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Inequality, poverty and social welfare in Greece: distributional effects of austerity

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INEQUALITY, POVERTY AND SOCIAL WELFARE IN GREECE: DISTRIBUTIONAL EFFECTS OF AUSTERITY

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ABSTRACT

This paper presents the recent trends and the characteristics of inequality, poverty and living conditions in Greece, emphasising the distributional effects of the austerity measures adopted during the current economic crisis. Moreover, the decomposition analysis of the study examines the structure of inequality and the contribution of various income sources in overall inequality, while the main characteristics of the Greek social solidarity system and the poor distributional impact of social benefits are also discussed. To this end, household income from the Greek Household Budget and the EU Statistics of Income and Living Conditions surveys are used. The available data indicate that income inequality and relative poverty has increased, yet not dramatically, during the current crisis, although the composition of the poor population changed considerably. However, the sharp decline in disposable income and the dramatic increase in unemployment has led to a significant deterioration in economic prosperity and absolute poverty, i.e. when the poverty line in real terms remains stable in the pro-crisis levels.

Keywords: inequality, poverty, living conditions, redistribution impact

JEL Classifications: D31, I31

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1. Introduction

The problems of poverty, inequality and social cohesion often constitute the focal point of public social and political debates during the current economic crisis. However, the arguments put forward are usually insufficiently documented, and sometimes run contrary to the results of empirical studies. This paper summarises the key findings of such studies in order to facilitate the political and social dialogue on these issues and to check the validity of claims usually made. It also presents the recent trends and the characteristics of inequality, poverty and living conditions in Greece, emphasising the distributional effects of the austerity measures adopted as a consequence of the current economic crisis and the consequent decline in economic activity.

The second section of the study presents the data sources usually used in the analysis of the trends and structure of inequality and poverty in Greece as well as in other European countries. The empirical results of the analysis regarding inequality, risk of poverty or social exclusion and living conditions trends are presented in the third section. In the same section a decomposition analysis is performed in order to examine the structure of inequality and the contribution of various income sources to overall inequality. The main characteristics of the Greek social solidarity system and the poor distributional impact of social benefits are discussed in the fourth section of the study. The last section concludes and some policy remarks are suggested.

2. The main data sources

In Greece, the systematic empirical research of economic inequalities and poverty is relatively limited and rather recent. The major restrictive factor in the study of these issues has been the lack of solid statistical data, as well as conceptual and analytical problems encountered in such efforts.[1]

[1] Many aspects of inequality, poverty and the redistributive role of the state have been investigated by studies in the case of Greece. Among them see, Matsaganis and Leventi (2011, 2012), Tsakloglou (1990, 1993), Tsakloglou and Panopoulou (1998), Mitrakos and Tsakloglou (2000, 2006, 2012), Mitrakos (2004, 2008), Lyberaki, Tinios and Georgiadis (2010).

The main source of data for the analysis of the trends and structure of inequality and poverty in the case of Greece are the Household Budget Surveys (HBS). HBSs provide detailed information on consumption expenditure (very detailed items on both an actual and an imputed basis), income (analytical sources of income after social security contributions and transfer payments) and socio-economic characteristics of a representative sample of households and their members. Six cross sectional HBS are available, covering the period 1974-2004, while since 2008 a yearly rotating panel survey is conducted by the National Statistical Institute (ELSTAT). Many empirical studies have utilized the information on either income or consumption expenditures of the HBSs and in most cases the results are very similar regardless of the chosen variable.[2] It should be noted, however, that surveyed population in the HBS does not include groups which are poor by inference, like homeless or institutionalised persons, illegal economic immigrants, Romà, etc.

The second important source of data for compiling social indicators (inequality, poverty, living conditions etc) in Greece as well as in many European countries is the disposable income information of the European Community Household Panel (ECHP) and the more recent EU Statistics of Income and Living Conditions (EU-SILC). EU-SILC is the main source of comparable statistics on income distribution, risk of poverty and social exclusion in EU countries. The basic aim of the survey is to study, both at national and European level, the households' living conditions mainly in relation to their income. The use of commonly accepted questionnaires, primary target variables and concepts – definitions ensures data comparability.[3]

[2] However Mitrakos (2008) using data from the Household Budget Survey 2004/05 found that the child poverty was considerably lower on the basis of the distribution of expenditure than on the basis of income. A possible explanation, according to economic theory, is the presence of a smoothing mechanism for short-term fluctuations in income incorporated into the distribution of expenditure. In other words, while a household's income changes rather frequently; its consumption expenditure tends to remain stable over a longer period of time or at least changes at a slower pace. Thus, during an economic downturn, households are often able to avoid poverty by maintaining their consumption expenditure at the previously higher levels, in relation to their declining income.

[3] EU-SILC is part of a European Statistical Programme to which all Member States participate and which replaced in 2003 the European Household Panel Survey with a view to improving the quality of statistical data concerning poverty and social exclusion. For further information please visit ELSTAT's webpage - Survey on Income and Living Conditions. See also Eurostat (2010) Statistical Books.

3. Empirical results

In the current study the unit of analysis is the household member and the distributions used are those of equivalent per capita income. Equivalent income is calculated by dividing the total current income of each household by the number of its equivalent adult members. The quotient derived is attributed to each household member by means of the technique of sample re-weighting on the basis of the household size (number of members). The family equivalence scales used are those of Eurostat, which assign a weight of 1.0 to the household head, a weight of 0.5 to each of the remaining household members above the age of thirteen and a weight of 0.3 to each child aged up to thirteen. According to the methodology for measuring poverty, the poverty line is calculated with its relative concept (poor in relation to others) and it is defined at 60% of the median total equivalised income of all households in the survey.

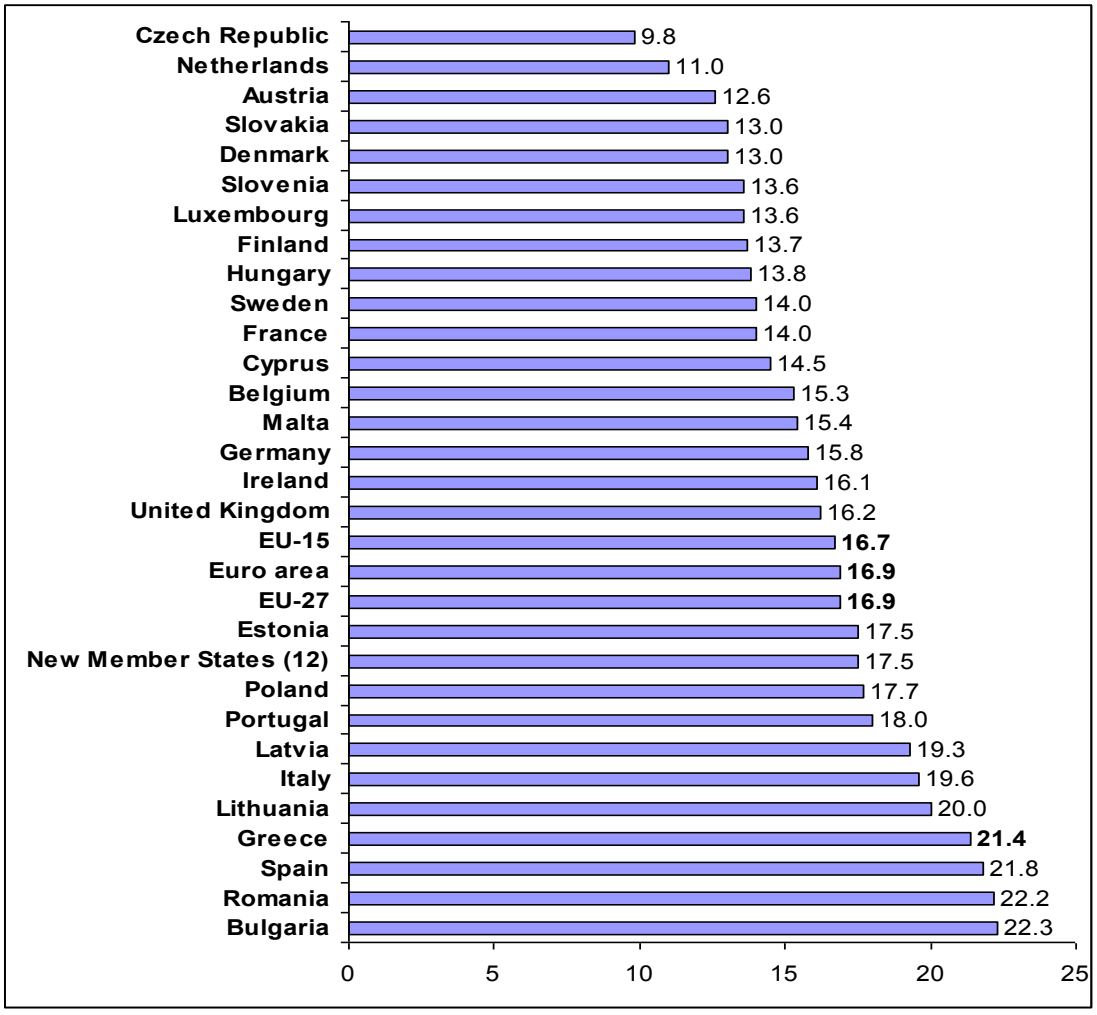
3.1 Risk of poverty or social exclusion indices

According to the concept of ***relative*** poverty, a person is considered poor when his income is not sufficient to ensure a standard of living compatible with the habits and standards of the given society he lives in. This approach implies that the poverty line changes with the average standard of living of the population, while, under the concept of ***absolute*** poverty, it remains stable over time in terms of real purchasing power.

Mitrakos and Tsakloglou (2012) analyse inequality and poverty in Greece for the period 1974-2008 using primary data from HBSs. They conclude that in the period since the return to democracy (1974), relative poverty initially decreased considerably (between 1974 and 1982) and thereafter remained relatively stable with narrow fluctuations throughout the years from 1982 to 2008. However, an examination of poverty over time adopting the absolute approach rather than the relative one leads to the conclusion that absolute poverty in Greece has decreased impressively since the return to democracy. Furthermore, all relevant indicators show an almost constant but not linear improvement in the population's level of economic prosperity. Several non-monetary indicators of prosperity, such as house comforts, possession of consumer durables, life expectancy, average education level, etc., support the aforementioned conclusions.

According to the latest data from the sample survey EU-SILC for the year 2011, as announced by ELSTAT and published by Eurostat, 21.4% of the Greek population or 901,194 households numbering 2,341,400 individuals in total live below the relative at-risk-of-poverty threshold (based on 2010 incomes).[4] This relative poverty rate is significantly higher than that of the other EU countries except Spain, Romania and Bulgaria (EU-27, EU-SILC 2011: 16.9%, see Graph 1).

Graph 1. Poverty rates in EU countries: 2011



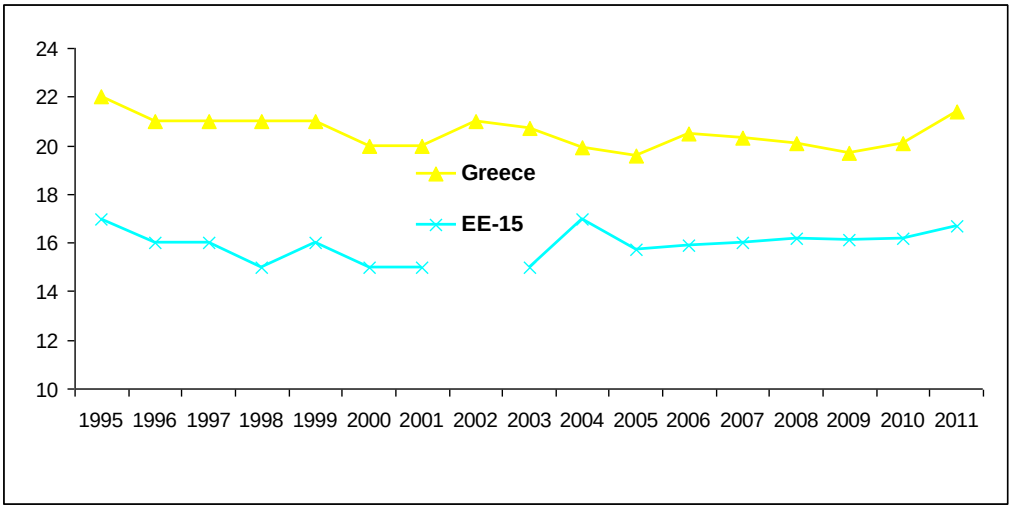
Source: Eurostat (EU-SILC).

[4] See ELSTAT Press Release of 2 November 2012.

In the 2011 EU-SILC survey, the relative poverty threshold for Greece was set at €6,591 (2010: €7,178) per year for a single-member household and at €13,842 (2010: €15,073) for a four-member household with two adults and two children. This threshold has been set at 60% of the median equivalised disposable income of all households (Eurostat definition). The average annual disposable income of total Greek households amounted to €21,590 for 2010 that means 12.2% lower compared to that of 2009 when it was €24,224 (see Table 1).

Relative poverty has been broadly stable or moderately decreasing over the 15 years prior to the beginning of the crisis, namely over 1995-2009 (ECHP, EU-SILC data). As presented in Graph 2 the poverty risk indicator, calculated using the same methodology, ranged between 19.5% and 23% during the 1995-2009 period, around 5 percentage points consistently higher than the EU average.[5] This poverty risk indicator rose by 1.7 percentage points in the first two years of the crisis (2008 incomes: 19.7%, 2009: 20.1%, 2010: 21.4%) and remains significantly higher than in most EU countries (see Table 1, Graph 2).

Graph 2. Inter-temporal trends in poverty rate



Source: Eurostat (ECHP, EU-SILC).

[5] Tsakloglou and Mitrakos (2012) examining the entire period after the restoration of democracy in Greece and using HBS' data show that, unlike what is usually heard in the public discourse, overall, relative poverty declined non-monotonically in the period 1974-2008 and the changes are larger when indices other than the poverty rate are utilized. Taking into account that the average living standard improved markedly during the period under examination it is not surprising that where the poverty line is held constant all indices record a spectacular decline in poverty. These results are also confirmed using ECHP and EU-SILC data.

In *absolute* terms, i.e. when the poverty threshold remains stable over time in real terms, the poverty rate during this period has been significantly reduced. For example, the at-risk-of-poverty rate for the year 2010 (20.1%), calculated using the poverty threshold for the year 2005 (60% of the median income for 2005 expressed in 2010 prices, on the basis of the harmonized index of consumer prices) would be only 16.0%, i.e. 4.1 percentage points lower. In other words, 16% of the population in 2010 would be considered as being at risk of poverty under the conditions prevailing in 2005. However, the corresponding poverty rate for the following year (2011) climbed to 22.9%, suggesting that in only a single year in the current crisis the poverty rate in absolute terms increased by 6.9 percentage point (or by 43.1%).

Similar conclusions are reached by the studies of Matsaganis and Leventi (2011, 2012) using tax-benefit microsimulation techniques in order to provide estimates of the impact of the austerity measures and the concomitant decline in economic activity on aggregate inequality and poverty. They conclude that the austerity measures undertaken by the Greek government were progressive but had small redistributive effect in relative terms and very important in the absolute poverty. While the authors argue that austerity measures contribute to the crisis, they highlight the significant role of more fundamental problems of the Greek economy such as the weak production structure, low competitiveness, etc.[6]

Other poverty indices reach similar conclusions. The relative at-risk-of-poverty gap is the difference between the poverty threshold of the total population and the median equivalised income of persons below the poverty threshold, expressed as a percentage of at-risk-of-poverty threshold. This indicator is estimated at 26.1% of at-risk-of-poverty threshold, which means that 50% of the poor have an income higher than 73.9% of this threshold (6,591 euro), that is to say more than 4,870 euro, yearly per person. The highest

[6] Matsaganis and Leventi (2011, 2012) use the Greek section of the European microsimulation model EUROMOD in order to estimate the impact of the austerity measures on social indicators. This model depicts the payments made by the households to the state in the form of direct and indirect taxes (accounting for tax evasion) and social insurance contributions, as well as the monetary public transfers to the households (pensions, other social insurance and social assistance benefits). As a result of these changes, the Gini index declines by 0.3% between 2009 and 2010, the relative poverty rises from 20.1% to 20.9% but when the poverty line is fixed at its 2009 level in real terms, there is a substantial increase in poverty from 20.1% to 25.1%, while considerable changes are observed regarding the structure of poverty.

relative at-risk-of-poverty gap (27.4%) is recorded among children aged 0-17 years, while for persons aged 65 years and over the corresponding percentage is 21.1%.

A much higher percentage of the population at risk of poverty or social exclusion (ie severely materially deprived or living in a household with low work intensity) that is 31.0%, is estimated in the survey for 2011 which corresponds to 3,403,000 people (EU-27: 24.2%). The risk of poverty or social exclusion is higher for persons, aged 18-64 years old (31.6%), while it is estimated at 29.7% for nationals and at 58.3% for foreigners.[7]

Moreover, people living in households with very low work intensity (none is working or works less than 3 months in total per year) amounted to 837,300 persons while in the previous year (2010) they were 544,800 persons, ie an increase of 53.7% compared to the previous year. Individuals living in households with very low work intensity, aged 18-59 years old, are estimated at 13.2% for total population, 11.9% for men and 14.5% for women.

Finally, an examination of the indicators of living conditions in Greece shows that material deprivation (difficulties in meeting basic needs, poor housing conditions, housing costs, inability to repay loans or instalments for purchases, difficulty in paying bills, difficulties in meeting ordinary needs, quality of life) concerns not only the poor, but also a significant part of the non-poor population. For example, the percentage of population living in a house with limited space stands at 25.9% in total, 23.2% for the non-poor population and 35.8% for the poor population. Similarly, 24.9% of non-poor population faces difficulties financing extraordinary but necessary expenditure of around

[7] According to Eurostat definition, persons at risk of poverty or social exclusion are those falling into at least one of the following three conditions:
• Persons at-risk-of-poverty live in a household with an equivalised disposable income below the risk-of-poverty threshold, which is set at 60% of the national median equivalised disposable income (after social transfers). The equivalised income is calculated by dividing the total household income by its size determined using the following weights: 1.0 for the first adult, 0.5 for each other household member aged 14 or over and 0.3 for each household member aged under 14.
• Severely materially deprived persons have living conditions constrained by a lack of resources and experience at least 4 out of the 9 following deprivation items: cannot afford 1) to pay rent/mortgage or utility bills on time, 2) to keep home adequately warm, 3) to face unexpected expenses, 4) to eat meat, fish or a protein equivalent every second day, 5) a one week holiday away from home, 6) a car, 7) a washing machine, 8) a colour TV, or 9) a telephone (including mobile phone).
• People living in households with very low work intensity are those aged 0-59 who live in households where the adults aged 18-59 on average worked less than 20% of their total work potential during the past year. Students are excluded.

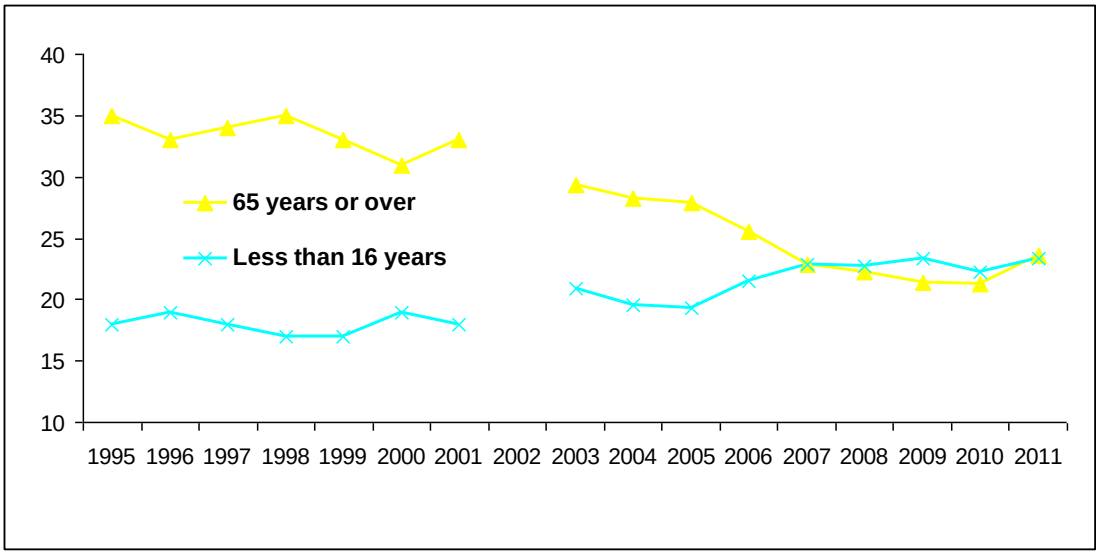
€600, while the corresponding percentage for the poor population is estimated at 69.5%. Moreover, 18.7% of the total population declares an inability to keep their home adequately warm, while the corresponding percentage of the poor population is estimated at 38.9% and the percentage of the non-poor population is estimated at 13.7%.

3.2 Groups at high risk of poverty and changes in the composition of poor population

In Greece, groups at high risk of poverty according to the latest data from EU-SILC 2011 include principally the unemployed (44.0%), particularly unemployed men (48.4%, increased by 10 percentage points compared to previous year, when it was 38.5%), single-parent households with at least one dependent child (43.2% compared to 33,4%), households with one adult over 65 years of age (29.7% from 30.1%), economically inactive persons excluding pensioners (30.0% compared to 27.4%), households with 3 or more adults with dependent children (24.7% from 29.3%), households living in rented accommodation (25.9% from 27.2%) and children 0-17 years of age (23.7%).

Poverty in Greece in recent years seems to have shifted away from the elderly towards younger couples with children and young workers. In particular, the percentage of children up to 15 years living in households which are below the relative poverty threshold rose to 23.3% in 2011 (EU-27: 20.3%), from 19.3% in 2005 which is about two percentage points higher than the corresponding percentage for the whole population. By contrast, the poverty rate among the elderly (aged 65 years or over) fell down sharply, to 23.6% in 2011 (EU-27: 16.0%) from 27.9% in 2005 (Graph 3). Moreover, the low and declining poverty rate in the case of temporary employment (2011: 8.9%) as well as in the case of part-time employment (2011Q 21.4%), means that the recent flexible forms of employment do reduce poverty (see Table 1).

Graph 3. Inter-temporal trends in poverty rate for elder and children



Source: Eurostat (ECHP, EU-SILC).

After the return to democracy in 1974, a similar shift of poverty took place from rural to urban areas and from the less educated (e.g. people who have not completed primary school) to those with medium and higher education (e.g. secondary school graduates). The erstwhile particularly high share of farmers in total poverty decreases considerably in recent years due to a contraction of the agricultural sector, population ageing and the payment of contribution-based pensions to the newly retired farmers. The shift of poverty from the less educated to higher levels of education reflects mainly an improvement in the population's education level ("educational maturity") rather than a lower probability for people of a low education level to find themselves below the poverty line (see, Bank of Greece, Annual Report 2008, Box VI.I).

However, research for Greece has concluded that the probability of poverty is dramatically reduced as the educational level of the household head rises, while policies aimed at reducing educational inequalities are bound to limit economic inequalities and poverty in the long run. The probability of poverty for households whose head has not completed primary education is 3.4 times greater than for the entire population.

The magnitude of child poverty is a matter of concern. In the last few years most countries increasingly recognise the existence of the problem of child poverty. This fact

relates to the considerable size of the problem, which is steadily growing. As relevant UNICEF reports point out that around 50 million children in the developed world (the OECD countries) live below the poverty line. According to the recent report published by Eurostat based on data from the EU-SILC survey, in the EU27 children are at greater risk of poverty or social exclusion than the rest of the population (Eurostat, 2013a).[8] In 2011, 27% of children aged less than 18 were at risk of poverty or social exclusion in the EU27, compared with 24% of adults (aged 18-64) and 21% of the elderly (aged 65 and over). Almost one child in two with parents of low educational level and almost one child in three with a migrant background is at risk of poverty in the EU27.

In Greece, based on EU-SILC data, a rise in child poverty rates is recorded after 2002. In fact, unlike what happened in most other EU countries, the rate of children aged 15 or less living below the relative poverty line in Greece rose by 3 percentage points in 2006 and by one further percentage point in 2007, reaching 23% from 19% in 2005. Based on 2011 data, around 450,000 children in Greece live in poor households.

Reducing the child poverty risk should henceforth be placed at the heart of social policy concerns. The adoption of measures aimed at improving the educational level of mainly the population's poorer sections is practically bound to help limit child poverty. Furthermore, based on research findings, it is estimated that a reduction of uninsured employment and a fast inclusion of economic immigrants into the country's social and economic life will most probably reduce the size of child poverty. Similar results can be created by policy measures supporting the access of young couples with children to employment and high-quality jobs. Consequently, combating child poverty requires multifaceted actions that not only increase monetary social benefits, but also provides services (in the fields of education, health, social security, culture, etc.) and facilitate the access (of poor families with children) to social services and primarily to the labour market.

Finally, the disparity and divergence in child poverty rates among EU countries can be seen as signalling an objective economic problem for the sustainability of the union. A

[8] In a majority of Member States, children are more affected by at least one of the three forms of poverty or social exclusion examined than the other age groups. See, Eurostat, *Statistics in Focus*, 4/2013.

high level of child poverty is synonymous with an investment deficit that is simultaneously cause and effect in a vicious circle of underperforming labour markets and education systems. If members of the EU get trapped into such a vicious circle, we could be confronted with an objective problem for the long-term sustainability of the monetary union.

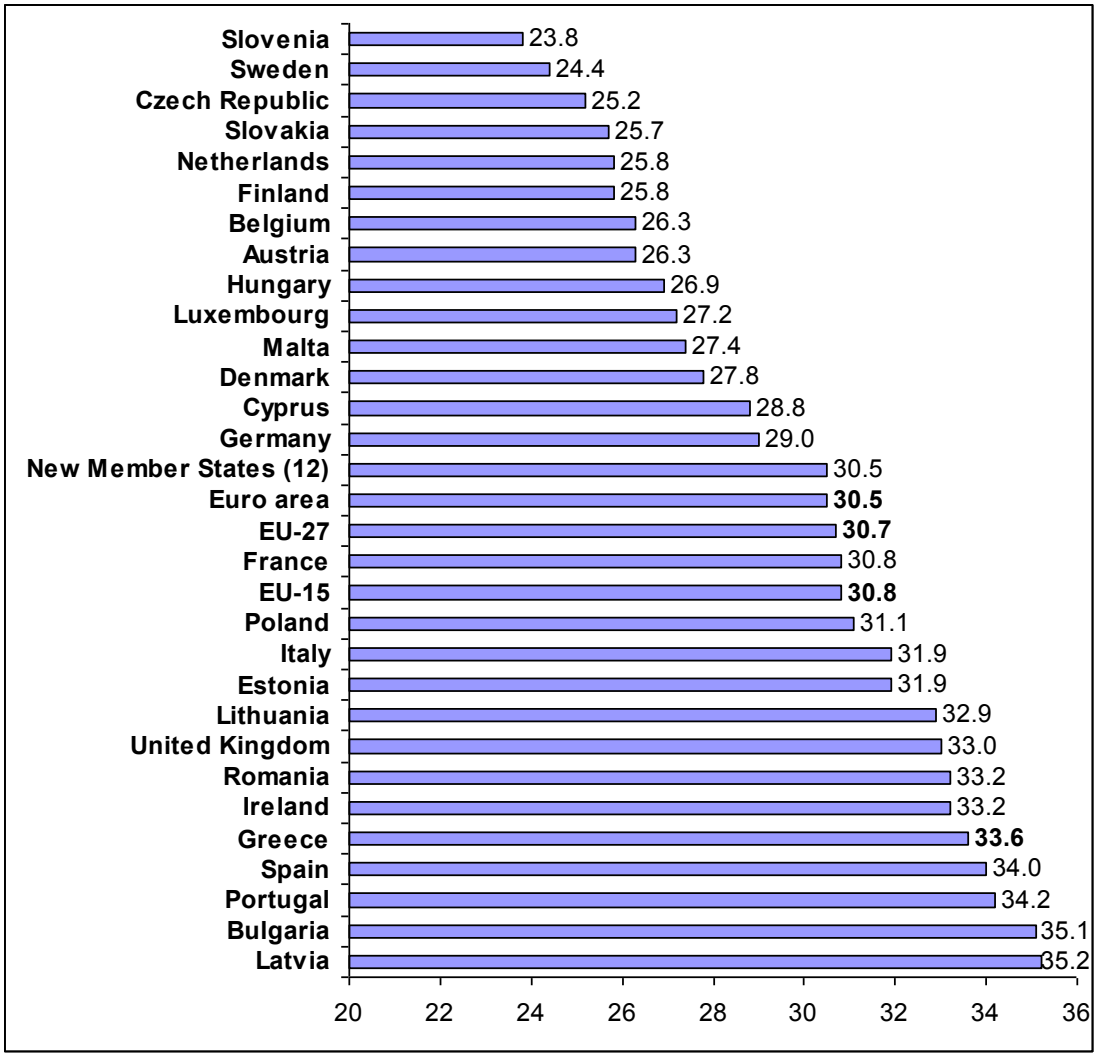
3.3 Income inequality indices

Greece entered the global economic crisis already facing high levels of income inequality. With the increase in unemployment and lower returns to capital, the crisis not only weighed heavily on incomes from work and capital but also made the income distribution in these countries more unequal. In the first three years of the crisis, the inequality in income from work and capital according to OECD (2013) estimates increased as much as in the previous twelve.

For cross country comparisons as well as the analysis of the inter-temporal changes in inequality, the Gini coefficient is the most common indicator used. This inequality index is relatively more sensitive to changes around the median of the distribution instead of other indices which are relatively more sensitive to changes near the top or the bottom of the distribution (e.g. the Atkinson index).

Greece has a poor ranking among EU countries also in terms of income inequality. According to Gini coefficient values presented in Graph 4, Greece together with Latvia, Bulgaria, Portugal and Spain ranks among the five EU countries with the higher rates of inequality. In particular, the EU-SILC 2011 survey indicates Gini coefficient 33.6 (incomes of 2010) for Greece instead of 30.7 for the average of EU-27 countries.

Graph 4. Income inequality in EU countries: GINI 2011



Source: Eurostat (EU-SILC).

Moreover, the wealthiest 20% of the country's population has a 6.0 (2009: 5.6) times higher income share than the income of the poorest 20% of the population (S80/S20 indicator), while the value of this ratio is 5.1 (2009: 5.0) for EU-27 as a whole (see Table 1).

It should also be noted that the pay for male employees in Greece is 12.7% higher than the corresponding pay for women (7% in the public sector and 19.6% in the private sector).[9]

3.4 Inequality decomposition by population group and income sources

Regarding the structure of inequality, contrary to what is often claimed during public debates, economic inequalities are much more (almost by 75%) attributable to differences within the various socioeconomic population groups (broken down based on demographic, geographical, occupational, educational and other criteria) than to differences between these groups.[10] From a substantive point of view, the estimates of Graph 5 using equivalized income from Household Budget Survey of 2011, confirm earlier results that inequality in Greece emanates primarily from disparities "within" rather than "between" population groups.[11] These results, which remained unchanged when different population subgroups, inequality measures, equivalence scales and reference units were used, also remained consistent over time (Tsakloglou, 1993, Mitrakos and Tsakloglou, 2000, 2006, 2012, Mitrakos, 2004, 2013). More specifically, when dividing the population by region of residence, size of locality, demographic characteristics and occupational status of the household head, within-group differences were found to be accountable for over 85% of aggregate inequality. Thus, no matter how much funding is allocated to completely eliminating the between-group differences,

[9] The gender pay gap is the difference between the average gross hourly male and female earnings from salaried work, expressed as a percentage of the gross hourly male earnings. This indicator takes account of employees aged 16-64, who work more than 15 hours/week (EU-SILC data).

[10] In order to examine the structure of inequality we use the mean logarithmic deviation, which allows the quantification of the contributions of disparities "within" and "between" population groups to aggregate inequality. According to Anand (1983) method of inequality decomposition by population group, the "within groups" component is the level of inequality that would have been recorded if the mean of each group's income became equal to the aggregate mean, while the "between groups" component of inequality is the level of inequality that would have been recorded if the income of the members of each group became equal to the group mean but differences between group means remained intact. For the purposes of this analysis, the population of 2011 HBS is grouped into mutually exclusive and exhaustive groups using four alternative criteria: region, locality, household type, age group, socio-economic group, educational level and employment characteristics (position in work, occupation, sector of employment) of the household head.

[11] The definition of income is wide and includes, apart from monetary income, the value of imputed incomes and expenditure (allowances in kind, imputed rents, consumption of own production, etc.).

aggregate inequality will not be contained by more than 15% as long as within-group differences remain unchanged.

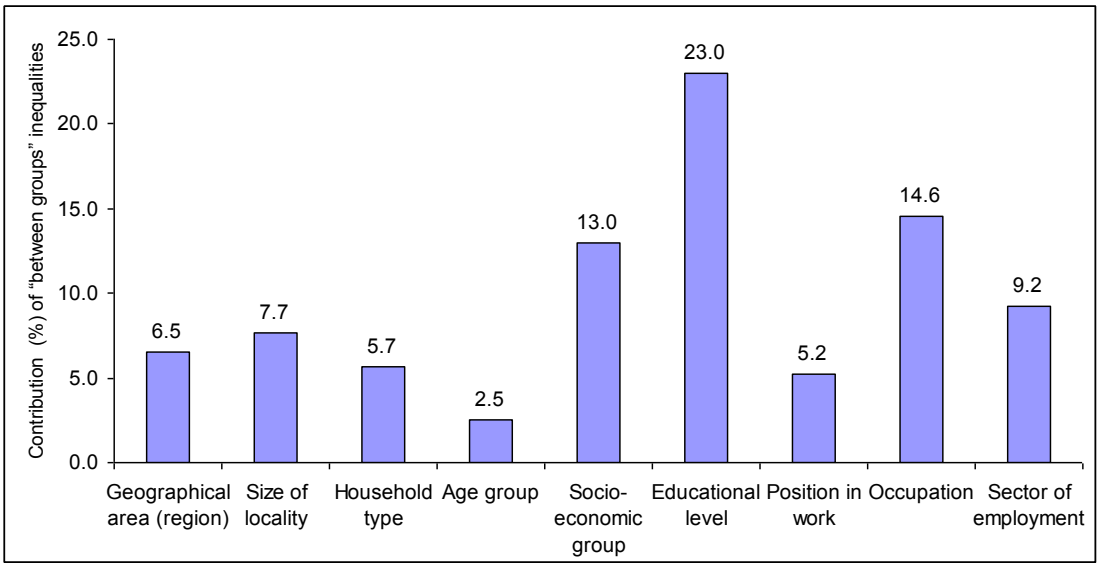
Since inequality stems primarily from differences within the various socioeconomic groups, policies aimed at alleviating inequality should be "general" rather than "specific". General policies (for instance, tax policies, general welfare policies, etc.) apply to the entire population and do not take specific group characteristics into account. Although specific policies (such as regional or agricultural policies) may be warranted for other reasons, this analysis indicates that they are not very effective in reducing economic inequality.

However, when the population is broken down into 5 groups depending on the household heads' education level, nearly one fourth of aggregate inequality is attributed to disparities between these education-level groups. That means that education remains over time the major factor for reducing inequality and poverty. Educational inequalities seem to be much more closely linked to economic inequalities than other demographic and socioeconomic factors (occupation, age, household size and composition, area of residence, gender, etc.). In other words, educational inequalities alone account for almost one fourth of total inequality.[12]

Consequently, policies aimed at reducing the educational inequalities are bound to help limit economic inequalities and poverty in the long run. Such policies may aim at increase the number of years of mandatory education and decrease the school dropout rate; encouraging the participation of the population's poorer sections in the non-mandatory levels of education; keeping the schools and universities "open" and reducing the thousands of lost teaching hours; limiting the phenomenon of "substitute education" (reliance on costly private preparatory schools and lessons for entry in the country's tertiary education institutes) and supporting the state-run schools, which are attended by the population's poorer sections; etc.

[12] Kantzara (2011) examines the ways education is related to social cohesion, mainly in sociology of education approaches. The notion of cohesion is used widely, while education is viewed as an important institution that contributes to cohesion by socialising the new members of society, providing them with knowledge and skills in order to facilitate their social participation. Sustaining however current societal organisation implies that social inequality is also reproduced.

Graph 5. Inequality decomposition by population group: Contribution (%) of "between groups" inequalities



Source: Processing of micro data from HBS 2011, ELSTAT.

In the rest of this section, total income inequality is decomposed into individual income sources. The variable used for the measurement and decomposition of inequality is household's current income as derived from the micro-data of the HBS conducted by ELSTAT in 2011. The question examined by this decomposition is how much each individual source of income contributes to overall inequality or in other words, what is the weight of individual sources in the overall level of inequality. In this, as in most empirical studies, overall inequality decomposition by income source is mainly based on the decomposition of the Gini coefficient following the Pyatt, Chen and Fei (1980) methodology. The coefficient of variation is also used in the analysis and hence the results are tested in terms of the sensitivity of measurement and decomposition inequality indices in the various parts of the distribution.[13]

As illustrated by Pyatt, Chen and Fei, the overall inequality depends on the degree of inequality of each income source, the extent of correlation between the income of each source and overall income and the importance of the income of each source in the total

[13] Each inequality index corresponds to a different Social Welfare Function and, consequently, is more or less sensitive to transfers of different type. A group of inequality indices, among them Gini and the coefficient of variation, allows the decomposition of overall inequality and the estimation of the contribution of specific income sources to overall inequality. This property of certain inequality indices is utilised in this part of the study.

income (weight). Thus, the elasticity of the Gini coefficient, e_i to each income source can be easily calculated as follows:

$$e_i = w_i g_i - w_i ,$$

where w_i is the income share of the i income source, g_i is the relative concentration coefficient of this income source and $w_i g_i$ is the factor inequality weight of the i source in overall inequality. This equation yields the per cent change in the Gini coefficient of total income distribution, which stems from a per cent change of the mean income in the i income source. The sum of all the aforementioned elasticities is always equal to zero, since an equal per cent increase in the incomes of all sources does not change overall income inequality or the Gini coefficient (mean independence property). Similarly, following Shorrocks (1982) one can achieve inequality decomposition by income source also on the basis of the coefficient of variation.[14]

On the basis of the Gini index and the coefficient of variation, Table 2 presents the estimates of the elasticities of overall inequality to changes in each income source. The first column describes the individual sources of income, while the second column presents income shares (per cent) of these sources. Total income is broken down into salaries and wages from the main and secondary job (including Christmas and Easter bonuses and vacation benefit), self-employment income and income from businesses (excluding agricultural income), agricultural income, capital income (including rents, income from interest and dividends), income from main and supplementary pensions, and all transfers or benefits (family allowances, unemployment benefit, sick-pay, maternity benefit, housing benefit, marriage allowance, scholarships and financial assistance from relatives and friends, etc). According to the data, salaries and wages constitute the main source of total income (contribution rate: 33.6 per cent), followed by pensions (20.2 per cent), capital income (19.2 per cent) and self-employment income (17.5 per cent).

The results of the estimates of elasticities in the third column of Table 2 show that a 10 per cent decline in self-employment, capital or salaries-wages income decreases the

[14] The coefficient of variation is the second most used indicator after the Gini coefficient for inequality decomposition by income source. The literature on the decomposition analysis of inequality by factor components is extensive. Among them see Adams (1994), Adams and He (1995), Paul (2004) and for an application to Greece, see Mitrakos (1998, 2013) and Aggelopoulou, Zografakis and Sypsas (2010).

Gini coefficient by 0.78, 0.35 or 0.40 per cent, respectively. By contrast, pensions, agricultural incomes and transfers seem to have a significant effect on the increase in overall inequality. A proportional decrease of 10 per cent, for instance, in all agricultural incomes, pensions or transfers would lead to an increase in the Gini coefficient of 0.48, 0.52 or 0.65 per cent, respectively. This result is very important, given that agricultural income and transfers constitute only 5.2 per cent and 4.2 per cent respectively, of total income.

The importance of the index chosen for the decomposition of overall inequality is evidenced by the results of the last column in Table 2, where the elasticities of the coefficient of variation are presented. The previous results are valid irrespective of the inequality index and the inequality weighting system (sensitivity of index) in the various parts of income distribution. However, the direction of the contribution of salaries and wages to overall inequality is very sensitive. It depends on the inequality index used in the analysis. Indeed, the elasticity of wages and salaries to overall inequality changes from 0.040 in the case of the Gini coefficient to -0.035 using coefficient of variation. It is obvious that the results of the analysis do not clearly demonstrate whether the cuts in wages and salaries since 2011 have led to an increase or decrease in overall inequality.

The previously mentioned findings are particularly enlightening. The results of the analysis show that economic policies aimed at uniformly strengthening agricultural incomes, pensions and transfers to households and/or proportionately limiting self-employed and capital income would reduce income inequality. This is accounted for by the relatively larger contribution of the former incomes to the total income of the poorer households as well as the relatively higher contribution of the latter incomes to the total income of the richer households. Owing to the relatively larger contribution of wages and salaries to middle income brackets, the size and direction of their contribution to overall inequality is not identifiable. Furthermore, the recent abolition of Easter, Christmas and holiday bonuses as well as other benefits in the public sector is estimated to have fallen mainly on middle income brackets, with doubtful redistributional effects as a whole.[15]

[15] These findings are robust, but have a serious drawback. They examine the impact of these policies on overall inequality unilaterally, regardless of the impact of such a policy on other very important economic variables such as inflation, unemployment and economic growth itself. In other words, the above results are

4. The Greek social solidarity system and the poor distributional impact of social benefits

During the current economic crisis, a significant part of fiscal consolidation efforts in EU countries fell on social protection expenditure. While social spending played a prominent role in compensating households' income losses in the early phase of the crisis (until 2009), and helped stabilise the economy; this impact has been weakening since mid-2010 and was negligible in 2012. After an initial increase in the first year of the crisis, social expenditure levelled off in 2010 and declined in 2011 and 2012, even in countries where unemployment kept rising. This reduction in social spending was much stronger than in past recessions, partly reflecting the exceptional need for fiscal consolidation in the context of the euro crisis (European Commission, 2013).

Social transfers vary substantially across EU countries (Eurostat, 2013b). As is clear from earlier studies, these transfers help to reduce both inequality and poverty in all countries, but with significant cross-country differences. The distributional impact of these transfers is greater in countries that spend a higher proportion of income on them, but there are also other important determinants, including the distribution of funds between different types of transfers as well as the degree of targeting for each transfer. The most important type of social transfer is pensions and they have the highest individual contribution to reducing inequality and poverty. However, non-pension social transfers are concentrated towards the bottom of the distribution to a larger extent than pensions and, in all non-Southern countries, the combined contribution of the non-pension social transfers in reducing inequality is larger than the corresponding

valid, ceteris paribus. Such an assumption is understandably restrictive. The results of the analysis, however, remain interesting, as they can help assess the impact of many different recent austerity measures on overall inequality, even if the other consequences of these policies are overlooked. Furthermore, it should be stressed that the aforementioned analysis aimed exclusively at investigating the impact of proportional (uniform) changes in incomes of the various sources on overall inequality. This, of course, is not the common practice in the various recent income cuts in the sense that they support the lower income brackets relatively more.

contribution of pensions (Heady, Mitrakos and Tsakloglou, 2001, Matsaganis, 2011, Dafermos and Papatheodorou, 2012).[16]

The redistributive effect of the social benefits of the fragmented Greek welfare state is limited compared to the other EU countries. In addition, given available resources, there are also other important factors affecting the effectiveness of social expenditure, such as the composition of social benefits and the degree to which they are targeted towards those who should really be entitled to them, i.e. the economically weaker social groups which are in greater need. The bulk of social expenditure in the Mediterranean countries is mainly pensions; non-pension social transfers, such as social benefits (unemployment, disability, welfare, sickness, housing, family, etc.), form a smaller proportion of social expenditure.[17] Yet these transfers are more "progressive", in the sense that they are more supportive of those in the lower income brackets, Furthermore, the limited resources made available for social expenditure do not reach those that should benefit from them. Indicatively, the poorest 10% of the population receives 6.6% of social transfers (excluding pensions), whereas 12.5% goes to medium income brackets and 7.4% to the richest 10% of the population. This obviously does not ensure a minimum living standard for the poor and the underprivileged households, while the fragmented and bureaucratic social expenditure system is prone to create *de facto* discrimination among the various categories of beneficiaries. Consequently, strengthening and improving the targeting of social expenditure towards families in relatively greater economic need is a matter of social justice that should contribute to a reduction of economic inequalities and poverty. Social dialogue on the issue of redefining

[16] Dafermos and Papatheodorou (2012) utilize European macroeconomic data for the period 1994-2008 to estimate the determinants of aggregate relative poverty rate. They conclude that the main inhibitory forces of relative poverty are the per capita GDP and social transfers as percentage of GDP. They also argue that social democrat or corporatist social security systems are in this respect more efficient with the result that in such countries an increase in per capita GDP reduces poverty more compared to Mediterranean or liberal countries. Exploiting these findings the authors anticipate that in Greece relative poverty and standards of living will not improve in the years to follow.

[17] Social benefits in Greece include the social assistance (the allowance of social solidarity for pensioners – EKAS, a lump sum payment to poor households in mountainous and disadvantageous areas, allowances for children under 16 years old who live in poor households, allowances to repatriates, refugees, persons released from prison, drug-addicts, alcoholics, allowances to long-standing unemployed aged 45-65, benefits to households that faced an earthquake, flood etc.) and allowances such as family, unemployment, sickness, disability/invalidity benefits /allowances as well as the education allowances. Pensions include old-age pensions and survivor's pensions and benefits.

the population groups that genuinely deserve social support should be launched, as it would contribute considerably to the improvement of the effectiveness of social expenditure in Greece.

However, it should be mentioned that, although the distributional impact of social benefits in Greece remains limited, it has improved in recent years. The reduction of poverty on account of total social expenditure came to just 23.5 percentage points (20.1 on account of pensions and only 3.4 on account of social transfers) in Greece, compared with an EU average of 27.3 percentage points (17.9 attributable to pensions and 9.4 to social transfers, see Table 1). In recent years, however, the ratio has risen 19.6 percentage points in 2005 to 23.5 in 2011. This improvement is considered to be associated with the significant increase in social expenditure as a percentage of GDP (2005: 24.9%, 2010: 29.1%). Moreover it can be attributed mainly to the poverty-mitigating effect of pensions (from 16.6 percentage points in 2005 to 19.6 in 2011), given the significant increases in minimum pensions and the Social Solidarity Pension Supplement (see Table 1).[18]

5. Conclusions and some policy remarks

Fiscal tightening has affected employment in EU countries through both public sector employment and aggregate demand channels. Changes to the tax and benefits systems and cuts in public sector wages have led to significant reductions in the level of real household disposable income, putting a heavy strain on the living standards of low income households in particular. Figures for 2011 indicate that, among different population subgroups, it is the unemployed, the inactive, single parent families and non-EU migrants who face the greatest risks of poverty or exclusion. Among age groups, children and young adults are more at risk than others, while with regard to skill levels it is the low-skilled who face a much higher risk. Moreover, the crisis has not impacted uniformly across the whole population and has often worsened the situation for these groups already at high risk before the crisis. The recent analysis of European Commission

[18] Social transfers (including pensions) represent 30.9% of total disposable income of the Greek households. Pensions account for a significant share of total disposable income, reaching 27.1%, while social benefits represent 3.8% of the disposable income (see, Press release, Hellenic Statistical Authority, November 2, 2012).

shows that the design of measures is crucial to avoid low income households from being affected disproportionately. Different fiscal consolidation packages impacted differently on high and low income households, with regressive effects in a few countries (European Commission, 2012a, 2012b, 2013).

Various international comparisons, as well as the present study, show that the level of inequality and (relative) poverty in Greece were and remain substantially higher than in most developed countries (OECD, 2008, 2013). In the course of the fiscal crisis and the deep recession, some negative developments, primarily the dramatic rise in unemployment (from 7.2% in the second and third quarter of 2008 to 27.0% in February of 2013), are estimated to have contributed to an exacerbation of relative poverty and economic inequality in Greece. It should be pointed out that the significant increase in the number of the unemployed (from 355,000 in the third quarter of 2008 to more than 1,320,000 in February 2013) comes on top of other, even more alarming developments. For example, unemployment has already reached the core of the social fabric, as the share of unemployed persons that report themselves as "heads of household" has increased by more than five percentage points in the last three years.

Only 29.4% of the registered unemployed in the records of the Public Employment Agency in December 2012 received some kind of unemployment benefit. As a result, it is estimated that an extension of the grant period and, more importantly, a widening of the group of beneficiaries to other unemployed people, such as professionals and traders, who, because of the crisis have stopped their self-employed professional activity, are policies that could help to maintain social cohesion.

The available data on the first two years of the crisis (2009 and 2010) indicate that income inequality and *relative* poverty increased, yet not dramatically, during the crisis, although the composition of the poor population changed considerably. However, the sharp decline in disposable income led to a significant deterioration in economic prosperity and *absolute* poverty, i.e. when the poverty line remains stable in real terms. Most of the austerity measures undertaken by the Greek government were progressive and had a small redistributive effect in relative terms but were very important in influencing absolute poverty. Hence, there is a clear need to strengthen specific features

of the safety net, to assist those most affected by the crisis. Job training programs and income support programs for the unemployed both need to be geared up, leveraging European Community funds where available. The need for a policy launching an investment programme for growth and employment is now more than obvious.

Initial estimates from this study, as well as Matsaganis and Leventi's simulations of income distribution after 2010, reveal that the trends indentified in this paper have continued (since 2011), worsening an already bad social situation. However, given that detailed data on incomes after 2010 are not yet available (the last available data come from household surveys in 2011 monitoring the income of the previous year), it is difficult to draw sure conclusions about how inequality and poverty have developed in more recent years. Certain developments most probably were not in the direction of reducing poverty and economic inequalities. For example, the significant increase in unemployment, particularly youth unemployment will likely have increased poverty and inequality. Additionally, the rise in VAT and Excise Duties (Special Consumption Tax) on alcohol, tobacco and heating oil, will have caused the purchasing power of poorer households that consume a larger share of their income on such products to erode further. On the other side, other developments, characteristic of periods of sharp economic recession, may have had a dampening effect on poverty and inequality. Such developments include, for example, the significant decrease in profits, a source of income for mostly wealthier persons, and the one-off extraordinary levy usually imposed on higher incomes, profitable firms and large real estate property. Such measures were certainly progressive in nature, in the sense that they targeted higher income brackets relatively more than lower ones. Moreover, implementing a more progressive tax scale, abolishing separate taxation on certain incomes and other special tax regulations and tax exemptions, broadening the tax base and curtailing tax evasion are expected to yield results which can be characterised as more progressive in nature. Other policies to mitigate or combat the current adverse situation must be targeted to specific vulnerable groups, enhance their human capital and facilitate their access to the labour market.[19]

[19] See Bank of Greece, *Monetary Policy Report 2010-2011* (Chapter III, Section 2.B).

Regarding the structure of inequality, results from decomposition analysis confirm the previous results suggesting that, unlike what is often mentioned in the public discourse, inequality emanates primarily from differences "within" rather than "between" socioeconomic groups. Less than a fourth of total inequality is attributed to disparities "between" groups. As a policy implication, policies aimed at alleviating inequality should be "general" (tax policies, general welfare policies, etc.) rather than "specific" taking specific group characteristics into account. Although specific policies (such as regional or agricultural policies) may be proposed for other reasons, this analysis indicates that they are not very effective at reducing economic inequality. However, education remains over time the major driving force for reducing inequality and poverty, due to the fact that educational inequalities seem to be much more closely linked to economic inequalities than other demographic and socioeconomic factors (occupation, age, household size and composition, area of residence, gender, etc.).[20]

Finally, the system of social solidarity in Greece is flawed and characterised by considerable leaks.[21] For instance, among households with dependent children and no employed members, the poverty rate rises to 54%. The existing social solidarity system unfortunately does not provide anything for the unemployed once the relatively short period of unemployment benefit collection lapses, similarly to many other vulnerable groups. No matter how much the existing system's targeting improves, these people will remain well below the poverty line. A solution could be to establish a universal and at the same time selective measure (on the basis of income), aimed at eliminating extreme poverty and ensuring for all a minimum income and living standard, not necessarily on a compensatory basis.[22] The implementation and management of such a universal measure

[20] According to the international Classification of the Functions of Government and the recent data from Eurostat, the EU-27 general government expenditure on education amounted to 5.3% of GDP in 2011. The lowest ratios of government expenditure on education to GDP were observed in Bulgaria (3.6 % of GDP), Slovakia (4.0 % of GDP), Greece and Romania (both at 4.1 % of GDP). See, Eurostat (2013b).

[21] Lyberaki and Tinios (2012) discuss the characteristics and interactions between the formal and informal social security networks and show that the unchanging features of the formal sector contribute to the creation and deepening of crisis.

[22] Atkinson (2012) proposes the adoption of a basic income scheme, instead of a targeted social policy, which will be financed by a mix of intergenerational and vertical (higher taxation) redistribution. Moreover, he highlights the intergenerational character of current national debt which includes outstanding state pension rights, implying that economic and social policy should be considered under a unified prism, as any economic policy to overcome fiscal crisis will have intergenerational implications in many dimensions. The

in the case of Greece would address, in addition to the issue of cost, some serious practical problems, mainly as regards the identification of the persons really entitled to the relevant benefits. However, a pilot-phase implementation of such a selective programme for ensuring a minimum living standard for all would allow for a systematic examination of its crucial management problems, just as was the case in other South-European countries that, one after the other, proceeded to the establishment of such a programme. Successful pilot-phase implementation of such a programme requires cooperation between different sections of the state mechanism, but also the involvement of local governments and "civil society". In any case, the social policy measures identified should not destroy the very important contribution of informal social network solidarity (Lyberaki and Tinios, 2012).

In any case, the experience of European countries shows that the adoption of policies that are indeed universal but also targeted towards groups facing a high risk of poverty and/or social exclusion can reduce economic inequalities and poverty. The introduction of a similar measure for the sensitive population of the pensioners had outstanding results in Greece. After the introduction of a pension for the uninsured elderly there are no leaks in the network of their social protection, as everyone now receives some kind of pension. This measure, combined with the remarkable rises in minimum pensions and in the EKAS, has most probably contributed considerably to the notable reduction of the poverty rate recorded in the group of the elderly in Greece in the decade before the current crisis.

Finally, although at the EU level an important attempt to fight macroeconomic and fiscal imbalances has taken place in recent years, excessive social imbalances remain and social problems affect Member States very differently creating a pattern of divergence. These social imbalances - with youth unemployment and child poverty two important examples - should be a matter of common concern for the EU as a whole. If not, the credibility of the European project is at stake and the Union will lose its trust-based legitimacy that will be needed to perform better in the future.

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author argues that since debt burden can be shifted to future generations it is essential to establish an intergenerational compact.

Indicator	Greece							EE-15 [1]	EE-27 [1]
	2005	2006	2007	2008	2009	2010	2011		
I. Risk of poverty									
1. At-risk-of-poverty rate									
1.1 Total population	*19.6*	*20.5*	*20.3*	*20.1*	*19.7*	*20.1*	*21.4*	*16.7*	*16.9*
a . People aged 65+	27.9	25.6	22.9	22.3	21.4	21.3	23.6	16.1	16.0
b. Children aged 0-15	19.3	21.5	22.8	22.7	23.4	22.3	23.3	19.5	20.3
c. Single-parent households	43.5	29.6	34.2	27.1	32.1	33.4	43.2	34.7	34.5
d. Two adults with 3 or more	32.7	38.0	29.7	27.2	28.6	26.7	20.8	24.0	25.9
1.2 In-work poverty	*12.9*	*13.9*	*14.3*	*14.3*	*13.8*	*13.8*	*11.9*	*8.5*	*8.9*
a. Part-time employment	24.1	26.1	27.2	26.0	26.9	29.4	21.4	12.1	13.5
b. Temporary employment	17.4	18.2	19.0	15.9	15.1	13.4	8.9	13.7	13.2
1.3 Unemployed	*32.6*	*33.3*	*35.9*	*37.0*	*37.9*	*38.6*	*44.0*	*45.1*	*45.1*
2. At-risk-of-poverty gap [2]									
Total population	23.9	25.8	26.0	24.7	24.1	23.4	26.1	22.5	23.3
a. People aged 65+	23.7	24.4	24.2	20.8	14.7	14.6	21.1	16.4	16.6
b. Children aged 0-15	22.5	25.7	30.0	26.5	26.4	27.3	27.8	23.5	24.4
3. At-risk-of-poverty line (in									
a. Single-member households	5,650	5,910	6,120	6,480	6,897	7,178	6,591	…	…
b. Two adults with two children	11,866	12,411	12,852	13,608	14,484	15,073	13,842	…	…
II. Inequality indicators									
1. Gini coefficient	*33.2*	*34.3*	*34.3*	*33.4*	*33.1*	*32.9*	*33.6*	*30.8*	*30.7*
2. S80/S20 ratio[3]	*5.8*	*6.1*	*6.0*	*5.9*	*5.8*	*5.6*	*6.0*	*5.1*	*5.1*
III. Social welfare									
1. Social expenditure, % of GDP									
Total	24.9	24.7	24.8	26.3	28.0	29.1	…	30.3	29.5
a. Pensions	12.2	12.1	12.3	12.7	13.4	13.9	…	13.3	13.1
b. Social transfers	12.7	12.6	12.5	13.6	14.6	15.2	…	17.0	16.4
2. Reduction in the at-risk-of-									
Social expenditure (total)	19.6	20.0	21.6	21.4	22.3	22.7	23.5	25.8	26.3
a. Pensions	16.6	17.1	18.2	18.2	19.3	19.0	20.1	16.1	17.1
b. Social transfers	3.0	2.9	3.4	3.2	3.0	3.7	3.4	9.7	9.2

Source: Eurostat (EU-SILC).

1 Data for the EU-15 and EE-27 are estimates and refer to the latest available year (2011 survey year, data referring to the earnings of 2010).

2 The relative at-risk-of-poverty gap is the difference between the at-risk-of-poverty threshold of the total population and the median equivalised income of persons below the poverty threshold, expressed as a percentage of this threshold.

3 Share ratio, defined as the ratio of total income received by 20% of the households with the highest income (highest quantile) to that received by 20% of the households with the lowest income (lowest quantile).

Table 2. Inequality decomposition by income source

Income source	Income shares	Elasticity of Gini coefficient	Elasticity of coefficient of variation
Wages and salaries	33.6	0.040	-0.035
Self-employment	17.5	0.078	0.090
Agriculture	5.2	-0.048	-0.062
Capital	19.3	0.035	0.038
Pensions	20.2	-0.052	-0.060
Transfers	4.2	-0.065	-0.064
TOTAL	100.0	0.000	0.000

Source: Processing of micro data from HBS 2011, ELSTAT.

References

Adams R. (1994), "Non-Farm income and inequality in Rural Pakistan: A decomposition analysis", *The Journal of Development Studies*, vol. 31, pp. 110-133.

Adams R. and He J. (1995), *Sources of income inequality and poverty in rural Pakistan*, Research report 102, International Food Policy Research Institute, Washington.

Aggelopoulou D., Zografakis S. and P. Sypsas (2010), "Inequality and poverty in Greece before and after the crisis in energy prices", *Social Cohesion and Development* 2010 5 (1), 5-25.

Anand S. (1983), *Inequality and poverty in Malaysia: Measurement and decomposition*, Oxford University Press, New York etc.

Atkinson A. (2012), "EU social policy beyond the crisis", in *Social policy and social cohesion in Greece under conditions of economic crisis*, pp 11-22, Bank of Greece, June 2012.

Dafermos J. and C. Papatheodorou (2012), "Economic crisis and poverty in Greece and EU: the effects of macroeconomics and social protection", in *Social policy and social cohesion in Greece under conditions of economic crisis*, pp 89-120, Bank of Greece, June 2012 (in Greek).

European Commission (2012a), *EU Employment and Social Situation*, Quarterly Review, September 2012.

European Commission (2012b), *Employment and Social Developments in Europe 2012*, Directorate-General for Employment, Social Affairs and Inclusion Directorate A, Manuscript completed in November 2012.

European Commission (2013), *EU Employment and Social Situation, Quarterly Review*, March 2013.

Eurostat (2010), *Income and living conditions in Europe*, Eurostat Statistical Books, edited by A. B. Atkinson and E. Marlier.

Eurostat (2013a), "Children were the age group at the highest risk of poverty or social exclusion in 2011", *Statistics in Focus*, Issue number 4.

Eurostat (2013b), "General government expenditure in 2011 – Focus on the functions 'social protection' and 'health'", *Statistics in Focus*, Issue number 9.

Kantzara V. (2011), "The relation of education to social cohesion", *Social Cohesion and Development* 2011 6 (1), 37-50.

Lyberaki A. and P. Tinios (2012), "The welfare state ("formal" and "informal"): reforms which were not made and the crisis", in *Social policy and social cohesion in Greece under conditions of economic crisis*, pp 121-148, Bank of Greece, June 2012 (in Greek).

Lyberaki A., P. Tinios, and T. Georgiadis (2010), "Multidimensional Poverty in Greece: A Deep, Persistent Grey?", *South-Eastern Journal of Economics*, 1: 87-110.

Matsaganis M. (2011), “The welfare state and the crisis: the case of Greece”, *Journal of European Social Policy*, 21 (5).

Matsaganis M. and C. Leventi (2011), “The distributional impact of the crisis in Greece”, in V. Monastiriotis (ed) *The Greek crisis in focus: Austerity, Recession and paths to Recovery*, Hellenic Observatory, LSE.

Matsaganis M. and C. Leventi (2012), “The distributional impact of the Crisis on income distribution”, in *Social policy and social cohesion in Greece under conditions of economic crisis*, pp 65-88, Bank of Greece, June 2012 (in Greek).

Mitrakos (1998), “The contribution of income sources to overall inequality”, *Economic Bulletin*, Number 11, June 1998, pp. 49-67.

Mitrakos T. (2004), “Education and economic inequalities”, *Economic Bulletin*, Number 23, 7/04, July 2004, pp. 27-46.

Mitrakos T. (2008), “Child poverty: recent developments and determinants”, *Economic Bulletin*, Number 30, 5/08, May 2008, pp. 57-85.

Mitrakos T. (2013), “Inequality, poverty and living conditions in Greece: Recent developments and prospects”, *Social Cohesion and Development 2013* 8 (1), pp. 37-58.

Mitrakos T. and P. Tsakloglou (2000), “Decomposing inequality under alternative concepts of resources: Greece 1988”, *Journal of Income Distribution* 8, pp 241-253.

Mitrakos T. and P. Tsakloglou (2006), “Inequality and Poverty in Greece in the last quarter of the twentieth century”, in E. Mossialos and M. Petmesidou (eds) *Social Policy in Greece*, pp 126-143, Ashgate, Aldershot.

Mitrakos T. and P. Tsakloglou (2012), “Inequality, poverty and material welfare: from the restoration of democracy as the current crisis”, in *Social policy and social cohesion in Greece under conditions of economic crisis*, pp 23-64, Bank of Greece, June 2012 (in Greek).

OECD (2008), *Growing unequal? Income Distribution and Poverty in OECD countries OECD*, Paris.

OECD (2013), *Crisis squeezes income and puts pressure on inequality and poverty in the OECD*, Paris.

Paul S. (2004), Income Sources Effects on Inequality, *Journal of Development Economics* 73, 435-451.

Pyatt G., C. Chen, and J. Fei (1980), “The distribution of income by factor components”, *Quarterly Journal of Economics*, Vol. 94, pp. 451-74.

Shorrocks A. (1982), "Inequality decomposition by factor components", *Econometrica* 50, pp. 193-211.

Tsakloglou P. (1990), "Aspects of poverty in Greece", *Review of Income and Wealth* 36, pp 381-402.

Tsakloglou P. (1993), "Aspects of inequality in Greece: Measurement, decomposition and inter-temporal change: 1974, 1982", *Journal of Development Economics* 40, pp 53-74.

Tsakloglou P. and Panopoulou G. (1998), "Who are the poor in Greece? Analysing poverty under alternative concepts of resources and equivalence scales", *Journal of European Social Policy* 8, 1998, pp 229-252.

Tsakloglou P. and T. Mitrakos (2012), "Inequality and poverty in Greece: myths, realities and the crisis", in Othon Anastasakis and Dorian Singh (eds), Reforming Greece: Sisyphean Task or Herculean Challenge?, Published by South East European Studies at Oxford (SEESOX), European Studies Centre, St Antony's College, University of Oxford, OX2 6JF, pp 90-99, SEESOX March 2012.

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