

Economic Bulletin ISSN 1105 - 9729 (print) ISSN 2654 - 1904 (online)

THE ECONOMIC BEHAVIOUR OF HOUSEHOLDS IN GREECE: RECENT DEVELOPMENTS AND PROSPECTS*

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I INTRODUCTION

Economic theory suggests that it is important to study and analyse the consumption and saving behaviour of households.1 Consumption, the largest component of aggregate demand, has an impact on total demand; thus, changes in consumption cause fluctuations in economic activity. Moreover, the saving rate determines the economy's capital stock, which in turn influences the transition to a steady state and the future growth potential of an economy. Household saving rates differ across European Union (EU) countries, and various studies point out the heterogeneity observed in the saving behaviour among EU households (see Rocher and Stierle 2015 and ECB 2016). Greece is among the countries with a negative saving rate.

Households' consumption and saving behaviour has been studied according to several economic theories, such as the permanent income hypothesis, the life cycle hypothesis, the sociodemographic hypotheses, uncertainty, etc. Research uses macroeconomic and microeconomic data to study and analyse households' saving/consumption behaviour and employs econometric models to estimate the economic relationships among the variables.

Economists examine the underlying factors of household consumption, such as disposable income, pointing out that its increase leads to an increase in consumption and vice-versa. Moreover in the economic literature, wealth is identified as another factor that affects households' consumption behaviour. Households possess financial assets (currency in circulation, deposits, shares, etc.) and non-financial assets (such as houses, equipment, etc.), which together make up their total wealth. When the value of these assets increases, households perceive themselves as wealthier and tend to consume more. Therefore, disposable income and wealth are the key determinants of household consumption.

Empirical findings regarding wealth effects on consumption vary across countries and across periods. However, it is recognised that an investigation of such effects needs to distinguish between financial and non-financial wealth (see Cussen and Phelan 2010). Empirical evidence implies that financial wealth has an impact on consumption in the euro area, while non-financial assets may not play a significant role (see Skudelny 2009). Other papers show that non-financial (real) wealth affects household consumption in the United States and the United Kingdom, probably reflecting deeper housing markets. A recent study on euro area countries has shown that both financial and real wealth have a positive effect on consumption, but the impact of financial assets is stronger than that of real assets (see De Bonis and Silvestrini 2012).

Recent contributions to international literature underline the role of deleveraging in household saving and consumption. Specifically, it is argued that the increased household

Throughout this article, reference is made to households only, although the household sector also includes non-profit institutions serving households (NPISHs).



The views expressed in this article are personal and do not necessarily reflect those of the Bank of Greece. The authors would like to thank Heather Gibson, the participants in the internal workshop of the Economic Analysis and Research Department of the Bank of Greece, Hiona Balfoussia, Nikos Kamberoglou, Evangelia Georgiou, Giannis Asimakopoulos, Maria Albani, Stelios Korres and Olga Lymberopoulou for their useful remarks and comments, as well as Konstantinos Kallias for his help with the processing of data. Warm thanks are also extended to ELSTAT, in particular Anastasios Nikolaidis (National Accounts Directorate), for the supply of statistical data and useful remarks.

deleveraging observed in the recent period has been associated with higher saving and lower consumption (see McCarthy and McQuinn 2014, Glick and Lansing 2010). However, more recent empirical research suggests that the deleveraging effects on household consumption and saving are strongly heterogeneous across countries and are closely linked with the financial conditions prevailing in each country (see Bouis 2015).

While disposable income and wealth and their relationship with consumption and saving have been extensively analysed in international literature, studies focusing on the case of Greece are scarce, and a comprehensive analysis of household financial wealth is not available as yet. The econometric investigation of the above relationship is beyond the scope of this article, which analyses household financial wealth and examines its evolution over time, with particular emphasis on the recent period. In addition, an in-depth analysis of the components of net financial wealth, i.e. assets and liabilities, as well as their composition, is performed. In the context of this analysis, the changes in the size of household financial assets and liabilities are decomposed into those stemming from: (a) transactions (e.g. change in investment choices in the case of assets or debt increase/decrease in the case of liabilities); (b) changes in the valuation of assets/liabilities (valuation gains/losses); or (c) a combination of the above.

The sections below analyse Greek households' saving behaviour, initially through the interaction between investment and debt and subsequently through the interaction between consumption and disposable income. To this end, saving is measured by two different methods, each based on a different statistical source. The first method is based on financial accounts, whereby the financial definition of saving is derived. The second method uses data from non-financial (national) accounts, on the basis of which the non-financial (traditional) definition of saving is derived. Finally, a brief review of the evolution of disposable income and its components, as well as of the evolution of household real final consumption expenditure by functional purpose is performed, focusing mainly on the recent period.

The data used in this article are drawn from the Statistical Data Warehouse of the European Central Bank (ECB), specifically the quarterly accounts of the euro area (Euro Area Accounts, EAA), which provide detailed information on income, expenditure, financing and investment for the institutional sectors of each country (households, non-financial corporations, general government, financial corporations and the external sector). These EAA are produced by integrating the quarterly nonfinancial (national) accounts with the quarterly financial accounts (central bank data) by institutional sector and for all EU countries, while their reliability, consistency and comparability are ensured by the European System of National and Regional Accounts (ESA 2010).² It is the first time that these data are used in Greece for a study and analysis of household financial wealth and saving behaviour through the interaction of investment and debt.

The remainder of the article is structured as follows: Section 2 presents the evolution over time of Greek households' net financial wealth and how it has been affected by the recent crisis. Section 3 looks at the composition of the household asset portfolio and examines the relative contributions of transactions and asset valuations to changes in household assets. Section 4 analyses the components of household liabilities and examines the relative contributions of transactions and valuations to changes in household liabilities. Section 5 provides the financial and non-financial definition of saving. Section 6 examines disposable income and its compo-

² Non-financial accounts describe the value of goods and services resulting from the production activity, the income flows generated by this process and their uses within the economy. On the other hand, financial accounts describe the stocks of financial assets and liabilities. The two sets of accounts are linked with one another, as the deficit (or surplus) created by income and expenditure in non-financial accounts appears on the financial side as a decrease (increase) in financial assets and/or an increase (decrease) in liabilities (https://www.ecb.europa.eu/stats/prices/acc/html/index.en.html).



Chart I Household net financial wealth*

nents and Section 7 provides an overview of the evolution of households' real consumption expenditure by functional purpose. Finally, Section 8 summarises and concludes.

2 EVOLUTION OF HOUSEHOLD NET FINANCIAL WEALTH

Chart 1 shows the evolution of Greek households' net financial wealth, which is defined, according to ESA 2010, as the difference between total assets and liabilities, during the period from the first quarter of 2002 to the first quarter of 2016.

The period under review can be divided into three subperiods:

(a) The first subperiod is between the first quarter of 2002 and the fourth quarter of 2007, when Greek households' net financial wealth rose by 30.4% (average annual rate of change for that period: 2.6%). This rise occurred as

the combined result of increases in total household assets (up by 69.0%, or 7.3% in average annual terms) and of total liabilities (up by 254.1%,³ or 24.8% in average annual terms). Thus, in the fourth quarter of 2007, net financial wealth came to €217.5 billion.

(b) The second subperiod is between the first quarter of 2008 and the second quarter of 2012, when household total liabilities continued to increase (up by 21.7%, or 5.9% in average annual terms), while at the same time their total assets decreased (-33.8%, or -7.6% on average annually), as the upward trend in the prices of their financial assets had been reversed in the context of the financial crisis that evolved into a debt crisis. As a result, by the second quarter of 2012 net financial wealth had declined by 65.3% (18.4% on average annually) compared with the first quarter of 2008, to stand at €75.6 billion.

³ The substantial increase in liabilities is partly due to a strong base effect from the low stock of liabilities in the first quarter of 2002.



(c) The third subperiod lasts from the third quarter of 2012 to the first quarter of 2016, when household total liabilities decreased (-20.9%, or -5.2% in average annual terms), while their total assets increased (+12.9%, or 3.4% on average annually). The combined outcome of these divergent developments was a positive impact on household net wealth, which increased by 79.8% (16.4% in average annual terms) relative to the third quarter of 2012 and came to €135.9 billion in the first quarter of 2008 and the first quarter of 2016, household net financial wealth declined by 37.5%.

Sections 3 and 4 below discuss in more detail the components of net financial wealth, i.e. assets and liabilities.

3 ANALYSIS OF HOUSEHOLD ASSETS

Economic theory argues that the value of the household portfolio, whether it refers to real assets (houses) or financial assets (shares, bonds, deposits, etc.), is influenced by a number of factors, including the macroeconomic environment, changes in real estate prices, the international economic environment, etc. In particular, declines in real estate prices, the financial crisis, an uncertain political environment, as well as the recessionary phase of the business cycle are expected to have an adverse effect on the value of the household portfolio. This section analyses household financial wealth.⁴

According to international literature, the interaction of the aforementioned factors motivates households to restructure their portfolios in an effort to preserve the value of their assets and limit, to the extent possible, impairments (see Arrondel et al. 2014, Cussen and Phelan 2010, Cussen et al. 2012 and Cooper 2013). This restructuring occurs either directly as a result of transactions, i.e. acquisition of new assets or sale of assets already possessed by households (shares, bonds, deposits, etc.) or a targeted shift from high-risk financial assets

to less risky ones, or indirectly through changes in the value of financial assets, i.e. asset and exchange rate revaluations/devaluations, reclassifications, etc.

The analysis of the changing composition of household portfolios over time is important, as it reflects what part of these changes is due to transactions (investment choices) and what part is due to valuation adjustments. In the former case, information is derived on the household investment pattern, namely the risk, yield and liquidity preferences of households, and its changes. In the latter case, the focus is on the impact of the macroeconomic environment and stock exchange fluctuations on changes in the value of the household portfolio, hence in its composition.

A recent study by Cussen et al. (2012) examines, among other things, the behaviour of households from 24 EU countries during the recent financial crisis. The authors find that in 2008 almost all households in the sample⁵ shifted towards safer assets, such as currency and deposits, away from shares and other equity, thus showing a clear preference for less risky/lower-yield and more liquid assets.

3A COMPOSITION AND RESTRUCTURING OF THE HOUSEHOLD ASSET PORTFOLIO

Charts 2 and 3 illustrate the impact of macroeconomic conditions and the recent financial crisis on the restructuring of Greek households' asset portfolio.

As shown in Chart 2, prior to the financial crisis (average of the period from the first quarter 2002 to the fourth quarter 2007), the composition of the household financial asset portfolio was as follows: shares and other equity: 21.5%; debt securities: 12.3%; investment fund shares: 8.8%; and deposits: 48.5%, demonstrating Greek households' preference for conservative investment options. The role of the remaining

- 4 Data on the housing wealth of Greek households are not available,
- preventing an assessment of their total wealth. 5 Excluding Estonia, Lithuania and Luxembourg.







Sources: ECB, Bank of Greece and authors' calculations.

categories, such as currency, insurance technical reserves and other accounts receivable/ payable, was insignificant (see Zarco 2009).

After the onset of the financial crisis, risk aversion and a restructuring of the household portfolio can be observed, with a strong shift to safer and more liquid financial assets, such as deposits, and a marked decline in shares and other equity, debt securities and mutual fund shares/units as a percentage of the stock of household financial assets. Furthermore, in periods of heightened uncertainty in Greece, even deposits lost their attractiveness and currency holdings tended to increase.

In more detail, Chart 3 depicts the composition of the household asset portfolio at four distinct points in time.

(a) Before the financial crisis (specifically in the fourth quarter of 2007), shares and other equity, debt securities and investment fund shares together accounted for 40.2% of total assets. Deposits represented a percentage of 49.0%, which is particularly high considering the favourable macroeconomic environment at the time, indicating risk aversion on the part of Greek households, which favoured safer and more liquid asset holdings. Currency accounted for a negligible percentage (3.2%).

(b) At the peak of the financial crisis in the second quarter of 2012, economic uncertainty increased households' propensity to hoard, resulting in a substantial increase in the relative weight of currency, from 3.2% of total assets before the crisis to 17.6%. The relative weight of deposits rose from 49.0% to 59.7%, mainly at the expense of shares and other equity, which fell to 3.9% from 26.9%, and debt securities, which fell to 6.3% from 8.3% of total assets.

(c) In the first quarter of 2014, while shares and other equity and deposits remained





Chart 3 Portfolio composition of household financial assets at different points in time

Sources: ECB, Bank of Greece and authors' calculations.

broadly unchanged as a percentage of total assets relative to the pre-crisis period (at 26.7% and 49.3%, respectively), the percentage of currency increased to 10.3% from 3.2%) and that of debt securities fell to 1.4% from 8.3%.

(d) The recent picture of the household portfolio (first quarter of 2016) reflects a new increase in the percentage of currency holdings, to 17.1% from 10.3% in the first quarter of 2014, and a decline in the percentage of shares and other equity to 18.1% from 26.7%. Deposits remained almost unchanged as a percentage of total assets compared with the first quarter of 2014.

3B ANALYSIS OF HOUSEHOLDS' INVESTMENT CHOICES (TRANSACTIONS)

As mentioned above, the analysis of transactions focuses on the factors that can influence households' investment decisions and overall behaviour under the prevailing economic circumstances, especially in crisis periods. In particular, the financial crisis motivates households to invest in more liquid and less risky assets, in an effort to reduce their exposure to future stock exchange fluctuations and mitigate any further financial wealth losses. Moreover, households' reduced risk tolerance is reflected in their shift to safer assets, which can also be used to hedge risky assets in their portfolio. The changes in the value of assets due to transactions are shown in Charts 4 and 5.

Specifically, Chart 4⁶ shows household investment in fixed assets (mainly houses),⁷ representing a major share of total investment

6 The four-quarter moving average is used in the analysis and the charts, in order to smooth out the seasonality of the series.

7 Houses account for the bulk of household gross capital formation, which also includes purchases of equipment by sole proprietors, as well as cultivated assets (ESA 2010).





Chart 4 Households' transactions in housing and financial assets*

before the crisis, as well as in financial assets, between the first quarter of 2006 and the first quarter of 2016.

Households seem to have reduced their residential investment starting from the first quarter of 2008, i.e. half a year before real estate prices began to decline. Subsequently, in line with the continued downward trend of real estate prices, residential investment fell dramatically, to ≤ 1.2 billion in the first quarter of 2016 from ≤ 8.1 billion in the first quarter of 2008, in terms of four-quarter moving sums.⁸ Besides, the decline in household financial investment started from the third quarter of 2007 and intensified as from the first quarter of 2009, on the backdrop of rising unemployment and shrinking household disposable income.

Furthermore, Chart 5 shows the composition of household investment flows (transactions in assets), in four-quarter moving average terms.⁹

In the period before 2009, deposits were the preferred investment instrument for households, suggesting their caution towards risky assets. Similar findings are reported in a Eurostat study on the financial assets and liabilities of households in the EU, according to which, in 2007, Greece had the second highest share, after Slovakia, of currency and deposits in the total financial portfolio of households (see Zarco 2009).

Next in households' preferences, and reflecting a search of higher yield associated with higher corresponding risk, came investment in shares and other equity, followed by debt securities. Insurance technical reserves were very low, as were also households' currency holdings. It is worth noting that, even the period of strong economic growth in Greece (2004-2007)

⁹ It should be noted that investment in deposits, debt securities, shares and investment fund shares also includes those held abroad.



⁸ As mentioned in the Monetary Policy 2015-2016 report of the Bank of Greece (June 2016), the cumulative decline in the average level of house prices between the onset of the economic crisis in 2008 and the first quarter of 2016 was close to 41.3% in nominal terms.



Chart 5 Households' transactions in financial assets*

saw household portfolio shifts away from investment fund shares, whose yields were seen as less attractive.

This picture changed markedly following the onset of the economic crisis, when house-holds, more manifestly as from early 2010, tended to withdraw deposits and increase their currency holdings amid an adverse eco-nomic environment and heightened economic uncertainty. At the same time, they drastically reduced their net investment in shares and debt securities¹⁰ and virtually eliminated their net investment in insurance products. House-holds' strong shift to safer assets may also reflect, apart from their increased risk aversion under conditions of high uncertainty, the need to hedge risky assets already held in their portfolio.

In the first half of 2015, amid mounting economic uncertainty as a result of protracted negotiations with Greece's creditors, households proceeded to mass deposit withdrawals, while at the same time increasing their currency holdings (hoarding) and investment in foreign investment fund shares (mainly euro money market funds). The imposition of capital controls on 28 June 2015 reined in hoarding and deposit withdrawals by households.

3C ANALYSIS OF VALUATION ADJUSTMENTS OF HOUSEHOLD ASSETS

The changes in household total financial assets as a result of valuation changes or statistical reclassifications are shown in Chart 6.

The conclusions of the analysis are the following:

10 Transactions in debt securities in 2011-2012 were related to the exchange of Greek government bonds under the private sector involvement (PSI) programme.



Chart 6 Valuation changes in household financial assets*



* Four-quarter moving averages

(a) The most part of household asset devaluation took place in the early phase of the crisis (2008-2009) and continued at a weaker pace in the next three years (2010-2012). By contrast, in the period from the fourth quarter of 2012 to the third quarter of 2014, the value of the household financial portfolio rebounded, in line with the improving overall economic environment. This was followed by a new devaluation in the first half of 2015, in the context of heightened uncertainty.

(b) Revaluations of household total assets were driven primarily by shares and, secondarily, debt securities. The role of investment fund shares, insurance, pension schemes and other accounts receivable was negligible.

(c) In the period from the first quarter of 2008 to the second quarter of 2012, shares and other equity held in the household portfolio were subject to massive valuation losses, which were -to a large extent - recouped by the first quarter of 2014, before recording new losses until the first half of 2016.

3D THE RELATIVE CONTRIBUTIONS OF TRANSACTIONS AND VALUATION ADJUSTMENTS TO THE CHANGE IN HOUSEHOLD **TOTAL ASSETS**

The relative contributions of transactions and valuation effects to the annual percentage changes in household total assets are shown in Chart 7.

Prior to 2008, the change (increase) in the value of household total assets was almost exclusively due to transactions, with the exception of the period from the fourth quarter of 2004 to the fourth quarter of 2005, when valuation effects also had a positive contribution. A different picture can be seen later on, particularly in the first phase of the financial cri-





Chart 7 Changes in household total assets*

sis (2008-2009), when the impairments of household assets could not be offset by the positive flows (transactions) that were also taking place at the time.¹¹ As a result, the value of household total assets shrank.

In 2010-2012, household assets continued to show sharp declines, this time attributable also to negative transactions (disinvestment), besides adverse valuation effects. By contrast, in the period 2013-2014, household assets rebounded strongly, as a result of valuation gains that more than offset the comparatively low negative transactions. From 2015 onwards, extensive devaluations and, less importantly, disinvestment drove household assets down.

4 ANALYSIS OF HOUSEHOLD LIABILITIES

4A HOUSEHOLD LIABILITIES

The years that preceded the financial crisis, especially the 2004-2007 period of strong eco-

nomic growth in Greece, saw a continuous and sharp increase in households' debt liabilities,¹² mainly associated with the financing of residential investment, as shown in Chart 8.

Similar findings for various industrial countries are reported by Bê Duc and Le Breton (2009) and Glick and Lansing (2010). Glick and Lansing (2010) analyse the relationship between household leverage, house prices and consumption for various industrial countries, including the United States, focusing on the decade preceding the 2007 financial crisis. They argue that the larger the expansion in the use of borrowed money (leverage), the more rapid the rises in house prices in the countries



¹¹ Cussen and Phelan (2010), using data on Irish households, show that, in the years preceding the financial crisis (2003-2007), changes in the value of household assets were almost equally driven by transactions and valuation effects. Subsequently, during the crisis of 2007-2009, the pattern of the decline in total assets of Irish households is similar to that observed for Greek households, with the contribution of valuation changes exceeding that of transactions.

¹² As mentioned in footnote 3, household liabilities did increase, but from a low level in comparison with the other euro area countries.



Chart 8 Household total liabilities* and investment in housing assets**

examined. Also, when economic conditions deteriorated and house prices started falling, the negative impact on consumption was larger for countries with high household leverage.

Greek households' total liabilities increased steadily from the first quarter of 2002 to the third quarter of 2010,¹³ when they peaked, having increased by 347% during that period. It is worth noting that the increases, albeit weaker, continued beyond the first quarter of 2008 that marks the start of the decline in households' real property values. However, during the deterioration of the crisis and with the implementation of economic adjustment programmes for Greece from 2010 onwards, households gradually began to reduce their net debt incurrence.

In more detail, some of the factors that contributed in this direction were the adoption by banks of tighter credit standards, as suggested by the results of Bank Lending Surveys, along with interest rate increases for the main loan categories. At the same time, as pointed out in the Annual Report 2010 of the Bank of Greece (April 2011), the deterioration in macroeconomic conditions (rising unemployment, falling disposable income) also played a major role, as it affected the financial condition of households by reducing their capacity as well as their willingness to take on new debt. Overall, between the fourth quarter of 2010 and the first quarter of 2016, households reduced their total debt liabilities by 23.8% relative to the peak observed in the third quarter of 2010.

4B THE COMPOSITION OF HOUSEHOLD LIABILITIES

The main categories that make up household liabilities are loans and other accounts payable, as shown in Chart 9. Total household liabilities

¹³ The sharp increase in household total liabilities observed since June 2010 largely reflects statistical reclassifications. Specifically, from that month onwards, loans to sole proprietors, farmers and unincorporated enterprises were reclassified from corporate loans to household loans, and loans to religious institutions are included in loans to private non-profit institutions.











were 21.7% lower in the first quarter of 2016 relative to the peak of the third quarter of 2010.

Within household debt liabilities, the main subcategories are housing loans, consumer loans, loans to sole proprietors (as from June 2010) and other loans.¹⁴ As shown in Chart 10, household liabilities almost quadrupled, both for housing and consumer loans, from 2002 to June 2010.¹⁵ Thereafter, the stock of these loans started to decline, also in the context of intensified loan restructuring by banks. Sole proprietors, farmers and unincorporated enterprises began to reduce their debt liabilities as from January 2011.

Between January 2002 and March 2016, the composition of household loans remained remarkably stable, with housing loans accounting for 70% of total loans and consumer loans for 30%.

Other accounts payable comprise various liabilities that have not fallen due, mainly tax and social security liabilities, liabilities vis-à-vis non-financial corporations such as the Public Power Corporation (DEH), and other liabilities arising from trade transactions. Overall, other accounts payable peaked in the second quarter of 2012, falling by 51.1% thereafter until the first quarter of 2016.

4C LEVERAGE RATIOS

The expansion in the use of borrowed money by households between the first quarter of 2006 and the first quarter of 2016 can be measured by two ratios, as illustrated in Chart 11:

The first is debt-to-income ratio, i.e. debt as a percentage of disposable income, and is defined as follows:

 $Debt-to-income\ ratio = \frac{Total\ liabilities}{Disposable\ income}$

Thus, while in the fourth quarter of 2006 households' debt represented 68.5% of their disposable income, in the first quarter of 2010

it amounted to 81%. This development was the combined result of countervailing effects, i.e. an increase in both household disposable income and net borrowing (change in the nominal debt stock). As the increase in net borrowing more than offset the increase in disposable income, the ratio showed this strong rise. Subsequently, the ratio kept increasing,16 mainly due to a reversal of the upward trend of disposable income, and peaked at about 109.8% in the second quarter of 2014. Since then, the ratio gradually declined (first quarter of 2016: 101.8%), as households reduced, although at a slow pace, their net borrowing and the decrease in disposable income was weaker. Still, the ratio remains high compared with its pre-crisis levels, as for every €100 of disposable income, households have higher liabilities (€101.8).

The second leverage ratio is the debt-to-assets ratio, measuring the extent to which household assets have been financed with debt, and is defined as follows:

Debt-to-assets ratio =

Total liabilities Total assets

Between the first quarter of 2006 and the second quarter of 2012, this ratio rose substantially, more than doubling from about 30.6% to 66.5%, thus indicating the high leverage of households. This development reflected, apart from the increase in household debt, a parallel decrease in the value of their assets as a result of the debt crisis.¹⁷ Subsequently, the ratio improved noticeably, falling to 45.3% by the second quarter of 2014, due to a recovery in the value of household assets and a decline in net

¹⁷ As calculated over the same period, the debt-to-assets ratio for the euro area also showed an increase (from 31.0% in the first quarter of 2006 to 36.0% in the second quarter of 2012), which was far smaller than in the corresponding Greek ratio. In the first quarter of 2016, the debt-to-assets ratio for the euro area stood at 31.7%.



¹⁴ Total household loans also include some other categories, such as loans from other financial institutions (OFIs), insurance corporations and occupational pension funds. As these involve small amounts, they are not reported separately.

¹⁵ Brissimis et al. (2012) examine the factors that determined the evolution of consumer credit in Greece in the recent past. Papapetrou and Lolos (2011) investigate the interdependence between housing credit and the labour market.

¹⁶ In addition to declining disposable income, this also partly reflects statistical reclassifications affecting total household liabilities.



Chart II Household leverage ratios

borrowing. In the first quarter of 2016, total household liabilities corresponded to 46.6% of their total assets. The small increase in leverage observed more recently is mainly due to valuation losses on household assets, which were not offset by the decrease in their debt.

International literature points out that these ratios should be interpreted with some caution, as it is important to examine, among other things, how debt is allocated among households and how it is linked with the expected path of household income. Furthermore, it is argued that the debt-to-assets ratio does not fully reflect households' debt servicing capacity, given that certain financial assets are, by their nature, illiquid and thus cannot be used for immediate debt reduction, particularly in times of adverse economic conditions.

4D THE RELATIVE CONTRIBUTIONS OF TRANSACTIONS AND VALUATION ADJUSTMENTS TO CHANGES IN HOUSEHOLD LIABILITIES

Deleveraging, i.e. household debt reduction, can be achieved through repayment or

through changes in the outstanding amount of debt due to write-offs/write-downs.18 Chart 12 shows the relative contributions of these two factors (referred to as transactions and adjustments, respectively) to the annual percentage change in household total liabilities.¹⁹ As seen from the chart, households increased their liabilities at high rates until the first quarter of 2006, followed by a reversal of this trend, more manifestly as from the third quarter of 2007 with the onset of the financial crisis. The first signs of deleveraging are visible as from the fourth quarter of 2010, with the reduction in total liabilities being almost exclusively driven by transactions (i.e. net debt repayment) until the beginning of 2012 and, later on, particularly in the period from the second



¹⁸ The credit institution may decide to write off the entire debt, if all extrajudicial and judicial actions have been exhausted and no further recovery can be expected, or to write down part of the debt so that the remaining part is reduced to a level likely to be serviced without problems.

¹⁹ Adjustments include any statistical reclassifications and/or changes in the outstanding amount of loans due to exchange rate variations. The latter applies e.g. to many households that have borrowed in foreign currency, notably the Swiss franc: when this currency appreciated, it had an upward effect on the debt liabilities of the households concerned.





quarter of 2012 to the third quarter of 2014, by adjustments as well.²⁰

5 HOUSEHOLD SAVING: FINANCIAL AND NON-FINANCIAL DEFINITION

Households' saving behaviour can be analysed either through the interaction between their investment and debt (*financial definition of* saving) or through the interaction between consumption and disposable income (*traditional or non-financial definition of saving*).

5A HOUSEHOLD SAVING: FINANCIAL DEFINITION

Households may choose to channel a part of their income, which they do not spend on consumption, into investment in financial assets (shares, deposits, bonds, etc.) or non-financial assets²¹ (houses, equipment, etc.). They also have the option to borrow, if their income is not sufficient to finance such investments. The financial definition of saving, according to Berry et al. (2009), Cussen and Phelan (2010) and Cussen et al. (2012), can be derived as follows:

Funds raised \equiv Funds invested (1)

Relationship (1) can be rewritten as follows:

Saving+Net borrowing= Net investment in financial assets+ Net investment in non-financial assets² (2)

Rearranging relationship (2), saving can be expressed as follows:

- 21 Non-financial investment includes, in addition to gross fixed capital formation (houses, equipment, etc.), also acquisitions less disposals of non-produced assets (patents, intellectual property rights, leases of land or buildings, etc.).
- 22 In the case of net lending/borrowing, "net" refers to the incurrence of new debt minus repayment of existing debt. Similarly, in the case of investment, "net" refers to the acquisition of new assets minus disposal of existing assets.



²⁰ To a large extent, the size and the relative contribution of the "adjustments" component reflect the impact of bank resolutions and loan write-offs/write-downs during that period.



Chart 13 Household net lending/borrowing*

Saving= Net investment in financial assets – Net borrowing+ Net investment in non-financial assets (3)

Therefore, from (3) it is deduced that:

Saving = Net lending/borrowing+ Net investment in non-financial assets (4)

Thus, an increase in saving results from a net increase in some type of investment, a net decrease in debt or a combination of both.

Chart 13 shows the prevailing trends in household net lending/borrowing,²³ as derived from their transactions on the asset side minus transactions on the liability side. A positive sign suggests that households are net lenders, i.e. acquisition of financial assets exceeds net incurrence of debt, or net repayment of debt exceeds net disinvestment. Specifically, in the period up to the first quarter of 2010, households were net lenders, as their net financial investment more than offset net incurrence of new debt. Two distinct subperiods can be identified:

(a) The first subperiod is between the first quarter of 2002 and the third quarter of 2007, when households invested in financial assets, while at the same time constantly and considerably increasing their net borrowing. As their rising investment more than offset their rising liabilities, households ended up as net lenders.

(b) In the second subperiod, from the fourth quarter of 2007 to the first quarter of 2010, households started to gradually reduce both



²³ A net lending position of households in non-financial accounts implies that households have a surplus of funds can thus finance the other institutional sectors of the economy (non-financial corporations, financial corporations, general government and the external sector). Conversely, a net borrowing position implies that households are net borrowers, i.e. they face a deficit of funds and need to obtain financing from the other sectors.



Chart 14 Trends in household saving*

their net lending and their net financial investment, thus remaining net lenders in this subperiod too.

Thereafter, households became net borrowers, as their net debt reduction, which started from the fourth quarter of 2010, fell short of their net disinvestment. Exceptions were the period from the fourth quarter of 2011 to the second quarter of 2012 and the more recent period from the second quarter of 2015 to the first quarter of 2016, when households were again net lenders.

Between the third quarter of 2013 and the first quarter of 2015, although households proceeded to increased net debt reduction, their net disinvestment was even larger, making them net borrowers. From the second quarter of 2015 onwards, net debt reduction retained its momentum, but was accompanied by weaker net disinvestment, which made households net lenders. From relationship (4) and under its financial definition, saving is the sum of net investment in non-financial assets (mostly houses) and in financial assets, minus net transactions in liabilities. Therefore, by introducing also non-financial investment (houses, etc.) in the analysis, we can obtain saving according to its financial definition (see Chart 14).

As shown in Chart 14, household saving remained at high levels until the fourth quarter of 2008, supported by strong investment in real estate, other non-financial assets and financial assets, which outweighed net incurrence of new debt. The subsequent downward trend in saving is explained by the fact that the decline in total household net investment outpaced the decline in their liabilities. Actually, saving turned negative in the first quarter of 2011, although households had started, already from the fourth quarter of 2010, the net repayment of their existing debt. This negative outcome reflected both reduced invest-



ment mainly in houses and strong net disinvestment of financial assets. Since then, saving has alternated from positive to marginally negative values, depending on which component dominates each time.

From an analysis of data for the recent period, a number of significant conclusions can be drawn:

(a) As from the second quarter of 2013, households intensified their net reduction of liabilities, and this trend continued into the next quarters. It is important to note that households proceeded to a net reduction of their liabilities for the first time in late 2010.

(b) As from the second quarter of 2014, saving followed an upward trend, which was supported mainly by deleveraging rather than nonfinancial investment, which had been drastically curtailed by then. Whenever these two explanatory factors together exceeded net disinvestment of financial assets, saving was in positive territory, a fact that is more manifest in more recent quarters.

(c) Saving is exceptionally low compared with its pre-crisis levels, because of a contraction of investment in houses/equipment and large disinvestment of financial assets.

5B HOUSEHOLD SAVING: NON-FINANCIAL DEFINITION

Economic theory posits that household disposable income is channelled either into consumption or into saving. Consequently, household saving, according to the analysis of non-financial accounts, is defined as household disposable income, minus consumption, that is:

Saving = Disposable income - Consumption (5)

As shown in Chart 15, the household saving rate,²⁴ in terms of four-quarter moving sums, followed a downward path as from the second quarter of 2009, falling from 7.4% in that quar-

ter to -5.6% in the first quarter of 2016. We can identify two subperiods: the first subperiod is up to the first quarter of 2012, when the household saving rate was positive, and the second subperiod, when it was negative. In general, when the rate of increase (decrease) in disposable income falls short of the rate of increase (decrease) in consumption, the saving rate decreases (increases). It is pointed out that the decline in household saving -particularly from end-2009 onwards - is linked with the fall in disposable income. Specifically, the continuous downward trend in the household saving rate from the second quarter of 2012 to the second quarter of 2014, i.e. when the ratio was in negative territory, was due to the fact that the decrease in disposable income outpaced the decrease in consumption. As from the second quarter of 2014, the household saving rate stabilised at low levels, standing at -5.6% in the first quarter of 2016 (compared with -5.3% one year earlier), as the rate of decrease in disposable income (-1.7%) exceeded the rate of decrease in consumption (-1.4%).

It should be noted that the two methods of measuring saving, according to its financial and non-financial definition, should yield the same result (see Lequiller and Blades 2014 and Cussen et al. 2012). In practice, however, this is not the case, due to the statistical discrepancy²⁵ arising from the different statistical sources used under the two approaches. This means that, adding this statistical discrepancy to the financial definition of saving, the non-financial (traditional) definition of saving can be derived as follows:

Saving: Non-financial accounts ≡ Saving: Financial accounts+ statistical discrepancy (6)



²⁴ The saving rate is defined as the ratio of saving to disposable income, in terms of four-quarter moving sums.

²⁵ Where statistical discrepancy is equal to net lending/borrowing in non-financial accounts minus net lending/borrowing in financial accounts. It should be noted that in the case of Greece the statistical discrepancy for the household sector is significant for the years before 2010, while it has been declining in more recent years. Also, statistical discrepancies are acknowledged to exist in ECB statistics.



Chart 15 Nominal disposable income and consumption (annual percentage changes) and saving rate*

Sources: ECB, ELSTAT and authors' calculations. * Four-quarter moving sums.





Equation (6) is illustrated in Chart 16, which decomposes the evolution of household saving into contributing factors, in terms of four-quarter moving sums. Until early 2010, saving was supported by household financial and nonfinancial investment and a gradual decline in incurrence of new liabilities. Thereafter, the almost continuous downward path of saving was driven by falling investment in houses/equipment, but also by strong net disinvestment from financial assets. Debt reduction, which started from the fourth quarter of 2010 and intensified from the second quarter of 2013, had a positive contribution to saving.

Sections 6 and 7 take a closer look at the factors of equation (5), namely household disposable income and consumption. Specifically, Section 6 provides a brief overview of developments in household disposable income and its components, and Section 7 discusses the evolution of real final consumption expenditure of households by purpose in the recent period.

6 HOUSEHOLD DISPOSABLE INCOME AND ITS COMPONENTS

Chart 17 shows the evolution of household gross disposable income and its components.

On the income side, the main components of disposable income are compensation of employees (wages and salaries and employers' social contributions), operating surplus and mixed income (in the case of sole proprietors, this refers to the mixed income of the proprietor, whereas in the case of households it refers to the own-account production of housing services by owner-occupiers), social transfers other than in kind (pensions and various social benefits, such as unemployment/maternity/ family benefits, etc.), income from property receivable (interest, dividends, rents received for land) and other current transfers receivable. On the expenditure side, the main components are social security contributions, income and wealth taxes, property income payable and other current transfers payable²⁶ (see Chart 17).

According to economic theory, compensation of employees, operating surplus and mixed income, and property income exhibit a procyclical behaviour, i.e. they tend to deteriorate in economic downturns, as wages fall, jobs are lost, sole proprietors' business activity slumps and dividends and land rents decline.

A breakdown of household disposable income into components shows that the largest percentage contributions come from compensation of employees, and operating surplus (see Chart 17), followed by social benefits (mainly pensions) and net property income. An increase (decrease) in these components has a positive (negative) effect on disposable income. By contrast, an increase in social contributions and taxes has a negative impact on disposable income and vice-versa. Between the first quarter of 2010 and the first quarter of 2016, households' nominal disposable income shrank by 32.8% (from €173.5 billion to €116.5 billion, in terms of four-quarter moving sums), largely due to sharp falls of 31.5% in compensation of employees, (from €86.8 billion to €59.4 billion), 29.1% in operating surplus (from €76.2 billion to €54.0 billion), 17.2% in social benefits (mainly pensions, from €43.5 billion to €36.1 billion) and 45.6% in net property income (from \notin 9.5 billion to \notin 3.5 billion). During the same period, real disposable income declined by 32.5%.²⁷

Consumption theories, such as the permanent income hypothesis and the life cycle hypothesis, associated the evolution of household income with household consumption expenditure, identifying a positive relationship between the two variables (see Friedman 1957). On the back of falling disposable income, households' consumption expenditure declined, as shown in Chart 15. Between the first quarter of 2010 and the first quarter of 2016, this decline was in real terms 24.7%, i.e. from €169.4 billion to €127.5 billion.



²⁶ These include non-life insurance premiums, contributions to nonprofit institutions, etc.

²⁷ Calculated as nominal disposable income divided by the deflator of private consumption.



It should, however, be pointed out that the increase in compensation of employees (in terms of four-quarter moving sums) observed as from the third quarter of 2014 is associated with a rise in dependent employment, as confirmed by data from the ERGANI information system, and in total employment (ELSTAT, Labour Force Surveys). The maintenance of the rise in employment and the decline in unemployment, as a consequence of the gradual restoration of confidence and the return of the economy to positive growth rates, could signal an increase in household permanent income, *ceteris paribus*, and thus lead to an increase in their consumer spending.

The following section briefly reviews the evolution of households' consumption expenditure in the recent period. In order to provide a deeper insight into households' consumption behaviour, the discussion focuses on real domestic consumption expenditure by functional purpose.²⁸ It is noted that this analysis includes household consumption expenditure by residents and non-residents (tourists) incurred in

²⁸ According to ELSTAT, the main source of data on household final consumption is the Household Budget Survey, while complementary sources and methods are used where necessary. The data used to calculate household final consumption expenditure refer to the average monthly expenditure per household based on the resident/non-resident distinction (including expenditure by resident households incurred abroad and excluding expenditure by non-residents (tourists) incurred in the Greek territory) and are available broken down by manner of acquisition of the goods and services concerned (purchased, produced and consumed by the same household, received in kind from employers, organisations or other households). Furthermore, the Household Budget Survey provides data on the average number of members per household. These data, along with Greece's estimated population figures, are used to compile the national aggregate of final consumption expenditure from annualised data. Complementary data sources most notably include the Survey of Private Legal Building Activity of ELSTAT, receipts and payments for travel services from the Balance of Payments of the Bank of Greece, as well as administrative data sources. Finally, in certain cases, data on household consumption expenditure is derived as a balancing item of the supply and use tables compiled by the National Accounts Directorate of ELSTAT. The analysis, which is carried out on an annual basis, includes households only, excluding non-profit institutions serving households.



Chart 18 Composition of domestic consumption expenditure over time*



the economic territory of Greece, excluding residents' expenditure incurred abroad, and uses annual data for the period up to the end of 2015.

7 HOUSEHOLD FINAL CONSUMPTION EXPENDITURE BY PURPOSE

In the period 2009-2015, household final consumption expenditure declined in real terms by 19.3%, from €163.7 billion in 2009 to €132.0 billion in 2015. As shown in Chart 18, this decline was broadly based across all the twelve categories of goods and services²⁹ and was significant for all categories with the exception of hotels and restaurants, for which it was only marginal, due to the strong growth in tourism (in terms of both arrivals and receipts) from 2013 onwards. The period 2009-2015 saw a marked fall in the consumption of durable goods, demand for which is more elastic and, as argued in international literature, moves in line with households' perceptions of economic conditions. Specifically, it is argued that factors such as high unemployment, falling household disposable income and wealth, high indebtedness and economic uncertainty have a negative effect on the consumption behaviour of households, making them unwilling to make purchases of big-ticket items (see ECB 2015). It is worth noting that consumer spending in the



²⁹ The twelve categories are the following: (1) food and non-alcoholic beverages; (2) alcoholic beverages and tobacco; (3) clothing and footwear; (4) housing, water, electricity and gas; (5) furnishings, household equipment and routine household maintenance; (6) health; (7) transport; (8) communication; (9) recreation and culture; (10) education; (11) hotels and restaurants; and (12) miscellaneous goods and services.

Chart 19 Evolution of domestic consumption expenditure



Source: ELSTAT and authors' calculations.

categories of "furnishing, household equipment, etc."³⁰ and "clothing and footwear" declined by 54.5% and 46.8%, respectively, far more strongly than total consumer expenditure (19.3%) in the same period.

Chart 19 shows the percentage allocation of household annual expenditure to the twelve main categories of goods and services, enabling to identify the evolution of household consumption patterns between 1996 and 2015. Comparing the allocation for 2009 and 2015, the ranking of categories in decreasing order of their relative shares in total consumption expenditure remained unchanged for the categories with the largest shares, i.e. "housing", "water supply, electricity and gas", "food and non-alcoholic beverages", "transport", "hotels and restaurants", as well as for "education", which continued to rank last with the smallest share. On the other hand, the categories of "furnishing, house equipment and routine household maintenance" and "clothing and footwear" fell to lower places in the ranking, while "recreation and culture" and "alcoholic beverages, tobacco" moved to higher places.

Furthermore, it can be observed that the share of expenditure on basic needs (food, housing and network services) in total consumption increased at the expense of non-basic expenditure (furnishing etc., clothing and footwear). These changes provide indications on the evolution of consumption patterns.

Specifically, between 2009 and 2015, the categories with the most significant increases in

³⁰ The decline in this category of expenditure is associated with the downturn in residential construction, as mentioned in previous sections.



their shares in total expenditure were "hotels and restaurants" (from 11.8% to 14.4%), due to the positive impact of tourism, and "housing, water supply, electricity and gas" (from 19.4% to 21.2%), followed by "transport" (from 13.2% to 14.4%). Only marginal increases were recorded in the shares of "alcoholic beverages and tobacco" (from 4.5% to 4.9%) and "food and non-alcoholic beverages" (from 15.7% to 15.9%). Interestingly, "transport" not only increased its share in total expenditure but also showed compositional changes within this category: the share of "purchase of vehicles" decreased (-49.5%) and that of "transport services" (i.e. use of tram, buses, trains, etc.) increased (+41.2%), probably also reflecting the pick-up in tourism.

In the same period, the share of expenditure on "health services" declined from 4.6% to 4.2%, accompanied by a reallocation within this category, as expenditure on outpatient services fell (-58.1%) and that on medical products, appliances and equipment more than doubled (117%).

"Miscellaneous goods and services" also recorded a decline in their share in total expenditure, from 8.4% to 7.5%, along with a reallocation within this category: expenditure on social protection (elderly care at home, nursing homes, recovery and rehabilitation centres providing long-term support, schools for children with special needs, etc.) fell by 66.1% and personal care (grooming and beauty services) by 33.4%, while expenditure on insurance services increased by 45.3%, with an emphasis on health and saving insurance products. This trend reflects a precautionary motive, on the part of households, to guard against potential uncertainties, including uncertainty about their future income and access to healthcare services.

Finally, of particular note is the category of "education", given its importance for human capital formation, hence the future productive capacity of the economy. Although education accounts for a very small share in households' total expenditure (2.1% in 2015), an important

reallocation within this category can be observed, with a shift of expenditure away from "pre-primary and primary education" towards "secondary education".

8 CONCLUDING REMARKS

Economic theory highlights household consumption and saving as important factors behind the fluctuations of economic activity and economic growth. The importance of household disposable income and wealth, both financial (currency, deposits, shares, etc.) and non-financial (houses, etc.), as determinants of households' consumption and saving behaviour is recognised in international literature.

The aim of this study was, first, to examine households' (mainly financial) net wealth and its evolution over time, with a focus on the most recent period, by analysing its components, i.e. assets and liabilities, and their composition. Next, the Greek households' saving behaviour was analysed, by exploring the interactions between investment and debt and between consumption and disposable income. To this end, two approaches were adopted, based on the financial and the non-financial (traditional) definition of saving, respectively. Finally, in the context of the non-financial definition of saving, the study briefly reviewed the evolution of disposable income and its components and the evolution of households' real consumption expenditure by purpose, focusing on the recent period.

Some key conclusions drawn from the analysis are the following:

The financial crisis affected significantly Greek households' net financial wealth. Between early 2008 and the first half of 2012, households' net financial wealth was reduced by 65.3% (average annual rate of change during that period: 18.4%), reflecting both a decrease in assets and an increase in liabilities. From the third quarter of 2012 to the first quarter of 2016, net financial wealth increased by 79.8%

(average annual rate of change during that period: 16.4%), as households' total liabilities declined, while the value of their total assets increased. Overall, between early 2008 and early 2016, net financial wealth fell by 37.5%.

During the deterioration of the crisis, risk aversion prevailed and household portfolio shifts occurred, away from shares and other equity, debt securities and investment fund shares towards more liquid financial assets, such as deposits. At times of heightened uncertainty in Greece, even deposits lost their attractiveness, and cash holdings (currency) increased considerably.

Before 2008, the increase in household total assets stemmed almost exclusively from transactions. This pattern changed thereafter, particularly in the early phase of the crisis (2008-2009), as household assets sustained large valuation losses that could not be offset by the positive flows (transactions) occurring in that period. By contrast, in 2013-2014, household total assets showed a marked increase, largely reflecting upward revaluations that exceeded the comparatively low negative transactions. From 2015 onwards, sharp devaluations coupled with disinvestment contributed negatively to the change in the value of household assets.

In the period that preceded the financial crisis, in particular during the Greek economy's boom years from 2004 to 2007, a continuous and considerable increase in households' debt liabilities was observed, mostly associated with residential investment. Starting from early 2008, residential investment shrank considerably. Moreover, households almost quadrupled their liabilities, both for housing and consumer loans, from 2002 to June 2010. The composition of household loans remained remarkably unchanged, with housing loans accounting for about 70% of total loans and consumer loans for 30%. A net reduction in household liabilities occurred for the first time in late 2010 and, intensified as from the second quarter of 2013, continued into the next quarters. In spite of a decline in household net borrowing, total liabilities as reflected in leverage ratios remained high.

According to the financial definition of saving (interaction between household investment and debt), up to the end of 2008 household saving remained robust, supported by households' high investment in real estate, other non-financial assets and financial assets, which outweighed net new debt incurrence. Thereafter, savings followed a downward trend, as the decline in total household net investment outpaced the reduction in net liabilities. Although households had started already from the fourth quarter of 2010 a net repayment of their existing debt, saving became negative in the first quarter of 2011, reflecting both a decline in (mainly residential) investment and strong net disinvestment of financial assets. Since then, saving has alternated from positive to marginally negative, depending on which component dominates each time. Household saving is exceptionally low compared with its pre-crisis levels, because of a contraction of investment in houses/equipment and large disinvestment of financial assets.

According to the non-financial accounts of the household sector, the household saving rate, in terms of four-quarter moving sums, followed a downward path as from the second quarter of 2009, falling from 7.4% to -5.6% by the first quarter of 2016. Two subperiods can be identified in this regard: one until the first quarter of 2012, when the household saving rate was in positive territory, and a second when it became negative. It is pointed out that the decrease in household saving - in particular from end-2009 onwards – is linked with the decline in disposable income. Specifically, the continuous downward trend in the household saving rate from the second quarter of 2012 through the second quarter of 2014, when this ratio was in negative territory, is attributable to the fact that the rate of decrease in disposable income exceeded the rate of decrease in consumption. Since the second quarter of 2014, the household saving rate appears to have stabilised at very low levels.



A decomposition of household disposable income indicates that the largest percentage contribution comes from compensation of employees, followed by operating surplus, social benefits and, finally, net property income. In the period from the first quarter of 2010 to the first quarter of 2016, all these four components fell sharply. In the same period, household disposable income shrank by 32.8% in nominal terms and by 32.5% in real terms; as a result, household consumption expenditure declined, by 24.7% in real terms, from €169.4 billion in the first quarter of 2010 to €127.5 billion in the first quarter of 2016. Finally, from 2009 onwards, household final consumption expenditure by purpose declined in real terms across all individual categories of expenditure. Expenditure on consumer durables fell sharply, on the back of rising unemployment and shrinking disposable income. In the same period, the share of expenditure on basic needs (food, housing and network services) in total consumption increased, and the share of expenditure on non-basic needs (furnishing etc., clothing and footwear) decreased accordingly. The above changes provide indications on the evolution of household consumption pattern.



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