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Fairly Sharing the Social
Impact of the Crisis
in Greece

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FAIRLY SHARING THE SOCIAL IMPACT OF THE CRISIS IN GREECE

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By Vassiliki Koutsogeorgopoulou, Manos Matsaganis, Chrysa Leventi and Jan-David Schneider

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ABSTRACT/RÉSUMÉ

Fairly sharing the social impact of the crisis in Greece

Poverty and income inequality have worsened since the onset of the crisis. While the design of fiscal measures has mitigated the burden sharing of fiscal adjustment, as the recession has deepened unemployment has risen, earnings have declined and social tensions have increased. Getting people back to work and supporting the most vulnerable remain priorities for inclusive growth and distributing the costs of adjustment equitably. Within the limited fiscal space this calls for continued reforms in targeting social support, especially housing benefits, extending unemployment insurance and introducing a means-tested minimum income. Sustaining universal access to good health care is also essential. Well-designed activation policies are important to bring the unemployed, especially the young, to work. At the same time, it is important to strengthen the effectiveness of the labour inspection to ensure full enforcement of the labour code. Decisive steps to contain tax evasion are also critical to social fairness. Reforms by the government in many of these areas are welcome and need to continue.

JEL classification: D31; D63; J6; J26; I1; I3.

Key words: Greece; labour market; inequality; poverty; distributional impact; welfare; targeting; benefit; pension; health care; tax evasion; activation policies; labour inspection.

This working paper relates to the 2013 OECD Economic Survey of Greece (www.oecd.org/eco/surveys/Greece).

Partager équitablement les incidences sociales de la crise en Grèce

La pauvreté et les inégalités de revenus se sont aggravées depuis le déclenchement de la crise. Certes, certaines mesures budgétaires ont permis d'alléger le fardeau de l'ajustement, mais à mesure que la récession s'amplifiait, le chômage a augmenté, les revenus ont diminué et les tensions sociales se sont avivées. Les mesures de retour à l'emploi et l'aide aux plus vulnérables restent des priorités pour assurer une croissance inclusive et répartir équitablement les coûts de l'ajustement. Compte tenu de l'étroitesse de la marge de manœuvre budgétaire, cela suppose de poursuivre les réformes pour mieux cibler l'aide sociale, notamment les prestations au logement, étendre l'assurance-chômage et introduire un revenu minimum sous conditions de ressources. Il est également essentiel d'asseoir durablement un accès universel à des soins de santé de qualité. Par ailleurs, il est important d'engager des politiques actives du marché du travail bien conçues pour insérer les chômeurs, en particulier les jeunes, sur le marché du travail. Parallèlement, il faut renforcer l'efficacité le mécanisme d'inspection du travail pour garantir une application intégrale du code du travail. Enfin, des mesures décisives de lutte contre la fraude fiscale sont aussi indispensables à l'équité sociale. Les réformes adoptées par les pouvoirs publics dans nombre de ces domaines sont les bienvenues et doivent être poursuivies.

Classification JEL : D31 ; D63 ; J6 ; J26 ; I1 ; I3.

Mots clés : Grèce ; marché du travail ; inégalité ; pauvreté ; effet de redistribution ; ciblage ; allocation ; pension ; santé ; évasion fiscale ; politique d'activation ; inspection du travail.

Ce document de travail se rapporte à l'Étude économique de l'OCDE de la Grèce 2013 (www.oecd.org/eco/etudes/Grèce).

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FAIRLY SHARING THE SOCIAL IMPACT OF THE CRISIS IN GREECE

By Vassiliki Koutsogeorgopoulou, Manos Matsaganis, Chrysa Leventi and Jan-David Schneider¹

Taking stock of social developments

Social outcomes improved before the crisis as incomes rose

High growth in the decade and a half before the economic crisis improved key social outcomes (Box 1). Unemployment fell to the euro area average and employment increased, health status improved above the OECD average, infant mortality declined markedly, and education performance was enhanced (Figure 1). Social spending, including pensions, also rose closer to the euro area average, although at the expense of fiscal discipline in the most recent years². Income inequality and relative poverty among the total population remained broadly unchanged between the mid-1980s and late 2000s, contrasting with the rising trends in much of the OECD (Figure 2). Alternative distributional indicators over the period 1986-2009 confirm these findings for Greece (Table 1).

Box 1. Indicators to measure social outcomes in Greece

The extensive informality and the large self-employment sector complicate measurement of social outcomes in Greece as non-responses in surveys tend to be higher for these sectors biasing estimates (Verma and Betti, 2010). Social outcomes are proxied by both distributional (income and poverty measures) and non-distributional indicators (including labour market and health indicators).

Distributional indicators:

- *Income inequality.* A number of summary statistics are used to assess the shape of income distribution:
 - *Gini coefficient.* Measures the extent to which income distribution among individuals or households deviates from a perfectly equal distribution (OECD, 2013b). The Gini index is probably the most popular summary statistic of inequality as it is widely available due to its easy computation and comparability

1. Vassiliki Koutsogeorgopoulou is a member of the Economics Department of the OECD. Manos Matsaganis, is Associate Professor at Athens University of Economics and Business and was a consultant for this project. Chrysa Leventi is Senior Research Officer at University of Essex. Jan-David Schneider is Economic Research Assistant at the European Policy Centre (EPC) and was an intern at the time of the preparation of the Economic Survey. This Working Paper is based on Chapter 2 of the OECD's 2013 Economic Survey of Greece which was prepared under the responsibility of the Economic and Development Review Committee (EDRC). It further includes two technical annexes, providing background analysis, which were circulated to EDRC for information. The authors are grateful for the valuable comments received on earlier drafts from Andrew Dean, Robert Ford, Piritta Sorsa, Claude Giorno, Michael Forster, Horacio Levy, Maxime Ladaique, Caroline Varley, Filippo Cavassini, colleagues in other OECD Departments, as well as Greek government officials. Special thanks are due to Isabelle Duong for technical assistance and Deirdre Claassen for her editorial support.
2. For a discussion see OECD (2013a).

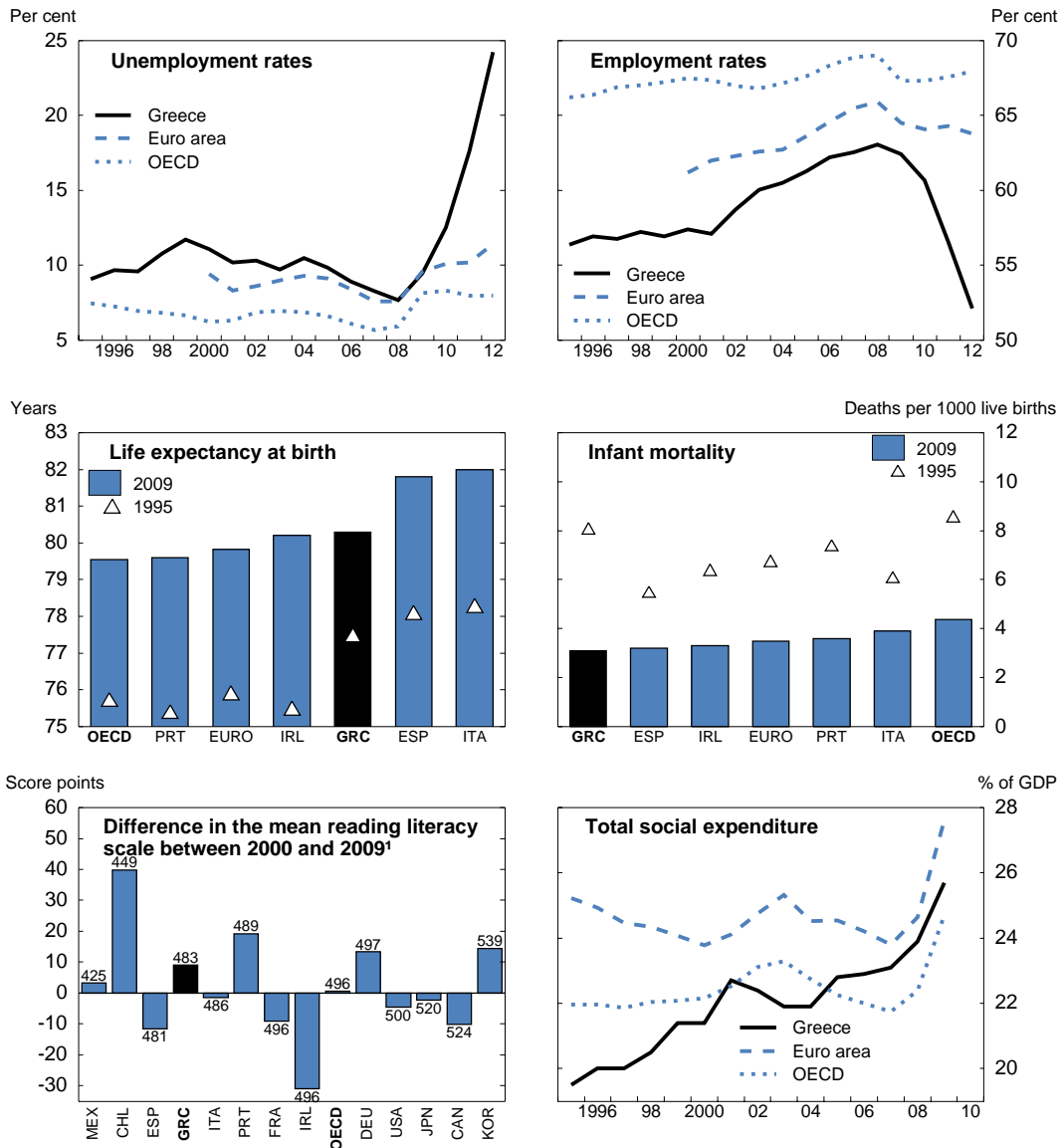
across countries and over time. A zero coefficient characterises perfect equality, whereas a coefficient of one represents perfect inequality, that is, all income is held by one individual or household. At the same time, the Gini has well documented drawbacks: two very different distributions, and thus different inequality patterns, may yield the same Gini coefficient (see, for example, Bellù and Liberati, 2006); and the Gini is more sensitive to changes in the middle of the income distribution, rather than the extremes which are of more interest from a social welfare perspective (see, for example, Atkinson, 1970).

- *The P90/P10 inter-decile ratio*. It is the ratio of the upper bound value of the ninth decile divided by the upper bound value of the first decile.
- *The inter-decile share ratio S90/S10*. It is the ratio of the average equivalised income of the 10% richest of the population to the poorest 10%. The *inter-quintile share ratio S80/S20* measures the richest 20% of the population relative to poorest 20%. These measures (along with the P90/P10 ratio) focus on the tails of the income distribution.
- *Poverty indicators*. Poverty measures are based on income thresholds (poverty lines) determined in absolute or relative terms. To facilitate and guarantee cross-country consistency, the OECD uses relative and “anchored” poverty lines based on observed equivalised household median disposable income:
 - *Relative poverty*. The share of people living in households below a relative threshold of income, often under 50% of median disposable income. Disposable income is “equivalised” by dividing it by the square root of household size to adjust for economies of scale in household spending.
 - *“Anchored” poverty*. The poverty line is fixed at 50% of median equivalised household disposable income in a base year, adjusted for inflation. In this paper, the base year has been set to 2005 because it is representative of the period between Greece’s entry to euro area and the onset of the economic crisis. This poverty indicator has some characteristics of an absolute measure, although it is sensitive to the choice of the base year.
 - *Poverty gaps*. The percentage by which the average income of the poor falls below the poverty line, measures the intensity of poverty among the poor. It is sensitive to the definition of the poverty line.
- *Wealth indicators*, showing the distribution of housing or other wealth.

Non-distributional indicators

- *Labour market indicators*, including employment and unemployment rates, disaggregated by age, gender, occupational status, educational level and country of origin, and sectoral earnings data.
- *Social expenditure* in areas such as pensions, health, social welfare benefits.
- *Health indicators*, including data on health outcomes and access to health care services (often proxied by self-reported medical needs).
- *Education outcomes*, captured by results from the OECD Programme for International Student Assessment.

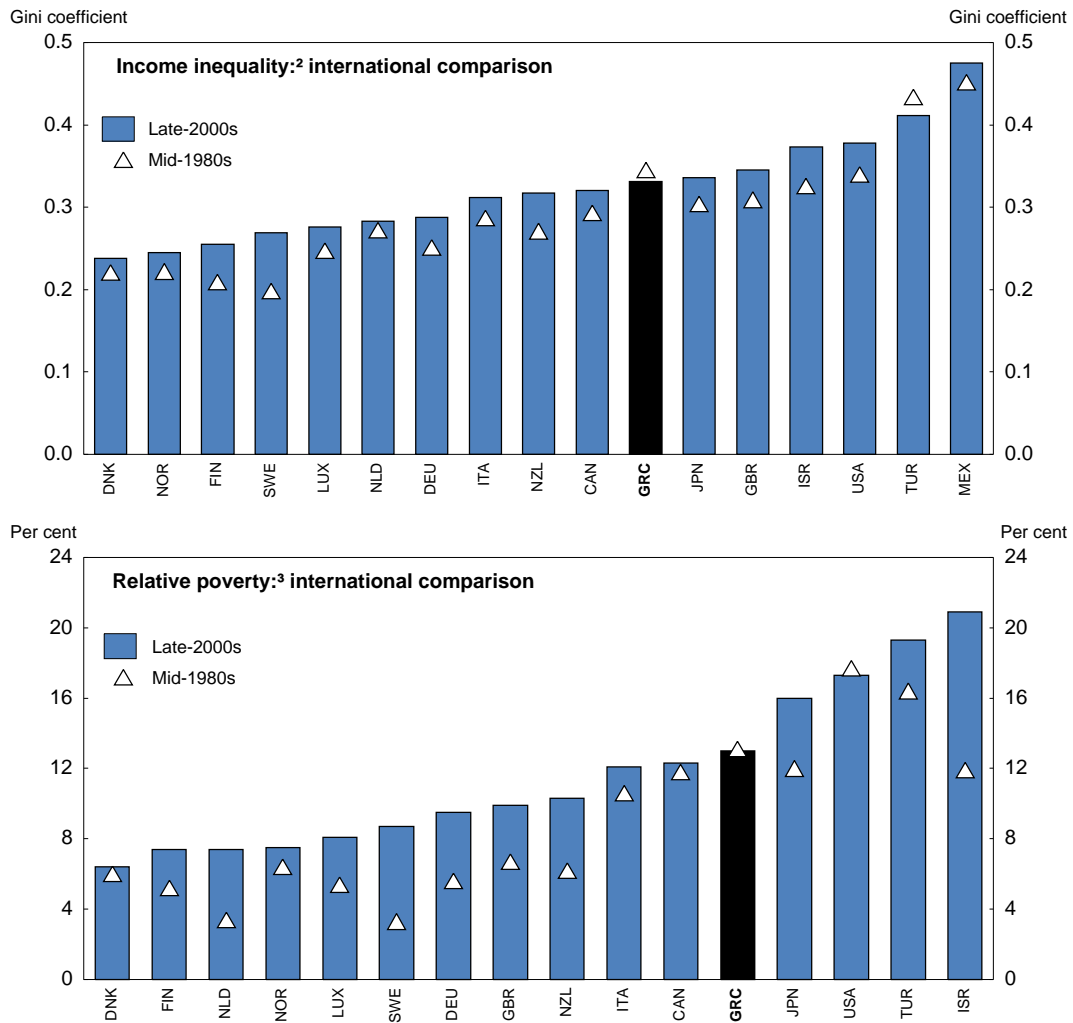
Figure 1. Social outcomes



1. PISA mean scores on the reading literacy scales in 2009 for each country indicated on the bar.

Source: Eurostat; OECD, *Health Status and Social Expenditure databases*; OECD (2011), *Society at a Glance 2011: OECD Social Indicators*, Figure SS3.1.

Figure 2. Income inequality and relative poverty¹



1. Only OECD countries with data available in mid-1980s and late 2000s are shown on the chart. The reference year differs across countries. For Greece, it refers to 1986 for mid-1980s and 2009 for late 2000s.
 2. Gini index of household disposable income (market income after taxes and transfers), total population.
 3. Relative poverty rates after taxes and transfers (threshold of 50% of the median income).
 Source: OECD, *Income Distribution database*, via www.oecd.org/social/inequality.htm.

Table 1. **Alternative indicators for inequality and poverty**¹

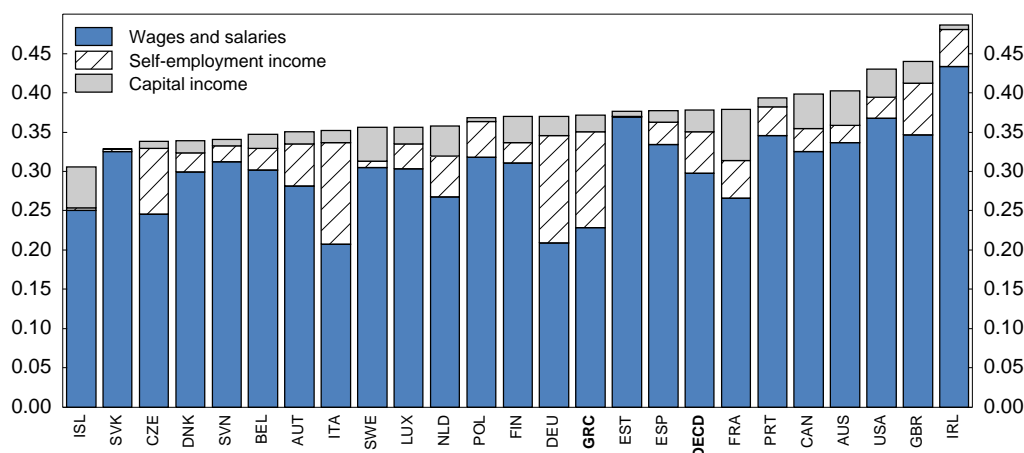
	1986	1994	1999	2004	2005	2006	2007	2008	2009	2010
Inequality measures										
Gini index ²	0.345	0.345	0.354	0.330	0.340	0.339	0.330	0.329	0.331	0.337
P90/P10				4.5	4.7	4.7	4.4	4.4	4.3	4.6
S80/S20	6.2	6.2	6.4	5.7	5.8	5.9	5.7	5.6	5.6	6.0
S90/S10	11.5	10.9	11.5	9.6	9.8	10.2	9.5	9.4	9.5	10.8
Poverty measures										
Relative poverty (50%) ³	13.1	13.5	13.2	12.3	13.0	13.4	13.9	13.3	13.0	14.3
Relative poverty (60%) ⁴	19.5	21.6	20.5	19.5	20.3	20.3	20.5	20.0	20.9	21.5
“Anchored” poverty ⁵				14.0	13.0	12.9	11.7	13.2	11.4	16.8
Poverty gap (50%) ⁶	33.4	29.0	29.0	26.0	24.6	25.2	21.7	23.0	25.1	25.9
Poverty gap (60%) ⁷	30.4	25.9	26.9	25.1	25.4	26.2	25.2	24.9	23.2	25.5

1. For a description of the measures see Box 2.1. Data refer to total population.
2. Gini index of equivalised household disposable income.
3. Relative poverty rates after taxes and transfers. Poverty line: 50% of median equivalised household disposable income.
4. Relative poverty rates after taxes and transfers. Poverty line: 60% of median equivalised household disposable income.
5. “Anchored” poverty rates after taxes and transfers. Poverty line: fixed at 50% of median equivalised household disposable income in 2005 and adjusted for inflation.
6. Poverty gap after taxes and transfers. Poverty line: 50% of median equivalised household disposable income.
7. Poverty gap after taxes and transfers. Poverty line: 60% of median equivalised household disposable income.

Source: OECD, *Income Distribution Database*, via www.oecd.org/social/inequality.htm.

Household labour earnings are the main driver of market income inequality, as they are by far the largest component of household incomes (Figure 3). Wages and salaries explained about 60% of market income dispersion in 2009, with an additional 30% being explained by self-employment income, though the estimates should be treated with caution due to methodological limitations (see footnote of Figure 3). The contribution of self-employment income is above the OECD average reflecting, to a large extent, the relatively large share of such income in total earnings in Greece (accounting for about a third of total). As in OECD average, the tax and transfer system in Greece has a modest redistributive role (Hoeller *et al.*, 2012) (Figure 4).

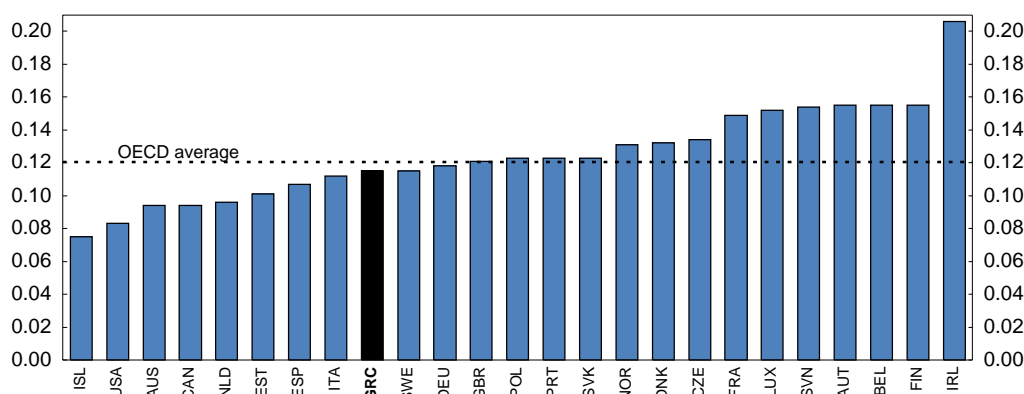
Figure 3. **Contribution to overall household market income inequality¹**
Late 2000s²



1. Market income (before taxes and transfers) refers to equivalised household income of working-age population. Contributions to overall income inequality are derived by multiplying the concentration coefficient of each income source with its weight in total market income. The concentration coefficients were calculated from income deciles by computing “pseudo-Ginis” (see Whiteford, 2008; and Joumard *et al.*, 2012), which implies that, for each income component’s distribution, individuals were ranked according to disposable income (taking into account taxes and transfers) rather than market income. This can affect the composition of the income components’ deciles, and thus, the produced results. The conclusions derived by the figure, however, appear to be in line with the results of micro-analysis (OECD, 2011), in which individuals can be ranked by market income.
2. The reference year differs across countries. For Greece, it refers to 2009.

Source: OECD, *Income Distribution database*, via www.oecd.org/social/inequality.htm; OECD (2011), *Divided We Stand: Why Inequality Keeps Rising*; Joumard, I. *et al.* (2012), “Income Redistribution via Taxes and Transfers across OECD Countries”, *OECD Economics Department Working Papers*, No. 926; Whiteford, P. (2008), “How Much Redistribution Do Governments Achieve? The Role of Cash Transfers and Household Taxes” in OECD (2008), *Growing Unequal? Income Distribution and Poverty in OECD Countries*.

Figure 4. **Redistributive impact of taxes and transfers**
Gini reduction via taxes and transfers, late 2000s¹



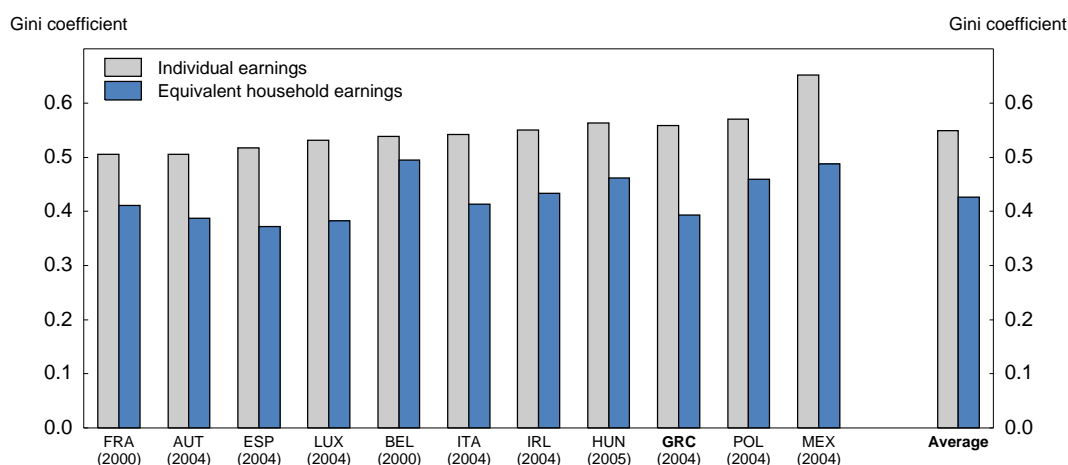
1. The Gini reduction is derived as the level difference between the Gini coefficient before taxes and transfers and the Gini coefficient after taxes and transfers, for working-age population. The reference year differs across countries. For Greece, it refers to 2009.

Source: OECD, *Income Distribution database*, via www.oecd.org/social/inequality.htm.

Recent OECD analysis suggests that families represent an important redistributive mechanism in Greece (OECD, 2011a; Hoeller *et al.*, 2012). Indeed, moving from individual to household earnings reduces inequality, especially when individuals and households with no earnings are included (Figure 5). The improvement, however, is larger than in other OECD countries for which comparable data are

available. OECD (2011a) finds that, in general, changes related to the labour market play a more important role than changes in household structure for explaining changes in household earnings inequality. Rising female employment rates exerted a sizeable equalising effect in Greece, as in almost all other OECD countries (Table 2).

Figure 5. Inequality developments at individual and household level¹



1. Samples are restricted to the working-age population (25-64 years old) living in a household with a working-age head. Equivalent household earnings are calculated as the sum of earnings from all household members, corrected for differences in household size with an equivalence scale (square root of household size). Figures refer to countries reporting only net earnings. For results for countries reporting gross earnings, see *Source*.

Source: OECD (2011), *Divided We Stand: Why Inequality Keeps Rising*, Figure 5.1.

Table 2. Contribution of labour market and demographic factors to changes in household earnings inequality¹

Country	Men's earnings disparity	Men's employment	Women's employment	Assortative mating	Household structure	Residuals	Changes in Gini (↘)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
AUT (94-04)	1.22	-0.72	-1.10	0.21	-0.01	1.31	0.92
BEL (85-00)	2.00	1.00	-2.58	0.83	-0.50	1.26	2.03
ESP (90-04)	0.83	-0.18	-1.58	1.65	0.17	-0.23	0.65
FRA (84-00)	2.36	-0.01	-2.30	0.29	0.18	2.36	2.88
GRC (95-04)	-0.05	0.21	-1.67	1.11	0.04	0.69	0.33
HUN (94-05)	-1.66	-2.10	0.33	-0.29	0.35	1.12	-2.25
IRL (94-04)	-0.50	0.20	-1.51	0.26	0.10	0.10	-1.34
ITA (87-04)	2.13	0.52	-0.82	1.34	0.03	0.63	3.84
LUX (85-04)	2.18	0.33	-1.96	2.21	0.28	5.55	8.59
MEX (84-04)	0.14	0.20	-0.96	1.37	0.58	0.43	1.76
POL (92-04)	3.02	-0.60	-0.25	1.06	0.61	3.78	7.62

Source: OECD (2011), *Divided We Stand: Why Inequality Keeps Rising*, based on data for Figure 5.9.

Home ownership in Greece reduces inequality and poverty

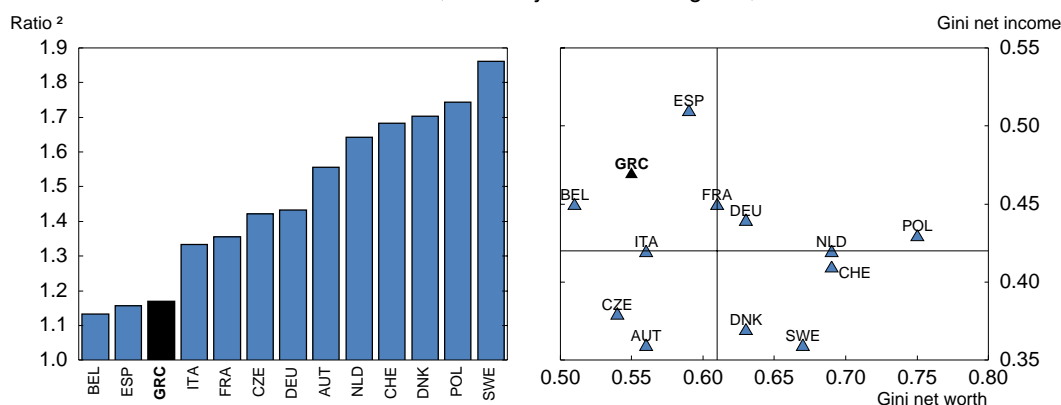
Around three quarters of households own their main residence, which is higher than in other euro area countries, apart from Spain, Slovenia and Slovakia (ECB, 2013). Housing assets also appear to be widely spread. Although owner occupation increased with income, as elsewhere, its share among households in the bottom income quintile was 65% in 2009. High rates of home ownership are the result of tradition, as a house is a common form of intergenerational transfer in Greece. In addition, buying a house is generally seen as a low risk investment compared to other types of assets (Koutsampelas and Tsakolglou, 2008). Home ownership may also be seen as buffer against social risks, addressing shortcomings in the Greek welfare system (Hoekstra, 2005).

Research confirms the redistributive importance of imputed rents (monetary value of home ownership) in Greece. In particular, inequality and poverty decline when such rents are added to the standard notion of (equivalised) disposable monetary income (Koutsambelas and Tsakolglou, 2008). This reflects the fact that imputed rents tend to be more equally distributed than disposable income, especially among some low-income groups, such as the elderly, households headed by pensioners, and the poorly educated.

Housing assets also reduce wealth inequality

As in other European countries, net wealth (defined as the difference between total assets and total liabilities) is more unevenly distributed in Greece than net income. However, the discrepancy is lower than in most of these countries (Figure 6). In 2006-07 Greece had one of the lowest wealth inequality coefficients across older households (50 and over), even though it ranked high in terms of net income inequality (Skopek *et al.*, 2011) (Figure 6). Data for the late 2000s, based on ECB (2013), tend to support this conclusion: comparing the mean net wealth owned by the richest 20% of the income distribution to that held by the poorest 20%, indicates that Greece scores better than most countries in the ECB survey (3.7 compared to 6.1 for the euro area, on average). This pattern may partly be explained by the importance of housing wealth (net value of primary residence) in the portfolio of households in the low and middle quartiles, where the share exceeds 80% of net wealth (Table 3). Housing wealth can be considered as an “equalising” component of wealth, at least from a “pure” relative inequality approach, as even though its value increases with wealth, its share in portfolios tends to be smaller in rich households (Azpitarte, 2010).

Figure 6. **Inequality in net income and net worth**
Gini in thousand EUR, PPP-adjusted and weighted,¹ 2006-07



1. For more details, see *Source*.
2. Ratio of Gini net worth over net income.

Source: Skopek, N., S. Buchholz and H.-P. Blossfeld (2011), “Wealth Inequality in Europe and the Delusive Egalitarianism of Scandinavian Countries”, *Munich Personal RePEc Archive (MPRA) Paper*, No. 35307, July, Table 4 (<http://mpa.ub.uni-muenchen.de/35307/>).

Table 3. The distribution of housing wealth in EU countries

Quartiles	Net worth ¹			Share of primary residence ²		
	25	50	75	25	50	75
Austria	31	131	253	7	61	81
Belgium	123	245	413	68	94	74
Denmark	42	158	338	53	58	45
France	91	234	433	36	85	72
Germany	21	136	288	0	70	76
Greece	65	132	245	82	86	77
Italy	70	190	348	83	83	85
Netherlands	14	171	335	0	74	78
Spain	124	229	420	92	91	68
Sweden	40	135	292	0	56	73
Switzerland	53	207	454	19	57	46

1. Data refer to households aged 50 and over in 2006-07 and are expressed in 2005 EUR million, PPP adjusted.

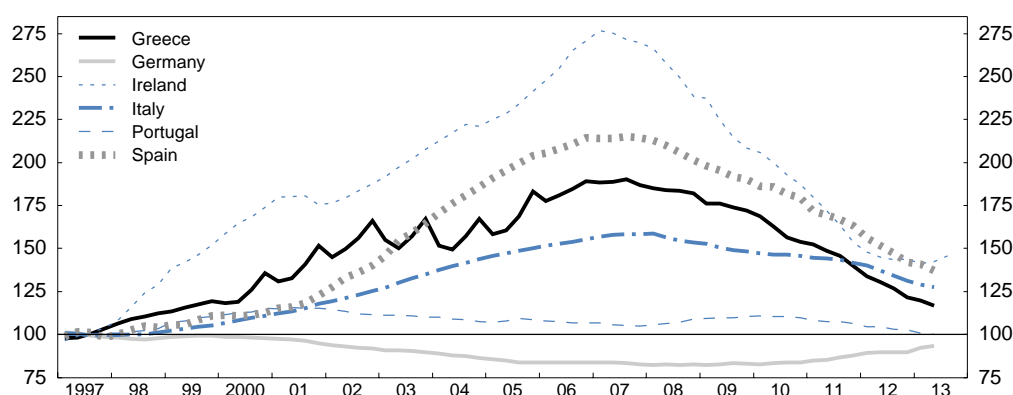
2. Net value of primary residence as a share of net worth

Source: Haliasos, M. (2012), "Real Estate as Part of the Wealth: International Differences and the Role of Innovation", in *The Housing Market in the Recent Financial Crisis*, Bank of Greece, Athens (in Greek).

Wealth inequality may have trended down in the decade before the global financial crisis, judging by the evolution of property prices. House prices rose by over 90% in real terms over the period, below the sharp rises in Ireland and Spain, but above the euro area average (Figure 7). Higher incomes, lower interest rates and demographic factors, such as the increase in the number of Greek households due to their smaller size and the inflow of immigrants, have all contributed to these developments (OECD, 2009). Rising house prices may have served to narrow the wealth distribution, given the heavy weight of housing assets in the total assets of the lower income households in Greece.

Figure 7. Real house prices

Index 1997 = 100



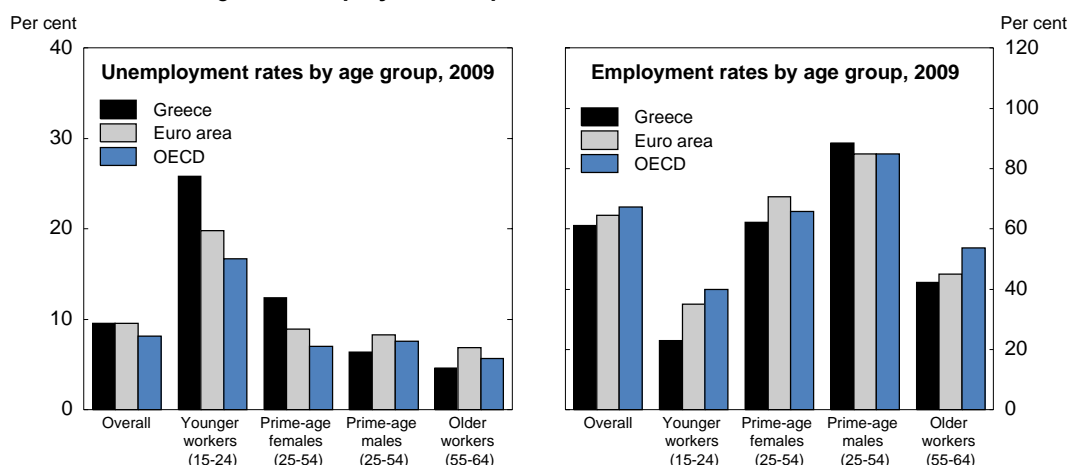
Source: OECD, *House Prices database*.

Some groups appear to have benefited less from the boom in the run-up to the crisis

While social outcomes improved before the crisis, disparities across population groups persisted, notably with large differences in employment rates between prime-age men and women, and especially, youths (Figure 8). There were also visible divides between private and public sector employees (Box 2) and between workers in formal and informal jobs. Despite an improvement in living standards, relative poverty affected about 13% of the population in 2009 (Table 1), especially the unemployed, single parents, the elderly (aged 65 and over) who live alone, households with two adults and three or more dependent children, and those with heads of households not having completed primary school (EIStat, 2013). There was also a shift in poverty from the old to the younger generations. Increases in pensions from low levels reduced old age poverty between the late 1990s and late 2000s, similar to the trend in other EU countries (Figure 10). At the same time, child poverty increased, reflecting to a large extent a limited supply of

adequately paid jobs for young workers, widespread undeclared work, and shortcomings in the social support system (Matsaganis, 2012; BoG, 2009). Whereas in the late 1990s the risk of poverty among the elderly was twice as high as among children, from 2006 onwards child poverty was higher than old age poverty. The increase was much higher than that seen in other EU countries. Rising child poverty is an issue of great concern given the potential adverse consequences it can have on health and on school performance, as well as future life opportunities (OECD, 2006a).

Figure 8. **Employment disparities remained before the crisis**



Source: Eurostat; OECD, *Labour Force Statistics database*.

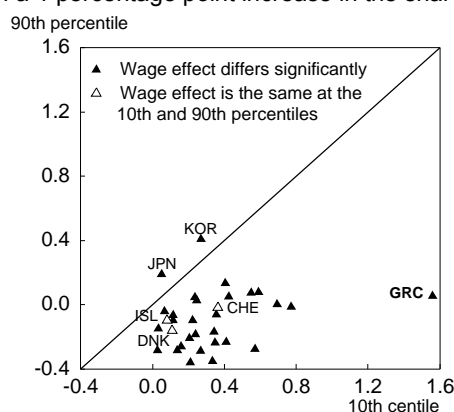
Box 2. The impact of the public sector on inequality

Civil servants accounted for a larger portion of total employment (17%) in Greece than the euro area or OECD average (15¼ per cent) in 2009 (OECD, 2011b). A study by the ECB indicates that the ratio of public to private compensation per employee was between 1.2 and 1.3 in the period 1995-2009 (Giordano *et al.*, 2011). While this reflects, in part, the higher qualifications and age structure of public sector employees, there nevertheless remains a 16% wage differential for workers with similar characteristics, which increases to over 20% when measured on an hourly (rather than monthly) basis, as normal hours of work are much shorter in the public than in the private sector. The wage differential is noticeably larger for employees at the lower quintiles, especially for women, with the gap declining along the wage distribution (Giordano *et al.*, 2011; Papapetrou, 2006). In this context, low-wage public servants earn a higher wage “premium” (*i.e. ceteris paribus* are better paid) relative to their skills compared to higher-wage counterparts (Giordano *et al.*, 2011). Papapetrou (2006) concludes that earnings differentials in the low quintiles cannot be attributed to individual characteristics, whereas at the highest quintiles, pay differentials reflect differences in the employee's skills.

The higher average level and lower dispersion of the public sector earnings has implications for the overall earnings inequality among workers, according to a recent OECD study. Fournier and Koske (2012) conclude, in particular, that a (marginal) rise in public employment would tend to raise earnings at the lower end of the distribution, while leaving those at the top broadly unchanged, thereby helping to reduce overall inequality (Figure 9). It should be noted that these are partial equilibrium effects, ignoring possible changes in the relative earnings of the public and private sector that would result from such shift. The impact is particularly strong for Greece compared to other OECD countries. It could be said, therefore, that expanding public sector employment in the pre-crisis period played a social role, though at the expense of efficiency. For a very long period, hiring in the public sector was driven by clientelism, though this is changing (OECD, 2013a). The fact that the public sector pay structure often favoured employees from more disadvantaged groups (for example women and new entrants) may have induced higher participation among these groups, reducing social exclusion (OECD, 2011a).

Figure 9. **Impact of public sector employment¹**

Effect on log earnings of a 1 percentage point increase in the share of public sector employment

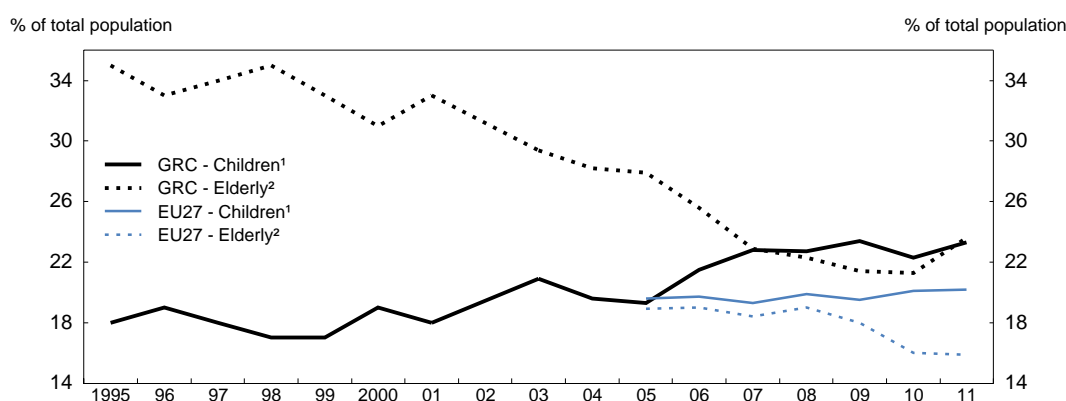


1. Based on unconditional quantile regression estimates. A data point below (above) the 45 degree line indicates that a rise in the public sector employment share is associated with a fall (rise) in the 90/10 percentile ratio. For more details, see *Source*.

Source: Fournier, J.-M. and I. Koske (2012), "Less Income Inequality and More Growth - Are they Compatible? Part 7. The Drivers of Labour Earnings Inequality - An Analysis Based on Conditional and Unconditional Quantile Regressions", *OECD Economics Department Working Papers*, No. 930, Figure 11.

Figure 10. **Shifts in poverty from the elderly to the young**

At risk of poverty rate (60% of median equivalised income after transfers)

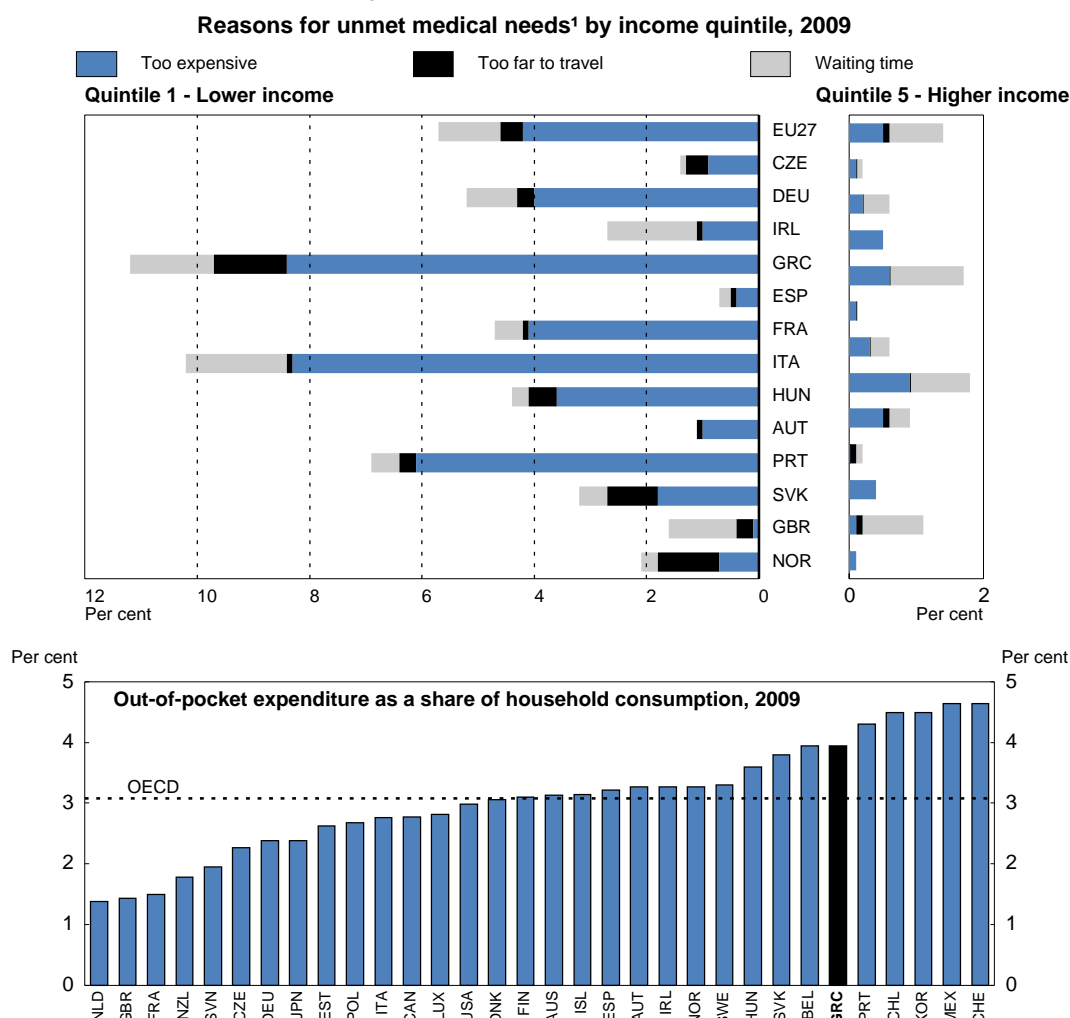


1. Less than 16 years old.
2. Over 65 years old.

Source: Eurostat, EU_SILC.

People at lower incomes also scored poorly in other social indicators, such as health care access, based on self-reported needs (Figure 11). Excessive treatment costs were the main reason for unmet care needs. Out-of-pocket health spending in Greece was in 2009 among the highest in OECD, exceeding similar expenditure in Spain or Italy. Population groups at a high risk of poverty and social exclusion (such as the older, immigrants, and the disabled) bore a disproportional impact of the financial burden of health costs (Altanis *et al.*, 2008) (Figure 11). Informal payments to health care providers to ensure access to high quality services constitute an important part of out-of-pocket expenses, as discussed in the special chapter on health of the 2009 *Survey of Greece* (OECD, 2009).

Figure 11. Unmet needs for health



1. Based on self-reporting.

Source: Eurostat; OECD, *Health database*.

The crisis has had severe social implications, reinforcing social polarisation

The job and income losses and weak social safety nets left a rising number of people with no income

Greece was ill prepared for the social impact of the crisis. Social spending, excluding pensions and health, at 4¼ per cent of GDP in 2009, was low, while complexity and poor targeting reduced its effectiveness in limiting poverty (Table 4). Social transfers (other than pensions) reduced relative poverty by only 3 percentage points over 2005 to 2009, compared to around 9 percentage points in the euro area, according to OECD estimates (Annex A1). Poor targeting partly reflected heavy dependence on contributory benefits (e.g. based on social security contributions), which in 2010 covered 15% of the working-age population, almost twice the coverage of the non-contributory programmes (OECD, 2013c). The risks inherent in this structure were revealed by the crisis, as thousands of workers lost their jobs, and hence access to social benefits for themselves and their dependants. Some of the most vulnerable groups, such as the youth and a large number of poor families in need for housing support were not covered. On the other hand, some benefits, such as family allowances, were not targeted and benefitted rich and poor alike. Only 50% of beneficiaries belonged to the poorest 30% of the population (OECD, 2013c). Apart

from pensioners there was no means-tested minimum income support for the most vulnerable (Leventi *et al.*, 2013). Moreover, the welfare system suffered from poor administration and unequal standards and provisions across social funds.

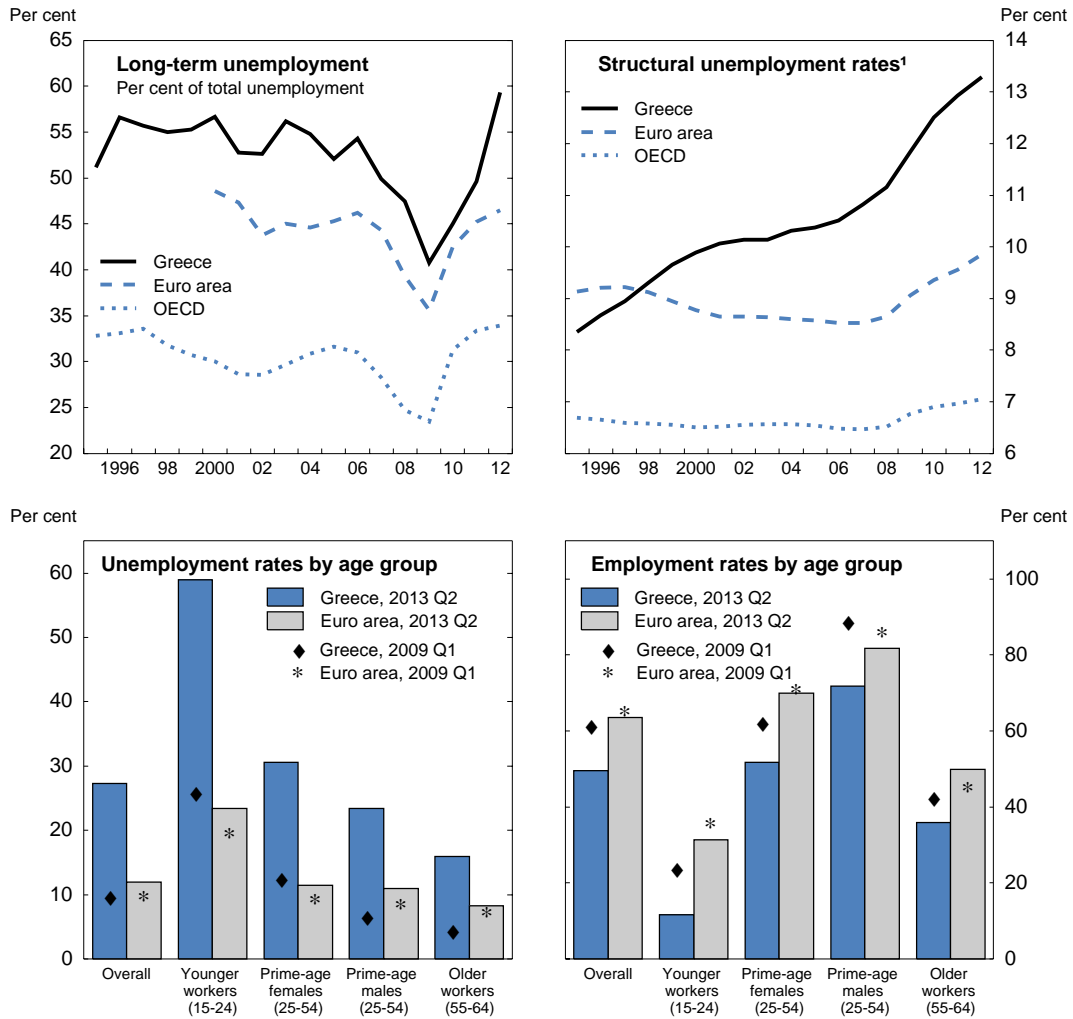
Table 4. **Social welfare benefits excluding pensions and health**
As a percentage of GDP, 2009

Country	Total excluding pensions and health	Unemployment	Family	Housing	Disability	Other
Austria	7.8	1.1	2.9	0.1	2.5	1.2
Belgium	11.4	3.7	2.8	0.2	2.5	2.2
Estonia	6.8	1.1	2.6	0.0	2.7	0.4
Finland	11.5	2.0	3.3	0.5	4.1	1.6
France	9.0	1.5	3.2	0.8	2.0	1.5
Germany	7.9	1.7	2.1	0.6	2.3	1.2
Greece	4.3	0.7	1.4	0.5	1.0	0.7
Ireland	10.9	2.6	4.1	0.3	2.4	1.5
Italy	4.8	0.8	1.6	0.0	1.9	0.5
Luxembourg	9.3	1.2	4.0	0.3	2.7	1.1
Netherlands	9.3	1.4	1.7	0.4	3.1	2.7
Portugal	6.0	1.2	1.5	0.0	2.1	1.2
Slovakia	5.4	0.7	2.0	0.0	2.0	0.7
Slovenia	4.9	0.5	1.3	0.0	2.2	0.9
Spain	9.1	3.5	1.5	0.2	2.7	1.2
OECD	7.2	1.1	2.3	0.7	2.4	0.8

Source: OECD, *Social Expenditure database*.

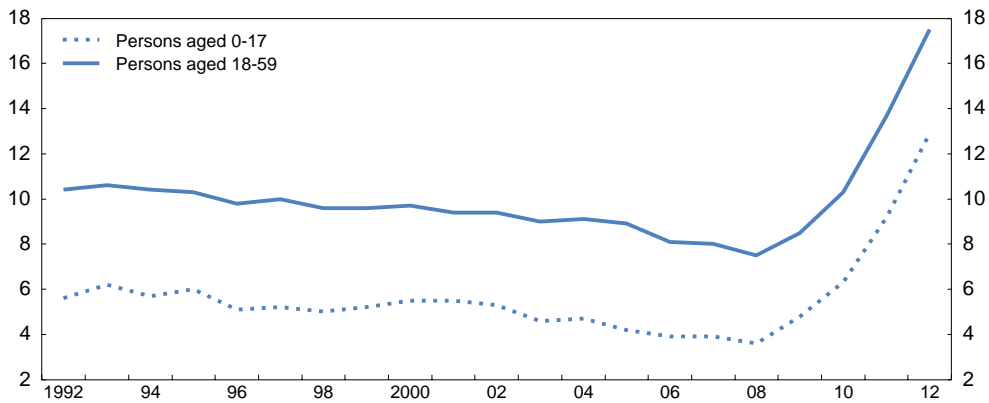
The sharp rise in unemployment has affected all age groups, but in particular the young (Figure 12). Even the traditionally resilient heads of households category (proxied by prime-age males of 25-54 years old) was hit hard, with the unemployment rate climbing from 6¼ per cent in early 2009 to over 20% in 2013 (second quarter). Until the onset of the crisis, labour market institutions (such as firing and hiring rules) protected primary earners, often at the expense of workers with a more marginal attachment to the labour market, such as women and young people (Matsaganis, 2012). Therefore a side-effect of the increased flexibility of the labour market has been a weakening of the traditional, family-based safety net (NBG, 2012) that protected many vulnerable groups in the absence of a broad public social support. As support to the unemployed (unemployment insurance benefit and means-tested unemployment assistance) lasts only two years, and there is no means-tested minimum income yet, many families have been left with no income. The government has eased the eligibility criteria for (non-contributory) unemployment assistance for the long-term unemployed in 2012 (increasing the income threshold for means-testing), but this has benefitted only 20 000 persons in 2012 or about 3% of the long-term unemployed. The sharp rise in long-term unemployment and people living in jobless households is thus of great social concern (Figure 13).

Figure 12. The crisis severely hit employment, sparing no age group



1. The structural unemployment refers to OECD estimates of NAIRU (non-accelerating inflation rate of unemployment).
Source: Eurostat; OECD, *Labour Force Statistics and Economic Outlook* databases.

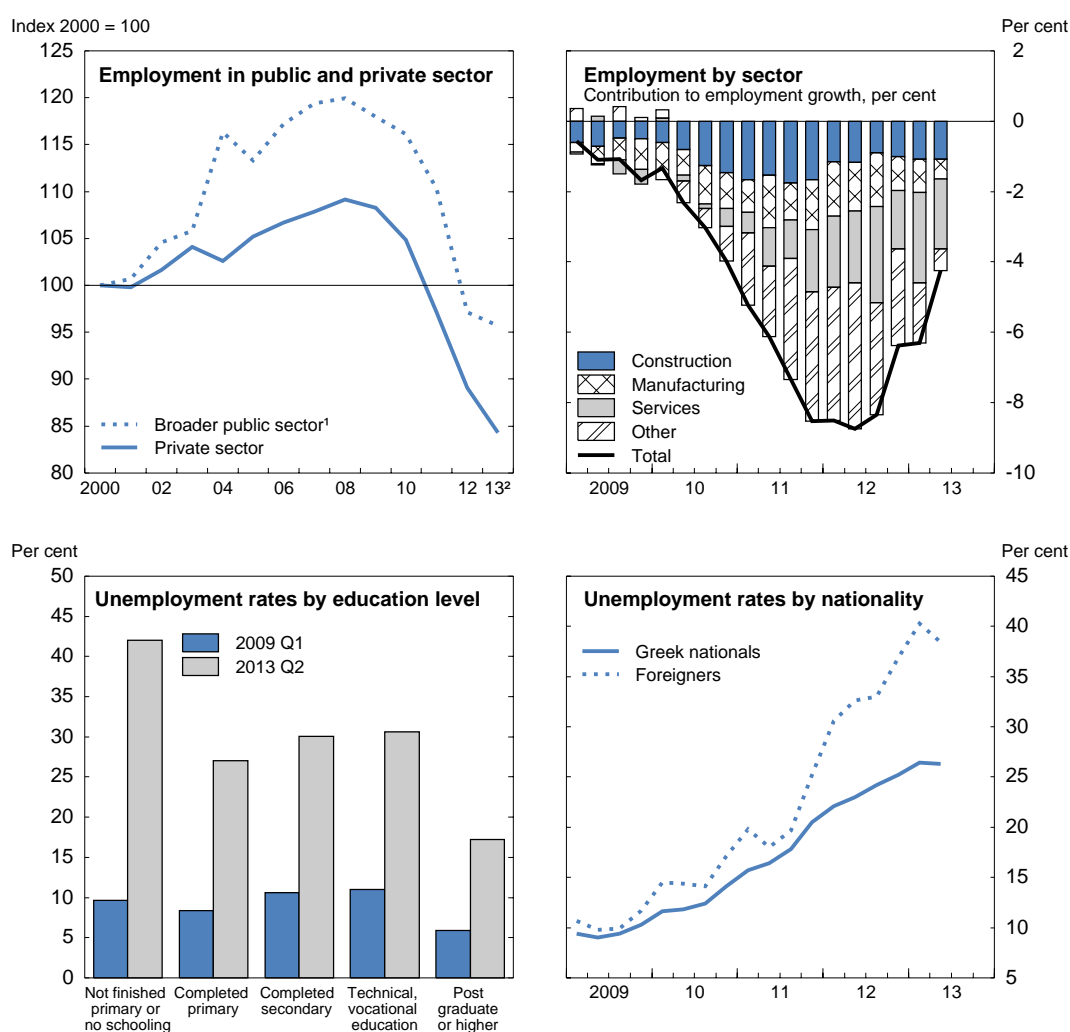
Figure 13. Jobless households increased
Share of persons by age group living in households where no-one works



Source: Eurostat.

Job losses in the private sector more than offset the gains of the previous decade (Figure 14). In the broader public sector (including civil servants and employees in utilities) they have been smaller, reflecting the high job protection that civil servants enjoy, even several years into the crisis. The losses have also fallen disproportionately on the less educated and immigrants, as they tend to be employed in the hard hit cyclical industries, such as services and construction (NBG, 2012) (Figure 14). The self-employed have also been affected as many of their businesses have closed.

Figure 14. **Social disparities were reinforced**



1. Including public utilities.

2. Q1 2013 data.

Source: ELSTAT, *Labour Force Survey* and direct submission by national authorities to the OECD; Eurostat.

The decline in real earnings since 2009 has affected both civil servants and private sector employees, with each group losing almost all of their post-euro pre-crisis gains (Table 5). Household real disposable income fell by around 30% between 2009 and 2012. Earnings from self-employment have also declined, given extensive business closures, but reliable data are more difficult to find (Matsaganis, 2012). Apart from the recession and fiscal consolidation (affecting mainly public sector employees), the decline in earnings among salaried workers has been influenced by the fast rise in individual wage contracts. According to the Labour Inspectorate (SEPE), the individual contracts (261 353) signed between February and December 2012 provided for wage cuts averaging 22% (Gatos, 2013). Earnings developments in the

post-crisis period have also been influenced by the reduction in minimum wages in early 2012, which lost around 25% in real terms since 2009, and was 10% lower in 2012 than it had been in 2000 (Table 5).

Table 5. **Real changes in gross earnings**¹

	2000-2009	2009-2012	2000-2012
Total economy	23.2	-20.2	-1.7
Central government	22.7	-19.6	-1.3
Public utilities	56.7	-28.3	12.4
Banking	17.1	-17.2	-3.1
Private sector (non-banking)	24.4	-21.2	-2.0
Minimum wages	19.8	-24.9	-10.0

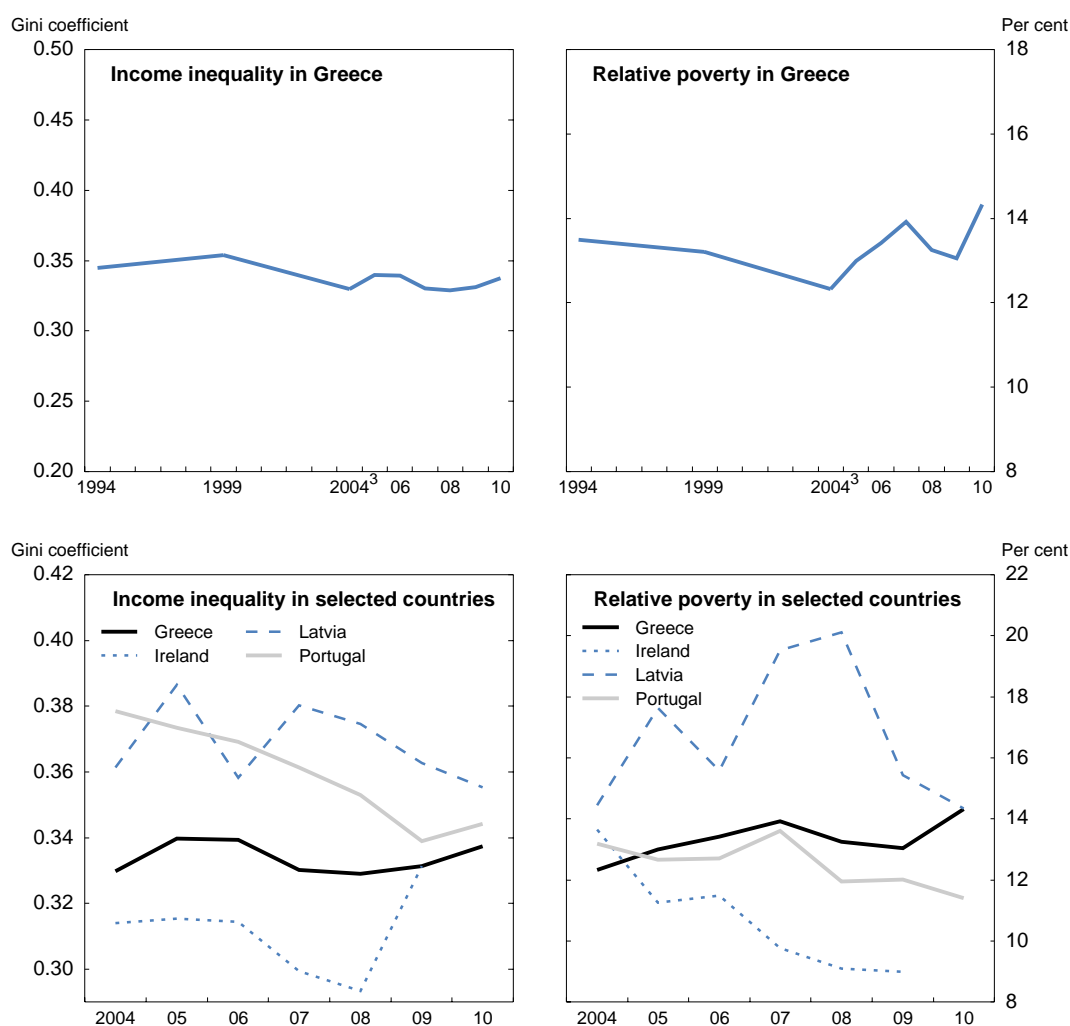
1. Cumulative change in real earnings, deflated by CPI.

Source: Bank of Greece, *Annual Report*, various years.

The social impact of earnings and employment losses is likely to be even larger when taking into account the extensive informal sector, accounting for around 27% of GDP on average in 1999-2007 (Schneider, 2012). Data from the Labour Inspectorate (SEPE), point to a marked upward trend in undeclared work since the onset of the crisis, with around 36% of inspected employees being uninsured in the first half of 2012, compared to 27% in 2010. The SEPE data is supported by the reduced effectiveness in the collection of employers' social contributions since the onset of the crisis (OECD, 2013a). Informal employment contracts have important social consequences as they erode eligibility for contributory social benefits, including health care. In addition, recent empirical research suggests that informality disproportionately affects groups such as immigrants, part-timers and the young, with broader consequences for inequality and poverty (Kanellopoulos, 2012).

Inequality and poverty appear to have risen as the recession deepened

The latest data on income distribution for 2010, the first real crisis year, point to a rise in relative poverty, while inequality remained broadly unchanged (Figure 15). Compared to other countries under Troika adjustment programmes, inequality in Greece measured by the Gini coefficient was lower than in Portugal and Latvia, but relative poverty was higher than in Portugal. The lack of more recent data makes it difficult to assess the distributional impact of the crisis with later data.

Figure 15. Income inequality¹ and relative poverty² trends

1. Gini index of household disposable income (market income after taxes and transfers), total population.
2. Relative poverty rates after taxes and transfers (threshold of 50% of the median income).
3. Annual data from 2004 onwards.

Source: OECD, *Income Distribution database*, via www.oecd.org/social/inequality.htm.

Tax-benefit micro-simulation models have been used to bridge this data gap and get insights on social impacts of economic changes (Annex A2). These models use estimates of tax and spending policy changes and economic conditions, and aggregate income developments to infer changes in income distribution and poverty. Such an approach, however, is not without limitations (Box 3). For example, to the extent that the synthetic distributions in the micro-simulation model simplify income dynamics, results may underestimate actual changes. This may explain discrepancies observed between the simulated and actual (based on income surveys) data for inequality and poverty. Still, timeliness is an important advantage of micro-simulation models, especially in periods of rapidly worsening economic conditions.

Box 3. Advantages and drawbacks of micro-simulation models

Estimating the impact of the crisis on income distribution requires up-to-date information. Due to the complexity of income surveys, income data become available with considerable delay. For instance, survey data on incomes earned in 2010 were released only in 2013. In this context, micro-simulation models are an appropriate, and widely used, alternative to bridge the gap in official data, allowing for an early evaluation of the distributional impact of the crisis in 2010-12*.

In addition to providing timely information, micro-simulation allows to distinguish changes in the income distribution, and to identify the impact of key policies (such as changes in personal income tax or cuts in pensions) or other developments (such as the rise in unemployment) on incomes, taking into account the complex ways in which taxes interact with benefits and each other.

There are, however, some methodological limitations in micro-simulation techniques that need to be taken into account when reading the results:

- *First*, under standard practice, the micro-simulation model provides solely estimates of first-order distributional effects, ignoring second-order behavioural responses (such as those related to consumption or labour supply). If such behavioural responses are significant, this will bias estimates of distributional effects. Interactions between austerity and recession are also being left out.
- *Secondly*, in view of the lack of updated income data, a “synthetic” income distribution has to be created by the micro-simulation model which usually involves the following two steps: *i*) simulating tax and benefit policies; and, *ii*) simulating changes in underlying incomes from the data year to the policy year(s). To these can be added an additional step, namely, accounting for labour market changes over the period under consideration. To the extent that the synthetic distribution simplifies income dynamics, results may underestimate actual changes. A detailed analysis of the methodology used in the paper, which is based on the European tax-benefit model Euromod, can be found in Annex A2.

* The discussion is based on Leventi and Matsaganis (2013a).

The micro-simulation results suggest that inequality, as measured by most indicators, rose in 2011 and 2012 as the recession deepened and unemployment rose (Table 6). The various indicators (Box 1) suggest that changes were more significant at the two ends (especially the lower end) of the income distribution, than around the middle. Analysis of the changes in relative income share by decile provides further support to this finding (Annex A2). Relative poverty (50% of median equivalised income) also seems to have increased in 2012, after remaining broadly unchanged in the previous two years. The trend is more pronounced when poverty is measured against a benchmark “anchored” to half the median real incomes observed in 2005. This is not surprising, however, given the sharp adjustment of the economy since 2009.

Table 6. Estimated inequality and poverty indices over the period 2009-12¹

	2009	2010	2011	2012
Income inequality				
Gini index	0.351	0.349	0.354	0.368
S80/S20 income decile ratio	6.1	6.2	6.5	7.6
S90/S10 income decile ratio	10.3	10.4	12.3	17.4
Relative poverty ²	13.6	13.8	13.7	15.2
“Anchored” poverty ³	11.9	15.8	19.7	25.5

1. Based on micro-simulation analysis.

2. The poverty line is 50% of median equivalised disposable income in each year.

3. The poverty line is fixed at 50% of median equivalised household disposable income in 2005 and adjusted for inflation.

Source: Annex A2.

Not all groups were affected evenly by the rise in relative poverty. According to OECD estimates, the impact was greater for men than women, for children and young adults (30-44 years), students and the unemployed (Table 7). In 2012, one in three unemployed workers was below the relative poverty threshold of 50% of median. The elderly, the only social group in Greece benefiting from a minimum income support (the minimum pension), fared relatively well with falling relative poverty (Table 7). Moreover, poverty rates were, and remained, low for the public sector and banking sector employees and the liberal professions. Relative poverty also declines sharply with the level of educational attainment. No group, however, including university graduates, was spared from the increase in poverty. Regarding other population sub-groups, the burden of rising poverty appears to have affected disproportionately households paying rent or mortgage, compared to outright owner-occupiers, and the Athens area, where however poverty rates remained lower than elsewhere.

Table 7. **Relative poverty rates among population groups**^{1,2}

	2009	2010	2011	2012
All	13.6	13.8	13.7	15.2
Gender				
Men	12.8	13.1	13.4	15.2
Women	14.3	14.4	14.0	15.2
Age				
0-17	14.3	15.3	16.3	19.8
18-29	11.8	12.8	13.1	15.3
30-44	10.4	11.8	13.0	16.7
45-64	12.9	13.0	13.0	14.0
65+	18.1	16.2	13.4	10.9
Area				
Athens	10.2	10.3	11.3	13.1
Rural/semi-rural areas	15.0	15.3	14.8	16.3
Tenure				
Rent or mortgage	11.0	13.0	13.5	16.5
No housing costs	14.5	14.1	13.8	14.7
Educational attainment				
Not completed primary education	17.7	18.2	18.0	19.6
Upper secondary	8.9	10.0	10.6	13.0
Tertiary	3.5	4.1	4.4	5.8
Labour market status				
Unemployed	22.9	26.9	27.2	32.6
Employee (private excl. banking)	5.4	5.3	5.6	6.4
Employee (public incl. banking)	0.1	0.1	0.1	0.1
Liberal profession	4.0	4.0	4.0	4.0
Own account worker	9.0	10.1	9.0	10.0
Farmer	27.0	25.6	23.1	23.5
Student	13.1	14.3	15.2	18.3

1. Based on micro-simulation analysis.
2. Individuals are ranked according to their household disposable income, equalised by the OECD equivalence scale (*i.e.* square root of household size). Household disposable income is defined as total income, from all sources, of all household members, net of taxes and social insurance contributions.

Source: Annex A2.

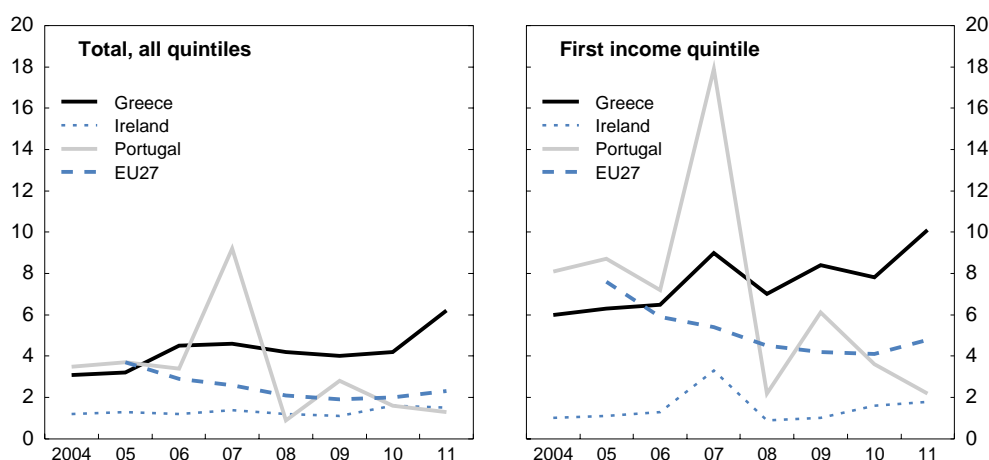
Other indicators also point to worsening social conditions

Housing assets – a traditional form of family protection in Greece – declined sharply since the onset of the crisis as house prices fell by around 40% from their 2007 peak (Figure 7). Financial assets also declined, reflecting plunging domestic stock prices, and shares accounted for only 4% of financial household wealth at end-2012, compared to 27% at end-2007. The Bank of Greece estimates that household nominal financial wealth fell by 17% between 2009 and 2012 (third quarter).

With less income and higher unemployment, an increasing number of families found it hard to meet their housing costs. The number of households in arrears on mortgage or rent payments has doubled between 2008 and 2011 (to 11%) (Eurostat, 2013). Among low-income families with children, the proportion of those with arrears reached 30%, compared to less than 20% in the other Troika programme countries (Ireland, Portugal, Latvia), and 12½ per cent in the EU. These developments have increased vulnerability to homelessness. Some unofficial estimates suggest that the homeless population in Greece increased by 20%-25% between 2009 and 2011 to around 17 000 – 20 000 people (Fondeville and Ward, 2011), although the lack of official statistics makes it difficult to achieve a comprehensive assessment of the problem. The trend is confirmed by the rapid increase in food distribution by foundations and churches.

A new category of homeless with a broader socio-economic profile appears to be on rise in Greece, as in other EU countries under economic strain. The “new” homeless are characterised by the higher levels of qualifications and work experience, and suffer mainly from an inability to meet housing costs (FEANTSA, 2012). This contrasts with the situation in previous years where the majority of homeless had psychological or addiction problems. The impact of the crisis (including reductions in housing spending) on homelessness in Greece seems to be aggravated by the underdevelopment of social programmes for the homeless and social housing (Houard, 2012). Homelessness has traditionally been addressed in an *ad hoc* fashion at local level (FEANTSA, 2012). The recession seems to have increased policy attention on the problem (see below), especially in view of the context of a weakening family safety net.

Access to health care may also have been compromised in recent years, notably among the poorest (see below). The rate of self-reported unmet needs for medical care, because it was “too expensive”, climbed to over 10% for those in the lowest income quintile (*i.e.* the poorest 20% of population), comparing unfavourably with most other EU countries (Figure 16). The economic crisis has also resulted in a large increase of the uninsured population. Around 10% of the population is currently not eligible for health insurance, including the longer-term unemployed and many self-employed workers in arrears with social contributions, although they can use the emergency services of the public hospitals. Poorer households also continued to bear the brunt of the combination of sharp wage cuts and sluggish downward price adjustment (OECD, 2013a). Life satisfaction declined by more than 20% between 2007 and 2012, according to OECD subjective well-being indicator, exceeding the fall in other euro area countries for which comparable data are available (OECD, 2013d).

Figure 16. Access to health services became more difficult¹

1. Unmet medical needs due to financial reason, based on self-reporting.

Source: Eurostat.

The design of consolidation measures aimed at mitigating the distributional impact of adjustment

The social impact of the crisis was influenced both by the worsening of economic conditions and policy changes. The two effects can be distinguished, to the extent possible (given their inter-relation), using micro-simulations (Box 3 and Annex A2). These simulations quantify the relative impact of consolidation measures on income distribution, *ceteris paribus* (the residuals being attributed to economic conditions). They assume that government policies in a specific year raised taxes and cut public sector pay, pensions and other social benefits, but left nominal pre-tax incomes and jobs in the private sector at their previous year level. Although the estimates capture solely the first-order effects on poverty and inequality, leaving out both the potential behavioural responses and interactions between austerity and the recession, they provide useful insights on the distributional impact of the austerity measures. Recent OECD studies conclude that the composition of the fiscal packages is as important as their size in determining the impact of the adjustment on household income (Box 4) (OECD, 2013e).

Box 4. The composition of fiscal consolidation packages matters for inequality and growth

Both fiscal targets and equity and growth objectives can be addressed by the design of adjustment packages (OECD, 2013e). Consolidation strategies that are perceived as equitable are also more likely to be implemented successfully. Moreover, a better composition of consolidation packages can help address reform fatigue. Overall, empirical evidence suggests that spending-based consolidation has a much stronger adverse impact on inequality compared to tax-based consolidation, given that in most countries the equalising impact of transfers to households exceeds that of taxes (Rawdanowicz *et al.*, 2013). Of course, when assessing the distributional effects of austerity packages, one would need to consider them from a dynamic perspective in interaction with behavioural responses by agents and structural policies that could influence the outcome.

Looking at individual fiscal instruments, some reforms entail double dividends in terms of reducing inequality and raising GDP per capita (or having a small adverse impact on potential growth). Among the better policies, on the revenue side, are eliminating certain tax expenditures, that tend to reduce progressivity of the personal income tax and are often distortionary for growth, and increasing property taxes (see below) (OECD, 2013e; Rawdanowicz *et al.*, 2013). Other reforms, however, may entail trade-offs between equity and growth objectives. For example, raising labour income taxes would improve equity in the short term, given their progressivity. This, however, could have adverse effects on long-term growth as income tax hikes are among the most distortive tax instruments, in view of their sizeable effects on labour utilisation, productivity, and human capital accumulation (Johansson *et al.*, 2008). Confining the increases only to top incomes would reduce the trade-off between equity and growth, but the budgetary impact can be small due to tax avoidance, unless measures to reduce tax evasion are implemented (Rawdanowicz *et al.*, 2013). Shifting the tax mix towards less-distorting taxes – in particular, from labour to consumption – would improve incentives

to work and save, promoting growth. Such reform, however, could raise inequality as consumption taxes tend to be regressive in the short run (given that lower income households bear most of the burden), and are at best neutral in a lifetime perspective. Targeted transfers to low-income households can reduce this likely trade-off (OECD, 2012).

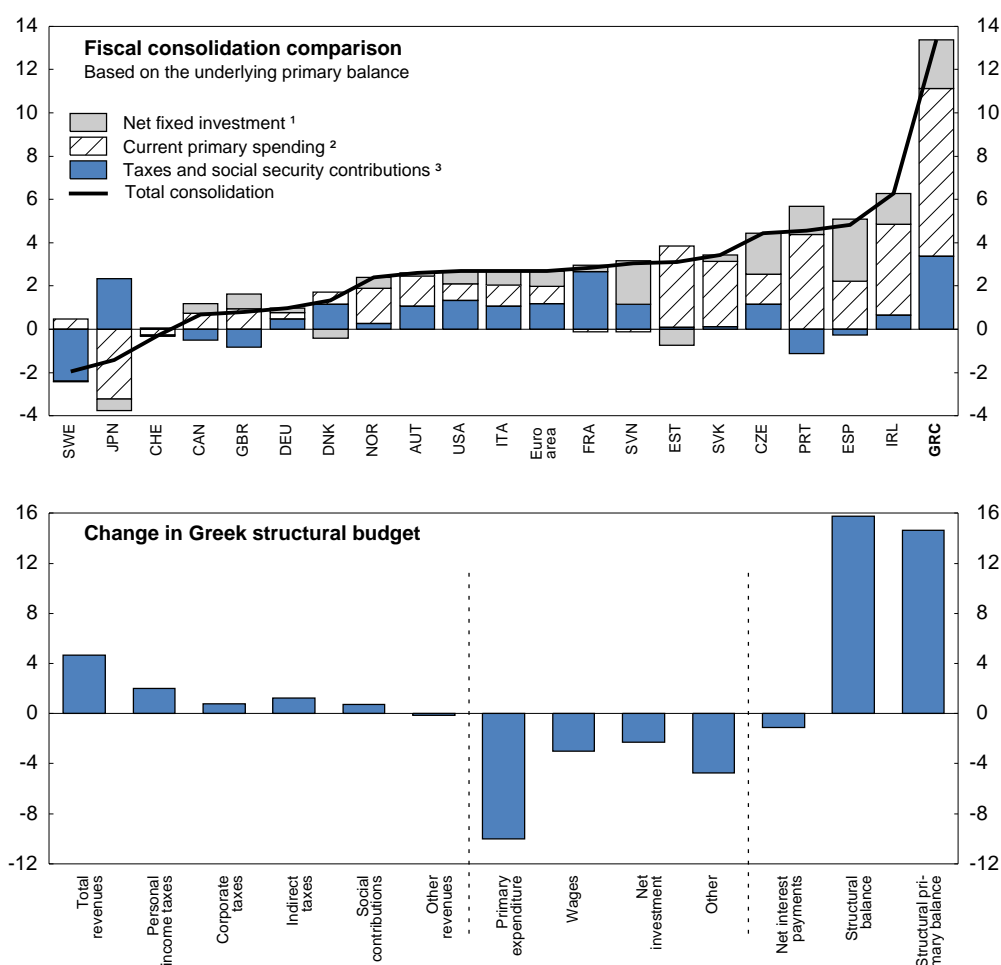
On the spending side, reductions in transfers can significantly increase inequality, though the impact depends, to a large extent, on how the cuts are designed. The distributional consequences of reducing public pension spending, for example, depend on whether these are implemented through adjusting pension eligibility age, or lowering replacement rates. In particular, raising the effective retirement age is ranked high among the consolidation instruments due to its potential positive equity and growth effects, though it would yield only gradual budgetary improvements. On the other hand, an across-the-board reduction in pension replacement rates, could hurt equity though it improves the budget balance, with ambiguous growth effects (OECD, 2013b; Rawdanowicz *et al.*, 2013).

As noted above, behavioural changes can affect the equity implications of fiscal retrenchment. For instance, cuts in unemployment-related, disability benefits or other welfare programmes would affect the poorer deciles in the first place, increasing inequality. But over the longer term they could prompt an increase in labour supply by changing the incentives structure, that would reduce the regressive impact of benefit cuts. Cuts in the wage bill could produce fast consolidation gains, given its large share in government expenditure (between 6% and 19% in OECD area), but to the extent they result in reductions in public sector services, they would affect disproportionately the poorer segments of the population, unless accompanied by increases in efficiency of service delivery. Among the worst spending-based consolidation instruments are cuts in education spending – except if they are accompanied with successful efficiency enhancing reforms – and in public investment, given the larger multipliers of public infrastructure than other types of investment (OECD, 2013e).

Moving from a generic to cluster-specific ranking of consolidation instruments, a recent OECD study concludes that measures, such as education, subsidies and property taxes, which have a similar impact on growth, equity and current account objectives, exhibit the smallest rank variation across the examined groups of countries (OECD, 2013f). On the other hand, the widest variation is found in the case of fiscal instruments with the sharpest trade-offs between the three objectives, including personal and corporate income taxes (ranking high in the group of countries with a high weight on equity objectives, but much less so in more egalitarian ones). For countries, like Greece, where the short-run growth objective attracts a strong weight, reductions in subsidies and pension spending, as well as increases in other property taxes (for example, wealth taxes) appear to come out as the best candidate instruments. Higher real estate taxation also receives a relative favourable ranking as a potential consolidation instrument.

The sizeable fiscal consolidation comprised reductions in spending, including public sector pay and pension cuts, and tax hikes (Annex A2). In structural terms, current primary expenditure reductions were about 60% of the total fiscal effort over the period 2009 to 2012 (twice the euro area average but lower than in Ireland, and especially Portugal) and tax increases for about a quarter, with the remainder involving cuts in net fixed investment (Figure 17).

Figure 17. **The composition of fiscal consolidation**
In per cent of potential GDP, 2009-12



1. Net of the consumption of fixed capital.
2. Adjusted for the economy's cyclical position. Includes underlying capital transfers paid net of exceptional transfers.
3. Adjusted for the economy's cyclical position. Includes other current receipts, non-interest property income received and underlying capital transfers received net of exceptional transfers.

Source: OECD, OECD Economic Outlook 93 database.

Unlike the general public perception that the measures adopted led to a significant increase in inequality, austerity policies *per se* appear to have initially reduced inequality, mitigating the impact of the recession (Table 8). As consolidation intensified in 2012, the measures appeared to have made income distribution slightly (but statistically significant) more unequal. The proportion of population whose income fell below a poverty line anchored in 2005 in real terms increased with each round of austerity measures, and was given a further boost by the steady rise in unemployment. Of the additional 13.6% of the population below the 2005 poverty line in 2012, compared to 2009, around 40% did so as a result of consolidation measures alone.

Table 8. Disaggregating the redistributive effects of austerity and the wider recession¹

2009	2010		2011		2012	
	Austerity alone ²	Austerity + recession	Austerity alone ²	Austerity + recession	Austerity alone ²	Austerity + recession
Income inequality						
Gini index	0.351	0.347	0.349	0.346	0.354	0.368
Δ^3		-0.005	-0.003	-0.002	0.005	0.014
S80/S20						
S80/S20	6.1	6.0	6.2	6.1	6.5	7.6
Δ^3		-0.1	0.0	-0.1	0.4	1.0
S90/S10						
S90/S10	10.3	10.1	10.4	10.5	12.3	17.4
Δ^3		-0.2	0.1	0.0	1.8	5.1
Relative poverty ⁴	13.6	13.3	13.8	13.4	13.7	15.2
“Anchored” poverty ⁵	11.9	14.0	15.8	17.8	19.7	25.5

1. Based on micro-simulation analysis.

2. The impact of austerity policies in year t is assessed relative to the state of the economy in t-1. For example, on the basis of the Gini index, austerity policies (alone) made income distribution somewhat less unequal in 2010 compared to 2009 (0.347 versus 0.351). However, they increased slightly inequality in 2012 compared to 2011 (0.355 versus 0.354). The S90/S10 measure shows a larger rise in inequality in 2012.

3. Change relative to the state of the economy in t-1.

4. The poverty line is 50% of median equivalised disposable income in each year.

5. The poverty line is fixed at 50% of median equivalised household disposable income in 2005 and adjusted for inflation.

Source: Annex A2. .

The benign initial distributional impact of austerity policies *per se* (as distinct from rising unemployment and falling earnings for private sector workers) is explained partly by the design of the measures adopted. Estimates for 2010-12, based on micro-simulations, show that changes in personal income taxes (in 2010 and 2011) and cuts in public sector pay were progressive (Table 9). They either placed a higher burden on high incomes, or those mostly affected were at the top of income distribution. For example, around three quarters of civil servants and two-thirds of public utility workers were located in the top 30% of the income distribution at the onset of the crisis (Matsaganis and Leventi, 2012a). The introduction of the pensioners' solidarity contribution (a special tax on pensions, excluding those up to EUR 1 400 per month) and cuts in pension benefits (abolition of the 13th and 14th month payments) also seemed to have been weakly progressive. On the other hand, policies affecting low-income households, such as the 2012 cut in unemployment benefits (Table 9), and the 2010 VAT hikes (based on Leventi and Matsaganis, 2013a), were regressive. The 2011 emergency property tax appears to be, in principle, progressive. However, for a group of people with assets but low income, this tax may be regressive from an income point of view. They may find it difficult under the current recessionary conditions to sell their property (or part of it) at reasonable prices. Detailed analysis of the impact of each consolidation measure by household income decile group supports the above findings (Annex A2).

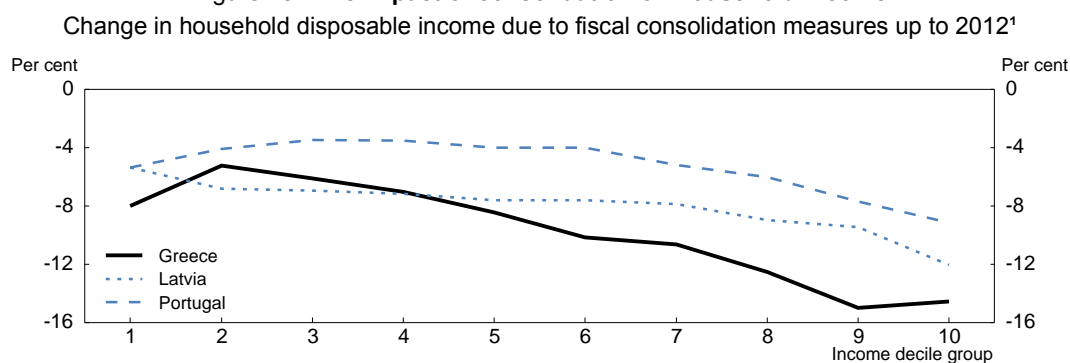
Table 9. **Disaggregating the redistributive effect of austerity measures on inequality**

	Reynolds-Smolensky index ¹		
	2010	2011	2012
Direct taxes ²	+0.0046	+0.0073	no change in policy
Public sector pay	+0.0024	+0.0004	+0.0013
Pension benefits	+0.0003	no change in policy	no change in policy
Pensioners' solidarity contributions ³	+0.0004	+0.0009	+0.0024
Social insurance contributions ⁴	no change in policy	+0.0004	+0.0004
Self-employed extra charge	-0.0003	-0.0004	-0.0007
Emergency property tax	non existent	-0.0031	no change in policy
Unemployment insurance benefit	no change in policy	no change in policy	-0.0015

1. The Reynolds-Smolensky index shows the difference between the counterfactual value of the Gini coefficient in the absence of all 2010-12 austerity measures being assessed relative to its value after the implementation of the austerity policy in question. Positive (negative) values indicate progressive (regressive) impact.
2. For 2010, the estimates of the index refer to changes in personal income tax, introduction of solidarity contribution and emergency tax on large incomes. For 2011, estimates refer to changes in personal tax income.
3. Solidarity contributions levied on main and supplementary pensions.
4. Additional social insurance contributions for unemployment protection.

Source: Annex A2.

Even though the overall effect of consolidation packages up to 2012 appears not to have raised inequality (abstracting from the impact of the wider recession), income losses for the poorest 10% of the population were considerable and more than in Portugal and Latvia (Avram *et al.* 2013) (Figure 18). These numbers still exclude more recent fiscal measures, and do not assess the distributional impact of structural policies that is difficult to estimate. Moreover, recent empirical cross-country evidence suggests that the cumulative impact of consolidation on income inequality peaks only after five to six years and fades by the tenth year (IMF, 2012a).

Figure 18. **The impact of consolidation on household income**

1. The measures included here are limited to those having a direct effect on household disposable income. Deciles are based on equivalised household disposable income in 2012 in the absence of fiscal consolidation measures and are constructed using the modified OECD equivalence scale to adjust incomes for household size.

Source: Avram, S. *et al.* (2013), "The Distributional Effects of Fiscal Consolidation in Nine Countries", *EUROMOD Working Paper*, No. EM 2/13, January.

Policy challenges ahead

Getting people to jobs, while protecting the most vulnerable social groups, is a key policy priority for inclusive growth (or dealing with recession) and fair sharing of the costs of adjustment. This calls for effective labour market activation policies and strong monitoring of the enforcement of the labour code to ensure access to more and better jobs. The crisis has undoubtedly put fiscal pressures on the welfare state.

Public social expenditure declined by almost 2½ per cent of GDP over the period 2011-13, more than in Ireland, while in other southern European countries, expenditure actually increased. To protect the most vulnerable, social support should be better targeted and include some means-tested minimum income. Measures are also needed to ensure access to good health care for all, while containing inefficient spending. A drastic containment of tax evasion would also enhance social fairness, in addition to raising fiscal revenues. Education reforms have also an important role to play, but their impact might take time to materialise.

Effective targeting in social welfare system would mitigate the social impact of the crisis

The crisis triggered several reforms in the social welfare system

Unemployment insurance benefit coverage remains low, with less than 50% of short-term unemployed receiving it in 2012, down from 65% in 2010, even as unemployment surged. Eligibility conditions have been tightened for certain workers since the onset of the crisis. The total number of days a worker can claim the benefit over a period of four years was limited to 450 days from 1 January 2013 and 400 days from 1 January 2014. This will affect seasonal workers in particular. Moreover, the level of unemployment insurance benefit was cut in February 2012 by around 20% to EUR 360 per month (about two-thirds of the current level of the minimum wage) in the wake of cuts to the minimum wage (see above). On the other hand, the unemployment insurance benefit will be extended to the self-employed, subject to means-testing (total personal income cumulated over the two years prior to claiming cannot exceed EUR 20 000, or EUR 30 000 in the case of family income). The new benefit will be paid over 3 to 9 months, depending on the contributory record, at EUR 360 per month. Applicants must have settled beforehand any social security contributions owed.

To better protect the longer-term unemployed, the coverage of the special unemployment assistance (a means-tested non-contributory transfer for the long-term unemployed who have exhausted their one-year unemployment insurance benefit) was expanded. From January 2014, this assistance (EUR 200 per month) benefits all persons between 20 and 66 years, instead of 45 to 65 years, subject to an expenditure limit of EUR 35 million per annum (corresponding to around 14 000 recipients per year on the full duration of 12 months). The threshold for the qualifying family income was reduced from EUR 12 000 to EUR 10 000 per annum (still double the pre-crisis level).

Some small earmarked funds engaging in non-priority social expenditures, notably the Workers' Housing Organisation (OEK), were abolished as part of wider reforms to downsize the public sector. The settlement of obligations and rights of the organisation was transferred to a special committee (OECD, 2013c). The closing down of OEK in 2012 implied the abolition of the means-tested rent subsidy (the main housing benefit) in its pre-crisis form, with announced plans for the introduction of a broader-based means-tested housing assistance scheme.

To protect vulnerable groups, the government also introduced social residential tariffs for electricity. These give a discount of 42% on annual consumption of up to 5000 kWh, compared with the normal household bill. Such an initiative, however, distorts prices by de-linking energy from its cost. Social objectives would be better pursued *via* the tax-transfer system.

Social benefits have also become better targeted. A new means-tested child benefit was introduced, replacing the family benefits which were abolished at end-2012 (Annex A1; OECD 2013c). Moreover, as noted earlier, plans were announced for a broader-based, means-tested housing assistance. In addition, EUR 20 million were set aside for a minimum income scheme experiment, to take place in 2014 in two geographical areas with different socio-economic profiles (Law 4093/2012). The scheme will be targeted to the population in extreme poverty, providing income assistance in combination with other initiatives to combat social exclusion (OECD, 2013c).

The government has further strengthened controls on welfare programmes to reduce waste and abuse. Some unofficial estimates set the cost of benefit fraud at around 2% of GDP (Georgakis, 2012). Several periodic censuses have been carried out since 2011 to achieve close monitoring of recipients of social benefits. These detected extensive benefit fraud in pensions (see below for a discussion of recent reforms in old-age system) and disability benefits. For example, around 50 000 ineligible pensions were discovered (EC, 2013a). In addition, new structures and procedures were established for the assessment of disability status that should help to tighten the awarding of benefits. Within this framework, the Disability Certification Centers (KEPA) are to provide a centralised disability certification for disability benefits and disability pensions (Ministry of Labour, 2012; EC, 2013a). Moreover, the creation of a National Register of Beneficiaries of social and welfare benefits allows for systematic monitoring and effective control of the financial assistance programmes (OECD, 2013c).

The reforms are welcome but could go further

Anchoring the social welfare system in means testing, while retaining distinct programmes for various groups, should yield important potential savings, according to the recent OECD cost-benefit analysis, besides improving the poor targeting of the system (OECD, 2013c; Box 5). Over time, with the fiscal situation allowing, the duration of the unemployment insurance benefit could be increased by another year, to two years, bringing Greece closer to European norms (Europa, 2012). Tapering the benefits over time, as in a number of countries, would enhance work incentives. The net replacement rate of unemployment insurance benefits could also be brought closer to the international average (Figure 19). Moreover, over the longer term, once the minimum income scheme is in place and the duration of unemployment insurance benefit has been increased, the unemployment assistance scheme could be abolished, to avoid increasing the complexity of the social welfare system.

Box 5. Achieving a balance between fiscal and social objectives: some reform options

The *OECD Reform of Social Welfare Programmes* assumes that the Greek social welfare system should become anchored in means testing and that social welfare programmes remain distinct for different groups, even if they would need to be re-engineered (OECD, 2013c). The alternative of developing a single universal means-tested benefit is not recommended by the report because of high transitional costs and administrative difficulties.

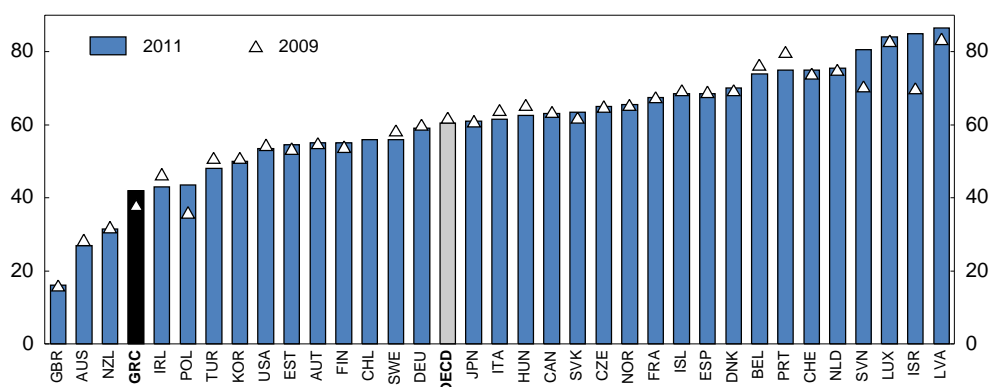
Based on a cost-benefit analysis, the review concludes that the only reform option that could achieve the initial target set in Greece's Economic Adjustment Programme of 1.5% of GDP savings from social welfare programmes (currently being brought down to about 0.7% of GDP), would imply an increase in the poverty rate by 1.6 percentage points. This would actually involve means testing of all social programmes by targeting the poorest 20%. Significant savings, however, are also possible through other options, which fall below the initial target of 1.5% of GDP, but have the advantage of avoiding a significant deterioration in poverty.

According to the OECD report*, the most interesting options for a balance between fiscal and social objectives are the following:

- *Means test (nearly) all social programmes (option 1.2)*. Targeting the poorest 20% for social programmes, if disability pensions are excluded, would generate GDP savings of up to 1.2%, with a neutral effect on the poverty rate.
- *Means test (nearly) all social programmes (option 1.3)*. If the poorest 25% are targeted, this would generate savings of up to 1.3% of GDP, with a neutral effect on poverty.
- *Extend unemployment assistance (option 2.1)*. Targeting the poorest 20% with extended unemployment assistance, would cost 0.2% of GDP but with the significant effect of reducing the poverty rate by 1.3 percentage points.
- *Replace existing family benefits with a new single means-tested benefit (option 4.3)*. Targeting the poorest 30% for family benefits would save 0.4% of GDP and reduce the poverty rate by 0.1 percentage points.
- *Replace existing disability benefits with a new single means-tested benefit (option 5.2)*. Targeting the poorest 30% for disability benefits would save 0.4% of GDP and reduce the poverty rate by 0.2 percentage points.

*OECD (2013), *Greece: Reform of Social Welfare Programmes*, Table 3.1, OECD Publishing, Paris.

Figure 19. **Net unemployment benefit replacement rates¹**
Per cent of pre-unemployment wage



1. They relate to the initial phase of unemployment after any waiting period. Any income taxes payable on unemployment benefits are determined in relation to annualised benefit values (i.e. monthly values multiplied by 12) even if the maximum benefit duration is shorter than 12 months. No social assistance “top-ups” are assumed to be available in either the in-work or out-of-work situation. They refer to the average of net replacement rates faced by single persons without children with pre-unemployment earnings of 67% and 100% of the average wage.

Source: OECD, *Tax-Benefit Models* (www.oecd.org/els/social/workincentives).

The government could ensure full implementation of the recently introduced means-tested scheme of family benefits, and proceed swiftly with the introduction of a properly targeted housing benefit. In order to tackle the problem of homelessness and in view of the underdevelopment of social programmes for the homeless and social housing in Greece (see above), a well-targeted housing assistance programme is of high importance. Details of the structure of the announced housing benefit, or the timetable for its introduction, are not yet known.

Important gains, in terms of addressing poverty severity, could also be achieved from the full implementation of the minimum income scheme, as long as this is carefully designed and its impact is closely monitored, especially at the pilot phase. Putting in place such a scheme is particularly important given the sharp rise in the number of jobless households since the onset of the crisis (Figure 13). International evidence suggests that minimum income schemes are very efficient in alleviating extreme poverty (Atkinson, 1998; Farinha-Rodrigues, 2004). Recent micro-simulation estimates also indicate notable potential gains. Matsaganis and Leventi (2012b) conclude, in particular, that a minimum income scheme could reduce extreme poverty up to 90%, depending on its coverage and payment level. Minimum income protection is currently available in most EU countries either at a national or local/regional level.

Targeting disability benefits could yield fiscal savings and reduce the complexity of the current system. But this needs to be assessed against the welfare of disabled people who might lose the entitlement to benefit and the potential cost to the budget if these individuals move to institutionalised care as a result of the loss of eligibility. A close and systematic monitoring for the granting of disability benefits is essential for a more targeted system.

The authorities could consider the introduction, maybe on a pilot basis and subject to means testing, of a national programme of subsidised school meals to address rising “food insecurity” among children from poor households. Some unofficial estimates indicate that around 10% of elementary and middle school students faced hunger, or the risk of it, in 2012 (Alderman, 2013). Such programmes exist in a number of OECD countries, for example, France, the United Kingdom and the United States. Indicatively, a programme with an average cost of EUR 3 per meal would cost around 0.4% of GDP annually (Matsaganis, 2013a). This cost would have to be met from savings elsewhere.

The government would also need to fulfil its commitment to proceed further with the controls on welfare programmes in the near term by increasing the number of re-assessments of beneficiaries. Stepped up monitoring in key areas has already yielded some positive savings, according to estimates by the European Commission, and shows considerable potential for additional gains (EC, 2013a). The total savings, for example, over the period 2013-16, from audits of disability benefits and pensions are expected to be EUR 440 million (around 0.23% of GDP). Effective monitoring bodies and timely data are essential for successful implementation. The National Register of Beneficiaries of social and welfare benefits can also provide a comprehensive mechanism for the auditing and rationalisation of social programmes. Its effectiveness depends, however, on the extent that control institutions use the information collected in the registry to make the necessary adjustments in the provision of benefits (OECD, 2013c).

The successful move to a better targeted social welfare system, as well as its efficient monitoring, requires stronger administrative capacity and control mechanisms, assessment of administrative tools, and timely and accurate information on applicants' incomes. This is particularly important in Greece given the significant incidence of undeclared work that makes the administration of benefits based on the sole criteria of earned income more difficult. The 2013 *OECD Reform of Social Welfare Programmes* highlights the need for a more effective system of governance of such programmes. The acceleration of the rationalisation of social security funds, and further consolidation of the remaining ones, is a critical priority in this regard as, despite steps towards consolidation, merged funds have generally retained their own structures. The recent transfer of the overall responsibility of social welfare programmes to one ministry (the Ministry of Labour) is welcome (OECD, 2013c).

Swift harmonisation of information systems across the funds is also essential to ensure the dissemination of information. The recent creation of a National Register of Beneficiaries of social and welfare benefits is a positive step towards data exchange, but it needs to be accompanied by an upgrading of the ICT competencies of funds' employees. Efficient targeting and monitoring of the system hinges on reducing complexity and overlap in the provision of benefits at both central and local levels (OECD, 2013c). Moreover, the 2013 *OECD Reform of Social Welfare Programmes* highlights the need for better monitoring by the central government of earmarked block grants provided to local authorities for the financing of social benefits. Strengthening the management of the provision of social welfare benefits would require increasing the accountability of local governments through a more rigorous auditing system and enhanced transparency (through, for example, public reporting) regarding the use of the grants.

Finally, it is important to ensure that reforms in the welfare system, and especially the move towards a means-tested system, do not reduce work incentives too much. With means-testing public benefits are withdrawn as income rises, in effect taxing extra work effort (Antolin *et al.*, 2012). To retain their benefit, some individuals may opt not to take up employment or to work in the informal sector. This poses difficult trade-offs (OECD, 2006b and 2013c).

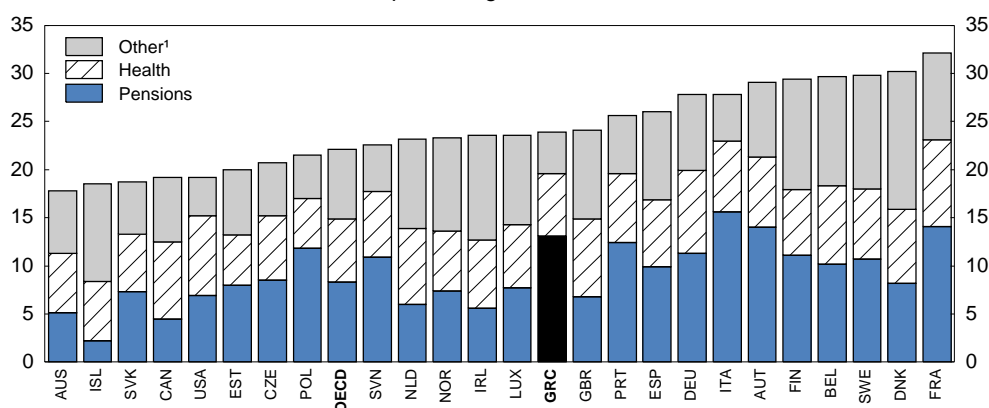
There is scope to enhance equality in the pension system

Important reforms have been achieved

Most of the social welfare spending in Greece is related to pensions (Figure 20). The large increase in pension spending since the mid-1990s was a driver of the fiscal crisis (OECD, 2011b). The pre-crisis system was highly complex and unequal with regard to pension rights, reflecting the existence of many pension funds with different rules (Matsaganis, 2012). Pension provisions tended, in general, to favour public over private sector employees, the self-employed over wage earners, middle-aged contributors over younger ones, standard over non-standard workers, and men over (most) women (Matsaganis, 2007). Uneven access to benefits was also a feature of supplementary pensions. Depending on the insurance scheme, benefits could vary between 20% and 45% of end-of-career earnings

(Matsaganis, 2013b). In addition to being inequitable, the pension system before the crisis was unsustainable, with pension expenditure projected to rise to a staggering 24% of GDP in 2050 without reform (OECD 2011b).

Figure 20. **Public spending on social welfare**
As a percentage of GDP, 2009



1. For a breakdown of this item, see Table 2.4.

Source: OECD, *Social Expenditure database*.

The austerity measures had evident effects on pensions. While the cumulative impact of the cuts depends on the characteristics of each pensioner (such as age, social insurance affiliation and benefit level), some indicative official estimates suggest that pensioners drawing a total pension (main and supplementary) of EUR 900 per month before the crisis suffered an overall reduction of 26% in 2009-12. The corresponding reduction for those on a total pension of EUR 2 100 per month was 34%. Further cuts in pensions are envisaged in 2013-14.

Beyond the cuts in benefits to address immediate fiscal pressures, the crisis set in motion some efficiency-enhancing structural changes in the pension system. A comprehensive reform in 2010, discussed in detail in the 2011 *Economic Survey of Greece* (OECD, 2011b), strengthened the long-term viability of the system by reducing its generosity (including through reduced pensions, increased retirement age, and extended contribution periods to qualify for a pension). Certain elements of the reform, however, such as the increase and equalisation of the retirement ages, enhance equity (Box 4).

The reform also paves the way for a more inclusive pension system that can promote distributional fairness. In particular, a new two-tier structure is to be introduced in 2015 that distinguishes between a basic pension (amounting to EUR 360 per month in 2010 prices) and a contribution-related proportional pension (calculated as lifetime earnings multiplied by annual accrual rates multiplied by the number of insurance years). For the uninsured or those with insufficient years of contributions (less than 15 years), who do not qualify for a proportional pension, the basic pension provides an important safety net (NAA, 2012). To be eligible, claimants must pass an income test (as well as a residence test) and be 65 years and over.

The access conditions are less tight for those with a longer contributory record (at least 15 years). First, the basic pension is awarded to these claimants without income criteria. Moreover, in case of early retirement, they are entitled to a reduced pension (Matsaganis and Leventi, 2011). As a further safety net for those with an insurance record of at least 15 years, a new minimum pension was introduced which ensures that the sum of basic plus proportional pension cannot be less than the equivalent of 15 minimum daily wages, as stipulated in the National Collective Agreement for 2015 (on the basis of data for December 2012, the value of that threshold would be EUR 393 per month). While, at first sight, it could be

said that the uninsured would have greater need of protection, the more favourable access conditions for basic pensions for retirees with a longer contributory record are right as they boost incentives to work and make payment for social security contributions (OECD, 2011c; Paparigopoulou-Pechlivanidi, 2011).

The 2010 law also aimed at unifying pension provisions. In particular, the new accrual rates for the proportional pension, though less generous than in the previous system, will have the same profile for all workers that depends only on the years of service (NAA, 2012). This contrasts with the different accrual rates across pension funds under the old system. Moreover, the increase in accrual rates with the length of working life could enhance the incentives for older workers to participate longer (IMF, 2012b). The risk remains of course that workers with loose attachment to the labour market (including undeclared work), and hence short insurance records, might see little point in paying contributions, but this issue should be addressed through labour market and/or education policies rather than pension ones.

Further reform

Although they have been reduced, inequalities in treatment across different groups of pensioners were not eliminated. Discretionary exemptions remained, as for example, with the liberal professions (medical doctors, law practitioners and engineers) who preserved their separate schemes, effectively opting out of the reformed system. Moreover, in some cases, such as that of utilities, the acquired rights of employees hired before 1983 were protected (Matsaganis, 2011; Petsemidou, 2011). In addition, although the 2010 reform simplified the structure of the system, leaving only 6 pension funds, there are still 93 sectoral systems under these broad funds with different social security contributions. Around 30% of main pensions were above the EUR 1 000 threshold in mid-2013, according to the recent EC review of the Greek adjustment programme (EC, 2013b).

Removing remaining exemptions applying to specific groups would promote distributional fairness, besides contributing to fiscal consolidation. Subject to budgetary constraints, reforms could also seek to harmonise and rationalise the contribution rates to the various pension and sickness funds, as benefits seem to have been equalised to a large extent. For instance, pension contributions of many professionals, such as engineers, which are set at a fixed amount depending on the number of years of activity, regardless of earnings, could usefully be rationalised.

It is also very important to continue efforts to control pension fraud. The recent activation of two centralised, inter-linked, electronic monitoring systems is a welcome step in this regard. More specifically, the “Helios” scheme, monitoring retirement pay, is linked to the “Ariadne” scheme, that directly records major demographic changes, facilitating in this way the detection and suspension of ineligible pensions (EC, 2013b). Regional differences in the distribution of different categories of pensions in mid-2013, particularly regarding disability pensions, suggest the need for further monitoring of the social security system to avoid abuse in the future.

Ensuring equal access to good health care services, while containing cost

The health care system in Greece (National Health Services Organisation, EOPPY) covers, in principle, the vast majority of the population, on the basis of insurance status. The uninsured have a means-tested access to some basic health care services through the “health insurance book”, providing free access to public hospital and medical services (including pharmaceuticals). Those not eligible for a “health insurance book” can only access the emergency services of public hospitals which are not conditional on insurance status.

The surge in long-term unemployment, however, is making it difficult for EOPPY to provide care for a growing proportion of the population, despite an unchanged coverage policy. The number of uninsured has risen substantially since the onset of the crisis because the health care insurance system effectively covers the unemployed (age between 29 and 55) only for a maximum of two years (Economou, *et al.*, 2014). Based on official estimates, around 10% of the population is currently not eligible for health insurance, which includes many self-employed workers who are in arrears with their social contributions and thereby become ineligible.

Access to health care may also have been affected by the rise in the cost of health services to patients following recent reforms. While out-of-pocket medical payments were already high in Greece before the crisis (Figure 11), user charges for visits to outpatient department hospitals were increased in 2011 (from EUR 3 to EUR 5 per visit), followed by a rise in co-payments for prescribed medicines in 2012. In addition, a fee was introduced for consultation with EOPPY doctors. More specifically, under current arrangements, there is a maximum number of consultations per month (150 or 200) that EOPPY doctors provide for free. When this limit is exhausted, patients are charged with the full cost of visit. It is, of course, difficult for a patient to know in advance whether he/she has to pay or not for the consultation, which may act as a deterrent for a medical visit. It is also possible that the re-organisation of the health care system and spending cuts have worsened access to health care. While there is no hard evidence, so far, to support the point, on the basis of some anecdotal evidence, waiting times to receive public health services seem to have increased (Liaropoulos, 2012; Economou *et al.*, 2014).

The impact of the crisis on health care access needs to be closely monitored given its effects on equity and longer-term growth and well-being (OECD, 2011a; Hoeller *et al.*, 2012; OECD 2013f). The loss of health insurance for a large number of workers and their families since the onset of the downturn is of major concern, especially as an increasing number of patients who would previously have used the private sector are now resorting to public hospitals. As noted earlier, under existing arrangements, the long-term unemployed and generally the uninsured have a means-tested access to some basic health care services through the “health insurance book”. Nevertheless, illegal immigrants have no right for free access to health services, unless there is an emergency or a life-threatening risk. This is also the case for other population groups. The self-employed, for instance, who have closed down their businesses but do not have tax clearance certificate, and households whose income exceeds the means test (threshold EUR 5 000 per year) are also excluded from the coverage of such services (Paleologou, 2013).

Attention must also be paid to the impact of the crisis on health outcomes. While there has not been evidence of any pronounced deterioration in the main health indicators so far, some adverse effects have been already detected in certain areas, including mental health and infectious diseases, with the vulnerable groups facing higher risks (Box 6). In the case of infectious diseases, this seems related to the reduction in provisions such as free needles to injection for drug users and delays in mosquito-control activities by public local authorities for financial reasons. It is still too early to assess the full scale of the consequences of the crisis on health outcomes. However, monitoring any possible effects is important.

Box 6. The impact of the crisis on health: some preliminary evidence

A number of studies provide evidence of crisis-related adverse effects on mental disorders, self-reported general health, and infectious diseases (Karanikolos *et al.*, 2013). Mental health may be more responsive to economic shocks in the short term, as it may be influenced by both financial (such as a sharp fall in earnings) and non-financial (including increased stress and decreased social recognition) developments (Vandoros *et al.*, 2013). The one-month prevalence rate of major depression was found to be 8.2% in 2011, more than twice the corresponding rate in 2008, with the increase being closely linked to economic hardship, associated thereby with the impact of the crisis. Some groups, such as the young and married persons and people on medication seem to face a higher risk. In addition, on the basis of information for the first two years of the crisis, the suicide rate appears to have increased, although it remained well below the OECD average (Liaropoulos, 2012). A recent study attributes the deterioration in self-reported health, compared to the pre-crisis era, to the worsening of mental health associated with the economic downturn, rather than to its direct impact health care access (Vandoros *et al.*, 2013).

There has also been an alarming outbreak of infectious diseases, particularly HIV, reflecting to a large extent low provision of preventive services, according to a recent study (Karanikolos *et al.*, 2013), and even some incidence of malaria (Vakali *et al.*, 2012). While the number of new HIV infections related to drug injection continued falling across Europe, Greece is among the few countries where this downward trend was interrupted in 2010 (EMCDDA, 2013). Overall, Karanikolos *et al.* (2013) conclude that outbreaks of infectious diseases and suicides are becoming more common in countries under strong fiscal consolidation. Budget cuts in these countries have also limited access to health care, according to the study.

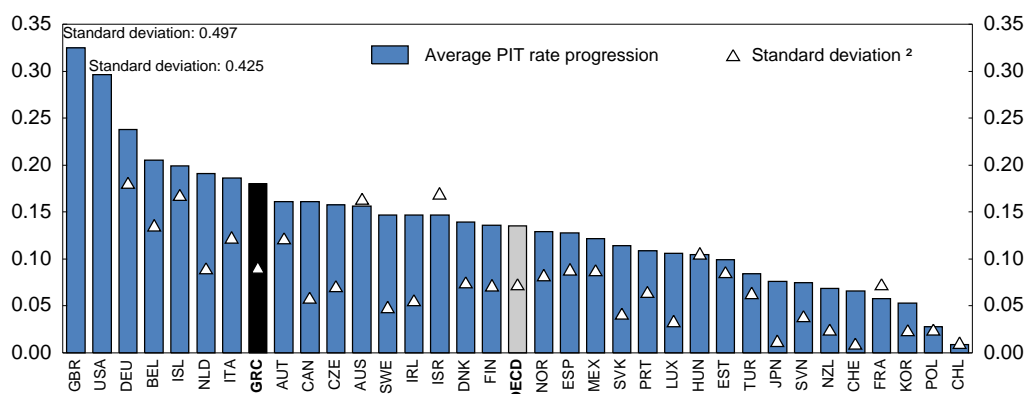
Recent policy initiatives to address the loss of health insurance triggered by the crisis include a reduction in the days of insurance payments required for full medical coverage, and a temporary extension of health coverage for the unemployed from two to three years until February 2014. A new Health Voucher Programme, underwritten by the European Social Fund, was launched in 2013 aiming to provide access to primary health care services for 230 000 long-term uninsured. Some other initiatives in the pipeline, also financed by the European Social Fund, include the provision of nursing and rehabilitation services at home or at specialised structures to uninsured people with long-term health problems. As a further welcome step, a telemedicine programme was endorsed by the government at end-2012 for islands and remote mainland areas to deal with distance. These initiatives are important to cushion the recession and, assuming they remain fiscally possible, should be continued until the economy improves substantially.

The authorities must also ensure that cuts in health care spending focus on inefficient spending, avoiding as much as possible to reduce needed service levels. Recent evidence of deteriorating health indicators in mental health and infectious diseases (Box 6) highlight the need for maintaining critical preventive public health services, which will tend to benefit more the low-income groups who are likely to be more prone to these diseases (Karanikolos *et al.*, 2013).

A fairer distribution of the tax burden to make adjustment more socially acceptable

The rate structure of Greece's personal income tax system is progressive by design (Figure 21). Widespread tax evasion, however, distorts its distributional effects and reduces its effectiveness in terms of tax collection (OECD, 2013a). Based on micro-simulation analysis, Leventi and Matsaganis (2013b) conclude that the extended income under-reporting (at an average rate of 12.2% in 2009), incurred mainly among self-employment, increases inequality and makes the tax system considerably more regressive (by around 32% on the basis of the difference in the value of redistribution indices under tax evasion and full compliance). This reflects, to a large extent, the distribution of tax evasion in Greece, and in particular, the relatively higher level of income under-reporting among the richest deciles. Since effective tax rates increase with income, the relative extensive under-reporting of higher income earners reduces the progressivity of the tax system (the re-distributional effect of under-reporting of low-income groups is minimal given the low effective tax rate they face) (Benedek and Lelkes, 2011). These findings appear to be in line with those for Italy and Hungary (Matsaganis *et al.*, 2010). The distributional impact of tax evasion would be even stronger if evasion of other taxes than the personal income tax, and especially, social security contributions, were taken into account. In addition, tax evasion imposes a sizeable fiscal cost, with an estimated shortfall in tax revenue of around 30% (Leventi and Matsaganis, 2013b).

Figure 21. **The tax system is progressive by design**
 Personal income tax (PIT) progression for one-earner married couple with 2 children,¹ 2011



1. With income ranging from 50% to 200% of the average wage.

2. The standard deviation indicates the level of variation of the average PIT rate progression across the five income intervals for each country. For more details, see *Source*.

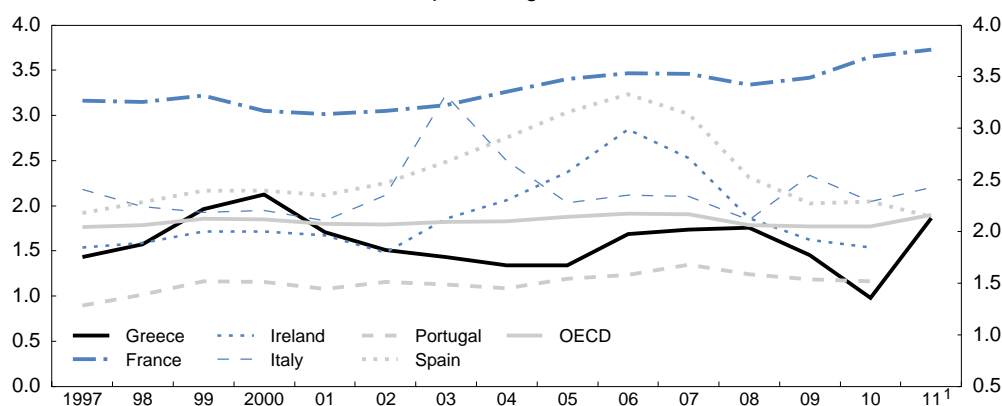
Source: OECD (2013), *Taxing Wages 2013*, Figure S.4.

Insufficient progress in combatting tax evasion has shifted the burden of fiscal adjustment towards wage and salaried workers and pensioners, who have less scope for evasion. Around three-quarters of the declared incomes in 2009 were accounted for by income from wages/salaries and pensions, according to a recent study by the Bank of Greece (Vasardani, 2011). These groups incurred more than half of the total tax burden (personal and corporate) in 2009, according to the study, with only 17% being borne by the rest of individual tax payers and 30% by firms.

A number of initiatives have been undertaken since the onset of the crisis to tackle tax evasion, aiming mainly at improving tax administration and making the tax system less complex (OECD, 2013a). Moreover, reforms in 2013 brought more of the self-employed into the tax net through a new two-rate tax regime and the elimination of personal tax allowances for this group. More than half of the self-employed declare incomes below the threshold of the standard allowance (EUR 5 000 per year), according to European Commission estimates (EC, 2013a), and as many of these declarations are probably inaccurate, increasing their tax payments is thus a priority.

A particular tax issue in Greece, in view of the high rates of home-ownership and the importance of housing wealth in lower and middle quartiles (see above), is whether increases in property tax have any adverse effects on income distribution. The share of such taxes in GDP has almost doubled between 2010 and 2011, bringing Greece into line with the OECD average, although below countries such as France and Italy (Figure 22). Property taxes are among the least distortionary levies as they affect less the incentives to work and invest than some other taxes. Moreover, certain property taxes, such as hikes in inheritance taxes, tend to be inequality-reducing. Real estate taxes can also be progressive if appropriately designed (Johansson *et al.*, 2008; OECD, 2013f; Rawdanowicz *et al.*, 2013).

Figure 22. **Developments of property taxes**
As a percentage of GDP



1. Provisional data.

Source: OECD, *Revenue Statistics database*.

An emergency levy on real estate was introduced by the government in 2011, as part of the fiscal adjustment package, collected through electricity bills. Long-term unemployed or recipients of unemployment benefit for more than 6 months, are exempt, subject to an income test. As mentioned earlier, this tax appears to be, in principle, progressive, though for a group of people with assets but low income, it may be regressive in terms of income.

Recent reforms reduced the rate of emergency tax by 15% and broadened the tax base, including through taxing buildings outside urban planning zones, as well as those leased to the state by non-exempted private owners (EC, 2013a, 2013b). These are positive moves towards a more equitable distribution of the tax burden. The government could also go ahead with the consolidation of a number of property taxes, which could reduce complexity and contain tax evasion, and the further broadening of the tax base – both planned to be introduced in 2014 (OECD, 2013a). Regularly updating real estate values used to calculate property taxes would help to increase fairness (for example, by the exemption of low value properties), at a manageable administrative cost (Johansson *et al.*, 2008; Rawdanowicz *et al.*, 2013).

Enhancing activation policies

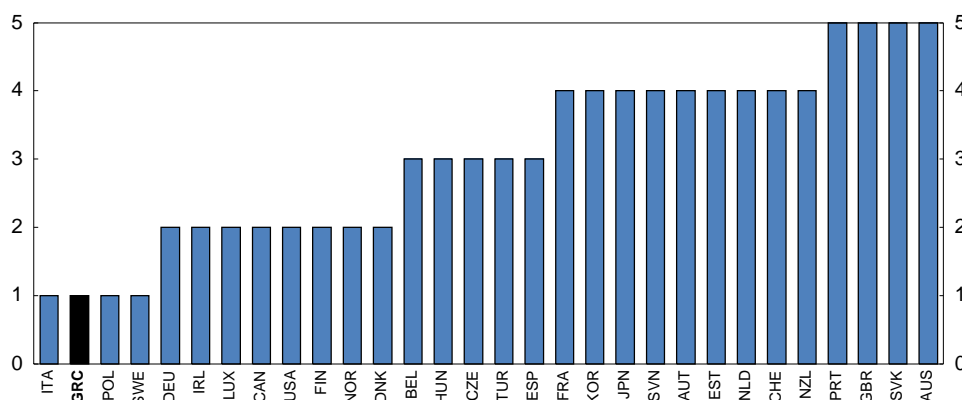
A number of active employment policies and vocational programmes have been launched by the Public Employment Service (OAED) since the downturn to contain high unemployment, especially among youth (with an unemployment rate around 60%). Labour market integration of young people is essential to avert long-term adverse effects as a consequence of prolonged unemployment and low-income spells early on in their careers (OECD, 2013g). So far, fully implemented programme spending accounts for 0.3% of GDP, and an additional 1.7% of GDP has been allocated for this purpose. The high social and fiscal costs of unemployment require well-funded activation policies, although they will be costly in the short run. A comprehensive and systematic evaluation of the programmes is essential, however, to identify what works and what doesn't. Uncertainties remain about the effectiveness of activation policies implemented in Greece since the onset of the crisis (and also prior to the downturn) due to lack of an evaluation strategy. Based on OAED estimates, the active labour market policies introduced during the period 2010-12 have halted the increase in unemployment by 5 to 7 percentage points (OAED, 2012). This conclusion, however, is not based on a thorough assessment of the outcomes of the adopted programmes, in terms of employment creation or retention (net of displacement effects). This makes it difficult to establish attribution to active labour market policies rather than other developments.

Swift progress towards a rigorous evaluation of the activation programmes implemented is essential for an effective response to the crisis. This would allow schemes that work to be expanded, and others wound down. Assessing the deadweight costs (arising when the employers tend to hire individuals who would be hired even in the absence of subsidies) of employment subsidies is important, given the large share of such schemes in overall activation spending (around 50% in 2010). An action plan was adopted by the government in 2013 to overview and assess the implemented active labour market programmes. It should be put in place as a matter of priority.

The Public Employment Service (OAED) is being modernised, and by 2020 is to have a new operational model that allows for a closer co-operation with the private sector and greater focus on individual needs. To the extent possible, implementation should be accelerated. The foreseen systematic evaluation of OAED programmes under the new model is welcome, and should take the form of experimental evaluations (that is, whether participants in a programme achieve better outcomes than if they were not participated), as these are best practice (OECD, 2010). Monitoring post-programme outcomes (such as job characteristics and earnings) of the activation programmes, through a well-developed set of indicators) is also useful (OECD, 2010).

The effectiveness of activation policies would be improved by making unemployment benefits subject to stricter obligations for participation in training and employment programmes, enforced by more intensive monitoring and stronger sanctions for non-compliance. Extending this approach to active job search, where monitoring is now low (Figure 23), as the economy improves, would help direct the unemployed to activation programmes best suited to their need (OECD, 2010; OECD, 2011b). Greece has had a legal framework for “mutual obligations” since 1985. It stipulates an interruption of unemployment benefits for those who do not accept a job offered to them, or if they refuse to undertake OAED training or re-training. It is very difficult, however, to assess the extent to which such law has been adopted in practice. Indeed, there is no official record kept of benefits actually having been withdrawn.

Figure 23. **Job-search monitoring**
Scored from 1 (least strict) to 5 (most strict)¹



1. The score reflects criteria for job search monitoring in place in early 2011. For more details, see *Source*.

Source: Venn, D. (2012), “Eligibility Criteria for Unemployment Benefits: Quantitative Indicators for OECD and EU Countries”, *OECD Social, Employment and Migration Working Papers*, No. 131, OECD Publishing (<http://dx.doi.org/10.1787/5k9h43kgkvr4-en>).

Strengthening the role of labour inspection to safeguard social outcomes

Labour market reforms brought about important institutional changes, including an overhauling of the collective bargaining system. Among other things, this has resulted in decentralised wage setting, which will be key to restoring competitiveness and boosting productivity. This can be seen, for example, in the rapid spread of individual wage contracts. Official data suggest that between October 2011 and

April 2013, individual contracts covered about 300 000 employees, compared to just 170 000 employees under firm-level collective agreements (fewer than 60 000 employees if large firms are excluded).

However, 98% of firms have fewer than 10 employees and most of them have no bargaining experience (Voskeristian and Kornelakis, 2011). This opens the possibility that labour standards, such as health and safety rules, will be effectively eroded. Strengthening the role of labour inspection would be important.

Reform initiatives in 2011 extended the functions of the Labour Inspectorate (SEPE) to new areas and enhanced its powers to impose fines and exercise investigatory powers (Act No. 3996/11). Employers are required to pay the fines immediately (ILO, 2011). The 2011 reform also introduced a “labour card”, entered into force in early 2012, which electronically detects the time of arrival and departure from the workplace, and targets sectors with a high share of unregulated contracts, such as hotels. A new law in 2013 reinforces the capacity of the Labour Inspectorate, providing for a closer co-operation with the financial police. It also imposes fines (between EUR 3 000 and 5 000 for each worker) on those firms employing unemployment benefit recipients, in a further effort to combat undeclared work.

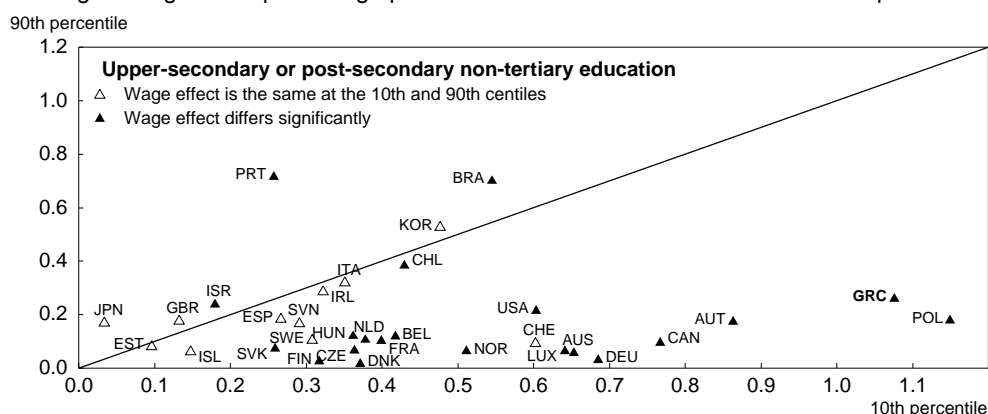
These initiatives are welcome, but much scope remains for ensuring effective enforcement of the labour law. High probability of detection of undeclared work is essential, including through stepping up inspections and effective sanctioning (IMF, 2013a). A recent report by ILO on the Greek labour inspection system stresses the need for a formal enforcement policy to ensure consistent application of the law at all levels, accompanied by the development of an integrated information system on workplaces and inspections (ILO, 2012). Staff reinforcement, through a national training strategy for labour inspectors is also recommended. An Action Plan has been elaborated by the government, on the basis of ILO findings, to strengthen the overall function and effectiveness of the labour inspection system. Its timely implementation is essential. The adoption of a single Labour Code, as envisaged by the government, compiling all existing legislation relevant for labour and industrial relations, would reduce complexity and increase enforceability of labour law (IMF, 2013b).

Education reforms can improve distributional outcomes over the longer term

The crisis has also opened a window of opportunity for efficiency-enhancing reforms in education. On-going reforms aim at upgrading and rationalising the education system, while also ensuring better school outcomes, including through measures that combat school failure and promote more equitable educational opportunities (Annex A1). Existing research highlights the positive impact of educational attainment on employment rates and long-run living standards (OECD, 2013b). Recent studies also conclude that educational reforms, especially those regarding compulsory education, can reduce inequality. Fournier and Koske (2012) show that a rise in the share of workers with upper-secondary education is linked to a decline in labour earnings inequality, with the impact being particularly strong for Greece (Figure 24).

Figure 24. Impact of education on earnings distribution¹

Effect on log earnings of a 1 percentage point increase in the share of workers with a specific education level



1. Based on unconditional quantile regression estimates. The horizontal (resp. vertical) axis shows the impact of a 1 percentage point increase in the proportion of workers with secondary education on the log earnings of the 10th (90th) quantile. A data point below (above) the 45 degree line indicates that the change in the educational composition of the workforce is associated with a fall (rise) in earnings inequality. The equality test is performed at the 5% level. For more details, see *Source*.

Source: Fournier, J.M. and I. Koske (2012), "Less Income Inequality and More Growth - Are they Compatible? Part 7. The Drivers of Labour Earnings Inequality - An Analysis Based on Conditional and Unconditional Quantile Regressions", *OECD Economics Department Working Papers*, No. 930, Figure 7.

Research further highlights the close link between a more equitable distribution of educational opportunities and equality in earnings distribution (de Gregorio and Lee, 2002). This reflects the potential of policy initiatives that ensure an equal access to education to deliver large positive returns over an individual's entire lifetime, particularly for students from more disadvantaged backgrounds (OECD, 2006a; OECD, 2013b). However, unlike reforms in other areas, such as the labour market, the positive effects of education reforms take time to materialise, with their impact being felt mainly over the longer term.

Box 7. Recommendations on promoting a fair sharing of the costs and benefits of adjustment

Ensuring a more effective welfare system

- Target selected social benefits more efficiently and introduce a properly targeted minimum income scheme. Draw lessons from the planned pilot phase for the design of the minimum income scheme.
- Introduce a well-targeted housing benefit.
- Enhance governance of social programmes by speeding up the consolidation of the management of social insurance funds and accelerating harmonisation of information systems across the funds, which is essential for targeting benefits to protect the most vulnerable.
- Strengthen the management of social welfare benefits by exerting more central control of earmarked grants to local authorities. Increase the accountability of local governments for the allocation of social spending through a more rigorous auditing system and by enhancing transparency with regard to the use of the grants.
- Intensify controls on recipients of welfare benefits, especially of disability benefits, by increasing the frequency of re-assessments, as envisaged, and by ensuring effective monitoring and timely data.
- Introduce a national programme of subsidised, means-tested school meals.
- Consider over the longer term and the fiscal situation allowing, increasing the duration of unemployment insurance benefits by another year, but tapering the benefits over time. The net replacement rate of unemployment insurance benefits could also be brought closer to the international average.

- Over the longer term, once the envisaged minimum income scheme is fully implemented and the duration of unemployment insurance has been increased, the unemployment assistance benefit could be abolished to simplify the social welfare system.

Enhancing equality in the pension system

- Remove remaining inequalities in the treatment of occupational groups under the reformed pension system by abolishing special rights.
- Harmonise contribution rates to pension and sickness funds.

Ensuring equal access to good health care services

- To the extent it is fiscally possible, continue to extend measures to ensure health care access for unprotected and vulnerable groups until the economy improves.
- Monitor closely the health impact of the crisis on the population, and, if required, take further actions to protect public health.
- Focus health care cuts on reducing inefficiencies, while avoiding cuts on efficient and critical programmes.

Making the distribution of tax burden fairer

- Impose fair and transparent penalties to tax evaders to increase compliance.
- Regularly update real estate values used to calculate property taxes.

Getting people to jobs

- Tackle high unemployment, especially among youth, by strengthening activation programmes and evaluating their effect in promoting employment to focus on the successful ones.
- Bring forward to the extent possible the implementation of the restructuring plan of the public employment service (OAED). Monitor closely the post-programme outcomes (such as job characteristics and earnings) of the activation programmes, and focus spending on those that prove successful.
- Condition access to unemployment benefits on stricter obligations for participation in training and employment service programmes. Extend this principle to active job search as the economy improves. Strengthen sanctions for non-compliance.

Strengthening the role of the Labour Inspectorate

- Strengthen the effectiveness of the labour inspection system, as planned, to ensure full enforcement of the labour code, and step up inspections and sanctions. Implement the action plan to reform the labour inspection system.
- Proceed with the simplification of the labour code.

Bibliography

Alderman, L. (2013), “More Children in Greece Are Going Hungry”, *The New York Times*, 17 April.

Altanis, P. *et al.* (2008), “Quality in and Equality of Access to Health Care Services”, *Country Report for Greece*, European Community Programme for Employment and Social Solidarity 2007-2013, European Commission.

- Antolin, P., S. Payet and J. Yermo (2012), “Coverage of Private Pension Systems: Evidence and Policy Options”, *OECD Working Papers on Finance, Insurance and Private Pensions*, No. 20, OECD Publishing, Paris.
- Atkinson, A. B. (1970), “On the Measurement of Inequality”, *Journal of Economic Theory* 2, pp. 244–63.
- Atkinson, A. B. (1998), *Poverty in Europe*, Blackwells Publishers, Oxford.
- Avram, S. *et al.* (2013), “The Distributional Effects of Fiscal Consolidation in Nine Countries”, *EUROMOD Working Paper*, EM 2/13, Microsimulation Unit, University of Essex, (<http://www.iser.essex.ac.uk/research/euromod/working-papers/>).
- Azpitarte, F. (2010), “The Household Wealth Distribution in Spain: The Role of Housing and Financial Wealth”, *Hacienda Publica Espanola/Revista de Economia Publica*, 194-(3/2010), pp. 65-90.
- Bellù, G. and P. Liberati (2006), “Inequality Analysis – The Gini Index”, Food and Agriculture Organisation, United Nations.
- Benedek, D. and O. Lelkes (2011), “The Distributional Implications of Income Under-reporting in Hungary”, *Fiscal Studies*, 32 (4), pp. 539–60.
- BoG (Bank of Greece) (2009), *Governor’s Report for the Year 2008*, Athens.
- de Gregorio, J. and J. Lee (2002), “Education and Income Inequality: New Evidence from Cross-Country Data”, *Review of Income and Wealth*, 48:3, pp. 395-416.
- ECB (European Central Bank) (2013), “The Eurosystem Household Finance and Consumption Survey: Results From the First Wave”, *Statistics Paper Series*, No. 2, ECB, April.
- Economou, C. *et al.* (2014), “The Impact of the Financial Crisis on the Greek Health Care System”, WHO Regional Office for Europe and the European Observatory for Health Policies and Systems, forthcoming.
- EC (European Commission) (2013a), “The Second Economic Adjustment Programme for Greece: Second Review”, *Occasional Papers*, 148, May.
- EC (2013b), “The Second Economic Adjustment Programme for Greece: Third Review”, *Occasional Papers*, No. 159, July.
- ElStat (2013), “Living Conditions in Greece”, Hellenic Statistical Authority.
- EMCDDA (European Monitoring Centre for Drugs and Drug Addiction) (2013), *European Drug Report 2013: Trends and Developments*, EMCDDA, May.
- Europa (2012), “Unemployment Benefits with a Focus of Making Work Pay”, <http://ec.europa.eu/Europe2020>
- Eurostat (2013), “Income and Living Conditions in Europe”, EU-SILC database, Eurostat.
- Farinha-Rodrigues, C. (2004), “The Redistributive Impact of the Guaranteed Minimum Income Programme in Portugal”, *Department of Economic at the School of Economics and Management, Technical University of Lisbon Working Papers*, No. 2004/09, Lisbon.

- FEANTSA (2012), “On the Way Home?” *FEANTSA Monitoring Report on Homelessness and Homeless Policies in Europe*, European Federation of National Organisations Working with the Homeless.
- Fondeville, N. and T. Ward (2011), “Homelessness During the Crisis”, European Commission, November.
- Fournier, J.-M., and I. Koske (2012), “Less Income Inequality and More growth – Are They Compatible? Part 7: The Drivers of Labour Earnings Inequality – An Analysis Based on Conditional and Unconditional Quantile Regressions”, *OECD Economics Department Working Papers*, No. 930, OECD Publishing, Paris.
- Gatos, G. (2013), “Declines in Wages up to 30% for 355 397 Workers in 2012”, *Imerisia*, February.
- Georgakis, H. (2012), “4 Billion Euro for Benefits-Monkey”, *Ta Nea*, 19 March, (in Greek).
- Giordano, R. *et al.* (2011), “The Public Sector Pay Gap In a Selection of Euro Area Countries”, *European Central Bank (ECB) Working Paper Series*, No. 1406, December.
- Hoekstra, J. (2005), “Is There a Connection Between Welfare State Regime and Dwelling Type? An Exploratory Statistical Analysis”, *Housing Studies*, Vol. 20, No. 3, pp. 475-495, May.
- Hoeller, P. *et al.* (2012), “Less Income Inequality and More Growth – Are They Compatible? Part 1. Mapping Income Inequality Across the OECD”, *OECD Economics Department Working Paper*, No. 924, OECD Publishing, Paris.
- Houard, N. (2012), “Social Housing in Europe: The End of an Era?”, metropolitiques.eu.
- ILO (International Labour Office) (2011), “Report on the High Level Mission to Greece”, pp. 13-23, September, Athens.
- ILO (2012), “Labour Inspection Needs Assessment”, December, Geneva.
- IMF (International Monetary Fund) (2012a), *Fiscal Monitor, Taking Stock: A Progress Report on Fiscal Adjustment*, October.
- IMF (2012b), “Request for Extended Arrangements Under the Extended Fund Facility”, *IMF Country Report*, No. 12/57, March.
- IMF (2013a), “Greece: Selected Issues”, *IMF Country Report*, No. 13/155, June.
- IMF (2013b), “Greece: First and Second Review Under the Extended Arrangement Under the Extended Fund Facility, Request for Waiver of Applicability, Modification of Performance Criteria, and Rephrasing of Access”, *IMF Country Report*, No. 13/20, January.
- Johansson, A. *et al.* (2008), “Taxation and Economic Growth”, *OECD Economics Department Working Papers*, No. 620, OECD Publishing, Paris.
- Kanellopoulos, C. (2012), “The Size and Structure of Uninsured Labour”, *Economic Bulletin*, Vol. 37, pp. 25-44, Bank of Greece, Athens.
- Karanikolos, M. *et al.* (2013), “Financial Crisis, Austerity, and Health in Europe”, *The Lancet*, March 27, [http://dx.doi.org/10.1016/S0140-6736\(13\)60102-6](http://dx.doi.org/10.1016/S0140-6736(13)60102-6).

- Koutsampelas, C. and P. Tsakolglou (2008), “Estimates of Imputed Rents and their Distributional Impact in Greece”, paper prepared for the 30th General Conference of the International Association for Research in Income and Wealth, Portoros, Slovenia, August, pp. 24-30.
- Leventi, C., M. Matsaganis and P. Tsakloglou (2013), “Greece 2009-2012”, *EUROMOD Country Report*, February.
- Leventi, C. and M. Matsaganis (2013a), “Distributional Implications of the Crisis in Greece in 2009-2012”, *EUROMOD Working Paper EM 14/13*, Microsimulation Unit, University of Essex.
- Leventi, C. and M. Matsaganis (2013b), “Distributional Implications of Tax Evasion and the Crisis in Greece”, in *The Use of Registers in the Context of EU-SILC: Challenges and Opportunities. Methodology and Working Papers*, Eurostat.
- Liaropoulos, L. (2012), “Greek Economic Crisis: Not a Tragedy for Health”, *BMJ* 2012;345:e7988, BMJ Publishing Group, November.
- Matsaganis, M. (2007), “Unions Structures and Pension Outcomes in Greece”, *British Journal of Industrial Relations*, 45(3), pp. 537-555.
- Matsaganis, M. et al. (2010), “Distributional Implications of Income Tax Evasion in Greece, Hungary and Italy”, *Munich Personal RePPEc Archive (MPRA)*, February.
- Matsaganis, M. (2011), “The Welfare State and the Crisis: The Case of Greece”, *Journal of European Social Policy*, 21 (5), pp. 501-513.
- Matsaganis, M. (2012), “Social Policy in Hard Times: The Case of Greece”, *Critical Social Policy*, Vol. 32, pp. 406-421.
- Matsaganis, M. (2013a), “School Meals in the Greece of Crisis”, NewsLetter 4/2013, Policy Analysis Research Unit, Athens University of Economics and Business (in Greek).
- Matsaganis, M. (2013b), “The Crisis and the Welfare State in Greece: A Complex Relationship”, in Triandafyllidou, A., R. Gropas and H. Kouki (eds.) *The Greek Crisis: An Inquiry into Greek and European Modernity*, Palgrave Macmillan, forthcoming.
- Matsaganis, M. and C. Leventi (2011), “Pathways to A Universal Basic Pension in Greece”, *Basic Income Studies*, Vol. 6 (1), pp. 11-20.
- Matsaganis, M. and C. Leventi (2012a), “The Distributional Impact of the Great Recession in Greece”, presented at the 32nd General Conference of the International Association for Research in Income and Wealth, Boston, 5-11 August.
- Matsaganis, M. and C. Leventi (2012b), “The Minimum Guarantee Income: Fiscal and Distributional Effects”, *NewsLetter* 3/2012, Policy Analysis Research Unit, Athens University of Economics and Business (in Greek).
- Ministry of Labour (2012), *Hellenic National Social Report 2012*, Ministry of Labour, Social Security and Welfare, Athens, June.
- NAA (National Actuarial Authority) (2012), “Greek Pension System Fiche - European Commission, Economic Policy Committee Ageing Working Group, Ageing Projections Exercise 2012”, January.

- NBG (National Bank of Greece) (2012), “Greece Economic & Market Analysis”, November.
- OAED (2012), “Implementation Progress of OAED Programmes and of Programmes Still Open for Applications”, *Deltio Tipou*, 27 November, Athens (in Greek).
- OECD (2006a), *Starting Strong II: Early Education and Care*, OECD Publishing, Paris.
- OECD (2006b), *OECD Economic Surveys: Australia*, OECD Publishing, Paris.
- OECD (2009), *OECD Economic Surveys: Greece*, OECD Publishing, Paris.
- OECD (2010), *Jobs for Youth: Greece*, OECD Publishing, Paris.
- OECD (2011a), *Divided We Stand: Why Inequality Keeps Rising*, OECD Publishing, Paris.
- OECD (2011b), *OECD Economic Surveys: Greece*, OECD Publishing, Paris.
- OECD (2011c), *Pensions at a Glance 2011: Retirement-income Systems in OECD and G20 Countries*, OECD Publishing, Paris.
- OECD (2012), “What are the Best Policy Instruments for Fiscal Consolidation?”, *OECD Economics Department Policy Notes*, No. 12, April, OECD Publishing, Paris.
- OECD (2013a), *OECD Economic Surveys: Greece*, OECD Publishing, Paris.
- OECD (2013b), *Economic Policy Reforms 2013: Going for Growth*, OECD Publishing, Paris.
- OECD (2013c), *Greece: Reform of Social Welfare Programmes*, OECD Publishing, Paris.
- OECD (2013d), *How's Life, 2013 – Measuring Well-Being*, OECD Publishing, Paris.
- OECD (2013e), *OECD Economic Outlook*, No. 93, OECD Publishing, Paris.
- OECD (2013f), “How Much Scope for Growth and Equity-Friendly Fiscal Consolidation?”, *OECD Economics Department Policy Notes*, forthcoming.
- OECD (2013g), *Employment Outlook*, OECD Publishing, Paris.
- Paleologou, G. (2013), “The Model of the USA, the Proposal by Liaropoulos and the End of Contributions”, *Kathimerini*, 5 January (in Greek).
- Papapetrou, E. (2006), “The Public-Private Sector Pay Differential in Greece”, *Public Finance Review*, Vol. 34, pp. 450-73.
- Paparigopoulou-Pechlivanidi, P. (2011), “The Distinction Between Basic Pension and Contributory Pension: The Paradoxes of the Recent Reform of the Greek Pension System (Laws 3863 and 3865/2010)”, *Pensions*, Vol. 16, No. 1, pp. 51-62.
- Petsemidou, M. (2011), “Annual National Report 2011- Pensions, Health Care and Long-Term Care”, European Commission, May.

Rawdanowicz, L. *et al.* (2013), “The Equity Implications of Fiscal Consolidation”, *OECD Economics Department Working Paper*, No. 1013, OECD Publishing, Paris.

Schneider, F. (2012), “The Shadow Economy and Work in the Shadow: What do We (not) Know?”, *IZA Discussion Paper*, No. 6423, Institute for the Study of Labour, Bonn.

Skopek, N. *et al.* (2011), “Wealth Inequality in Europe and the Delusive Egalitarianism of Scandinavian Countries”, *Munich Personal RrPEc Archive (MRPA)*, July.

Vakali, A. *et al.* (2012), “Malaria in Greece, 1975 to 2010”, *Euro Surveil*: 20322.

Vandoros, S. *et al.* (2013), “Have Health Trends Worsened in Greece as a Result of the Financial Crisis?, A Quasi-experimental Approach”, *The European Journal of Public Health*, February.

Vasardani, M. (2011), “Tax Evasion in Greece: An Overview”, *Economic Bulletin*, 35, Bank of Greece, June.

Verma, V. and G. Betti, (2010), “Data Accuracy in EU-SILC”, in: A.B. Atkinson and E. Marlier (ed.), *Income and Living Conditions in Europe*, Eurostat.

Voskeritsian, H. and A. Kornelakis (2011), “Institutional Change in Greek Industrial Relations in an Era of Fiscal Crisis”, *GreeSE Paper*, No. 52, Hellenic Observatory Papers on Greece and Southeast Europe, November.

*Annex A1.***Social welfare system and education reforms**

This annex describes the social protection system (excluding pension and health) before the crisis and the recent reform initiatives to improve its effectiveness. It further provides an overview of recent education reforms.

The main features of social benefits in the pre-crisis period and recent reforms

On the eve of the crisis social protection system was highly complex, had inequalities in the generosity of benefits, and lacked a means-tested general income support (OECD, 2013). Social spending, excluding pensions and health accounted in 2009 for only 4¼ per cent of GDP, well below other European countries. The effectiveness of social benefits (other than pensions and health) in reducing poverty was low in international comparison (about a third of the euro-area average, according to OECD estimates) not only because of their relative small share in social spending, but also due to poor targeting. Despite a wide range of benefits, some of the most vulnerable groups, such as the young unemployed and a large number of poor families in need of housing support were not covered because, to a large extent, such benefits were conditional on social insurance, for which they are not eligible (OECD, 2013). In 2010, contributory social welfare programmes covered 15% of the working population, almost twice the coverage of the non-contributory programmes.

On the other hand, some benefits, such as family allowances, were not targeted and went also to those at the top of the income distribution. Only 50% of the beneficiaries belonged to the poorest 30% of the population, leaving considerable gaps in the safety net. Moreover, the welfare system suffered from poor administration across multiple social funds having different standards. Some unofficial estimates set the cost of benefit fraud to around 2% of GDP (Georgakis, 2012). The main characteristics of the key social protection programmes before and under the crisis are as follows:

Family benefits

Family benefits mainly targeted at large families with 3 children or more, granting little or no support to smaller families with children, or lone parents, even when they lived in poverty (OECD, 2013). In 2009, only 10% of lone parents with one child (compared to 80% in France or Portugal) and 17% of couples with two children were receiving benefits, compared to almost all families with three children and more.

A new means-tested family benefit was introduced in place of five benefits targeted to large families, which were abolished at end-2012. The maximum value of the benefit will be EUR 40 per child per month, progressively reduced as income rises (OECD, 2013). Specifically, the entire amount of the child benefit will be provided to families with income up to EUR 6 000 per year, while families with yearly income above EUR 18 000 will not be eligible.

Housing benefits

A means-tested rent subsidy – representing around 2/3 of expenditure on housing benefits in 2009 – was only available on a contributory basis that is beyond the reach of most poor families (Matsaganis, 2011; 2012). Two per cent of children lived in households receiving housing benefits in

Greece at the beginning of the crisis, according to OECD (2013), compared to 13% and 39% in Portugal and France, respectively. Moreover, around half of the beneficiaries were working, with 60% having income at or above the median income.

Rent subsidy in its pre-crisis form was abolished in 2012, when *OEK* ceased to exist (Law 4046/2012). In April 2013 the government announced plans to introduce a broader-based means-tested housing assistance scheme. The design of the benefit and the timetable for its implementation are not yet known.

Disability benefits

There are as many as 35 categories of disabled and varying eligibility criteria and rates (even within benefit schemes) across insurance funds, often leading to large differential treatment. In 2011, for example, a blind person received EUR 362 per month, if in employment or education, but EUR 697 if a member of legal profession. The eligibility of disability benefits is independent of any income criteria in Greece as such benefits aim mainly to ensure the autonomy of beneficiaries and their integration to society.

On average, around 4½ per cent of the working age population was on disability benefit in 2007, above Spain and Italy, though still below the OECD average (OECD, 2009). A large proportion of self-declared disabled receive the benefit compared to other EU countries (OECD, 2013).

Since the onset of the crisis the government has strengthened controls on beneficiaries of the disability benefit. Several periodic censuses have been carried out to this end, while procedures for awarding benefits were tightened. Within this framework, Disability Certification Centers (*KEPA*) are to provide a centralised disability certification for disability benefits and disability pensions (Ministry of Labour, 2012; EC, 2013a). Moreover, the creation of a National Register of Beneficiaries of social and welfare benefits allows for systematic monitoring and effective control of the financial assistance programmes (OECD, 2013).

Unemployment benefits

As in most other countries, unemployment benefits in Greece are generally conditional on insurance contributions, although a means-tested assistance is also available for the long term unemployed. More specifically:

- *Unemployment insurance benefit* – the regular contributory unemployment benefit, paid at a flat rate – is granted for a maximum duration of 12 months. The conditionality of the unemployment benefit on insurance contributions implies that those who had never worked, such as some unemployed youths, are excluded from the scope of the scheme (OECD, 2013). Until recently, the self-employed were also ineligible for this benefit. Around 65% of short-term unemployed (with an unemployment spell less than 12 months) were covered by the unemployment insurance benefit in 2010, reflecting probably the tight eligibility conditions in terms of insurance. The coverage fell to below 50% in 2012 as a result of the sharp rise in short-term unemployment. The net replacement rate of unemployment insurance benefits is below the international average.
- Non-contributory *unemployment assistance* is targeted to long-term unemployed aged who had exhausted their one year insurance benefit. Before the crisis, such an assistance was granted at EUR 200 per month for a maximum period to those aged over 45 year, subject to family means testing (EUR 5 000 per year). Less than 3% of the long-term unemployed were receiving such assistance in 2012, reflecting strict eligibility conditions and low rates of take up (Matsaganis, 2012).

The crisis triggered reforms in the unemployment benefit system. These involve in the case of unemployment insurance benefit a tightening in the eligibility conditions for certain workers, and in particular the seasonal ones. More specifically, the total number of days a worker can claim the benefit over a period of four years was limited to 450 days from 1 January 2013 and 400 days from 1 January 2014. Moreover, the level of unemployment insurance benefit was cut in February 2012 by around 20% to EUR 360 per month (about two-thirds of the current level of the minimum wage) following cuts to the minimum wage. On the other hand, the unemployment insurance benefit will be extended to the self-employed, subject to means-testing (total personal income cumulated over the two years prior to claiming cannot exceed EUR 20 000, or EUR 30 000 in the case of family income). The new benefit will be paid over 3 to 9 months, depending on the contributory record, at EUR 360 per month. Applicants must have settled beforehand any social security contributions owed.

As regards non-contributory unemployment assistance, its coverage was expanded from January 2014 to all persons between 20 and 66 years, subject to an expenditure limit of EUR 35 million per annum (corresponding to around 14 000 recipients per year on the full duration of 12 months). The threshold for the qualifying family income was reduced, however, from EUR 12 000 (in January 2012) to EUR 10 000 per annum, but it still double the pre-crisis level (EUR 5 000). The assistance will continue to be granted for a maximum period of 12 months at EUR 200 per month.

Guarantee minimum income

Before the crisis Greece did not have a mean-tested minimum income (Matsaganis and Leventi, 2012). A law in 2012 (Law 4093/2012) provides for a minimum income scheme experiment to take place in 2014 in two geographical areas with different socio-economic profiles. The scheme will be targeted to the population in extreme poverty, providing income assistance in combination with other initiatives to combat social exclusion (OECD, 2013). EUR 20 million was set aside to this end.

Reforming the education system

On-going reforms of the education system aim at its upgrading and rationalisation, while also ensuring better school outcomes, including through measures that combat school failure and promote more equitable educational opportunities.

At the school level, changes include the introduction (on a pilot basis) of more flexible curricula in the secondary education and the introduction of in-service education and training of teachers, included targeted training on the implementation of new curricula. An evaluation policy of schools and teachers is also underway and is expected to be completed by autumn in 2013 (EC, 2013a; IMF, 2013). Moreover, to combat school failure and promote an equal integration of all students, and consequently social inclusion, zones of educational priority (ZEP) were introduced in 2010. Schools units operating in regions with a low total educational indicator, as well as low social/economic indicators, are becoming part of ZEP (Ministry of Education, 2011). These are supported by policy measures, including the operation of reception classes and classes of remedial teaching. More than 1500 schools (mainly primary), corresponding to around 190 000 students, are placed in ZEP.

In addition, school units are being merged, which is expected to improve teaching conditions since larger units are better equipped and offer extended syllabus options such as informatics and foreign languages. Moreover, the extension of all-day schools, providing longer hours than the regular primary schools, continues with their number having more than doubled between 2005-06 and 2012-13.

Regarding higher education, reforms in progress aim to secure changes such as the introduction of governing boards (which may include non-academic managers) to universities, and the transfer of financial and human resource management responsibilities from the Ministry of Education to higher education institutions to increase autonomy and accountability (Laws 4009/2011 and 4076/2012) (EC, 2013a). In addition, the higher education map is being reformed, through mergers of institutions (ATHINA project), especially those with low enrolment/graduation rates and curricula internationalised. In 2014, the number of higher education institutions will be reduced from 40 to 32 and the number of departments from 528 to 408, with scope for further rationalisation (EC, 2013b).

There are also plans for developing a comprehensive database on student and staff population, economic information and research data in order to monitor the infrastructure of the higher education institutions. To enhance monitoring, a detailed Action Plan provides twice a year (June and December) guidelines for the improvement of the effectiveness and efficiency of the education system, aim to bring Greece closer to EU average (EC, 2013a).

Bibliography

EC (European Commission) (2013a), “The Second Economic Adjustment Programme for Greece: Second Review”, *Occasional Papers*, No. 148, May.

EC (2013b), “The Second Economic Adjustment Programme for Greece: Third Review”, *Occasional Papers* 159, July

Georgakis, H. (2012), “4 Billion Euro for Benefits-Monkey”, *Ta Nea*, 19 March, (in Greek).

IMF (International Monetary Fund) (2013), “Greece: Fourth Review Under the Extended Arrangement Under the Extended Fund Facility”, No. 13/241, July.

Matsaganis M. (2011), “The Welfare State and the Crisis: The Case of Greece”, *Journal of European Social Policy*, 21 (5), pp. 501-513.

Matsaganis, M. (2012), “Social Policy in Hard Times: The Case of Greece”, *Critical Social Policy*, Vol. 32, pp. 406-421.

Matsaganis, M. and C. Leventi (2012), “The Minimum Guarantee Income: Fiscal and Distributional Effects”, *NewsLetter* 3/2012, Policy Analysis Research Unit, Athens University of Economics and Business (in Greek).

Ministry of Education (2011), “2011 National Report on the Implementation of the Strategic Framework for European Cooperation in Education and Training”, June.

Ministry of Labour (2012), *Hellenic National Social Report 2012*, Ministry of Labour, Social Security and Welfare, Athens, June.

OECD (2009), *Employment Outlook*, OECD Publishing.

OECD (2013), *Greece: Reform of Social Welfare Programmes*, OECD Publishing.

*Annex A2.***Estimating the distributional impact of the crisis**

The distributional effects of the crisis estimated using EUROMOD, the European Union tax-benefit model. The model combines information from income surveys with the current rules of the tax and benefit system to simulate tax liabilities and benefit entitlements of households. Its basic output is the micro-level change in household income due to policy changes (Sutherland, 2001). EUROMOD has been used for numerous applications, at a country- or, EU-level, including the examination of the redistributive effects of tax-benefit policies, specific aspects of tax design (for example, housing taxation across Europe) and work incentives and labour supply, providing thereby a valuable tool for policy analysis (Sutherland and Figari, 2013). The use of the micro-simulation technique has important advantages, but also limitations (Box A2.1).

Box A2.1. Advantages and drawbacks of micro-simulation models

Estimating the impact of the crisis on income distribution requires up-to-date information. Due to the complexity of income surveys, income data become available with considerable delay. For instance, survey data on incomes earned in 2010 were released only in 2013. In this context, micro-simulation models are an appropriate, and widely used, alternative to bridge the gap in official data, allowing for an early evaluation of the distributional impact of the crisis in 2010-12*.

In addition to providing timely information, micro-simulation allows to distinguish changes in the income distribution, and to identify the impact of key policies (such as changes in personal income tax or cuts in pensions) or other developments (such as the rise in unemployment) on incomes, taking into account the complex ways in which taxes interact with benefits and each other.

There are, however, some methodological limitations in micro-simulation techniques that need to be taken into account when reading the results:

- First, under standard practice, the micro-simulation model provides solely estimates of first-order distributional effects, ignoring second-order behavioural responses (such as those related to consumption or labour supply). If such behavioural responses are significant, this will bias estimates of distributional effects. Interactions between austerity and recession are also being left out.
- Secondly, in view of the lack of updated income data, a “synthetic” income distribution has to be created by the micro-simulation model taking into account tax and benefit rules and labour market changes over the period of consideration (see below). To the extent that the synthetic distribution simplifies income dynamics, results may underestimate actual changes.

* The discussion is based on Leventi and Matsaganis (2013).

Data and estimation procedure

The information base of EUROMOD consists of the tax-benefit rules and a representative set of micro-data. The Greek micro-data underlying the current analysis are drawn from the 2007 European (UDB) and the national (PDB) versions of the European Union Statistics on Income and Living Conditions (EU-SILC). The database provides cross-sectional and longitudinal multidimensional information on income distribution and social inclusion. Using the PDB version allows one to exploit more detailed information collected in the national questionnaire (Leventi and Matsaganis, 2013).³

3. A drawback of micro data is that there are usually subject to sampling errors and other biases. The Greek EU-SILC 2007 tend to over-represent certain population groups (civil servants, banking employees), while under-

Since official income data are published only with a lag, a synthetic income distribution had to be created to analyse the distributional impact of crisis based on the following steps: *i*) simulating tax and benefit policies; *ii*) uprating the dataset's underlying incomes, from EU-SILC's income reference period (2006) to the latest policy year (2012); and *iii*) accounting for the rise in unemployment. The first two steps – *i.e.* simulating current policies on updated incomes – are part of the standard functionality of EUROMOD (and they are discussed here together). In view of the sharp rise in unemployment since the onset of the crisis, however, the current analysis also takes into account changes in the labour market characteristics of the population covered by the survey, thereby going beyond the standard practice in micro-simulation (Leventi and Matsaganis, 2013). In addition, estimates take into account tax evasion, which improves the accuracy of the results. The creation of the synthetic income distribution for Greece in 2009-2012 is described below.

Updating incomes and simulating policies

The calculation of the disposable household income (for each household in the sample) in EUROMOD is made up by two elements: income that is stimulated by the model and income taken from the survey data (for example, earnings) (Sutherland, 2001; Eurostat, 2013). This involves simulating tax-benefit policies and updating the non-simulated income sources beyond the income data reference period (that is, beyond 2006) using factors based on available statistics.

The Greek tax-benefit system was simulated for each year from 2006 to 2012. All consolidation policies (described in Sub-Annex A2.1) were simulated directly by EUROMOD apart from changes in indirect taxes as the EU-SILC database does not provide information on consumption. Changes in VAT were analysed separately from the other measures, in an indirect way (for a discussion and results see, Leventi and Matsaganis 2013). On the other hand, the analysis does not take into account changes in the provision of social benefits in kind (publicly-funded health care, education, care for the elderly, childcare and so on). While progress has been made towards incorporating these components into EUROMOD, the relevant module is not available yet (Paulus *et al*, 2010).

Regarding the uprating of non-simulated income sources:

- Original incomes were uprated on the basis of the Bank of Greece estimates (2013) of average rates of earnings growth of employees by category in 2006–2012 (Table A2.2.1). Incomes from self-employment were assumed to move in line with average incomes in the entire economy given the lack of reliable data on the earnings growth for this group. In the case of farmers, earnings were uprated on the basis of data on gross value added by industry (El.Stat., 2013). Finally, most assets and expenditure have been uprated by using the harmonised consumer price index and the nominal GDP deflator (Table A2.2.2).
- Social benefits that are not simulated in EUROMOD, either because they are beyond the scope of the model or due to the lack of the necessary information, were uprated on the basis of actual changes in rates or evolution of average payments (Table A2.2.3).

Accounting for the rise in unemployment

There are two main methods for accounting for changes in employment status. The first is a static approach. It involves a re-weighting of the EU-SILC sample by increasing the weights of households containing unemployed workers at the time of the survey, while reducing the weights of other households to hold constant the composition of the dataset (Immervoll *et al.*, 2006). The second method introduces an element of dynamic change in micro-simulation by explicitly simulating the transitions between labour

representing others (self-employed, farmers, pensioners). However, the reweighting of the EU-SILC dataset by occupational status (as revealed by social insurance affiliation) did not change significantly the estimated poverty rates.

market status (Eurostat, 2013). This involves moving individuals included in the database from employment to unemployment (and where relevant, vice versa), simulating thereby the transitions between labour market status.

A drawback of the re-weighting method is that it implicitly assumes that the characteristics of those losing their job at the onset of the crisis are similar to those already unemployed at the time of the survey, which can be quite misleading in the case of Greece (Leventi and Matsaganis, 2013). There has been, for example, a large increase in the unemployment rate of prime-age males since 2010 – a traditionally protected group of workers.

The current analysis builds on the second approach. Drawing on Baldini and Ciani (2010), Figari *et al.*, (2011) and Leventi and Matsaganis (2013) the rise in unemployment was accounted for by modifying the employment status of the required member of cases in the database. The exercise aimed to replicate as closely as possible the unemployment pattern depicted by the Greek Labour Force Survey (LFS) over the period 2010 to 2012 (the original and simulated unemployment rates are shown respectively in Tables A2.2.4 and A2.2.5).

Simulations focused solely on workers in dependent employment, apart from tenured civil servants. For the purpose of estimation, the relevant sub-sample was split into 56 groups defined by gender, age and education. The earnings from dependent employment of those made unemployed in the dataset were set equal to zero.

Accounting for tax evasion and benefit non take-up

Tax evasion adjustment was made on the basis of available estimates of income under-reporting by income source. In particular, based on Matsaganis and Flevotomou (2010), the rates applied were set to 1% for salaries and wages, 25% for self-employment earnings and 55% for farming incomes. On the assumption that net incomes reported in EU-SILC reflect true incomes, that is, individuals reveal their real total net income to survey interviewers, the individuals' real gross income (which includes the part of income which is not reported to the tax authorities) have been calculated as follows, drawing on Leventi and Matsaganis (2013):

$$G = N + T((1-r)* G)$$

where:

N denotes individuals' real net income;

G denotes individuals' real gross income

r is the rate of income under-reporting; and,

T(G) the personal income tax function in the presence of tax evasion.

By solving this recursive problem iteratively and for each income source separately, one can obtain the values of real gross income, G, with the rates of under-reporting used to separate the reported from the unreported part of gross income. EUROMOD treats the former as subject to income tax and social insurance contributions (and as used in resource assessment for means-tested benefits), while it adds the latter to individuals' disposable income.

As for the correction of benefit non take-up, this was carried out for two income-tested benefits: social pension, aimed for people aged over 65 with insufficient contributions for a social insurance pension; and unemployment assistance for older workers, a small-scale programme targeted at the long-term unemployed aged over 45 on low income (Leventi and Matsaganis, 2013).

Distributional indicators

The main distributional (income and poverty) measures used in the analysis are:

- *Income inequality*
 - *Gini coefficient.* Measures the extent to which income distribution among individuals or households deviates from a perfectly equal distribution (OECD, 2013). The Gini index is probably the most popular summary statistic of inequality as it is widely available due to its easy computation and comparability across countries and over time. A zero coefficient characterises perfect equality, whereas a coefficient of one represents perfect inequality, that is, all income is held by one individual or household. At the same time, the Gini has well documented drawbacks: two very different distributions, and thus different inequality patterns, may yield the same Gini coefficient (see, for example, Bellù and Liberati, 2006); and the Gini is more sensitive to changes in the middle of the income distribution, rather than the extremes which are of more interest from a social welfare perspective (see, for example, Atkinson, 1970).
 - *The inter-decile share ratio S90/S10.* It is the ratio of the average equivalised income of the 10% richest of the population to the poorest 10%. The *inter-quintile share ratio S80/S20* measures the richest 20% of the population relative to poorest 20%. These focus on the tails of the income distribution.
- *Poverty indicators.* Poverty measures are based on income thresholds (poverty lines) determined in absolute or relative terms. To facilitate and guarantee cross-country consistency, the OECD uses relative and “anchored” poverty lines based on observed equivalised household median disposable income:
 - *Relative poverty.* The share of people living in households below a relative threshold of income, often under 50% of median disposable income. Disposable income is “equivalised” by dividing it by the square root of household size to adjust for economies of scale in household spending.
 - *“Anchored” poverty.* The poverty line is fixed at 50% of median equivalised household disposable income in a base year, adjusted for inflation. In this paper, the base year has been set to 2005 because it is representative of the period between Greece’s entry to euro area and the onset of the economic crisis. This poverty indicator has some characteristics of an absolute measure, although it is sensitive to the choice of the base year.

Micro-simulation results for inequality and poverty

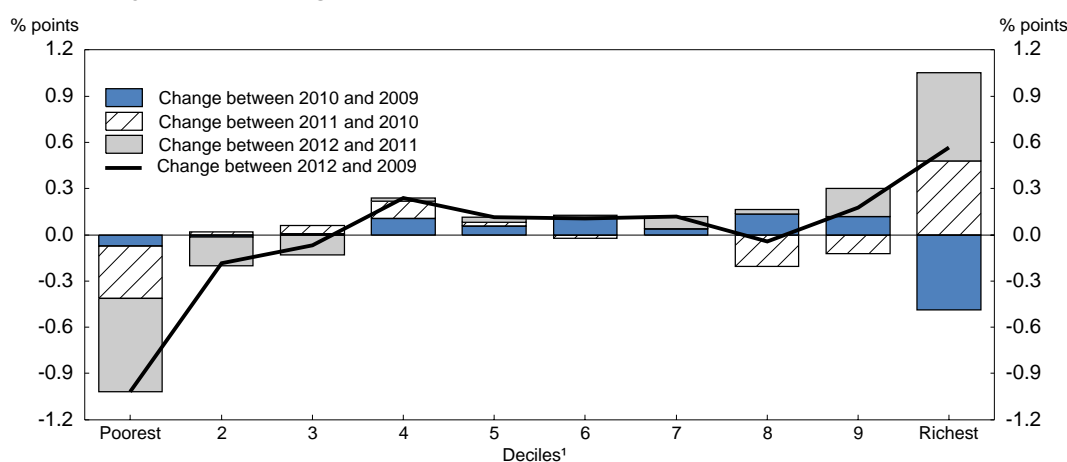
The micro-simulation results indicate that inequality, as measured by most indicators, rose in 2011 and 2012 as the recession deepened and unemployment rose (Table A2.1). The various indicators suggest that changes were more significant at the two ends (especially the lower end) of the income distribution, than around the middle. Analysis of the changes in relative income share by decile provides further support to this finding (Figure A2.1). The poorest lost around 1 percentage point of their share in total household disposable income between 2009 and 2012, followed by the second decile, which contrast with the gains made over the period by the top decile close to 0.6 percentage points. The rest of the deciles appear to have improved somewhat their relative position or to have kept it broadly unchanged.

Table A2.1. **Estimated inequality and poverty indices over the period 2009-12**

	2009	2010	2011	2012
Income inequality				
Gini index	0.351	0.349	0.354	0.368
S80/S20 income decile ratio	6.1	6.2	6.5	7.6
S90/S10 income decile ratio	10.3	10.4	12.3	17.4
Relative poverty ¹	13.6	13.8	13.7	15.2
"Anchored"poverty ²	11.9	15.8	19.7	25.5

1. The poverty line is 50% of median equivalised disposable income in each year.
2. The poverty line is fixed at 50% of median equivalised household disposable income in 2005.

Source: EUROMOD estimates.

Figure A2.1. **Changes in relative income shares since the onset of the crisis**

1. Income deciles were constructed according to OECD equivalence scale (*i.e.* square root of household size). Household disposable income is defined as total income, from all sources, of all household members, net of taxes and social insurance contributions.

Source: EUROMOD estimates.

Relative poverty (50% of median equivalised income) also seems to have increased in 2012, after remaining broadly unchanged in the previous two years (Table A2.1). The trend is more pronounced when poverty is measured against a benchmark “anchored” to half the median real incomes observed in 2005. This is not surprising, however, given the sharp adjustment of the economy since 2009.

Not all population groups were affected evenly by the rise in relative poverty. According to micro-simulation results, the rise impacted especially the unemployed, children, young adults (30-44 years) and students, while public and bank employees, liberal professions and the elderly (where relative poverty actually fell) were less affected (Table A2.2). Relative poverty also declines sharply with the level of educational attainment. No group, however, including university graduates, was spared from the increase in poverty. Regarding other population sub-groups, the burden of rising poverty appears to have affected disproportionately households paying rent or mortgage, compared to outright owner-occupiers, and the Athens area, where however poverty rates remained lower than elsewhere. The pattern is broadly similar when looking at the “anchored” poverty with some groups such as the unemployed, children, those with a lower education attainment, and students, being particularly affected by the rising poverty (Table A2.3).

Table A2.2. Relative poverty rates among population groups¹

	2009	2010	2011	2012
All	13.6	13.8	13.7	15.2
Gender				
Men	12.8	13.1	13.4	15.2
Women	14.3	14.4	14.0	15.2
Age				
0-17	14.3	15.3	16.3	19.8
18-29	11.8	12.8	13.1	15.3
30-44	10.4	11.8	13.0	16.7
45-64	12.9	13.0	13.0	14.0
65+	18.1	16.2	13.4	10.9
Area				
Athens	10.2	10.3	11.3	13.1
Rural/semi-rural areas	15.0	15.3	14.8	16.3
Tenure				
Rent or mortgage	11.0	13.0	13.5	16.5
No housing costs	14.5	14.1	13.8	14.7
Educational attainment				
Not completed primary education	17.7	18.2	18.0	19.6
Upper secondary	8.9	10.0	10.6	13.0
Tertiary	3.5	4.1	4.4	5.8
Labour market status				
Unemployed	22.9	26.9	27.2	32.6
Employee (private excl. banking)	5.4	5.3	5.6	6.4
Employee (public incl. banking)	0.1	0.1	0.1	0.1
Liberal profession	4.0	4.0	4.0	4.0
Own account worker	9.0	10.1	9.0	10.0
Farmer	27.0	25.6	23.1	23.5
Student	13.1	14.3	15.2	18.3

1. Individuals are ranked according to their household disposable income, equalised by the OECD equivalence scale (*i.e.* square root of household size). Household disposable income is defined as total income, from all sources, of all household members, net of taxes and social insurance contributions.

Source: EUROMOD estimates.

Table A2.3. “Anchored” poverty rates among population groups¹

	2009	2010	2011	2012
All	11.9	15.8	19.7	25.5
Gender				
Men	11.2	15.0	19.0	24.9
Women	12.5	16.6	20.4	26.1
Age				
0-17	12.7	17.2	22.3	30.3
18-29	10.6	13.9	18.4	25.8
30-44	9.4	13.3	17.5	25.2
45-64	11.3	14.6	18.1	22.9
65+	15.4	19.8	22.4	24.6
Area				
Athens	8.5	12.2	16.2	22.1
Rural/semi-rural areas	13.2	17.4	21.3	26.9
Tenure				
Rent or mortgage	9.8	14.7	19.1	26.1
No housing costs	12.6	16.2	19.9	25.3
Educational attainment				
Not completed primary education	15.4	20.5	25.1	32.0
Upper secondary	7.9	11.3	15.2	21.5
Tertiary	3.2	4.3	6.3	9.6
Labour market status				
Unemployed	20.3	29.1	33.6	45.2
Employee (private excl. banking)	4.6	6.1	8.4	13.9
Employee (public incl. banking)	0.1	0.1	0.3	0.8
Liberal profession	4.0	4.0	4.0	5.1
Own account worker	7.6	11.3	13.8	18.8
Farmer	24.4	28.9	31.0	34.4
Student	11.9	15.9	21.9	29.9

1. The fixed poverty threshold (50% of the 2005 median household disposable income, adjusted for inflation) was EUR 508 per month in 2009, EUR 531 in 2010, EUR 549 in 2011 and EUR 557 in 2012. Individuals are ranked according to their household disposable income, equalised by the OECD equivalence scale (*i.e.* square root of household size). Household disposable income is defined as total income, from all sources, of all household members, net of taxes and social insurance contributions. For the adjustment of the poverty line inflation, the OECD price index was used.

Source: EUROMOD estimates.

How has the burden of the adjustment been distributed?

Distinguishing the effects of consolidation policies from recession

As discussed earlier, micro-simulation techniques can distinguish, to the extent possible given their inter-relation, the impact of worsening of economic conditions and policy changes (in the current context, austerity policies) on the distribution of incomes over the period 2009-2012 (Box A2.2). These simulations quantify the relative impact of consolidation measures on income distribution, *ceteris paribus* (the residuals being attributed to economic conditions). Although the estimates capture solely the first-order effects on poverty and inequality, leaving out both the potential behavioural responses and interactions between austerity and the recession, they provide useful insights on the distributional impact of the austerity measures.

Box A2.2. Estimating the distributional effects of austerity versus recession

The following micro-simulations were undertaken to distinguish the *ceteris paribus* effects of austerity (narrowly defined as a set of consolidation policies) on inequality and poverty from those of the wider recession (in the form of rising unemployment and falling earnings in the private sector). The exercise is equivalent to assuming that government policies in a specific year raised taxes and cut public sector pay, pensions and other social benefits, but left nominal pre-tax incomes and jobs in the private sector at their previous year level. More specifically:

- For the production of the “austerity alone” results, the micro-simulation model was run for year t on the basis of:
 - year t-1 dataset as input dataset (*i.e.* no labour market adjustments);
 - year t-1 uprating factors for (*i*) employment income variables of private sector employees, and (*ii*) self-employment income variables of farmers, own account workers and liberal professions;
 - year t uprating factors for all other variables (*i.e.* employment income of public sector workers, non-simulated social benefits etc.);
 - year t tax and benefit policies.
- For the production of the “austerity and recession” results, the model was run again for year t on the basis of:
 - year t dataset as input dataset (*i.e.* with labour market adjustments);
 - year t uprating factors for (*i*) employment income variables of private sector employees, and (*ii*) self-employment income variables of farmers, own account workers and liberal professions; as well as:
 - year t uprating factors for all other variables (*i.e.* employment income of public sector workers, non-simulated social benefits etc.);
 - year t tax and benefit policies.

The difference (labour market adjustments plus change in incomes of employment and self-employment in the private sector) is an approximation of the effect of recession, over and above the effect of austerity policies.

On the basis of micro-simulations, despite sizeable consolidation, austerity policies *per se* appear to have initially reduced inequality and relative poverty, mitigating the impact of the recession (Table A2.4). As consolidation intensified in 2012, the measures appeared to have made income distribution slightly (but statistically significant) more unequal. The proportion of population whose income fell below a poverty line anchored in 2005 in real terms increased with each round of austerity measures, and was given a further boost by the steady rise in unemployment. Of the additional 13.6% of the population below the 2005 poverty line in 2012, compared to 2009, around 40% did so as a result of consolidation measures alone.

Table A2.4. **Disaggregating the redistributive effects of austerity and the wider recession**

	2009	2010		2011		2012	
		Austerity alone ¹	Austerity + recession	Austerity alone ¹	Austerity + recession	Austerity alone ¹	Austerity + recession
Income inequality							
Gini index	0.351	0.347	0.349	0.346	0.354	0.355	0.368
S80/S20	6.1	6.0	6.2	6.1	6.5	6.6	7.6
S90/S10	10.3	10.1	10.4	10.5	12.3	12.6	17.4
Relative poverty ²	13.6	13.3	13.8	13.4	13.7	13.7	15.2
“Anchored” poverty ³	11.9	14.0	15.8	17.8	19.7	21.0	25.5

1. The impact of austerity policies in year t is assessed relative to the state of the economy in t-1. For example, on the basis of the Gini index, austerity policies (alone) made income distribution somewhat less unequal in 2010 compared to 2009 (0.347 versus 0.351). However, they increased slightly inequality in 2012 compared to 2011 (0.355 versus 0.354). The S90/S10 measure shows a larger rise in inequality in 2012.

2. The poverty line is 50% of median equivalised disposable income in each year.

3. The poverty line is fixed at 50% of median equivalised household disposable income in 2005.

Source: Based on micro-simulation analysis (EUROMOD).

Disaggregating the impact of consolidation policies

The redistributive impact of each austerity policy (for a detailed description see Annex A1) on inequality can be formally assessed with the Reynolds and Smolensky index. The index shows the difference between the counterfactual value of the Gini coefficient in the absence of all consolidation measures being assessed, and its actual value after the implementation of these measures in turn (Duclos and Araar, 2006; Leventi and Matsaganis, 2013). Overall, the results from the micro-simulation suggest that measures which either placed a higher burden on high incomes, or those mostly affected were at the top of income distribution, such as cuts in public sector pay, cushioned the impact on inequality. This inequality-reducing effect impact was partially offset by policies affecting low-income households, such as the 2012 cut in unemployment benefits.

More specifically, micro-simulation estimates for the period 2010 to 2012 indicate that changes in personal income taxes (in 2010 and 2011) and cuts in public sector pay were progressive (Table A2.5). The introduction of the pensioners' solidarity contribution and cuts in pension benefits also seemed to have a progressive effect, though weaker. On the other hand, the 2012 cut in unemployment benefits (Table A2.5), and the 2010 VAT hikes (Leventi and Matsaganis, 2013), were regressive. The 2011 emergency property tax appears to be, in principle, progressive. However, for a group of people with assets but low income, this tax may be regressive from an income point of view. They may find it difficult under the current recessionary conditions to sell their property (or part of it) at reasonable prices.

Table A2.5. **Disaggregating the redistributive effect of austerity measures on inequality**

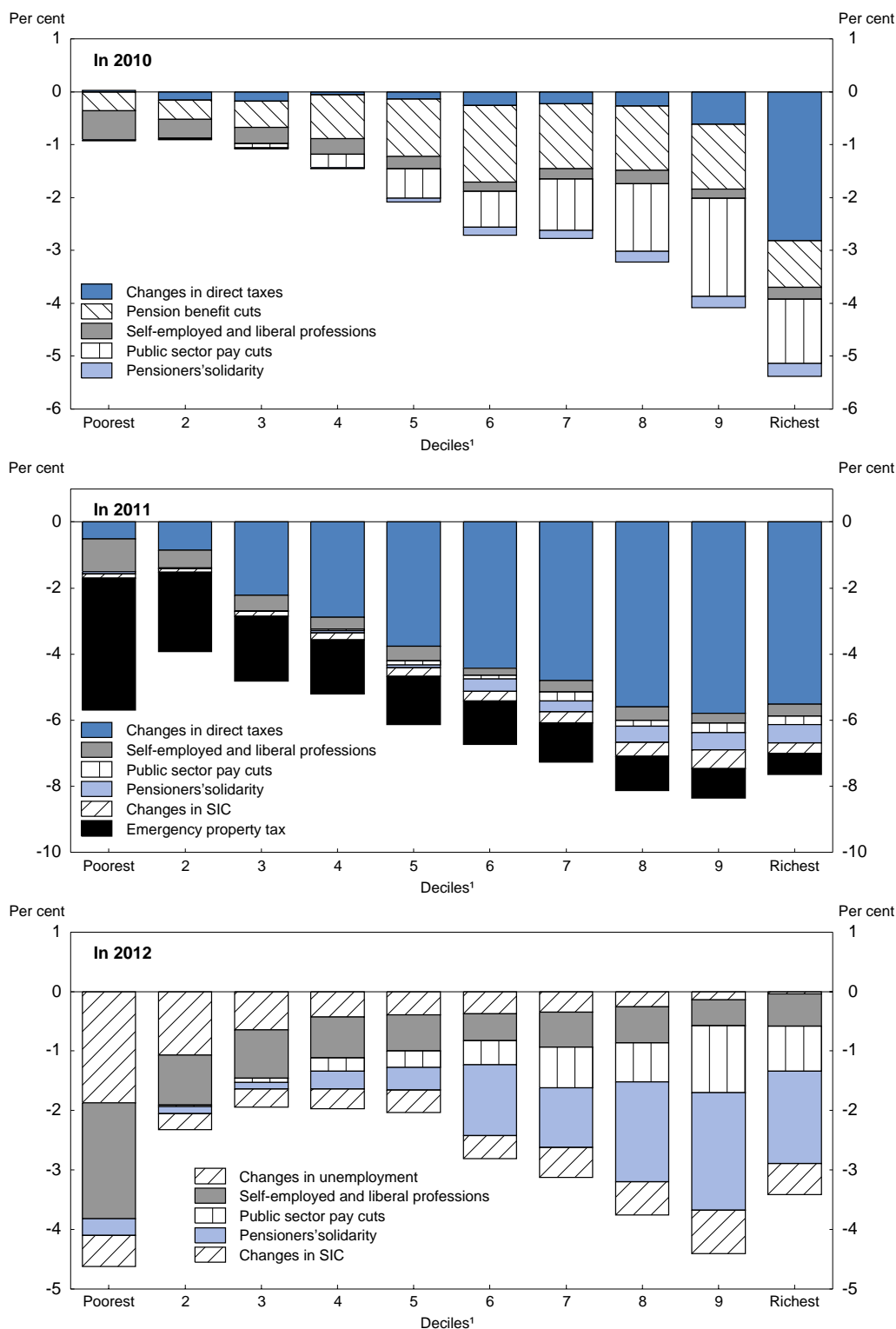
	Reynolds-Smolensky index ¹		
	2010	2011	2012
Direct taxes ²	+0.0046	+0.0073	no change in policy
Public sector pay	+0.0024	+0.0004	+0.0013
Pension benefits	+0.0003	no change in policy	no change in policy
Pensioners' solidarity contributions ³	+0.0004	+0.0009	+0.0024
Social insurance contributions ⁴	no change in policy	+0.0004	+0.0004
Self-employed extra charge	-0.0003	-0.0004	-0.0007
Emergency property tax	non existent	-0.0031	no change in policy
Unemployment insurance benefit	no change in policy	no change in policy	-0.0015

1. The Reynolds-Smolensky index shows the difference between the counterfactual value of the Gini coefficient in the absence of all 2010-2012 austerity measures being assessed relative to its value after the implementation of the austerity policy in question. Positive (negative) values indicate progressive (regressive) impact. For an analytical description of the policy measures see Annex A1.
2. For 2010, the estimates of the index refer to changes in personal income tax, introduction of solidarity contribution and emergency tax on large incomes. For 2011, estimates refer to changes in personal tax income.
3. Solidarity contributions levied on main and supplementary pensions.
4. Additional social insurance contributions for unemployment protection.

Source: Table A2.2.6.

Detailed analysis of the impact of each consolidation measure by household income decile group tends to support the above findings (Figure A2.2). A strong progressive impact can be seen for, example, in the case of direct tax changes in 2010, with the greatest losses incurred by the top decile, while public pension cuts affected mostly the middle of the distribution. On the other hand, policies such as the 2012 cut in unemployment benefits had the largest impact on the first two deciles, especially the lowest one.

Figure A2.2. **Change in household disposable income due to consolidation**



1. Income deciles were equalised according to the OECD equivalence scale (*i.e.* square root of household size). Household disposable income is defined as total income, from all sources, of all household members, net of taxes and social insurance contributions. For an analytical description of the policy measures see Sub-Annex A2.1.

Source: EUROMOD estimates.

Bibliography

- Atkinson, A. (1970), “On the Measurement of Inequality”, *Journal of Economic Theory* 2, pp. 244–63.
- Baldini M. and Ciani E. (2010), ‘Diseguaglianza e Povertà Durante la Recessione’ (Inequality and Poverty During the Recession), Università di Modena e Reggio Emilia, Centro di Analisi delle Politiche Pubbliche, *CAPPaper*, No. 75.
- Bank of Greece (2013), *2012 Governor’s Report*, Athens: Bank of Greece.
- Bellù, G. and P. Liberati (2006), ‘Inequality Analysis – The Gini Index’, Food and Agriculture Organisation, United Nations.
- Duclos J.-Y., and A. Araar A (2006), ‘Poverty and Equity: Measurement, Policy, and Estimation with DAD’, Boston/Dordrecht/London: Kluwer Academic Publishers.
- El.Stat. (2013), *Annual National Accounts: Gross Value Added by Industry Years 2000–2012*, Athens: Hellenic Statistical Authority.
- Eurostat (2013), “Using EUROMOD to Nowcast Poverty Risk in the European Union”, *Eurostat Methodological and Working Papers*, European Commission.
- Figari F., *et al.*, (2011), “Economic Downturn and Stress Testing European Welfare Systems”, in *Who Loses in the Downturn? Economic Crisis, Employment and Income Distribution*, Research in Labor Economics, Vol. 32, Bingley: Emerald.
- Immervoll H., *et al.* (2006), “The Sensitivity of Poverty Rates to Macro-level Changes in the European Union”, *Cambridge Journal of Economics*, Vol. 30, pp. 181–99.
- Leventi, C., and M. Matsaganis, (2013), “Distributional Implications of the Crisis in Greece in 2009-2012”, *EUROMOD Working Paper*, No. EM 14/13, August.
- Matsaganis, M. and M., Flevotomou (2010), “Distributional Implications of Tax evasion in Greece”, *GreeSE Paper*, No. 31, Hellenic Observatory, London School of Economics.
- OECD (2013), *Economic Policy Reforms: 2013: Going for Growth*, OECD Publishing, Paris.
- Paulus, A. *et al.* (2010), “The Distributional Impact of In-Kind Public Benefits in European Countries”, *Journal of Policy Analysis and Management*, vol. 29, pp. 243–66.
- Sutherland, S. (2001), “EUROMOD: An Integrated European Benefit-Tax Model - Final Report: Executive Summary”, ed. H. Sutherland, A Project Financed by the Targeted Socio-Economic Research Programme of the European Commission.
- Sutherland, H., and F. Figari (2013), “EUROMOD: The European Union Tax-Benefit Microsimulation Model”, *EUROMOD Working Paper*, No. EM 8/13, March.

*Sub-Annex A2.1***Consolidation measures⁴**

The 2010-2012 austerity measures that affected household incomes comprised expenditure cuts and tax hikes, as well as changes in labour laws. More specifically:

Public sector pay

- The 13th and 14th salaries paid to civil servants and public enterprise workers until the onset of the crisis were abolished in 2010. In their place, flat-rate vacation allowances totalling EUR 1 000 a year were introduced for public sector workers earning less than EUR 3 000 per month.
- Special allowances paid to civil servants were reduced by 20%. Public enterprise workers, whose special allowances other than family allowances are part of base pay, had the latter cut by 10%.
- Public sector salaries were frozen at their 2009 level and capped at EUR 5 981 a month.

Pension benefits

- The 13th and 14th pensions were abolished, save few exemptions) in 2010 and replaced by flat-rate vacation allowances totalling EUR 800 a year (payable only to pensioners aged over 60 receiving a pension below EUR 2 500 per month).
- In January 2013 flat-rate vacation allowances were also abolished, but this change is beyond the scope of the current analysis.

Social benefits

- The payment of housing benefit (OEK rent benefit for private sector employees, the main housing benefit in Greece) was suspended for 2010.
- The 13th and 14th payment of EKAS (an income-tested supplement aimed at recipients of old age and survivor pension) was also abolished.
- In March 2012 the unemployment insurance benefit was reduced by 22% (from EUR 454 to EUR 360).

Direct taxation

- **Personal income tax.** The structure of personal income tax changed three times in 2010-2012 (April 2010, October 2011 and December 2012), with the most important revisions depicted in Table A2.1.1. The 2012 reform falls outside the scope of this analysis as it will only influence incomes earned in 2013 and beyond.

4. The discussion in the Annex draws on Leventi and Matsagani (2013).

Table A2.1.1. **Changes in personal income tax**

	2009	2010	2011-2012
Tax bands	5	9	8
Max tax rate	40% (for annual incomes over EUR 75 000)	45% (for annual incomes over EUR 100 000)	same as in 2010
Zero tax bracket	EUR 12 000 for employees and pensioners EUR 10 500 for all others	EUR 12 000 for all	EUR 9 000 for persons aged below 30 or above 65 EUR 5 000 for all others
Increase in zero income tax bracket due to children	1 st child: EUR 1 000 increase 2 nd child: EUR 2 000 increase 3 rd child: EUR 10 000 increase	1 st child: EUR 1 500 increase 2 nd child: EUR 3 000 increase 3 rd child: EUR 11 500 increase	1 st child: EUR 2 000 increase 2 nd child: EUR 4 000 increase 3 rd child: EUR 7 000 increase
Tax allowances/credits	spending on private insurance/installation of eco-friendly energy systems eligible for tax allowance	spending on private insurance/installation of eco-friendly energy systems eligible for tax credit	tax credits: 50% reduced tax allowances: abolished

1. In 2009 a further EUR 1 000 increase in the lowest income bracket is applicable for each subsequent child after the third. In 2010 (2011-12) a further EUR 2 000 (EUR 3 000) increase in the lowest income bracket is applicable for each subsequent child after the third.
2. Since 2010 the tax base was extended to include unemployment benefits, large family benefits and non-contributory disability benefits, when taxable income exceeded 30 000 a year.

- **Emergency tax on large incomes.** In 2010 personal incomes over EUR 100 000 earned in 2009 were made subject to a one-off emergency tax at 1%.
- **Solidarity contribution.** An emergency tax introduced in 2010, paid by individuals with taxable incomes exceeding EUR 12 000 per year, with contribution rates rising from 1% (for incomes between EUR 12 000 and EUR 20 000 per year) to 4% (for incomes over EUR 100 000 per year). The tax rates apply to the entire amount of income (not just the part exceeding the threshold).
- **Self-employed and liberal professions contribution.** A special levy on self-employed and liberal professions was introduced in 2010, with the tax set to EUR 300 per year. In 2011 (2012) it amounted to EUR 500 (EUR 650) for those self-employed and liberal professionals working more than five years in areas with population exceeding 200 000 inhabitants and EUR 400 (EUR 550) for those in areas with population between 500 and 200 000 inhabitants. No tax was levied for self-employed and liberal professionals working in areas with less than 500 inhabitants.
- **Pensioners' solidarity contributions:**
 - The first special levy on pension incomes (labelled 'pensioners' solidarity contribution') was introduced in August 2010. Since then, main old-age pensions exceeding EUR 1 400 per month are subject to taxation with the rates rising from 3% for pensions between EUR 1 400 and EUR 1 700 per month to 10% (14% in 2011-2012) for pensions over EUR 3 500 per month.
 - An additional levy on main old-age pensions was introduced in August 2011. The contribution applies to pensioners below 60 (except from mothers of underage children) with main pensions exceeding EUR 1 700 per month. The contributions' rates rise from 6% for pensions between EUR 1 700 and EUR 2 300 per month to 10 % for pensions over EUR 2 900 per month. The tax rates apply to all pension income minus the 'pensioners' solidarity contribution'.
 - Since November 2011 all pensioners below 55 with main old-age pensions exceeding EUR 1 000 are subject to 40% taxation. Persons aged above 55 with main old-age pensions exceeding EUR 1 200 are subject to 20% taxation. The tax rates apply to the pension amount exceeding the above thresholds after all other solidarity contributions concerning main pensions have been deducted.

- Since January 2012 all main old-age pensions exceeding EUR 1 300 are subject to an extra 12% taxation. The tax rate applies to the pension amount exceeding EUR 1 300 after the deduction of all the above mentioned solidarity contributions. Pensions are not allowed to fall below EUR 1 300.
- Since August 2011 *supplementary* pensions exceeding EUR 300 per month are also subject to taxation, with tax rates rising from 3% for pensions between EUR 300 and EUR 350 per month to 10% for pensions exceeding EUR 650 per month. In January 2012 an additional tax for supplementary pensions was introduced with rates increasing from 10% for pensions up to EUR 250 to 20% for pensions over EUR 300 per month.
- Emergency property tax. Since 2011 all owners of commercial or residential property in Greece are subject to an emergency property tax. The tax, varying from EUR 3 to EUR 16 per square meter, is a function of the cadastral value of the building and its size. A specific factor varying from 1 to 1.25 according to the age of the building is also applicable (property tax = tax rate × square meters × age factor).⁵ A reduced rate of EUR 0.50 per square meter applies to vulnerable population groups (that is, families with more than three children and yearly taxable income below EUR 30 000 per year or persons with severe disability). Long term unemployed or recipients of unemployment benefit for more than 6 months, with family income not exceeding EUR 12 000 per year (plus EUR 4 000 for every dependent child) are exempted from the tax.

Social insurance contributions

- In August 2011 private sector employees' and employers' social insurance contributions for unemployment protection were increased by 0.5%. The respective civil servants' and self-employed workers' contributions were increased by 2% and EUR 10 per month respectively.

Indirect taxation

- The standard rate of VAT was increased from 19% to 23% in two steps between March and May 2010. Base and reduced rates were increased from 4.5% to 5.5% and from 9% to 11% respectively. Excise duties on alcohol, tobacco, luxury items, and especially heating oil, also increased.

Labour laws

In 2010 entry wages for workers aged below 25 were allowed to be set 20% below the statutory minimum for a maximum duration of one year. Moreover, in February 2012 minimum wage was cut by 22% for workers aged above 25 and 32% for workers below 25. These changes were captured indirectly in EUROMOD by using Bank of Greece estimates for earnings growth.

5. Due to the lack of information on the age of buildings, in EUROMOD the age factor was set to 1 for all of the tax payers. The tax rates per square meter used, taken from Leventi and Matsaganis (2013), were the average rates for urban and rural/ semi-rural areas according to a large tax data sample provided by the Greek authorities (*i.e.* EUR 5.30 per square meter for those residing in urban areas and EUR 3.70 per square meter for those residing in rural/ semi-rural areas). The use of average tax rates introduces a first source of bias. Moreover, the fact that the simulation of the emergency tax is based on EU-SILC data on home ownership of main residence, which does not provide information as to whether the household also owns a second home introduces a second source of bias.

SUB-Annex A2.2

EUROMOD parameters and resultsTable A2.2.1. **EUROMOD uprating factors: incomes**

	2006	2007	2008	2009	2010	2011	2012
Employment earnings							
Dependent employment earnings	1.000	1.052	1.117	1.169	1.115	1.096	1.024
Public sector employees	1.000	1.038	1.112	1.170	1.079	1.074	1.033
Workers in public enterprises	1.000	1.061	1.130	1.162	1.128	1.109	1.006
Private sector employees excl. banking	1.000	1.089	1.089	1.129	1.109	1.110	1.027
Banking employees	1.000	1.071	1.159	1.248	1.179	1.086	0.983
Self-employed earnings							
Farmers	1.000	1.026	0.965	0.927	0.894	0.951	0.916
Own account workers	1.000	1.052	1.117	1.169	1.115	1.096	1.024
Liberal professions	1.000	1.052	1.117	1.169	1.115	1.096	1.024
Investment - property income							
Investment income	1.000	1.031	1.119	1.089	1.164	1.269	1.368
Property income – rent	1.000	1.045	1.086	1.125	1.152	1.162	1.138
Other income							
Private transfers	1.000	1.052	1.117	1.169	1.115	1.096	1.024
Non-cash income	1.000	1.052	1.117	1.169	1.115	1.096	1.024
Income received by children <16	1.000	1.052	1.117	1.169	1.115	1.096	1.024

Source: El.Stat., Bank of Greece.

Table A2.2.2. **EUROMOD uprating factors: assets and expenditure items**

	2006	2007	2008	2009	2010	2011	2012
Assets							
Loan value	1.000	1.030	1.074	1.088	1.139	1.175	1.186
Financial capital	1.000	1.030	1.074	1.088	1.139	1.175	1.187
Expenditure items							
Rent paid	1.000	1.045	1.086	1.125	1.152	1.162	1.138
Education expenses	1.000	1.030	1.074	1.088	1.139	1.175	1.187
Housing cost	1.000	1.031	1.119	1.089	1.164	1.269	1.368
Interest on mortgage payment	1.000	1.030	1.074	1.088	1.139	1.175	1.187
Other housing costs	1.000	1.031	1.119	1.089	1.164	1.269	1.368
Medical expenses	1.000	1.030	1.074	1.088	1.139	1.175	1.187
Expenses for new heating systems	1.000	1.030	1.074	1.088	1.139	1.175	1.187
Alimony expenditure	1.000	1.033	1.082	1.107	1.120	1.132	1.123
Other maintenance payments	1.000	1.033	1.082	1.107	1.120	1.132	1.123
Expenditure on private pensions	1.000	1.030	1.074	1.088	1.139	1.175	1.187
Nominal GDP deflator	1.000	1.033	1.082	1.107	1.120	1.132	1.123
Harmonised consumer price index	1.000	1.030	1.074	1.088	1.139	1.175	1.187

Source: El.Stat., Bank of Greece.

Table A2.2.3. **EUROMOD uprating factors: non-simulated social benefits**

	2006	2007	2008	2009	2010	2011	2012
Retirement pensions/ benefits							
Main old age pension	1.000	1.040	1.071	1.071	1.071	1.071	1.071
Supplementary old age pension	1.000	1.040	1.071	1.071	1.071	1.071	1.071
Other minor pensions	1.000	1.040	1.071	1.071	1.071	1.071	1.071
Survivors pension	1.000	1.040	1.071	1.071	1.071	1.071	1.071
Orphans pension	1.000	1.040	1.071	1.071	1.071	1.071	1.071
Pensioners' social solidarity benefit	1.000	1.219	1.436	1.436	1.436	1.436	1.436
Social pension	1.000	1.220	1.449	1.449	1.581	1.581	1.581
Private pension	1.000	1.030	1.074	1.088	1.139	1.175	1.187
Unemployment benefits							
Unemployment insurance	1.000	1.181	1.299	1.459	1.459	1.459	1.156
Unemployment assistance	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Minor unemployment benefits	1.000	1.181	1.299	1.459	1.459	1.459	1.156
Family benefits							
Third child benefit	1.000	1.029	1.069	1.091	1.119	1.106	1.106
Large family benefit	1.000	1.029	1.069	1.091	1.119	1.106	1.106
Lifetime pension for 4+ children	1.000	1.029	1.069	1.091	1.119	1.106	1.106
Civil servants family benefit	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Tax credit to families with children	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Minor family benefits	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Sickness – maternity benefits							
Contributory maternity benefits	1.000	1.052	1.117	1.169	1.115	1.096	1.024
Health benefits	1.000	1.052	1.117	1.169	1.115	1.096	1.024
Other benefits/ pensions/ taxes							
Disability pensions	1.000	1.040	1.071	1.071	1.071	1.071	1.071
Disability benefits	1.000	1.045	1.127	1.218	1.318	1.423	1.423
Housing benefits	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Scholarships and grants	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Minor social assistance benefits	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Large property tax	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Source: El.Stat., various benefit agencies.

Table A2.2.4. Unemployment rates based on Labour Force Survey disaggregated by age, gender and educational attainment (%)

	2009	2010	2011	2012
Men¹	6.8	9.9	14.9	20.7
Age:				
20-24	18.8	25.4	36.9	46.0
25-29	12.1	16.4	26.1	34.5
30-44	5.6	8.7	13.2	19.2
45-64	4.6	6.8	10.3	14.8
Educational attainment				
PhD or Master's	5.6	6.7	10.3	12.1
University	4.8	6.1	9.0	12.5
Technical and post secondary	7.1	10.3	15.3	21.4
Upper secondary	7.2	10.2	15.9	21.8
Lower secondary	8.4	12.2	17.2	22.7
Primary (completed)	6.2	10.0	16.1	24.6
Incomplete primary / no schooling	14.1	19.0	33.1	36.4
Women¹	13.0	15.6	21.4	27.3
Age:				
20-24	32.5	39.7	49.5	60.4
25-29	18.8	23.0	33.8	39.7
30-44	12.4	15.0	20.3	26.3
45-64	7.6	9.1	12.4	18.1
Educational attainment				
PhD or Master's	9.7	9.4	10.2	13.4
University	8.4	10.5	16.3	20.1
Technical and post secondary	15.2	19.2	25.2	31.7
Upper secondary	14.8	17.7	24.7	30.5
Lower secondary	15.8	17.7	23.5	32.4
Primary (completed)	11.7	13.4	16.6	23.7
Incomplete / no primary	13.9	18.3	30.3	40.5

1. Aged 20-64.

Source: Labour Force Survey (2012 Q1-Q3 average).

Table A2.2.5. Unemployment rates in the adjusted EU-SILC 2007 disaggregated by age, gender and educational attainment (%)

	Original dataset	Adjustment for		
		2010	2011	2012
Men¹	6.3	10.0	15.2	21.3
Age:				
20-24	20.2	26.1	36.1	44.5
25-29	12.0	15.3	24.0	31.8
30-44	3.7	8.4	13.2	19.6
45-64	4.9	7.1	10.8	15.6
Educational attainment				
PhD or Master's	4.2	7.1	10.1	11.7
University	4.7	6.1	8.9	12.5
Technical and post-secondary	8.0	10.3	15.2	21.3
Upper secondary	6.7	10.2	15.8	21.8
Lower secondary	6.4	12.2	17.2	22.7
Primary (completed)	6.1	10.0	16.0	24.6
Incomplete primary / no schooling	8.3	18.7	31.0	35.7
Women¹	13.0	15.7	20.8	27.3
Age:				
20-24	38.1	40.6	45.7	55.0
25-29	18.6	24.3	32.5	39.7
30-44	11.7	13.8	19.2	25.6
45-64	6.0	8.3	11.8	17.5
Educational attainment				
PhD or Master's	22.5	22.5	22.5	22.5
University	7.6	10.5	15.0	20.1
Technical and post-secondary	13.3	19.2	25.2	31.7
Upper secondary	15.5	17.7	24.7	30.5
Lower secondary	16.7	17.7	23.5	32.4
Primary (completed)	11.4	13.4	15.4	23.7
Incomplete / no primary	6.4	14.2	27.2	40.5

Notes: Due to its close proximity to the 2009 LFS unemployment rates, the original EU-SILC dataset was used for accounting for the pre-crisis (i.e. 2009) unemployment.

1. Aged 20-64.

Source: EU-SILC 2007.

Table A2.2.6 Redistributive impact of austerity measures on inequality

Reynolds-Smolensky index ¹									
	2010			2011			2012		
	Gini_counterfactual	Gini_actual	RS	Gini_counterfactual	Gini_actual	RS	Gini_counterfactual	Gini_actual	RS
Direct taxes ²		0.3512	0.0046		0.3525	0.0073		0.3705	0.0000
Public sector pay		0.3535	0.0024		0.3593	0.0004		0.3692	0.0013
Pension benefits		0.3556	0.0003		0.3598	0.0000		0.3705	0.0000
Pensioners' solidarity contributions ³		0.3554	0.0004		0.3588	0.0009		0.3682	0.0024
Social insurance contributions ⁴	0.3558	0.3558	0.0000	0.3598	0.3593	0.0004	0.3705	0.3701	0.0004
Self-employed contribution		0.3561	-0.0003		0.3601	-0.0004		0.3713	-0.0007
Emergency property tax		non existent	non existent		0.3629	-0.0031		0.3705	0.0000
Unemployment insurance benefit		0.3558	0.0000		0.3598	0.0000		0.3720	-0.0015

1. The Reynolds-Smolensky index shows the difference between the counterfactual value of the Gini coefficient in the absence of all 2010-2012 austerity measures being assessed relative to its value after the implementation of the austerity policy in question. Positive (negative) values indicate progressive (regressive) impact.
2. For 2010, the estimates of the index refer to changes in personal income tax, introduction of solidarity contribution and emergency tax on large incomes. For 2011, estimates refer to changes in personal tax income.
3. Solidarity contributions levied on main and supplementary pensions.
4. Additional social insurance contributions for unemployment protection.

Source: Based on micro-simulation analysis (EUROMOD).

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