank of Greece in 1992. | 21 |
| Credit Lyonnais Grèce | 1982-98 | Owned half by ETEBA and half by Credit Lyonnais SA; latter increased shareholding in 1993 and again in 1994; in August 1997 sold retail banking section to Eurobank. | 11 |
| Dorian Bank | 1991-98 | Privately-owned commercial bank. | 12 |
| Eurobank | 1991-98 | Privately-owned commercial bank. | 17 |
| Interbank | 1991-96 | Privately-owned commercial bank; taken over by Eurobank in 1997. | 20 |
| Xiosbank | 1991-98 | Privately-owned commercial bank. | 26 |
| Aspis Bank | 1993-98 | Privately-owned specialised mortgage bank. | 3 |
| Egnatia Bank | 1993-98 | Privately-owned commercial bank. | 15 |
| European and Popular Bank | 1993-98 | Privately-owned commercial bank (majority shareholder is the Popular Bank of Cyprus Ltd. | 18 |

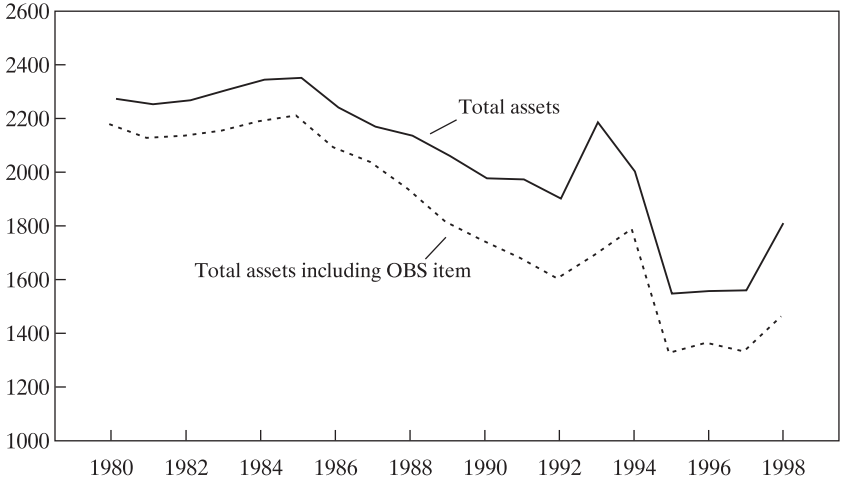
SOURCE: Individual bank accounts.

a. A number of developments occurred in 1999, in particular privatisations and mergers and acquisitions. We discuss above only the status of each bank between 1980 and 1998. Further developments are taken up later in the paper.

b. SCI is a specialised credit institution.

c. These numbers will be used later to identify banks more easily in the figures.

**Figure 11-2. Herfindahl-Hirschman Index**




SOURCE: Own calculations from sample of Greek banks.

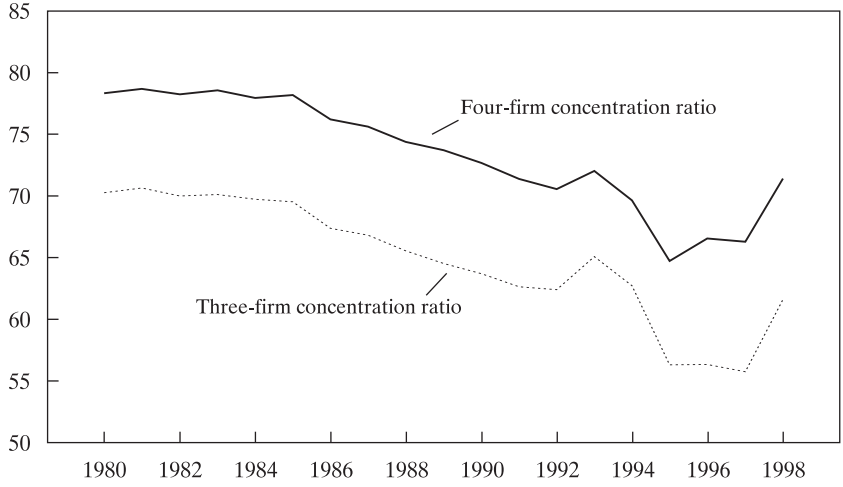
four-firm concentration ratios, measuring the share of the market controlled by the largest banks, again suggest high levels of concentration but also show a declining trend since 1985.[14]

High concentration but a large number of banks implies many banks with small market shares. Before liberalisation, this group was made up of specialised credit institutions and regional banks, often owned by the large publicly-owned banks. Since liberalisation it has also included a number of small private banks and several recently-privatised regional/specialised banks. Figure 11-4 plots market shares for all Greek banks over the period, revealing the dominance of the National Bank of Greece, with some 40 per cent of the market. The number of observations for banks with market shares below three per cent is clear, as is the fact that some banks in this group sharply increased their market shares in the 1990s.[15] On this basis it is tempting to

14. Between 1980 and 1996, the top three banks were the National Bank of Greece, the Agricultural Bank of Greece and the Commercial Bank of Greece. In 1997, Alpha Credit Bank, took over third place from the Commercial Bank, and by 1999 it had taken over second place from the Agricultural Bank. Until 1995, the fourth largest bank was the National Mortgage Bank. Alpha Credit Bank became fourth largest in 1995. Eurobank, another private institution, is now fifth on the list.

15. Two new banks started operations in 2000 – Nova Bank (which is owned by the Interamerican Group and Banco Comercial Português) and the Hellenic Investment Bank. The former is concentrating on retail banking and already has some 45 branches (mainly in and around Athens), Internet and phone banking services; the latter is focusing primarily on investment banking.

**Figure 11-3. Concentration Ratios**




SOURCE: Own calculations from sample of Greek banks.

characterise the industry as an oligopoly with a competitive fringe that has been gaining share over time.

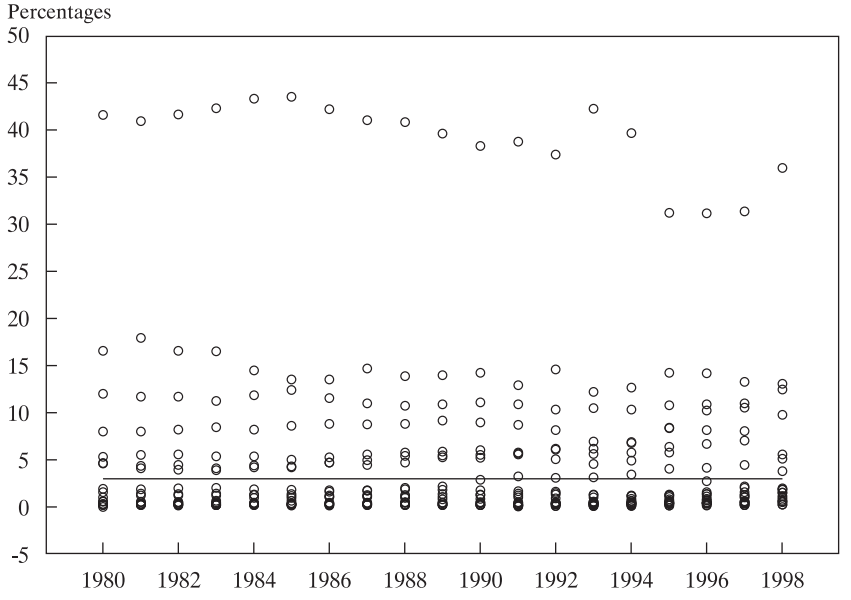
Table 11-2 is made up of snapshots of market positions in 1980 (when liberalisation was just beginning), 1993 (when the number of banks was at its peak), and 1998 (the most recent year for which we have data). It shows that the development banks (ETBA and ETEBA) have either lost considerable market share (ETBA) or have fallen down the rankings (ETEBA), while Alpha Bank (the former Alpha Credit Bank), the largest private bank, has gained share following liberalisation. Several small private banks (Ergobank, Eurobank and the Bank of Piraeus) have also been gaining market share.[16]

One has to squint to detect an acceleration in growth rates following liberalisation.[17] The reason, evident in Table 11-3 (whose Size 1 denotes the smallest third of banks in a given year, Size 2 the middle third, and Size 3 the largest third), is that most of the acceleration was concentrated among

16. Often through acquisitions. See also footnote 15.

17. Pre-1988, the average growth of total assets was 37 per cent per annum compared with 26 per cent post-1987. Figures for the growth of total assets plus OBS items tell a similar story, although the difference (41 per cent vs. 38 per cent) is not great. This is not surprising, since growth of off-balance-sheet items in the 1990s has generally been higher than in the 1980s.

**Figure 11-4. Market Shares: Existence of a Competitive Fringe**




SOURCE: Own calculations from sample of Greek banks.

small banks.[18] Private banks have also grown much faster than public banks (Table 11-4).[19]

These patterns suggest that liberalisation has intensified competition. What has this implied for profitability? As shown in Figure 11-5, Greek banks remain rather profitable by the standards of other EU countries. (Here profitability is measured by the pre-tax rate of return on assets.) Figures 11-6 and 11-7 show the return on assets and equity (again using pre-tax profits) for our sample of balance sheet accounts. Profitability appears to have trended downward in the 1990s, although it rose in 1998.[20] Tables 11-3 and 11-4 suggest that medium-sized banks have been more profitable than

18. Their small initial size is why the change does not show up strongly in the overall growth rate. And the relatively rapid growth of small banks is of course what accounts for the declining concentration ratios and Herfindahl-Hirschman indices reported above.

19. We assign banks to publicly- and privately-owned *in each year* in order to take into account changes in the way banks operate following their privatisation. In other words, banks are not placed into one ownership category for the whole period. This affects some smaller banks that were privatised in the 1990s. See below for further discussion.

20. Profits in 1999 benefited from favourable conditions on the stock market. In 2000, they fell somewhat because a number of banks incurred costs associated with their merger and acquisition activity.

**Table 11-2. Market Shares of Individual Banks at Selected Dates (Based on Total Assets)**

| | *1980* | | *1993* | | *1998* | |
|---|---|---|---|---|---|---|
| | *Rank* | *Per cent* | *Rank* | *Per cent* | *Rank* | *Per cent* |
| National Bank of Greece | 1 | 41.6 | 1 | 42.3 | 1 | 36.0 |
| Agricultural Bank of Greece | 2 | 16.6 | 2 | 12.2 | 2 | 13.1 |
| Commercial Bank of Greece | 3 | 12.0 | 3 | 10.5 | 4 | 9.8 |
| National Mortgage Bank | 4 | 8.1 | 4 | 7.0 | - | - |
| Ionian Bank | 5 | 5.3 | 7 | 4.6 | 5 | 5.6 |
| ETBA | 6 | 4.7 | 6 | 5.6 | 10 | 1.8 |
| Alpha Credit Bank | 7 | 4.6 | 5 | 6.2 | 3 | 12.5 |
| General Bank | 8 | 2.0 | 9 | 1.4 | 11 | 1.6 |
| ETEBA | 9 | 1.6 | 13 | 0.6 | 14 | 1.0 |
| Ergobank | 10 | 1.0 | 8 | 3.1 | 6 | 5.2 |
| Investment Bank | 11 | 0.6 | -[a] | - | - | - |
| Bank of Crete | 12 | 0.6 | 10 | 1.3 | 13 | 1.2 |
| Bank of Athens | 13 | 0.3 | 20 | 0.3 | - | - |
| Bank of Piraeus | 14 | 0.3 | 17 | 0.4 | 8 | 2.0 |
| Bank of Macedonia-Thrace | 15 | 0.3 | 11 | 1.0 | 9 | 1.9 |
| National Housing Bank of Greece | 16 | 0.2 | 19 | 0.3 | - | - |
| Bank of Attica | 17 | 0.2 | 21 | 0.3 | 17 | 0.6 |
| Bank of Central Greece | 18 | 0.0 | 15 | 0.4 | 18 | 0.5 |
| Eurobank | - | - | 12 | 0.6 | 7 | 3.8 |
| Xiosbank | - | - | 14 | 0.5 | 12 | 1.5 |
| Interbank | - | - | 16 | 0.4 | - | - |
| Credit Lyonnais Grèce | - | - | 18 | 0.4 | na[b] | na |
| Egnatia Bank | - | - | 22 | 0.2 | 15 | 0.8 |
| Dorian Bank | - | - | 23 | 0.2 | 20 | 0.3 |
| European and Popular Bank | - | - | 24 | 0.1 | 16 | 0.6 |
| Aspis Bank | - | - | 25 | 0.1 | 19 | 0.3 |

SOURCE: Own calculations using sample collected (see text).
a. — : Bank not in existence as independent entity.
b. NA: Data not available.

their smaller and larger rivals and that private banks have been more profitable than their publicly-owned counterparts.[21]

Throughout the 1990s, Greek banks parked many of their funds in government securities. Their loan-to-asset ratios were low by the standards of other EU countries (Figure 11-8), while their securities-to-asset ratios were high. With the convergence of Greek interest rates to European levels, public issues have been rendered less attractive, and with the relaxation of regulations requiring banks to hold government securities their weight in portfolios has fallen. But large publicly-owned banks continue to hold more

21. Although the multivariate analysis we report later in the paper suggests that the first of these regularities is more robust than the second.

**Table 11-3. The Impact of Size on Bank Characteristics[a]**

| | *Size 1* | *Size 2* | *Size 3* |
|---|---|---|---|
| Growth of total assets *(proportion)* | 0.43 | 0.26 | 0.20 |
| Growth of total assets plus OBS items *(proportion)* | 0.58 | 0.36 | 0.24 |
| Rate of return on assets *(proportion)* | 0.01 | 0.01 | 0.01 |
| Rate of return on equity *(proportion)* | 0.06 | 0.21 | 0.15 |
| Proportion of OBS business in total assets plus OBS items | 0.38 | 0.45 | 0.28 |
| Investment in bonds *(as proportion of total assets plus OBS items)* | 0.05 | 0.05 | 0.08 |
| Reliance on interbank market for funds *(as proportion of total deposits)* | 0.17 | 0.20 | 0.14 |
| Operating costs/total assets | 0.04 | 0.03 | 0.02 |
| Staff costs/total assets | 0.02 | 0.02 | 0.02 |
| Loans per worker *(million drachmas)* | 127 | 135 | 201 |
| Deposits per worker *(million drachmas)* | 159 | 205 | 288 |
| Profits per worker *(million drachmas)* | 2.27 | 3.14 | -2.29 |

SOURCE: Own calculations using sample collected (see text).
a. The numbers are means for each size category across all the years in the sample. We discuss the picture shown by median values for each variable in the text where they show a different picture from the means because of outliers.

**Table 11-4. The Impact of Ownership on Bank Characteristics[a]**

| | *Privately-owned* | *Publicly-owned* |
|---|---|---|
| Growth of total assets *(proportion)* | 0.41 | 0.25 |
| Growth of total assets plus OBS items *(proportion)* | 0.57 | 0.31 |
| Rate of return on assets *(proportion)* | 0.02 | 0.01 |
| Rate of return on equity *(proportion)* | 0.22 | 0.11 |
| Proportion of OBS business in total assets plus OBS items | 0.48 | 0.31 |
| Investment in bonds *(as proportion of total assets plus OBS items)* | 0.04 | 0.08 |
| Reliance on interbank market for funds *(as proportion of total deposits)* | 0.16 | 0.18 |
| Operating costs/total assets | 0.03 | 0.03 |
| Staff costs/total assets | 0.02 | 0.02 |
| Loans per worker *(million drachmas)* | 153 | 148 |
| Deposits per worker *(million drachmas)* | 287 | 174 |
| Profits per worker *(million drachmas)* | 5.85 | -1.10 |

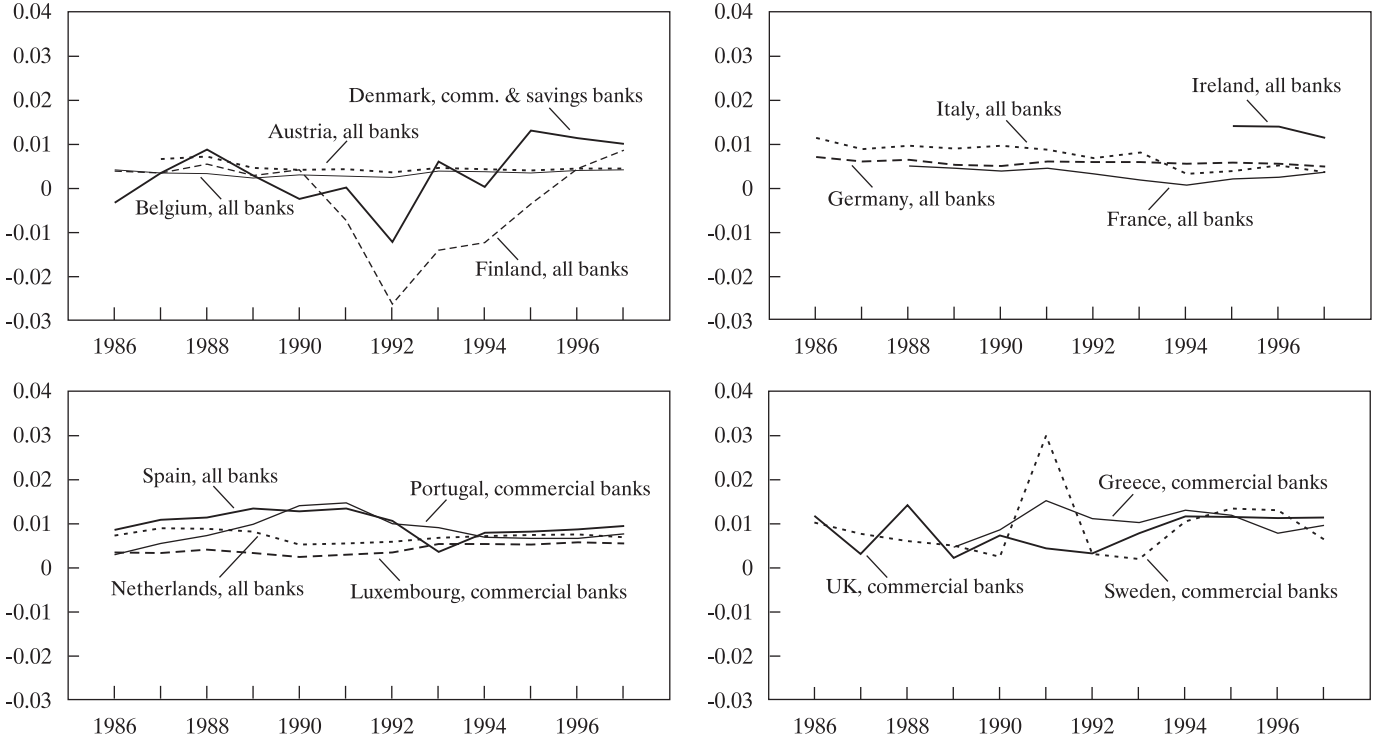
SOURCE: Own calculations using sample collected (see text).
a. The numbers are means for each size category across all the years in the sample. We discuss the picture shown by median values for each variable in the text where they show a different picture from the means because of outliers.

bonds in general, and government bonds in particular, than their smaller, privately-owned rivals.

Compared to other EU countries, banks in Greece derive a higher proportion of gross income from noninterest sources. This suggests that fees and commissions are relatively high, reflecting historically limited competition.[22]

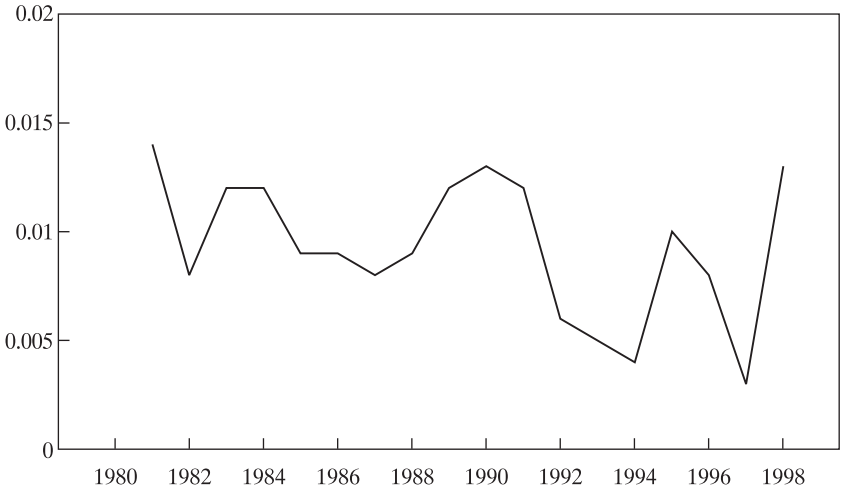
22. On this, see Moschos and Frangetis (1997). They note that off-balance-sheet business is another source of noninterest income, but they argue that this is still relatively underdeveloped in Greece.

**Figure 11-5. Profit (pre-tax)/Total Assets**



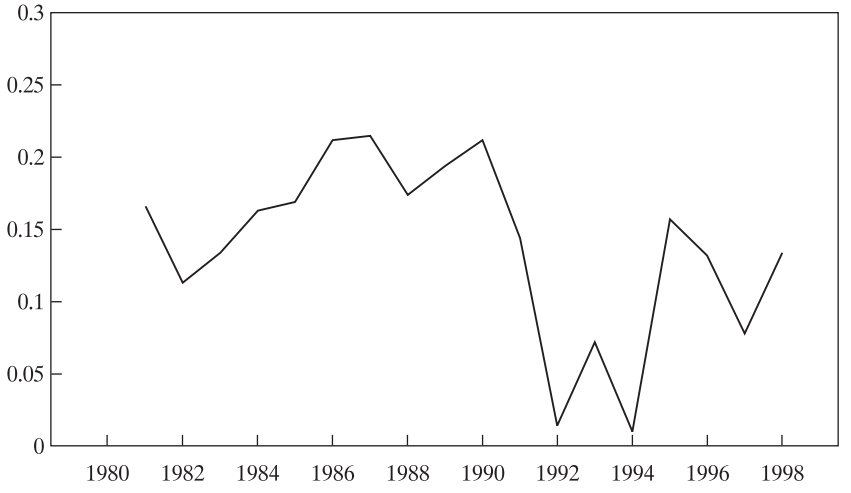

SOURCE: OECD, *Bank Profitability*, various years.

**Figure 11-6. Average Rate of Return on Assets**




SOURCE: Own calculations from sample of Greek banks.

**Figure 11-7. Average Rate of Return on Equity**

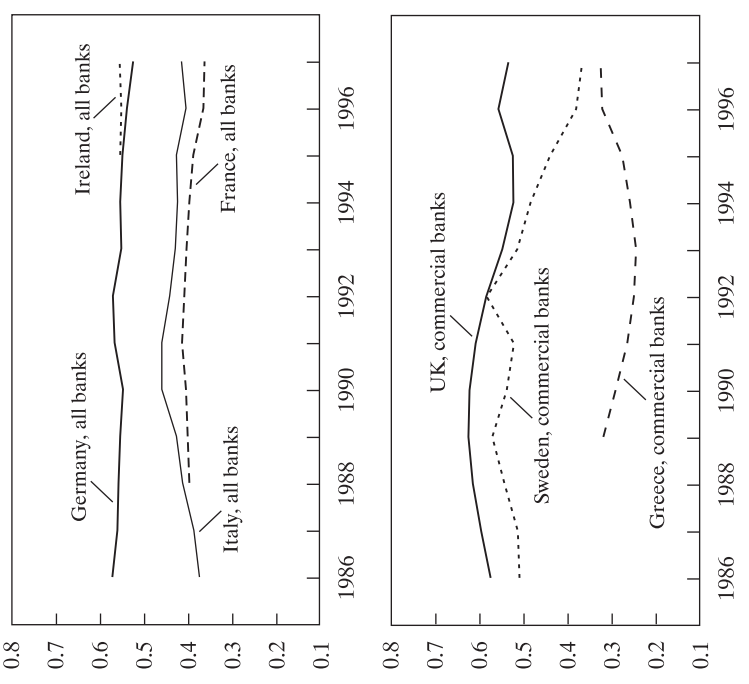



SOURCE: Own calculations from sample of Greek banks.

But there has been a decline in noninterest income as a proportion of gross income since the mid-1990s, again suggesting rising competition.

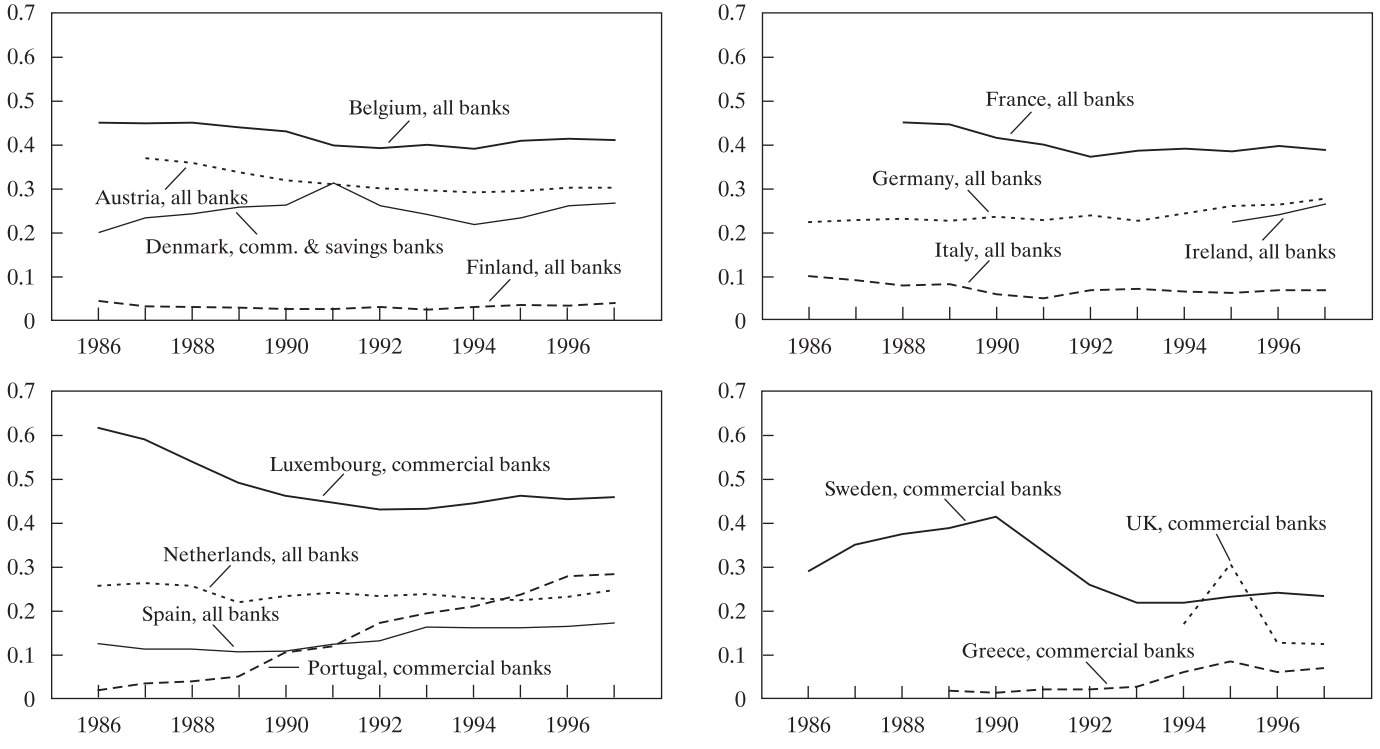
Figures 11-9 and 11-10 document the limited importance of the interbank market as a source of funds. Small banks use the interbank market more

**Figure 11-8. Loans/Total Assets**



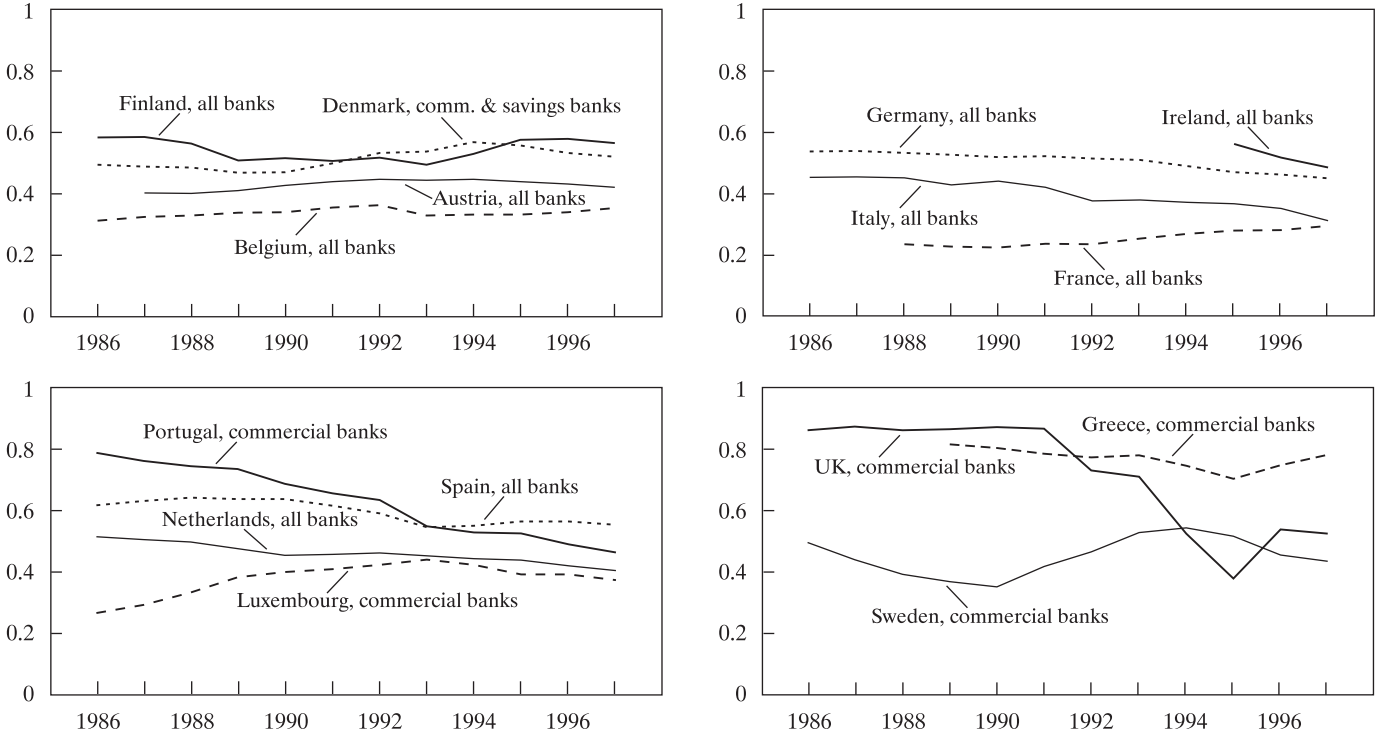

SOURCE: OECD, *Bank Profitability*, various years.

**Figure 11-9. Interbank Deposits (Liabilities)/Total Assets**




SOURCE: OECD, *Bank Profitability*, various years.

**Figure 11-10. Nonbank Deposits/Total Assets**




SOURCE: OECD, *Bank Profitability*, various years.

(Table 11-3), since they have smaller branch networks and less name recognition with which to attract nonbank deposits. This is widely viewed as an advantage for larger banks, since nonbank deposits are a cheaper source of funds, and in turn suggests that smaller banks will gain competitive advantage and market share as they develop better access to this source of funding.[23]

Operating costs as a share of gross income are comparable to other EU countries. But Greek banks tend to have significantly higher staff costs (Figure 11-11); in other words, operating cost ratios are respectable because the denominator of this ratio —gross income— has been large, reflecting limited competition. Greek banks' high staff costs are particularly striking in light of the fact that the banks are underbranched.[24] Greek banks have lower loans per employee, lower nonbank deposits per employee, and lower total assets per employee.[25] Productivity measures such as loans, deposits and profits per worker all favour the larger banks, although this is not reflected in the bottom line.[26]

Finally, we consider service quality, measured by the number of ATMs and geographical coverage. Older, larger, publicly-owned banks have greater geographical scope, indicating a probable source of competitive advantage, whereas newer, privately-owned banks are largely confined to the Athens, Piraeus and Thessaloniki conurbations. Older, publicly-owned banks similarly have larger ATM networks, although this is less of an advantage with the formation of DIAS (the interbank system for the transfer of small sums between banks), which enables customers to withdraw money from any bank through any ATM machine, albeit for a fee.

It is important to acknowledge that there may not exist distinct size and ownership effects. Table 11-5 tabulates our 371 bank-year observations for 26 banks by size category.[27] Banks are categorised by size and ownership in

23. Our multivariate analysis below casts some doubt on the importance of this effect. We already see a hint of this in the raw data, in that the finding that publicly-owned banks rely more on the interbank market is sensitive to outliers. There is very little difference between the two groups of banks if we rely on medians rather than mean figures. The outliers are ETBA and ETEBA. These banks do not rely on nonbank deposits. Pre-liberalisation, other banks were obliged to invest in bonds issued by these SCIs; since liberalisation their means of funding has become more market-oriented, but still largely excludes traditional nonbank deposits.

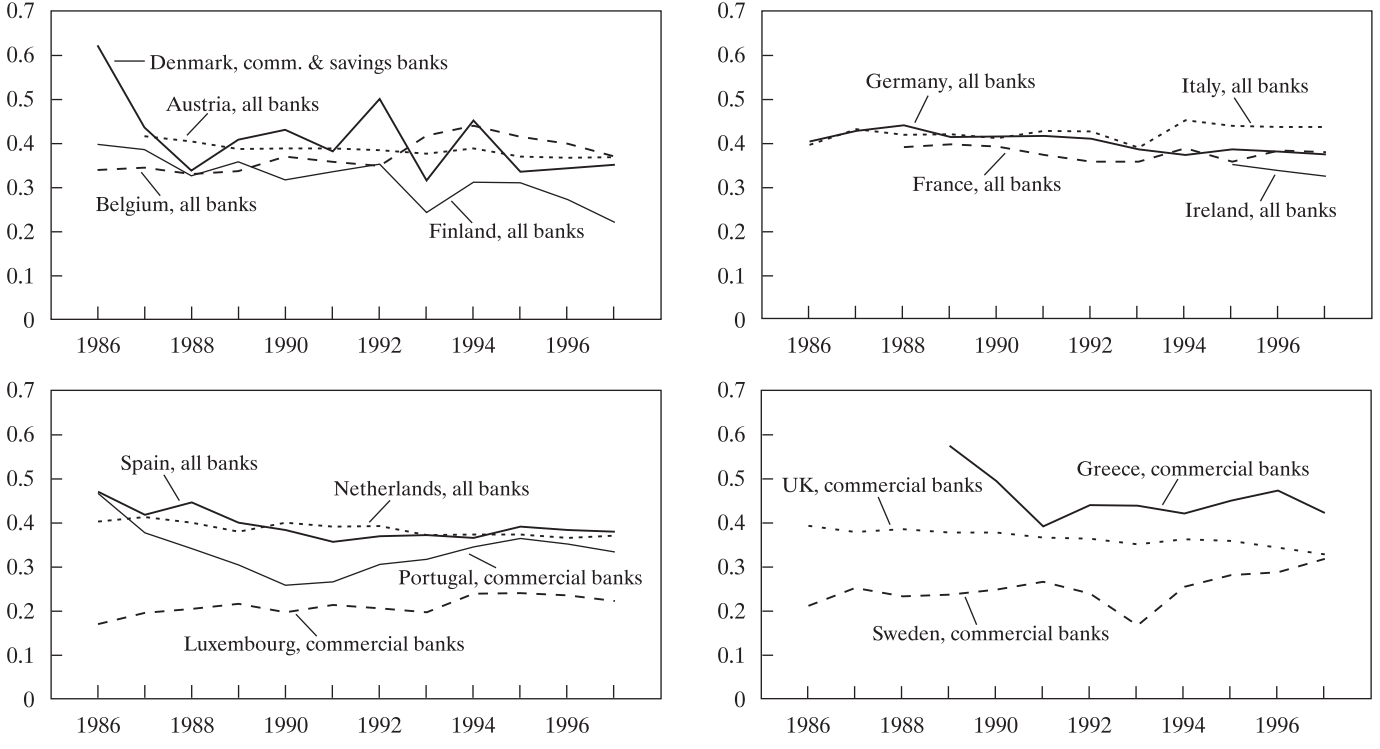
24. In Figure 11-11, staff costs are normalised by gross income. We can note that, following a surge in branch openings, underbranching is now less of an issue.

25. Moreover, each of these ratios has been rising more slowly than in other EU countries in the 1990s.

26. Profits-per-worker figures for large banks and for publicly-owned banks are affected by outliers. However, the same picture is shown if medians rather than average figures are taken.

27. Recall that the panel is unbalanced.

**Figure 11-11. Staff Costs/Gross Income**




SOURCE: OECD, *Bank Profitability*, various years.

**Table 11-5. The Relationship between Size and Ownership**
Number of banks in each category

| | *Privately-owned* | *Publicly-owned* |
|---|---|---|
| Small | 42 | 82 |
| Medium | 46 | 78 |
| Large | 22 | 101 |

SOURCE: Own calculations using sample collected (see text).

each year, allowing them to shift categories over time.[28] The table confirms that larger banks are more likely to be publicly-owned. This is a caution that univariate analysis of the type considered above provides only a crude impression of the Greek banking system. Developing a more accurate picture requires moving to multivariate analysis (as we now proceed to do).

## Determinants of Bank Profitability: Hypotheses

As noted above, the profitability of Greek banks fell somewhat in the 1990s, although this trend hides considerable inter-bank variation. Can we identify the factors that determine profitability and thereby identify the strategies that banks may adopt to cope with their more competitive environment?

**Previous Literature.** There has been considerable work on bank profitability in the United States and the major European countries. (Table 11-6 summarises the explanatory variables and hypotheses that have been examined in this literature.) Research on the profitability of Greek banks is more limited; the main contributors are Vasiliou (1996), who analyses a sample of eight banks over the period 1977-86, and Hondroyiannis, Lolos and Papapetrou (1998), who study 19 banks in the period 1993-95. Vasiliou finds that more profitable banks have more capital, more liquidity, less leverage, and fewer deposits, concluding on this basis that profitability depends more on liability than asset management.[29] Hondroyiannis, Lolos and Papapetrou find some evidence that greater concentration and market share have translated into higher profits.

Our analysis distinguishes two categories of determinants of profitability: bank characteristics and market characteristics.

28. For example, we have 42 bank-year observations where the bank was small and privately-owned.

29. This result is to be expected, of course, for a period in which banks were tightly regulated, limiting their ability to control the asset side of their balance sheets.

**Table 11-6. Profitability Equations**

*A. Summary of explanatory variables and hypotheses*

| *Hypothesis* | *Variables used* | *Expected signs* | *Observations* |
|---|---|---|---|
| 1. lagged profits – persistence | net pretax profits/total assets; net pretax profits/total assets plus OBS business; net pretax profits/total equity | between 0 and 1 | |
| 2. size – some measure of economies of scale/diseconomies of scale | log of real total assets; log of real total assets plus OBS business; and both these squared | +ve (economies of scale) or –ve (diseconomies) | take start of period |
| 3. growth | | | |
| - managerial theories or growing industry argument | - growth of total assets; growth of total assets plus OBS business; growth of deposits; growth of loans | -ve or +ve | endogenous |
| - market growth | - GDP growth; money growth | +ve | fixed by bank, varies over time |
| 4. asset management | | | |
| - proportion of OBS business | OBS business/total assets plus OBS business | ? | for stocks, take start of |
| - propensity to make loans | loans/deposits | ? | period values, with the |
| - profits from financial activities | net profits from financial operations/net pretax profits | ? | rationale that we ask |
| - income sources | net interest income; net noninterest income; interest income; noninterest income | ? | how much a bank can make with this given |
| - investment in securities/bonds | investment in securities/total assets; investment in securities/total assets plus OBS business | ? | asset position |
| 5. liability management | | | |
| - source of funds | bank deposits/total deposits | -ve | |
| - leverage | borrowed funds (deposits)/own capital | ? | |

*(continued)*

**Table 11-6** ***(continued)***

*A. Summary of explanatory variables and hypotheses*

| *Hypothesis* | *Variables used* | *Expected signs* | *Observations* |
|---|---|---|---|
| 6. operating costs/expenses | | | |
| - operating expenses | operating expenses/total assets; operating expenses/total assets plus OBS business | ? | see changed dependent variable |
| - staff expenses | staff costs/total assets; staff costs/total assets plus OBS business; staff costs/total expenses | ? | |
| 7. 'riskiness' of bank | | | use start of period stocks |
| - liquidity | cash, reserves at the central bank and securities eligible for discounting at the central bank as a proportion of (i) total assets; (ii) total assets plus OBS business; (iii) total deposits; (iv) total loans | -ve | NB: safer banks could get cheaper funds; risk is highly correlated with the loan/deposit ratio (0.79) |
| - capital | own capital as a proportion of (i) total assets; (ii) total assets plus OBS business; (iii) total deposits; (iv) total loans | -ve | |
| - risk | provisions/total assets or total assets plus OBS business | +ve | |
| 8. productivity | | | |
| - per worker | loans per 100 workers; deposits per 100 workers | +ve | |
| - per branch | loans per branch; deposits per branch | +ve | |
| 9. market power | | | |
| - concentration | three-firm and four-firm concentration ratios; Herfindahl index using total assets and total assets plus OBS business | ? | cf SCP versus efficient scale hypotheses |
| - market share | market shares based on total assets, total assets plus OBS business, deposits and loans | ? | |
| 10. strategic interaction | interactive terms using market share of largest bank and all other banks | | |

*(continued)*

**Table 11-6** ***(continued)***

*A. Summary of explanatory variables and hypotheses*

| *Hypothesis* | *Variables used* | *Expected signs* | *Observations* |
|---|---|---|---|
| 11. ownership (varies over time and banks) | own (=1 if private) | ? | |
| 12. uncertain environment – inflation | consumer price inflation | -ve | fixed over bank, varies over time |
| 13. foreign entry (source: Hellenic Bank Association, 1995-98) | total assets of foreign banks/total assets of domestic and foreign banks | -ve | fixed over bank, varies over time |

*B. Dependent variables*

| *Hypothesis* | *Variables used* | *Explanation for change in dependent variable* |
|---|---|---|
| 1. profitability | net pretax profits/total assets; net pretax profits/total assets plus OBS business; net pretax profits/total equity | |
| 2. measure of value added | net pretax profits plus staff expenses/total assets; net pretax profits plus staff expenses/total assets plus OBS business; net pretax profits plus staff expenses/total equity | aim to test expense preference theory – if this hypothesis has validity, then concentration ratio should become even more positive when we use the value added measure as a dependent variable |
| 3. value added (as in 2) adjusted for provisions | net pretax profits plus staff expenses plus provisions /total assets; net pretax profits plus staff expenses plus provisions /total assets plus OBS business; net pretax profits plus staff expenses plus provisions /total equity | tests risk aversion theory – concentration ratio should turn negative if this hypothesis has validity |

**Bank Characteristics.** Profitability may depend on bank size, for example, if there are economies of scale.[30] Nonlinear effects may be present if economies of scale are present at small sizes but disappear as banks grow. We therefore include the logarithm of total assets (in real terms, alternatively including and excluding off-balance-sheet business) and the square of the logarithm of total assets.[31]

Normally, a growing bank will be more profitable.[32] If a negative relationship obtains, this might be evidence for the managerial theory of the firm, in that this theory suggests that managers pursue growth at the expense of profits. This hypothesis can be tested more directly by using bank-specific rather than macroeconomic measures of market growth.

The extent to which banks manage their assets with a view to influencing profitability can be captured by variables describing the asset side of the balance sheet.[33] Among the measures we consider are off-balance-sheet business, the loan/deposit ratio, and the extent to which the bank invests in securities and other fixed-income assets.[34] Banks can also use liability management to influence their profitability; we therefore investigate the significance of leverage and sources of funds (bank versus nonbank deposits).[35]

Differences in profitability may reflect ability to control operating expenses. Insofar as these effects measure efficiency, we expect a negative impact on profits.[36] However, higher operating expenses could also signal higher quality and hence lead to higher profitability. A similar argument could be made for staff costs, but a positive sign on this variable could also be evidence for the

30. Diseconomies of scale are also conceivable.

31. Use of the logarithm of bank size is justified by Gibrat's Law, which states that growth is essentially a normally distributed stochastic process. This generates a distribution of firm sizes which will approximate a log normal distribution (Dickerson, Gibson and Tsakalotos, 1998).

32. See Barth, Nolle and Rice (1997), Claessens *et al*. (1998), Bourke (1989), Molyneux and Thornton (1992) and Molyneux (1993). If a bank-specific measure of growth is used, then care must be taken to instrument it, since it is likely to be endogenous — that is, banks with higher profits can probably grow more quickly since profits make more internal funds available for investment and also facilitate access to external funds.

33. See Haslem (1969), Molyneux (1993), Vasiliou (1996), Miller and Noulas (1997), and Hondroyiannis, Lolos and Papapetrou (1998).

34. *A priori*, we do not anticipate any particular sign for these variables. Unfortunately, the accounts do not permit a division of loans into various sub-categories (e.g. consumer loans, industrial loans, mortgages, etc). Evidence from the US suggests that these different categories do have different effects on profitability (Miller and Noulas, 1997).

35. As noted above, it is argued that nonbank deposits are a cheaper source of funds than bank deposits (European Central Bank, 1999a). Consequently banks which rely to a greater extent on the interbank market should have lower profitability, *ceteris paribus*.

36. Haslem (1969), Bourke (1989), Molyneux (1993), Hondroyiannis, Lolos and Papapetrou (1998).

expense-preference hypothesis (that firms in concentrated industries make higher profits which staff then appropriate).[37] Molyneux and Thornton (1992) suggest that it may be possible to discriminate between these interpretations by alternatively specifying the dependent variable as profits plus staff expenses (a measure of value added); if industry concentration enters positively and significantly in regressions using this dependent variable, then there is evidence for the expense-preference interpretation.

Insofar as theory predicts a positive relationship between risk and return, the fewer the funds tied up in liquid investments, or the lower the level of own capital, the higher we might expect profitability to be.[38] Bourke (1989) highlights an offsetting effect: the safer a bank, the lower its cost of funds, implying that liquid, well-capitalised banks will have higher profits. This suggests attempting to measure risk more directly, for example with a measure of provisioning.

Given Greek banking's high levels of public ownership, this case provides an interesting test of the effect of ownership on profitability. Descriptive evidence on this question has been provided by Barth, Caprio and Levine (1999) and Arnold (1999) for a cross-section of countries. Barth, Caprio and Levine find that public ownership is associated with poorly-developed banks and securities markets. Arnold reports a negative correlation between profitability and public ownership. These are simple correlations, however; multivariate tests of the effect of ownership on profitability (Bourke, 1989, Thornton and Molyneux, 1993, Molyneux, 1993) do not suggest that ownership matters.

Inflation might be expected to have a positive impact on profitability insofar as it is associated with a higher spread between lending and deposit rates. Evidence for this is reported by Barth, Nolle and Rice (1997) in a study of banking in 19 industrial countries. In contrast, Molyneux and Thornton (1992) find inflation to be insignificant in a sample of 18 European countries.

Another potential determinant of profitability is foreign entry, which will tend to intensify competition. Claessens, Demirguc-Kunt and Huizinga (1998)

37. See Edwards (1977). A further implication of the expense preference theory (Edwards, 1977) is that the proportion of excess profits captured by staff in the form of higher wages and salaries should be higher in concentrated markets. Bourke (1989) tests this hypothesis on some 90 banks over the period 1972-81 in 12 countries/territories. He finds a moderate positive effect on profitability from concentration. He argues that a test of the expense preference theory is to run the same regression with a measure of value added (profits plus staff expenses) as the dependent variable. If the expense preference theory has some validity, then the positive effect of concentration should become even stronger. However, his results do not provide support for this. Rather, the coefficient on concentration turns negative.

38. See Bourke (1989), Molyneux and Thornton (1992), Molyneux (1993) and Vasiliou (1996).

examine foreign entry for 80 countries using bank level data between 1988 and 1995 and confirm that foreign entry tends to reduce profitability.[39]

**Market Characteristics.** One of the longest-running debates in industrial economics is the extent to which profitability is affected by market power. The structure, conduct and performance (SCP) literature argues that concentration should raise profits, since banks in concentrated markets can raise prices and limit quantities. Contestable markets theory, on the other hand, argues that concentration, in and of itself, need not imply a non-competitive market.[40] What matters is ease of entry: low-cost entry constrains incumbents to act as if the market is competitive.[41]

A positive relationship between concentration and profits is equally consistent with other hypotheses. The efficient structure hypothesis (ESH) holds that concentration may reflect firm-specific efficiencies. Firms in concentrated markets may earn higher profits simply because they are more efficient, not because they are exploiting the market power that concentration brings.[42] Here we use two measures of efficiency: loans and deposits per worker, and loans and deposits per branch.[43] Since more efficient firms might be expected to capture a higher market share, one way of distinguishing between the market power and efficient structure theories is to include both market share and concentration.[44]

39. A concern with their paper is the quality of the data. For example, they have data on 16 banks for Greece and report that 58 per cent are foreign-owned and that foreign ownership accounts for around 77 per cent of total assets. These figures suggest that they have an unrepresentative sample due to the over-representation of foreign banks.

40. See Dickens (1996).

41. Clark and Speaker (1992) provide some evidence that the effects of concentration on profits are larger when entry barriers are higher. However, this is some way from showing that banking can be described as a contestable industry and hence that market power is not a problem.

42. See Berger (1995).

43. Once branches have been opened and workers hired, they incur certain fixed costs for the bank. Hence the more loans or deposits which can be attracted by each worker or branch, the more these costs are spread and hence the higher profitability. Vasiliou (1996) uses income per employee as a further measure of productivity.

44. If concentration continues to have a significant positive impact on profitability, controlling for market share, then this provides support for the SCP hypothesis (Molyneux, 1993). This is the approach taken by Hondroyiannis, Lolos and Papapetrou (1998) in their study of Greek banks over the period 1993-95, where they find support for the structure-conduct-performance hypothesis. Berger (1995) provides a more sophisticated test of the ESH, distinguishing two versions of the theory. The X-efficiency version states that the source of the higher profits and greater efficiency is superior management, while the scale-efficiency version locates the source of the greater efficiency in different scales of production (that is, some firms produce at more efficient scales than others and hence have lower unit costs and higher profits). Berger provides estimates of these two dimensions of efficiency from cost functions and uses them in a profit function. The results provide some support for the X-efficiency version of the ESH and much less for the scale-efficiency version. However, he notes that the economic significance of both concentration and the efficiency measures in explaining profits is very small.

Finally, there is the risk aversion hypothesis, which states that banks with market power use it to limit risk.[45] This implies a negative relationship between concentration and risk but little relationship between concentration and profitability. Molyneux and Thornton (1992), in their study of European banks between 1986 and 1989, test this hypothesis using the sum of profits, staff expenses and provisions as the dependent variable. They obtain a negative impact of concentration on this measure of value added, lending some support to the risk aversion hypothesis, insofar as concentration lowers not only returns and profits but also provisions.

When banks act strategically, profitability may be affected not just by own market share but also by the market shares of a bank's major competitors.[46] Molyneux (1993) suggests using interaction terms between the market share of leading banks and the market shares of the bank under consideration. For example, a positive interaction term between the market shares of the largest bank and the current bank would imply collusion with this dominant partner, while a negative coefficient would indicate especially intense rivalry and competition.

## Determinants of Bank Profitability: Results

We start with a model of the persistence of profits, which provides evidence about the timing and extent of structural change.[47] Using panel data, one can test for persistence by including lagged profits in a regression of the form:

$$\pi_{it} - \pi_i^* = \alpha + \beta(\pi_{it-1} - \pi_i^*) + \Sigma\lambda_t D_t + \mu_t \qquad (1)$$

where $\pi_{it}$ is the profitability of bank i at time t; $\pi_i^*$ is the average profitability of bank i over the whole time period and $\Sigma\lambda_t D_t$ are time dummies capturing

45. See Heggestad and Mingo (1976) and Edwards (1977).

46. Especially the largest competitors.

47. For applications of this approach to other industries, see Geroski (1988), Geroski and Jacquemin (1988) and Dickerson, Gibson and Tsakalotos (1997). For the banking sector, the question of persistence has received much less attention. Fraser and Richards (1978) calculated the autocorrelation coefficient on the profitability of some 70 US banks for the period 1965 to 1974 and found evidence of persistence. Levonian (1994) uses stock market values to infer adjustment speeds for 83 US banks over the period 1986 to 1991. He concludes that adjustment does occur following an exogenous shock, but it occurs slowly (that is, there is persistence). Moreover, he finds asymmetry in that profitable firms show slower adjustment speeds than nonprofitable ones. Work on persistence in European banking is nonexistent (to our knowledge). However, since studies of European company performance across various industries suggest that persistence is an issue feature of European company profitability, we provide a test of the hypothesis here.

environmental factors which are the same for all banks but vary through time. A value of β between 0 and 1 implies that a shock will persist but that profits eventually return to their normal (average) level. In competitive industries, we expect this to occur quickly, while in less competitive industries we might anticipate high persistence and a value of β closer to 1. If β lies between 0 and –1, then profits revert to normal in an oscillating manner. This might occur in periods of rapid change in the structure of the financial system which can cause bank profitability to become highly volatile.[48]

We estimate equation (1), supplemented by various factors which might explain profitability as highlighted by the existing literature, using a panel of Greek banks over the period 1993-98 (118 observations).[49] We include both bank-specific effects to capture any unobserved bank heterogeneity (e.g., persistence could result from the quality of management)[50] and time-fixed effects which control for the aggregate impact of factors such as the business cycle on bank profitability. The bank-specific effects are eliminated by subtracting bank means from each variable as in equation (1).[51]

**Results**. Results are presented in Tables 11-7, 11-8 and 11-9 for three measures of profitability: the return on assets; the return on assets plus off-balance-sheet (OBS) items; and the return on equity. They suggest that profits are persistent and return to normal in an oscillating fashion following a shock. In Table 11-7 the coefficient on lagged profitability is around –0.55; it is negative but smaller (in absolute terms) and insignificant in Tables 11-8 and 11-9. The interpretation of this negative coefficient is that it reflects the rapid structural change that the Greek banking system has been undergoing in this period.

To pinpoint this structural change, we examine the persistence of profits over a longer period, using equation (1) above. Table 11-10 presents the results for various periods for each of our profitability measures. For the entire period 1982 to 1998, we obtain a coefficient for lagged profitability of about a half,

48. If β is greater than 1, then this implies that a positive shock to profits will cause profits to increase (exponentially) in future periods. In other words, the system becomes unstable. The system will also be unstable with $\beta < -1$.

49. A detailed description of the sample was given in the previous section.

50. In this way, we control for all factors possibly affecting profitability which vary across banks and are constant through time or which vary over time. Recall, we have profits, total assets, total assets plus OBS business and own capital for Greek banks over the period 1981 to 1998.

51. Variables which were uniformly insignificant were also deleted from the equations. One aspect which arises with the estimation of a dynamic panel model is that there is a bias (Nickell, 1981) because of the presence of a lagged dependent variable. This bias is proportional to 1/T where T is the average number of years. In our case the mean T is 4.55 years. Anderson and Hsiao (1982) suggest removing this bias by estimating the equation in first differences and using the second lag of profits as an instrument for the first lag of profits.

**Table 11-7. Rate of Return on Total Assets Excluding OBS Business**

| *Variable* | *Coefficient* | *Standard error* | *t-statistic* | *Significance*[a] | *Short-run elasticity* | *Long-run elasticity* | *Mean* |
|---|---|---|---|---|---|---|---|
| Lagged profitability | -0.5506 | 0.1164 | -4.7302 | *** | | | 0.007 |
| Ownership | 0.0010 | 0.0089 | 0.1129 | | 0.100 | 0.065 | |
| Size[b] | 0.1371 | 0.0676 | 2.0282 | ** | -0.701 | -0.452 | 12.049 |
| Size squared[b] | -0.0059 | 0.0029 | -2.0484 | ** | | | |
| Proportion of OBS business | 0.0095 | 0.0199 | 0.4744 | | 0.652 | 0.420 | 0.517 |
| Loan/deposit ratio | -0.0012 | 0.0004 | -3.0432 | *** | -0.313 | -0.202 | 1.978 |
| Operating expenses | -0.2584 | 0.3775 | -0.6845 | | -1.143 | -0.737 | 0.033 |
| Staff expenses | 0.0609 | 0.0383 | 1.5894 | | 5.307 | 3.422 | 0.653 |
| Deposits per 100 workers | -0.0031 | 0.0028 | -1.1107 | | -1.468 | -0.947 | 3.537 |
| Loans per 100 workers | 0.0132 | 0.0036 | 3.6446 | *** | 4.235 | 2.731 | 2.398 |
| Interbank deposits/total deposits | 0.0017 | 0.0212 | 0.0819 | | 0.042 | 0.027 | 0.180 |
| Leverage (x1,000) | 0.0647 | 0.0197 | 3.2843 | *** | 0.141 | 0.091 | 0.016 |
| Own capital | 0.2858 | 0.0615 | 4.6477 | *** | 3.030 | 1.954 | 0.079 |
| Liquidity | 0.0225 | 0.0039 | 5.8293 | *** | 1.027 | 0.662 | 0.342 |
| Herfindahl index (x10,000) | 0.0939 | 0.1110 | 0.8459 | | 1.805 | 1.164 | 0.144 |
| Market share | 0.0006 | 0.0011 | 0.5864 | | 0.350 | 0.226 | 4.237 |
| Constant | -0.8705 | 0.4149 | -2.0982 | ** | | | |
| | | | | | | | |
| Year dummies | $F(4, 73) = 1.23$ (0.31) | | | | | | |
| Fixed effects | $F(24, 73) = 4.40$ (0.00) | | | | | | |
| Number of observations | 118 | | | | | | |
| Number of banks | 25 | | | | | | |
| Hausman test | $\chi^2(20) = 730.38$ (0.00) | | | | | | |

SOURCE: Own calculations.
a. *** implies significant at 1 per cent level; ** at 5 per cent level; and * at 10 per cent level.
b. Size effect is bell-shaped with turning point (maximum) at 11.604 compared to mean size of 12.049.

**Table 11-8. Rate of Return on Total Assets plus OBS Business**

| *Variable* | *Coefficient* | *Standard error* | *t-statistic* | *Significance*[a] | *Short-run elasticity* | *Long-run elasticity* | *Mean* |
|---|---|---|---|---|---|---|---|
| Lagged profitability | -0.0091 | 0.0889 | -0.1027 | | | | 0.004 |
| Ownership | -0.0066 | 0.0041 | -1.6019 | | -0.662 | -0.656 | |
| Size[b] | 0.0441 | 0.0186 | 2.3705 | ** | 0.529 | 0.524 | 12.765 |
| Size squared[b] | -0.0017 | 0.0007 | -2.3877 | ** | | | |
| Proportion of OBS business | 0.0063 | 0.0097 | 0.6529 | | 0.894 | 0.886 | 0.517 |
| Loan/deposit ratio | 0.0002 | 0.0001 | 1.4978 | | 0.113 | 0.111 | 1.978 |
| Operating expenses | -1.6419 | 0.7563 | -2.1710 | ** | -7.123 | -7.058 | 0.016 |
| Staff expenses | 3.2227 | 1.2161 | 2.6501 | *** | 9.329 | 9.244 | 0.011 |
| Deposits per 100 workers | 0.0021 | 0.0012 | 1.7899 | * | 2.055 | 2.037 | 3.537 |
| Loans per 100 workers | 0.0002 | 0.0014 | 0.1069 | | 0.101 | 0.100 | 2.398 |
| Interbank deposits/total deposits | -0.0012 | 0.0087 | -0.1375 | | -0.059 | -0.058 | 0.180 |
| Leverage (x1,000) | 0.0365 | 0.0081 | 4.5342 | *** | 0.162 | 0.161 | 0.016 |
| Own capital | 0.1276 | 0.0443 | 2.8809 | *** | 1.457 | 1.444 | 0.042 |
| Liquidity | 0.0161 | 0.0014 | 11.7103 | *** | 1.502 | 1.488 | 0.342 |
| Herfindahl index (x10,000) | 0.0456 | 0.0431 | 1.0580 | | 1.792 | 1.776 | 0.144 |
| Market share | 0.0001 | 0.0004 | 0.2227 | | 0.099 | 0.098 | 4.237 |
| Constant | -0.3210 | 0.1334 | -2.4061 | ** | | | |
| | | | | | | | |
| Year dummies | $F(4, 73) = 1.55$ (0.20) | | | | | | |
| Fixed effects | $F(24, 73) = 4.82$ (0.00) | | | | | | |
| Number of observations | 118 | | | | | | |
| Number of banks | 25 | | | | | | |
| Hausman test | $\chi^2(20) = 167.19$ (0.00) | | | | | | |

SOURCE: Own calculations.
a. *** implies significant at 1 per cent level; ** at 5 per cent level; and * at 10 per cent level.
b. Size effect is bell-shaped with turning point (maximum) at 13.352 compared to mean size of 12.765.

**Table 11-9. Rate of Return on Total Equity**

| *Variable* | *Coefficient* | *Standard error* | *t-statistic* | *Significance*[a] | *Short-run elasticity* | *Long-run elasticity* | *Mean* |
|---|---|---|---|---|---|---|---|
| Lagged profitability | -0.1327 | 0.1054 | -1.2583 | | | | 0.120 |
| Ownership | -0.1153 | 0.1782 | -0.6470 | | -11.531 | -10.181 | |
| Size[b] | 1.3636 | 1.3042 | 1.0456 | | 0.777 | 0.686 | 12.049 |
| Size squared[b] | -0.0527 | 0.0567 | -0.9295 | | | | |
| Proportion of OBS business | 0.8713 | 0.4004 | 2.1763 | ** | 3.739 | 3.301 | 0.517 |
| Loan/deposit ratio | -0.0003 | 0.0076 | -0.0438 | | -0.005 | -0.005 | 1.978 |
| Operating expenses | -0.4649 | 7.6585 | -0.0607 | | -0.128 | -0.113 | 0.033 |
| Staff expenses | 1.4750 | 0.7565 | 1.9497 | * | 7.994 | 7.058 | 0.653 |
| Deposits per 100 workers | -0.0526 | 0.0559 | -0.9415 | | -1.546 | -1.365 | 3.537 |
| Loans per 100 workers | 0.2016 | 0.0737 | 2.7360 | *** | 4.017 | 3.546 | 2.398 |
| Interbank deposits/total deposits | 0.2432 | 0.4218 | 0.5765 | | 0.363 | 0.321 | 0.180 |
| Leverage (x1.000) | 0.9724 | 0.4126 | 2.3568 | ** | 0.131 | 0.116 | 0.016 |
| Own capital – omitted | | | | | | | |
| Liquidity | 0.2817 | 0.0709 | 3.9709 | *** | 0.799 | 0.706 | 0.342 |
| Herfindahl index (x10.000) | 5.6590 | 2.2140 | 2.5560 | ** | 6.770 | 5.978 | 0.144 |
| Market share | -0.0015 | 0.0214 | -0.0680 | | -0.051 | -0.045 | 4.237 |
| Constant | -11.1093 | 7.7445 | -1.4345 | | | | |
| | | | | | | | |
| Year dummies | F(4. 74) = 2.07 (0.09) | | | | | | |
| Fixed effects | F(24. 74) = 2.62 (0.00) | | | | | | |
| Number of observations | 118 | | | | | | |
| Number of banks | 25 | | | | | | |
| Hausman test | $\chi^2(19) = 94.00$ (0.00) | | | | | | |

SOURCE: Own calculations.
a. *** implies significant at 1 per cent level; ** at 5 per cent level; and * at 10 per cent level.
b. Size effect is bell-shaped with turning point (maximum) at 12.936 compared to mean size of 12.049.

**Table 11-10. Persistence of Profitability**

| *Date of regression* $\pi_{it} = \alpha_i + \beta\pi_{i,t-1} + \Sigma\gamma_t T_t$ | *Rate of return on assets* | *Rate of return on assets (incl. OBS business)* | *Rate of return on equity* |
|---|---|---|---|
| 1982-98 | 0.54[a] | 0.65[a] | 0.52[a] |
| 1983-98 | 0.53[a] | 0.64[a] | 0.51[a] |
| 1984-98 | 0.51[a] | 0.63[a] | 0.49[a] |
| 1985-98 | 0.46[a] | 0.59[a] | 0.47[a] |
| 1986-98 | 0.43[a] | 0.58[a] | 0.45[a] |
| 1987-98 | 0.39[a] | 0.55[a] | 0.43[a] |
| 1988-98 | 0.33[a] | 0.51[a] | 0.39[a] |
| 1989-98 | 0.24[a] | 0.43[a] | 0.34[a] |
| 1990-98 | 0.08 | 0.30[a] | 0.24[a] |
| 1991-98 | -0.08 | 0.21[a] | 0.13 |
| 1992-98 | -0.20[a] | 0.17[a] | 0.04 |
| 1993-98 | -0.27[a] | 0.15 | 0.01 |
| 1994-98 | -0.32[a] | 0.23[a] | -0.05 |
| 1995-98 | -0.36[a] | 0.04 | 0.06 |
| 1996-98 | -0.77[a] | -0.25 | -0.47[a] |

SOURCE: Own calculations.
a. Significant at 5 per cent level.

indicating a fairly high level of persistence. But as we reduce the period from 1982-1998 to 1983-98, 1984-98 and so forth, the coefficient on the lagged dependent variable begins to shrink. The sharpest fall is at the end of the 1980s and the beginning of the 1990s. This supports the view that liberalisation in 1987 was an important structural break: past profits became a less accurate guide to future profits as the structure of the market began to change.[52]

Tables 11-7 to 11-9 support the hypothesis that profitability is a nonlinear function of bank size.[53] The relationship is bell-shaped, implying that profitability increases and then declines. The turning point is close to mean size. The implication is that smaller Greek banks will reap scale economies and raise profits if they grow larger, but that some of the larger banks have already exhausted their scale economies and will have to downsize in order to reduce costs.

There is some evidence that banks engaging in progressive asset management practices, such as off-balance-sheet business, are more profitable.[54] But

52. If we run the regression over fixed time periods of 4 years (1982-85; 1983-86; 1984-87 etc.), then the coefficients on lagged profitability become more variable. They show a sharp fall both in the late 1980s and again in the mid to late 1990s. Thus the length of time period over which persistence is estimated may also play some role.

53. Only in the rate-of-return-on-equity equation is size insignificant.

54. Although OBS business is significant in only the rate-of-return-on-equity equation.

simply making more loans (presumably as an alternative to holding government bonds) does not enhance profitability. In Table 11-7 the loan ratio has a negative coefficient, although the effect is not large.[55]

Leverage has a positive impact on profitability in all three specifications, although the elasticity is small (a 10 per cent increase in leverage increases profitability by 1-1.5 per cent). Interestingly, the extent to which banks fund themselves on the interbank market does not appear to have affected profitability significantly over the period, contrary to assertions that access to other sources of funds has favoured certain (typically larger) banks.

Operating costs are negatively associated with profitability, but staff costs are positively associated. This may indicate that banks with more and/or better-paid staff offer better quality services and are rewarded with higher profits. On the other hand, this pattern could simply reflect expense preference behaviour (more profitable banks share their rents with their employees).[56]

We find no evidence that banks that maintain more liquidity and capital sacrifice profits.[57] On the contrary, both variables are positively associated with profitability, as if these presumably sounder banks can access cheaper sources of funds.[58]

The per-worker productivity measures suggest, not surprisingly, that higher productivity improves profitability. Where the measures are significant, the elasticities are high: in Table 11-7 a one per cent increase in loans per hundred workers is associated with a 4.2 per cent increase in profitability in the short run and a 2.7 per cent increase in the long run.

We measure market structure using three- and four-firm concentration ratios along with the Herfindahl index.[59] While a higher Herfindahl index tends to be associated with higher profitability, the effect is significant only in the return-on-equity equation. Thus, we conclude that there is weak support

55. In Tables 11-8 and 11-9 it is not significant. The Table 11-7 elasticity (calculated at the mean) suggests that a 10 per cent increase in the loan/deposit ratio causes profitability to fall in the short run by 3 per cent and in the long run by 2 per cent.

56. We investigate this below when we examine the impact of market structure.

57. The results presented in Tables 11-7 to 11-9 for the liquidity variable are cash, reserves and securities eligible for rediscounting at the central bank as a proportion of total assets (Tables 11-7 and 11-9) or total assets plus OBS business (Table 11-8). Capital is own capital over total assets (Table 11-7) and own capital as a proportion of total assets plus OBS business (Table 11-8). We omit own capital from the equation estimated in Table 11-9 since the dependent variable includes own capital as the denominator. The results are not affected by this omission. Finally, it should be noted that similar results are found for the other measures of liquidity and capital.

58. An alternative measure of risk, provisions as a proportion of total assets, is highly correlated with the loan deposit rate (correlation coefficient of 0.79) and is never significant.

59. The results present in Tables 11-7 to 11-9 are for the Herfindahl index and do not differ much from those with the concentration ratios.

for the SCP hypothesis.[60] Including market share along with the Herfindahl index allows us to reject the possibility that the positive relationship between concentration and profitability simply reflects the fact that some firms are more efficient than others (the efficient structure hypothesis).[61]

One possible explanation for the relatively weak relationship of concentration to profitability is that staff are creaming off rents (the expense preference interpretation).[62] To test this, we replace the dependent variable with profits plus staff costs (a measure of value added). If the expense-preference interpretation is correct, then we should see a stronger effect of concentration. In fact, the results (not reported) are not supportive: in the specifications of Tables 11-7 and 11-8, the coefficients on concentration fall slightly, while in the specification of Table 11-9 the coefficient becomes negative and insignificant.

An alternative explanation for the weak relationship between concentration and profitability, for which we find somewhat more support, is that banks with market power prefer to accrue it in the form of less risk (the risk aversion hypothesis). We test this by replacing the dependent variable with the sum of value added plus provisions. If this interpretation is correct, then the coefficient on the Herfindahl index should fall and perhaps turn negative. Indeed, in Table 11-7 the coefficient on concentration falls, although it remains positive, while in Tables 11-8 and 11-9 the effect becomes negative.[63] These results provide some support for the hypothesis that Greek banks have used the shelter of their concentrated market to limit risk as well as, if not necessarily instead of, to increase profitability.

Interestingly, the bank ownership dummy does not help to explain profitability.[64] In the previous section we noted that private banks have been twice as profitable as public banks on average. The results of the multivariate analysis suggest that this difference is accounted for entirely by more appropriate size (more private banks are medium-sized), more sophisticated asset management (private banks have more OBS business), and higher productivity (private banks have more deposits per worker). These results point to the improvements in the performance of the Greek banking system that should flow from further privatisation (as formerly public banks begin to behave more like their already private counterparts). Put another way, they point to specific

60. Hondroyiannis, Lolos and Papapetrou (1998) find somewhat stronger evidence in favour of this hypothesis, as noted above.

61. The measure of market share included here is based on total assets and OBS business.

62. The positive relationship between staff costs and profitability also points in this direction.

63. Although in neither equation is the index significant.

64. Other negative results include no evidence in any equation of strategic interaction between banks or that inflation, foreign entry or growth played a role in influencing profitability.

steps that Greek banks, public banks in particular, need to take to maintain profitability as the competitive environment grows increasingly intense.

To conclude, therefore, the results indicate that profits are fairly volatile indicating that Greek banking has been going through a phase of intense structural change. With respect to the determinants of profitability, we find that it is a non-linear function of bank size: smaller Greek banks will reap scale and scope economies and raise profits if they grow larger, but some of the larger banks have already exhausted their scale economies and will have to downsize in order to reduce costs. While there is some evidence that banks that engage in more progressive asset management practices, such as off-balance-sheet business, are more profitable, there is no indication that simply making more loans enhances profitability. A reduction in operating costs might also improve profitability, although higher staff costs are associated with higher profitability, perhaps suggesting that banks with higher staff costs are able to produce a better quality of service. We find only a weak relationship between market concentration and profitability. The evidence suggests that the explanation lies in the tendency for banks with market power to use it to assume less risk (the risk aversion hypothesis). An important implication is that the riskiness of bank portfolios may rise as competition continues to intensify.

## Future Trends

In this section we consider future developments that promise to transform further the Greek banking system, in particular deregulation, privatisation, internationalisation and securitisation.

**Deregulation**. The relaxation of regulatory restrictions has already ratcheted up the pressure on financial institutions previously accustomed to a sheltered environment. Prior to liberalisation, regulatory restraints were extensive. Three-quarters of the funds available to commercial banks were earmarked for activities favoured by the government. Two thirds of this was allocated to the public sector, the rest to "priority" activities (mainly industry, including loss-making public and quasi-public enterprises, but also to small scale units and handicraft enterprises). Loans equal to ten per cent of deposits had to be allocated to small firms, while 15 per cent had to be extended to industry. By implication, there were ceilings on credit to other domestic industries, the import trade, and households.

This system of credit allocation was made possible by compartmentalising the activities of different financial institutions. Commercial banks were

limited to deposit taking, commercial lending, and trade finance. Mortgage banks were permitted to lend only for housing. The Agricultural Bank could lend only to agriculture. Issuing credit cards, underwriting securities issues, and operating in swap and forward markets were prohibited or subject to prior approval. Capital controls were extensive. Interest rates were controlled at levels implying negative real rates. Bank profitability was maintained by capping deposit rates and giving small savers few alternative outlets for their funds, and by relating commercial banks' obligatory deposits at the central bank to their lending to privileged borrowers.

This system of credit allocation was sustained by limiting entry. There was some entry by foreign banks in the 1960s and 1970s, reflecting the internationalisation of the industry worldwide and Greece's ambition to join the European Community, but the impact was limited, reflecting the continued prevalence of controls.

The turning point was 1981-82, with EC accession (1981) and the abolition of the Currency Committee (1982). While the government retained considerable influence over credit allocation, arbitrary instructions to individual banks regarding the extension of credit were replaced by general rules. Rate ceilings on loans to the public sector and to export industries were relaxed in 1983 and abolished in 1987. Deposit rate ceilings were raised in 1983.[65] The last obligatory investment ratios (for loans to small firms and investments in Treasury bills) were removed in 1993.

In the second half of the 1980s, this segmentation began to break down. Commercial banks were permitted to extend credit for housing and to set commissions and fees. Rules preventing specialised credit institutions from engaging in retail banking were dismantled: the Agricultural Bank was no longer limited to agricultural lending, mortgage banks were allowed to open deposit accounts, and the development banks were allowed to accept current accounts and grant loans for working capital as well as make long-term investments. Restrictions on the ability of domestic residents to borrow abroad were relaxed starting in 1987. Direct investment in other EU countries was freed in 1990. Exchange controls on current-account-related transactions were abolished in 1991-92. All remaining capital controls were removed in 1994.

The elimination of these line-of-business and other portfolio restrictions has encouraged noncompeting institutions to enter one another's markets. The grey market in which firms with favourable access to credit onlent to

65. Although the last remaining deposit-rate restrictions, those on savings accounts, were only abolished ten years later.

other enterprises has essentially disappeared. Less reassuringly, the removal of interest rate ceilings has allowed the spread between lending and deposit rates to widen, reflecting the market power associated with high regional and national concentration. Spreads are at least twice the OECD average.[66] Public ownership and the perception that both public and large private banks enjoy implicit guarantees have weakened market discipline on banks newly freed from regulatory restraints. The results are predictable. Institutions like the Hellenic Bank for Industrial Development (ETBA, which has large claims on loss-making enterprises in the steel, aluminium and shipping industries) and the Agricultural Bank of Greece (with large loans outstanding to loss-making agricultural cooperatives) suffered heavy loan losses in the 1990s.

**Privatisation**. Publicly-controlled banks still account for the majority of deposits and credits. This is changing, however, as Table 11-11 shows, with the government's privatisation of four relatively small publicly-owned banks in 1998, the privatisation in 1999 of the much larger Ionian Bank (which was acquired by Alpha Bank) and the flotation on the Athens Stock Exchange in December of 1999 of a 30 per cent stake in ETBA and in January 2001 of a 12.5 per cent stake in the Agricultural Bank of Greece.

The government is also attempting to commercialise the banks which are still publicly-controlled (the largest of which are the National Bank of Greece, the Commercial Bank of Greece and the Agricultural Bank of Greece). Thus, for example, they have installed professional management, delegated control to publicly-owned pension funds and, more recently, made Board appointments the responsibility of the General Meeting of shareholders of each bank. This implies that these banks now operate much more independently than they did in the past. At some point in the future, therefore, it is likely that this process of distancing these banks from the state will be completed through full privatisation. The evidence presented above suggests that private banks control their size more efficiently, manage their assets more efficiently, and raise staff productivity. In addition, the experience of other countries provides support for the view that a public or semi-public financial institution encountering an intensification of private-sector competition may perceive itself as possessing a soft budget constraint and ratchet up its risk-taking in response. Finally, there are strong pressures from the EU encouraging further privatisation of the Greek banking system

66. OECD (*Country Surveys, Greece,* 1998, p. 88) estimates that spreads of 7 1/2 to 8 percentage points are 2 to 4 times those prevailing in other OECD countries. They have subsequently fallen, although still remain around 5 percentage points.

**Table 11-11. Privatisations**

| *Bank* | *Year* | *Previous owners* | *Buyer* | *Per cent* | *Other information* |
|---|---|---|---|---|---|
| Bank of Piraeus | 1991 | Commercial Bank of Greece | UNICO AE | 66.67 | |
| Bank of Athens | 1992 | National Bank of Greece | | | formerly Traders' Credit Bank |
| Bank of Attica | 1996 | Part-owned by Commercial Bank of Greece | Deposits and Loans Fund and Engineers' Pension Fund | 49.5 | |
| General Bank | 1998 | Greek Army Pension Fund | Interamerican Insurance Group and other institutional investors | 33 | |
| Bank of Crete | 1998 | State | Eurobank | 97 | from 1988 in the hands of the Bank of Greece |
| Bank of Macedonia-Thrace | 1998 | National Bank of Greece, ETEBA, Postal Savings Bank | Bank of Piraeus | 37 | |
| Bank of Central Greece | 1998 | Agricultural Bank | Egnatia Bank | 51 | |
| Ionian Bank | 1999 | Part-owned by Commercial Bank of Greece | Alpha Bank | 51 | |
| ETBA | 1999 | | Sold on Athens Stock Exchange | 30 | |

SOURCE: Individual bank accounts and Bank of Greece.

as part of a wider set of structural measures designed to improve real economic performance. The implication is that the steps already taken by the government to privatise some of the smaller public-sector banks will likely culminate in eventual privatisation of all other banks still in public hands.

**Internationalisation**. As of end-2000, 14 banks that make their home in other EU Member States have branches in Greece. Nine non-EU commercial banks also operate branches. Table 11-12 compares the inward internationalisation of banking in Greece with other EU countries. Greece ranks fifth in terms of the extent of foreign bank penetration. Predictably, the majority of foreign branches and subsidiaries with assets in Greece are from

**Table 11-12. Inward Internationalisation into EU Countries: Market Shares of Foreign Branches and Subsidiaries as a per cent of Total Domestic Assets**
Sorted by the market share of total branches and subsidiaries in 1997 (last column)

| | | | | *1997* | | |
|---|---|---|---|---|---|---|
| *Country* | *1985* | *1990* | *1995* | *From other EU countries* | *From third countries* | *Total* |
| Luxembourg | | | 99.7 | 90.9 | 9.5 | 99.9 |
| Ireland | | | 40.6 | 45.4 | 8.1 | 53.6 |
| UK | | | 51.6 | 23.4 | 28.6 | 52.1 |
| Belgium | | 30.0 | 28.4 | 28.2 | 8.1 | 36.3 |
| Greece | 14.5 | 13.0 | 18.6 | 13.0 | 8.9 | 21.9 |
| Spain | 8.0 | 8.9 | 11.8 | 8.2 | 3.5 | 11.7 |
| Portugal | 2.3 | 3.8 | 9.4 | 9.4 | 1.2 | 10.5 |
| France | | | 12.2 | | | |
| Netherlands | 14.6 | 12.6 | 9.8 | 5.3 | 2.4 | 7.7 |
| Finland | | | 6.5 | 7.1 | 0.0 | 7.1 |
| Italy | 2.6 | 2.8 | 5.4 | 5.3 | 1.5 | 6.8 |
| Germany | | | 4.2 | 2.4 | 2.0 | 4.3 |
| Austria | | 2.8 | 3.5 | 2.3 | 1.1 | 3.3 |
| Sweden | | | 1.7 | 1.3 | 0.3 | 1.6 |

SOURCE: European Central Bank (1999a).

other European countries, although this is not exclusively the case, reflecting implementation of the EU's Second Banking Directive (via the Basic Banking Law of 1992), which guarantees freedom of establishment for foreign banks, allows for mutual recognition of domestic banking licenses, and permits banks to operate throughout the EU on the basis of a single banking license.[67]

Merger is the main mechanism by which Greek banks have responded to foreign competition – both strategic mergers in which large banks seek to reposition themselves in domestic and foreign markets and defensive mergers designed to rationalise back-office operations and branch networks (Table 11-13). As in other EU countries (Austria, Belgium, Italy and Portugal, for example), mergers have been associated with privatisation, as private banks have sought to acquire formerly public institutions. Thus, Alpha Bank narrowly outbid its rival, Piraeus Bank, for Ionian Bank, previously part of the publicly-owned Commercial Bank of Greece; as a result Alpha is now the second largest Greek bank, surpassed only by the National Bank of Greece. Piraeus Bank absorbed Xiosbank and the Macedonia-Thrace Bank in 1998, as well as acquiring the Greek branches of Chase Manhattan and Credit Lyonnais. In 1999, EFG Eurobank completed Greece's

67. See Gortsos (1998).

**Table 11-13. Mergers, Takeovers, Participations and Cooperative Agreements**

*A. Mergers and takeovers*

| *Banks* | | *Year* | *Other information* |
|---|---|---|---|
| Commercial Bank | Investment Bank | 1992 | The Commercial Bank of Greece was already the majority shareholder in Investment Bank. |
| National Mortgage Bank | National Housing Bank | 1997 | National Housing Bank was owned by National Bank of Greece. |
| Eurobank | Credit-Lyonnais Grèce | 1997 | Retail operations only of Credit-Lyonnais Grèce taken over. |
| Eurobank | Interbank | 1997 | |
| Bank of Piraeus | Chase Manhattan | 1997 | Network of Chase Manhattan in Greece taken over. |
| National Bank of Greece | National Mortgage Bank | 1998 | National Mortgage Bank was owned by State Pension Funds. |
| Eurobank | Bank of Athens | 1998 | |
| Bank of Piraeus | Xiosbank | 1998 | |
| Bank of Piraeus | National Westminster | 1999 | Network of 5 branches of National Westminster in Greece taken over. |
| Bank of Piraeus | Credit Lyonnais-Grèce | 1999 | Now called Piraeus Prime Bank, it deals with investment banking. |
| Telesis Brokerage Firm | Dorian Bank | 1999 | |
| Eurobank | Ergobank | 1999 | |
| Agricultural Bank and others | Bank of Nova Scotia (in Greece) | 2000 | Agricultural Bank bought 45 per cent; the remainder was purchased by various Greek businesses. |

*B. Participations and cooperative agreements*

| | | | |
|---|---|---|---|
| Deutsche Bank | Eurobank | 1999 | Deutsche has taken a 10 per cent stake in Eurobank |
| Credit Agricole | Commercial Bank of Greece | 2000 | Credit Agricole takes a 6.7 per cent participation in the Commercial Bank of Greece and this may be increased in the future to 15 per cent (by beginning of 2001, it had reached around 10 per cent). |
| Bank of Tokyo Mitsubishi | Bank of Piraeus | 2000 | Cooperative agreement reached regarding investment banking services; Bank of Piraeus now in talks with ING Bank over possible cooperation. |

first hostile takeover, acquiring a controlling stake in Ergobank, a recently-founded bank that had built market share by acquiring and restructuring small loss-making banks.

This consolidation through merger parallels trends underway in other EU countries. The Danish, Dutch and Spanish banking markets, for example, have undergone radical consolidation.[68] Recent examples of M&A activity in European banking[69] include the announcement that Banco Bilbao Vizcaya will acquire Argentaria Caja Posal y Banco Hipotecario, that the Bank of Scotland has launched a hostile takeover bid for National Westminster Bank, that Banca Intesa plans to take over Banca Commerciale Italiana, and that Dresdner Bank may merge with Deutsche Bank. But these are all within-country mergers. To date, cross-border merger and consolidation remain rare, reflecting differences in corporate culture and the resistance of governments. There are signs that this resistance is changing: in September of 1999, Sweden's Sparbanken attempted to acquire Denmark's FIH (proving that the world's longest fixed link isn't the only thing that can be built between the two Scandinavian countries), and Enskilda Securities of Sweden announced an alliance with Drueker & Co. of Germany. In Greece, such cross-border activity is currently confined to minority participations or simple cooperative agreements (Table 11-13).[70]

One can expect this process to accelerate. Cross-border branching allows management to insulate the bank's revenue stream from local market fluctuations. In addition, some assets that are useful for portfolio diversification purposes — home mortgages, for example — can only be obtained in significant numbers through local branch networks. More generally, minimum efficient scale will rise as national financial markets are superseded by a con-

68. To the point where in Denmark and the Netherlands the banking system is now essentially dominated by two players.

69. See Gibson and Tsakalotos (1993) for mergers, acquisitions and minority shareholdings both within and across EU countries which occurred in the late 1980s and early 1990s.

70. Another interesting development is the expansion of Greek banks into other Balkan countries (and potential future EU members). Thus, the National Bank of Greece has opened 2 branches in Bulgaria (January 1999), one in Cyprus (February 2000) and one in Bulgaria (May 2000), bought the Chase Manhattan branch in Bucharest (Romania, January 1999), opened an office in Istanbul (Turkey, February 2000) and bought 65 per cent of Stopanska Bank A D Skopje in FYROM in March 2000 and 89.9 per cent of the United Bulgarian Bank. Alpha Bank opened 4 branches in Albania and bought 65 per cent of Kreditna Banka A D Skopje in the Former Yugoslavian Republic of Macedonia (FYROM). The Commercial Bank of Greece opened 2 branches in Cyprus in March 2000. Piraeus Bank took over the Romanian Bank Banca de Credit Pater SA in March 2000. Egnatia Bank purchased 99 per cent of BNP-Dresdner SA (Romania) in November 2000. Finally, Eurobank bought 19.25 per cent of Bank Post SA (Romania) in August 2000.

tinent-wide European market.[71] There are also likely to be benefits from economies of scope.

In practice, this raises the prospect of foreign banks acquiring Greek banks, since foreign banks are larger, better capitalised, and enjoy easier access to securities markets.[72] Management has sought to head off this eventuality by seeking partners interested in forming strategic alliances by taking 10 to 20 per cent stakes in their operations. But foreign institutions are sometimes reluctant to settle for being minority partners, preferring a more active voice in management (Hope, 1999). This makes cross-border takeovers, hostile or otherwise, the impending scenario.

Should the Greek public care? The economist's answer is usually no. Unlike the past, Greek financial institutions will no longer be used to allocate capital with political ends in mind. In an increasingly competitive financial environment, there is no reason to think that the Greek branches of foreign banks will be less inclined to lend for attractive investment projects than the Greek branches of Greek banks. And given the fungibility of finance, there already exist channels through which Greek investors, institutional and individual, can invest abroad if they find the returns more attractive.

Foreign banks are at present allowed to acquire Greek banks and encouraging this might be an obvious way of speeding the privatisation of the remaining public banks, which are large relative to their domestic private-sector competitors but not relative to banks in other countries. It is an obvious way of upgrading domestic management practices, insofar as foreign banks have more experience in the private sector. It is an obvious way of upgrading prudential supervision insofar as regulation is home-country based and other EU countries have more experience with regulating private-sector banks.

**Securitisation**. Further pressure is being applied to the Greek banking system by the forward march of securitisation, which results in disintermediation and the loss of reliable revenue streams. Large companies are increasingly able to obtain external finance on the securities market. Firms and households are increasingly able to place their savings in other instruments that are substitutes for bank deposits. In particular, mutual funds (which invest heavily in government bonds) are in increasingly direct com-

71. And if Europe's more mature economies continue to grow relatively slowly, it will make sense for their banks to acquire counterpart institutions in more rapidly growing parts of the world. The expansion of Spanish banks into Latin America illustrates this tendency. The consolidation of banking in the United States following the elimination of restrictions on cross-state branching is another instance of the phenomenon.

72. Bond flotations often being necessary to finance mergers and acquisitions.

petition with the banks for funds. By the end of 1996 mutual fund assets amounted to a fifth of bank deposits; by 1999 this ratio had risen to 52 per cent.[73]

The scope for disintermediation is reflected in the development of the Athens Stock Exchange, valuations on which shot up in 1999 as investors bet on an increase in growth and profitability as a result of Greece's adoption of the euro. This increase in capitalisation was possible only because reforms had already enhanced market transparency and reduced fears of insider trading, market cornering, and other forms of share-price manipulation. The authorities adopted EU directives regarding stock exchange legislation, introduced an automated (screen-based) trading system in 1992, and encouraged the establishment of brokerage firms.[74] Partly as a result of these changes, equity capitalisation rose from 2 per cent of GDP in 1985 to 15 per cent in 1993 and 89 per cent at end-2000.[75]

The growth of the corporate bond market has been limited. However, the development of a relatively deep and liquid market in benchmark government bonds may provide a basis from which such a market could develop in the future. The central bank introduced an electronic book-entry bond trading system in 1995, eliminating the need for the physical transfer of security certificates, and established a system of primary dealers to facilitate secondary-market trading. But because high fixed costs and unfavourable tax treatment continue to prevent small corporations from raising significant finance through bond issues, government bonds still account for almost all bond-market capitalisation (as at end-2000).

Euroisation will force the pace. The elimination of currency risk within the euro area has already led what were once 11 (and now 12) nationally-segmented bond markets to be superseded by an integrated single market. The greater breadth and liquidity of the European corporate bond market has reduced bid-ask spreads and encouraged both secondary-market trading and originations. Euro-denominated corporate bond issuance by euro and non-euro area companies rose from €30 billion in the first three quarters of 1998 to €117 billion in the first three quarters of 1999.[76] While financial

73. Although many of these funds are bank subsidiaries, this is not exclusively the case, and it is likely to grow less true over time.

74. Most of which are in fact owned by the banks. Thus, liberalisation of the banking system was, effectively, a precondition for stimulating the growth of the stock market.

75. In 1999, equity capitalisation had reached 160 per cent of GDP.

76. Recovery from Russia's default and from the LTCM debacle, which had a depressing effect on the market in the third quarter of 1998, had something to do with this, but the role of the euro is undeniable. Low euro interest rates also encouraged borrowing in euros.

institutions continue to dominate this market, the share of non-government euro-denominated issuance accounted for by nonfinancial private corporations rose from 7 per cent of the total in 1998 to 18 per cent in 1999.[77] Meanwhile, the average size of non-governmental issues has risen by 50 per cent. The elimination of currency risk has allowed borrowers to arrange exceptionally large transactions, while investors' reorientation from strategies focusing on interest rate convergence to a search for yield has allowed lower-rated borrowers to access the market. Thus, between the first nine months of 1998 and the first nine months of 1999, the share of corporate bond issuance accounted for by Baa issues rose from 4 per cent to 15 per cent.

The implications for Greek banks, which have long been the sole source of funding for wide swaths of industry, will be profound. Large companies with good credit have already fled the banking system, and smaller firms of less certain creditworthiness may follow in considerable numbers with the adoption of the euro. So long as they are perceived as having superior information about potential borrowers, Greek banks will retain an advantage in the provision of underwriting services. They will also remain an important source of funds for small and medium-sized firms which rarely have access to financial markets even in highly developed financial systems. However, neither of these advantages can be taken for granted.

## Challenges for Prudential Supervision

International experience suggests that liberalisation of the financial system can be followed by crisis. Cases as diverse as Latin America in the early 1980s (Diaz-Alejandro, 1985), Scandinavian countries in the later 1980s (Benink and Llewellyn, 1994; Drees and Pazarbasioglu, 1995), the US Savings and Loan crisis (White, 1991) and, most recently, the East Asian crisis (Goldstein, 1998; Miller and Luangaram, 1998) all suggest that, *inter alia*, increased competitive pressures can contribute to banks and other financial institutions taking greater risks. At the same time, the supervisory authorities are often still learning the necessary new supervisory techniques for the new liberalised regime. The result is an increase in financial fragility and the propensity for financial crisis. For these reasons, the role of prudential supervision is of paramount importance in determining the success of liberalisation.

77. First three quarters in each case.

In the age of public ownership and direction, supervision and regulation in Greece took a back seat to other forms of government control. Up until the beginning of the 1990s, as the OECD (*Country Survey: Greece*, 1995, p. 49) observed, "prudential controls remained consistent with the logic of the pre-reform system and essentially directed to the checking of a correct application of credit rules." The OECD went on to write that "[I]n the past, bank auditing has been hampered by the lack of reliable data. Accounting practices have sometimes rendered interpretation of banks' financial statements difficult. Until 1992, for example, some publicly-owned banks would accrue income on unpaid interest or 'arrears' and then grant new loans to cover interest arrears. Assets were often overvalued, since many state-controlled banks had lent considerable sums to, or bought large stakes in, 'ailing' firms."[78]

Upgrading prudential supervision is essential for stability as the financial environment grows more intensely competitive. The Bank of Greece began tightening up supervisory arrangements in 1992, when the Basic Banking Law enacting the provisions of the EU's Second Banking Directive was adopted. It began by monitoring banks more closely and, consequently, they were required to report their asset and liability positions semi-annually, their liquidity positions quarterly (for the calculation of maturity mismatch), and their foreign exchange positions monthly. Banks were required to hold a capital ratio of 8 per cent, the Basle norm.[79] They were prohibited from booking interest on loans not serviced for more than 12 months and from granting new loans to finance overdue interest. They were required to report large exposures (equal or exceeding 10 per cent of own funds). A modern deposit insurance scheme was adopted in 1995, and since 1996 all credit institutions have been supervised on a consolidated basis.

More recent changes include the introduction of various EU Directives (98/31/EC, 98/32/EC and 98/33/EC) relating to capital requirements on open positions, the calculation of risk associated with OBS business and mortgages on commercial properties as well as the introduction, in certain circumstances, of the self-assessment of risk. At the same time, the Bank of

78. OECD (*Country Survey: Greece,* 1995, p. 42).

79. At end-1996, the average capital ratio was 9.7 per cent and it rose to 11.3 per cent at end 1998. Favourable conditions on the stock market in 1999 allowed banks to raise more capital and the average ratio reached 16.2 per cent at end-1999. It currently stands at 15.7 per cent (end June 2000 figures), well above the 8 per cent requirement. The Agricultural Bank was given an exemption from the 8 per cent capital requirement until end-1999 and it embarked on a three-year restructuring programme. Its bad-loan problem has resulted from loans made to farmers and farm cooperatives which were not adequately collateralised, in conjunction with a series of loan restructuring programmes (including partial write-offs) which have undermined repayment incentives. OECD (*Country Survey: Greece,* 1998, p. 87).

Greece itself has taken a series of measures designed to improve the quality of banks' balance sheets (Bank of Greece, 1999). In particular, a series of principles concerning internal control systems and risk management were adopted in 1998, reflecting best practice internationally. Additionally, a general framework for provisions on different kinds of loans was introduced in 1999. This specifies certain minimum amounts for provisions. Thus, for example, consumer loans have a minimum 30 per cent higher than the normal provision (which stands at 1 per cent), reflecting their greater risk. Similarly, banks are also required to hold higher levels of provisions on loans with interest arrears.

Is this framework capable of coping with the additional risks that will be associated with the reallocation of funds from governments bonds to other assets and with the growth of off-balance-sheet business? Will it be able to limit the risk taking that will be associated with growing domestic and international competition, given the existence of a residual sector of publicly-owned banks? To some extent, answers to these questions depend on the extent to which one believes that the prudential framework emerging from both the Basle Committee and the EU/ECB is adequate to meet the challenges of increased financial liberalisation and integration. In this respect, doubts have been raised (see, for example, the discussion in Danthine *et al.*, 1999). But the domestic prudential framework is also important. The changes to the environment in which Greek commercial banks operate imply the need for greater vigilance in the areas of credit and market risk and more attention needs to be paid to the adequacy of banks' risk management systems. Although banks are responding to the changing environment by upgrading these systems and other internal controls, the regulatory authorities for their part need to follow closely developments in these areas.

## Conclusion

The Greek banking system is in a period of rapid transformation. In this paper, we have examined in some detail the form that this transformation is taking. In particular, we noted that there has been an increase in the market share of smaller banks, with the older, more established banks losing out. This suggests that competition has been increasing in recent years. The implications of this for profitability are potentially significant and, over the 1990s, the profits of Greek banks have been quite volatile reflecting the liquid environment. The results of our econometric analysis suggest that bank size is an important determinant of profitability, with smaller banks being

able to benefit from economies of scale and scope should they grow larger. The larger banks, by contrast, seem to have already exhausted their scale economies and would benefit from becoming smaller if they are to reduce their unit costs. In general, reducing operating costs was found to enhance profitability, although the relationship between profitability and staff costs is positive suggesting that higher staff costs may indicate a better quality of service. Finally, it appears that banks which enjoy market power have used it, at least in the past, to reduce risk rather than increase profitability. As a consequence the increased intensity of competition associated with structural change in Greek banking may well lead to greater risk taking by banks and this is obviously something of which the regulatory authorities should be aware.

To some extent the forces driving the transformation of the banking system are the same as in other parts of the world: deregulation, securitisation, and internationalisation. But the pace is being forced by Greece's membership of the European Union and its accession to the monetary union, with its explosively-growing corporate bond market. EU membership will hasten the internationalisation of Greek banking, while accession to the monetary union will further broaden the access of Greek companies, traditionally dependent on the banking system for finance, to securitised funding. For all these reasons, the pressure on incumbent banks will be intense.

This turbulence will be all the more severe insofar as most remaining public banks are likely to be privatised even while these other changes are taking place. Newly privatised banks will have to rescale their branch networks, implement more progressive asset management techniques and reduce staff costs if they are to maintain the respectable rates of profit that they enjoyed when they operated in a more cloistered regulatory environment. For some, merger or acquisition by a foreign financial institution will be the obvious way of implementing new asset- and personnel-management techniques.

This scenario points to two challenges for policy makers. One is to strengthen prudential supervision. Historically, Greek banks have used their rents to reduce risk, as we have shown above. As competition intensifies and they are less able to do so, bank portfolios will become riskier. Moreover, increased competition is likely to lead to further consolidation and the disappearance of some banks. As the pressure intensifies, less competitive intermediaries will find it tempting to gamble for redemption. In addition, the adoption of more sophisticated asset-management practices (the increasing use of off-balance-sheet transactions, for example) implies that risk may be harder for management to control and regulators to monitor.

The second challenge for policy makers is the continuation of restructuring in the banking system, a necessary process given the relatively small size of Greek banks compared with their European competitors. Until now, restructuring has occurred mainly via privatisation and mergers/acquisitions, with ownership remaining in domestic hands. These developments are likely to continue. In addition, however, it is probable that restructuring will involve a greater role for foreign institutions via ownership of banks in Greece and/or through the formation of strategic alliances.

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## Comment by Max Corden

### Some Thoughts on Greece Joining EMU

Greece is a small, fairly specialised economy, being somewhat similar to several advanced developing (or "emerging market") countries. Its structure is very different from most of the other EMU countries, apart from Portugal and Ireland, in that its trade is not primarily intra-industry trade. Its adventure in joining EMU and thus giving up an independent monetary and exchange rate policy can have lessons for other countries around the world quite apart from the importance this move has for Greece itself. Should such economies elsewhere also attach themselves to larger advanced economies, either by joining a monetary union with (say) the United States or Japan, or simply adopting the currency of the larger country ("dollarising")? The issue also arises for the potential accession countries, such as Poland, the Czech Republic and Hungary. There is no point now in discussing in detail the arguments for and against Greece joining EMU, since the decision has been made, but it will be worth examining in a few years to what extent various pro and con arguments have been borne out. In addition it is, of course, desirable, to be aware of possible problems so that they can be anticipated and their adverse consequences perhaps staved off.

There are two main economic benefits to be expected.

Firstly, trade and capital movements will be fostered by having a single money. Transaction costs and uncertainty will be reduced. This is obvious and perhaps the primary argument in favour of monetary union. It will not be difficult to verify in a few years whether this expectation is confirmed. The complication here is that macroeconomic policy stabilisation as has actually taken place in Greece already is likely to have fostered trade and, especially, capital inflows. These benefits do not necessarily require full monetary union.

Secondly, there is the "nominal anchor" argument. While Greece has managed to radically reduce its rate of inflation even before joining EMU — and this was a condition for entering — actually joining EMU will surely make low inflation prospects more credible, and thus both lower interest rates and moderate wage demands based on inflationary expectations. It may be said that the improvements attained so far have been brought about by the conditions required to join EMU, and one cannot really separate these achievements from the effects of actually joining. Furthermore, Greece could conceivably have followed an independent monetary policy

focused on inflation targeting (like the United Kingdom and Sweden) without the EMU membership requirement. Keeping in mind Greece's postwar history I suspect not, but we will never know.

There is an additional point that argues in favour of monetary union. But I must say right from the start that it needs to be qualified. The argument is that in small open economies, especially those with strong trade unions, nominal exchange rate policy and monetary policy are not useful instruments for improving competitiveness and employment. Nominal devaluations are quickly offset by wage increases that aim to avoid declines in real wages. Hence nominal devaluations do not lead to sustained real devaluations. I suspect that Greece comes in this category. In that case there is little point in a country keeping its independent exchange rate and monetary policies. It might just as well join a monetary union in order to get the benefits I have just outlined. But I shall qualify this point shortly, noting that a real devaluation resulting from a nominal devaluation may not be sustained but it may last for long enough to be useful. The same applies to monetary expansion leading to temporarily low interest rates.

Let me now turn to the topic of asymmetric shocks which has received so much attention in the literature on monetary integration. These are shocks that are not general to the whole EMU area, or at least the major economies in EMU, but are specific to Greece and possibly a few other small economies. I shall distinguish positive asymmetric shocks from negative asymmetric shocks.

It is quite likely that Greece will suffer ("benefit" would be a better term) from positive shocks during the current decade. I am influenced here by the recent example of the Republic of Ireland. Firstly, like Ireland at the beginning of the 1990s, Greece has much catching-up to do relative to almost all its EMU partners. I would expect a high rate of productivity growth, possibly stimulated by high inflows of foreign direct investment. Secondly, membership of EMU itself will be a benefit to Greece for the reasons already discussed, probably also leading to an increased rate of capital inflow and higher productivity in tradeable sectors.

In equilibrium such positive shocks lead to real appreciation. This may be because high levels of capital inflow allow current account deficits that are generated by a combination of real appreciation and domestic demand expansion, the latter caused by high domestic investment. It may also be because of the Balassa-Samuelson effect: high productivity growth in tradeable sectors raises wages and thus the relative prices of nontradeables.

If the exchange rate floated, real appreciation would be brought about by nominal appreciation, while with a fixed exchange rate (as in EMU) it would

be brought about by temporary domestic wage and price inflation, as in Ireland lately. Such temporary inflation is not necessarily a problem. It is simply part of the adjustment process. Arguably, it should not stimulate inflationary expectations, since monetary policy remains in the control of the European Central Bank. A rate of inflation in countries like Ireland and Greece that is higher than the EMU average may have to be accepted as reasonable. The conclusion at this stage is that membership of EMU will not present a problem when there is a positive asymmetric shock. But inflation, especially of asset prices, might also overshoot (as is so common everywhere), in which case a boom will lead to "bust". In that case the positive shock would be transformed into a negative shock.

So I come to the possibility of a negative shock. There may be a deterioration in the terms of trade (product-specific shock), there may be political developments that suddenly change the perceptions of the international capital market about the economic prospects of Greece (policy shock), or there may be, as I have noted, the sudden end of a boom. Are such shocks going to happen? I do not know, but the possibility must at least be allowed for. If Greece had maintained independent monetary and interest rate policies, in all these cases the old-fashioned Keynesian demand management prescription is to lower interest rates and allow the exchange rate to depreciate or (if an explicit exchange rate policy is being followed) to devalue. This Keynesian approach assumes realistically that nominal wages do not fall readily in response to a negative shock, even though they rise in response to a positive shock.

It might be said that in practice Greece had not in the past followed such Keynesian policies very efficiently owing to the monetisation of fiscal deficits. But against that, it can be said that, once monetary and fiscal policies have been stabilised (as they have in the case of Greece), there is no reason why Greece could not follow Keynesian policies in a slump provided it is following conservative inflation-targeting policies at other times.

At this point one should remind oneself of the earlier discussion that depreciations may be quickly followed by wage increases in a small open economy. Thus nominal exchange rate and monetary policies may not have sufficiently long-run real (as distinct from nominal) effects that last for a reasonable length of time. The question is whether this applies to Greece. I suspect on the basis of the experience of many countries that such policies would have significant short-term real effects in a non-inflationary environment. Something will be lost by joining EMU, though it will surely be offset by the advantages I have listed earlier. Yet the answer to this question hardly matters now. The point is that such policies will no longer be available to Greece's policy makers. Hence, one must look to other policies.

If there is to be any national (that is, Greek) stabilisation policy in response to asymmetric shocks, it must rest on fiscal policy. Because of lags, fiscal policy cannot do the job perfectly. But, speaking generally, at times of positive shocks there is a need for fiscal surpluses and at times of negative shocks (or when such shocks are expected) the need is for somewhat expansionary fiscal policy, that is, usually for fiscal deficits. These surpluses and deficits need to be greater than those that would result from automatic stabilisers. Naturally a boom generates a surplus, this being the automatic stabiliser effect. At such a time there is then a temptation to ease fiscal policy because "the money is available". It does seem counter-intuitive that just at that time the surpluses should be increased further, as stabilisation policy actually requires. The same principle applies to fiscal deficits at times of slumps caused by negative shocks: The fiscal deficits resulting from the automatic stabiliser effect should actually be deliberately increased.

The vital point to bear in mind is that in the boom there have to be big surpluses not just to moderate the booms (which will only be necessary when they get out of hand) but to make possible the deficits in the slumps. If public debt is to be increased in a slump, such debt must be low to begin with, and must be reduced again in the following boom. For that reason a high-employment demand management policy requires tight fiscal policies in booms.

Finally I come to labour market flexibility. I am aware that this is a special and very important problem in Greece, as it is to a lesser extent in many other European countries. Because Greece has joined EMU, a greater responsibility is put on labour market flexibility. At the same time it must be granted that labour markets that create rigid real wages, and not just rigid nominal wages, can stand in the way of high levels of employment even when a country has an independent monetary policy. This, indeed, has been the experience of Greece.

I am not telling Greek policy makers anything they do not know, or that has not been preached *ad nauseam* in IMF and OECD reports on Greece, and many other countries. As in most countries, the obstacles are not in understanding at the policy-making level, but in what is politically and socially possible. When independent monetary and exchange rate policies are not available, all the more weight must be placed on fiscal policy and on labour market policy. In response to a negative shock, fiscal policy can provide a short-term respite, while labour market flexibility has to provide longer-term adjustment. But deficits in the slump require sufficient surpluses in the boom.

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In recent years, Greece has emerged as one of the fastest growing countries in the European Union. Its strong growth performance has occurred during a period in which inflation has been reduced from double-digit to low single-digit rates. The Greek government eliminated large fiscal imbalances and the country joined the euro area in January 2001. This recent performance followed a prolonged period of sluggish economic growth, high inflation and large macroeconomic imbalances. How did the Greek economy undergo such a rapid transformation? What can other countries learn from Greece's experience?

In this book, a prominent group of international scholars reviews the history of economic policies in Greece and assesses the challenges that lie ahead. Each of the papers concentrates on a specific aspect of the Greek economy. The authors seek to facilitate a better understanding of the Greek economy and to stimulate a constructive policy dialogue within Greece. At a time when countries worldwide are struggling with the challenges of economic stabilisation and restructuring, the analyses in these papers will prove valuable to observers of other countries whose economic situations and problems are similar to those that have been faced by Greece.

The book contains an introduction and summary by the editors. The editors are Ralph C. Bryant, Senior Fellow in the Economic Studies Programme at the Brookings Institution, Nicholas C. Garganas, Deputy Governor of the Bank of Greece, and George S. Tavlas, Director-Adviser, Economic Research Department in the Bank of Greece.

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