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Institut für Makroökonomie
und Konjunkturforschung
Macroeconomic Policy Institute

March 2015 38

Study

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GREECE: SOLIDARITY AND ADJUSTMENT IN TIMES OF CRISIS

The Study was supported by the Macroeconomic Policy Institute of the Hans-Boeckler-Foundation

Abstract

This report attempts to examine the impact of the crisis and crisis policies on incomes, inequality and poverty in Greece. Based on extensive income and tax data, it investigates changes in incomes, direct, indirect and property taxation and their incidence between 2008 and 2012-13,
their impact on pre- and post-tax inequality and the resulting social reclassifications within the Greek society. The report is distinguishing income by sources at the deciles level, including the top 1% and 0.1%, household and individual income while focusing also on the sub-groups of the 'same households' and the 'same individuals'. Furthermore, the analysis combines unemployment and income data and uses an 'index of despair' reflecting the pressure felt by households hit from salary drop and unemployment. The findings suggest that pauperisation hit large parts of the society, that policies had very differentiated effects on different groups and that, therefore, average values obscure contrasting changes in inequality regarding particular sub-groups, that during the crisis all income classes comprise winners and losers and last, but not least, that many macro-variables and social indicators were the result of a deficient crisis management approach and ideological inflexibility coupled to established political interests, making the exit from the crisis more complicated and painful. The findings of this analysis should be assessed in the light of the severe economic depression caused by the Troika's policies.

Keywords: Income distribution, fiscal policy, crisis management

JEL classifications: D31, E62, H12

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Chapter 1

Objectives of the study

The problems of poverty and inequality constitute a focal point of public social and political debates during the current economic crisis. However, the arguments put forward are often insufficiently founded and are sometimes discredited by the results of empirical studies. The objective of this research is to explore the distributional impact of the adjustment policies implemented in Greece during the crisis period (2008-2013), in particular the extent to which the principle of solidarity has been taken into consideration in policy-making during these years, as well as the equity impact of specific policies.

The determinant factors of inequality and its components will be explored by examining the most important policy tools of adjustment which have been used (direct and indirect taxes, property taxes, income and pension cuts and institutional changes), but also the two most significant effects of the crisis: the collapse of GDP and employment. Based on a decomposition analysis we will examine the contribution of various income sources and the impact of policy decisions on the structure of inequality. The analysis of unemployment (data 2014), the level of labour income of households, as well as the underlying policy measures which had a more specific impact on these variables, will allow us to explore the changes in poverty risks and social exclusion during the period of crisis.

Based on real and detailed data on incomes, taxes and property, broken down by deciles, we will seek to show the driving forces behind the deep re-rankings in the income and property hierarchy of the Greek society and in particular their impact on the bottom, middle and top strata of society.

The issue of solidarity and inequality raises many policy questions, such as:

- In a crisis affecting across-the-board income and employment, under which conditions should solidarity and equality considerations trigger policy intervention?
- Which specific interventions could and should preserve solidarity and equality and for which social groups?
- Does it matter whether inequality is the outcome of market forces or of policy decisions?
- Does increasing inequality exert corrosive effects on other critical social, economic or political variables?
- What are the distributional consequences of fiscal austerity measures? Does the size of fiscal adjustment matter for the policy tools to be used?
- How does the distribution of the burden of adjustment impact the drivers of growth and the path of the economy to an exit from the crisis?

In times of crisis, lack of solidarity is also associated with the emergence of new divides and broader adverse social situations, the impact of which is not reflected in conventional social indices, such as:

- The recession, coupled with tight liquidity and a range of government practices (e.g. delays in the payment of arrears to suppliers of products and/or services or delays in VAT or other

tax refunds to firms and individuals) exerts additional pressure to thousands of employees, because of their second-round effects, e.g. delays in wage and salary payments for many months.

- Questions on solidarity are raised because of the different institutional rules and treatment concerning the employees in the public and the private sector, respectively.
- Tax increases and cuts in public services coupled with austerity have affected negatively a broad range of other aspects, such as equity in education and have led to phenomena of 'energy poverty', which cannot be easily quantified by standard inequality indices and statistics.

The analysis will attempt to give insight into some of these issues to the extent that there is sufficient material for a scientific analysis.

After seven years of recession, Greece has achieved substantial progress in fiscal adjustment till the end 2014 and has adopted painful policies with regard to wage and pension cuts, labour relations, layoffs and social policies. However, the country is still in a very fragile and uncertain situation, fiscal adjustment has as yet failed to drive the economy into a growth trajectory, while the fallout of the crisis has spread from the economy to the political level. As will be shown, certain structural aspects of inequality played a critical role as a determinant of the crisis, while the same underlying relations did not change significantly during the crisis.

A more general question concerns the inverse cause-effect relationship between solidarity and policy making. The question is whether weak solidarity has facilitated or impeded the adjustment process and growth, the latter being - besides fiscal adjustment- the second crucial factor of a successful rebalancing policy. Obviously, the question is not easy to answer. Success or failure is associated with a wide variety of economic, social and political factors, while social reactions depend also on the perceptions which are generated by ideologies, political rhetoric, knowledge, established social attitudes and stereotypes, as well as by the social capability to judge and decide between two future, hypothetical, prospects and their hypothetical consequences: one of no change and one involving different types of changes.

Finally, the findings of this analysis and our attempt at a synthetic presentation, seek not only to explain some of the most crucial social effects of the crisis, but also to shed light on the possible nexus between the issues examined and a growth- and socially oriented policy to overcome the present adverse social and political landscape.

Chapter 2

Definitions and methodological issues

2.1 Conceptual clarifications

Solidarity is a key concept in this approach. The term "solidarity" is open to many definitions and interpretations, economic, sociological and political ones. Hence, it is necessary to clarify the notion of solidarity as used in the context of this study and to make it analytically functional. From an economic viewpoint, in times of expanding growth, solidarity is supposed to be associated with state interventions in the functional distribution of income with the aim to change it in favour of weaker income groups. However, solidarity beyond its economic content encompasses broader aspects of life[1], which are decisive for the status of a citizen, even if they cannot always be quantified.

In this approach, we will focus on policy decisions which alter the relative position of various social groups during the crisis period. Thus, changes caused by the crisis and the macroeconomic or financial developments during these crisis years remain in principle outside the scope of this approach. However, macro-developments are also shaped by government decisions, at least partly. Hence, the division between policy- and market-related effects on solidarity is not always clear-cut. The reason for disregarding the latter effects is practical: it is very difficult to analyse such interconnections and separate the impact of policy measures from the impact of market changes on the relative position of social groups without overly expanding the array of policy measures to be examined.

In this respect, the main criterion to be used in this study is the change of the income distribution as a result of various policy measures and to achieve a certain view on the impact of other factors. Finally, policy has to tackle adverse situations also in case market forces overturn established balance and generate serious adverse social effects. Methodologically, however, a range of important issues remain open:

- The study focuses on the changes concerning solidarity or inequality during the crisis compared with the situation prevailing before the crisis (2008). A question that remains open refers to the extent of changes that could justify the use of the term "solidarity". Small policy-induced changes could indeed be a result of solidarity considerations. However, solidarity measures, depending on their weight and the context within which they are taken, could be associated with increasing, decreasing or stable inequality. Under standard assumptions, higher solidarity is expected to lead to a lower inequality level and vice versa. Yet, solidarity cannot mean a simple linear change of the situation of all social groups affected by crisis policy. Social groups falling below or approaching the line of poverty should be of priority for policy-making. Therefore, a proportional or disproportional change of the relative positions (based on incomes, tax burden, etc.) allow different interpretations with regard to solidarity. Depending on the income and property conditions, solidarity is associated with disproportional rather than proportional

[1] B. Deacon, S. Cohen (2011), N.H. Smith, A.Laitinen (2009), C. Sabbagh (2003).

sacrifices. Always, however, the central question is 'how much' and what kind of support would indicate real solidarity. Moreover, inequality measures indicate only the income-related aspects of the relative positions of individuals, households and/or social groups. They underestimate or even exclude non-monetary and other effects of the policy measures, such as for instance the impact of long-term youth unemployment on social and political inclusion.

- The question of inequality and solidarity in Greece cannot be analysed overlooking the fact that even during the crisis significant tax evasion practices or state-faciliated tax aversion prevail in numerous professions and at many income levels. A closely related phenomenon concerns tax exemption or tax privileges of specific professions. Due to such situations, all results concerning the impact of solidarity measures and public policy should be interpreted with caution.

- We argue that a distinction should be made between solidarity at the micro- and the macro-level, respectively. A range of policies and measures, such as unemployment benefits, wage and pension cuts, new taxes, abolition of tax reliefs, have a distinct impact on citizens or households. In these cases solidarity policies have a direct effect on the units concerned -- the "micro-level". In contrast, other policies affect the macroeconomic and social structures, but indirectly have also serious implications on solidarity and equity. For this reason, the implications of macro-policies on solidarity and inequality should be distinguished from the policy measures at the "micro-level". Certainly, the many difficulties in identifying those general policies that are relevant for solidarity and equity and analysing their impact on households or individuals increases the complexity of the analysis.

  The distinction between solidarity at the micro- and the macro-level raises several questions. An important issue is not what has been done, but what could have been done in the aim to avoid adverse effects on social groups. Examples of this type are related to policy mixes which can lead to higher unemployment or poverty or to a deeper recession with serious adverse repercussions on incomes and living standards. For instance, reductions of public investment in the framework of fiscal adjustment have very clear consequences on future growth, incomes, pensions and employment, hence a significant long-term impact on solidarity, even if it is not possible to assess the distinct positive or negative impact on solidarity. Equally, the sequence of policies can exert very different effects on solidarity and inequality. Further, the continuous unsustainable deficits in the pension system and the pension cuts have profound interrelations with solidarity issues. Such questions are very significant, but can hardly be answered. Still, they are worth raising, insofar as they highlight real social problems.

- Last but not least, in principal, an assessment regarding solidarity cannot ignore the past situation. If significant changes before the crisis caused severe social or economic imbalances, which require re-balancing policies, the implications on solidarity cannot be judged by abstracting from past developments.

Considering all these aspects, we argue that solidarity implies inclusiveness, choices leading to relatively equal burden-sharing and support to the economically and socially weaker groups. Crucially, in conditions of crisis, situations may arise with asymmetric effects across different social groups. Policy measures can introduce new elements of solidarity which mitigate without eliminating the inequality impact of the crisis. Comparing the results against social reality, one would perhaps find that, despite the measures, economic and social relations develop asymmetrically, meaning that some social groups will be in a worse position than before relative to other groups, although their position might also be more favourable than would have been without the policy intervention. Such conditions and comparisons create grey areas where it is easy to slide one way or the other. They also

raise questions, which are extremely hard to answer with any degree of certainty. The approach followed in this analysis is to point out such situations, where detected, irrespective of the ability to provide a clear answer as to whether solidarity exists or not. The conclusion reached by this approach is that solidarity has to be assessed on a broader and not a partial base.

Furthermore, the analysis of the solidarity aspect of anti-crisis policies should take into account a time dimension, referring to the duration of policies or measures adopted. Decisions in Greece (and other countries), once made, have occasionally a very contradictory fate. At some point in time, the government introduced measures which at the time appeared to treat fairly broader social groups or even to treat the economically stronger groups more unfavourably. At a later stage, however, either on the government's initiative or because the institutional underpinnings of some policies are, or deliberately become, vulnerable, or even because the overall institutional framework is misinterpreted or misused by the legal system, these decisions are overturned by newer government decisions or court rulings. In such cases, shown by experience to favour the economically stronger social strata, or at least not the weaker ones, the result is a significant dilution of the measures and of course the reversal of the solidarity expressed by the initial decision. Therefore, the reality has more than one face, depending on whether we look at government policy measures over a narrow time horizon, or whether we expand the horizon and the array of institutions and bodies involved in decision making or, perhaps more crucially, unmaking.

In addition to the above, the question of solidarity arises particularly in relation to a number of other policy choices:

First, the choice – dictated by the troika and followed by the government -- of cuts in wages and salaries, initially in the public sector and subsequently in the business sector.

→ Second, the extensive removal of basic regulations on labour relations, aimed to restore competitiveness and bring the economy back to growth.

→ Third, the induced early retirement of thousands of employees, mainly in the public sector but also in the private sector, through specific legislative provisions. As shown in 4.4-4.5. the case serves to illustrate how significant aspects of the policy implemented may incorporate visible elements of solidarity towards weak social groups, but in effect go hand in hand with severe burdens on other weak groups, which are called on to bear disproportionate costs for solidarity to others to be achieved, or even to the same social groups at a later stage[2]. Shortly, solidarity is not sufficient by itself. It matters who carries the charge of solidarity and which social relations are targeted through solidarity measures.

→ Fourth, a number of arrangements have been put in place for various categories of workers whereby employers may pay social security contributions based on the minimum rather than the actual wages of employees. This deprives social security funds of income, putting them under heavier pressure to cut pensions in order to reduce deficits or necessitating additional subsidisation from the government budget. In both cases the effort to reduce indirect labour costs in an aim to encourage new hirings had a negative impact on solidarity towards other social groups.

→ Fifth, the recession, coupled with tight liquidity and a range of government practices (e.g. delays in the payment of arrears to suppliers of products and/or services or delays in VAT or

[2] The issue of thousands of additional retirements during the years of the crisis, like the issue of pension cuts, has multiple dimensions and far-reaching implications. The above examples are just intended to highlight some conflicting aspects of solidarity in this particular field.

other tax refunds to firms and individuals) had as further effects major delays in wage and salary payments to thousands of employees for many months. For hundreds of thousands of employees, these delays can be of three to eight or even more months.

Tax increases and cuts in public services coupled with austerity have affected negatively various other aspects, such as equity in education and phenomena of 'energy poverty', which can not be easily quantified by standard inequality indices and statistics and would lead this study beyond its scope.

The conclusion is that different policies and measures have a different impact on solidarity and what matters is not only the overall outcome, the 'net effect', but also the unequal impact on different social groups. To some extent inequality indices might reflect changes in solidarity policies. As mentioned above however, this is not a necessary conclusion.

2.2 Methodology

The methodology used in this study involves three steps.

In the first step, we examine the fiscal consolidation strategy that has been followed in Greece, in particular the extent to which the reduction of the high budget deficits has been based on expenditure- or revenue-led adjustment policies and what are the implications of this policy mix for a number of issues, notably solidarity, inequality and efficiency.

In the second step, we analyse the income changes during the period 2008 to 2012 or 2013, as caused by both market changes and policy decisions aiming to tackle the twin crises, i.e. the high fiscal deficit and debt and the competitiveness crisis.

In the third step we examine the impact of State intervention through direct, property and indirect taxation and the tax incidence on incomes.

In the fourth step, the focus shifts to inequality and to how market changes and policy interventions impacted on inequality at the general level but also at a more detailed level, such as in deciles and in the top 1% and 0,1%. The attempt is to identify the results of the policy response in terms of solidarity and inequality. Both before- and after-tax inequality are measured, as well as inequality in real estate property and the different evolution at the bottom and the top of income distribution. Further, we examined inequality decomposition by factor components in the aim to shed light on the impact of each income source on overall inequality and the changes during the crisis period in Greece.

The fifth step aims at analysing an ‘index of depair’, reflecting the degree of ‘despair’ felt by households with employed and unemployed members, when their income declines or when their members become jobless.

Finally, an attempt has been made to combine all our results, including the results of a number of interesting bibliographical sources, and obtain more synthetic conclusions.

The results refer to the total population in Greece. Immigrants are included to the extent they submit tax reports. However, immigrants avoid to participate in Surveys (Household Surveys, Population Census etc.). Equally, a large number of them are not permanent residents and they don’t submit tax reports. In contrast, those with more stable dependent or independent activities are included in the tax data and in other statistics. However, there is no possibility to make distinctions, based on nationality. Some more detailed comparisons could be made in the framework of Part 8.

Tax data

The tax data used in this study have been derived from a very representative sample of personal income tax returns and refer to all the information (other than personal) reported by the taxpayers in the relevant fields including presumed or imputed income. To ensure random sampling, we picked five random numbers from 00 to 99 and then from the database of the General Secretariat of Information Systems we retrieved the personal income tax returns of taxpayers whose Tax Identification Numbers (TINs) ended with these numbers, for the fiscal year 2013[3]. This made a total of 261,351 income tax returns, representing by definition 5% of the total. The total comprised 5,227,020 taxpayers for the years 2008 to 2012, with 2,368,132 persons as second members and 2,414,200 children, suggesting an aggregate number of 10,009,352 individuals.

Subsequently, for the same TINs, we retrieved from the database the tax returns of the four previous fiscal years (2009 to 2012). From the same database we retrieved data concerning the tax due and imputed income as determined by the tax authority after the processing of the tax return.[4]

Finally, from a different database compiled for property taxation purposes we retrieved for these TINs (and the TIN of the second member of the household, if applicable) information on the "objective" value of real property owned by the taxpayer and, separately, his/her spouse, and the property tax corresponding to each taxpayer.

Tax data offer the advantage that they refer to real incomes and tax incidences and are considered by some authors more suitable to estimate short-term changes in inequality[5].

Table 2.1 shows the number of households with income from each of seven main income sources for 2008 and 2012 and the changes that have occurred between these years.

The table suggests that, in 2012 relative to 2008, 457,240 less households declared income from wages/salaries, while similar declines can be observed in other sources of income, with the exception of pensions: the number of households declaring pension income rose by 305,780. The last column shows the total declared income and the percentage change between the two years.

Table 2.1 Number of households by income source and changes 2008-2012

Income sources	2008	2012	Change 2012/2008
Wages/salaries	2,480,600	2,023,360	-457,240
Pensions	1,755,940	2,061,720	+305,780
Agriculture	1,078,880	1,000,420	-78,460
Independent activities	399,820	365,700	-34,120
Commercial activities	693,940	484,500	-209,440
Dividends-Interest	1,520,840	1,459,080	-61,760
Rental income	1,354,700	1,305,000	-49,700
Total	5,227,020	5,227,020	-
Total excluding households with zero income	5,010,680	4,868,780	-141,900

Source: Processed Tax data

[3] Fiscal years refer to incomes and taxes of the previous year.

[4] It should be noted that these data refer to the tax due. Whether these taxes are actually paid and generate tax revenue is uncertain. On the basis of rough estimates from the Ministry of Finance, there are serious delays with tax payments.

[5] Th. Piketty (2004), pp.438ff.

These data cover nearly the total population. The 2,480,600 households receiving wages-salaries in 2008 include 2,993,100 individuals, which represent nearly 100% of the dependent employment in the same year. The 2,023,360 households in 2012 include 2,444,200 individuals which even exceed slightly the official number of dependent employees[6].

On the basis of this dataset, the following estimations have been made:

- We estimated the aggregate value of twelve income sources: wage/salary, pension, business and commerce activities, independent activities, agriculture activities, agriculture subsidies (often merged with agricultural income), income from property, dividends and interest, mobile assets, income from abroad, unemployment benefits and total income[7].
- Based on this taxonomy, we have estimated the changes in the mean annual value of the household's income by income source, during the years 2008-2012. Further, an estimation has been made on the value and the changes in each of these variables by deciles as well as for the top 1% and 0.1%. In this context, an estimation has been made on the weight of each income source in total income for each decile. For practical reasons, in some cases, deciles have been merged into three or two groups (1-5, 6-7, 8-10, or 1-5 and 6-10 and 1%, 0.1%, the mean and median value).
- Basically, the results refer to households. However, for specific purposes, we have made additional estimations with regard to individual persons, in order to obtain a more precise and detailed view on a range of issues (e.g. average wage/salary and pension, inequality issues, etc.).
- The tax burden (income and property taxes) on each of these income groups and each decile has been estimated, both in absolute (amounts of taxes) and in relative terms (taxes relative to income).
- The results of this analysis have been used to estimate also the number of households under the line of poverty and the changes during the crisis.
- Three inequality indices have been calculated (Gini index, Theil index, Mean Log Deviation) for nine of the above income sources for the five years examined. Each of them shows a different sensitivity in respect of inequality changes. Therefore, the use of all of them covers a broader spectrum of inequality movements. In addition, to examine various relations, other inequality indices have been calculated (P90/P10, S90/S10 and the relation of the top 1% and $1^{0}/_{00}$ to the lowest or second lowest decile).
- We arranged statistical data so as to estimate the income evolution over the period 2008-2012 for exactly the same households with regard to wages/salaries, pensions and total earnings. In particular, we estimated the changes in the income position for each income decile for the above three income sources from two different angles:

  (a) the changes in how the household incomes of 2008 changed by 2012 for the same households, ranking the deciles on the basis of 2008 incomes, in the aim to understand where these households had been in 2008 and where they stand in 2012; and

[6] It is assumed that the data provide a similarly high coverage of other categories of workers as well. However, the statistical material on non-dependent employment does not allow a precise assessment.

[7] Some of these incomes are very low and for practical reasons have not been distinguished, since they did not alter the results.

(b) the opposite evolution, based on the household incomes of 2012 ranked by deciles, and estimating the incomes of the same households during each of the previous years back to 2008. This approach shows the significant shifts which took place within the groups of wage/salary earners, pensioners and the total population of taxpayers during the years of the crisis.

- All calculations have been made for all five years and for all deciles, enabling to identify the broader changes within the various occupations, income sources and deciles and the differences across the various groups.

Employment and unemployment data

Based on employment and unemployment data, an "index of despair" has been constructed and estimated, measuring the degree of exclusion or ***"degree of despair"*** of households. The criteria used were the number of unemployed members of each household, the duration of unemployment, the presence of employed household members etc. The results refer to the period from 2008 to the second quarter of 2014. The index has been estimated for the total population and for different groups of households according to the status of the household head (education, occupation, type of employment, sector of employment, etc.). We visualised the results in the form of an apartment building with five floors, estimating the number of households staying at each level and the risks of each type of household to be faced with a deterioration of its position during the crisis. We also examined the position of households by distinguishing the risks of members working in the public sector or having high education and training as against the other ones. The analysis of unemployment (data for 2013), the level of labour income of households, as well as the underlying policy measures which had a more specific impact on these variables, allowed us to explore the changes in poverty risks and social exclusion during the period of crisis.

Reports on Households Budget Surveys (HBS, 2009-2013) and Surveys on Income and Living Conditions (EU-SILC, 2009-2013)

Based on a decomposition analysis, we examine the impact of policy decisions on the structure of inequality and the contribution of various income sources to overall inequality. To this end, household income from the Greek Households Budget Survey and the EU Statistics of Income and Living Conditions Survey has been used. The question was how much each individual source of income contributed to overall inequality, or, in other words, what is the weight of individual sources in the overall level of inequality. Moreover, the elasticity of the Gini coefficient to the changes of each individual income source has been calculated, which is extremely useful in the conduct of fiscal policy. It yields the per cent change in the Gini coefficient of total income distribution, which stems from a per cent change of the mean income in each income source. The generalised Gini index and the coefficient of variation have been used in the decomposition analysis of overall inequality. The same framework has also been used in the decomposition of overall inequality in the distribution of consumer expenditure for each category of expenditure (food, beverages and tobacco, etc.), enabling to investigate whether specific tax measures on various goods and services (indirect taxation, excise duties, VAT rates etc.) have increased or decreased inequality and, hence, the progressiveness of the tax system.

Chapter 3

Adjustment policies to tackle the fiscal and competitiveness crisis

The Greek economy entered into a recession in 2008. However, 2009 was the year when the macro-indicators revealed the real extent of the deep imbalances. Greece was hit by two profound crises: a fiscal and a competitiveness crisis. The first measures to meet the large fiscal deficit and the rocketing of the debt/GDP ratio came in spring 2010 first with national measures and some months later with the first Memorandum between the Greek government and the Troika (ECB, IMF, European Commission), which was followed by a second one in 2012. According to these Memoranda, the fiscal crisis had to be faced through a tough consolidation process, while the most important instruments to meet the competitiveness crisis were drastic wage and salary cuts, liberalisation of the labour market and services market liberalisation, in particular in transportation, protected independent activities, pricing practices, licensing provisions etc[8].

Theoretically, fiscal consolidation can be achieved through either revenue- or spend-led adjustment of the budget or a mix of both. From the point of view of effectiveness, equality, impact on employment, growth and competitiveness, the two adjustment approaches are not indifferent. However, answers to the policy question cannot be given on a theoretical base, abstracting from the imbalances which caused the crisis in 2009. In this respect, it is necessary to consider whether revenue or expenditure factors caused the fiscal crisis, even if this does not necessarily imply that policy should simply try to bring these variables back to their previous level.

3.1 The contrasting weight of revenue- and expenditure-led fiscal policies before and during the crisis

The fiscal deficit of General Government (G.G.) as a percentage of GDP stood at 15.2% in 2009, having increased by 9.6 percentage points since 2006 (from 5.6% to 15.2%)[9]. About 77% of this change was due to an increase of 7.4 percentage points in the public expenditure/GDP, which increased correspondingly from 37.6% to 44.4% (total public expenditure less interest payments, investment expenditure and recapitalisation of the banking system)[10]. In contrast, the revenue/GDP ratio worsened by 1.9 points (from 39.2% to 37.3%), thus contributing thus by 19.8% to the fiscal deterioration. It could be argued, that the adjustment should focus on the factors which had led to the

[8] Zografakis S. and Spathis P. (2011)

[9] The calculations are based on the revised National Accounts published in October 2014.

[10] This equals to total primary expenditure less investment expenditure. This distinction allows us to delimit the impact of four different factors: revenues, investment, interest payments and other expenditure. The exclusion of the capital injection to the banking sector is grounded not on economic considerations, but solely on the accounting treatment of the issue agreed between Greece and the Troika.

destabilisation in the first place, except if for other reasons this approach could be risky or inappropriate. However, this was not the policy choice.

Table 3.1 shows the contribution of each of those four factors (fiscal revenue, interest payments, investment expenditure and primary expenditure excluding investment expenses) on the increase and the subsequent de-escalation of fiscal deficits in the years 2006 to 2013.

Table 3.1 Sources of fiscal destabilisation and the base of the adjustment process

	2006	2007	2008	2009	2010	2011	2012	2013
G.G: Deficit:								
Bn E	-12.1	-14.7	-22.9	-36.1	-25.0	-21.0	-11.3*	-3.3*
as a % to GDP	-5.6	-6.3	-9.5	-15.2	-11.1	-10.1	-5.9	-1.8
G.G.: Expenditure side:[11]								
Bn E	81.9	92.1	97.7	105.5	97.3	91.5	84.8	79.1
as a % to GDP	37.6	39.6	40.4	44.4	43.0	44.0	43.7	43.4
G.G.: Revenue side:								
Bn E	85.4	94.7	94.8	88.6	92.7	90.6	87.8	85.8
as a % to GDP	39.2	40.7	39.2	37.3	41.0	43.6	45.2	47.0
Interest payments:								
Bn E	9.2	10.1	11.7	11.9	13.2	15.1	9.7	5.0
as a % to GDP	4.2	4.3	4.8	5.0	5.8	7.3	5.0	2.7
Public Investment expenditure:								
Bn E	7.1	7.7	8.6	7.2	7.3	5.0	4.7	4.9
as a % to GDP	3.3	3.3	3.6	3.0	3.2	2.4	2.4	2.7
Support to the Banking sector:[1]								
Bn E							-5.3	-19.0
as a % to GDP							-2.7	-10.4

[1]: The amounts indicated as 'support to the Banking sector' for 2012-13 represent the recapitalisation funds for the Banking sector after the PSI of 2012. It was agreed that for the purposes of the Stabilisation Agreement they would be accounted only as additional debt of Greece and not as fiscal expenditure. Hence, the official statistics exclude these amounts from the fiscal deficit of 2012-13.
Source: ELSTAT, Fiscal data for the period 2008-2011 and 2010-2013 and Eurostat.

The figures in Tables 3.1 and 3.2 reveal a severe asymmetry regarding the factors that caused the fiscal destabilisation and their contribution to restoring fiscal balance. The central issue is that the boost of the government expenditure contributed by 77% to the fiscal derailment of the period 2006-2009, while the subsequent governments refused to adjust expenditure to its previous level with respect to GDP. Fiscal expenditure diminished between 2009 and 2013 by only 1 p.p., contributing 7.5% to the fiscal adjustment. Curtailed investment and reduced interest payments, following the agreement of our creditors to lower the interest rates charged on Greece alleviated the fiscal deficit by 2.6 p.p. and contributed more to the adjustment (+17.2%) than the reduction of current public expenditure per se 7.5 p.p.).

Hence, instead of rebalancing the rocketing public expenditure, policy chose to decrease the deficit by expanding the revenue side of the budget. From the very beginning of the crisis, increased taxes have been the preferential policy instrument and played a primary role in reducing the fiscal deficit. The decline of the deficit/GDP ratio by 13.4 percentage points between 2009 and 2013 was achieved largely because of the increase of the revenue/GDP ratio by 9.7 p.p., which represents 72.4% of the total fiscal adjustment. Table 3.2 shows the specific contribution of revenue and expenditure sides to destabilisation (2006-2009) and adjustment (2010-2013).

[11] It includes total expenditure of General Government without interest payments, investment expenditure and the 'support to the banking sector' (the recapitalisation of the banking sector after the hair-cut of 2012).

Table 3.2 The pattern of fiscal destabilisation (2006-2009) and adjustment (2009-2013)

	Change 2009 to 2006 (in percentage points of GDP)	Change 2013 to 2009 (in percentage points of GDP)	Contribution to the destabilisation (%)	Contribution to the adjustment (%)
Expenditure/GDP (excluding interest and investment expenditure/GDP)	+7.4	-1.0	+77.1	+7.5%
Interest payments/GDP	+0.8	-2.3	+ 8.3	+17.2%
Investment/GDP	-0.3	-0.3	- 3.1	+2.2%
Revenue/GDP	-1.9	+8.8	+19.8	+72.4%

Source: Table 3.1

As shown in Table 3.3, this choice led to very unbalanced tax incidence between social groups. The lower incomes saw their tax burden increase by 337.7% while the respective increase in upper deciles was only 9%. In absolute terms both the higher and the lower incomes had to pay equal additional taxes (1.1 bn E). However, the share of the lower incomes in the tax-led adjustment increased from 2.5% to 9.4%, while that of the higher incomes decreased from 97.5% to 90.6%.

Table 3.3 Tax burden on lower and higher incomes

	Average tax burden per household in E		Aggregate tax burden for each decile group Mn E		% Change
	2008	2012	2008	2012	2012/2008
Direct taxes					
Lower incomes (Deciles 1-5)	103.3	233.2	269.9	609.6	125.9
Higher incomes (Deciles 6-10)	4,722.0	4,298.5	12,341.1	11,234.1	-9.0
Property taxes					
Deciles 1-5	20.2	307.1	52.8	802.6	1,420.1
Deciles 6-10	80.1	937.9	209.3	2,451.1	1,071.1
Total					
Deciles 1-5	123.5	540.3	322.6	1,412.1	337.7
Deciles 6-10	4,802.1	5,236.3	12,550.4	13,685.2	9.0
Structure %					
Deciles 1-5	2.5	9.4			
Deciles 6-10	97.5	90.6			

Source: Processed tax data.

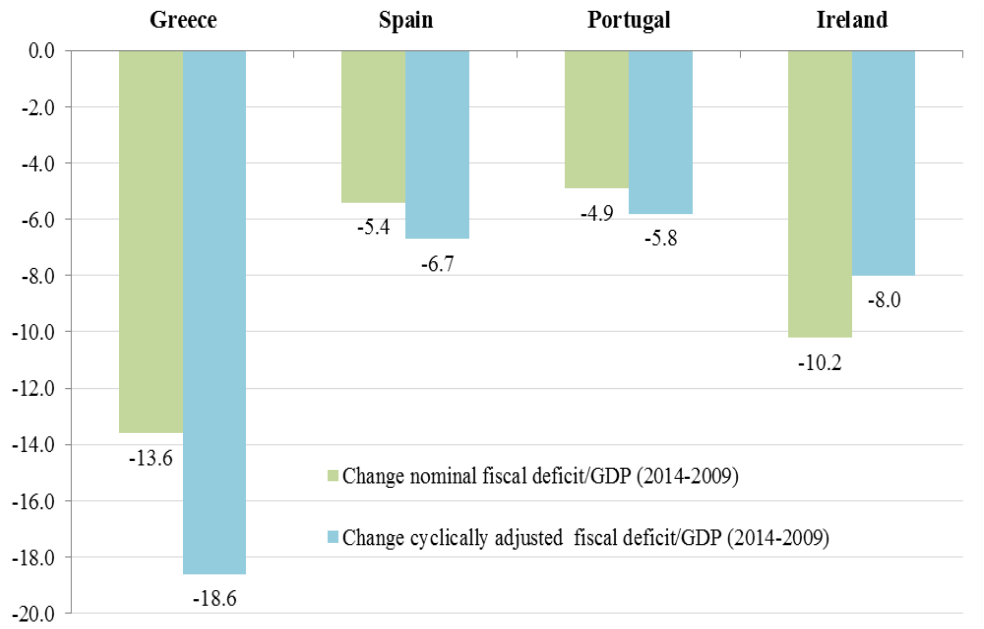
This pattern of adjustment had a range of consequences on equality and solidarity:

- It shifted the burden of adjustment from the public to the private sector. It is clear that the choice to increase revenues to finance the leap of public current expenditure during the years preceding the crisis reflected a strategic choice to preserve and protect an oversized public sector at any cost. The result was a significant additional tax burden on the society coupled with massive unemployment in the private sector affecting both employees and self-employed. In terms of solidarity, we are faced with a close interconnection between the political system and the public administration at the expense of significant collective interests (causing instead poverty, growth, unemployment, prolongation of the crisis, inequality).

- This policy had much more destructive effects on the productive base of the economy than a spending-led adjustment process, leaving intact an inefficient, corrupt and backward public administration. It perpetuated the pattern of a public sector which led to profound destabilisation, largely deprived from significant social and development instruments.
- Besides economic considerations and economic rationality issues, such an adjustment approach was socially profoundly unjust. Section 5 of this study shows the additional tax burden imposed on citizens as a result of the revenue-led adjustment strategy and the particular social groups which have been hit while section 8 will focus on the relationship between unemployment and poverty, which transformed deeply basic social conditions for large parts of the Greek society.

Our critical stance on this adjustment strategy has to be completed by a further issue: tax evasion. The problem of tax evasion and tax exemption in all their forms was a fundamental factor of the derailment of Greece's fiscal and macro-relationships. The gap of about eight percentage points of GDP between public revenues and expenditures can largely be attributed to this factor. Hence, a policy targeting tax evasion for establishing a viable fiscal balance would be an absolutely positive decision. In contrast, the revenue-led adjustment strategy was touching this issue in very lax ways. Tax evasion continues to characterise large parts of incomes and is not a question of the occupational status of the tax payer. Broad numbers of employees, liberal professions, pensioners have more than one source of incomes, some of which are more and others less subject to the real control of tax authorities. The implication of this situation is that wage earners and pensioners, who are bearing the bulk of the tax burden, had to shoulder an even higher tax burden, paying for themselves and for those who continue to profit from an unjust and economically irrational policy model.

Chart 3.1 Nominal and cyclical adjusted decrease of fiscal deficits in Greece and other crisis countries (in percentage of GDP)



Note: 2014 estimations.
Source: Cyclical Adjustment of Budget Balances (European Commission, Autumn 2014).

The adjustment effort of Greece was enormous, both in absolute terms as well as in comparison to the other countries in crisis (see diagram 3.1). Greece's nominal fiscal adjustment between 2009 and 2014 achieved 13.6 p.p. of GDP against 6.7 p.p. for Spain, 5.8 p.p. for Portugal and 10.2 p.p. for Ireland. Due to the recession, the cyclical fiscal adjustment was significantly higher: 18.6 p.p. in Greece, 6.7 p.p. in Spain, 5.8 p.p. in Portugal and 8 p.p. in Ireland. Only in Greece nominal and cyclical adjustment exhibited such a large divergence, implying that Greece, midst in a severe recession, had to follow an even tougher pro-cyclical (recessionary) policy, leading to deeper recession and counteracting the fiscal consolidation. Such a result within a five years period is unique. At the end, Greece exhibited in 2014 a nominal deficit/GDP of 1.6 p.p., while the deficit/GDP of the other countries considered stands between 3.7 p.p. and 5.60, but was also hit by a huge reduction of GDP and disposable personal income and a disastrous unemployment rate. The decrease of current expenditure by 25.6 bn. Euro between 2009 and 2013 had a severe impact on the economic depression of this period. The question goes beyond expenditure- or revenue-led adjustment. Any longer adjustment period for reducing the deficit would require a higher debt-financed support. However, because of the conditions of the Memoranda the option was a political non-starter.

3.2 The policy management of the competitiveness crisis

The competitiveness crisis was the second major dimension of the Greek crisis. At the core of the competitiveness crisis was the continuous deterioration of the trade balance and current account.. The trade deficit was as high as 18.6% of GDP in 2000, 17.8% in 2007 and 12.7% in 2009[12]. The factors underlying this development were several. Certainly, labour costs played a significant role. According to estimates, unit labour cost growth in Greece was some 8 percentage points higher than in the euro area in the period 2001-2007 and real average compensation per employee was 14 percentage points higher, respectively[13].

Table 3.4 Annual change of wages, total consumption and exports (billion Euro)

	Compensation of employees	Change in final national consumption	Change in exports of goods
2010	-3.4	-14.3	+2.2
2011	-7.5	-20.0	
2012	-7.1	-13.4	+0.6
2013	-7.1	-5.3	+1.0
Cumulative total	**-25.1**	**-53.0**	**+3.8**

Source: ELSTAT.

Restoring Greece's external balance was necessary from a macroeconomic perspective. The wage cuts became for the Troika a key policy tool for restoring competitiveness. The cuts were

[12] For a detailed analysis on the pattern of specialization of Greece and other South European countries, their competitiveness by product groups and the determinants of the competitiveness level see T. Giannitsis, I. Kastelli, D. Mavri, St. Zografakis (2009).

[13] Ibid, pp. 120-121.

implemented mainly from 2011[14] onwards, through several interventions, either directly in the institutional framework of wage determination or indirectly through measures that dismantled many provisions of labour market legislation. As pointed out in Chapter 4, the cumulative reduction of wages in the private sector between 2008 and 2012 came to 27.4%. The data we have used show that the decline in total compensation of employees in 2009-2013 was 19.1%.

Despite the marked decline in labour costs, the competitiveness of the economy does not seem to have improved except only marginally. Exports were 11.9% lower in 2014[15] compared with the year immediately before the crisis (2008), when competitiveness had deteriorated significantly. Measured by more complex indicators that also take imports into account, competitiveness shows considerable improvement, but this was solely due to the recession and lower imports of investment equipment, intermediate and consumer goods and not to strong exports. This performance is strikingly weak compared with the labour cost reductions that have been imposed[16]. During the period 2010-2013 the reduction in wages came to EUR 25.1 billion, the fall in domestic consumption demand came to EUR 53 billion, while exports increased by just EUR 3.8 billion.

The issue of wage cuts is an illustration of the ideological rigidity and failure of the policies imposed by the Troika. The point is not such reductions should not have occurred. As mentioned above, wage growth outpaced the rise in productivity, implying that a corresponding adjustment was necessary. The point is that cuts have been imposed which were unnecessary from an economic point of view, and this for three reasons: first, because according to our estimates the cuts exceeded the necessary level by at least 10 percentage points; second, because they led to a contraction of domestic demand much greater than the increase in exports, resulting in a squeeze on growth, difficulties with fiscal adjustment, higher unemployment and shrinking revenue from social security contributions; third, because in the same period capital cost and the squeeze of liquidity counterbalanced largely the impact of wage cuts, and fourth, because the most important reason for the losses in competitiveness were not the rise in costs, but the very structure of Greek production and exports.

[14] Similar wage cuts have already been imposed for employees of general government and public utilities since 2010 as part of the fiscal adjustment in order to reduce public spending and deficits.

[15] Not shown in the table, since data on compensation of employees and consumption were not available for 2014.

[16] Of course one should take into account that while labour costs fell, the cost of capital (interest) increased significantly, economies of scale were lost because of lower demand, banking liquidity shrank sharply and the cost of political instability increasingly weighed on the economy. All these adverse factors are likely to have fully offset the benefits of improved cost competitiveness.

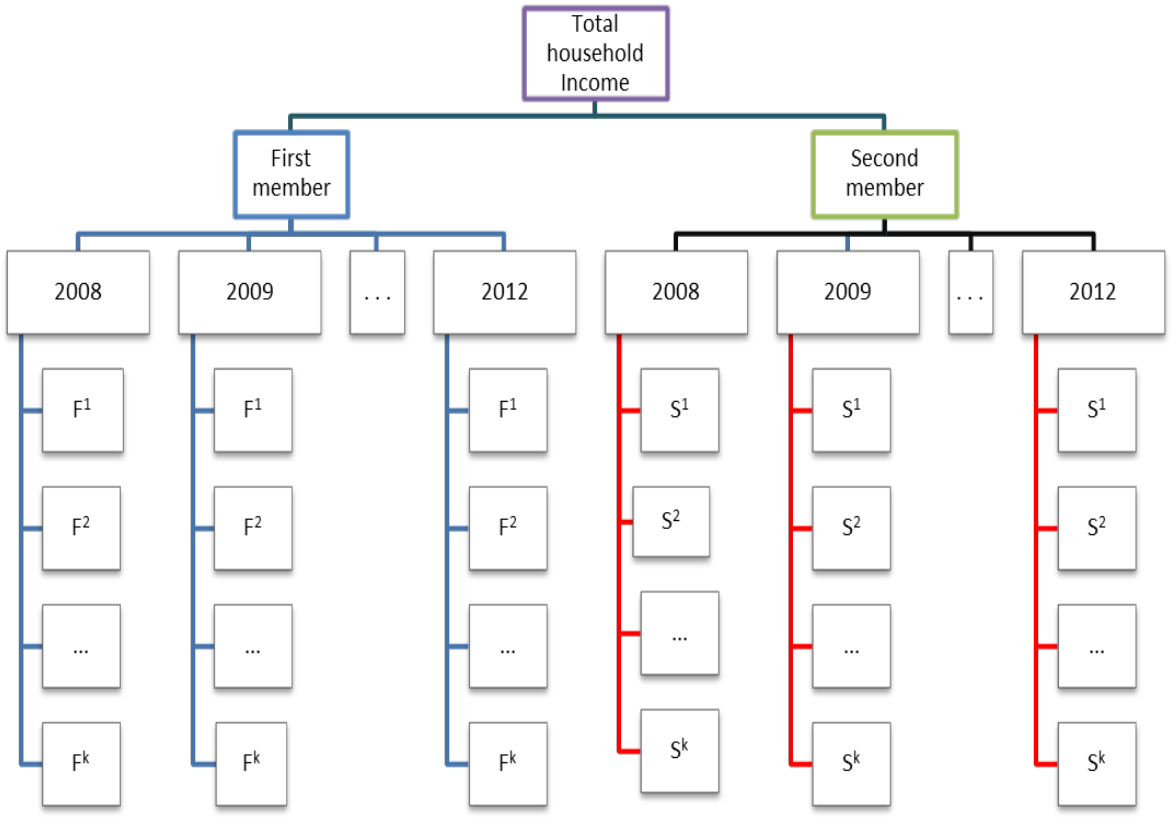
Chapter 4

Mapping inequality: The unequal impact of the crisis and of crisis policies on incomes and employment

4.1 An overview: A collapse of employment and incomes

Sharp income reductions and soaring unemployment rates have been the most severe economic consequences of the crisis in Greece. At the macro-level, Gross Domestic Product contracted by 24.7% between 2009 and 2013[17]. The collapse of incomes has not only been the result of the crisis, but also of three distinct compounding factors: (a) policy decisions by the government and the Troika to cut wages and pensions and to impose a radical deregulation on the labour market; (b) fiscal consolidation, which led to a deep recession affecting income levels, demand and unemployment across the whole economy; and (c) broader political stances on various issues, such as the protection of the public sector from the most adverse impact of the crisis, reluctance to address inefficiencies, resistance to reforms as well as the preference for revenue-led adjustment policies, all of which had adverse effects on income levels and distribution.

This part of the analysis will mainly rely on the tax dataset mentioned in 2.2, complemented by certain data from the National Accounts. The aim is to analyse the presence of solidarity in tax measures, as implemented in the framework of a revenue-led fiscal consolidation, reflected in the results of fiscal policy, and their effect on inequality and poverty. The structure of the tax dataset is described below.



As seen in the figure, each household POP_j (j = 1,2, ..., N) has one (F) or two members (F, S) which earn income from various sources k (k = 1,2, ... R). For each year (t = 2008, 2009, ..., 2012) we know

[17] The tax dataset used in this study refers to the period 2008-2012, during which the GDP contracted by 21.3%.

the income of each member originating from each source: the income of the first member is $F_{t,j}^{k}$, while $S_{t,j}^{k}$. is the income of the second member, if any.

The analysis can therefore develop at three levels.

- The <u>first</u> level refers to:

* Total annual (family) income, nationwide, for each year	$\sum_{k=1}^{R}\sum_{j=1}^{N} F_{t,j}^{k} + S_{t,j}^{k}$
* Total (family) income by source of income, nationwide, for each year	$\sum_{j=1}^{N} F_{t,j}^{k} + S_{t,j}^{k}$
* The personal income of each taxpayer, by source of income, for each year	$\sum_{j=1}^{N} F_{t,j}^{k}$ for the first member, $\sum_{j=1}^{N} S_{t,j}^{k}$ for the second member

We can thus look at total income either broken down by source or as a whole, i.e. total income from wages/salaries, pensions, rents, etc.

- At the <u>second</u> level, we shift from the notion of aggregate total to the <u>notion of average income for all taxpayer households or individuals,</u> included in the year examined.

* Average income, total country, for each year	$\sum_{k=1}^{R}\sum_{j=1}^{N} F_{t,j}^{k} + S_{t,j}^{k} \Big/ \sum_{j=1}^{N} POP_j$
* Average family income, by income source, of all taxpayers, for each year	$\sum_{j=1}^{N} F_{t,j}^{k} + S_{t,j}^{k} \Big/ \sum_{j=1}^{N} POP_j$
* Average family income of groups of households on the basis of their main source of income for each year (where N1 is a subset of N, e.g. households of employees, households of pensioners, etc.)	$\sum_{j=1}^{N1} F_{t,j}^{k} + S_{t,j}^{k} \Big/ \sum_{j=1}^{N1} POP_j$
* Average personal income, by income source, of taxpayers who earn income from the above source, for each year (where N2 and N3 are subsets of N, e.g. employees, pensioners, etc.)	$\sum_{j=1}^{N2} F_{t,j}^{k} \Big/ \sum_{j=1}^{N2} POP_j$ και $\sum_{j=1}^{N3} S_{t,j}^{k} \Big/ \sum_{j=1}^{N3} POP_j$

The <u>third</u> level focuses on the analysis of data exclusively for the <u>same households or individuals</u> for each year of the five-year period examined, to identify the impact of the crisis on the same population of households or individuals. The general evolution of incomes is one thing, but it is socially and politically very different and important to perceive the extent of changes that occurred at the individual level (household or persons). The distinction of these two populations and the understanding of income evolution for the same units over time is extremely relevant. The focus of

the analysis on all households, in particular at a deciles level, provides us with average income figures, revealing the income structure within the society in the years used. It indicates the level of income, and its changes over time, of the households associated with each decile and shows the income disparity over time and between the deciles. This approach does not allow us to detect whether the average figures refer to the same or to very different households or persons. Changes regarding average income at a decile level often mask considerably different evolutions at the level of the same units of reference. In contrast, the focus on the same reference units displays the evolution of the income situation of the same households or individuals, which, as will be shown, is significantly different than what the average figures indicate. In fact, the focus on the second population is a tool to show the significant or even radical changes which broad social groups underwent during the crisis.

Some key findings of the analysis:

- The cumulative taxable income of all households decreased by 22.6%, while total wage income decreased by 27.4%.
- Average total wage-related income per household fell by 10.9% between 2008 and 2012, while the average total income for the households of employees decreased by 13.5%. Since wages were further cut in 2013, the actual total reduction should in fact be larger.
- Changes in incomes, whether at the aggregate (national) level or at average level (per household), are quite different across the "all households" sample and the "households with income from wages"[18] sub-sample. Agricultural income[19] is the only income source which increased in all cases. Pensions also rose, but only in "all households" terms.
- Looking at the changes in average total income for the same households of employees and pensioners, we see that the households recorded in 2008 lost 21.9% of their total income between 2008 and 2012. In contrast, households of employees recorded in 2012 seem to have lost 14.2% of their total income in 2012 relative to 2008. For households of pensioners, the decline was broadly similar in both approaches (18.1% and 18.9%). It is apparent that the households of pensioners of 2008 suffered a lower income reduction than the households with employees.
- The reduction of the average wage of those who were employees throughout the period 2008-12 was 10.3% and the decrease of the average pension of those who were pensioners throughout the same period was 8.3%.

Before going into a detailed discussion of facts and figures, it is worth looking at the overall picture that has emerged from our analysis. Table 4.1 summarises some key findings regarding changes in the incomes of households and individuals. The table comprises two panels. The first panel shows developments in two income measures, aggregate total income and average income, for two groups,

[18] The notion of "households with income from wages" is often used here rather than "households of employees" to avoid the misconception that these households derive their income exclusively from depended employment. Rather, they may have income from other sources, which can in fact be more significant than their wage-related income.

[19] It should be noted that according to some press reviews a larger number of owners of small-scale businesses have been self-declared as farmers, in the aim to benefit from a more favourable taxation regime applying to agricultural income. To the extent that this could have taken some weight, it could lead to an over-recording of agriculture income.

all households and households of employees. The second panel shows developments in average total household income for households of employees and for households of pensioners, retaining the same households in the sample across years. The table also shows the change in the average wage and the average pension at the level of individuals.

Table 4.1 Summary of basic findings (percentage changes 2012 to 2008)

Aggregate figures (all households):

Table 4.2

Wages	
- Tax data	-27.4
- National Accounts data	-19.7
Pensions	12.8
Independent activities	-27.7
Commercial activities	-47.3
Agricultural activities	26.2
Dividends – Interest	-53.6
Rental Income	-20.3
Total Income	**-22.6**

Average figures (individual household's level):

Table 4.3

Wages	
- Tax data	-10.9
Pensions	-3.9
Independent activities	-4.6
Commercial activities	-24.5
Agricultural activities	36.1
Dividends - Interest	-51.6
Rental Income	-17.2
Total Income	**-22.6**

Households with wage earners:

- aggregate income (all households)

Table 4.10

Wages	-27.4
Pensions	-17.1
Independent activities	-32.2
Commercial activities	-49.6
Agricultural activities	3.3
Dividends – Interest	-54.8
Rental Income	-26.2
Total Income	**-29.5**

- average total income per household

Table 4.11

Total Income	**-13.5**

Sub-sample: Same households:

- average total income

	From 2008 to 2012	From 2012 to 2008
Households with wage earnings	-21.9	-14.2
Households with pension income	-18.1	-18.9
	Table 4.13 **Table 4.16**	**Table 4.14** **Table 4.16**

Changes:

Table 4.15

Average wage	**-10.3**

Table 4.17

Average pension	**-8.3**

In the approach that follows, we discuss a number of developments and effects, passing from the more general level to more specific levels and from the total household population submitting tax returns to several subsets, with special focus on the income evolution of the same individuals or households over five years.

Table 4.2 shows the evolution of aggregate income figures based on tax data. It can be seen that almost every income type shrank. Between 2008 and 2012, total taxable household income declined by 22.6%, which was close to the correspondent contraction of GDP (-19.8%). Average declared total income started to decrease slightly only in 2010 (-1.8%), mainly as a result of important cuts in wages and salaries (-5.8%), while the most important reductions occurred between 2010 and 2011

(15.4% in total income, 11.4% in wages, 30%-40% in other income sources) and between 2011 and 2012 (7.1% in total income and 14.3% in wages/salaries)[20].

Table 4.2 Income in 2008 and 2012 and number of tax declarations by income source

		2008		2012		% change 2012-2008	
		Total in € millions	Number of declarations in thousand	Total in € millions	Number of declarations in thousand	c/a	d/b
		(a)	(b)	(c)	(d)	(e)	(f)
Total income:	(T)	**120,788.9**	**5,227.0**	**93,481.6**	**5,227.0**	**-22.6**	**0.0**
- Wage-related income	(1)	47,817.8	2,480,6	34,736.5	2,023.4	-27.4	-18.4
- Pensions	(2)	25,767.6	1,755.9	29,077.3	2,061.7	+12.8	+17.4
- Income from commercial activities	(3)	9,306.1	693.9	4,902.8	484.5	-47.3	-30.2
- Income from independent activities	(4)	4,423.7	399.8	3,196.2	302.8	-27.7	-24.3
- Agriculture income & subsidies	(5)	3,041.4	1,078.9	3,838.3	1,000.4	+26.2	-7.3
- Income from dividends and interest	(6)	16,250.7	1,520.8	7,542.5	1,459.1	-53.6	-4.1
- Rental income	(7)	8,861.2	1,354.7	7,066.3	1,305.0	-20.3	-3.7
- Other	(8)	5,320.4	5,227.0	3,121.7	5,227.0	-41.3	0.0
Total capital income (3+5+6+7)	(9)	37,459.4		23,350.0		-37.7	
1/9	(10)	**1.28**		**1.49**			
1/4	(11)	**10.81**		**10.87**			
1/(4+9)	(12)	**1.14**		**1.31**			

Source: Processed tax data.

Four initial findings emerge:

◊ A highly asymmetric evolution of taxable income from labour and capital

Wages and salaries decreased by 27.4% in 2008-2012, while capital income fell by 37.7%, respectively. Thus, the ratio of wages/salaries to capital income increased from 1.28 in 2008 to 1.49 in 2012. For 2013, tax data are not available. However, as compensation of employees dropped by 10.9% in 2013 relative to 2012 (see Table 4.8) and GDP recorded a smaller decline (6.1%) in the same period, this increasing dispersion between wage- and capital-related income may have moderated.

◊ Significant differences in the changes of income by source of income, with different effects on total family incomes of employees, pensioners, farmers, self-employed and entrepreneurs.

A comparison of the evolution of the income at the aggregate level of all households by source of income between 2008 and 2012 shows that the effects of the crisis have been very uneven. The highest reductions concerned dividends-interest and income from business and commercial

[20] Calculations based on data non included in Table 4.2.

activities. Wage-related income and income from independent activities decreased by about 27.4%, while agriculture[21] and pension incomes recorded a significant improvement (26.2% and 12.8%, respectively). In this respect, three different patterns can be identified[22]:

❖ **Income sources that recorded substantial reductions:**

1. Income from dividends and interest, down by 53.6% (from EUR 16.3 billion to EUR 7.5 billion);
2. Income from commercial activities, down by 47.3% (from EUR 9.3 billion to EUR 4.9 billion);
3. Other income (including income from securities, income from abroad, unemployment benefits and imputed income), down by 41.3% (from EUR 5.3 billion to EUR 3.1 billion).

❖ **Income sources that recorded smaller reductions:**

1. Income from independent activities, down by 27.7% (from EUR 4.4 billion to EUR 3.2 billion);
2. Wages, salaries and other compensation of employees, down by 27.4% (from EUR 47.8 billion to EUR 34.7 billion);
3. Income from property, down by 20.3% (from EUR 8.9 billion to 7.1 billion)

❖ **Income sources that recorded increases:**

1. Agricultural income, including farmers' support and compensation payments, increased by 26.2% (from EUR 3.0 billion to EUR 3.8 billion);
2. Income from pensions increased by 12.8% (from EUR 25.8 billion to EUR 29.1 billion).

◊ The continued extensive tax evasion and state-facilitated tax avoidance, even during the crisis.

The comparison of household income from wages/salaries and other sources shows that in 2008, despite the cuts, the average income from wages was much higher than the average income from any other source of income in all deciles[23], with the exceptions of pension income (Table 4.3) and the average income from dividends in the highest (10th) decile (average income EUR 75,562). Limited changes were observed in respect of this leading position in 2012 relative to 2008, with pension income exceeding the average income from wages in the two lowest deciles (1st and 2nd). In 2012

[21] Agricultural income includes the declared income from agriculture activities plus the EU agricultural subsidies received by farmers. Although the latter category is tax exempt, the amount nevertheless determines the relative income position of this group in comparison with the others.

[22] Income categories in Table 4.2 correspond to labour-related income (wages-salaries and income from independent activities), capital income (dividends, interest, rental income), pensions and 'other'. Income from commercial and agriculture activities could partly be included in labour-related and partly in asset income.

[23] For each source of income, the first decile of the distribution comprises the lowest-income 10% of households; the second decile represents the next 10% and so on up to the tenth decile which represents the richest 10%.

the average income from wages was again higher than the average income from any other source of income in all deciles, except incomes of the richest 1%[24] and 0.1% for some other income sources.

Tax evasion or state-facilitated tax aversion is reflected also in the figures of Table 4.4 below, showing that in terms of **aggregate income**, wages and salaries were hit more than any other income source. This deterioration was probably caused from continued *tax evasion* in the non-wage income categories, which thus have a lower share in the reduced taxable income.

The finding that household income from wages (and pensions) is in absolute terms higher than most other income sources, and this is so both for the lower and for the upper income brackets although it reflects tax data, is difficult to accept as representing economic reality. We can only assume that this picture implies widespread tax evasion and avoidance, even during the crisis[25]. Of course, tax evasion exists in respect of wages too, but this happens to a comparatively lesser extent and mostly relates to income from labour in the informal sector.

Table 4.3 Mean household income by deciles and source (in €)

	Wage-related income			Pensions			Commercial activities		
Deciles	2008	2012	12/08	2008	2012	12/08	2008	2012	12/08
1	2,604	1,703	-34.6	3,381	3,384	0.1	616	318	-48.4
2	5,849	4,399	-24.8	5,463	5,678	3.9	1,962	1,121	-42.9
3	8,782	7,346	-16.4	6,867	7,075	3.0	3,513	2,114	-39.8
4	11,028	10,301	-6.6	8,408	8,730	3.8	5,369	3,355	-37.5
5	13,226	12,455	-5.8	10,259	10,717	4.5	7,465	4,883	-34.6
6	16,149	14,581	-9.7	12,301	13,014	5.8	9,885	6,764	-31.6
7	19,588	17,314	-11.6	14,984	15,534	3.7	12,787	9,178	-28.2
8	24,241	21,539	-11.1	19,069	18,673	-2.1	16,291	12,568	-22.8
9	32,838	29,005	-11.7	25,420	22,945	-9.7	22,981	18,306	-20.3
10	58,468	53,037	-9.3	40,594	35,345	-12.9	53,243	42,590	-20.0
Total[26]	**19,277**	**17,168**	**-10.9**	**14,675**	**14,103**	**-3.9**	**13,411**	**10,119**	**-24.5**
1%	123,052	117,110	-4.8	63,907	53,990	-15.5	142,672	108,008	-24.3
0.1%	299,720	266,452	-11.1	89,868	74,070	-17.6	330,830	227,845	-31.1
1-5[27]	8,298	7,241	-12.7	6,876	7,117	3.5	3,785	2,358	-37.7
6-7	17,868	15,947	-10.8	13,642	14,274	4.6	11,336	7,971	-29.7
8-10	38,516	34,527	-10.4	28,361	25,655	-9.5	30,838	24,488	-20.6

[24] For each source of income, 1% and 0,1% of the distribution (the richest groups) comprise the highest-income 1% and 0.1% of households. Based on total income, these groups number 52,250 and 5,250 households, respectively, throughout the country.

[25] One indication of this is that total declared income/GDP fell from 49.9% in 2008 to 48.2% in 2012, although the tax base was increased.

[26] Mean income from each source for households having income from this specific source. The sum of each column is not equal to the total income of the households having income from the specific source, since each household may have income from various sources. The total household income is indicated in other Tables (e.g. Tables 4.6.και 4.9).

[27] It represents 50% of the households with the lowest income by income source, ranked by each income source each year. Correspondingly, deciles 6-7 represent the next 20% of the household with higher income than the lower 50%, while deciles 8-10 represents the 30% of households with the highest income.

Table 4.3 (continued):

	Independent activities			Agriculture income & subsidies			Dividends and interest		
Deciles	2008	2012	12/08	2008	2012	12/08	2008	2012	12/08
1	168	134	-20.3	30	30	0.6	108	52	-52.4
2	494	448	-9.3	78	82	5.8	374	316	-15.5
3	1,073	960	-10.6	143	169	18.5	848	613	-27.7
4	1,846	1,846	0.0	245	335	36.8	1,288	968	-24.9
5	3,108	3,200	3.0	418	630	50.6	2,000	1,328	-33.6
6	5,161	4,800	-7.0	733	1,146	56.3	3,064	1,861	-39.3
7	8,438	7,773	-7.9	1,325	2,033	53.5	4,325	2,747	-36.5
8	12,918	12,629	-2.2	2,531	3,738	47.7	6,976	4,030	-42.2
9	20,882	20,996	0.5	5,374	7,330	36.4	12,289	6,879	-44.0
10	56,558	52,769	-6.7	17,315	22,874	32.1	75,562	32,894	-56.5
Total	11,064	10,555	-4.6	2,819	3,837	36.1	10,685	5,169	-51.6
1%	148,560	137,306	-7.6	46,917	62,974	34.2	426,192	162,177	-61.9
0.1%	350,329	320,093	-8.6	101,248	138,551	36.8	2,394,395	746,892	-68.8
1-5	1,338	1,318	-1.5	183	249	36.4	924	655	-29.1
6-7	6,800	6,286	-7.5	1,029	1,590	54.5	3,695	2,304	-37.6
8-10	30,119	28,798	-4.4	8,407	11,314	34.6	31,609	14,601	-53.8

Table 4.3 (continued):

	Rental income			Total income (including computed income)		
Deciles	2009	2013	13/09	2009	2013	13/09
1	192	180	-6.2	1,247	1,150	-7.7
2	621	560	-9.9	5,423	4,503	-17.0
3	1,276	1,107	-13.2	8,294	6,653	-19.8
4	2,115	1,829	-13.5	10,942	9,021	-17.6
5	3,010	2,650	-12.0	13,645	11,624	-14.8
6	3,916	3,472	-11.3	17,146	14,444	-15.8
7	5,123	4,444	-13.3	21,632	17,829	-17.6
8	7,065	6,082	-13.9	27,990	22,537	-19.5
9	10,872	9,219	-15.2	38,733	30,358	-21.6
10	31,231	24,700	-20.9	86,034	60,727	-29.4
Total	6,541	5,415	-17.2	23,109	17,884	-22.6
1%	95,473	70,772	-25.9	265,855	155,286	-41.6
0.1%	236,208	172,052	-27.2	1,106,894	461,680	-58.3
1-5	1,443	1,265	-12.3	7,910	6,590	-16.7
6-7	4,519	3,958	-12.4	19,389	16,137	-16.8
8-10	16,389	13,334	-18.6	50,919	37,874	-25.6

Source: Processed Tax data

Moreover, it should be taken into account that there is a large number of taxpayers who declare themselves as professionals (lawyers, engineers, etc.), but in fact are inactive, causing therefore the average income to appear lower than it actually is. In contrast, there are workers with depended employment who are forced by their employers to be paid as independent service providers and thus declare income from self-employment, although they are actually employees. In Section 5 below, we will examine to which extent government intervention through taxation has further affected the income distribution and the relative income source hierarchy during the years of crisis.

◊ A decline in the number of households that receive income from their participation in the production process and a corresponding increase in the number of households whose members are unemployed or not economically active (including an increased number of pensioners).

Based on Table 4.3 above, households with income from pensions increased by 17.4% in the four years to 2012. In 2008, 1,755.9 thousand households had at least one member declaring income from pensions. By 2012, this number had increased to 2,061.7 thousand. On the other hand, the number of households earning income through the production process has been declining. The number of households with at least one employee fell by 18.4%, those with at least one member earning income from commercial activities fell by 30.2% and households with at least one member earning income from independent activities fell by 24.3%. As we will see below, a significant number of employees joined the ranks of pensioners. The less fortunate joined the ranks of unemployed. This development foreshadows a dramatic deterioration in Greece's already adverse demographics and elderly dependency ratios.

In Table 4 income sources have been ranked in deciles. The Table shows in a more detailed form the decline in total income shown in Table 4.2 (-22.6%). Ranking into deciles is based on the income from each source and for each year, for the households which happen to have income from that source each year, i.e. the first column shows the ranking of income from wages in 2008, the fourth column shows the ranking of pension income in 2008, etc. Each cell and column of the table therefore refers to different households. Households in each decile, even within the same source of income, are not necessarily the same in the two years considered, and many households have income from more sources and participate in more deciles.

Comparing Table 4.3 with Table 4.2, one might be puzzled, as Table 4.2 provides a wage reduction figure of -27.4% and Table 4.3 one of -10.9%. This is because the first figure refers to the aggregated sum of wages for the total of the country, while the second refers to the income from wages averaged across all households with wage income. Given that in 2008 those households were 2,480 thousand and fell to 2,023 thousand in 2013, a smaller aggregate mass of wages is distributed to fewer households, resulting in a smaller reduction.

Furthermore, the relative impact of the crisis on the different social groups can be assessed by estimating the aggregate income losses from each income source. The aggregate income from all sources decreased by 27.3 billion euro from 2008 to 2012. Nearly 48% of this decrease concerned wage-related income (13.1 billion euro). The reduction of total wage income during these years was 70% higher than the sum of losses from business and commercial income, independent activities and rental income (7.4 billion euro). The second largest loss (8.7 billion euro) concerned income taxed independently[28] (dividends and interest). In contrast, aggregate pension and agriculture income increased. The detailed figures can be seen in Table 4.4.

[28] Dividends and interest are taxed at the source and there was no obligation to declare them in the tax return.

Table 4.4 Annual income changes by income source, 2009-2012 (in billion Euro)

	2009	2010	2011	2012	Cumulative total (2008-2012)	% contribution of the change of each income source to total income change
Wages & salaries	0.7	-2.8	-5.3	-5.7	-13.1	48.0
Pensions	2.5	0.6	0.8	-0.6	+3.3	-12.1
Agriculture and agricultural subsidies	-0.6	2.2	-1.0	0.3	+0.8	-2.9
Business-Commercial activities	-0.7	0.6	-2.8	-1.5	-4.4	16.1
Independent activities	0.1	0.3	-0.9	-0.7	-1.2	4.3
Rental income	0.3	0.0	-0.9	-1.2	-1.8	6.6
Dividends-Interest	-2.7	-3.6	-4.7	2.2	-8.7	31.9
Other income	0.0	0.8	0.4	0.0	-2.2	8.1
Total income	**-0.4**	**-1.9**	**-14.4**	**-7.2**	**-27.3**	**100.0**

Source: Processed tax data.

4.1.1 Disadvantaged and privileged income sources

Besides the asymmetrical evolution of incomes presented in Tables 4.3 and 4.4, it is necessary to understand which social and economic groups have been disadvantaged or less disadvantaged (or even privileged) in the process of the crisis or as a result of the crisis management policy. Table 4.5 shows the population of households with decreased and increased income, respectively, their mean income in 2008 and 2012 and the income sources which contributed to the change.

One important observation is that one third of all households experienced an improvement of their income position, while the other two thirds represent the losers.

A second observation is that income increased by 44.4% in the first group while declined by 39.3% in the second one. In absolute terms, however, the lost income exceeded by 4.3 billion euro (68%) the gain of the winners.

Thirdly, these changes, especially the positive ones, are not limited to the upper classes. All quintiles of the advantaged households benefited from this development in a range of 37.6% to 47.7%. The gain of the richest groups ranged between 51% and 172.7%.

A fourth finding is that the group of winners benefited from increased wages, capital income, commercial activity and pensions, while the group of losers suffered from severe drops in wage- and capital-related income. Income losses from commercial activities had a significantly lower negative impact in comparison with the other two factors. In contrast, pension income partly offset the adverse impact of all these factors.

Table 4.5 Households with increased and with contracted income in 2012 relative to 2008

a) Households with higher income:

	House-holds	Mean total income (in Euro)				Percentage contribution of income sources to the increase of total income					
	In thousand	2008	2012	Change 2012 -2008	% change	Wages	Pensions	Commercial activities	Capital assets	Other sources	Total
1	360.9	3,173	4,657	1,484	46.8	31.8	27.0	18.0	21.7	1.5	100
2	359.9	6,565	9,631	3,066	46.7	44.6	29.6	11.4	12.0	2.4	100
3	360.4	10,471	14,410	3,938	37.6	41.6	33.0	11.9	11.0	2.5	100
4	360.4	15,409	21,519	6,110	39.7	32.2	31.7	19.1	14.9	2.2	100
5	360.4	36,082	53,301	17,219	47.7	25.7	11.6	27.9	33.4	1.4	100
Total	**1,802.1**	**14,339**	**20,702**	**6,363**	**44.4**	**31.0**	**20.6**	**22.2**	**24.4**	**1.8**	**100**
10%	180.2	48,930	73,944	25,015	51.1	23.1	8.1	29.1	38.1	1.5	100
1%	1.80	291,059	681,496	390,437	134.1	9.0	0.1	6.0	80.5	4.4	100
0.10%	0.18	952,159	2,596,367	1,644,208	172.7	0.9	0.0	0.6	99.2	-0.7	100

b) Households with contracted income:

	House-holds	Mean total income (in Euro)				Percentage contribution of income sources to the drop of total income					
	In thousand	2008	2012	Change 2012 -2008	% change	Wages	Pensions	Commercial activities	Capital assets	Other sources	Total
1	661.3	10,794	1,268	-9,526	-88.2	45.4	4.0	29.8	20.4	0.4	100
2	661.3	13,150	6,850	-6,300	-47.9	43.2	3.9	26.6	26.3	0.0	100
3	661.3	18,820	12,491	-6,329	-33.6	45.9	-3.0	25.4	31.8	0.0	100
4	661.3	29,001	19,926	-9,075	-31.3	50.3	-4.3	18.9	35.1	0.0	100
5	661.3	64,177	41,953	-22,224	-34.6	41.2	-6.7	15.0	50.5	0.0	100
Total	**3,306.6**	**27,189**	**16,498**	**-10,691**	**-39.3**	**44.3**	**-2.7**	**20.9**	**37.5**	**0.1**	**100**
10%	330.7	85,637	54,187	-31,450	-36.7	35.0	-7.3	14.2	58.1	0.0	100
1%	3.30	869,532	325,318	-544,214	-62.6	4.9	-0.1	3.1	92.3	-0.2	100
0.10%	0.32	3,706,087	878,949	-2,827,138	-76.3	0.2	0.0	1.0	98.7	0.1	100

Source: Processed tax data.To gain a deeper insight into the issue, we constructed two reference groups in order to show the differential impact on incomes: the first group refers to all households included in our tax dataset, while the second comprises the same households for the whole period 2008-2012.

4.1.1.1 Income changes at the level of 'all households'

The detailed changes for each income source in each decile can be seen in Table 4.3. Table 4.6 is a slightly different presentation of the data of Table 4.3. For reasons of simplification, the ten deciles have been merged into three. Income sources in each decile group have been classified as losers or winners, according to the percentage loss (or gain) they showed in comparison to the average change of average total income in each decile group. A general observation is that the average income in decile 1 experienced a very significant reduction almost in all income sources. It is assumed that this

decile reflects more than the others the increased unemployment across most of the activities and/or the shift of many employees to flexible forms of employment and the associated wage reductions.

Table 4.6 Losers and winners during the crisis: A view at deciles level

Total income	Deciles 1-5	Deciles 6-7	Deciles 8-10	Top 1%	Top 0.1%
The losers:					
Dividends-interest rate income	Business activities	Dividends-interest rate income	Dividends-Interest rate income	Dividends-Interest rate income	Dividends-Interest rate income
Business activities	Dividends-interest rate income	Business activities	Business activities	Rental income	Business activities
Rental income	Wages	Rental income	Rental income	Business activities	Rental income
Wages	Rental income	Wages	Wages	Pensions	Pensions
Independent activities	Independent activities	Independent activities	Pensions	Independent activities	Wages
Pensions			Independent activities		Independent activities
The winners:					
Agriculture income	Agriculture income	Agriculture income	Agriculture income	Agriculture income	Agriculture income
	Pensions	Pensions			

Source: Table 4.3.

Among the three decile groups, the less disadvantaged was the middle one (deciles 6-7). It marked the comparatively most favourable (or less unfavourable) changes for pensions, wages, agriculture income and total average income change.

Deciles at the bottom (1-5) experienced a relatively more adverse effect on wage income and income from business activities, but had moderate losses with respect to income from independent activities, dividends, interest and rental income.

The top 8-10 deciles were the most strongly affected group in many respects. They experienced the highest reductions in pension income, rental income and income from dividends and interest. Within this decile group, the top 1% and 0.1% were also particularly affected with regard to pension cuts, income from independent activities, rental income and dividends-interest.

Income from independent activities recorded relatively smaller reductions (-4.6%) than other income sources, while rental income also showed a comparatively lower decrease (-17.2%), although a large number of buildings became vacant and rents have declined. An explanation could be that with regard to these two income sources efforts to reduce tax evasion had some positive results.

4.1.1.2 Income changes at the level of ‘same households’ sub-sample

The evolution of incomes in the deciles shows the average income and the degree of changes which characterise each of these deciles as a whole. It cannot show whether households or persons left or entered the group. Average values cannot reflect the evolution of income of households or individuals which made part of each particular decile in any given year. In this respect, in Table 4.7 we show the evolution of average total income (in euro) of the same households for 2008-2012.

As shown in Table 4.2, based on the evolution of all income by source, the average total income for all households in the country decreased by 22.6% between 2008 and 2012. Table 4.6 reflects the extent of differentiation of this reduction among deciles. The analysis is done in two parts. In the first part of the table, households are classified on the basis of their ranked incomes in 2008, while in the second part, classification is based on the ranked incomes of 2012. The impact was very different, with the result that households fell from high deciles to lower deciles and vice versa.

We can observe that the poorer households of 2008 (1st to 3rd deciles) saw their incomes rise in 2012. Subsequently, the 4th to 10th deciles recorded increasingly larger reductions of total income. In fact, in the 10th decile the reduction is close to 40%. In the incomes of the richest 1% and 0.1%, the reductions are overwhelmingly larger (-58.4% and -73.3%. respectively). The average income of EUR 265 thousand earned by the richest 1% in 2008 has shrunk to EUR 110.7 thousand, while the average income of the richest 0.1%, from EUR 1,106.9 thousand in 2008 has fallen to EUR 295.1 thousand.

The second part of the table shows that the lowest-income 30% of households in the country, as classified in 2012, has suffered the largest decreases (ranging between 31.4% and 86.4%). These households had much higher incomes in the previous years. They include individuals who were laid off and remained unemployed, entrepreneurs who had to close down their units and, generally, all those households that experienced the most painful consequences of the economic crisis. The poor households of 2012 now include also households which were not poor in 2008.

Table 4.7 Evolution of average total income (in euro) of the same households for 2008 and 2012.

Deciles	From total income of all households in 2008 to their income of 2012			From total income of all households in 2012 to their income of 2008		
	2008	2012	% change	2008	2012	% change
1	1,247	5,575	347.1	8,462	1,150	-86.4
2	5,423	6,877	26.8	9,257	4,503	-51.4
3	8,294	8,460	2.0	9,695	6,653	-31.4
4	10,942	9,915	-9.4	11,974	9,021	-24.7
5	13,645	12,105	-11.3	14,313	11,624	-18.8
6	17,146	14,736	-14.1	17,254	14,444	-16.3
7	21,632	17,686	-18.2	21,765	17,829	-18.1
8	27,990	21,855	-21.9	28,128	22,537	-19.9
9	38,733	29,037	-25.0	37,060	30,358	-18.1
10	86,034	52,598	-38.9	73,178	60,727	-17.0
Total	**23,109**	**17,884**	**-22.6**	**23,109**	**17,884**	**-22.6**
1%	265,855	110,695	-58.4	189,385	155,286	-18.0
0.1%	1,106,894	295,115	-73.3	599,759	461,680	-23.0
S80/S20[29]	9.1				8.2	
Top 1% to deciles 2-3	38.8				27.8	
Top 0.1% to deciles 2-3	161.4				82.8	

Source: Processed tax data.

[29] Deciles 2 and 3 have been preferred to 1 and 2 because of the abnormal value of 2008 for decile 1.

As a result of the large reductions in high incomes, income inequality indicators appear improved. Based on the classification according to the incomes of 2008, the highest-income 20% of households earned 9.1 times higher income compared with the lowest 20% of households. In 2012, this ratio was 8.2. On the other hand, the top thousandth of households in the country (5,227 households) in 2008 earned 161 times higher income than the 2nd and 3rd deciles (1,045,000 households), which plunged to 82.8 in 2012.

4.2 The impact of the crisis on wage- and capital-related incomes

4.2.1 Austerity policies and the squeeze on wages

Table 4.8 indicates the average annual change in wages during the years 2009-2013 for various sectors and the changes in unit labour cost[30]. It is shown that salaries-wages declined by 1.6% to 5.0% (average annual rates), depending on the sector.

Table 4.8 The evolution of wages-salaries in the public and the private sector and their impact on labour cost (annual percentage changes).

Annual percentage changes	2009	2010	2011	2012	2013	Annual average change 2009-2013	Cumulative total change 2009-2013
Nominal average gross salary							
Public sector	5.2	-7.7	-0.5	-3.8	-1.2	-1.6	-8.0
Public utilities	7.7	-5.5	-7.9	-9.5	-10.0	-5.0	-25.2
Non-banking private sector	2.8	-2.9	-1.7	-9.3	-8.0	-3.8	-19.1
Total economy	4.6	-4.6	-1.7	-6.6	-6.5	-3.0	-14.8
Average gross earnings (real)	3.3	-8.9	-4.7	-7.6	-5.7	-4.7	-23.6
Total compensation of employees (salaries and social contributions)	3.2	-6.9	-8.1	-14.0	-10.9	-7.3	-36.7
Average salary income of households obtaining wage income in each year during 2008-12	6.2	-1.5	-4.4	-10.3		-2.5	-10.0
Average wage income of all households during 2008-13	1.4	-5.7	-11.5	-14.2		-7.5	-30.0
Unit labour costs: Total economy Business sector	 6.4 4.4	 -2.1 -1.1	 -1.1 -3.5	 -7.5 -11.7	 -7.3 -8.1	 -2.3 -4.0	 -11.6 -20.0

Sources: Bank of Greece, Monetary Policy 2013, Annual Reports and processed tax data.

[30] The data have been taken from the Bank of Greece and the Greek Statistical Office (ELSTAT) with the exception of the 'average values of wages-salaries' (seventh and eighth row), which have been calculated from the tax dataset. The figure in row 8 refers to the average value of household salaries for those households who declared a salary income in each of the five years of the tax dataset, while the figure in row 9 concerns the average salary income of all households, irrespective of whether they earned or not salary income in any of the five years examined.

These figures allow five remarks:

- Employees in public utilities, who benefited from particularly high salaries in the pre-crisis years, experienced the highest wage/salary cuts (5% as an annual average for the five years),
- Salaries in the public sector were reduced during 2008-2012 by 58% less than in the non-banking private sector (annual average reduction: 1.6% and 3.8%, respectively).
- These figures have been based on average values. In fact, however, salaries-wages exceeding the level of approximately 1,000 euro have been cut much more, while the reductions for lower incomes were smaller.
- The household's average wage-related income as calculated from the tax returns data reveals a different picture. Households which could earn salary-wage income for each of the five years of the period 2008-2012 examined (row 8), experienced a cumulative reduction in this income source of about 10%. In contrast, the average wage-related income of households calculated on the basis of all tax returns, including households which at some point within this period experienced a complete or severe loss of their wage-related income, shows a reduction of about 30%. This latter figure is indicative more of the shrinking in total wage-salary income because of the unemployed persons than of the average wage/salary loss of the households which could preserve their position in the labour market. The contrast between these two figures reflects the very different reality experienced by the two household groups, the members of which remained in or were excluded from the labor market, respectively, during the crisis.
- Further, the evolution of unit labour cost at the end of the table shows that during 2008-2012 wage/salary cuts in the business sector have largely compensated for the adverse impact of the excessive wage increases of the pre-crisis period, which were considered to have been a main cause of the competitiveness crisis.

4.2.2 The changing weight of the wage share during the crisis and its determinants

Table 4.9 shows the evolution of GDP and wage-related income according to two different sources: National Accounts and the wage-related income recorded to tax authorities. The findings show that:

→ The share of wage-related income to GDP increased from 34% (2008) to 35.7% (2010), but fell significantly to 32.3% in 2013 (row 7). The National Accounts figures show that the absolute amount of total wages decreased to €59.3 billion (2013) from €82.4 billion in 2008 (-28,0%, row 4).

→ Total declared income decreased between 2008 and 2012 by 27.4%, while based on National Accounts data GDP[31] decreased by 19.7% respectively (rows 4 and 5). In both statistics the aggregate wage income decreased more than GDP (-19.8%). Considering that in 2011 a large reduction in the income threshold was introduced, which should have boosted the tax base, this discrepancy raises questions which, however, go beyond the scope of this approach.

[31] The reference to GDP is only indicative; GDP cannot be compared to income in the tax records, since it includes various elements such as retained earnings, depreciation, taxes and other items, which are not included in the personal tax statistics.

→ Despite the similar wage share to GDP in 2008 and 2012 (row 7), the declared wage-related income shrank as a percentage to GDP by 1.9 percentage points (from 19.8% to 17.9%, row 8). However, an even greater decline is observed in total declared income from all other income sources (besides wages-salaries and pensions), which shrank by 4.2 percentage points (from 19.5% of GDP to 15.3%, row 11).

→ Although the share to GDP of both these broad income groups (wages and 'other') remained stable between 2008 and 2012 according to the National Accounts[32], the share of declared wages-salaries and pensions in total declared income increased significantly (from 60.9% in 2008 to 68.3% in 2012, row 10), implying that the corresponding share of all other income sources fell (from 39.1% to 31.7%). This contrasting evolution indicates an increase in the relative tax burden on wages-salaries and pensions in comparison with the other income sources.

Table 4.9 Evolution of basic income data (values in billion Euro)

		2008	2009	2010	2011	2012	2013	change %	
								2012/08	2013/08
GDP	(1)	242.1	237.4	226.2	207.8	194.2	182.4	-19.8	-24.6
Total income as given in the tax records	(2)	120.8	121.3	119.1	100.7	93.5		-22.6	
Total declared income to GDP (2/1)	(3)	49.9	51.1	52.7	48.4	48.1			
Wages-salaries according to National Accounts	(4)	82.4	84.4	81.	73.5	66.4	59.3	-19.7	-28.0
Wages-salaries declared to the tax authorities	(5)	47.8	48.5	45.7	40.5	34.7		-27.4	
Pensions declared to the tax authorities	(6)	25.8	28.3	28.9	29.7	29.1		12.8	
Wage Share to the GDP (4/1)	(7)	34.0	35.5	35.7	35.2	34.0	32.3		
Declared wages to GDP (5/1)	(8)	19.8	20.4	20.2	19.5	17.9			
Declared wages and Pensions as a share to GDP (5+6)/1	(9)	30.4	32.3	33.0	33.8	32.9			
Declared wages and pensions as a share to total declared income (5+6)/3	(10)	60.9	63.3	62.6	69.7	68.3			
Total declared non-wage and non-pension income to GDP (2-5-6)/1	(11)	19.5	18.8	19.7	14.7	15.3			

Source: Processed Tax data and ELSTAT's Annual National Accounts. Tax data for 2013 are not available.

Household income was reduced during the crisis under the effect of a range of factors, such as:

- Closures of small and medium-sized firms, unemployment and move from the status of self-employed to unemployed. Between 2008 (2nd quarter) and 2014 (2nd quarter) unemployment jumped from 7.3% to 26.6%. Unemployed persons increased by about 743 thousand previously dependent employees and 355 thousand previously self-employed persons (in commercial-

[32] The wage share decreased further in 2013 to 32.3%, implying an increase in the 'other' income sources. However, our tax dataset does not cover 2013, restricting comparisons to 2012.

business activities, independent activities, agriculture, tourism, construction, SMEs, etc.). They represented, respectively, 24.5% and 22.1% of total dependent employment and total self-employment in 2008.

- Changing employment conditions and a shift from the status of full employment to various part-time or temporary employment positions. The number of employees with part-time employment increased by about 77.5 thousand persons (+30.3%) between 2008 and 2014 (2nd quarter), implying lower labour remuneration. Further, the number of underemployed persons (15-74 years old) increased by 144.4 thousand persons (from 95.2 thousand in 2008 to 239.6 thousand persons in 2014). Briefly, during the crisis, besides unemployment, an extensive shift from full employment to low-pay employment took place, affecting the relevant wage-related income figures.

- Cuts of wages as a result of policy decisions regarding public employees, the organisation of the labour market and the collective agreements in the private sector have been significantly lower than those for employees in the private sector. The salaries of public employees and of employees in public utilities have been cut by 8.0% and 25.2% respectively between 2009 and 2013 (Table 4.8). The respective figure for employees in the business sector[33] was 19.1%.

- No access to the labour market by young people or inactive persons who started searching for a job. The number of unemployed youths (15-29 years) increased between 2008 and 2014 from 163.5 to 377.6 thousand persons (an unemployment rate of the respective population of 15.5% and 44.3%).

- The recession and the related reduction of wages-salaries. The recession is related to all the aforementioned factors. The recession and the crisis have been basic determinants of both unemployment and income reductions. The above distinctions are an attempt to focus on some more specific forms of these effects, which can facilitate our analysis.

Besides its impact on incomes, the crisis led also to a substantial loss of capital values, in particular with respect to real estate property, shares and bonds. The Bank of Greece estimated that the value of houses and offices declined by about 47% between 2008 and 2014. Equally, the capitalisation of banking and non-banking companies listed in the Athens Stock Exchange decreased from 59.4 billion euro (2008) to 22.0 billion euro (2011), increasing to 38.7 billion euro by end-2013, mainly as a result of the injection of about 39 billion euro into the banking sector (recapitalisation of banks). Overall, a capital amount of at least 15 billion euro regarding solely the listed companies has been lost. The haircut on Greek government bonds in 2012 led to significant capital losses for many individuals and in particular Pension Funds and, hence, for larger parts of society. In addition, a large number of productive units closed down during the crisis, implying the destruction of significant, even if not easily quantifiable, parts of the production capital. Additional types of capital-related incomes are rental income, dividends and interest. As already shown (Table 4.2-4.3), all these income types experienced significant reductions.

Methodologically, however, the destruction of fixed capital assets or the diminution of capital values should not be simply compared to the fall of employment-related incomes. The two figures are complementary but distinct destructive effects of the crisis. They show that the impact of the crisis has many parameters and complex aspects, which affect the questions of inequality and solidarity. Any further analogy, however, between wage-related and capital-related income would be methodologically questionable, for the additional reason that both real estate prices and the Stock

[33] Non- banking private sector.

Exchange before the crisis gained from exceptionally high or speculative price increases. Real estate prices jumped by 161% between 1997 and 2008[34], while also the index of the Athens Stock Exchange rocketed before the crisis to 105% above its average level of 2003-4. It could be argued, that such speculative phenomena led to similar exceptional rises in some income sources, the subsequent downward adjustment of which has to be assessed in a more long-term perspective.

4.2.3 The focus on the wage-dependent households

Based on national accounts data regarding the change in total wages (-19.7%, Table 4.9), the aggregate amount of wages would be reasonably expected to have also declined by about 20%[35]. However, the decrease in the wage-related income as declared in the income tax returns of households between 2008 and 2012 turned out to have been much higher (27.4%).

Based on this evolution, in the following we focus on wage income developments from two perspectives:

- the change in each income source (salaries, pensions, commercial activities, etc.) as a component of the total income of all households, and
- the changes in the average total income of households.

In both the above cases, the reference unit is the households earning wage income[36] in each year (2008-2012), whether they are the same or different across these years. This approach will be complemented by the examination of the same figures, this time selecting the same households for both years (2008-2012).

From a more detailed perspective, we look at the evolution of the wage-related income of the same households ranked by income deciles for 2008 and 2012, which serves to show the degree of inequality caused by changes in such income. The methodology is as follows: Incomes from wages are ranked in deciles based on 2008 levels; then the changes in wage-related income and total income by 2012 are examined for each decile, with reference to these same households. This indicates the income situation of the same household before the crisis (2008) and 2012. Then a reverse calculation follows: income from wages and total income, used as the starting points, are ranked according to their levels in 2012, and their evolution is examined going back to 2008 for the same households and for each decile (Table 4.14). This dual approach enables to determine whether income developments for some groups of households have been worse or better than or same as the general trend. The approach reveals divergent patterns of income developments: those households that emerge as losers – which can be seen as representing "the old order" – faced a substantial loss of income between 2008 and 2012, unlike others - the "new order" – whose income seems to have been on an upward path during the same period.

4.2.3.1 The structure of total income of wage-dependent households

As we saw above, the aggregate volume of wages (all households) declared for taxation purposes declined by 27.4% between 2008 and 2012. This decline reflects the combined effect of two factors:

[34] Bank of Greece, Annual Reports.

[35] Given the progressiveness of income tax, if the tax rates had remained unchanged, the reduced incomes would have led to a decrease in the tax burden.

[36] The presence of other income sources does not influence the criterion chosen.

(i) the reduced wages of those who are employed and (ii) the higher number of unemployed persons, who may have zero income from dependent employment but continue to submit an income tax return if they have income from other sources or have changed their type of employment, e.g. by becoming self-employed, and (iii) it also incorporates the effect of spurious self-employment, imposed by employers in an attempt to avoid social security contributions for workers who are in essence employees. Comparing the reduction in aggregate income from wages (27.4%) with the reduction in the total income of the households concerned, we can see that the latter income has fallen more strongly (29.5%, Table 4.10).

Table 4.10 Sources of aggregate income of households with dependent employees (% changes 2012 to 2008)[37]

Deciles	Wages	Share of wages in total income		Pensions	Agriculture
		2008	2012		
1-5	-28.2	62.1	59.6	-4.6	5.9
6-7	-27.2	71.0	75.1	-19.4	1.9
8-10	-26.9	78.5	82.6	-29.9	-5
1%	-22.4	78.0	79.5	-5.3	73.9
0.1%	-27.6	65.8	60.5	5.4	-64.4
Total	-27.4	72.9	75.1	-17.1	3.3

+

Deciles	Commercial activities	Independent activities	Rental Income	Dividends & Interest	Total
1-5	-46.9	-19.9	-17.6	-48.1	-25.8
6-7	-53.3	-18.7	-27.3	-63.2	-31.2
8-10	-52	-42.3	-31.5	-55	-30.5
1%	-13.9	-50.5	-27.7	-30.1	-23.8
0.10%	1.3	-29	-8.7	-10.2	-21.3
Total	-49.6	-32.2	-26.2	-54.8	-29.5

Source: Processed tax data.

A crucial question in this respect is how the other sources of income in wage-dependent households have behaved and what have been their respective contributions to this fall of 29.5% in total income[38]. It is shown that the income of these households has been adversely affected by the negative developments in income from commercial activities (-49.6%), professional services (-32.2%) and real estate (-26.2%), while dividend and interest income fell even more sharply (-54.8%). By contrast, a smaller contribution came from pension income (-17.1%), which fell much less than other income sources, while agricultural income (+3.3%) had a positive contribution.

As a result of these marked changes in the additional incomes of households with employees, the share of wage-related income in total income increased in 2012 relative to 2008. According to Table 4.10 (3rd and 4th column), total income from wages accounted for 72.9% of total income in 2008 and to 75.1%. in 2012. This rise is not broadly based across all households of employees: in the first five

[37] It concerns aggregate values for all households (from wages, pensions etc.) and not the mean household income.

[38] It is reminded that the average annual reduction of wages in the economy as a whole has been estimated at 3.0% for the period 2009-2012 (Table 4.8).

(lowest-income) deciles of households (group 1-5) and in very rich households (the highest-income 0.1%) the share of wages in total income declined instead, from 62.1% to 59.6% for the former and from 65.8% to 60.5% for the latter. However, both these groups faced relatively smaller income losses compared with households in deciles 6-7 and 8-10.

4.2.3.2 Changes in the average income of wage-dependent households

According to Table 4.11, in 2008 the average total income of households with one or more members earning wage income was EUR 26,437, but fell to EUR 22,863 (-13.5%) in 2012. This fall was actually steeper considering that wages continued to increase in 2009 and only started to decline in 2010. For this reason, we have also calculated the reduction for the period 2010 to 2012 (last column), which is greater (-15.5%) and reflects more accurately the income losses suffered by the majority of households during the crisis. Still, both these figures are much lower than the reduction in total wage income for all households. This indicates that during the crisis there have been significant income declines in many households, but also significant changes in the relative weights of the different income sources.

Table 4.11 Mean total income of households with dependent employees (in euro)

Deciles	2008	2009	2010	2011	2012	% change 2012/2008	% change 2012/2010
1	10,024	9,873	11,180	9,096	8,256	-17.6	-26.2
2	11,022	11,924	12,049	10,302	9,343	-15.2	-22.5
3	12,860	13,547	14,505	13,405	12,285	-4.5	-15.3
4	14,954	15,608	16,239	15,041	14,085	-5.8	-13.3
5	17,932	19,166	19,587	18,041	16,754	-6.6	-14.5
6	21,940	22,859	22,875	21,065	19,225	-12.4	-16.0
7	28,414	28,459	28,917	25,711	23,238	-18.2	-19.6
8	33,974	35,761	33,282	29,783	28,001	-17.6	-15.9
9	41,740	43,591	40,970	37,391	34,849	-16.5	-14.9
10	71,516	72,631	70,905	64,546	62,601	-12.5	-11.7
Total	26,437	27,342	27,051	24,439	22,863	-13.5	-15.5
1%	157,685	148,242	149,855	140,414	147,334	-6.6	-1.7
0.1%	455,758	349,343	355,796	350,160	440,242	-3.4	23.7

Note: Each column is derived by hierarchising in deciles the total wage-related income of each year of all households with dependent employees.
Source: Processed tax data.

In the same Table 4.11 furthermore, we examine the changes in average total income by deciles, in order to investigate disparities across groups. The most negative developments were observed in the 1st and 2nd deciles (-26.2% and -22.5%), as well as in the middle part of the income distribution (6th-8th deciles, earning between EUR 19 thousand to EUR 28 thousand in 2012), in which income reduction ranged between 16.0% and 19.6%. For the incomes of the top 1% the decrease was insignificant, while for those of the top 0.1% it rose by a substantial 23.7% between 2010 and 2012.

The comparatively heavier losses suffered by very low incomes, which consist primarily in wages, probably does not so much reflect the wage cuts introduced, which for low wages were rather small, but rather the transition of a significant number of household members to unemployment or types of temporary or part-time work, which entail lower wages. If from the total income of Table 4.11 we

isolate the income from wages, the resulting picture is shown in Table 4.12. According to this table, the average wage income received by households with employees falls from EUR 19,277 to EUR 17,168, implying a decrease of 10.9%, which is lower than the average reduction in the total income of these households that we saw above (-13.5%) and in the non-wage incomes of the households.

Table 4.12 Mean wage income of households with dependent employees (in euro)

Deciles	2008	2009	2010	2011	2012	% change 2012/2008
1	2,604	2,632	2,558	2,241	1,703	-34.6
2	5,849	6,015	5,794	5,288	4,399	-24.8
3	8,782	9,249	9,042	8,484	7,346	-16.4
4	11,028	11,587	11,635	11,331	10,301	-6.6
5	13,226	14,029	14,001	13,683	12,455	-5.8
6	16,149	17,021	16,563	15,970	14,581	-9.7
7	19,588	20,557	19,698	18,717	17,314	-11.6
8	24,241	25,290	24,409	23,128	21,539	-11.1
9	32,838	34,359	33,405	31,707	29,005	-11.7
10	58,468	60,705	59,202	56,432	53,037	-9.3
Total	**19,277**	**20,144**	**19,631**	**18,700**	**17,168**	**-10.9**
1%	123,052	123,927	124,764	122,229	117,110	-4.8
0.1%	299,720	265,565	277,251	279,244	266,452	-11.1

Note: Each column is derived by ranking in deciles the wage-related income of each year of all households with dependent employees.
Source: Processed tax data.

The evolution of average wage-related income per household leads to the following conclusions:

- The households that started from an average wage-related income of EUR 19,277 in 2008 lost 10.9% by 2012 (EUR 17,168), which is considerably less than the reduction of average wages in total economy (27.4%). The decline in the average total income of wage-dependent households between 2008 and 2012 was 13.5% (Table 4.11).
- The sharpest falls in average wage-related income occurred in very low incomes (EUR 2,604 to EUR 8,782 in 2008), ranging between 16.4% and 34.6%. Comparatively limited reductions (5.8% to 6.6%) were seen in wage-related incomes of between EUR 11 thousand and EUR 14 thousand, while for the other groups (even the top 1% and 0.1%) the reductions were generally lower (between 9.3% and 11.7%) (Table 4.12).

4.3 The different paths to pauperisation

The use of the term "pauperisation" of the population does not necessarily mean that all households move to lower income categories. Nor does it mean that all households earn lower income than before or are subject to the same negative effects. In relative terms, it might as well be the case that nothing changes: the number of the poor and the size of income inequality may remain the same; the imbalance may not be overturned; the poor remain poor and the rich remain rich; income gaps remain unchanged. This might indeed happen, as long as the median household shifts downwards, without overtaking any household and, in addition, none of the households above the median falls below the median. This pattern would arguably be the most equitable allocation of the costs of the crisis, with all households being in it together and bearing the costs in the same way. A household at the top of the income ladder would e.g. pay 20%, which would translate into a few thousand euros, while the household on the bottom rung would also pay 20%, which in this case would translate into a few euros. Of course these few euros may have greater utility for the very poor household than the thousands of euros for the very rich household.

Has this really happened in the Greek society?

As we will see in the following analysis, the answer to this question is an emphatic "no". Let us consider for a moment the income ladder that existed before the economic crisis, back in 2008. No matter on which rung of the ladder they were, households typically had more than one income source. Many of them had two income earning members, each with a different employment status; others had additional income from the primary sector or from dividends, rents, unemployment benefits, etc.

In 2012, the ladder remains the same, the number of rungs has not changed. What has changed is the (relative) position of households on the ladder. The incomes have not all fallen the same. Some have seen a small decline, others have contracted very much. Some households have shifted to a state of retirement; for others their primary income has become of secondary importance. There are also households whose income has increased amid the crisis. Therefore, the movements on the income ladder are in both directions. Some households descend several rungs, some others do less so. But there are also households which climb the ladder and occupy the rungs left by others. In 2012, we have a new balance on the ladder. The people at the top and the bottom of the ladder are not the same. Among those at the bottom, few remind us of the poor of 2008.

To explore the various aspects of pauperization in the Greek society during the crisis, in this section we will examine the income evolution of the same set of households during the crisis. In particular, two different types of income are considered (wages/salaries and pensions) for two different sets of groups (all households declaring income from wages and pensions, respectively, in both 2008 and 2012), looking at the changes (i) for the same households (with income from wages and/or pensions) of 2008 in the years to 2012, and (ii) for the same individuals who had income from wages/salaries during the years 2008 to 2012.

4.3.1 Households with the same employees

The examination of the income evolution of the same households from 2008 to 2012 follows two steps. In the first step, the starting point is the income of 2008, ranked into deciles. In the second step, the starting point is the income of 2012, also ranked into deciles. Across these two years, households are not the same, with their number falling from 2,480,000 in 2008 to 2,023,400 in 2012 (456.6

thousand less). These two steps are depicted in Table 4.11 and Table 4.12, respectively. The differences relative to the "all households" sample become clear from a comparison of the figures in Table 4.11 with those of Tables 4.13 and 4.14.

In Table 4.11, in the 1st decile the average income of households with income from wages in 2008 was EUR 10,024, falling to EUR 8,256 by the end of the period (2012). The households ranked in these deciles are not necessarily the same. This table shows that in 2012 the income of the poorest 10% of households with employees was 17,6% less than the income of the poorest 10% of households in 2008 (-26.2% if 2012 is compared to 2010). By contrast, Table 4.13 keeps track of the same households over time.

Table 4.13 Average total income in households with employed persons (same households sub-sample, in E)

Deciles	2008	2009	2010	2011	2012	% change 2012/2008
1	10,024	11,257	11,778	10,415	9,438	-5.9
2	11,022	11,882	11,749	10,545	9,362	-15.1
3	12,860	12,699	12,656	11,214	9,996	-22.3
4	14,954	14,809	14,733	12,832	11,202	-25.1
5	17,932	18,100	17,788	15,677	13,949	-22.2
6	21,940	22,558	21,951	19,713	17,891	-18.5
7	28,414	28,261	27,009	24,042	21,785	-23.3
8	33,974	34,631	33,092	29,031	26,279	-22.6
9	41,740	43,046	40,763	35,761	32,532	-22.1
10	71,516	72,061	66,752	58,049	54,082	-24.4
Total	26,437	**26,930**	**25,827**	**22,727**	**20,651**	**-21.9**
1%	157,685	146,001	136,711	117,643	116,227	-26.3
0.1%	455,758	338,458	331,654	287,254	328,585	-27.9

Note: Ranked by wage-related income in 2008. Evolution of income for the same households from 2008 to 2012.
Source: Processed tax data.

According to Table 4.13, the poor households with employees in 2008 had an average total income of EUR 9,438 in 2012, just 5.9% lower. As we move from low to higher deciles, even up to 0.1%, we can see increasingly larger reductions in income, with the largest being recorded in the richest 0.1% (-27.9%).

In Table 4.14 the starting point is the ranked income of households with employees in 2012. The increasingly larger reductions of income that we saw above as we moved from low to higher deciles have now been fully reversed. The poor households in low deciles of 2012 now record greater losses than the richer households in high deciles. For instance, the households of the first decile have an average total income of EUR 8,256 in 2012, having lost 45.3% of their pre-crisis their income of EUR 15,083, which has ranked them in the 4th decile (as seen in Table 4.13).

Now they have dropped to the lowest decile (1st). On the other hand, the households which in 2012 are ranked in the top 1% and 0.1% emerge as winners from the crisis, recording income gains of 13.7% and 36.4%, respectively. Based on income data for 2012, the rich households, by contrast to the weaker groups, seem to have achieved a marked increase in their incomes during the crisis. As a

result, their incomes in 2012 exceed those of the rich households of 2008. An explanation is provided in section below, in which we examine the wages/salaries of the employees included in these households over time.

Table 4.14 Average total income in households with employed persons (in E)

Deciles	2008	2009	2010	2011	2012	% change 2012/2008
1	15,083	14,592	13,668	10,861	8,256	-45.3
2	13,737	13,718	13,235	10,906	9,343	-32.0
3	15,529	15,570	15,859	13,747	12,285	-20.9
4	16,476	16,620	16,944	15,469	14,085	-14.5
5	21,245	20,611	20,313	18,439	16,754	-21.1
6	22,367	23,623	23,333	21,104	19,225	-14.0
7	28,047	28,649	27,858	25,260	23,238	-17.1
8	31,609	33,256	32,288	29,921	28,001	-11.4
9	38,486	40,632	39,767	36,813	34,849	-9.5
10	64,011	66,275	65,723	62,460	62,601	-2.2
Total	**26,659**	**27,354**	**26,899**	**24,498**	22,863	**-14.2**
1%	129,538	132,667	134,297	133,801	147,334	+13.7
0.1%	322,756	315,973	318,836	332,105	440,242	+36.4

Note: Ranked by wage-related income in 2012. Evolution of income for the same households from 2012 to 2008.
Source: Processed tax data.

4.3.2 From the ‘same household’ to the ‘same individual’

In the following, our focus is shifted from households to individuals. Table 4.15 shows the evolution of wages/salaries at the level of the same individuals (the population concerned is 1.951,200 employees) which retain their jobs for the entire period 2008-2012. Hence, employees who had a job at some point during this period or employees who had jobs at the beginning of the period but then remained unemployed are excluded. The focus here is on the bulk of employees in the country, who kept their jobs despite the adverse and challenging economic conditions.

In the first part of the table, employees are ranked into deciles according to their wages/salaries of 2008. We can observe that the employees ranked in the 1st decile in 2008 saw their wages increase by 78.8%, from an average of just EUR 3,633 to EUR 6,495 in 2012. Based on the deciles of 2012, the poor employees of 2008 will be ranked in the 3rd decile of 2012. An increase, albeit much smaller (6.8%), is recorded in the wages/salaries of the employees of the second decile. However, from the 3rd and up to the 10th decile, wages/salaries have been reduced. Overall, the average salary of employees who kept their jobs fell by 10.3%, with the highest-earning 0.1% recording the largest fall (-27%).

In the second part of Table 4.15, employees’ wages are ranked according to their level in 2012. We can observe that the employees ranked in the 1st decile in 2012 have suffered massive income losses (-73.5%) relative to their 2008 wages that had ranked them back then, on average, in the 3rd decile. It should be noted that the 1st decile of 2012 includes also employees who in previous years used to be ranked in even higher deciles. Substantial losses have also been suffered by employees in

the 2nd and 3rd deciles (-38% and -17.3%, respectively). In the next deciles (4th to 9th), the wage losses are smaller than 10%. On the other hand, the employees ranked in the 10th decile in 2012 have seen their wages increase relative to 2008 (+ 4.8%). However, the biggest winners are the employees in the top 1% and 0.1% (+ 16% and + 19.5%, respectively).

Table 4.15 Evolution of the mean wage-salary for all employees employed throughout the period 2008 to 2012

Deciles	Employee in 2008. Mean salary in 2008 and 2012			Employee in 2012. Mean salary in 2012 and 2008		
	From 2008	To 2012	12/08	To 2008	From 2012	12/08
1	3,633	6,495	78.8	8,890	2,357	-73.5
2	7,293	7,789	6.8	8,995	5,574	-38.0
3	10,150	9,296	-8.4	10,706	8,851	-17.3
4	12,110	10,905	-9.9	12,421	11,274	-9.2
5	14,260	13,010	-8.8	14,338	13,004	-9.3
6	16,595	14,575	-12.2	16,164	14,586	-9.8
7	18,923	16,067	-15.1	18,173	16,441	-9.5
8	21,509	18,446	-14.2	20,549	18,979	-7.6
9	25,394	21,574	-15.0	23,689	22,916	-3.3
10	45,100	38,844	-13.9	41,041	43,019	4.8
Total	**17,497**	**15,700**	**-10.3**	**17,497**	**15,700**	**-10.3**
1%	103,214	86,782	-15.9	87,680	101,704	16.0
0.1%	246,668	180,014	-27.0	201,868	241,333	19.5

Source: Processed tax data.

In conclusion, the reductions in wages/salaries that began with the onset of the crisis did have a redistributive effect, as the largest cuts were made in high wages. The highest wages of 2008 recorded annual losses of EUR 20 thousand to EUR 60 thousand, falling overall, between 2008 and 2012, from EUR 103 thousand to EUR 86.8 thousand for the top 1% and, even more strongly, from EUR 246.7 thousand to EUR 180 thousand for the top 0.1%.

Repeating the same analysis on the basis of 2012 rankings, the results would at first glance seem strange: we can now observe that the wages of the top 1% and 0.1% have increased by about EUR 14 thousand and EUR 40 thousand respectively, relative to 2008. On average, the same employees with very high wages in 2012 received very high wages in 2008 too. Also, employees with very high wages in 2008, on average, continue to have high wages in 2012. However, significant changes have occurred, which are masked by averages. There are employees who seem to earn very high wages in 2012 in comparison with previous years. Conversely, some of them, e.g. the highly-paid public sector employees, have faced marked reductions in their wages as a result of the incomes policy, losing -- in addition to the cuts in their monthly earnings -- the equivalent of two months' salaries in bonuses and allowances (the so-called 13th and 14th salary). On the other hand, there are employees with high wages (in the private or the broader public sectors) who have not experienced any reductions in their monthly salaries or cuts in the 13th and 14th salary. This implies that the crisis has changed also the relative position of each employee versus the rest of the labour force. Some have moved up and some down the income ladder or even, which is the most painful, have tumbled down to the bottom.

4.3.3 Households with pensioners

According to either income ranking (using 2008 or 2012 as the starting point), the evolution of the total income of households with pensioners does not reveal any increases of income in any decile, but only reductions. The households of low pensioners (1st to 3rd deciles) of 2008 earn 4.2% and 7.9% lower total incomes respectively in 2012 (Table 4.16). The higher the 2008 total income, the larger the reductions: about 25% for the 10th decile and even larger for the top 1% and 0.1% (29.1% and 32.6% respectively).

Table 4.16 Evolution of the mean total income of households with pensioners (in Euro)

Deciles	Pensioner's households in 2008 From total income in 2008 to total income in 2012			Pensioner's households in 2012 From total income in 2012 to total income in 2008		
	From 2008	To 2012	% change	To 2008	From 2012	% change
1	10,399	9,968	-4.2	11,142	8,788	-21.1
2	10,015	9,313	-7.0	10,745	8,881	-17.4
3	11,555	10,642	-7.9	11,384	10,273	-9.7
4	13,613	12,176	-10.6	14,327	12,546	-12.4
5	15,606	13,821	-11.4	16,927	14,887	-12.1
6	18,940	15,987	-15.6	19,509	17,517	-10.2
7	22,035	19,011	-13.7	23,416	20,776	-11.3
8	29,413	22,570	-23.3	29,768	24,277	-18.5
9	36,110	27,559	-23.7	39,119	29,590	-24.4
10	52,108	38,885	-25.4	57,904	42,535	-26.5
Total	**21,979**	**17,993**	**-18.1**	**23,425**	**19,007**	**-18.9**
1%	79,512	56,381	-29.1	82,974	64,434	-22.3
0.1%	115,267	77,652	-32.6	116,292	90,318	-22.3

Note: Ranked by income from pension for the same households from 2008 to 2012 and from 2012 to 2008.
Source: Processed tax data.

On the other hand, based on the 2012 ranking, the households of low pensioners in 2012 have suffered significant reductions in their incomes. Moreover, by contrast to the households of employees, the highest earners (top 1% and 0.1%) among pensioners' households had significantly lower average incomes in 2012 (by EUR 18.6 mil. and EUR 26 mil., respectively). In the next section we will examine to what extent these changes are due to the main income of these households, i.e. pension, or to their other income sources.

4.3.4 From the 'all households" to the 'same households" sub-group with pension income

As becomes immediately clear from Table 4.17, the low average pensions in 2008 not only did not decline, but in fact increased significantly. Only from the 6th decile upwards do pensions start to show declines, which exceed 30% for the very high pensions. The average pension has been reduced by 8.3% on average. It should again be noted that Table 4.17 refers to all persons in the country who had pension income during all five years (2008-2012). Their number is 2,008,300[39].

[39] Excluded are however new retirees for whom the pension award decision was still pending during the period reviewed.

Unchanged or slightly higher pensions can be observed also in the second part of Table 4.17. Moreover, we can see that in the lowest decile the average pension exceeds the respective average wage shown in Table 4.15.

Table 4.17 Evolution of the mean pension for all pensioners obtaining pension income throughout the period 2008-2012 (in E)

Deciles	The pensioner of 2008: Mean pension in 2008 and 2012			The pensioner of 2012: Mean pension in 2012 and in 2008		
	From 2008	To 2012	% change	To 2008	From 2012	% change
1	3,479	5,152	48.1	4,665	3,732	-20.0
2	5,033	5,619	11.6	5,417	5,427	0.2
3	6,028	6,451	7.0	6,165	6,237	1.2
4	6,917	7,236	4.6	6,994	7,138	2.0
5	8,050	8,251	2.5	8,061	8,155	1.2
6	9,634	9,328	-3.2	9,623	9,461	-1.7
7	12,131	11,455	-5.6	12,210	11,684	-4.3
8	16,313	15,026	-7.9	16,507	15,399	-6.7
9	22,313	19,296	-13.5	22,191	19,658	-11.4
10	33,737	25,516	-24.4	31,851	26,595	-16.5
Total	**12,362**	**11,332**	**-8.3**	**12,362**	**11,332**	**-8.3**
1%	51,778	35,028	-32.4	43,091	39,956	-7.3
0.1%	69,691	47,565	-31.7	47,794	55,148	15.4

Source: Processed tax data.

According to both rankings, pensions in the high deciles have been cut drastically. This was observed also for the total income of households with pensioners. However, there are some notable differences concerning the very high pensions of 2012: the average pension of the top 1% of pensioners in 2012 has declined by 7.3%, while that of the top 0.1% has increased by 15.4%. Admittedly, as a result of multiple cuts in pensions, some pensioners have lost a greater portion of their total pension income, while others have only faced the general reductions. Finally, since the income from pensions declined by about 8.3%, while the total income of the same households fell by between 18% and 19%, this sharper fall was obviously driven by changes in other income (rent, dividends, agriculture, etc.).

In general, however, the fears of several analysts that the crisis would hit most severely the elderly population of pensioners, forcing them into deeper poverty, do not seem to have materialised. This can be seen also from the examination of the new forms of poverty, showing that the most vulnerable groups now are not pensioners, but younger unemployed persons and families.

4.4 Divergent evolution of labor and pension earnings: the need for an interpretation

The examination of the evolution of wages and pensions during the crisis highlights, on the one hand, the policy discrimination towards employees in the private versus the public sector and, on the other, the introduction or maintenance of incentives for a mass exodus of workforce to retirement. Behind this policy was an effort to cushion the public sector from the most adverse effects of the crisis, even if this implied that the private sector would be called on to bear the brunt of the adjustment. Thus, the private sector shouldered a heavy burden as a result of several cumulative and compounding predicaments, including unemployment (dependent and independent jobs), wage cuts, business closures, recession and a collapse of all types of income, new forms of inequality, a plunge of thousands of individuals and households into poverty or of poor households into deeper poverty, loss of job security with an increasing use of part-time or temporary work arrangements, payroll and other arrears outstanding for months and the dismantling of labour relations and labour protection.

In the public sector, the most important measures were the successive cuts in the earnings of employees, non-renewal of temporary employment contracts (e.g. internships), several months' delays in the award of pension to new retirees, drastic cuts in pensions exceeding EUR 1,000. In terms of wages, cuts in the public sector were lower than in the private sector. Furthermore, the public sector has not experienced layoffs or the devastating effects on the production system from the closure of firms. As a supplement to that policy, especially as part of the 2010 'pension reform', thousands of civil servants were encouraged to take early retirement, benefiting from "notional" years of service and other incentives, thus avoiding the painful experience of unemployment and income collapse that hit one million private sector employees between 2009 and 2013.

The policy of wage cuts in the public sector was mainly motivated by the need to reduce the General Government wage bill and the fiscal deficits, while in the case of the private sector, competitiveness considerations prevailed. In section 4.2.1.1 above we saw that, in 2010, wages in the public sector and public enterprises fell by 7.7% and 5.5%, respectively, and by a mere 2.9% in the non-bank private sector. In 2012 however, wages in public sector remained almost unchanged (-0.5%), decreased significantly in public enterprises (-7.9%) and showed only a small decline in the private sector (-1.7%)[40]. 2012 and 2013 marked sweeping changes: the wage cuts were drastic across all sectors, led by public enterprises (a cumulative cut of about 20% in the two years) and followed by the private (17.5%) and public sector (about 9 %).

These policies, coupled with the crisis, led to two interrelated effects:

- ✓ a mass shift of employees in the public and private sectors out of the labour market into retirement, often in the form of early retirement; and
- ✓ divergent developments in wages and pensions.

The unequal treatment of employees in the private versus those in the public sector is not only manifest in the wide differences in the size of wage cuts imposed on each sector; it is also linked with three additional elements: (a) the different starting levels of wages in each of the two sectors, as public sector employees typically receive significantly higher wages; (b) the reversal of wage cuts for large segments of employees in the public sector, and (c) court decisions that also reversed salary cuts.

[40] Estimations based on the data in Table 4.7.

(a) The unequal starting levels for employees in the public and private sector

The uneven wage cuts in the public and private sectors during the crisis were imposed on wages that were already unequal across the two sectors. Research on the public and private sector pay gap has shown that Greece is ranked among the countries with the largest pay gap in favour of the public sector[41]. In particular, it has been found that Greece tops the list of countries ranked in terms of the public-private pay gap[42] and that the overall difference is above 35% or even higher, while the largest part of this gap cannot be explained by employees' characteristics[43]. Given that in the 2009-2013 period the average reduction in wages was 19% in the business sector and 8% in the public sector, the gap between the two widened from 35%[44] to around 43%.

(b) Non-implementation of wage cuts in the public sector

Although legislation on wage cuts was meant to apply to almost the entire public sector and public enterprises, in practice it was not implemented for all. There were public sector organisations in which the legislated cuts were simply not implemented. In addition, within the narrow public sector (central government), an estimated number of about 66 thousand ministry employees were initially subject to cuts, which were later reversed by refunds of up to EUR 1,000 per month dubbed as "personal pay difference". This amount represents a significant percentage rise in their new, lower salaries.

(c) Court interventions and inequalities

An additional, equally important, disparity arises from the fact that superior court rulings in 2014 cancelled the wage cuts for large segments of public sector employees (judiciary, military, law enforcement, university teachers, medical staff), restoring their salaries to their previous levels. This further exacerbated the already existing inequality. Whereas a GDP contraction of about 25% would necessitate a fair allocation of the costs to the citizens, these court rulings defied this common sense rule and instead developed strong new inequalities. In fact, given that they favour certain highly privileged groups of employees, they represent the exact opposite of what solidarity and fair burden-sharing are all about. The effects of this reversal is not reflected in the figures presented here, as they became visible starting from the incomes of 2013, but still cannot be ignored.

To sum up, during the crisis there has been a strong conflict of interests and powers at the expense of the more vulnerable groups of employees, especially those outside the public sector, accompanied by divergent and unfair income developments across pensioners and (mostly private sector) employees.

[41] Fr. De Castro, M. Salto, H. Steiner (2013), D. Depalo, R. Giordano, E. Papapetrou (2014), L. Christofides, M. Michael, (2013), R. Christopoulou, V. Monastiriotis (2014).

[42] L. Christofides, M. Michael (2013).

[43] D. Depalo, R. Giordano, E. Papapetrou (2013).

[44] Assuming this to be a reasonably accurate estimate.

4.5 Short-term solidarity vs. medium-term reverse solidarity. Weakening employment while strengthening early retirement

In the years 2008-2012/3, the number of pensioners skyrocketed as a result of unemployment, the incentives provided by the 2010 pension reform, other legislation that allowed the recognition of "notional" years, and employees' fears of an increase in retirement age limits and a curtailment in severance pay.

This policy is reflected in the data on the number of pensioners and pension entitlements. Based on tax return data, between 2008 and 2012 the number of those who had income from employment declined by 548.9 thousand[45], while the number of pensioners grew by 406 thousand[46]. The latter figure refers to new pensioners that formerly were employees in the private or public sector, self-employed, traders, professionals, etc. It is not possible to tell those who would anyway have retired under normal circumstances from those who retired because they were unemployed or feared that they would lose benefits. What is for certain is that the rise in unemployment affected mainly employees in the private sector, while the increase in the number of pensioners was, in relative terms, higher for the public sector.

In the public sector, the number of retired civil servants increased between 2008 and 2013 by 59 thousand (from 389.7 thousand to 448.7 thousand). The average number of public sector retirements per year more than doubled, increasing by 178% in 2009-2013 relative to 2000-2008, or by 11.8 thousand persons per year compared with 4.25 thousand in the earlier period. The total number is logically higher, adding those who work for the public sector under private law contracts and therefore are not covered by the civil servants' pension plan. In Chapter 8 (Solidarity and Unemployment) of this study, the increase in the number of retirees from the public and private sector for the period from 2008 to the beginning of 2014 was estimated to be significantly higher than the above figures:

- Public sector: 116,000 new retirees (+48.5%)
- Private sector: 222,000 new retirees (+14.1%)

This policy raises the question of the resulting benefits for those who shifted from employee to pensioner status. To answer this question, we examined the following aspects:

→ First, we focused on those individuals who as first or second members of a household in 2008 had income mainly from wages or, secondarily, from pensions and in 2012 had zero income from wages, but still had a pension. This group comprised 226,100 individuals as first members and 81,820 as second members. A part of these individuals were members of the same household, but their number cannot be determined.

→ Next, we measured the income that these individuals received from wages or, secondarily, pensions, in 2008, and compared it with the pension income received by the same individuals in 2012. In this way we estimated the loss in wages suffered by the first or second member (spouse) of the household as a result of retirement, as well the income gains from pension.

[45] The number of unemployed persons rose by about 923,000.

[46] The difference from the data of Table 2.2 is due to the fact that those data referred to households, while the figures reported here refer to individuals.

We also calculated the extent to which the individual's total income has decreased or increased (Table 4.18)

Table 4.18 Income differences for persons moving from dependent employment to pension (in euro)

	2008	2011	2012
First household member (number: 226,100)			
1. Mean wage income	21,290	3,355	-
2. Mean pension income	2,380	14,919	16,724
Total wage & pension income	**23,670**	**18,274**	**16,724**
Total income of the household of the 1st member	37,055	26,437	24,602
Second household member (number: 81,820)			
1. Mean wage income	18,423	3,438	-
2. Mean pension income	3,661	11,777	14,401
Total wage & pension income	**22,084**	**15,215**	**14,401**
Total income of the household of the 2nd member	**53,212**	**39,143**	**36,775**

Note: The calculations refer to the same individuals in all three years.
Source: Processed tax data.

The main finding is that at the level of the first or second member of a household, in 2012, the first member (head) of the household faced a drop in income from wages/pensions of more than EUR 6,946 (EUR 16,724 in 2012 from EUR 23,670 in 2008) or 29.3%, while for the second member the respective decrease was EUR 7,683 (EUR 14,401 in 2012 from EUR 22,084 in 2008) or 34.8%. The total income of the households of which these individuals were members also decreased by about 31%-34%. It should be noted that when there is a second working member in a household, the total family income is higher.

These data show that, insofar as the transition from dependent employment to early retirement was the result of a policy that forced or encouraged workers to retire, the resulting income, albeit lower than pre-retirement income, was certainly much higher than the very low and short-lived income that the same individuals would have received as unemployment benefit[47].

This policy favouring early retirement has served several political goals such as: reducing the number of civil servants, which was one of the government's commitments to the Troika; ensuring a comparatively small reduction of income for those retiring versus the alternative of unemployment; the political possibility of new hirings to replace those quitting, a key field of clientele politics[48], as the above-mentioned commitment to downsize the public sector leaves little scope for new hirings; seeking political gains by satisfying groups of employees (e.g. military, women, etc.) which can retire at a relatively young age. A similar approach was followed in the case of private sector employees through the introduction of favourable conditions and incentives for early retirement. The effects of this policy were multiple: the number of pensioners and pension expenditure surged and human capital was rendered inactive, with severe implications for growth and employment.

[47] These data refer only to income from wages and pensions, and not total income from all sources.

[48] Theoretically, a hiring to attrition ratio of 1:5 is in place, but is not strictly applied.

In fact, retirement provided an unemployment substitution mechanism, attracting unemployed or employees who had the privilege to retire early. This concealed the inability to maintain or create jobs. The policy that encouraged exit from the labour market through early retirement was essentially addressed to employees who were unemployed or feared that by delaying their retirement they would miss privileged pension arrangements. The difference from unemployment benefits is that the latter help the unemployed to find new employment, while pensions push people out of the productive system, are given for undetermined time and with lax conditions to an explosive number of persons. Under such conditions, this policy could be seen as expressing strong solidarity towards people at risk of pauperisation, especially if their age makes it unlikely to find employment again and fulfil the normal pension requirements. However, this solidarity is at odds also with the very notion of solidarity, as it creates a range of serious problems: (a) it destroys the sustainability of the pension system, i.e. a central mechanism of social solidarity, at a time when it has already collapsed; (b) it leads to the obsolescence of human capital, knowledge and skills; (c) it fosters a passive attitude of individuals, which rather than encouraging people to develop creative initiatives, traps them in the logic of unambitious employment in the public sector or retirement; (d) it puts constraints to creating conditions for growth, at a time when exactly the opposite is needed; and (e) it has destructive effects on the viability of the whole pension system, leading to periodical pension cuts on all pension incomes.

These findings also suggest that the deterioration of the pension system during the crisis and the cuts in pensions have not been solely a result of impersonal developments and situations, which policy cannot control or influence. They have also been a result of domestic political choices that have burdened the pension system, even amid the crisis. In essence, the governments facilitated the retirement of large numbers of people who are expected to shift the higher cost to existing pensioners, pushing down the level of pensions. Thus, this mechanism is used as a substitute of social policy and expresses a policy of solidarity, the cost of which now falls upon the pensioners themselves, thereby undermining the entire social security system. However, given that solidarity means support to those in need from those who are better-off and not from other weaker groups, it is highly questionable if a policy which forces the weaker groups to redistribute among them a meagre income and aggravates the huge deadlocks of a bankrupt system and the prospects of this part of society can qualify as “solidarity policy”.

4.6 The impact on income shares

Wages and pensions have always been the most important sources of household income regardless of the size of income, except for the richest 1% and 0.1% of households, whose income mostly comes from dividends and interest (by 54.3% and 82.1%, respectively). Table 4.19 reflects distributions based on the incomes of households in 2008 and 2012. Following the significant, but divergent income changes presented in previous chapters, the distributions, based on the income of 2012, have changed dramatically, and the effect of unemployment is now visible. In the lowest-income 50% of households, the share of wages has decreased from 40% in 2008 to 28.2% in 2012. By contrast, in medium-income households the reduction is about 4 percentage points. Finally, in the highest-income 30% of households, the share of wages has increased slightly. It should be noted that in very rich households (the top 1% and 0.1%), the shares of labour income have increased significantly, mainly due to the lower shares of dividends and interest in the total income of these households.

Table 4.19 Income shares of all households in 2008 and 2012, in %

	2008					
Income from:	1-5	6-7	8-10	Total	1%	0.1%
- Wages-Salaries	40.0	41.9	38.9	39.6	17.5	7.5
- Pensions	32.8	27.7	16.8	21.3	2.6	0.4
- Agriculture income & subsidies	4.2	3.6	1.8	2.5	0.5	0.1
- Commercial activities	5.0	7.4	8.5	7.7	8.9	3.4
- Independent activities	2.1	2.0	4.5	3.7	6.2	1.8
- Rental income	6.6	6.4	7.8	7.3	7.8	3.9
- Dividends-Interest	5.0	6.1	17.5	13.5	54.3	82.1
- Other	0.5	0.5	0.1	0.2	0.3	0.3
- Imputed income	3.8	4.5	4.1	4.2	1.9	0.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

	2012					
Income from:	1-5	6-7	8-10	Total	1%	0.1%
- Wages-Salaries	28.2	38.1	39.5	37.2	32.3	18.4
- Pensions	36.6	39.5	27.1	31.1	4.1	1.1
- Agriculture income & subsidies	5.1	4.4	3.7	4.1	2.5	0.9
- Commercial activities	4.8	4.0	5.7	5.2	8.9	5.6
- Independent activities	1.7	1.5	4.5	3.4	9.1	5.5
- Rental income	7.0	5.8	8.2	7.6	9.4	6.2
- Dividends-Interest	4.3	4.0	10.3	8.1	32.4	59.4
- Other	4.3	1.7	0.8	1.6	1.4	3.0
- Imputed income	8.0	1.0	0.1	1.7	0.0	0.0
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: Processed tax data.

The second important finding is the increased share of pensions in household income. The increase in the number of pensioners has more than offset the drastic cuts in pensions, with the result that total pension expenditure has increased. It is evident from this table that a future pension crisis would affect more the households in the middle and lower income brackets, for which pensions are a relatively important source of income.

Table 4.20 shows that no significant income reclassifications can be observed in incomes from wages and salaries. The lowest 50% of households receiving these incomes (deciles 1-5) in 2008 accounts for 21.5% of total wage income. In 2012 this share has decreased to 21.1%. Similar small changes can be seen in other decile groupings (6-7) and (8-10).

In the lowest-income 50% of households with income from pensions (deciles 1-5), the share of pensions has increased from 23.4% to 25.2%. By contrast, in the highest-income 30% of households, the share of pensions has declined from 58% to 54.6%. A decline in the share of pensions can also be seen in the top 1%. These figures ndings suggest that the bulk of the new pensioners of this period are mainly low pensioners (due to early retirement with less years of service, etc.).

One could argue that wages and pensions are distributed less unequally compared with all other sources of income. Specifically, the share of income from commercial activities, for the lowest 50% of households employed in this sector, is only 14.1%, falling to 11.7% in 2012. Apparently, in times of crisis small commercial businesses faced more serious problems than larger firms.

Table 4.20 Income shares by income source and deciles (households, 2008 and 2012, in %)

	Deciles 1-5		Deciles 6-7		Deciles 8-10		Total	
	2008	2012	2008	2012	2008	2012	2008	2012
Wages-Salaries	21.5	21.1	18.5	18.6	59.9	60.3	100.0	100.0
Pensions	23.4	25.2	18.6	20.2	58.0	54.6	100.0	100.0
Commercial activities	14.1	11.7	16.9	15.8	69.0	72.6	100.0	100.0
Independent activities	6.0	6.2	12.3	11.9	81.7	81.8	100.0	100.0
Agriculture income & subsidies	3.2	3.2	7.3	8.3	89.5	88.5	100.0	100.0
Dividends-Interest	4.3	6.3	6.9	8.9	88.7	84.7	100.0	100.0
Rental income	11.0	11.7	13.8	14.6	75.2	73.9	100.0	100.0
Total	**17.1**	**18.4**	**16.8**	**18.0**	**66.1**	**63.5**	**100.0**	**100.0**

	1%		0.1%	
	2008	2012	2008	2012
Wages-Salaries	6.4	6.8	1.6	1.6
Pensions	4.4	3.8	0.6	0.5
Commercial activities	10.6	10.7	2.5	2.3
Independent activities	13.4	13.0	3.2	3.0
Agriculture income & subsidies	16.6	16.4	3.6	3.6
Dividends-Interest	39.9	31.4	22.4	14.4
Rental income	14.6	13.1	3.6	3.2
Total	**11.5**	**8.7**	**4.8**	**2.6**

Source: Processed tax data.

Stronger inequalities can be observed in terms of income from independent activities, agricultural income, dividends and real estate income. The vast majority of such income is distributed by 75% to 90% to the richest 30% of households that receive income from these sources. In agricultural income, a share of just 10.5% corresponds to 70% of households (deciles 1-7) receiving income from this source in 2008; this share increases slightly to 11.5% in 2012. Moreover, in 2012, the richest 1% of households with agricultural income accounted for 16.4% of total agricultural income (including subsidies). One explanation for this great inequality in agricultural incomes is associated with the fact that many households that are not classified as agricultural households have small incomes from this source.

Income from dividends and interest is even more unequally distributed, This inequality has declined significantly in 2012. In 2008, the richest 1% of households accounts for 39.9%, which has fallen to 31.4% in 2012.

In fact, when data are examined at a more aggregated level, the significant changes in income distributions observed within the “households with employees” category are hardly visible. An explanation could be that these changes largely represent shifts within and much less between the three broader groupings of income deciles (1-5, 6-7, 8-10).

4.7 Income reclassifications within the "all households" sample

In previous sections we dealt extensively with households of employees and pensioners. We examined the evolution of their incomes between 2008 and 2012, and vice versa, and found significant changes in terms of their total income. For example, the households of employees that were ranked in the lowest (1st) decile in 2012, had significantly higher incomes before the economic crisis (EUR 8,256 in 2012 from EUR 15,083 in 2008). On the other hand, the households which were ranked in the first decile in 2008, four years later have slightly lower incomes (2008: EUR 10,024, 2012: EUR 9,438).

In this section, we will focus on all households in the country. Initially we will examine the evolution of average income, grouping households, for the sake of simplicity, according to their most important source of income. Then we will outline the changes and reclassifications taking into account their relative positions.

The approach:

The multiple sources of income according to the tax data basis are grouped into four main sources:

- Wages and unemployment benefits
- Pensions
- All income earned by self-employed individuals (income from businesses, professional services, agriculture) and
- Income from capital (income from dividends, interest, rents, securities and other assets)

Then we classified all the households of the country into five broad groups, according to their most important source of income, as follows:

- Households with income from wages (W)
- Households with income from pensions (S)
- Households with income from self-employment (B)
- Households with income from capital (C)
- Households with zero income (Z)

The households of each group were further classified, according to the level of their income, into:

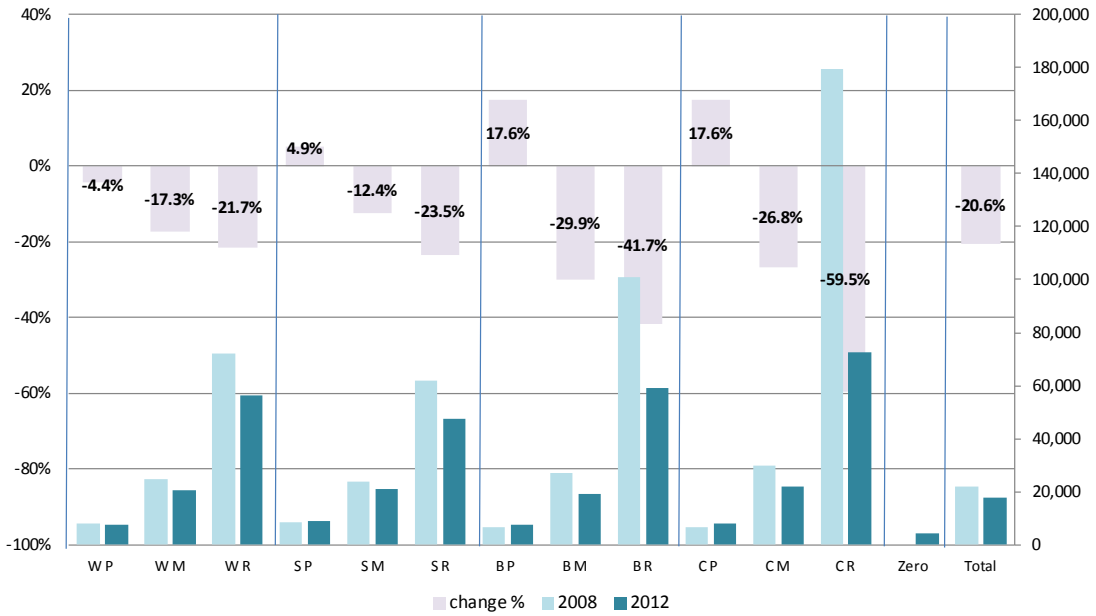
- Low income (P);
- Medium income (M); and
- High income (R)

Low-income households are defined as those with an income of less than 50% of the average income of all households in the country; high-income households are those whose income is double the average; and medium-income households are those in between.

These classifications were based on the incomes of 2008 and 2012. Specifically, in 2008, all households with income of less than EUR 11,074 were classified as low-income, while all households with income of more than EUR 44,295 were classified as high-income. In 2012, due to the significant shrinking of incomes, the above thresholds are lower (EUR 8,789 for low-income and EUR 35,157 for high-income).

It should be noted that households are not necessarily the same in these two different classifications.

Chart 4.1 Evolution of the mean income in 5 household groups, based on income in 2008

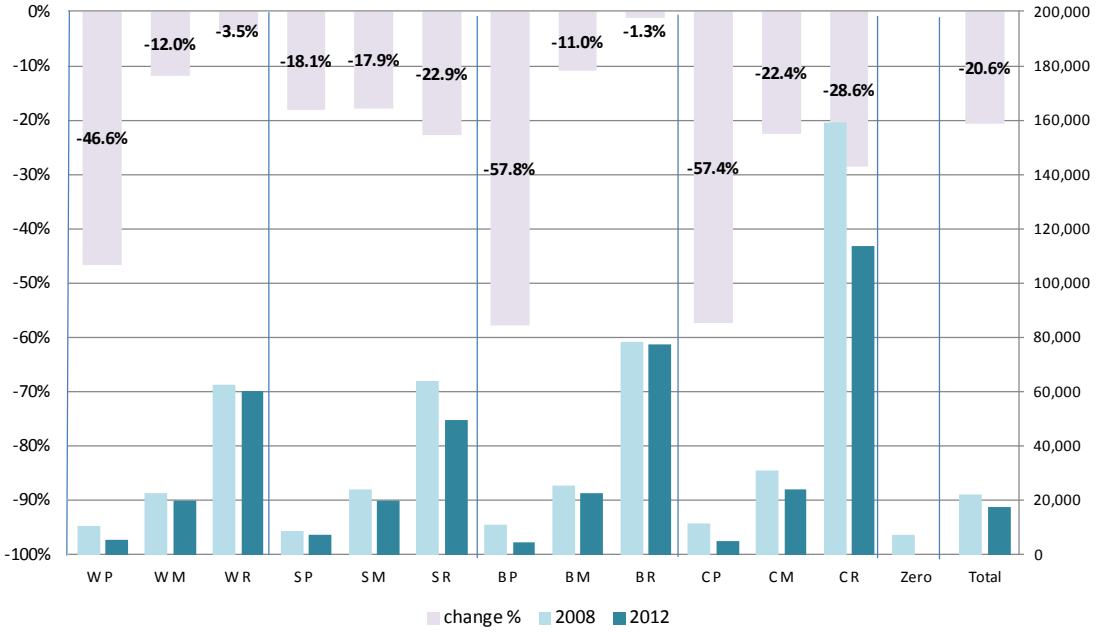


Source: Processed tax data.

- Chart 4.1 shows the average income that households had in 2008 and the income that these same households had in 2012. In the upper part of the chart we can see the average change in the income of each group.
- Of the above groups of households, only three show an increase in their average income in 2012 relative to 2008. These are the low-income groups of pensioners (SP: +4.9%), self-employed (BP: +17.6%) and capital holders (CP: +17.6%). On the other hand, all the other groups have lower incomes in 2012 compared with 2008. For the total of households in the country, the average decrease in income is 20.6%[49].
- Income declines that are greater than the country-wide average are recorded in all groups of high-income households (WR: -12.7%, SR: -23.5%, BR: -41.7%, CR: -59.5%), and in the medium-income groups of self-employed (BM: -29.9%) and capital holders (CM: -26.89%).
- A smaller reduction is observed in low-income households of employees (WP: -4.4%).
- Chart 4.1. depicts the significant inequalities that existed in 2008 between the low- and high-income households. The average income from capital of high-income households appears to be 22.5 times higher than the average income from wages of low-income households and 2.5 times higher than the average income from wages of high-income households.
- In Chart 4.2 we can see the evolution of the five income groups of households from a reverse perspective: the chart shows the average income for each of the five groups of households in 2012, on the basis of the income classification of 2012, and the income they had in 2008. As already mentioned, the poor/rich households of 2012 do not fully coincide with the poor/rich households of 2008.

[49] The difference from Table 4.2, showing the average reduction to be 22.6% is explained by the fact that this classification does not take into account imputed income which cannot be classified under any of the four sources of income. Imputed income is calculated by tax authorities on the basis of the living standards of households and is then added to total income.

Chart 4.2 Evolution of the mean income in five household groups, based on income in 2012



Source: Processed tax data.

According to the chart:

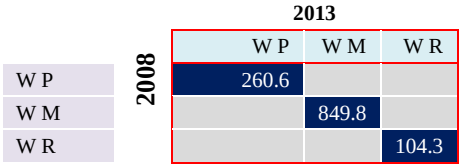
- Three groups of low-income households have suffered significant losses of income. These are the households of employees (WP: -46.6%), the self-employed (BP: -57.8%) and capital holders (CP: -57.4%). While in Chart 4.1 the households of low-income employees had a loss of 4.4%, with the classification of 2012 this loss comes to 46.6%. This wide divergence is due to the fact that throughout this period the wage income of many households totally disappeared or was cut drastically due to layoffs. As a result, some households moved down the income scale in 2012, now being classified as low-income. These households, along with others which were already poor, had on average significantly higher income in 2008.
- The groups of households with the smallest losses are the high-income households of employees (WR: -3.5%) and the medium- and high-income households of self-employed (BM:-11%, BR:-1.3%).
- Table 4.21 reflects the reclassifications that occurred between 2008 and 2012 in the five groups of households. The columns of the table classify households based on their incomes in 2012 and the rows based on their incomes in 2008.

The following conclusions can be drawn:

- Only 58.1% of households remained in the same relative position (these are the households located on the diagonal), while all other households have moved to a different income group (see the last row of Table 4.21). For example, the households with incomes from wages (W) which have remained in the same relative position can be seen in Figure 1 below, showing that 260,600 households are classified in the low-income group of households with income from wages under both classifications. The households in the four boxes regarding W, S, B and C feature the first type of movement. In particular, the households above the diagonal find themselves in a better position in 2012 relative to 2008: according to Figure 2, 194,300 households which had been classified as low-income in 2008 are classified as medium-

income in 2012. The largest movement, according to the same figure, is shown by 1,700 households which have been reclassified from low-income (WP) to high-income (WR).

Figure 1

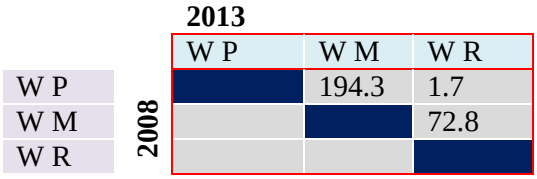


There are four possible movements of households across the classifications of 2008 and 2012:

- The first type of movement is within each group. Households in this case change income bracket. For example, a household with income from self-employment which is classified as high-income in 2008, can be classified as medium- or low-income in 2012. With this type of movement, income from self-employment remains the most important source under both classifications. In these cases, changes in total income are more likely to stem from changes in additional income of the household other than income from self-employment. This movement has the form $P \rightarrow M \rightarrow R$ if the household improves its relative position or $R \rightarrow M \rightarrow P$ if the relative position of the household deteriorates.
- The second type is movement across groups, but without changing income bracket. For example a household which had income from capital in 2008 can be classified in the group of households with income from employment in 2012. These movements are due to internal shifts of income within households, but without a change in their total income. Such movements may take one of the following forms:
  - $W \rightarrow S$ ή B ή C
  - $S \rightarrow W$ ή B ή C
  - $B \rightarrow W$ ή S ή C
  - $C \rightarrow W$ ή S ή B
- In the third type of movement, the household will be found in a different group and a different income position. If the movement follows the pattern $R \rightarrow M \rightarrow P$, the relative position of the household deteriorates. The main source of income now becomes of secondary importance, while additional sources of income do not offset losses on the main source. Different results are derived if the movement follows the pattern $P \rightarrow M \rightarrow R$ in this case, the household is in a better relative position.
- The fourth movement refers to the zero-income households. A number of households that were classified in one of the five groups in 2008 will find themselves with no income in 2012. Some of them were medium- and high-income before the economic crisis.

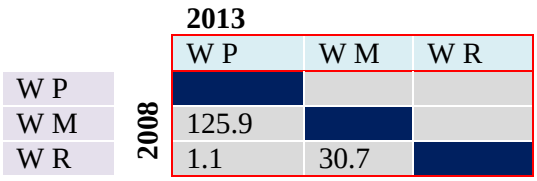
❖ Households located within the four boxes (around the diagonal in Table 4.20) feature the first type of movement. In particular, households above the diagonal have improved their relative position in 2012. According to Figure 2, 194,300 households were classified as low-income in 2008; these have been reclassified as medium-income in 2012. The larger movement, according to the same picture, in seen in 1,700 households which have been reclassified from low-income (WP) to high-income (WR).

Figure 2



❖ Conversely, the relative position of households below the diagonal has deteriorated. According to Figure 3, 125,900 medium-income households with income from wages (WM) in 2008 are in a worse relative position in 2012, having been reclassified as low-income (WP).

Figure 3



❖ All households that are outside the boxes are households that have been reclassified because another income source has become more important in their total income. Moreover, if this reclassification has followed the R → M → P pattern, then these households are in a worse relative position in 2012.

❖ There are significant reclassifications in zero-income households.

Table 4.21 Shifts of households during the crisis period (in thousand)

	Taxonomy based on incomes of 2012														
2008	W P	W M	W R	S P	S M	S R	B P	B M	B R	C P	C M	C R	Zero	Total	%
W P	260.6	194.3	1.7	20.5	17.3	0.0	41.5	11.6	0.8	29.3	4.3	0.3	94.1	676.3	38.5
W M	125.9	849.8	72.8	14.6	126.5	9.9	19.0	20.2	3.5	20.8	12.7	2.4	35.9	1313.9	64.7
W R	1.1	30.7	104.3	0.2	22.6	10.3	0.2	1.1	1.2	0.9	1.6	1.8	0.8	177.0	59.0
S P	4.1	2.4	0.0	452.9	184.6	0.2	4.7	3.5	0.1	12.1	7.3	0.2	4.7	677.0	66.9
S M	0.4	5.6	0.4	24.5	698.7	19.9	0.4	2.1	0.4	2.1	7.4	1.1	1.8	764.8	91.4
S R	0.0	0.3	0.3	0.3	9.5	35.8	0.0	0.0	0.0	0.0	0.1	0.4	0.0	46.6	76.8
B P	29.7	20.7	0.3	17.9	18.1	0.0	139.1	48.8	2.3	32.4	6.3	0.5	48.0	364.1	38.2
B M	13.5	29.1	1.5	7.0	19.9	0.5	59.5	124.0	19.6	20.7	13.3	1.5	21.0	331.1	37.5
B R	0.3	3.3	1.2	0.3	2.0	0.5	2.2	12.3	19.2	1.5	3.0	2.6	1.4	49.9	38.5
C P	20.8	16.5	0.5	27.2	12.2	0.0	24.7	12.6	0.5	129.6	34.6	1.2	29.9	310.2	41.8
C M	4.7	15.7	2.2	9.6	27.5	1.0	14.7	23.9	3.4	23.0	86.5	8.7	7.8	228.7	37.8
C R	0.8	4.5	3.9	0.4	11.3	3.9	1.0	2.6	2.6	2.6	11.6	24.5	1.4	71.0	34.4
Zero	25.0	15.2	0.7	10.0	3.9	0.0	16.2	5.4	0.5	23.9	3.7	0.5	111.2	216.3	51.4
Total	487.1	1188.1	189.9	585.5	1154.0	81.9	323.3	268.1	54.1	298.8	192.3	45.8	358.2	5,227.0	
%	53.5	71.5	55.0	77.4	60.5	43.7	43.0	46.3	35.5	43.4	45.0	53.4	31.0		**58.1**

Source: Processed tax data.

The figures in Table 4.21 show a range of significant shifts in the number and the income position of the households affected:

- The number of households with income from wages (W) was 2,167,200 [50] million (41.5% of all households) in 2008,but has been reduced to 1,865,000 (35.7% in total) in 2012. Only 38.5% of the low-income households with income from wages (WP) of 2008 are classified as low-income in 2012. Added in the 2012 low-income group are households which in 2008 were medium-income households of employees (WM), bringing the number of low-income employee households to 487,100, of which only 260,600 had the same classification in 2008. The new additions to the group mostly refer to 125,900 households which were characterised as medium-income in 2008 and, to a lesser extent, low-income households of self-employed (BP) and capital holders (CP) whose main income now is their (low) wages. Finally, to a much lesser extent, new entrants in this group are former high-income households of employees.
- Significant shifts have occurred also in households of pensioners (S). In 2008, the number of households with income from pensions was 1,488,500 (25.8% of all households), rising to 1,821,400 (34.8% of total) in 2012. The new retirees of 2012 have come from all other groups. A number of high-income households of employees have moved to the group of high-income pensioners. It is worth noting that 91.4% of households in the group of medium-income pensioners of 2008 remain in the same group also in 2012. This group features the fewest movements.
- In 2008, according to the above methodology, there were 745,100 thousand households whose main source of income came from self-employment (B). This group includes self-employed professionals, entrepreneurs and farmers. In 2012 the number of these households has fallen to 645,500 (-13%). The movements recorded are both outward, to groups of households with income from wages, pensions and capital, and inward, in the reverse direction.
- In 2008, 609,900 households were classified in the group of households with income from capital (C). In 2012, this number has dropped to 536,900 (-12%), mainly due to movements to the groups of households with income from wages, pensions or self-employment, while any of these other sources has gained in relative weight and superseded capital as the main source of income.
- In 2008, 216,300 households were recorded with zero income. Of these, about half are still zero-income households in 2012. However, 246,800 households have been added in 2012, which had some income in 2008. Specifically, 3,600 households were high-income, 66,500 were medium-income and 176,700 were low-income. 53% had income from wages, 29% had income from self-employment, and 16% had income from capital. Finally, only 3% were households with income from pensions.

[50] The population of each income-source group of households, as reported in this and the following bullet points, is the sum total of the first three subtotals referring to the respective group (W, S, B, C), in the last column.

4.8 Income drop and escalating poverty levels

The above findings are not only related to the adverse income differentiation across income sources and groups. They are also closely associated with the evolution of poverty. Despite the significant drop of GDP and many income sources, relative poverty in Greece increased only slightly (from 20.1% in 2008 to 23.1% in 2012-13). Since the crisis caused an economic collapse of the whole society, the poverty line has been reset at lower levels. However, according to the tax data, an increase of poverty of only 3 p.p. seems to underestimate the reality. In the previous part it has been shown that in 2012 the tax returns of additional 246,800 households in relation to 2008 recorded zero income. This group represents by itself about 4.7% of the total household population. In addition, in previous parts of this study, it has been shown that the two lowest deciles (20% of total households) experienced a highly disproportionate reduction of their incomes compared to the average figures, which led them below the poverty line. This was found e.g. for the total household income (ranked for incomes in 2012) and for the total income of wage-dependent households. These two groups add to nearly 25% of all households. In view of these figures it is very questionable that the recorded increase of poverty in Greece is only 3 p.p.

A further criterion to assess changes in poverty concerns the depth of poverty or the poverty gap which refers to the income situation of individuals who live below the line of poverty. The depth of poverty is measured as the difference between the line of poverty for the total population and the median of the total average income of the poor population, expressed as a percentage of the line of poverty. Even if the number of the poor remains stable, a further decline of their incomes below the poverty gap line, implies a worsening of poverty.

In Greece, the at-risk-of-poverty rate increased in the period 2008-2012, according to tax data and data released by ELSTAT. In 2008, the percentage of households that had a total income of less than 60% of the median total income was 27.9%. In 2012 the at-risk-of-poverty rate increased to 31.1%. We have already mentioned that there are households which have not submitted tax returns, therefore are not included in the available tax data, and that for some income sources there is significant tax evasion. Assuming, however, that the size of tax evasion remains broadly the same throughout the period, the evolution of the at-risk-of-poverty rate itself is strong evidence of a reality. If, on the other hand, we assume that, as a result of the policy implemented, tax evasion has declined for some incomes, then the increase in poverty is overstated by tax data.

Table 4.22 Poverty line and risk-at-poverty (2008-12)

	2008	2009	2010	2011	2012	2012/08 % change
Poverty threshold line in €	8,766.9	9,062.4	9,159.3	8,371.0	7,756.1	-11.53
Poverty %	27.9	27.7	28.6	29.9	31.1	
Number of Poor	1,460.4	1,450.4	1,494.1	1,563.9	1,627.8	+11.47

Source: Processed tax data.

- ***The poor of 2008***

For 2008 the poverty gap was 50.0% of the poverty line. This means that 50% of the poor in 2008 had an income of more than 44,6% of the poverty line (which was EUR 8,766.9), i.e. more than EUR 4,856,1, annually.

Table 4.23 Poverty line, median income of persons in poverty in 2008 and poverty gap

	2008	2009	2010	2011	2012	2012/08 % change
Poverty threshold line in €	8,766.9	9,062.4	9,159.3	8,371.0	7,756.1	-11.5
Median income of persons in poverty in 2008	4,856.1	5,754.8	6,008.6	5,797.5	5,427.0	+11.8
Poverty gap of those in poverty in 2008	44.6	36.5	34.4	30.7	30.0	

Source: Processed tax data.

Based on the poverty line of 2012, for these same people (the poor of 2008) the poverty gap fell to 30.0%. This means that 50% of the poor of 2008 had in 2012 an income of more than 70,0% of the poverty line (which amounts to EUR 7,756.1), i.e. more than EUR 5,427, annually. The average income of the poor of 2008 increased by 11.8% in 2012.

- ***The poor of 2012***

By contrast, in 2012 the poverty gap was 53.6% of the line of poverty. This means that 50% have in 2012 an income of more than 53.6% of the poverty line (which amounts to EUR 7,756.1), i.e. more than EUR 3,600, annually.

Based on the poverty line of 2008, these same people (the poor of 2012) were above the poverty line of 2008. This means that 50% of the poor of 2012 had in 2008 an income of more than 75.0% the poverty line (which was EUR 8,766.9), i.e. more than EUR 6,575, annually. The average income of the poor of 2012 has declined by 45.2% % compared with the income that these households had in 2008.

Table 4.24 Poverty line, median income of persons in poverty in 2012 and poverty gap

	2008	2009	2010	2011	2012	2012/08 % change
Poverty threshold line in €	8,766.9	9,062.4	9,159.3	8,371.0	7,756.1	-11.5
Median income of persons in poverty in 2012	6,575.0	6,629.6	6,145.0	5,052.2	3,600.0	-45.2
Poverty gap of those in poverty in 2012	25.0	26.8	32.9	39.6	53.6	

Source: Processed tax data.

These data also imply that even if pensions have shown more favourable developments than wages or other sources of income, nevertheless they refer to income levels that are below or around the poverty line. According to Table 4.25, income from wages declined significantly for the poor of 2012, who relied mostly on pension income instead. The share of other income in total income in 2012 is significant (7.8%, compared with 0.5% in 2008), due to higher unemployment benefits.

In 2008 the number of the poor was 1,460 thousand (poverty rate: 27.9%), while in 2012 it reached 1,628 thousand (poverty rate: 31.1%). From these poor, 1,047 thousand remain poor in both years.

However, in 2012 about 581 thousand are added, while 414 thousand of the poor of 2008 managed to overpass the poverty line in 2012.

Poverty not only deepened, but also changed characteristics. Three additional key features of poverty can be distinguished:

- ◊ Poverty affected much more the age groups 0-17 and 18-64 years than the age group of 65+ (poverty in the oldest ages decreased between 2008 and 2012 from 22,3% to 15,1% of the total, while it increased correspondingly for the younger groups and especially for the 0-17 one),
- ◊ Changing poverty rates according to age imply also that poverty hit the jobless population while pensioners were much less affected from income changes[51]. This finding is evident in all relevant analyses and is shown also in the evolution of incomes in previous parts of this analysis.
- ◊ Relative poverty increased significantly for children, as a result of the income cuts and the surge of unemployment in the active population.

Table 4.25 Mean income by source for the households in poverty in 2008 and 2012

	Income of households in poverty in 2008		Income of households in poverty in 2012	
Income:	In euro	% structure	In euro	% structure
- Wages-Salaries	1,347.0	30.7	759.1	22.4
- Pensions	1,648.9	37.6	1,302.5	38.5
- Agriculture & subsidies	237.0	5.4	229.7	6.8
- Commercial activities	316.7	7.2	213.5	6.3
- Independent activities	121.6	2.8	79.4	2.3
- Rental income	418.6	9.6	345.5	10.2
- Dividends-Interest	271.6	6.2	194.3	5.7
- Other	20.7	0.5	262.7	7.8
Total	**4,382.3**	**100.0**	**3,386.7**	**100.0**

Source: Processed tax data.

Table 4.26 Identifying the poor of 2008 and 2012

In thousand	Poor in 2012		
Poor in 2008	Yes	No	Total
Yes	1,047	414	1,460
No	581	3,185	3,767
Total	1,628	3,599	5,227
% structure	Poor in 2012		
Poor in 2008	Yes	No	Total
Yes	20.0	7.9	27.9
No	11.1	60.9	72.1
Total	31.1	68.9	100.0

Source: Processed tax data.

Poverty is often measured also against an anchored poverty line, aiming to detect the fall or increase of income of certain population groups against a poverty line of the past. A reasonable anchor could be a year at the onset of the crisis. In fact, such an approach shows that the proportion of population

[51] Matsaganis M. (2014).

with 2013 incomes below the 2009 poverty line increases by more than 20 p.p. (to 45%), which is significantly higher than in other crisis countries (Spain, Portugal, Italy, etc.)[52]. Even more, these three countries succeeded in diminishing poverty during the crisis, although unemployment did not decline, in contrast to what has been seen in Greece[53]. Matsaganis estimated also that 'extreme poverty' in Greece surged from 2% (2009) to 14% (2013)[54].

In our view, the crucial issues from a policy point of view are, firstly, the income drop to very low levels for larger parts of population and, secondly, the enormous economic and social re-ranking of broader parts of population within such a short period, which besides its economic importance has also serious social and political implications. Pauperization much more than inequality is the most radical outcome caused by the current crisis in Greece.

[52] Ibid., p. 13.

[53] Gutierrez R. (2014), p.6 and 12 and Matsaganis (2014), p.34.

[54] Matsaganis M. (2014a), p. 51.

Chapter 5

The State intervention

5.1 Redistribution effects of the tax policy

In part 4 we focused on the deterioration of different income sources caused by the combined effect of policy and recession, as well as the resulting redistribution effects and changes in the relative position of households. This approach allowed us to understand whether and to what extent solidarity has shaped the income policy during the crisis. The present part considers the effects of new taxes, changes in tax rates or changes in tax-exempt amounts on households' incomes and explores the extent to which revenue-led fiscal consolidation and adjustment included solidarity and equity considerations. Particular emphasis is placed on the impact on income from wages and pensions, as these two sources of income, unlike the others that were mainly driven by market developments, were much more directly influenced by political interventions.

Revenue-led consolidation implies mainly an increasing role of taxation. Therefore, to answer the above questions the following distinct effects have been estimated:

- ◊ The effect of income taxation as it evolved during the period in question,
- ◊ The effect of taxes on incomes[55] taxed independently[56],
- ◊ The effect of the introduction of a new property tax in 2010,
- ◊ The effect of the solidarity tax[57] introduced retrospectively in 2013 for incomes above EUR 12,000 since 2010,
- ◊ The effect of the additional special levy on property introduced in autumn 2011,

[55] Dividends and interest were taxed at a flat rate of 25% and 10% respectively. Since the amount of each component cannot be determined with precision and for most of the years examined these items did not have to be included in tax returns, we made the hypothesis that the average tax rate was 25%. Taxes on these incomes were increased in 2013, but this does not affect our results which refer to incomes and taxes till 2012.

[56] It concerns dividends and interest, both of which are taxed at the source and until the end of 2011 were reported in the tax record on an optional base.Their report became obligatory first in tax records of 2012, because also these incomes have been subject to the solidarity tax. The tax amount related to this income source has been estimated by the authors because the tax dataset do not show these taxes, with the consequence that the tax burden on incomes from dividends and interest, especially for the highest income deciles, appear much lower than in reality. Because of the optional declaration of this income in the years before 2012, the results are more reliable for 2012 and are hardly comparable to the past.

[57] Its rate is scaled from 1% to 4% (5% for deputies) depending on total declared income.

◊ The effect of increased indirect tax rates introduced in 2010 and 2011 (VAT, special taxes on fuel, etc),

◊ The effect of the elimination of various tax exemptions since 2011[58],

In Table 5.1 we show the mean value of each tax in absolute terms and as a percentage of total income for 2008 and 2012 and for each decile. The following conclusions can be drawn:

a) Although the mean income declined by 23.1%, *income tax* as a percentage of total income increased from 8% to 9.5% (an increase of 18.8%). The tax burden increased significantly for incomes at the bottom (+4.04 p.p.) and at the top (+2.61 p.p., +6.57 p.p. and +7.67 p.p. for deciles 10 and the top 1% and 0.1%, respectively). In contrast, the tax burden for all household incomes between the bottom and EUR 9.1 thousand and above EUR 13.8 thousand was lower than the average increase.

b) It is shown that *tax exemptions* represent a benefit of less than 1% of total taxable income. However, the positive incidence on the two lower income groups is much more important (5.4% and 1.4% respectively), meaning that the abolition of many tax exemptions in 2013 will have a marginal impact on the tax burden in general, but will affect significantly the bottom, below-the-poverty line incomes.

c) The average tax/income rate for *dividends and interest* declined from 2.2% to 1.6%, mainly as a result of the deep fall of these incomes during the period 2008-2012. Higher than average reductions concerned the top decile as well as the top 1% and 0.1% incomes.

d) To specify the incidence of *property taxation* on incomes, it is necessary to distinguish two different taxes: (i) the tax on large property, the incidence of which was marginal in both the years examined (0.21% and 0.48% for 2008 and 2012, respectively), even if these figures imply an increase of 129% in the tax burden. The increase was relatively higher for the top decile and the top 1% and 0.1%; and (ii) the *special levy on property*[59] imposed in autumn 2011, which had a much higher incidence. The average incidence of this property tax on incomes was 2.95%, but shows an inverse relation to the in*come* level, as a result first of its linear character and second, because lower deciles have a higher share in property than in income.

e) The incidence of *solidarity tax* was about 1.4% of total taxable income and was paid by the wealthier groups, for which the average burden was between 2.3% and 3.5%.

f) The comparison of after-tax income between 2008 and 2012 shows an average decrease of 28.8% (last column, Table 5.1), with deciles 1-7 experiencing a cut of 21%-22%, while the top 1% and 0.1% lost 50.8% and 65.3% respectively. The total average tax incidence was 5.5 percentage points higher than that before the crisis[60], meaning an average increase of 55% in

[58] The tax deductions concerned mainly health expenses, pension contributions, mortgage interest payments, private insurance payments, house rents and house rents for students. Many of these deductions have been reduced or abolished for incomes of 2013.

[59] The property tax and the special levy on property (EETIDE) have been merged into one new property tax in 2014, which extended the tax base to additional types of property. However, our tax and income data do not allow a quantifiable assessment of its incidence. It can be assumed that the overall incidence has slightly increased, but the distribution among households has changed, because the tax base has been extended to land and other types of rural property.

[60] These rates are significantly different if the special property levy is excluded (see in the table).

the tax burden. However, the increased tax incidence was much higher for the decile groups 1-5 (433%) and 6-7 (92%).

g) What matters is that the pre-crisis before-tax average income decreased by 23.1% and was further taxed at 15.4%, leading to a total income reduction of about 38%. However, in absolute terms, the bulk of the taxes are paid by the upper income deciles (8-10), which contributed 79.3% of total taxes in 2012 and 88.3% in 2008.

h) The poorest and the richest groups (deciles 1, 10 and the top 1% and 0.1%) experienced much higher cuts in their after-tax income than the other groups. For total income, the respective decrease was about 35%.

A conclusion to be drawn is that the richest groups faced significantly higher income losses as a result of the crisis, have been taxed significantly more in absolute terms (p.p. of their income), while the weaker groups experienced a much higher tax increase in relative terms. The increase of tax/income ratio between 2008 and 2012 was 440% in deciles 1-5, 77.6% for decile group 6-7, and 42,8% for decile group 8-10. It is evident that different approaches allow different conclusions on the relative impact of tax policy on redistribution and inequality. Overall, as shown in Table 6.3, after-tax inequality is lower than before taxation, but remains still high in absolute terms.

Table 5.1Basic data on income and taxes (in Euro)

	Mean total income before-tax		Average tax exemptions		Average tax on income		Average tax of independently taxed incomes		Average tax on property		Additional tax measures		Total tax incidence		Mean after-tax income		% change of after-tax to before-tax income		% change of after tax income
											Average burden from EETIDE	Average solidarity tax							
	2008	2012	2008	2012	2008	2012	2008	2012	2008	2012	2012	2012	2008	2012	2008	2012	2008	2012	2012/08
1	1,276.1	1,171.2	42.5	63.0	8.3	77.7	14.8	18.3	19.9	22.0	280.0	0.0	42.9	397.9	1,233.2	773.3	-3.4	-34.0	-37.3
2	5,483.7	4,546.2	65.3	61.8	9.2	65.1	45.3	41.4	17.2	16.7	252.1	0.0	71.7	375.4	5,412.0	4,170.9	-1.3	-8.3	-22.9
3	8,365.6	6,700.9	86.9	59.0	9.5	79.6	62.0	46.9	19.3	15.0	262.9	0.0	90.8	404.5	8,274.8	6,296.5	-1.1	-6.0	-23.9
4	11,009.4	9,090.2	118.7	74.7	12.8	204.2	61.5	64.2	19.7	20.1	305.7	0.0	94.0	594.2	10,915.4	8,496.0	-0.9	-6.5	-22.2
5	13,763.3	11,710.1	145.8	84.3	190.7	454.6	102.2	83.8	24.9	22.9	338.0	30.3	317.8	929.6	13,445.5	10,780.4	-2.3	-7.9	-19.8
6	17,307.2	14,551.2	182.1	94.2	612.6	723.7	158.0	103.3	32.2	30.9	389.3	99.1	802.8	1,346.3	16,504.4	13,204.9	-4.6	-9.3	-20.0
7	21,859.8	17,973.9	222.5	113.3	1,189.2	1,206.9	226.0	142.5	41.9	38.2	495.5	133.9	1,457.0	2,016.9	20,402.8	15,957.0	-6.7	-11.2	-21.8
8	28,299.6	22,745.7	277.1	144.0	2,040.9	1,951.3	304.1	209.3	54.5	59.9	621.1	305.2	2,399.5	3,146.9	25,900.1	19,598.8	-8.5	-13.8	-24.3
9	39,193.7	30,691.3	362.4	196.8	3,674.6	3,126.5	458.1	330.1	76.1	101.5	812.8	445.4	4,208.8	4,816.2	34,985.0	25,875.1	-10.7	-15.7	-26.0
10	89,754.5	62,548.9	464.1	316.5	11,197.1	9,431.7	3,749.7	1,846.0	195.7	540.8	1,599.4	1,437.4	15,142.5	14,855.3	74,612.0	47,693.6	-16.9	-23.7	-36.1
AVG	**23,631.3**	**18,173.0**	**196.7**	**120.8**	**1,894.5**	**1,732.1**	**518.2**	**288.6**	**50.1**	**86.8**	**535.7**	**245.1**	**2,462.8**	**2,888.3**	**21,168.5**	**15,284.6**	**-10.4**	**-15.9**	**-27.8**
1-5	7,979.6	6,643.7	91.8	68.6	46.1	176.2	57.1	50.9	20.2	19.3	287.7	6.1	123.5	540.3	7,856.2	6,103.4	-1.5	-8.1	-22.3
6-7	19,583.5	16,262.5	202.3	103.7	900.9	965.3	192.0	122.9	37.0	34.5	442.4	116.5	1,129.9	1,681.6	18,453.6	14,580.9	-5.8	-10.3	-21.0
8-10	52,416.0	38,662.0	367.9	219.1	5,637.5	4,836.5	1,504.0	795.1	108.8	234.0	1,011.1	729.3	7,250.3	7,606.1	45,165.7	31,055.8	-13.8	-19.7	-31.2
1%	290,238.1	165,542.3	501.2	535.8	30,885.2	28,754.3	24,702.7	10,429.2	539.8	2,325.4	3,448.1	5,330.7	56,127.7	50,287.7	234,110.5	115,254.6	-19.3	-30.4	-50.8
0.1%	1,259,382.4	517,268.4	544.8	735.7	60,120.5	64,856.3	153,181.1	56,221.2	1,328.6	7,969.0	7,807.4	18,141.8	214,630.1	154,995.7	1,044,752.2	362,272.7	-17.0	-30.0	-65.3

Source: Processed Tax data

Table 5.2 Tax exemptions and tax burden as a percentage of pre-tax income

	As a % of pre-tax income													
	Tax exemptions		Income tax		Tax on independently taxed incomes		Property tax		Additional tax measures		Total tax incidence		After-tax income	
									Average burden from EETIDE	Solidarity tax				
	2008	2012	2008	2012	2008	2012	2008	2012	2012	2012	2008	2012	2008	2012
1	3.3	5.4	0.6	6.6	1.16	1.56	1.56	1.87	23.9	0.00	3.36	33.98	96.6	66.0
2	1.2	1.4	0.2	1.4	0.83	0.91	0.31	0.37	5.55	0.00	1.31	8.26	98.7	91.7
3	1.0	0.9	0.1	1.2	0.74	0.70	0.23	0.22	3.92	0.00	1.09	6.04	98.9	94.0
4	1.1	0.8	0.1	2.2	0.56	0.71	0.18	0.22	3.36	0.00	0.85	6.54	99.1	93.5
5	1.1	0.7	1.4	3.9	0.74	0.72	0.18	0.20	2.89	0.26	2.31	7.94	97.7	92.1
6	1.1	0.6	3.5	5.0	0.91	0.71	0.19	0.21	2.68	0.68	4.64	9.25	95.4	90.7
7	1.0	0.6	5.4	6.7	1.03	0.79	0.19	0.21	2.76	0.74	6.67	11.22	93.3	88.8
8	1.0	0.6	7.2	8.6	1.07	0.92	0.19	0.26	2.73	1.34	8.48	13.83	91.5	86.2
9	0.9	0.6	9.4	10.2	1.17	1.08	0.19	0.33	2.65	1.45	10.74	15.69	89.3	84.3
10	0.5	0.5	12.5	15.1	4.18	2.95	0.22	0.86	2.56	2.30	16.87	23.75	83.1	76.3
AVG	**0.8**	**0.7**	**8.0**	**9.5**	**2.19**	**1.59**	**0.21**	**0.48**	**2.95**	**1.35**	10.42	15.89	**89.6**	**84.1**
1-5	1.2	1.0	0.6	2.7	0.72	0.77	0.25	0.29	4.33	0.09	1.55	8.13	98.5	91.9
6-7	1.0	0.6	4.6	5.9	0.98	0.76	0.19	0.21	2.72	0.72	5.77	10.34	94.2	89.7
8-10	0.7	0.6	10.8	12.5	2.87	2.06	0.21	0.61	2.62	1.89	13.83	19.67	86.2	80.3
1%	0.2	0.3	10.6	17.4	8.51	6.30	0.19	1.40	2.08	3.22	19.34	30.38	80.7	69.6
0.1%	0.0	0.1	4.8	12.5	12.2	10.9	0.11	1.54	1.51	3.51	17.04	29.96	83.0	70.0

Source: Processed Tax data

Table 5.3 Aggregate figures for all households on incomes and tax burden (in million Euro)

	Aggregate figures in million euro															
	Total pre-tax income		Tax exemptions		Income tax		Tax on independently taxed incomes		Property tax		Additional tax measures		Total tax incidence		After-tax income	
											Average burden from EETIDE	Solidarity tax				
	2008	2012	2008	2012	2008	2012	2008	2012	2008	2012	2012	2012	2008	2012	2008	2012
1	667.0	612.2	22.2	32.9	4.3	40.6	7.7	9.6	10.4	11.5	146.3	0.0	22.4	208.0	644.6	404.2
2	2,866.3	2,376.3	34.1	32.3	4.8	34.0	23.7	21.7	9.0	8.7	131.8	0.0	37.5	196.2	2,828.9	2,180.1
3	4,372.7	3,502.6	45.4	30.8	5.0	41.6	32.4	24.5	10.1	7.9	137.4	0.0	47.5	211.4	4,325.2	3,291.2
4	5,754.7	4,751.5	62.1	39.0	6.7	106.7	32.2	33.6	10.3	10.5	159.8	0.0	49.2	310.6	5,705.5	4,440.9
5	7,194.1	6,120.9	76.2	44.1	99.7	237.6	53.4	43.8	13.0	12.0	176.7	15.9	166.1	485.9	7,028.0	5,635.0
6	9,046.5	7,605.9	95.2	49.2	320.2	378.3	82.6	54.0	16.8	16.2	203.5	51.8	419.6	703.7	8,626.9	6,902.2
7	11,426.2	9,395.0	116.3	59.2	621.6	630.9	118.1	74.5	21.9	20.0	259.0	70.0	761.6	1,054.2	10,664.6	8,340.7
8	14,792.3	11,889.2	144.8	75.3	1,066.8	1,020.0	159.0	109.4	28.5	31.3	324.7	159.5	1,254.2	1,644.9	13,538.0	10,244.3
9	20,486.7	16,042.4	189.4	102.9	1,920.7	1,634.2	239.4	172.6	39.8	53.0	424.8	232.8	2,199.9	2,517.5	18,286.7	13,525.0
10	46,914.9	32,694.4	242.6	165.4	5,852.7	4,930.0	1,960.0	964.9	102.3	282.7	836.0	751.3	7,915.0	7,764.9	38,999.8	24,929.5
AVG	**123,521.2**	**94,990.5**	**1,028.3**	**631.2**	**9,902.5**	**9,053.8**	**2,708.5**	**1,508.5**	**262.0**	**453.6**	**2,800.0**	**1,281.3**	**12,873.0**	**15,097.3**	**110,648.2**	**79,893.1**
1-5	20,854.8	17,363.5	240.0	179.2	120.5	460.6	149.4	133.1	52.8	50.5	752.0	15.9	322.6	1,412.1	20,532.1	15,951.3
6-7	20,472.7	17,000.9	211.5	108.4	941.8	1,009.1	200.7	128.5	38.7	36.1	462.5	121.8	1,181.2	1,758.0	19,291.4	15,243.0
8-10	82,193.8	60,626.1	576.8	343.6	8,840.2	7,584.2	2,358.4	1,246.9	170.6	367.0	1,585.5	1,143.7	11,369.2	11,927.2	70,824.6	48,698.8
1%	15,167.8	8,651.2	26.2	28.0	1,614.1	1,502.7	1,291.0	545.0	28.2	121.5	180.2	278.6	2,933.2	2,628.0	12,234.6	6,023.2
0.1%	6,574.0	2,700.1	2.8	3.8	313.8	338.5	799.6	293.5	6.9	41.6	40.8	94.7	1,120.4	809.1	5,453.6	1,891.1

Source: Processed Tax data

Table 5.4 Percentage structure of the aggregate income and tax figures

	Structure of aggregate figures (in %)															
	Total pre-tax income		Tax exemptions		Income tax		Tax on independently taxed incomes		Property tax		Additional tax measures		Total tax incidence		After-tax income	
											Average burden from EETIDE	Solidarity tax				
	2008	2012	2008	2012	2008	2012	2008	2012	2008	2012	2012	2012	2008	2012	2008	2012
1	0.5	0.6	2.2	5.2	0.0	0.4	0.3	0.6	4.0	2.5	5.2	0.0	0.2	1.4	0.6	0.5
2	2.3	2.5	3.3	5.1	0.0	0.4	0.9	1.4	3.4	1.9	4.7	0.0	0.3	1.3	2.6	2.7
3	3.5	3.7	4.4	4.9	0.1	0.5	1.2	1.6	3.8	1.7	4.9	0.0	0.4	1.4	3.9	4.1
4	4.7	5.0	6.0	6.2	0.1	1.2	1.2	2.2	3.9	2.3	5.7	0.0	0.4	2.1	5.2	5.6
5	5.8	6.4	7.4	7.0	1.0	2.6	2.0	2.9	5.0	2.6	6.3	1.2	1.3	3.2	6.4	7.1
6	7.3	8.0	9.3	7.8	3.2	4.2	3.0	3.6	6.4	3.6	7.3	4.0	3.3	4.7	7.8	8.6
7	9.3	9.9	11.3	9.4	6.3	7.0	4.4	4.9	8.4	4.4	9.2	5.5	5.9	7.0	9.6	10.4
8	12.0	12.5	14.1	11.9	10.8	11.3	5.9	7.3	10.9	6.9	11.6	12.5	9.7	10.9	12.2	12.8
9	16.6	16.9	18.4	16.3	19.4	18.0	8.8	11.4	15.2	11.7	15.2	18.2	17.1	16.7	16.5	16.9
10	38.0	34.4	23.6	26.2	59.1	54.5	72.4	64.0	39.0	62.3	29.9	58.6	61.5	51.4	35.2	31.2
AVG	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
1-5	16.9	18.3	23.3	28.4	1.2	5.1	5.5	8.8	20.1	11.1	26.9	1.2	2.5	9.4	18.6	20.0
6-7	16.6	17.9	20.6	17.2	9.5	11.1	7.4	8.5	14.8	8.0	16.5	9.5	9.2	11.6	17.4	19.1
8-10	66.5	63.8	56.1	54.4	89.3	83.8	87.1	82.7	65.1	80.9	56.6	89.3	88.3	79.0	64.0	61.0
1%	12.3	9.1	2.5	4.4	16.3	16.6	47.7	36.1	10.8	26.8	6.4	21.7	22.8	17.4	11.1	7.5
0.1%	5.3	2.8	0.3	0.6	3.2	3.7	29.5	19.5	2.6	9.2	1.5	7.4	8.7	5.4	4.9	2.4

Source: Processed Tax data

5.2 Fiscal adjustment and property taxation

Property taxation as an issue of solidarity policy during the crisis years fuelled intense debates. Property has a particular weight across broader economic and social groups in Greece for historical reasons: first, because of the currency risk before joining the euro, real estate property was traditionally the only asset for securing the savings of the majority of small- and medium-income groups. Second, a significant, but unknown part of the savings invested in property represent income which indeed was the result of tax evasion at the time it was earned. Third, the taxation of property ownership and property transactions in Greece is based on a system of values fixed by the central tax authority, which are assumed to be close to the market value of the property asset. In fact, before the crisis the fixed values were as a rule lower than market values. However, during the crisis market values fell significantly (on average by about 40% between 2008 and 2013), while fixed values remained at the level of 2008.

The property tax incidence and its increase for low income groups does not appear at first sight to be high. According to the data of Table 5.2 for the poorest decile (1st) it is only 1.87% of pre-tax income. However, the average incidence for all households is 0.48%, respectively. The average property tax (22 Euro) of the lowest decile in 2012 corresponds to 25.3% of the average property tax of total households (86.8 Euro), while the average income tax (77.7 Euro) of the same (poorest) decile represents only 4.5% of the average total income tax (1,732.1 Euro, data from the same table).

The social impact of the property taxes imposed during the crisis cannot be judged by the percentage changes appearing in the table. For the bottom group (income of EUR 1,171) an income reduction of EUR 203 for property taxation is beyond any rationality, while a similar burden of more than 3% or even 5.5% (2nd decile) on incomes below the poverty line is equally irrational. If properly designed, property taxation is a just tax. However, in a period of drastic income falls, innumerable vacant buildings, increasing direct and indirect taxation, considerable fall of building prices and drastic absence of transactions in many segments of the property market, a property tax which disregarded the income and liquidity capability of households to meet their tax obligation proved to be an unjust tax. Besides, property taxation exceeding 1.7% of GDP (2012 figures), is among the top five highest in the E.U[61].

[61] European Commission (2014), Cross-country Review of Taxes on Wealth and Transfers of Wealth.Revised Final Report EY-October 2014. After the introduction of a new tax in 2014, the ratio of property taxes to GDP should actually be at a higher level.

5.3 The incidence of indirect taxation

5.3.1 The redistributive impact of the increases in VAT and excise taxes

In this section we will examine the overall incidence from the increases in indirect taxes introduced as part of emergency fiscal consolidation measures. The question is: How have the higher indirect taxes weighed on the already squeezed household incomes? In which direction have the increases in the rates of Value Added Tax (VAT) and excise taxes affected income inequality during the current crisis?

According to the literature, the overall burden of indirect taxation in the case of Greece can be represented by a curve that has an inverted U shape, where households in the middle of the income distribution face relatively higher total tax rates. This is the combined effect of strongly progressive and strongly regressive taxes rather than an addition of taxes with similar redistributive features[62]. Taxes on food, tobacco, housing and health are regressive, while taxes on clothing, household appliances, leisure and transport are strongly progressive. With specific regard to excise taxes, their redistributive impact is less straightforward[63]. Excise taxes put a disproportionately heavy burden on medium-income groups, while the three lowest deciles and the top decile face are not so much affected. Overall, excise taxes are rather progressive, but it makes more sense to look at individual excise taxes. Thus, the redistributive effect of excise taxes on alcoholic beverages consumed at home is progressive, but quantitatively negligible. By contrast, the effect of the excise tax on tobacco products is quantitatively significant and also strongly regressive. Excise taxes on heating fuel are also regressive. The most progressive and quantitatively significant among excise taxes is the one levied on private vehicle fuel. In any event, higher prices of energy, mainly heating oil, weigh on social indicators and cause both the number of poor households and total inequality to increase[64].

Table 5.5 Revenue from direct and indirect taxation (in million Euro)

	2008	2009	2010	2011	2012	2013	2014	% 14/08	As a % GDP	
									2008	2014
I. Direct taxes	**20,863**	**21,432**	**20,224**	**20,318**	**21,096**	**20,058**	**21,396**	**2.6**	**8.9**	**12.0**
A. Income tax	16,670	16,589	14,288	12,934	13,311	11,489	12,778	-23.3	7.1	7.1
A1. Persons	10,816	10,841	9,398	8,285	9,970	7,971	8,224	--24.0	4.6	4.6
A2. Legal persons	4,211	3,813	3,167	2,760	1,715	1,681	2,806	-33.4	1.8	1.6
A3. Special groups	1,643	1,935	1,722	1,888	1,627	1,837	1,748	+6.4	0.7	1.0
B. Property taxes	486	526	487	1,172	2,857	2,991	3,432	606.2	0.2	1.9
C. Other direct taxes	3,707	4,317	5,449	6,212	4,928	5,578	5,186	39.9	1.6	2.9
II. Indirect taxes	**30,222**	**28,293**	**31,042**	**28,632**	**26,083**	**24,556**	**24,228**	**-19.8**	**13.0**	**13.5**
A. Transaction taxes	20,060	17,874	18,495	17,790	15,688	14,673	14,541	-27.5	8.6	8.1
A1. VAT	18,243	16,582	17,374	16,887	14,956	13,856	13,892	-23.9	7.8	7.8
A11. Taxes on oil	2,299	1,907	2,653	2,847	2,567	2,224	2,276	-1.0	1.0	1.3
A12. Tobacco taxes	657	681	779	844	729	682	668	1.7	0.3	0.4
A13. Other	15,287	13,994	13,943	13,197	11,659	10,950	10,948	-28.4	6.6	6.1

[62] Kaplanoglou and Newbery, 2003.
[63] Mitrakos and Tsakloglou 1999, Tsakloglou and Mitrakos 1998.
[64] Aggelopoulou and Zografakis, 2010.

	2008	2009	2010	2011	2012	2013	2014	% 14/08	As a % GDP	
									2008	2014
A2. Other taxes	1,817	1,292	1,121	903	731	817	649	-64.3	0.8	0.4
B. Consumption taxes	9,048	9,569	11,822	10,131	9,625	8,995	8,804	-2.7	3.9	4.9
B1. On energy	3,690	4,374	5,698	4,653	4,464	4,230	4,202	13.9	1.6	2.3
B2. On tobacco	2,836	2,924	3,382	3,509	3,114	2,906	2,798	-1.3	1.2	1.6
B3. Car fees	997	1,046	1,591	1,117	1,305	1,183	1,139	14.2	0.4	0.6
B4. Other taxes	1,525	1,225	1,151	852	742	4,483	665	-56.4	0.7	0.4
C. Other indirect taxes	1,114	850	725	711	770	888	883	-20.7	0.5	0.5
Tax revenues (I+II)	**51,085**	**49,725**	**51,266**	**48,951**	**47,179**	**44,614**	**45,624**	**-10.7**		
- as a % to GDP	21.9	21.5	23.1	23.5	24.4	24.5	25.5			
Ration Indirect/ Direct taxes (II/I)	**1.45**	**1.32**	**1.53**	**1.41**	**1.24**	**1.22**	**1.13**			

Note: Figures 2014 are estimations.
Source: Ministry of Finance, State Budgets, different years.

Table 5.6 shows the evolution of VAT rates in the period reviewed, during which VAT rates were raised by four percentage points for the standard rate and the reduced rate and by two percentage points for the super-reduced rate. Similar increases have been made in the more favourable VAT rates that apply in island regions of the country.

The upward adjustments of tax rates were accompanied by transfers of products and services from the reduced VAT rate to the standard rate of VAT, as well as from the reduced rate to the super-reduced rate. During that period, excise tax rates were increased too. Excise taxes are imposed on four product groups: alcohol, tobacco, energy and motor vehicles (this fourth category will not be discussed here). The excise tax rate on alcohol[65] was raised from EUR 1,135 per 100 litres to EUR 2,550/100 litres (+124.7%); the tobacco tax rate from 57.5% to 67.1% (+12.3 percentage points), that on gasoline from EUR 350/1000 litres to EUR 670/1000 litres (+91.4%) and that on heating oil from EUR 21/1000 litres to EUR 330/1000 litres (+1,471.4%).

Table 5.6 Changes in VAT rates during the crisis

Effective from:	VAT rates			
	Standard	Reduced Rate	Super-reduced rate	Island regions
1 Apr 2005 Law 3336/05	19%	9%	4.5%	13%, 6%, 3%
15 Mar 2010 Law 3833/10	21%	10%	5%	15%, 7%, 4%
1 Jul 2010 Law 3845/10	23%	11%	5.5%	16%, 8%, 4%
1 Jan 2011 Law 3899/10	23%	13%	6.5%	16%, 9%, 5%
Cumulative change	+4 percentage points	+4 percentage points	+2 percentage points	+3. +3, +2 percentage points

[65] The excise tax on beer was raised by 129.7%.

5.3.2 The share of taxes in the final price of products and its evolution

The situation until 2008:

- In a typical alcoholic beverage, the share of excise tax in the final price was 29%, that of VAT was 16% and the remaining 55% was the initial pre-tax price.
- In tobacco, excise tax accounted for 73.5% of the final price.
- In energy products, the shares of taxes in the final price were 60% for gasoline, 48.5% for diesel and 21.2% for heating oil.

Changes in 2012:

- In a typical alcoholic beverage, the share of excise tax in final price has risen to as much as 44%, while the share of VAT has reached 19%, implying that the initial pre-tax price accounts for just 37% of the final price (IOBE, 2013).
- In tobacco, excise tax accounts for 89.6% of the final price (IOBE, 2014).
- In energy products, the shares of taxes in the final price are 64% for gasoline, 46.4% for diesel and 43.1% for heating oil.

The sharp increase in the tax component of the final price of heating oil is due to the equalization of its tax rate to the (higher) rate applicable to diesel oil with a view to discouraging the practice of smuggling heating oil for diesel because of the tax rate differential. Through this equalization, the excise tax on heating oil has increased by 15.7 times.

5.3.3 The impact of higher VAT and excise tax rates on tax revenue

The VAT and excise tax hikes coincided with the marked decline in household incomes. As household consumption expenditure fell, the indirect tax reform failed to translate into a rise in tax revenue. According to Table 5.7, indirect taxes yielded 59.2% of total tax revenue in 2008. By 2013, this percentage had fallen to 55%, while it is expected to shrink to around 53.5% in 2015, implying a cumulative decline of 6.1 percentage points since 2008. The most important in terms of tax revenue is VAT, which yielded EUR 18.2 billion in 2008 (see Table 5.6), EUR 15 billion in 2012 (EUR 3.2 billion less than in 2008) and is expected to yield EUR 14.4 billion in 2015 (EUR 4.1 billion less than in 2008).

The excise tax hikes did not deliver the expected results either, although these taxes increased their share in total tax revenue, from 17.7% in 2008 to 20.4% in 2012. Excise tax revenue was EUR 9 billion in 2008, EUR 9.6 billion in 2012 and is expected to be EUR 8.9 billion in 2015 (EUR 100 million less than in 2008, despite the higher rates).

As seen in Table 5.5, although the ratio of indirect taxes to direct taxes rose in 2010 (1.53) due to the sharp increases in VAT and excise tax rates that year, thereafter it fell significantly and is expected to be 1.13 in 2014. This development is solely attributable to a decline in indirect tax revenue (-19.8% in the period 2008-2014) on the back of lower consumer spending due to shrinking household incomes. During the same period, direct tax revenue increased overall by 2.6%, chiefly thanks to

revenue from property taxes (+ 606.2%) and other direct taxes (+39.9%). These two tax categories more than offset the lower revenue from income tax.

Table 5.7 % share of taxes to total public revenue

	2008	2009	2010	2011	2012	2013	2014	Change	
								12-08	14-08
I. Direct taxes	**40.8**	**43.1**	**39.4**	**41.5**	**44.7**	**45.0**	**46.9**	**+3.9**	**+6.1**
A. Income taxes	32.6	33.4	27.9	26.4	28.2	25.8	28.0	-4.4	-4.6
A1. Persons	21.2	21.8	18.3	16.9	21.1	17.9	18.0	0.0	-3.1
A2. Legal persons	8.2	7.7	6.2	5.6	3.6	3.8	6.2	-4.6	-2.1
A3. Special groups	3.2	3.9	3.4	3.9	3.4	4.1	3.8	+0.2	+0.6
B. Property taxes	1.0	1.1	0.9	2.4	6.1	6.7	7.5	+5.1	+6.6
C. Other direct taxes	7.3	8.7	10.6	12.7	10.4	12.5	11.4	+3.2	+4.1
II. Indirect taxes	**59.2**	**56.9**	**60.6**	**58.5**	**55.3**	**55.0**	**53.1**	**-3.9**	**-6.1**
A. Transaction taxes	39.3	35.9	36.1	36.3	33.3	32.9	31.9	-6.0	-7.4
B. Consumption taxes	17.7	19.2	23.1	20.7	20.4	20.2	19.3	+2.7	-5.3
C. Other indirect taxes	2.2	1.7	1.4	1.5	1.6	2.0	1.9	-0.5	+0.5
Tax revenues (I+II)	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**		

Source: Ministry of Finance, State Budgets, different years.

5.3.4 Changes in income inequality following the increases in VAT and excise tax rates

Methodological framework

The estimation is based on the distribution of households by their level of consumer spending, considering that individuals derive utility from the consumption of goods and services. Assuming that the marginal utility of consumption is positive but diminishing, individuals save and dissave in different phases of their life cycles, seeking to smooth out their consumption. Consequently, current consumption can be considered as a reliable indicator of the long-term welfare of the population. Moreover, household consumption expenditure forms the base of indirect taxes (VAT, excise taxes), the redistributive impact of which we are trying to estimate.

The general approach adopted is as follows: We initially estimate total expenditure per household, as well as expenditure on alcohol, tobacco, heating fuel and vehicle fuel. Then we calculate the distribution of household expenditure following the increase in VAT and excise taxes under the tax regime in place until 2008 (with the tax rates not changed yet) and under the post-2013 tax regime (with the new, higher tax rates).

We assume that the price elasticity of demand is -1, i.e. households maintain a constant level of expenditure and adjust the quantity purchased (Kaplanoglou, 2003). Then, for each of the above categories of expenditure, we calculate the share of excise taxes and VAT in the retail price. Households are classified into deciles based on the distribution of equivalent consumption expenditure, using the so-called "OECD-modified equivalence scales".

To compare inequality in the distribution of equivalent consumption expenditure before and after the increases in VAT and excise taxes, we use the Gini index (G), the Theil index (T) and mean log variation (N).

Subsequently, using the technique of inequality decomposition by expenditure category, we estimate the contributions of the individual increases in VAT and excise taxes to total inequality and the elasticity of total inequality to changes in individual indirect taxes.

For estimating the redistributive impact of indirect tax increases, we use micro-data from the Household Budget Survey (HBS) conducted by the Hellenic Statistical Authority (ELSTAT) for the years 2009-2013.

Before turning to the analysis of income inequality, it is worth pointing out that households' consumption habits and behaviours changed significantly in the period reviewed.

Faced with shrinking incomes and higher indirect taxes, households, in particular low- and medium-income ones, either shifted to cheaper heating solutions or chose not to buy oil and forego heating altogether. In many apartment buildings, the issue of central heating caused a lot of friction among tenants as some of them were unable to pay the increased communal heating bills, and thus the central heating was not turned on throughout the winter. Many households turned to electrical heating appliances or to solid fuels (firewood, pellets, etc.), causing an acute smog phenomenon in large urban centers. It could be said that smog was the 'silent protest' of households that could not afford to buy heating oil.

Also, many households avoided using their cars in order to save on fuel. Others even had their cars deregistered, faced with higher road duties and costs of private car transport. It should be noted that of the three products considered here, only tobacco expenditure seems to have increased.

Looking at these changes, especially among poor households, the redistributive impact of the increase in excise taxes appears less negative than what one would expect. However, it cannot be overlooked that this not-so-gloomy picture masks adverse consumption choices on the part of many

households[66]. In fact, poor households seem to have been affected less severely, but this is only because they significantly cut down on their expenditure or changed their consumption habits or even have been hit energy poverty[67].

At the same time, there has been a surge in illicit tobacco and liquor trade (IOBE, 2013 and 2014), resulting in a significant loss of tax revenue. The higher the tax rates, the stronger the incentive for illicit trade, as more gains are involved.

Table 5.8 Annual expenditure: Total and by specific products, in deciles (2009 and 2013)

	Annual total expenditure in Euro		% change	% share of expenditure											
				Alcoholic Beverages		Wine		Tobacco		Fuel oil		Heating oil		Solid fuel	
	2009	2013	2013/ 2009	2009	2013	2009	2013	2009	2013	2009	2013	2009	2013	2009	2013
1	4,262	3,218	-24.5	0.44	0.24	0.42	0.68	2.04	2.85	1.85	1.91	5.07	3.10	1.98	2.86
2	6,318	4,793	-24.1	0.52	0.53	0.36	0.64	3.30	2.52	3.65	3.05	4.19	2.81	1.26	2.12
3	7,864	5,904	-24.9	0.49	0.55	0.46	0.70	3.42	3.01	4.23	4.34	3.45	3.52	0.68	2.20
4	9,404	6,861	-27.0	0.51	0.56	0.46	0.67	3.89	3.62	5.43	5.31	2.73	2.88	0.38	1.87
5	10,909	7,921	-27.4	0.52	0.63	0.44	0.59	3.54	3.34	5.05	5.31	2.62	2.71	0.40	2.24
6	12,544	9,198	-26.7	0.69	0.75	0.34	0.56	2.91	3.50	5.16	6.37	2.58	3.22	0.30	1.78
7	14,456	10,565	-26.9	0.51	0.85	0.42	0.53	2.75	3.71	5.40	6.29	2.31	3.16	0.21	1.28
8	17,043	12,504	-26.6	0.60	0.72	0.40	0.57	2.29	3.28	4.89	7.12	2.01	2.49	0.29	0.97
9	21,311	15,872	-25.5	0.45	0.76	0.35	0.73	2.01	3.26	4.64	6.30	1.73	2.52	0.15	0.94
10	36,161	29,647	-18.0	0.49	0.86	0.49	0.94	1.41	1.79	3.50	4.79	1.21	1.68	0.09	0.27
AVG	**14,027**	**10,648**	**-24.1**	**0.52**	**0.73**	**0.42**	**0.71**	**2.43**	**2.89**	**4.43**	**5.46**	**2.21**	**2.53**	**0.34**	**1.20**

Source: Processed Data of Household Budget Surveys 2009 and 2013, ELSTAT.

As shown in Table 5.8, average household expenditure fell by 24.1% between 2009 and 2013. The largest decreases were recorded in households between the 4th and the 8th deciles (inverted U shape). It should be noted that in real (volume) terms the fall in household consumption expenditure is even larger, as consumer prices rose by 11.2% in the period from 2008 to 2012. A part of that rise was due to the marked increase in the indirect tax burden from 2011 onwards. However, in addition to declining household spending, the data also point to notable shifts in consumption patterns, which lead to lower tax revenue too.

Table 5.9 shows the indirect tax burden on average expenditure per decile. For the first decile (the poorest households), total expenditure in 2013 is EUR 3,218. Of this amount, EUR 435 are indirect taxes based on the tax system applicable until 2008 and EUR 108 are additional taxes following the increases in excise tax and VAT rates.

[66] See also Kaplanoglou and Rapanos (2014).

[67] M. Santamouris et al. (2014), Freezing the poor. Indoor environmental quality in low and very low income households during the winter period in Athens.

Table 5.9 Deciles of equal annual expenditure (2013) and tax incidence after the increase of VAT and excise taxes

	Mean annual equivalent expenditure i n Euro		Excise taxes and VAT in the mean annual expenditure based on tax rates of 2008 (in Euro)			Additional burden for excise taxes and VAT after their increases (in Euro)		
	After VAT and excise taxes	Before VAT & excise taxes	Excise taxes	VAT	3+4	Excise taxes '13-'08	VAT '13-'08	6+7
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	3,218	2,675	101	334	435	28	80	108
2	4,793	3,992	171	472	643	42	115	157
3	5,904	4,830	272	596	868	64	142	206
4	6,861	5,574	365	688	1,053	72	163	235
5	7,921	6,450	409	793	1,202	80	190	269
6	9,198	7,385	543	940	1,483	107	222	329
7	10,565	8,460	634	1,094	1,728	125	252	377
8	12,504	10,043	754	1,280	2,034	131	297	428
9	15,872	12,777	893	1,660	2,552	162	381	543
10	29,647	24,482	1,168	3,077	4,245	217	703	920
Average	**10,648**	**8,667**	**531**	**1,093**	**1,624**	**103**	**254**	**357**
Total (million €)	44,489	36,210	2,219	4,568	6,786	429	1,063	1,493
S80/S20	**5.7**	**5.6**	**7.6**	**5.9**	**6.3**	**5.4**	**5.5**	**5.5**
	Percentage share							
1	**100.0**	83.13	3.14	10.38	**13.51**	0.86	2.49	**3.36**
2	**100.0**	83.30	3.57	9.86	**13.42**	0.87	2.40	**3.27**
3	**100.0**	81.80	4.61	10.09	**14.70**	1.09	2.41	**3.49**
4	**100.0**	81.24	5.32	10.02	**15.35**	1.05	2.37	**3.42**
5	**100.0**	81.43	5.17	10.01	**15.17**	1.01	2.39	**3.40**
6	**100.0**	80.30	5.91	10.22	**16.12**	1.17	2.41	**3.58**
7	**100.0**	80.08	6.00	10.35	**16.35**	1.18	2.39	**3.57**
8	**100.0**	80.32	6.03	10.23	**16.26**	1.04	2.38	**3.42**
9	**100.0**	80.50	5.62	10.46	**16.08**	1.02	2.40	**3.42**
10	**100.0**	82.58	3.94	10.38	**14.32**	0.73	2.37	**3.10**
Average	**100.0**	81.39	4.99	10.27	**15.25**	0.97	2.39	**3.35**

Soucre: Processed data from Household Budget Survey 2013, ELSTAT.

Before these increases, the tax burden on total expenditure amounted to 13.5%. Thereafter, the tax burden came to 16.9%. The additional burden on total population is thus 3.4%, which again features an inverted U shape, where households in the middle of the income distribution bear the brunt. A proportionately smaller part of the burden falls on households in the two lowest deciles (1st and 2nd) and in the highest (10th) decile relative to all other deciles in between. Faced with the additional burden, poor households reduce their expenditure, which suggests a pauperisation of new social segments. In the new landscape, the distribution of after-tax expenditure is slightly more unequal, as suggested by the S80/S20 ratio which rises from 5.6 to 5.7.

The Household Budget Survey records the expenditure of each household on goods and services, including indirect taxes. However, households do not derive utility from the taxes they pay. Their degree of satisfaction, expressed in monetary terms, is determined by the level of their consumption expenditure net of tax. That is, the distribution of satisfaction can be approximated by the distribution of after-tax consumption expenditure, while the distribution of before-tax consumption expenditure represents the degree of satisfaction that would exist in the absence of tax. The question is: What is the inequality impact of the above-mentioned increases in indirect taxes? The estimates shown in

Table 5.10 suggest that the increases in VAT and excise taxes examined here have a small redistributive effect. All indices point to a slight increase in inequality (by between 0.9% and 2.9% depending on the index used) as a result of the indirect tax hikes. In respect of both VAT and excise taxes, the estimated rise in inequality is the same whether one uses the less sensitive index (Gini) or the most sensitive to changes at the upper end of the distribution (Theil).

Table 5.10 Inequality indices before and after the increases in VAT and excise taxes

	Total pre-tax expenditure	Total after-tax expenditure under the pre-crisis tax regime	As in 2 with the increases in tax excises	As in 2 with the increase in VAT	Total after-tax expenditure
	1	2	3	4	5
Gini Index	0.341	0.339	0.340	0.340	0.338
Theil Index (T)	0.2153	0.2134	0.2147	0.2139	0.2094
Index N (Mean Log Deviation)	0.1925	0.191	0.1919	0.1915	0.190

Source: Processed data of Household Budget Surveys 2013, ELSTAT.

In the following paragraphs we will attempt to verify the above findings and provide an alternative measurement, employing the technique of inequality decomposition by expenditure category. To this end, from the total equivalent household expenditure we isolated the increases attributable to VAT and excise taxes. The results of this decomposition are reported in Table 5.11. As discussed in detail in another chapter, the larger the share of an individual expenditure category in total expenditure, the higher its contribution to total inequality. The total indirect taxes applying before the crisis account for 16% of total inequality (0.0503+0.1057=0.1557); the tax increases have added another 3% to this share (0.0086+0.0236=0.0322), primarily stemming from VAT.

Table 5.11 Decomposition of inequality by tax source (VAT and Special consumption taxes) in 2013

	Expenditure shares	Gini coefficient	Relative correlation coefficient	Relative concentration coefficient	Weight Coefficient of inequality	Elasticity of the Gini coeefficient
	$100w_i$	G_i	R_i	g_i	$w_i g_i$	e_i
Pre-tax expenditure	81.11	0.341	0.993	1.001	0.812	0.0008
Excise taxes– 2008 status	5.24	0.494	0.657	0.960	0.050	-0.0021
VAT–2008 status	10.29	0.360	0.966	1.027	0.106	0.0027
Excise taxes–increased rates	0.95	0.510	0.599	0.902	0.009	-0.0009
VAT– increased rates	2.41	0.344	0.964	0.980	0.024	-0.0005
Total expenditure including taxes	100.00	0.338			1.000	

Source: Processed data of Household Budget Surveys 2013, ELSTAT.

The exact size of the redistributive impact of a percentage change in excise taxes or VAT is given by the elasticities shown in the last column of Table 5.11. The estimated elasticities suggest that, ceteris paribus, higher excise taxes and VAT are likely to increase total inequality in the distribution of consumption expenditure[68]. The redistributive impact of VAT before the crisis suggests that a

[68] These results have not taken into account second-round effects from e.g. the changing consumption patterns

uniform, proportional increase in VAT would probably lead to lower total inequality. However, given the greater relative burden on medium-income groups, the size of the contribution of all indirect taxes in total inequality varies considerably depending on how sensitive is the inequality index used to different types of transfers.

Based on the above analysis and taking into account the changes in incomes and income and property tax discussed in previous sections, we can summarise the following facts and figures:

In the period between 2008 and 2012, the average Greek household saw its income decline by 23.1% (Table 5.12). In addition, with significantly lower income, it paid almost the same income tax (2008: EUR 10.8 billion, 2012: EUR 10 billion), as well as quite higher property taxes. To these income reductions, we should add the further downward effect of higher indirect taxation.

During the same period, low-income households (represented by the average of the three lowest income deciles) suffered a smaller income reduction than the average household (-17.9%). However, the part of this reduction that is attributable to tax was higher (-11.49%) than for the average household (-8.82%), solely because of the increased property tax burden (6.46%, compared with 3.21%). As a result of this burden, the average low-income household faced an income reduction of 29.4%.

Table 5.12 Income drops caused by the crisis and new taxes

	The 'average' Greek household	The household with low income
Income contraction pre-tax: 2008-12	-23.1%	-17.9%
Tax incidence from new taxes (2012 to 2008):		
- Direct taxes	2.26%	1.66%
- Property taxes	3.21%	6.46%
- Indirect taxes	3.35%	3.37%
Income contraction due to the taxes	**-8.82%**	**-11.49%**
Total contraction of the mean income: 2008-12	**-31.92%**	**-29.39%**

Note: In this Table we did not include the price inflation of 11.2%, which leads to even larger contractions of real incomes. If the incidence of the increase of indirect taxes (3.4%) is subtracted from inflation, in the aim to avoid double counting, the impact on mean income could be as high as 7.8%. Hence, in case we take into account also the inflation effect, the contraction of income would be 39.2% and 37.2% for the 'mean' family and families with low income, correspondingly.
Source: Calculations based on the findings of this study.

Finally, it should be noted, that these estimates have not taken into account the effect of inflation: with prices having risen by 11.2%, the fall in real incomes is even sharper. Net of the impact of indirect taxes (3.4%) to avoid double counting, the effect of inflation on average income may be up to 7.8%, bringing the income reduction in real terms to 39.2% and 37.2% for the "average" household and for low-income households, respectively.

as a result of (favourable or unfavourable) changes in the tax burden, as we have assumed that all other factors remain unchanged. Of course, this is not a realistic assumption, in particular when the changes in tax rates are large and the price elasticity of demand for the relevant goods is high; however, such a more comprehensive investigation would be far beyond the scope of this study.

Chapter 6

The question of inequality

6.1 Before-, after-tax and overall inequality

Our analysis revealed some significant effects of the crisis and of the crisis-related policies on income distribution, the extent to which policy choices took solidarity and equity issues into consideration, as well as the type of complex and even contradictory effects that have been generated under the influence of a broad range of factors during the crisis years. Wages and pensions were hit by policy decisions, but have also been negatively affected by market developments. Most of the other income sources shrank by even higher rates, due to the crisis. The magnitude and the timing of all these changes were very different. At the same period, the severe increase of jobless persons and households had a tremendous impact on inequality. Tax increases had mixed effects on the different income and property deciles. Hence, inequality indices are the average result of very different results and mask serious differences among income and professional groups.

The measurement of inequality has been based on the Gini and the Theil indices and on Mean Log deviation. The results are presented in Table 6.1. As a general result, overall inequality decreased slightly till 2011 and recorded a slight increase in 2012. EU-SILC, shows that inequality measured by the Gini index increased by just one percentage point (from 0.334 to 0.344) between 2008 and 2013. However, based on the same survey, the S80/S20 index (referring to the ratio of the income of the richest 20% of the population to the income of the poorest 20%) increased from 5.9. to 6.6. This picture for the total income and the total population remains broadly unchanged even when tax data are used instead[69]. In Table 6.2 we summarize the Gini and the S80/S20 indices in different sources and/or analyses (Household Budget Surveys, EU-SILC, OECD, Matsaganis study, this study). The trend towards lower inequality till 2010 is confirmed by all Gini measurements.[70]

In the first years of the crisis, income inequality declined, but then increased. However, after three or four years the observed pattern of a mild increase in inequality is reversed when we look at individual social groups or individual sources of income. In fact, the changes in inequality are shown to be substantial when the focus is on individuals and even more so when the gender aspect is also included. These major changes can be seen at multiple disaggregated levels, whereas they are smoothened out in the aggregate inequality figures.

[69] These findings differ to some extent from other measurements of aggregate inequality, which are all based on EU-SILC or national Household Budget Surveys (HBS). The indices based on the tax dataset are not capturing a range of subsidies, income transfers, social benefits to the most vulnerable groups, which, consequently, have a negative impact on inequality. However, these items are a very small fraction of incomes and have been also lowered during the crisis years.

[70] An exception is the OECD, the estimates of which coincide with EU-SILC and EUROMOD (Matsaganis) for 2009 and 2010, but give an increasing inequality index for 2010, which is not confirmed by any other source. OECD figures are again similar to those of the other two sources in 2011. Because of this unexplained divergence, the OECD figure leads to the conclusion that 2011 was marked by a reduction of inequality, while according to all other sources 2011 or 2012 were the years that inequality started to increase.

Table 6.2 Inequality indices (Gini and S80/S20) on Greece given in different analyses (data)

Source	Hellenic Statistical Authority[1]		Eurostat[2a] and Hellenic Statistical Authority[2b]		OECD[3]			Matsaganis M. & Leventi C.[4]		This study
Data	Household Budget Surveys		EU-SILC		National Sources			EU-SILC/ EUROMOD		Tax Data
Variables	Expen-diture purchases	Total expen-diture	Total disposable Income		Disposable income, post taxes and transfers	Income before taxes and transfers	Disposable income	Disposable Income		Total Income before taxes
Index	S80 /S20	S80/ S20	Gini	S80/ S20	Gini	Gini	S80/S20	Gini	S80 /S20	Gini
2007			34.3	6.0	33.5	50.5	5.9			
2008	5.5	4.6	33.4	5.9	33.1	50.5	5.7			48.7
2009	5.4	4.5	33.1	5.8	33.2	50.7	5.7	32.1	5.3	46.8
2010	5.5	4.5	32.9	5.6	33.8	52.8	6.0	32.8	5.6	46.5
2011	5.5	4.5	33.5	6.0	33.5	55.5	6.3	33.6	6.0	45.6
2012	5.9	4.7	34.3	6.6				35.4	7.0	46.4
2013	5.7	4.5	34.4	6.6				36.4	7.8	

Sources: [1]: Press Release, Household Budget Survey 2009, p.p.13, Table 12, 2012.
Press Release, Household Budget Survey 2011, p.p.15, Table 12, 2013.
Press Release, Household Budget Survey 2013, p.p.19, Table 13, 2014.
[2a]: European Commission, Employment and Social Developments in Europe 2014, p.p. 306, 2015.
[2b]: Living conditions in Greece, Hellenic Statistical Authority, p.p. 54, Table 10, January 2015.
[3]: Income distribution and poverty, OECD.StatExtracts, January 2015 (http://stats.oecd.org).
[4]: Newsletter, Poverty and Inequality, p.p. 4, Table 1, Athens University of Economics and Business, Publications Kritiki, 2014.

A detailed analysis of inequality based on the tax dataset has relied on three inequality indices, as described in 2.2. above, and moves along several axes (Table 6.1):

- First, we calculated the inequality indices on the basis on incomes reported between 2008 and 2012 for each individual source of income (wages, pensions, independent and commercial activities, etc.) and for each year. This enables us to see how inequality has evolved within and across income sources.
- In addition, we calculated the inequality indices in terms of the real property declared for large property taxation[71] purposes, distinguishing between two subsets: the first refers to the value of property-owning households, and the second refers to all households whether they own real property or not. This approach provides an insight into the level of inequality within the group of real property owners and within society as a whole.
- We placed particular emphasis on inequality indices regarding wages and pensions. For these income sources, we calculated inequality indices on the basis of the income from each source, not only at the household level but also at the level of individuals, introducing a

[71] The aggregate property value is the sum resulting from the respective tax returns. It should not be confused with the aggregate property value of the whole population, which is a broader notion.

further distinction between, on the one hand, employees or pensioners receiving a wage or pension in all five years and, on the other, all employees or pensioners included in the tax returns statistical base.

When we examine inequality with reference to individuals rather than households, in particular employees and pensioners, there are significant differences, such as whether the individuals considered are the same employees who had a wage (therefore employment) in all years or all employees (therefore including those who at some point of the five-year period became unemployed), both for the first and for the second member of the household, an increase of inequality can be seen, which is much larger than when the reference unit is the household. The reverse (a marked decline in inequality) is the case with the group of pensioners, for either group.

As seen from Table 6.1, income inequality is greater among males compared with females, whether income comes from wages or from pension. This difference in inequality across genders persists throughout the period reviewed. Based on the Gini index, which is more sensitive around the median, the income inequality faced by the second working member of the household (i.e. the wife) is 3-5 percentage points smaller than for the first member (for wages and pensions). It should be noted that if in a household there is a female working member and no husband, she is recorded as first member, while in households with two working members, the wife is always the second member. This implies that the difference in inequality is actually even greater, insofar as the "first member" designation can also refer to females.

Wage inequality grew between 2008 and 2012, by 2-3 percentage points on the basis of either the Gini index or the Theil index, which is more sensitive at the upper end of the distribution. By contrast, the mean log deviation (N) index which is more sensitive at the lower end of the distribution shows a larger increase in equality over the same period (4-8 percentage points), suggesting either that wages have been squeezed to lower levels or that more employees have seen their wages decline.

This finding for employees indicates that disparities within the group of employees have deteriorated, in fact significantly, leading to a rise in inequality. However, this deterioration was less marked at the household level, being partly offset by the improved wage income positions of other members. The factors that caused wage income to be reduced to zero or shrink/rise significantly, and for what categories of employees and households, have been discussed extensively in previous sections. Our findings show a decline in inequality for the "all households" aggregate, a significant increase in inequality when calculated on the basis of wages at individual level and a considerable decline in inequality within the group of pensioners, especially at the individual level and to a lesser extent at the household level.

In 2008, women earn on average 12.2% lower average pay than the first member, which is predominantly a male; by 2012, this gender pay gap has widened to 14.9%. A possible explanation is that female workers may have been more flexible about accepting lower wages. This is probably the reason why female employment declined much less strongly than in the case of males.

From another perspective, we distinguished employees into two groups. The first group (A) refers to employees who retained their jobs in all the five years under review and the second group (B) refers to all employees. Group A includes 1,951.2 thousand employees. The number of employees in Group B is not fixed; in fact, it constantly diminished: to 75.3 thousand in the first year, 86 thousand in the second year (2010), 208.7 thousand in the third (2011) and 178.9 thousand in the fourth year (2012) to stand at 2,444.2 thousand by the end of 2012 (548.9 thousand employees less than in 2008). The shrinking number of employees is due to flows into retirement or unemployment. Subtracting the employees of Group B from those of Group A, we can derive the number of employees on the move

(to retirement or unemployment). Some of the unemployed may find new employment later on. To these employees on the move we should add newly hired employees, i.e. those who report that they took up employment in the 2009-2012 period.

In 2012 Group A has a Gini index of 0.328 after tax or 0.363 before tax, while Group B has a Gini index of 0.399 (a gap of +4 percentage points). Five years ago, in 2008, the respective Gini indices were 2-3 percentage points lower (Table 6.1, Part C). The large inequality gap between Groups A and B is due to the fact that the income distribution of Group B includes, at its lower end, new employees hired with low earnings (minimum wage) and, at its upper end, employees moving to retirement, who are more highly paid in the last year of their employment relative to other employees. As a result, inequality is significantly larger in Group B compared with group A. Using Mean Log Deviation, which is sensitive at the lower end of the distribution, both Group A and Group B show significant increases in inequality (from 0.185 in 2008 to 0.273 in 2012 for Group A and from 0.292 in 2008 to 0.352 in 2012 for Group B). This means that in the two groups pressures at the lower end of the distribution are strong. Many employees, in order to keep their jobs, accept wages lower than in previous years. The differences again are more pronounced in men than women.

The inequality index of family wage income (wage of the first and of the second member, if any) is much higher than the inequality index computed at the level of individuals. This is mainly due to the fact that there the wage of the first member is highly correlated to the wage of the second member. Typically, if the wage of the first member is high, then the wage of the second member (if any) is also high. The same correlation exists in low wages. This results in a larger difference between the two extremes of the distribution (two high wages at the upper end of the distribution versus two low wages at the lower end of the distribution). In 2012, the Gini index appears to have increased by about one percentage point relative to 2008.

The inequality of pensions followed the opposite trend from that of wages. All indices fell by 5-6 percentage points for the first household member and 1-2 percentage points for the second member. For the total of pensioners, the inequality of pensions declined significantly. The Gini index for all pensioners decreased from 0.38 in 2008 to 0.33 in 2012. The pension cuts implemented, which concerned high pensions in particular, considerably reduced inequality. The smaller decrease in inequality for women is due to the fact that the average pension they receive is significantly lower than the average pension of the first members, who are predominantly men. In 2008, women received on average 30% lower average pension relative to the first member; in 2012, their pension was 21.5% lower respectively. The gender pension gap therefore narrowed.

For pensioners receiving pension all five years as well as for the total of pensioners the picture is different from the one observed for the respective groups of employees. Both groups of pensioners show a decline in inequality, and the gap between the two are very small (less than one percentage point. The large inequality gap in wages seems to be closing in retirement.

The inequality index of family pension income (pension of the first and of the second member, if any) is well above the inequality index at individual level, as is the case with wages. However, in 2012, the Gini index seems to have declined by 3.5 percentage points relative to 2008.

As a general result, inequality increased significantly within the *group <u>of the same</u> persons having wage incomes* for 2008-2012 but less for the *group of <u>all persons having wage incomes</u>* (Table 6.1). In contrast, inequality declined significantly in pensions in either group, and moderately in rental income and income from dividends and interest. Inequality remained stable but very high in incomes from independent activities and increased in incomes from business activities. Finally, it is clear that

pensions have been a decisive factor for mitigating the income effects of the crisis and reducing inequality, even if this is associated with broader destabilising effects on the pension system.

In the "other family" income sources, income inequality is significantly high. The most unequally distributed are dividend-interest, income from agriculture and income from independent activities. In some of these sources inequality remains unchanged throughout the period (0.73 for family agricultural income, 0.68 for income from independent activities, 0.60 for income from property), in others inequality increases (in income from commercial activity, from 0.54 in 2008 to 0.58 in 2012), and finally in some other sources there is a decline (income from dividends, from 0.80 in 2008 to 0.74 in 2012). At the same time, for income from dividends-interest and for agricultural income, the indices show strong changes (reduce inequality at the ends of the distributions). (Table 6.1, 4th part).

Table 6.3 Inequality indices in different income sources

		Total (million €)			Mean household income in €	
		2008	2012	% change	2002	2012
Total income before direct taxes	1	123,521	94,990	-23.1	23,631	18,173
Income declared in Form E1	2	98,029	80,243	-18.1	18,754	15,352
Taxed income	3	93,574	86,993	-7.0	17,902	16,643
Taxed income after income taxes	4	83,671	77,939	-6.9	16,007	14,911
No 4 after tax deductions	5	84,352	78,450	-7.0	16,138	15,009
After-tax net income[1]	6	111,329	83,205	-25.3	21,299	15,918
After-tax net income[2]	7	111,329	80,658	-27.5	21,299	15,431
% change 6/1	8	-9.9	-12.4			
% change 7/1	9		-15.1			

		Gini index			Theil index (T)			Mean Log Deviation index N		
		2008	2012	Change	2008	2012	Change	2002	2012	Change
Initial income before direct taxes	1	0.451	0.437	-0.015	0.602	0.449	-0.153	0.446	0.421	-0.024
Income declared in Form E1	2	0.481	0.499	0.018	0.421	0.457	0.036	0.367	0.333	-0.034
Taxed income	3	0.479	0.413	-0.066	0.426	0.333	-0.093	0.363	0.274	-0.089
Taxed income after income taxes	4	0.442	0.377	-0.065	0.355	0.273	-0.082	0.304	0.225	-0.079
No 4 after tax deductions	5	0.443	0.377	-0.066	0.357	0.274	-0.083	0.307	0.227	-0.080
Net income[1]	6	0.424	0.401	-0.023	0.545	0.381	-0.164	0.395	0.355	-0.039
Net income[2]	7	0.424	0.405	-0.019	0.545	0.400	-0.145	0.395	0.341	-0.053
% change 6/1	8	-6.0	-8.1		-9.5	-15.2		-11.4	-15.7	
% change 7/1	9		-7.1			-11.0			-18.9	

[1]: After all taxes including the property tax.
[2]: After all taxes including the property tax and the special levy on property (EETIDE) for 2012.

Source: Processed Tax data

These inequality measurements refer to income before taxation, presented in section 4 above. However, it is important to detect whether, how much and in what direction, taxation changed the before-tax inequality.

The following income notions and the respective inequality indices have been measured:

- Initial pre-tax total income,
- Income as declared to the tax authority,
- Taxed income,
- After-income tax income,
- After-income tax income diminished by tax deductions,
- Net income 1 (after-tax income, except for the property tax for 2012),
- Net income 2 (as net income 1, but in addition after the special property levy introduced in 2011 (EETIDE).

We also measured the cumulative total income as well as the mean household income for each of the above categories and then we calculated the inequality indices for each of these items for 2008 and 2012. Measuring inequality indices for all these specific income types is useful from the point of view of understanding the specific effect a particular tax factor is exerting on inequality. Table 6.2 shows the different inequality indices regarding different notions of income and their change between 2008 and 2012, but also important tax incidence issues, which complement the findings of section 5:

- The taxable income as a percentage of the total declared income increased significantly from 75.8% (2008) to 91.6% (2012) (row 3 to row 1),
- Between 2008 and 2012 the pre-tax income shrank by 23.1%, while the taxation of this income increased from 9.9% to 15.1% (rows 8 and 9). As a result, after-tax income decreased by 27.5%, Table 6.3, row 7).
- Inequality, measured by the Gini index, decreased for all notions types of incomes between 2008 and 2012. Inequality of the after-tax income was lower than for pre-tax income by 6% in 2008 and 8.1% in 2012 (row 8).
- Despite the findings in part 5 recording the significant increase of the tax burden, income taxation contributed significantly to the reduction of inequality over the years (about 2% in 2008 and 13.7%[72] in 2012).
- Property taxation, which was increased significantly in 2011, had an unexpected effect on inequality: it led to an increase of inequality because the share of the lower income deciles in property is higher than their share in total income. The tax was presented as a progressive tax, because it was imposed also on property which was exempted from the existing property tax, but it can be seen that finally it affects disproportionally the lower income groups.
- The increase of indirect taxes had only a marginal negative impact on inequality and redistributive effect. Nevertheless, the indirect tax hikes had a negative impact mostly on low incomes. However, this effect is not reflected in changes in income inequality, as poor households were forced to reduce their spending on goods the prices of which rose significantly due to higher excise taxes and adjust their consumption pattern, to some extent compromising their life quality.

[72] Percentage change of the Gini index after income taxes (row 4) to the Gini index of the initial income (row 1).

- Irrespective of the changes in inequality resulting from the tax system, it is shown that after-tax inequality is still very high by industrialised world standards. The Gini index takes values of 0.481-0.499 for pre-tax income, but remains above 0.40 for net after-tax incomes. Such values are indicative of deep inequalities within the Greek society, despite the decrease observed between 2008 and 2012[73].

Table 6.4 Weak and strong inequalities in family incomes

	% share of the top 10% in total		% share of the top 1% in total		% share of the top 0.1% in total		Index S80/S20	
	2008	2012	2008	2012	2008	2012	2008	2012
Total income	**37.5**	**34.5**	**11.8**	**8.8**	**5.0**	**2.6**	**19.5**	**26.2**
Wage income	30.3	30.9	6.4	6.8	1.6	1.5	10.8	13.4
Pensions	27.7	25.1	4.4	3.8	0.6	0.5	7.5	6.5
Income from agriculture activities	61.4	59.6	16.6	16.4	3.5	3.6	211.0	269.2
Income from commercial activities	39.7	42.1	10.6	10.7	2.4	2.2	29.6	42.3
Income from Independent activities	51.1	50.0	13.4	13.0	3.0	3.0	116.8	127.0
Rental income	47.7	45.6	14.6	13.1	3.6	3.2	51.7	45.7
Dividends-Interest	70.7	63.6	39.9	31.3	22.4	14.3	182.2	108.3

Source: Processed Tax data

In Table 6.4 we calculated the share of the upper income groups (10th decile and top 1% and 0.1%) in total income from each source for 2008 and 2012. We also calculated the relationship between the upper two deciles (9th and 10th) to the lowest two (1st and 2nd). The findings are slightly different depending on the metrics used. A finding common to all approaches though is that, in 2012, the share of the top 10% in total income per source exceeds 40% for income from each of the agriculture, commercial and independent activities, real property and dividends-interest; for wages it is around 31%, while the lowest concentration rates are observed in income from pensions (25.1%). Similar findings can be observed also in the top 1% and 0.1% incomes. Concentration has increased, while the lower concentration observed in total income (from 37.5% to 34.5%) is largely attributable to the sharp fall in dividends-interest.

From the perspective of the evolution of inequality, there is a marked deterioration in the gap between the top and bottom 20%. The share of the top 20% in total income has declined, but the corresponding decline for the bottom 20% has been even larger. The S80/S20 ratio, from 19.5 in 2008, soared to 26.2 in 2012.

[73] See Cingano F. (2014).

6.2 Inequality in real estate property

Inequality in real property ownership (at household/family level) seems to have remained broadly unchanged showing only a slight downward trend. As it could be expected, inequality measured by the Gini index is higher when all households with and without property are aggregated (0.69) than when only property-owning households are considered (0.58). In both cases inequality is slightly decreasing (-2.8%) between 2011-12 and 2009-10. Inequality in real estate property exceeds inequality in incomes (as measured for total income and most of the particular income types).

It was shown that the rise in property taxation during the crisis caused serious problems on taxpayers in all income deciles. Under the pressure of the taxation effect, it can be expected that many property owners should have tried to sell at least part of their property. In Table 6.5 we present three types of households: households with increased, decreased and unchanged property value between 2008 and 2012 and the net change of income and property.

Table 6.5 Changes in property in combination with changes in income

Property change 2012-2008	Income change 2012-2008			
	Increse	Decrease	Unchanged or zero	Total
Property increase				
Households in thousand	598.2	1,010.8	31.9	1,641.0
Property change in billion €	24.8	38.3	1.1	64.2
% change of property	+50.7	+36.3	+70.0	+41.2
Income change in billion €	4.6	-13.0	0.0	-8.5
% change of income	46.2	-40.0	0.0	-20.0
Property reduction				
Households in thousand	464.1	1,054.5	24.5	1,543.2
Property change in billion €	-12.2	-40.5	-0.5	-53.1
% change of property	-19.0	-22.5	-22.1	-21.6
Income change in billion €	3.1	-13.7	0.0	-10.6
% change of income	38.1	-39.0	0.%	-24.6
Unchanged property				
Households in thousand	739.7	1,241.3	61.9	2,042.9
Property change in billion €	0.0	0.0	0.0	0.0
% change in property	0.0	0.0	0.0	0.0
Income change in billion €	3.8	-8.6	0.0	-4.8
% change of income	48.5	-38.8	0.0	-15.9
Total				
Households in thousand	1,802.1	3,306.6	1,18.3	5,227.0
Property change un billion €	12.6	-2.2	0.7	11.1
% change in property	+9.6	-0.7	+12.1	+2.4
Income change in billion €	11.5	-35.4	0.0	-23.9
% change of income	44.4	-39.3	0.0	-20.6

Source: Processed Tax data

It is shown that 31.4% of all households marked an increase, while 29.5% a decrease in their property[74]. In about 40% of the households the situation remained unchanged. The increase of real estate property amounted to 64.2 billion euro, which for the new owners represents an increase of their property of 41.2%. This figure represents also about 13.6% of the total recorded real estate property in 2012. The households concerned marked during the same period an income drop of 8.5 billion euro (-20% of their 2008 income level). In contrast, households with decreasing property marked an income decline of 10,6 billion euro (or 24.6% of their 2008 income level) while their property decreased by 53.1 billion euro (or 21.6% of their total property). The income figures of these two groups indicate a rather similar income situation. To what extent these real estate figures reflect market transactions or intra-family ownership transfers for tax reasons, is not possible to answer. However, we saw in different sections of this study, that about one third of households benefited from increased income and that the more advantaged households in 2012, looking backwards, experienced an increasingly improvement in their income position.

6.3 The Tops and the Bottoms

The preceding analysis focused on all income deciles, the average of the total and the top 1% and 0.1%. In this section we will provide an overview of the income changes observed in the two top income groups and compare them with the average of the total, as well as with the bottom (first) decile[75]. This approach will enable us to assess how the crisis has affected the richest and the poorest income groups. It is important to note again that both these echelons are expected to suffer from statistical weaknesses: the tops are likely to be associated with higher tax evasion, which also involves larger absolute amounts; the bottoms, on the other hand, fail to capture those segments of the population that do not file a tax return, do not have or do not declare any income, do not participate in statistical surveys or, also, are associated with tax evasion or aversion. Both these shortcomings imply an underestimation of the relevant variables. To what extent these underestimations could offset each other is unclear. However, we can assume that these biases are relatively stable over time, so that changes in income levels can be considered to be significantly more reliable than absolute levels. In fact, these changes will be the focus of the analysis below.

6.3.1 Patterns of income hierarchy

In previous sections we have presented the changes in incomes between 2008 and 2012 for the top and bottom deciles as explained above, in respect of:

- the aggregate income from each source of income (sum totals of wages, pensions, income from independent activities, etc.), for all households;
- the average total income for the same households, the households of employees and pensioners, looking at their evolution from 2008 to 2012 and vice versa[76], starting from the position in 2012 and going back to 2008, and the changes recorded for each sub-group;

[74] Calculations based on the figures in Table 6.5.

[75] Most of the data used in this section have been reported in other tables of the study. However, an overview from the perspective of the income performance of households at the two extremes of the income distribution is seen as relevant.

[76] Why do the results change when we examine households from 2008 to 2012 and when we do the reverse?

- the average wage of those who kept their jobs in the five years and the average pension of those receiving a pension in all five years.

The findings are mixed and necessitate a synthesis and interpretation. We can compare the top and bottom deciles and the average for all households and, of course, we can compare the tops and the bottoms with each other. For each of the above relationships, quite different patterns can be identified:

(a) Patterns of changes in aggregate income from each source of income for all households (Table 4.3):

- ✓ In the first pattern, both the bottoms and the tops significantly diverge from the trend of the average, but in opposite directions (the former being stable or on an upward trend, the latter on a downward trend). This pattern only applies in the case of pensions: the overall change in pensions is zero for the bottoms[77], but negative and well above the average (-3.9%) for the tops (-15.5% and -17.6%).
- ✓ In the second pattern, the decreases are much larger for the bottoms than that for the tops. This pattern applies in the cases of income from wages (-34.6% for the bottoms, compared with -4.8% and -11.1% for the tops) from commercial activities (-48.4% for the bottoms, -24.3% and -31.1% for the tops), from independent activities (-20.3% for the bottoms, -7.6% and -8.6% for the tops). In agricultural income, which increased overall, the bottoms did not share the improvement, and all the gains went to the top.
- ✓ In the third pattern, the bottoms record more favourable changes than the tops. This pattern applies in the cases of income from dividends and interest and income from property (see the table). The same happens with total income (all sources included), with the lowest decile incomes falling by 7.7% and both the top and the average incomes showing significantly larger declines.

(b) Patterns of changes in average total income for the same households as a whole, for employees and for pensioners, examining the evolution of each decile first from 2008 to 2012 and then starting from the position they had in 2012 and going back to 2008, and what changes each group has experienced. By this approach, the following three cases can be identified:

- ✓ Regarding the average total income of all households, households of employees and households of pensioners, respectively, and the evolution of average wage and average pension (Tables 4.7, 4.15, 4.17), we started from the incomes that the bottoms had in 2008. Whether one considers the average total income of the household or the average wage or pension, there is an extremely large increase or a much smaller deterioration compared with the average and the income of the tops. The exact opposite picture emerges for the bottoms if the starting point is the income position in 2012 and a comparison is made with the position

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When we look at the "all households" group, there are no differences. Some households improved their relative position versus others, some have seen their relative position deteriorate. At the aggregate level, this is a zero-sum game. Differences can only be identified when we consider sub-groups of households, such as the first decile of households, households of employees or households of pensioners, etc. In 2008, the households in the 1st decile are not the same as the households in the 1st decile of 2012. The same applies for the "households of employees" or "households of pensioners" sub-groups. Only if we consider the same households, changes from 2008 to 2012 and vice versa remain the same.

[77] In the remainder of this section, "bottoms" will refer to households ranked in the first (lowest) decile, "the average" will refer to the weighted average for the total population and "tops" will refer to households ranked in the highest-income 1% and 0.1% of the population.

of the same households in 2008. In this case, the bottoms appear to have experienced a dramatic deterioration (e.g. losses of 86.4% in average total income, 73.5% in average wage and 20% in average pension, Tables 4.7, 4.15, 4.17), compared with a much smaller deterioration for the average or a significant improvement for the tops. The opposite trend is identified for the two top groups. Those which in 2012 were ranked at the top seems to have started from much lowers levels in 2008 and have achieved a marked improvement in their income from wages(+16% and + 19,5%, respectively). This finding indicates that a major part of those who found themselves in the bottom decile in 2012 started from a much higher income level in 2008; this is the segment of society that has suffered the most severe blow from the crisis. It should be noted that this extremely adverse development is also linked to the fact that this decile includes a significant number of employees who lost their jobs or shifted from full-time to part-time employment, with important negative implications for their wage income.

- ✓ A different picture emerges for the average wage of the sub-group of those employed throughout the five years. Using the income of 2008 as a starting point, those who started from the bottom in 2008 saw their position improve, even during the crisis. Those in the bottom decile experienced an increase of their average wage by 78.8%, while those who started from the top in 2008 have seen substantial reductions by 2012 (-15.9% and -27%). Conversely, if the starting point is the income of 2012, the average wage of those who in 2012 were at the bottom was in 2012 by 73.5% lower than in 2008.
- ✓ This picture for households of employees changes dramatically when we turn to households with pensioners: the households that were at the bottom in 2008 faced a much smaller reduction of their total income (-4.2%) (Table 4.13) compared with the average (-18.1%) or the top (-29.1% and -32.6%), while for households at the bottom in 2012 the reductions are in the order of between 19% and 22% across all the groups examined.
- ✓ The average pension for households that started from the bottom in 2008 has increased by 48.1%, while for those at the top has decreased by about 32% (Table 4.14. old). In contrast, among households at the bottom in 2012, those in the weakest group (1st decile) saw their pensions fall by 20% between 2008 and 2012, compared with a smaller reduction (7.3%) for the top 1% and a significant improvement (+ 15.4%) for the top 0.1%. This decrease is smaller than that recorded using the income of 2008 as a starting point (-29.1% to -32.6%), but in both cases it is higher than the average reduction for the entire group of these households (-18.1% and -18.9%, see the table). The changes that occurred in households at the bottom and at the top, as well as in the average, are illustrated in Table 6.6, juxtaposing the total income of each decile, calculated in each year, in 2008 and 2012 respectively and the entailed percentage changes.

✓

Table 6.6 Aggregate income at the deciles level (million euro)

Decile	2008	2012	% change
1	528.7	95.5	-81.9
2	2,690.2	1,718.3	-36.1
3	4,155.6	3,245.4	-21.9
4	5,522.7	4,595.7	-16.8
5	6,853.8	6,020.9	-12.2
6	8,567.5	7,524.1	-12.2
7	10,791.4	9,306.7	-13.8
8	13,936.2	11,773.2	-15.5
9	19,299.4	15,863.6	-17.8
10	43,420.9	31,739.2	-26.9
Total	**115,766.5**	**91,882.6**	**-20.6**
1%	13,638.6	8,114.8	-40.5
0.1%	5,750.2	2,410.0	-58.1

Source: Processed Tax data

The data confirm a severe deterioration in the two lowest deciles of the income distribution. Those found at the very bottom (1st decile) in 2012 have lost a total of 81.9% of their 2008 income, and those in the second decile have lost 36.1%, respectively. On average, for the entire population, the income reduction is 20.6%. Therefore, the first two groups have found themselves in an extremely unfavourable position. The top 1% and 0.1% have also seen significant losses; the difference however, as discussed elsewhere in this study, is that the two lowest groups are below the poverty line, which obviously does not apply for higher income groups. It could be said that both the bottoms and the tops have been adversely affected from the crisis: the former have faced a substantial reduction of their low incomes in absolute terms and have fallen into poverty; the latter have also suffered income losses, both in percentage and in absolute terms, but still keep a high rank in the income distribution.

6.3.2 Winners and losers among all income groups: The old and the new status

In the previous chapters, we explored aspects of income inequality by distinguishing households according to their main source of income (households of employees, pensioners, etc.) or into deciles based on the level of their income (households in the lowest, second lowest etc. income decile). The notions of deciles, quintiles and centiles, although quite abstract, proved very useful for income comparisons (e.g. before the crisis and during the crisis) and for examining income inequality. Finally, using median income as a watershed, we also distinguished between poor and non-poor households.

In the following section, we will make another distinction, which will allow a more comprehensive picture of the shifts that occurred between low, middle and high income groups. A challenge arises from the lack of a clear-cut line separating one class from the other. For this reason, we will follow a division used in the literature, with a slight variation. This will ensure comparable results to those for other countries or other time periods. Thus, following Piketty, households are divided into three classes, the lower class, the middle class and the upper class (including the dominant and the well-to-do classes). The first five deciles with the lowest incomes comprise the lower class, the next four

deciles (6-9) the the middle class and finally the richest (tenth) decile the upper class. According to Piketty[78], Europe (as an aggregate of countries) in 2010 exhibited medium inequality, where the top 10% (the upper class) received 35% of total income (from labour and capital), the middle 40% (the middle class) received 40% of total income and, finally, the bottom 50% (the lower class) received the remaining 25% of total income. In fact, such labellings and classifications are somewhat arbitrary and obviously open to alternative suggestions. Our approach follows this distinction but is different in that for the lower class we take the first six deciles, therefore the middle class comprise only the next three deciles(7-9) instead of the next four in Piketty. Specifically:

- The lower class comprises 60% of households in the country (the six deciles with the lowest incomes). We assumed that no household in this class has an income higher than the mean income in the country. That is, the highest income of "the lower class" should be less than the mean income in the country. The average income of the lower class corresponds to about 40% of the mean income in the country. This class includes all the poor households (the first 2-2.5 deciles with the lowest income) as well as households that are above the poverty line (from the 3rd to the 6th decile).
- The middle class comprises the next 30% of households (from the 7th to the 9th decile), and its population is half the population of the lower class. The households of the middle class have incomes that are three times higher than the incomes of lower class, while the high incomes are up to twice the average. The threshold for classifying a household in the middle class is 2008 income of more than EUR 18,204.
- The upper class, which is the top 10% of the population, has an income threshold of EUR 44,891 for 2008. The average income of the upper class is three times higher than that of the middle class and nine times higher than that of the lower class.

Table 6.7 provides an overview of the three classes before the onset of the crisis. We can see that the average income of the lower class increased by 1% in 2012 relative to 2008, that of the middle class declined by 18.9%, while that of the upper class fell even more strongly (-36.6%). A first reading shows that income reductions, resulting either from policy or from market developments, are in line with a sense of social justice, as higher incomes seem to have suffered heavier losses. In a second reading, however, we can discern that each class is divided into households that saw their income increase during the crisis (the winners) and those that saw their incomes decline (the losers). In the lower class, 44.2% of households had an income increase (+ 61.9%), while 52% had a reduction (-37.8%). In the middle class, 21.6% of households had an increase (+ 30%) and 78.4% had a reduction (-31.6%). A more uneven picture emerges for the upper class, where 14.8% of households had an increase of 33.5% in their income, whereas 85.2% had a decrease of 47.2%. The conclusion is that there are winners and losers within each class. Averages obscure both large reductions or large increases and the winners or losers of the crisis.

[78] Th. Piketty (2003), ch.7, Table 7.3.

Table 6.7 The winners and the losers: The status of the classes before the crisis (2008)

	in %	Mean Income 2008	Income change: 2012-2008		Wages	Pensions	Commercial and Independent activities	Income from capital	Other income
		in euro	*in euro*	*% change*	*share in total income 2008*				
The 60% of the Population with the lowest income									
Winners	44.2	7,950	4,924	61.9	38.5	36.1	12.0	12.5	1.0
Losers	52.0	10,578	-4,002	-37.8	42.4	30.0	13.8	13.5	0.3
No changes	3.8	199	0	0.0	21.7	9.5	7.2	61.6	0.0
Total Population	100.0	9,030	93	1.0	40.9	32.4	13.1	13.1	0.5
The next 30% of the population ---------- Threshold: €18,294									
Winners	21.6	26,791	8,043	30.0	51.7	18.9	12.6	16.2	0.5
Losers	78.4	28,431	-8,978	-31.6	44.2	27.8	12.5	15.3	0.1
Total Population	100.0	28,077	-5,300	-18.9	45.8	26.0	12.5	15.5	0.2
The next 10% of the population ----------Threshold: €44,891									
Winners	14.8	74,060	24,777	33.5	50.1	6.8	17.3	25.6	0.1
Losers	85.2	84,636	-39,931	-47.2	35.1	12.7	15.0	37.2	0.1
Total Population	100.0	83,070	-30,352	-36.6	37.0	11.9	15.3	35.7	0.1
Total Population									
Winners	34.5	14,339	6,363	44.4	45.7	23.6	13.4	16.7	0.6
Losers	63.3	27,189	-10,691	-39.3	40.0	21.9	13.8	24.1	0.1
No changes	2.3	205	0	0.0	24.0	9.2	7.0	59.9	0.0
Total Population	100.0	22,148	-4,569	-20.6	41.3	22.3	13.7	22.5	0.2

Source: Processed Tax data

As the losers and the winners had a different composition of their incomes, the contribution of each income source to this outcome was investigated. The data show that the losers in the lower class have a high weight of wages and a lower weight of pensions compared with the winners. In the middle class the opposite is the case: a higher weight of wages and a lower weight of pensions make winners. The remaining sources of income provide a mixed picture, playing a complementary role for both employees and pensioners. In the upper class, the winners partly rely on income from wages and less on income from pensions. However, in this class, income from capital is not complementary. The losers of the upper class had income mainly from capital, as well as from labour.

The upper class is totally heterogeneous. The general picture presented in Table 6.7 for the top decile conceals marked differences. For this reason, in Table 6.8 we further divided the houdeholds of the top decile into four fractiles. The first fractile comprises the lowest 5% (P90-95), the second the next 4% (P95-99), the third the next 0.9% (P99-99.9) and, finally, the fourth fractile comprises the wealthiest 0.1% (P99.9-100). The threshold income of the top 0.1% is €351,437 for 2008, that is 7.8 times higher than the income of those in the lowest 5%, who nevertheless are included in the same top decile. This figure is 15.9 times higher than the mean income of all households in the country and 39 times higher than the mean income of the group of households representing the lower 60% of total income.

Table 6.8 The composition of income in the highest decile before the crisis (2008): Winners and losers

	in %	Mean Income 2008	Income change: 2012-2008		Wages	Pensions	Commercial and Independent activities	Income from capital	Other income
		in euro	*in euro*	*% change*	*share in total income 2008*				
The first 5% (P90-95) of the population ----------Threshold: €44,891									
Winners	15.0	51,265	14,420	28.13	54.7	11.5	14.6	19.1	0.1
Losers	85.0	51,415	-16,460	-32.02	48.9	21.9	11.9	17.3	0.0
Total Population	100.0	51,392	-11,831	-23.02	49.7	20.4	12.3	17.5	0.0
The next 4% (P95-99) of the population ----------Threshold: €60,060									
Winners	15.4	78,118	23,825	30.50	52.5	5.4	19.0	23.1	0.1
Losers	84.6	78,214	-32,017	-40.94	40.7	13.9	17.4	27.9	0.1
Total Population	100.0	78,199	-23,428	-29.96	42.5	12.6	17.7	27.2	0.1
The next 0.9% (P99.0-99.9) of the population ----------Threshold: €116,238									
Winners	11.9	160,877	56,746	35.27	41.7	2.2	22.2	33.9	0.0
Losers	88.1	168,619	-96,175	-57.04	23.5	4.6	22.9	48.8	0.3
Total Population	100.0	167,694	-77,905	-46.46	25.6	4.4	22.8	47.1	0.2
The richest 0.1 % (P99.9-100)---------- Threshold: €351,437									
Winners	8.0	728,097	636,020	87.35	25.4	0.8	7.8	65.4	0.6
Losers	92.0	1,134,257	-932,639	-82.22	6.7	0.4	4.9	87.7	0.3
Total Population	100.0	1,101,577	-806,425	-73.21	7.7	0.4	5.0	86.5	0.3

Source: Processed Tax data

As we climb these four income fractiles within the top decile, income from wages and pensions declines, whereas income from capital increases. The top 0.1% has no resemblance to the remaining three fractiles of the top decile; it mostly includes rentiers and some highly paid executives. In the other fractiles we can also find business executives with quite high pay levels or combinations of highly paid employees and pensioners who also receive income from capital. Finally, in the 0.9% fractile, but also in other fractiles, we can find households receiving high incomes from both business and independent activities (doctors, lawyers, etc.). A high correlation seems to exist between income from wages and the income result arising from the crisis. Those who come out as winners have a high income share of wages, and this applies for all fractiles. Even in the wealthiest 0.1%, the winners are distinguished from the losers by the fact that their salaries have a share of 25.4% in their total income, compared with a mere 6.7% for the losers. Increased wages offset declining income from capital. In high incomes not only did wages not decline as for the vast majority of employees, but also increased.

Tables 6.7 and 6.8 show the income groups and the composition of their incomes before the crisis. At the same time, they record income changes during the crisis for each group. If the range of average changes in individual income sources was wide, it is even wider for changes at household level. In 2012 the picture of the groups is completely different from that in 2008. Households that increased their incomes probably crossed the income thresholds and joined higher income groups. On the other hand, the reverse path was followed by households that saw their incomes decline considerably. Moreover, there are significant shifts also within income groups.

Table 6.9 The profile of the new classes in 2012

	in %	Mean Income 2012	Income change: 2012-2008		Wages	Pensions	Commercial and Independent activities	Income from capital	Other income
		in euro	*in euro*	*% change*	*share in total income 2012*				
The 60% of the Population with the lowest income									
Winners	32.3	9,100	2,718	42.6	36.6	40.0	8.1	14.0	1.3
Losers	63.9	6,962	-7,383	-51.5	37.1	39.0	10.4	13.2	0.3
No changes	3.8	193	0	0.0	20.5	10.1	7.0	62.5	0.0
Total Population	100.0	7,397	-3,840	-34.2	36.9	39.3	9.5	13.5	0.7
The next 30% of the population ---------- Threshold: €15,951									
Winners	36.7	23,472	6,685	39.8	43.8	25.6	11.5	18.0	1.2
Losers	63.3	23,611	-10,548	-30.9	36.2	44.9	6.6	12.2	0.1
Total Population	100.0	23,559	-4,220	-15.2	39.0	37.8	8.4	14.4	0.5
The next 10% of the population ----------Threshold: €36,502									
Winners	40.7	68,461	22,851	50.1	41.7	9.0	19.0	29.8	0.6
Losers	59.3	55,406	-32,547	-37.0	39.0	27.2	10.5	23.1	0.2
Total Population	100.0	60,722	-9,991	-14.1	40.2	18.8	14.4	26.2	0.4
Total Population									
Winners	34.5	20,702	6,363	44.4	41.2	22.6	13.6	21.6	1.0
Losers	63.3	16,498	-10,691	-39.3	37.3	37.8	8.8	15.9	0.2
No changes	2.3	205	0	0.0	20.7	9.5	6.6	60.3	2.9
Total Population	100.0	17,578	-4,569	-20.6	38.9	31.6	10.7	18.2	0.5

Source: Processed Tax data

Obviously, in 2012 the “old” income groups have been transformed into “new” ones. The new composition of income varies within the “classes” relative to 2008. Also, the thresholds have shifted downward. Tables 6.9 and 6.10 reflect the new situation. Just as Tables 6.7 and 6.8 showed for 2008 and developments in the years that followed, Tables 6.9 and 6.10 depict the situation in 2012 and the developments since 2008.

The income of the “new” households of the lower class of 2012 decreased by 34.2%. The corresponding income for the new middle and upper classes fell by about half as much (-15.2% and -14.1%, respectively). The winners within the lower class have simply improved their incomes in 2012 without moving to another class. Instead, part of the losers of the lower class, whose incomes on average halved, fell out of the middle class and now, in 2012, find themselves in the lower class.

In the middle class, an only small part of the winners come from the lower class, having an income gain of 39.8% on average. These households crossed the threshold and joined the middle class. Also, a part of the losers in the middle class come from the upper class. The upper class also includes households formerly belonging to the middle class. This is due both to increased incomes (by 50.1% on average) and the lower threshold (from EUR 44,891 to EUR 36,502). Most households in the lower class of 2012 are now at a disadvantage, as they have lost quite a lot from what they used to have in the past and also have lost more than the other classes. The same picture holds for the middle class, where some households (a minority) have gained, while the majority (63.3%) have suffered

major shocks. Generally, six tenths of those included in each class have reasons to be unhappy and angry.

Turning to income composition, the main differences between 2008 and 2012 are summarised as follows:

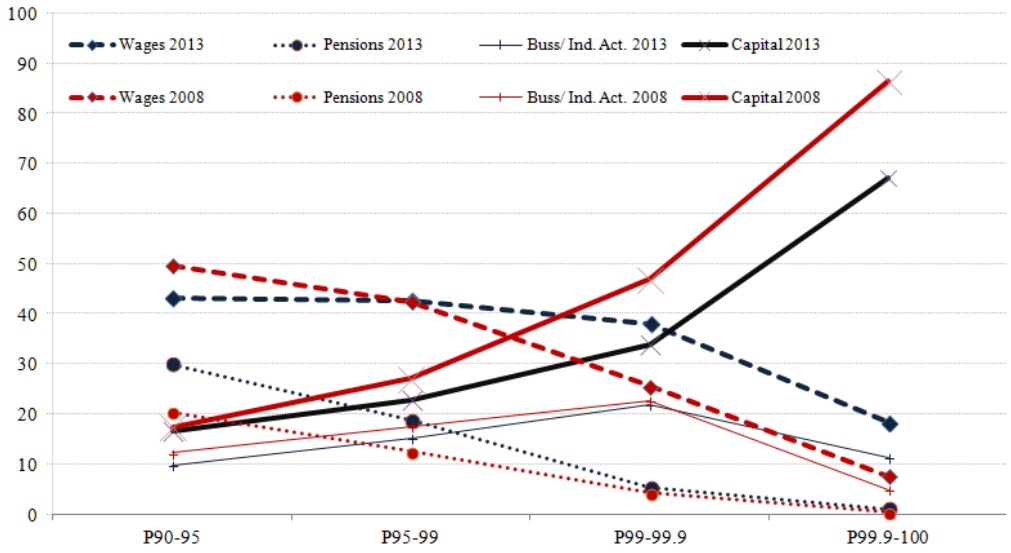
- The share of wages fell in 2012, both in the lower and the middle classes (by 4 and 7 percentage points, respectively). Instead, the share of pensions increased. Also, the shares of income from independent activites and commercial activities declined.
- On the other hand, the wage share increased in the upper class of 2012. In the same class the pension share increased and the share of investment income shrank. The upper class, from a class of rentiers, has become a class of highly paid employees and pensioners, who also receive income from capital. However, significant changes are also noticed among the households of the wealthiest decile. As seen in Table 6.10, in P90-95, i.e. in the lowest 5% of the top decile, the share of wages declines, while the shares of pensions and capital rise. In the next 4% (P95-99) the share of pensions mostly increases with a corresponding decline in income from capital. The increase in the wage share observed when examining the wealthiest decile as a whole applies for the top 0.9% (P99-99.9) and especially the top 0,1% (P99.9-100). The share of wages rises for the households in the top 0.9% (from 26% to 38%), while that of investment income declines (from 47% to 34%). In the top 0.1%, the picture is broadly the same: the share of wages rises (from 8% to 18%) and the share of income from capital declines (from 87% to 67%).
- Chart 6.1 depicts the differences in the income composition of the wealthiest decile. It is easily understood that a leading role is played by income from wages and pensions. Also, there is a manifest reduction in income from capital.

Table 6.10 The composition of income of the top decile in 2012: Winners and Losers

	in %	Mean Income 2012	Income change: 2012-2008		Wages	Pensions	Commercial and Independent activities	Income from capital	Other income
		in euro	*in euro*	*% change*	*share in total income 2012*				
The first 5% (P90-95) of the population ----------Threshold: €36,502									
Winners	33.3	41,641	11,862	39.8	46.9	15.5	15.4	21.9	0.3
Losers	66.7	41,582	-17,094	-29.1	41.4	37.2	7.2	14.2	0.1
Total Population	100.0	41,601	-7,459	-15.2	43.2	30.0	9.9	16.7	0.2
The next 4% (P95-99) of the population ----------Threshold: €48,048									
Winners	45.1	62,431	18,693	42.7	45.2	10.2	19.5	24.7	0.4
Losers	54.9	59,800	-30,151	-33.5	40.6	26.1	11.8	21.5	0.1
Total Population	100.0	60,987	-8,119	-11.7	42.7	18.8	15.3	23.0	0.2
The next 0.9% (P99.0-99.9) of the population ----------Threshold: €88.504									
Winners	60.1	122,467	42,348	52.9	40.2	3.9	24.7	30.8	0.4
Losers	39.9	119,483	-110,523	-48.1	35.1	7.7	17.9	39.0	0.3
Total Population	100.0	121,276	-18,683	-13.3	38.2	5.4	22.0	34.0	0.4
The richest 0.1 % (P99.9-100)---------- Threshold: €225,666									
Winners	62.8	487,607	265,797	119.8	20.3	0.9	12.5	64.3	2.1
Losers	37.2	417,835	-808,487	-65.9	14.6	1.6	9.3	72.6	1.9
Total Population	100.0	461,677	-133,458	-22.4	18.4	1.1	11.4	67.1	2.0

Source: Processed Tax data

Chart 6.1 The composition of incomes of the top decile (2008 and 2012)



Source: Processed Tax data

The very uneven distribution of income across the three broad income classes is illustrated in Table 6.11. It can be seen that in 2008 the lower class received one quarter of total income in the country, the middle class (30% of the population) received 38%, while the upper class (10% of the population)

received 37.5% of total income. Within the upper class, 99% of households received 25.7% of total income and the remaining 1% received 11.8% of total income, split out by 6.8% and 5% respectively between the top 0.9% and the top 0.1% of the population.

In 2012, the lower class has increased its share in total income by 0.8 percentage points. This increase stems mainly from investment income. In the middle class, the share in total income has increased by 2.2 percentage points. The middle class of 2012 has increased its shares in pension income and in income from capital. Besides, the middle class accounts for approximately half of all pensions.

The upper class has increased its shares in income from wages, independent activities and commercial activities. Overall, in 2012, 10% of the population receives about one third of total income, one third of wages, one fifth of pensions, half of income from commercial activities and independent activities and six tenths of income from capital. The data show that in 2012 there is a very slight improvement in inequality. This inequality, according to Piketty, would rank Greece among "high inequality" countries and has remained high also during the crisis. Moreover, it should be pointed out that in the wealthiest decile the most severe shocks affect the top 0.1%, as these households were the main recipients of capital income. By contrast, the first fractile of the top 10% (P90-95) has maintained a constant share (up by 0.2 percentage points) in total income.

Table 6.11 The distribution of income in classes (2008 and 2012)

		Total Income	Wages	Pensions	Commercial and Independent activities	Income from capital
Lower class P0-60	2008	24.5	24.2	35.6	23.4	14.3
	2012	25.2	24.0	31.4	22.4	18.8
	Diff.	0.8	-0.2	-4.2	-1.0	4.5
Middle class P60-90	2008	38.0	42.1	44.4	34.8	26.2
	2012	40.2	40.3	48.0	31.3	31.7
	Diff.	2.2	-1.9	3.6	-3.5	5.4
Higher class P90-100	2008	37.5	33.6	20.0	41.8	59.5
	2012	34.5	35.7	20.6	46.3	49.6
	Diff.	-3.0	2.1	0.5	4.5	-9.9
P90-95	2008	11.6	14.0	10.6	10.4	9.0
	2012	11.8	13.2	11.2	10.9	10.9
	Diff.	0.2	-0.8	0.6	0.5	1.8
P95-99	2008	14.1	14.5	8.0	18.2	17.1
	2012	13.9	15.3	8.2	19.8	17.5
	Diff.	-0.2	0.7	0.2	1.6	0.4
P99-99.9	2008	6.8	4.2	1.3	11.3	14.3
	2012	6.2	6.1	1.1	12.7	11.6
	Diff.	-0.6	1.9	-0.3	1.4	-2.7
P99.9-100	2008	5.0	0.9	0.1	1.8	19.1
	2012	2.6	1.2	0.1	2.8	9.6
	Diff.	-2.3	0.3	0.0	1.0	-9.5

Source: Processed Tax data

Table 6.12 shows the changes in the "average income" of each class between 2008 and 2012. Unlike Tables 6.7-6.10, the criterion here is not the evolution of the income of the same household in the bottom, middle, or top class between 2008 and 2012, but the change in the average income received by the "old" and the "new" income classes. The data show the differences which we discussed. The "bottoms" had two percentage points higher losses than the middle (18.1% versus 16.1%) and as we move to higher deciles, the losses are greater, reaching -58.1% in the top 0.1%.

Table 6.12 Changes of income in the ‘new’ versus the ‘old’ classes

	The lower class	The middle class	The higher class: The top 10%					Total population
	The 60% of the population with the lowest income	The next 30% Of the population	The next 5% of the population	The next 4% of the population	The next 0.9% of the population	The next 0.1% of the population	Total of the upper class	
	P0-60	P60-90	P90-95	P95-99	P99-99.9	P99.9-100	P90-100	
Total	**-18.1**	**-16.1**	**-19.1**	**-22.0**	**-27.7**	**-58.1**	**-26.9**	**-20.6**

Source: Processed Tax data

The conclusions from the detailed examination of trends of inequality and from the comparison of the tops and bottoms clash with a number of standard conceptions. The most important of these conclusions are the following:

⇒ First, regardless of its different measurements in the various analyses and calculations, inequality remains a serious factor in Greek society, although a number of individual policy measures, particularly in the area of pensions, represented an attempt to protect the most vulnerable social groups.

⇒ Second, gains and losses are recorded within the three broad social groups identified (lower, middle and upper classes). The economically stronger groups suffered much more significant losses, both in absolute and in relative terms, while the losses of the bottoms were of a lesser size, but more painful because they affected either low income or involve large income falls from the middle or higher class to the lower class. The finding that gains and losses co-exist in each and every class is very important, as it is against the dichotomous perception that either gains or losses affected one or the other group.

An important contribution of this study is, in our view, precisely the fact that it highlights changes in very low and very high income brackets, which do not even exist in typical analyses of survey data such as the EU-SILC and the Household Budget Survey.

⇒ Third, the “change in inequality” during the crisis was apparently very limited, apparently under the influence of counteracting forces. In particular, there have been very drastic income reductions both in lower and in higher incomes but, as noted, also within these classes. Therefore, a relatively small change in inequality indices conceals divergent developments in different population groups.

⇒ Fourth, from an economic, social and political point of view, it is far from indifferent what the other social groups above the bottoms lose of gain. However, the answer to this question goes beyond the scope of this study.

⇒ Fifth, redistribution or compensation policies or policies to address the social impact of the crisis must take into account the new realities and new forms of poverty and inequality. The old realities have been overthrown. Therefore, policies geared towards older patterns risk intensifying inequalities or leaving difficult realities unaddressed.

Table 6.1 Population data, mean value per person or per household and Gini coefficient

	Number of persons (in thousand)					Mean value per person (in Euro)				
	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012
A. Reference unit: Individuals										
A1 Variable to be tested: the wage										
A1.1 Employees working all five years										
The 1st household member			1,450.1			17,970	19,074	18,803	17,954	16,141
The 2nd household member			501.0			16,126	17,163	16,895	16,188	14,422
All members			1,951.2			17,497	18,583	18,313	17,501	15,700
All members after tax			1,951.2			15,717	16,690	16,570	15,780	13,896
A1.2 All employees										
The 1st household member	2,201.7	2,119.3	2,038.4	1,869.0	1,727.1	16,496	17,192	16,728	16,016	14,852
The 2nd household member	791.4	798.4	793.3	754.1	717.1	14,477	15,052	14,633	13,942	12,643
All members	2,993.1	2,917.8	2,831.8	2,623.1	2,444.2	15,962	16,606	16,141	15,420	14,204
A2. Variable to be tested: total pension										
A2.1 Pensioners all five years										
The 1st household member			1,622.2			13,089	13,773	13,188	12,707	11,846
The 2nd household member			386.1			9,307	9,860	9,681	9,503	9,172
All members			2,008.3			12,362	13,021	12,514	12,091	11,332
A2.2 All pensioners										
The 1st household member	1,673,340	1,747,180	1,828,960	1,905,240	1,972,220	12,968	13,584	13,133	12,856	12,087
The 2nd household member	442,180	470,220	505,420	537,700	549,280	9,074	9,505	9,485	9,622	9,485
All members	2,115,520	2,217,400	2,334,380	2,442,940	2,521,500	12,154	12,719	12,343	12,145	11,521

Continue Table 6.1

	Number of households (in thousand)					Mean value per household (in Euro)				
	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012
B. Reference unit: Family income by income source										
Total income:	5,010.4	5,012.0	4,967.4	4,882.9	4,820.1	22,923	22,960	22,183	19,708	18,425
- Wages	2,480.6	2,407.0	2,329.2	2,164.1	2,023.4	19,277	20,144	19,631	18,700	17,168
- Pensions	1,755.9	1,829.5	1,913.9	1,992.2	2,061.7	14,675	15,445	15,076	14,909	14,103
- Agriculture income	1,069.4	1,072.5	1,065.5	1,013.0	988.7	1,992	1,954	1,930	1,776	1,784
- Income from commercial activities	693.9	677.6	652.2	563.6	484.5	13,411	12,739	14,082	11,396	10,119
- Income from independent activities	399.8	365.7	344.5	317.9	302.8	11,064	12,263	13,817	12,286	10,555
- Rental income	1,354.7	1,377.7	1,399.5	1,352.9	1,305.0	6,541	6,678	6,564	6,091	5,415
- Dividends/Interest	1,520.8	2,263.2	1,666.0	1,117.2	1,459.1	10,685	6,004	6,017	4,742	5,169
- Agriculture subsidies ann indemnities	171.9	222.2	267.6	324.4	390.8	5,303	1,388	9,435	5,438	5,309
C. The family property										
The objective property value (for households possessing property)	3,732.5	3,784.3	3,843.1	3,867.5	3,860.5	123,467	121,918	123,310	122,417	122,251
The objective property value (for all households)	5,227.0	5,227.0	5,227.0	5,227.0	5,227.0	88,165	88,268	90,661	90,576	90,291

Continue Table 6.1

	Gini index					Theil index (T)					Index N (mean Log Deviation)				
	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012
A. Reference unit: individuals															
A1 Variable to be tested: the wage															
A1.1 Employees working all five years															
The 1st household member	0.347	0.341	0.341	0.346	0.373	0.229	0.220	0.224	0.235	0.269	0.230	0.221	0.223	0.239	0.294
The 2nd household member	0.313	0.309	0.304	0.302	0.328	0.178	0.173	0.173	0.174	0.201	0.204	0.196	0.189	0.193	0.237
All members	0.339	0.334	0.333	0.336	0.363	0.218	0.210	0.213	0.222	0.254	0.224	0.215	0.215	0.228	0.281
All members after tax	0.300	0.296	0.294	0.298	0.328	0.167	0.162	0.162	0.169	0.203	0.185	0.179	0.178	0.192	0.273
A1.2 All employees															
The 1st household member	0.386	0.386	0.386	0.390	0.405	0.280	0.274	0.279	0.289	0.312	0.295	0.302	0.306	0.321	0.362
The 2nd household member	0.360	0.364	0.360	0.360	0.375	0.226	0.231	0.231	0.234	0.254	0.277	0.287	0.279	0.290	0.320
All members	0.381	0.381	0.380	0.383	0.399	0.268	0.265	0.268	0.277	0.299	0.292	0.299	0.300	0.314	0.352
A2. Variable to be tested: Total pension															
A2.1 Pensioners all five years															
The 1st household member	0.382	0.381	0.364	0.351	0.333	0.239	0.237	0.217	0.201	0.179	0.251	0.247	0.226	0.211	0.197
The 2nd household member	0.328	0.329	0.306	0.296	0.280	0.187	0.188	0.164	0.153	0.135	0.180	0.178	0.155	0.146	0.132
All members	0.380	0.379	0.361	0.348	0.330	0.239	0.238	0.216	0.199	0.177	0.246	0.242	0.219	0.204	0.189
A2.2 All pensioners															
The 1st household member	0.383	0.384	0.370	0.356	0.336	0.241	0.242	0.224	0.206	0.182	0.253	0.255	0.237	0.221	0.204
The 2nd household member	0.331	0.338	0.322	0.318	0.305	0.191	0.200	0.181	0.175	0.157	0.186	0.194	0.178	0.173	0.162
All members	0.382	0.384	0.368	0.355	0.335	0.242	0.244	0.225	0.207	0.182	0.249	0.252	0.233	0.217	0.200

Continue Table 6.1

	Gini index					Theil index (T)					Index N (Mean Log Deviation)				
	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012
B. Reference unit: Family income															
Total income:	0.487	0.468	0.465	0.456	0.464	0.544	0.431	0.423	0.389	0.417	0.467	0.432	0.434	0.431	0.462
- Wages	0.423	0.422	0.420	0.421	0.434	0.320	0.313	0.315	0.320	0.341	0.348	0.350	0.349	0.360	0.397
- Pensions	0.387	0.388	0.377	0.367	0.353	0.247	0.249	0.235	0.221	0.205	0.265	0.267	0.254	0.240	0.232
- Agriculture income	0.736	0.736	0.737	0.729	0.730	1.082	1.085	1.096	1.071	1.080	1.388	1.385	1.385	1.342	1.345
- Income from commercial activities	0.544	0.538	0.546	0.568	0.581	0.564	0.542	0.553	0.601	0.631	0.672	0.661	0.687	0.741	0.788
- Income from independent activities	0.680	0.667	0.671	0.681	0.677	0.905	0.865	0.862	0.904	0.888	1.181	1.197	1.210	1.216	1.198
Rental income ακίνητα	0.616	0.613	0.609	0.599	0.599	0.777	0.766	0.749	0.715	0.713	0.850	0.847	0.834	0.804	0.800
- Dividends/Interest	0.797	0.787	0.798	0.768	0.742	2.139	1.737	1.810	1.632	1.575	1.601	1.450	1.619	1.388	1.402
- Agriculture subsidies and indemnities	0.632	0.822	0.595	0.600	0.610	0.736	1.635	0.643	0.679	0.698	0.980	1.782	0.784	0.751	0.772
C. Inequality in family property															
The objective property value (for households possessing property)	0.589	0.587	0.576	0.575	0.578	0.691	0.681	0.652	0.650	0.657	0.725	0.721	0.681	0.682	0.689
The objective property value (for all households)	0.707	0.701	0.688	0.686	0.688	1.028	1.004	0.960	0.951	0.960	0.389	0.398	0.373	0.380	0.386

Source: Processed Tax data.

Chapter 7

Inequality decomposition by factor components

Contribution by Theodoros Mitrakos[79]

In this section we will examine the contribution of individual sources of income in determining the level of overall inequality in Greece during the current crisis. To that end, tax data are used, which are supplemented, for cross-checking purposes, with income data from the Household Budget Survey (HBS 2009, 2011 and 2013). From a methodological viewpoint, this will involve inequality decomposition by factor components. By this technique, after estimating the elasticities of inequality ratios to changes in individual types of income, we will examine the distributional effects of the various sources of income, as these arise from their different developments during the period reviewed, and their implications for overall inequality (Mitrakos, 2013).

The results of the decomposition are reported in Table 7.1. The second column of the table lists the individual sources of income and the third column gives the income shares (%) of these sources. Total income is broken down into: wages, pensions, income from agriculture, income from commercial activities and self-employment/independent activities, income from real property (rents), income from securities, income from abroad, interest-dividends, agricultural subsidies and unemployment benefits. As shown by the data in Table 7.1, wages are the most important source of total income, with a share of 37.8%, followed by pensions (31.7%), income taxed separately (8.2%), income from property (7.7%), income from commercial activities (5.3%), etc.

The Gini coefficient of the distribution of total income is 0.493 (higher than the figure derived on the basis of HFS data). Looking at the inequality ratios of the various sources of income, it becomes clear that these incomes are very unevenly distributed, with their individual Gini coefficients ranging from 0.16 to 0.87. Regarding the weight of the various sources of income in overall inequality, the decomposition results of the Gini coefficient show that wages make the largest contribution (41%) to overall inequality. This is due to their large share in total income and their high correlation coefficient (0.82). Pensions contribute 24.6% to overall inequality, with a correlation coefficient of 0.654.

The relative concentration coefficients in the decomposition of the Gini coefficient show that of the eleven six have an upward effect on overall inequality, thus a rise in these incomes will increase overall inequality. These six sources, which have concentration coefficients greater than one or positive elasticity, are: wages, income from commercial activities, independent activities, real property, securities and separately taxed income.

On the other hand, when pensions, agricultural income, agricultural subsidies, unemployment benefits or income from abroad rise, this (ceteris paribus) will lead to a decline in overall inequality of the Gini coefficient, as the respective elasticities are negative. This result can be explained by the relatively large shares of these sources of income in the total income of poorer households. It should be kept in mind,

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however, that overall inequality will always be the net outcome of inequality-increasing and inequality-reducing income sources.

Methodological framework

For measuring and decomposing inequality, we use total household income, based on data from income tax returns referring to the years 2008-2012. The total income of each household is typically the sum of its income from various sources (wages, income from capital, transfers, etc.). As shown by Shorrocks (1982), total income inequality can be distributed across the various sources of income in many ways. Moreover, as in most empirical studies, the decomposition of overall inequality by income source attempted in this analysis is based on the decomposition of the Gini coefficient following the methodology of Pyatt, Chen and Fei (1980), whereby the Gini coefficient of the distribution of total income can be written as follows:

$$G=\left(\frac{2}{n\times\mu}\right)\mathrm{cov}(y,r) \quad \text{or} \quad G=\sum_{i=1}^{k}\frac{\mu_i}{\mu}R_iG_i \qquad (1)$$

where n is the number of households, y is the vector of total income having a mean value of μ and r is the ranking of these incomes in increasing order, while the index i (1, 2, ..., k) refers to the corresponding figures for income source i. Also, R_i is the relative correlation coefficient for source i and is defined as the ratio of the correlation coefficient between the income of source i and of the ranking of total income to the correlation coefficient between the income of source i and their ranking within this source. The higher the relative correlation coefficient, R_i, the more crucial the contribution of this source in determining the ranking of total income, hence the size of overall inequality. A negative coefficient means that the income of the particular source is negatively correlated with the ranking of total income, implying that the particular source of income contributes to total equality rather than inequality. The latter equation shows the direct dependence of overall inequality on the degree of inequality of each source (G_i), the degree of correlation between the income of each source and total income (R_i) and the importance of the income of each source for total income. Thus, the elasticity of the Gini coefficient in respect of income source i, e_i, can be easily calculated from the latter equation as follows:

$$e_i=(dG/d\mu_i)(\mu_i/G)=w_i\,g_i-w_i \qquad (2)$$

where $w_i=\mu_i/\mu$ is the income share of source i, $g_i=R_i(G_i/G)$ is the relative concentration coefficient of source i in overall inequality, and w_ig_i is the weight of source i in overall inequality (factor inequality weight). A percentage increase in income from source i will lead to an increase (decrease) in overall inequality if g_i is higher (lower) than one. Equation (2) gives the percentage change in the Gini coefficient of the distribution of total income arising from a percentage change in the average income from source i. The sum of all previous elasticities always equals zero, since an equal percentage increase in incomes from all income sources will not change total income inequality or the Gini coefficient (mean independence).

Table 7.1 Decomposition of inequality by income source (2012)

	Income shares	Gini coefficient	Relative correlation coefficient	Relative concentration coefficient	Inequality weight	Elasticity of Gini coefficient
Income source	$100w_i$	G_i	R_i	g_i	$w_i g_i$	e_i
Wages	37.8	0.6564	0.8151	1.0848	0.4101	0.0320
Pensions	31.7	0.5858	0.6541	0.7770	0.2459	-0.0706
Income from agricultureς	1.9	0.8674	0.3404	0.5986	0.0115	-0.0077
Income from commercial activitiesς	5.3	0.6980	0.7816	1.1061	0.0590	0.0057
Income from independent activities	3.5	0.7808	0.9066	1.4353	0.0499	0.0151
Income from real property	7.7	0.7666	0.6848	1.0645	0.0819	0.0050
Income from securities	0.1	0.0469	18.6047	1.7699	0.0014	0.0006
Income from abroad	0.5	0.5319	0.7306	0.7880	0.0040	-0.0011
Dividends, interest	8.2	0.5025	1.3977	1.4240	0.1169	0.0348
Agricultural subsidies	2.3	0.3961	1.2281	0.9863	0.0223	-0.0003
Unemployment benefits	1.1	0.1636	-0.7865	-0.2608	-0.0028	-0.0136
Total income	**100.0**	**0.4932**			**1.0000**	**0.0000**

Source: Calculations based of tax data.

More specifically, the results of the estimation of elasticities suggest that, if income from wages increases (proportionally, e.g. by 10%), inequality will grow by 0.32%, or by a similar percentage (0.35%) in the case of an increase in income from dividends and interest.

Table 7.2 Evolution of the elasticity of the Gini coefficient: 2008-2012

	Elasticity of the Gini coefficient (e_i)				
Income source	2008	2009	2010	2011	2012
Wages	-0.0087	0.0182	0.0148	0.0419	0.0320
Pensions	-0.0744	-0.0696	-0.0805	-0.0708	-0.0706
Income from agricultureς	-0.0109	-0.0147	-0.0084	-0.0099	-0.0077
Income from commercial activitiesς	0.0053	0.0027	0.0124	0.0079	0.0057
Income from independent activities	0.0119	0.0146	0.0196	0.0194	0.0151
Income from real property	0.0040	0.0063	0.0064	0.0070	0.0050
Income from securities	0.0000	0.0000	0.0001	0.0001	0.0006
Income from abroad	-0.0015	-0.0017	-0.0019	-0.0016	-0.0011
Dividends, interest	0.0750	0.0446	0.0410	0.0213	0.0348
Agricultural subsidies	-0.0006	-0.0004	0.0043	-0.0015	-0.0003
Unemployment benefits	…	…	-0.0079	-0.0139	-0.0136

Source: Calculations based of tax data.

By contrast, overall inequality is shown to decline significantly, by 0.7 and 0.14% respectively, when pensions or unemployment benefits increase, although the latter have a share of only 1.1% in total income. The decomposition results exhibit remarkable robustness and consistency over time (Table 7.2). The only exception is the erratic behavior of wages: the proportional wage cuts of 2008 led to higher inequality (negative elasticity of the Gini coefficient) whereas later (2009-2012) similar wage cuts lead to a decline in inequality.

As a complement to tax data and to cross-check the findings, we also used micro-data from the Household Budget Survey and, following the same methodological approach as above, we re-ran the estimation of the respective elasticities resulting from the decomposition of overall inequality by the

individual sources of income available from that survey. The aim was to check whether the behaviour of wages displayed the same pattern as seen above, and also to examine the behaviour of the social benefits which are available from the HBS. As shown in Table 7.3, wages have the largest, although constantly declining, share in total household income (from 44.8% in 2009 to 42.0% in 2013), followed by pensions (total), with a growing share (from 20.2% in 2009 to 30.4% in 2013), and income from self-employment, whose share in total income is on a downward trend (from 22.4% in 2009 to 15.1% in 2013). Particularly low and diminishing is the contribution of the various social and other benefits in total income. According to Table 7.3, the size and direction of the contribution of wages to overall inequality are again shown to vary during the crisis. Based on the decomposition results, the elasticity of overall inequality (measured by the Gini coefficient) to changes in wages varies considerably, from -0.059 in 2009 to -0.018 in 2011 and +0,054 in 2013.

Table 7.3. Evolution of the elasticity of the Gini coefficient based on HBS data

	Income shares			Elasticity of the Gini coefficient		
Income source	2009	2011	2013	2009	2011	2013
Wages	44.85	43.01	42.04	-0.0586	-0.0182	0.0545
Pensions	22.38	19.59	15.08	0.1665	0.1174	0.0224
Income from agriculture	3.74	3.71	5.51	-0.0178	-0.0211	-0.0141
Income from commercial activities	4.13	3.20	1.59	0.0412	0.0199	0.0079
Income from independent activities	0.27	0.23	0.18	0.0034	0.0031	-0.0001
Income from real property	18.24	21.03	26.57	-0.0752	-0.0558	-0.0210
Income from securities	2.07	2.65	3.79	-0.0165	-0.0190	-0.0120
Income from abroad	1.23	1.34	1.96	-0.0149	-0.0144	-0.0256
Dividends, interest	0.80	1.57	1.29	-0.0083	-0.0176	-0.0153
Agricultural subsidies	0.36	0.25	0.22	-0.0066	-0.0029	-0.0024
Unemployment benefits	1.50	1.88	0.44	-0.0159	-0.0067	-0.0092
Total income	0.43	1.54	1.33	0.0027	0.0153	0.0149
Income source	**100.00**	**100.00**	**100.00**	**0.0000**	**0.0000**	**0.0000**

Source: Calculations based on data from the Household Budget Survey (2009, 2011, 2013), ELSTAT.

This pattern suggests that the wage cuts implemented in the first years of the current crisis added to overall inequality (negative elasticity), while the exactly opposite seems to have happened with the more recent (2013) wage cuts, which are likely to have contributed to reducing overall inequality, as the respective elasticity of the Gini coefficient is positive. It should be pointed out this result refers to proportional changes in total wages, which has not actually been the case. As shown in Section 4.2.1 and Table 4.8, wage changes varied widely across sectors and over time. The considerable cumulative decrease in average gross earnings in total economy resulted from fiscal consolidation, which entailed cuts in public sector salaries and institutional reforms towards greater labour market flexibility, as well as from the conditions of economic recession which increasingly limited the bargaining power of employees (with the nominal minimum wage declining even more). However, the reductions in earnings differed strongly across individual sectors of the economy, but also within sectors (e.g. within the government sector, depending on the level of salary or pension.

The results of the analysis showed the size of the impact on overall inequality from proportional changes in the various income sources. An increase in agricultural income, pensions and unemployment benefits is likely to lead to lower inequality. On the other hand, an increase in income from commercial activities, from independent activities, from real property (rents) and from interest and dividends is likely to lead to higher inequality. When wages increase or decrease, we cannot know with certainty, in the period of the current crisis, the direction of change in overall inequality, because of the relatively high income share of wages for medium-income brackets.

The above analysis is based on the binding assumption of proportionate changes. When the cuts/increases in income are progressively or regressively scaled, the usefulness of the above method is limited. From the most part of this research it is evident that the changes have not been proportionate or uniform.

Chapter 8

Unemployment, Poverty and the new face of "*despair*"

A central tool of the analysis carried out in this section is what we have termed "index of despair". The index reflects the degree of pressure felt by households with employed and unemployed members when their income from salaried employment declines or, when their members lose their jobs, stops completely. The index of despair places greater emphasis on the changes in low pay and takes into account unemployment benefits. Most importantly, however, the index of despair focuses on family income, to which all the employed members of a household contribute with their wages. We expect that this family income provides some degree of protection to those household members which are unemployed or non-economically active. It should be noted that the index of despair does not capture other circumstances (e.g. presence of children and/or non-economically active adults) that might create additional problems to already distressed households.

The index of despair enables to answer questions such as the following:

- How can we measure the "despair" of households during the crisis, when they suffer from cuts in income and face the spectre of unemployment?
- Who are the most affected by "despair"?
- How has despair evolved during the crisis? Is it distributed in a socially fair manner or do some groups shoulder a heavier burden? In particular, how are the cards – or rather the layoff papers – being dealt?
- Is there protection and solidarity for those who are hit the most?
- Is solidarity associated with the welfare state? Is it a solidarity of citizens or family solidarity?

8.1 From the "unemployed person" to the "household with unemployed members"

To answer the above questions, it is appropriate from a methodological point of view to shift the focus of analysis from the concept of the "unemployed person" to the concept of "household with unemployed members". The consequences of unemployment, income cuts or switches to a new occupation are different when viewed from the different perspectives of an individual person or of the household of which such person is a member, especially if he/she is the "head of the household".

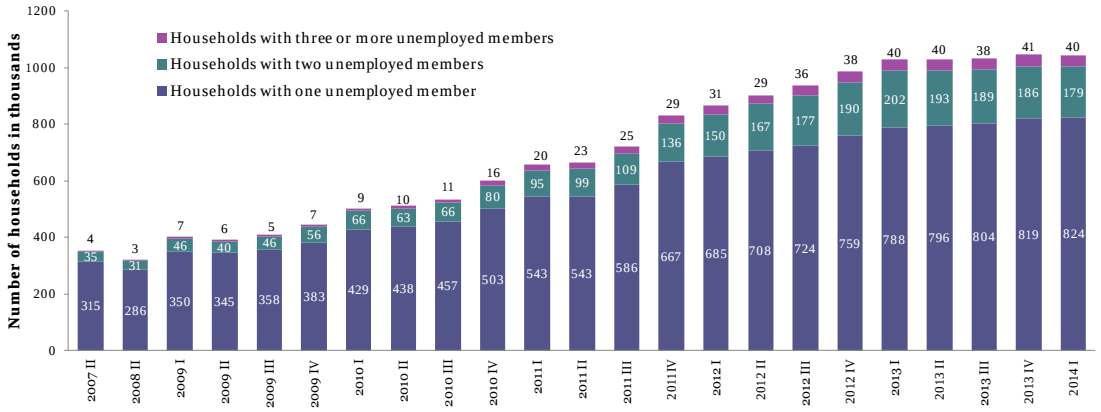
Chart 8.1 shows the number of households with one, two, three or more unemployed members for the 2007-2014 period. Data from the Labour Force Survey indicate the following:

- ✓ In 2008, 320 thousand households reported at least one unemployed member. In 2014, this number has increased to 1,043 thousand.
- ✓ Among these households, 31 thousand households reported having two unemployed members in 2008. In 2014, this number has reached 179 thousand.

✓ In addition, in 2008, there were 3 thousand households with more than two unemployed members. In 2014, this number has reached 40.2 thousand.

If one unemployed member in a household is a problem, two unemployed members are a much greater, and even greater if the unemployed members are three or more, and especially if the head of the household is one of these unemployed members. In this case we are at the hard core of unemployment.

Chart 8.1 Number of households with unemployed members: 2007-2014



Source: Calculations based on data from ELSTAT's[80] Labour Force Surveys.

In Charts 8.2 and 8.3, unemployed persons are distinguished into heads of households, second income earners, typically the head's spouse, and other unemployed members. During the crisis, the share of unemployed heads of household in the total number of unemployed persons increased from 19.8% in the second quarter of 2008 to 33.2% in the first quarter of 2014.

This increase was party offset by a decline in the respective share of second income earners, which from 36.8% in the second quarter of 2008 fell to 31.9% in the following two years. This is probably associated, to some extent, with the exit of women from the labour market after frustrated attempts to find a job. The increased share of unemployed heads of household is further evidence of the adverse effects of the current crisis in terms of the pattern of unemployment, which increasingly seems to have affected the hard core of the Greek family (heads of households).

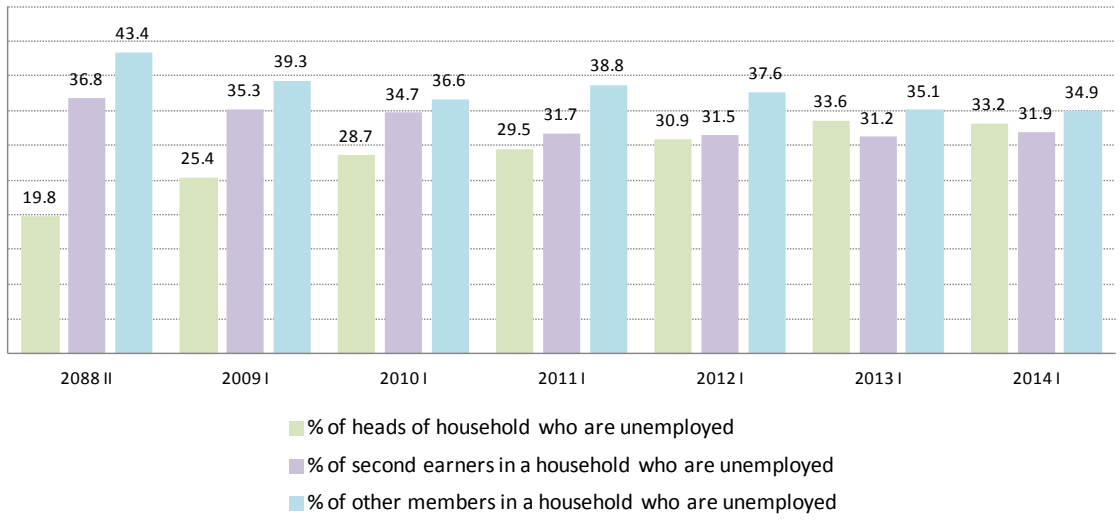
As shown in Chart 8.3, in the first quarter of 2014 there were 334.1 thousand unemployed male heads of households (288 thousand more than in the second quarter of 2008) and 111.8 thousand unemployed female heads of households (87.2 thousand more than in the second quarter of 2008).

The continued significant rise in the number of unemployed persons in Greece over the past six years has been coupled with other alarming facts. Before the crisis, unemployment mostly affected women and younger members of the household. This pattern has gradually changed and, in absolute terms, the number of unemployed men increased sharply to match that of unemployed women, which rose at a slower pace.

Based on the above, we can assume that the degree of distress/despair in a household can vary. Sometimes it can be lower, when there are other employed members in the household, who can support the unemployed members with their income, and sometimes it can be dramatically high (absolute despair), when in addition to the head, all members of the household are unemployed and no-one receives any unemployment benefits.

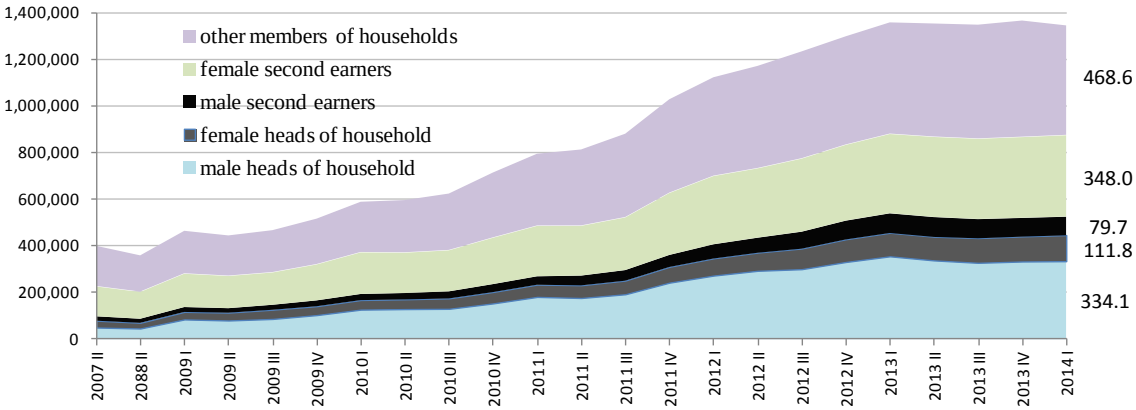
[80] The name of the Official Statistical Office of Greece.

Chart 8.2 Percentage share of “Heads”, “Second earners” and “Other members” in the total number of unemployed persons, 2008-2014



Source: Calculations based on data from ELSTAT’s Labour Force Surveys.

Chart 8.3 Number of unemployed members, broken down into “heads” (male/female), “second earners” (male/female) and “other members”: 2007-2014



Source: Calculations based on data from ELSTAT’s Labour Force Surveys.

8.2 The index of despair

Against this background, the index of despair that has been constructed (taking into account the limitations of the data available from the statistical base of the Labour Force Survey) reflects the intensity of despair among the households of the employed and the unemployed. In essence, the index reflects the dual effects of fiscal adjustment, labour market policies and the recession, which have led to wage cuts and job losses[81].

Methodology for the construction of the index of despair

The reference population comprises households of employees or unemployed persons. That is, it excludes households of non-employees or pensioners. The reason for this exclusion is the fact that the LFS does not provide information on the level of income of such members, which thus cannot be classified. The households that were selected earn their income solely from wages/salaries, unemployment benefits, or both.

The index is based on primary data from ELSTAT's quarterly Labour Force Surveys (LFS), conducted on an annual sample of 120,000 households. The reference period runs from the first quarter of 2009 to the first quarter of 2014.

The index ranges between extreme values of zero and one. A value of zero is assigned to households reporting that none of their members is unemployed and that the monthly wage of each employed member is more than €1,000. A value of one is assigned to households reporting that all their active members are unemployed and none of them receives any unemployment benefit. The latter households are identified as being in a state of absolute despair.

The score of each household depends on the individual scores of all its active members. Specifically, each active member scores the maximum value of one if he/she is unemployed and does not receive any unemployment benefit. Otherwise, the score is gradually lower if this member at least receives an unemployment benefit or has a low-paid job, and drops further in inverse proportion to the level of his/her labour income. A member scores the minimum value of zero if his/her monthly wage exceeds the €1,000 threshold.

Accordingly, each economically active member of the household is assigned one of the following values:

1 if unemployed and not receiving any unemployment benefit
0.8 if unemployed and receiving an unemployment benefit
0.6 if employed and receiving a monthly wage of less than €499
0.4 if employed and receiving a monthly wage of between €500 and €699
0.2 if employed and receiving a monthly wage of between €700 and €999
0 if employed and receiving a monthly wage of €1,000 or higher

The total score of each household is the average of the individual scores of its active members. Children and non-economically active members in the household (students at all levels of education, soldiers, persons incapable of work, housewives, etc.) are not taken into account in the calculation of the index. The index is calculated for different groups of households according to the characteristics of the household head (e.g. level of education, age, region of residence, skills, occupation, sector or activity, years of service, nationality, type of employment, etc.).

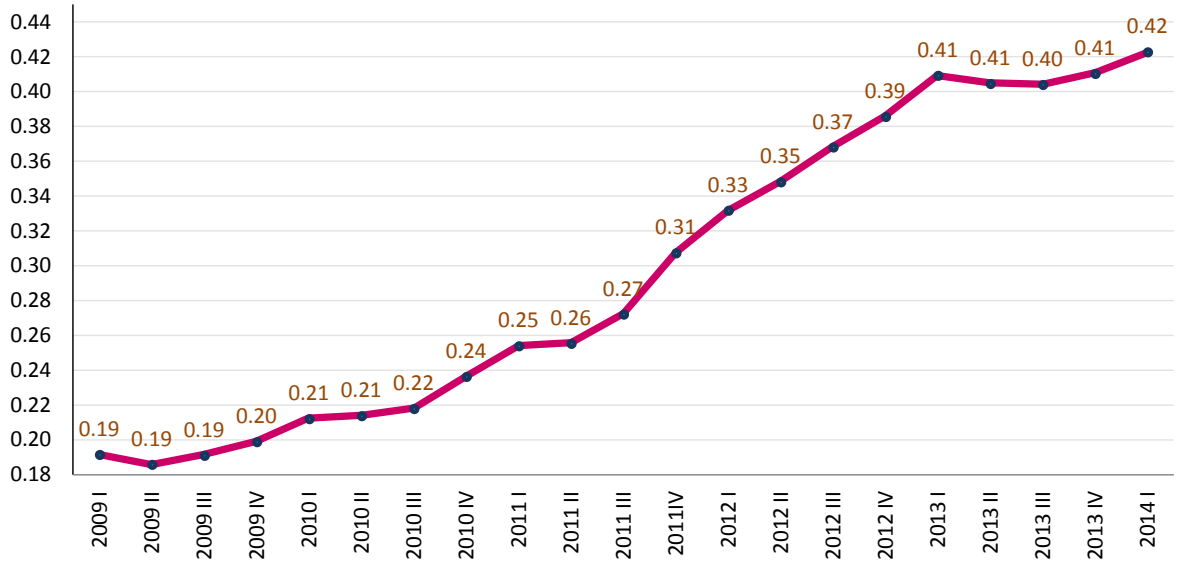
Looking at the evolution of the index (Chart 8.4), we can make two important observations.

- Between the second quarter of 2009 and the first quarter of 2013, the index of despair was on a constant rise: from 0.186 to 0.42, respectively, i.e. a rise of 121%. The value of 0.42 for 2014 suggests a very high level of despair. Of course, as shown in another part of this analysis, many households (with employed and unemployed members) earn incomes from various sources other than wages and unemployment benefits, and such non-labour-related income is not recorded by the Labour Force Survey. Notwithstanding this caveat, the findings reported below remain valid, suggesting that the conclusions should be seen in combination with each other.

[81] Zografakis S., and Th. Mitrakos (2012), Zografakis S, (2014) .

- Three distinct periods can be identified in the evolution of the index. In the first period, up to the third quarter of 2010, the index increased on average by 2% quarter-on-quarter. It seems that in its initial phase the economic crisis did not affect so much the index of despair. In the second period, until the first quarter of 2013, developments were dramatic, with the index rising quarter-on-quarter by 7% on average. It is worth noting that in just three months, between the third quarter of 2011 and the fourth quarter of 2011, it increased by as much as during the entire first period. Finally, in the third period, the index showed for the first time some stabilisation:[82] although it still remained at high levels (0.405-0.404) for two consecutive quarters. However, in the first quarter of 2014 the index reached the highest level of the entire period (0.42).

Chart 8.4. Evolution of the index of despair (average for all households of employees)



Source: Calculations based on data from ELSTAT's Labour Force Surveys.

An examination of the index of despair, combined with demographic and other characteristics of the head of household, leads to four main conclusions:

- The index of despair in 2014 is higher than average in those households whose head has one of the following characteristics (Table 8.1):
  - ✓ is aged up to 44 years;
  - ✓ has a low educational level (up to secondary education);
  - ✓ works part-time;
  - ✓ is an immigrant;
  - ✓ is unemployed or non-economically active.
- During the economic crisis (2009-2014), the index of despair increased significantly more, relative to the overall index, for those households whose head has one of the following characteristics (Table 8.1):
  - ✓ is aged 25 to 44 years;
  - ✓ has a higher educational level (higher education);
  - ✓ is a Greek national;

[82] The implementation of a programme of social work for the unemployed in 2013 (prioritizing households with more unemployed members) together with the introduction of subsidy of certain long-term unemployed led to a slight improvement in the index of despair.

- ✓ is non-economically active.

- When the head of household is employed, the index of despair is low. The years of experience, skills/specialisation, private/public sector of employment, type of employment and sector of employment are associated with a higher likelihood that the head has a job. However, although comparatively low during the economic crisis, the index of despair rose in percentage terms more for those households whose head:
  - ✓ has more years of experience relative to other households;
  - ✓ is higher-skilled relative to low-skilled households;
  - ✓ works in the public sector relative to households whose head works in the private sector;
  - ✓ works full-time relative to households whose head works part-time;
  - ✓ is employed in the tertiary sector relative to other sectors.
- When the head of the household is unemployed, the degree of despair is overwhelmingly higher, verging on absolute despair (index 0.87).

The data show that as the economic crisis unfolds, it does not only affects the most vulnerable; it increasingly hits also people (e.g. civil servants) who before the crisis felt that they were safe and protected by the institutional framework, or workers who believed that their high skills shielded them from future risks. This can explain why many young people with high educational qualifications migrate abroad in search of work and better pay, seeing that their studies cannot guarantee favorable employment prospects.

Table 8.1 Evolution of the index of despair depending on different characteristics of the head of household

	2009 I	2014 I	% change 2014-2009
Average index of despair	**0.19**	**0.42**	**120.6**
Age			
Up to 24	0.34	**0.57**	70.0
From 25 to 34	0.20	**0.58**	**184.8**
From 35 to 44	0.17	**0.48**	**183.3**
From 45 to 54	0.19	0.40	114.5
Over 55	0.21	0.39	89.9
Years of experience			
Up to 2	0.20	**0.33**	64.1
From 3 to 6	0.16	0.24	53.5
From 7 to 10	0.13	0.23	**76.2**
Over 11	0.10	0.20	**89.6**
Education			
Primary education	0.27	**0.58**	116.4
Secondary education	0.20	**0.45**	127.2
Tertiary education	0.12	0.29	**141.7**
Specialisation			
High	0.06	0.14	**116.7**
Medium	0.15	0.27	76.5
Low	0.24	**0.37**	55.1

	2009 I	2014 I	% change 2014-2009
Average index of despair	**0.19**	**0.42**	**120.6**
Sector of employment			
Public sector	0.09	0.17	**94.5**
Private sector	0.16	**0.27**	66.7
Full/part time employment			
Full-time employment	0.13	0.21	**66.5**
Part-time employment	0.31	**0.47**	51.9
Sector of activity			
Primary sector	0.24	**0.35**	46.8
Secondary sector	0.16	0.28	72.2
Tertiary sector	0.12	0.21	**83.0**
Nationality			
Greek	0.18	0.40	**123.6**
Albanian	0.25	**0.54**	117.0
Other immigrants	0.26	**0.55**	112.4
Non-nationals	0.26	0.39	51.4
Employment condition			
Employees	0.13	0.23	72.6
Unemployed	0.80	**0.87**	8.1
Non-economically active	0.26	**0.56**	**120.7**

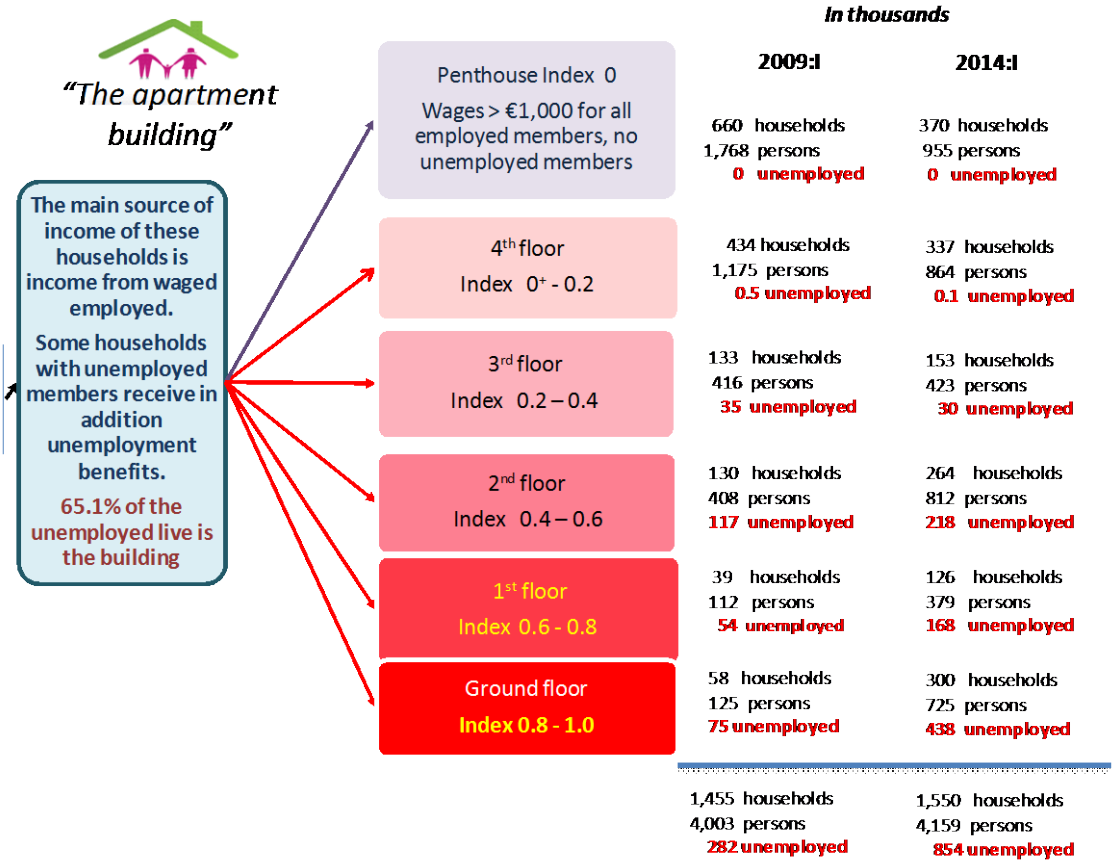
Source: Calculations based on data from ELSTAT's Labour Force Surveys.

8.3 The "apartment building" in which the households live

For the purpose of this analysis, households have been classified according to their index of despair into five groups depending on household size, enabling us to examine any households for which the index takes very high values that are masked by averages. To visualise this classification, we use the metaphor or an apartment building, the structure of which has the following characteristics:

- The building has five floors (ground floor and four upper floors) and a penthouse (Figure 8.1).
  - The tenants of the ground floor are the households with an index of despair higher than 0.8, meaning that most of the economically active members of the household are unemployed. Moreover, few of these unemployed persons receive unemployment benefits.
  - On the first floor we find households with index values between 0.8 and 0.6, i.e. households consisting of some employed members that earn wages around the minimum pay and more unemployed persons, receiving unemployment benefits.
  - As we climb to higher floors, the index decreases, and finally, in the penthouse we find households having no unemployed members and earning wages higher than €1,000.
  - In the penthouse, the index takes the value of zero. As we will see below, even the residents of the penthouse are not untouched by the economic crisis.
  - The building also has a basement. There we can find people who sleep on sidewalks, households of illegal immigrants, socially excluded people and, generally, parts of the population that are not recorded by surveys or captured by statistics.

Figure 8.1 The building of employees and unemployed persons



Source: Calculations based on data from ELSTAT's Labour Force Surveys.

With time, we can observe movements, which are of two types:

- The first type of movement is horizontal. This is the case when a household moves into or out of the building. Households leave the building if their members who are employees retire, or if unemployed members find non-salaried jobs, e.g. as self-employed. Households move into the building, if their members lose their non-salaried jobs (employers, traders, self-employed, etc.) and become unemployed. Currently (2014), the number of tenants in the building is 4.24 million, up by 240 thousand from 4 million before the economic crisis.
- The second, and most important, type of movement is vertical, when households move from upper floors and the penthouse to lower floors down to the ground floor. When a household member loses his/her job, when his/her wage is reduced and gradually falls below €1,000, below €700 or below €500, when the duration of unemployment benefits ends and their payment is discontinued, then the degree of despair of the household rises, and the household takes the elevator to a lower floor. When all household members lose their jobs, the household ends up on the ground floor of the building. Living on a specific floor is thus not a given during the crisis. Certainly, one can not rule out movements from lower to higher floors. Even amid the crisis, there are some unemployed persons who find jobs.

In the first quarter of 2014, this notional building houses 65.1% of the unemployed in the country or 854 thousand unemployed persons, compared with 282 thousand in the first quarter of 2009. In particular, on the ground floor of the building we find 300 thousand households with 725 thousand persons, of which 438 thousand are unemployed, 125 thousand are children and 153 thousand are non-economically active. In other words, more than half of the unemployed people in the building live on the ground floor.

Among the 300 thousand households living on the ground floor, 193 thousand have one unemployed member each, 85 thousand have two unemployed members and 22.6 thousand have more than three. Within five years, these figures have increased by more than five times.

The remaining unemployed people of the country (34.9%) live in households outside the building. They live with members that are self-employed or receive a pension and therefore are better-off than the unemployed who live on the ground floor of the building.

As the economic crisis lasts longer, the indices deteriorate: in the building there is an increase in the number of tenants on the lower floors; on the other hand, upper floors are home to less and less households (gradual pauperisation). For example, the number of tenants in the penthouse has shrunk by 813 thousand (or 290 thousand households). These households moved to lower floors during the crisis or, if they were extremely unlucky, went right down to the ground floor.

An additional question concerns the immigrants in Greece, who as a group are faced with even more difficulties than the Greek households. The index of despair of these households was in 2014 (1st quarter) 0.55 against 0.40 of the Greek ones. Equally, in 2014, 16.6% of immigrant households lived in the ground floor of the building house against 10.1% in 2009 (1st quarter). A similar aggravation occurred in the first floor (an increase from 19.3% to 23.8% correspondingly). The immigrant household's share in the upper three floors is equally reduced by about 10 p.p.). Lastly, about 6.2% of those living in the penthouse (2014) were immigrant households against 8.1% in 2009.

The aggravated index of despair in immigrant households can be understood by examining also the corresponding unemployment rates. Unemployment of immigrants who remained in the country increased significantly more than that of the national population. In 2014 it was 36.7% (26.4 p.p. higher than in 2009) against 27% (+17.8 p.p. respectively).

8.3.1 Households living on upper floors

As can be seen in Table 8.2, the building houses 1,042 thousand people employed in the private sector and 605 thousand employed in the public sector. 43.8% of public sector employees (265 thousand people) live in the penthouse of the building, compared with 23.6% of private sector employees (245.9 thousand people).

A significant proportion of public sector employees (30.9%) live on the fourth floor, mainly due to the reduction in their salaries to below €1,000. These households do not face unemployment problems. By contrast, those public sector employees who, in smaller numbers, live on lower floors (8.7% on the third floor, 13.7% on the second and 2.7% on the first floor) have an actual problem of unemployment in respect of some members of their households.

Overall, 77% of households in which the head of household is a public sector employee live on the two upper floors, whereas the corresponding figure for heads who work in the private sector is 58%. This percentage increases to 87% if there are two public sector employees in the household.

Table 8.2 A picture of the apartment building house in the first quarter of 2014

	Employees			Head of household					Households with two public sector employees	Unem-ployed	% of unem-ployed receiving benefit
2014 I	Private Sector	Public sector	Total	Private Sector	Public sector	Unem-ployed	EL	Total			
Ground floor	5,865	772	6,637	1,633	0	257,111	41,862	300,606	0	438,019	6.0
1st floor	76,685	16,514	93,199	30,052	9,107	79,544	7,752	126,455	313	168,376	30.4
2nd floor	225,476	82,982	308,458	133,129	51,532	64,470	14,878	264,009	5,119	218,202	9.1
3rd floor	187,162	52,622	239,784	101,356	30,118	6,174	15,738	153,386	9,475	29,509	52.3
4th floor	300,920	187,313	488,233	200,013	119,660	0	16,948	336,621	41,232	138	0.0
Penthouse	245,858	265,009	510,867	173,181	178,285	0	18,835	370,301	58,954	0	
Total	**1,041,966**	**605,212**	**1,647,178**	**639,364**	**388,702**	**407,299**	**116,013**	**1,551,378**	**115,093**	**854,244**	**13.2**

	% shares of employees				% shares of head of household						HPS	Unem-ployed
2014 I	Private Sector	Public sector	Total	Public /Private	Private Sector	Public sector	Unem-ployed	EL	Total	Public /Private		
Ground floor	88.4	11.6	**100.0**	13.2	0.5	0.0	85.5	13.9	**100.0**	0.0		51.3
1st floor	82.3	17.7	**100.0**	21.5	23.8	7.2	62.9	6.1	**100.0**	30.3	3.4	19.7
2nd floor	73.1	26.9	**100.0**	36.8	50.4	19.5	24.4	5.6	**100.0**	38.7	9.9	25.5
3rd floor	78.1	21.9	**100.0**	28.1	66.1	19.6	4.0	10.3	**100.0**	29.7	31.5	3.5
4th floor	61.6	38.4	**100.0**	62.2	59.4	35.5	0.0	5.0	**100.0**	59.8	34.5	0.0
Penthouse	48.1	51.9	**100.0**	107.8	46.8	48.1	0.0	5.1	**100.0**	102.9	33.1	0.0
Total	63.3	36.7	**100.0**	58.1	41.2	25.1	26.3	7.5	**100.0**	60.8	**29.6**	**100.0**

	% shares of employees			% shares of head of household					Households with two public sector employees
2014 I	Private Sector	Public sector	Total	Private Sector	Public sector	Unem-ployed	EL	Total	
Ground floor	0.6	0.1	0.4	0.3	0.0	63.1	36.1	19.4	0.0
1st floor	7.4	2.7	5.7	4.7	2.3	19.5	6.7	8.2	0.3
2nd floor	21.6	13.7	18.7	20.8	13.3	15.8	12.8	17.0	4.4
3rd floor	18.0	8.7	14.6	15.9	7.7	1.5	13.6	9.9	8.2
4th floor	28.9	30.9	29.6	31.3	30.8	0.0	14.6	21.7	35.8
Penthouse	23.6	43.8	31.0	27.1	45.9	0.0	16.2	23.9	51.2
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note: EL = non-economically active, HPS = (Households with two public sector employees) / (Public sector)

Source: Calculations based on data from ELSTAT's Labour Force Surveys.

The data shown in Table 8.2 suggest that indeed public sector employees enjoy a double protection, compared with other workers, in terms of both their permanence in the labour market and the social system and the evolution of their earnings.

Of course, households living in the penthouse have probably seen significant reductions in their earnings (such as the abolition of Christmas and other bonuses and allowances, abolition of tax breaks, cuts in salaries, imposition of special contributions, etc.), but as long as their earnings remain above €1,000 per employee, these changes do not affect their index of despair and the floor on which they live.

Table 8.3 depicts the changes in jobs on the basis of primary insurance provider. The upper panel of the table shows that out of the 1,098 thousand jobs lost, only 8.2% (90 thousand) were jobs in the narrowly defined public sector (central government). On the other hand, the jobs lost for workers whose primary insurance was provided by funds other than the government, reached 1,008 thousand. On the second panel of the table, we can see how many of these employees flowed into unemployment or retirement.

Based on the self-reported employment status of respondents in the LFS, the number of pensioners increased by 338 thousand in the same period. Of these, 116 thousand (34.4%) have health insurance provided by government, while 222 thousand (65.6%) are insured by other funds. Pensioners of the civil servants' pension scheme seem to have increased by 48.5%, while for pensioners of other funds the increase was significantly less (14.1%).

Based on the two panels of Table 8.3, the jobs lost in central government do not translate into more unemployment, but rather more pensioners. Conversely, of the jobs lost outside the central government only two represent flows into retirement and the remaining eight represent flows into unemployment.

Table 8.3 Change in the number of employees and pensioners

	Change in the number of jobs: 2014-2008			*% shares of employees*	
	In thousands	% change	% share	*2008*	*2014*
Central Government	-90	-14.7	8.2	12.7	14.1
Other funds	-1,008	-23.9	91.8	87.3	85.9
Total	-1,098	-22.8	100.0	100.0	100.0
	Change in the number of pensioners: 2014-2008			*% shares of pensioners*	
	In thousands	% change	% share	*2008*	*2014*
Central Government	116	48.5	34.4	13.2	16.5
Other funds	222	14.1	65.6	86.8	83.5
Total	338	18.6	100.0	100.0	100.0

Source: Calculations based on data from ELSTAT's Labour Force Surveys.

The changes and movements in the building during the past five years are shown in Table 8.4. The number of employees fell by 402.6 thousand and the number of unemployed persons increased by 572 thousand, of which 299 thousand are heads of household. The jobs lost in the private and public sectors were 292.6 and 110 thousand, respectively. A large number of private sector employees flowed into unemployment, whereas the vast majority of job losses in the public sector reflected retirements.

On the two upper floors the changes have been negative, signaling the declining numbers of tenant households and their members. In contrast, on lower floors, the sign is positive. Quarter-on-quarter, households move downward when one of their members remains jobless or a new jobless person is added or the wages of their employed members are reduced, or both occur.

Table 8.4 Changes in the building over the last five years (number of persons)

2014 I - 2009 I	Employees			Head of household					Households with two public sector employees	Unem-ployed
	Private Sector	Public sector	Total	Private Sector	Public sector	Unem-ployed	EL	Total		
Ground floor	5,477	772	6,249	1,633	0	206,917	34,330	242,880	0	362,994
1st floor	62,425	12,770	75,195	24,392	7,026	51,834	4,319	87,571	313	114,038
2nd floor	108,363	43,361	151,724	64,400	22,162	39,699	6,898	133,159	2,776	101,495
3rd floor	-13,765	7,218	-6,547	9,460	4,890	546	5,204	20,100	-178	-5,670
4th floor	-253,020	29,361	-223,659	-106,891	23,147	0	-13,744	-97,488	11,436	-319
Penthouse	-202,066	-203,539	-405,605	-143,132	-129,616	0	-17,344	-290,092	-51,321	0
Total	**-292,586**	**-110,057**	**-402,643**	**-150,138**	**-72,391**	**298,996**	**19,663**	**96,130**	**-36,974**	**572,539**

Note: EL = non-economically active
Source: Calculations based on data from ELSTAT's Labour Force Surveys.

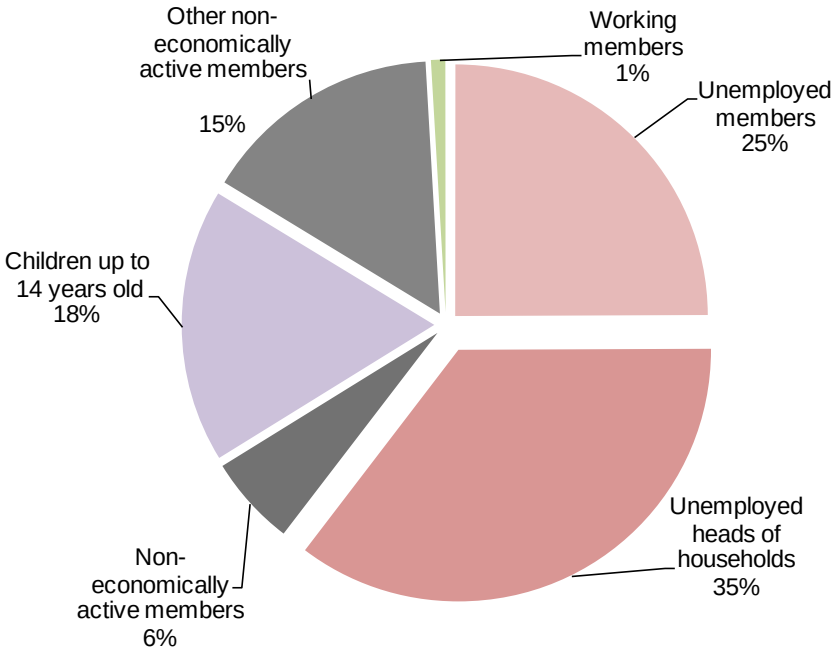
8.3.2 Households living on lower floors

Households living on the ground floor of the building are at a high risk of despair, *as their vast majority is unemployed*. Within these households there are no retired or self-employed persons, but only few employees, many more unemployed, children and non-economically active members (Chart 8.5).

The responses to the question of the Labour Force Surveys (LFS) for the first quarter of 2014 "what were your income sources of income during the previous quarter?" are shown in Table 8.5. Respondents may indicate more than one source of income.

Financial support "from persons which are not household members" is reported as the primary source of income by 54.2% of heads of households on the ground floor of the building. Importantly, 94% of these households reports this support as their only source of income.

Chart 8.5 Structure of household members living on the ground floor of the building in the first quarter 2014



Source: Calculations based on data from ELSTAT's Labour Force Surveys.

For 8.2% of respondents, support "from other household members" was reported as their primary income source (and as the only source for 84% of them), while for 4.9% of respondents the primary income source was "income from property".

Only 19.3% reported "benefits or allowances" from the state as their primary income. Most of the respondents who did not indicate support "from persons which are not household members" as their primary source of income cited that source as their secondary source. As already mentioned, the ground floor of the building is home to about one third of the unemployed in the country.

Turning to the secondary source of income, 49.2% of respondents reports that a significant part of their needs are met with help from persons which are not household members".

The answers are different upstairs, as there are some employees and, in addition, more unemployed persons receiving unemployment benefits. Thus, among the heads of households living on the first floor, 36.3% report as their primary income source support from other household members, 35.7% unemployment benefits and 12.3% support from persons which are not household members. On the second floor, the labour income of other household members is crucial, being reported by 63.5% as the primary income source.

The above data suggest that inter-household solidarity remains a relatively strong institution and, along with informal family networks, continues to play a significant role in protecting the unemployed in Greece. The extremely limited scope of the social safety net becomes evident from the fact that only a very small percentage of households meet their needs using income support from the welfare state.

Table 8.5 Income sources of households with an unemployed head which live on the lower floors of the building (reported primary source, first quarter 2014)

	Ground floor	1st floor	2nd floor
– From work	**0.9**	**0.2**	**1.2**
– From old age pension	**2.1**	**0.7**	**0.6**
– From survivor's pension	**7.8**	**0.2**	**0.5**
– From disability pension	**1.4**	**0.0**	**0.0**
– From property	**4.9**	**6.9**	**6.3**
– From other members of the household	**8.2**	**36.3**	**63.5**
– From persons which are not members of the household	**54.2**	**12.3**	**4.8**
– From benefits/allowances	**9.5**	**35.7**	**14.4**
– Do not know/Do not answer	**11.1**	**7.7**	**8.7**
Total	100.0	100.0	100.0

Source: Calculations based on data from ELSTAT's Labour Force Surveys.

In Table 8.6, based on data from income tax returns submitted in fiscal years 2011-13 (referring to income earned in the years 2010-2012), we consider only those income tax returns in which taxpayers state that they receive unemployment benefits (228.8 thousand, 303.0 thousand and 343.1 thousand tax returns, referring to incomes earned in 2009, 2010 and 2011, respectively). It is worth noting that in 53.4 thousand tax returns taxpayers declare income from unemployment benefits for all three of the above years.[83]

[83] These are mostly cases of workers in the tourism industry employed in the summer period, and receiving unemployment benefits during the other months of the year.

As a next step, on the basis of their total income, households were classified into deciles of income distribution and ranked from the poorest to richest. In the year 2012 €988.55 million were given to the unemployed (column a) and the average annual level of the unemployment benefit was about €3,000 per entitled person (column e). For the poorest 10% of this population, the average unemployment benefit appears to be considerably smaller (€1,694), but this is due to the fact that in some cases the unemployment benefit began to be given some time into the year and was therefore only partly reflected in the tax return for that year.

In the first three deciles, corresponding to the lowest incomes, unemployment benefits account for a large share of total income (85.6%, 75.6% and 63.2%, respectively, column g). As we move towards richer households, the share of unemployment benefits in total income declines (23.1% for the 7th and 8.1% for the 10th richest decile).

On aggregate, in the year 2013, for 70% of the poorest households that receive unemployment benefits, these benefits represent only 39.3% of their total income, while for 10% of the richest households that receive unemployment benefits these benefits correspond to 30% of their total income (column d). Similar findings apply for the years 2011 and 2012, with the only difference that the average unemployment benefit was higher.

The curtailment of the unemployment benefit started in March 2012 with Cabinet Act No. 6/28.2.2012, which cut by 22% all the benefits paid by the Hellenic Employment Agency (OAED), including the unemployment benefit which thus fell to €359, in line with a reduction in the minimum wage by the same percentage. Also, in 2011[84] a cap on the number of days of unemployment benefit entitlement in any given four-year period was introduced. The law states that as from 1.1.2013 the maximum duration of unemployment benefit payment is a total of 450 days in the four years from 2009 to 2012, falling further to 400 days in the four years starting from 1.1.2014. Those that seem to be most hardly hit by these provisions are seasonal workers employed in industries such as holiday accommodation, construction, etc. who every year would become eligible for support from the unemployment fund and receive a benefit for six months, although they were often employed informally in other activities. By that system, unemployed benefit entitlement could be for a total of 600 days during a four-year period. With these changes, each unemployed person loses one third of the previously applying unemployment benefit.

The data of Table 8.6 suggest that a part of total expenditure on unemployment benefits is received by households with incomes above the median income in the country. On the other hand, for a large share of entitled persons, the unemployment benefit is their only source of income.

The unemployed persons living on ground floor of the building receive a mere 6% of total unemployment benefits, which is for them the only source of income (Table 8.2, last column). The remaining unemployed tenants of the ground floor (94%) rely on solidarity for their survival.

Table 8.7, using information from the Household Budget Surveys (HBS) database for the years 2009 and 2012, focuses on households whose head is unemployed. According to their total annual income, these households were classified into six income brackets. Only 4.3% of households with an unemployed head in 2009 had an annual income of up to €7,500.

In 2012, the percentage of households in the first income bracket increased by 20.7 percentage points to 25%, i.e. one in four households had an income of less than €7,500 per year or less than €625 per month. Similar changes are recorded in the second bracket: in 2009, 5.1% of households with an

[84] Article 39 of Law 3986/2011 re: "Urgent measures for the implementation of the medium-term fiscal strategy 2012-2015". The law states that as from 1.1.2013 the maximum duration of unemployment benefit payment is a total of 450 days in the four years from 2009 to 2012, falling further to 400 days in the four years starting from 1.1.2014.

unemployed head had an income of €7,500-€12,000. In 2012, the number of households that found themselves in the second bracket increased to 18.2% (+13.1 percentage points).

Table 8.6 Deciles of income distribution and unemployment benefits in households

	Aggregate expenditure for unemployment benefits in € millions	% of (a)	Aggregate income of households receiving employment benefits in € millions	% of (c)	Average unemployment benefit in €	Average income in €	(e)/(f) in %
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
2013: 34.3 thousand unemployed persons receiving unemployment benefits in each decile							
Decile 1	58.2	5.9	68	1.6	1,694	1,978	85.6
2	164.2	16.6	208	4.9	3,095	4,096	75.6
3	279.6	28.3	391	9.2	3,362	5,317	63.2
4	380.9	38.5	620	14.5	2,951	6,684	44.2
5	475.3	48.1	902	21.2	2,752	8,217	33.5
6	569.2	57.6	1,246	29.2	2,738	10,015	27.3
7	668.6	67.6	1,677	39.3	2,897	12,555	23.1
8	777.2	78.6	2,239	52.5	3,162	16,398	19.3
9	885.3	89.6	2,990	70.2	3,150	21,887	14.4
10	988.6	100.0	4,262	100.0	3,012	37,074	8.1
Total					2,881	12,421	23.2
2012: 30.3 thousand unemployed persons receiving unemployment benefits in each decile							
Decile 1	74.0	6.8	88	2.1	2,442	2,904	84.1
2	196.9	18.0	246	5.9	4,056	5,221	77.7
3	321.2	29.4	442	10.6	4,104	6,464	63.5
4	430.9	39.4	682	16.4	3,619	7,938	45.6
5	534.1	48.8	968	23.3	3,407	9,418	36.2
6	635.5	58.1	1,306	31.4	3,347	11,167	30.0
7	746.6	68.2	1,727	41.5	3,665	13,887	26.4
8	865.3	79.1	2,272	54.7	3,919	17,983	21.8
9	981.2	89.7	2,985	71.8	3,824	23,551	16.2
10	1,094.3	100.0	4,157	100.0	3,734	38,675	9.7
Total					3,612	13,720	26.3
2011: 22.9 thousand unemployed persons receiving unemployment benefits in each decile							
Decile 1	55.9	7.6	68	1.9	2,453	3,003	81.7
2	144.2	19.7	188	5.2	3,845	5,208	73.8
3	214.4	29.3	344	9.5	3,069	6,824	45.0
4	279.0	38.1	537	14.8	2,824	8,426	33.5
5	343.9	47.0	769	21.2	2,835	10,122	28.0
6	408.7	55.8	1,048	28.9	2,830	12,233	23.1
7	482.8	66.0	1,401	38.7	3,241	15,393	21.1
8	558.4	76.3	1,858	51.3	3,305	19,994	16.5
9	632.9	86.5	2,473	68.3	3,255	26,887	12.1
10	731.7	100.0	3,623	100.0	4,320	50,265	8.6
Total					3,198	15,836	20.2

Source: Calculations Tax data.

Table 8.7 Number of households whose head is unemployed, per income bracket

	Number of households				
	2009	in %	2012	in %	2012 / 2009
Up to €7,500	4,097	4.3	68,170	25.0	+1,564
From €7,500 to €12,000	4,836	5.1	49,610	18.2	+926
From €12,000 to €20,000	37,665	39.5	75,233	27.6	+100
From €20,000 to €30,000	19,621	20.6	39,414	14.4	+101
From €30,000 to €50,000	19,985	20.9	18,595	6.8	-7
Over €50,000	9,260	9.7	21,973	8.1	+137
	95,464	100.0	272,995	100.0	+186

Source: Calculations based on data from ELSTAT's Households Budget Surveys (HBS).

Among households with an unemployed head, Table 8.8 distinguishes between poor and non-poor households. The poverty line is calculated in relative terms and is set at 60% of median equivalent expenditure of households, as opposed to the concept of absolute poverty (i.e. deprivation of basic means of survival). Final consumption expenditure includes income components, such as imputed rent from owner-occupied housing, indirect social transfers and income in kind.

Table 8.8 Poor and non-poor households whose head is unemployed

	Number of households		% change
	2009	**2012**	
Total households	95,464	272,996	186.0
- poor households	20,810	87,221	319.1
- non-poor households	74,653	185,774	148.8
% of poor households whose head is unemployed	21.8%	31.9%	46.6
% of poor households in total households	15.4%	15.2%	
	+6.4	**+16.7**	

Source: Calculations based on data from ELSTAT's Households Budget Surveys (HBS).

The number of poor households whose head is unemployed has grown by 319.1% in three years. Moreover, the risk-of-poverty line threshold increased from 21.8% in 2009 to 31.9% in 2012 (up 46.6%). Before the crisis, in 2009, the risk of poverty of households whose head is unemployed was 6.4 percentage points higher relative to all households (21.8% against 15.8%). Three years later, the gap widened by 16.7 percentage points (31.9% against 15.2%). Although the poverty rate did not change significantly for the country as a whole (even in 2013 it was 14.7%), it has increased dramatically in the population of households whose head is unemployed.

Finally, another fact that reflects the problem faced by households whose head is unemployed is the evolution of the number of household members (other than the head) aged 16 to 64 who are unemployed or not economically active. In 2009, an average of 1.86 unemployed members corresponded to one poor household whose head is unemployed, compared with 0.68 unemployed members for all the households in the country. In 2012, this ratio increased to 1.98 unemployed members for poor households and 0.85 for the country as a whole. This development tells us that households whose head is unemployed include at least one other member without a job or not economically active.

Table 8.9 Percentage of households at risk of poverty by work intensity of members aged 18-59 (with dependent and non-dependent members)

	2008	2009	2010	2011	2012	2013	2013/09
Work intensity other than very low [0.2 - 1]	16.4	16.2	16.7	15.0	18.6	17.6	1.2
- Households without dependent children	12.5	11.5	11.8	11.0	12.8	13.0	0.5
- Households with dependent children	20.1	20.4	21.3	18.5	23.4	21.8	1.7
Very high work intensity [0.85 - 1]	7.8	8.2	7.3	4.4	6.2	4.0	-3.8
- Households without dependent children	7.2	7.7	7.7	5.3	5.0	3.6	-3.6
- Households with dependent children	8.3	8.7	7.0	3.6	7.2	4.4	-3.9
High work intensity [0.55 - 0.85]	13.7	11.4	12.5	12.1	10.2	9.7	-4.0
- Households without dependent children	11.1	7.0	7.5	7.3	7.1	9.0	-2.1
- Households with dependent children	17.0	17.8	18.5	17.2	13.1	10.6	-6.4
Medium work intensity [0.45 - 0.55]	25.9	27.5	27.0	21.5	25.2	21.0	-4.9
- Households without dependent children	19.6	16.2	15.3	10.4	13.9	14.6	-5.0
- Households with dependent children	29.4	33.0	33.9	28.5	31.8	24.8	-4.6
Low work intensity [0.2 -0.45]	36.7	37.3	42.1	38.2	44.7	39.9	3.2
- Households without dependent children	24.3	29.5	30.0	30.4	31.7	28.2	3.9
- Households with dependent children	53.3	46.8	55.8	48.9	60.4	53.1	-0.2
Very low work intensity [0 - 0.2]	37.6	33.9	36.9	49.8	52.8	53.3	15.7
- Households without dependent children	35.3	31.7	33.1	40.0	43.2	43.3	8.0
- Households with dependent children	43.5	43.0	46.6	71.4	76.7	72.1	28.6

Source: EU-SILC, Eurostat.

An additional source of statistical information on issues of poverty and inequality is the European Survey on Income and Living Conditions (EU-SILC). Table 8.9 shows the evolution of poverty of households in Greece based on work intensity of household members. The largest increases in poverty under the table between 2013 and 2008 recorded in households with very low work intensity. Indeed, when the above households are dependents poverty rate increased by 28.6 percentage points.

Chapter 9

Crucial trade-offs between solidarity at the micro- and inequality at the macro-level

As explained in section 2.1, solidarity can be expressed or analysed at either the micro- or the macro-level. In times of crisis, solidarity at the micro-level typically means ensuring that the various socially painful measures (e.g. wage or pension cuts, new taxes or higher tax rates, cuts in government spending and social transfers) incorporate forms of protection for the more vulnerable parts of the population or that these effects are to some extent mitigated by complementary policies. During the crisis in Greece, several of the measures reflected a graded approach, one that took into consideration the economic and social conditions of the persons concerned. Yet, what matters is the overall outcome of the policy making.

Our analysis of adjustment policies and their effects showed that in many respects the weaker social groups bore an asymmetrically heavier burden compared with better-off groups. Asymmetry is not necessarily measured in terms of percentage changes: it also relates to whether and to which extent these changes affect low- or high-income/property brackets. Some measures incorporated solidarity, others did not. The asymmetry was mainly, but not exclusively, the result of political choices, in particular the policies of wage and pension cuts, abolition of basic labour protection rules, tax hikes and social protection expenditure cuts.

However, asymmetry, in a different sense, was noted also in terms of how citizens reacted: on the one hand, large numbers of employees, pensioners, self-employed persons and other social groups were hit by the crisis, but in one way or another tried to cope with their increased burden; on the other hand, there have been influential social groups which, although they could afford to meet the general tax or other burden, refused in many ways to participate in the general effort. Irrespective of the varying motivations, non-compliance led to weaker fiscal adjustment and made necessary the adoption of further measures, which impacted those who had already shouldered a heavy load.

It is difficult to encapsulate the multiple and diverse effects into a single conclusion, not least because for some groups the negative developments in income and financial position resulted from the choices of the successive governments and the Troika, while for others they resulted from the economic crisis itself and the recession. This reality raises a crucial question: should the State offset any risk that destabilises incomes, living conditions and social equilibria and obviously gives rise to new inequality in society? Would that be an expression of solidarity? Our view is that solidarity and the necessary policies for preventing or mitigating new inequalities as a result of the crisis should target the weaker groups which otherwise would suffer excessively. As to the question of what form and intensity should these adverse effects take in order to trigger solidarity policies in a society hit in a generalised way by a severe crisis, this cannot be answered in a straightforward manner. First, because the “generalised way” is not in fact so: it features wide differentiation across social groups. Second, because resource

constraints do not permit full offsetting but rather necessitate a prioritisation of measures. Third, because in a society where incomes, employment and social conditions or prospects collapse, which new equilibrium would express solidarity is a very complex question.

Theoretically, the answer to this question may be partly linked to factors relating to a society's value system and partly to efficiency factors, in the sense that some solidarity policies are necessary simply because it is "fair", while other ones because they contribute to overcome the crisis as opposed to other options which deepen or prolong the crisis and its negative social effects.

Most of the aforementioned effects on solidarity and inequality are exerted at the level which in Part 2 is named the "micro-level". They refer to the impact of a series of policy measures on income and inequality relations between the weaker and stronger social groups. However, to an even greater extent, solidarity and inequalities are affected by large-scale policy choices: the macro-options. Policies that cause the number of unemployed persons to soar or affect specific groups of employees more than others, or policies affecting the social safety net of the weaker (care, pensions, social benefits), protect other balances of interests, policies that continue to exempt from tax the most advantaged economic strata, or reallocate the negative social effects of the crisis, all play a significant role in how solidarity and inequality stand, although this is not equally visible and measurable as with the effects on the micro-level.[85]

The difficulty in identifying the adverse effects of macro-choices is due to two main factors. First, these effects are indirect and thus cannot be captured with the same degree of certainty as e.g. with tax or income measures, and second, their analysis often has to rely on counterfactual scenarios, i.e. realistic assumptions about what would have happened if different policies had been followed.

During the crisis there have been several policies that affected the overall level of solidarity. In practice, while at the micro-level, i.e. at the level of individual measures, legislative acts or policies, the solidarity dimension often seemed to be there to a greater or a lesser extent, at the macro-level this dimension was much weaker, if existing at all. Four cases of a wide solidarity gap in the design and implementation of policy can be mentioned:

- The privileged protection of the public sector, in an effort to minimise the cost of the crisis for that sector and the cost for the political system. This category is closely associated with the central policy choice to pursue fiscal consolidation primarily through excessive revenue-led adjustment policies and the refusal to reduce the oversized public sector.
- The continued protection or toleration of tax evasion, contribution evasion and the legislated exemption of specific social groups from tax and other burdens which kept increasing for specific segments of society.
- Corruption in the operation of several institutional agencies has implicit but significant effects on the impact, duration and intensity of the crisis in the country[86].
- The strong resistance of the political system to promote measures or reforms that would enhance productivity, reduce the need for cuts in wages, pensions and social benefits and improve growth prospects, meant that policies with negative impacts on inequality and

[85] In all cases characterised as "macro", the Troika had a significant weight in decisions, although formally decisions were adopted by the Greek government and parliament. Even for the toleration of tax evasion and accommodation of preferential treatment, the Troika has a large share of responsibility for the policy choices and their consequences. Although the official narrative was that the Troika imposed macroeconomic objectives and it was up to the Greek government to design implementation measures, often and particularly in the case of wage and pension cuts and labour market deregulation, the Troika exerted strong pressure for measures in a specific direction, while also setting the priorities in the field of reforms.

[86] For an approach on the impact of corruption on inequality and poverty, see S. Gupta, H. Davoodi, R. Alonso-Terme (1998).

solidarity appeared "necessary" and "rational". However, what is "necessary" or "rational" is not always exogenous; it depends each time on whether the policy itself has influenced the background conditions in a manner which makes a measure appear "necessary" or "rational" in the given circumstances.

(a) The privileged protection of the public sector and political clientele groups was ensured through the following choices:

- Although in the few years before 2009 new hirings in the public sector were around 200,000, contributing to an increase in the ratio of the general government wage bill to GDP by more than two percentage points (from below 11% till 2003 to 13.4% in 2009), there was an absolute refusal to deal with the excessive number of civil servants, except for normal retirements or non-renewals of certain fixed-time employment contracts. To address the problem, policy chose to reduce the salaries of employees in general government and public enterprises. However, in this case too there were significant differentiations due to political cronyism.
- A number of public organizations have been officially exempted from the general salary cuts, while others, in various ways, but with the tacit consent of the government, have simply not applied the law on wage reductions, resulting in an inequality that is masked by the aggregate figures examined, but nevertheless exists. Moreover, for a number of civil servants (in particular in the Ministries of Finance, Justice, Culture and public organisations) salaries have been reduced according to the new provisions, but subsequently the government allocated[87] specific personal allowances of EUR 500-1,000 or proceeded to internal promotions, which kept their salaries much higher than those of their colleagues in other government agencies.
- A different approach was followed in the case of specific groups of the clientele of the parties in power, such as the military, law enforcement and the judiciary. Although at first these were also subject to the general reductions, this was subsequently reversed by court rulings in 2014[88], and the previous system was reinstated.

All these cases imply that under pressure from influential groups the relative position of specific occupational groups, instead of following the general trend, was in fact improved, giving rise to injustice and inequality.

The protection of employees in the public sector, both as regards salary cuts compared with employees in the private sector and as regards staff reductions, can indeed be seen as a policy of solidarity towards specific categories of workers. At the same time, however, it also represents a policy of unequal treatment towards the rest of employees and self-employed in the non-public sector. Moreover, large parts of public sector employees have maintained consistently higher earnings than those in the private sector, especially in middle and lower income brackets. Still, inequality is not so much to be found in these aspects; rather, the crucial question is whether this policy deteriorated the conditions of operation of the business sector, increasing unemployment and closed businesses, diminishing the level of incomes of broader parts of the society, affecting the relative shares in the distribution of income and even causing a deeper recession, than would have been if the political system had followed a stronger spending-led adjustment. The examination of this issue requires however a deeper investigation which is beyond the scope of the present study.

(b) The toleration of the multiple forms of tax evasion and ways of dodging the burden of fiscal adjustment is evident from the incomes declared for tax purposes by the various occupational groups. Income from salaries and pensions is, on average, the single most important source of income for

[87] Press reports refer to around 66 thousand civil servants.

[88] It is uncertain whether this occurred with the government's implicit positive stance.

households in nearly every decile. By this standard, employees and pensioners appear to be the wealthiest in the country, except for the upper (10th) decile.

Acceptance of tax evasion by governments is a crucial source of inequality, in particular because this was also the main determinant factor of the gap between government's revenues and expenditures and, ultimately, the fiscal crisis. In the years 1994-2008 the annual gap was about 8 percentage points of GDP. Greece had a revenue/GDP ratio of 38% (1994-2008 average) compared with 44.8% in the EU-15, while it had a spending/GDP ratio of 45.8% compared with 47.4% in the EU-15. A simple calculation shows that within fifteen years this gap accumulates a debt of 120 percentage points of GDP.

(c) The exemption of advantaged social groups from taxation concerns primarily, but not exclusively, agricultural incomes. These incomes have consistently enjoyed a highly privileged tax regime - in essence they were largely tax-exempt. We can see that even during the crisis, the declared agriculture income was only 4.1% of total and the declared mean agriculture income per household was in 2012 slightly over the one fifth of the mean wage income. Moreover, agricultural subsidies received by the EU are in practice tax-exempted. These subsidies totalled 2054 million euro in 2012 and were 16.5% higher than the declared total agricultural income. Unlike the heavy burden imposed on all incomes in the period of crisis, agricultural incomes have continued to be taxed in a highly privileged manner. In 2013 a law was introduced decreasing some of the tax privileges However, under pressure from farmers, short before its application this law was replaced by a new one, abolishing any solidarity and equity between farmers and employees or pensioners. This privileged exemption becomes even more conspicuous as in the years 2008-2012 agricultural income was the only income category to increase. Furthermore, land property, despite the initial government's intentions, has been finally largely exempted from the property taxation, causing a significant higher tax incidence on all other groups of real property owners.

(d) The resistance of the political system against rationalization and reform

During the crisis, it was clear that governments resisted systematically to implement reform policies that would lead to a more rational functioning of the State or the markets. Examples range from refusal to open up closed professions (transport, engineering activities, legal professions, and a large number of other activities) to refusal to privatise, modernise public administration or eliminate public agencies with negligible operation. Further, the following additional examples can be mentioned:

- ✓ The tolerance of illegal employment, in order to release businesses and professionals from social security contributions was supposed to facilitate the hiring of unemployed persons. In practice, however, it favoured those who infringed the law, led to the deterioration of an already collapsing social security system and affected the income distribution.
- ✓ Cuts in public investment as a fiscal adjustment tool could be justified if viewed in the context of the necessary fiscal adjustment could be justified by the mere size of the fiscal adjustment needed. Perhaps more importantly though, however, they served also as an easy tool to avoid reducing current expenditures for political considerations. Investment cuts, however, reduce the potential for recovery and improvement of living standards in the years ahead, raising the question to what extent such a policy reflects solidarity or leads to higher inequality in the near future.
- ✓ Last but not least, the maintenance of extensive bureaucratic procedures, coupled with corruptive practices, inevitably resulted in a heavier administrative burden on business and professional activities and substantial macroeconomic implications. The many examples that can be cited suggest a clear political refusal to take measures for improving the productivity of the public sector and the economy in general, thereby boosting incomes, employment and growth.

Ultimately, such choices favor stagnation, further cuts in incomes, higher unemployment, low competitiveness and more protracted crisis. In essence, they mean a disguised shift of costs to the weaker parts of the population, exacerbating inequality.

Chapter 10

Concluding remarks

The analysis of economic developments and policies over the period of the crisis, as well as the impact on incomes, employment and inequality, showed that new inequalities, divides and balances emerged in Greek society during these years. The findings of this study depict a reality as shaped both by what has been done and by what has not. The answer to the question of what could have been done differently is not easy. Any answer, however, that would convincingly suggest that the impact could have been milder would mean that the policy management of the crisis involved, ultimately, "reverse solidarity".

Further to the more specific conclusions presented in individual sections, our analysis allows also some central observations to be made:

First, in the 2008-2012 period we can see a surge in inequality regarding certain variables, such as income from wages, while overall inequality exhibits a mixed trend[89]. Although the limited variations in overall inequality during the crisis is an important fact, what is more important is that it occurred amid growing poverty and total pauperisation of a substantial part of Greek society, mainly in terms of "absolute poverty" but also partly in terms of "relative poverty". By this downspiralling, the "bottoms" drifted much further apart from the "tops", even if they had suffered relatively lesser income losses.

Thus, overall inequality revealed limited changes, but specific groups were hit in an extremely unequal degree while society experienced a drastic and violent reduction in incomes and living standards[90]. The at-risk-of-poverty rate began to increase in 2010; by 2013 it stood three percentage points above its 2009 level, while a significant number of households could no longer afford goods or services that are considered as basic necessities. New social strata fell into new forms of poverty. Shrinking incomes were partly the result of state intervention in wages, pensions and the labour market, but also to a large extent stemmed from the crisis itself. When the crisis starts to subside, those who lost income as a result of government austerity measures will probably be worse off than those who lost as a result of the crisis, with the exception of the unemployed. The automatic mechanisms of the market will work in favour of the latter category, and the degree of inequality will begin to increase, at least in an initial phase of the recovery.

Inequalities due to the crisis were exacerbated by the fact that the tax burden on the weaker groups of the population was much heavier than that of the stronger ones. This was not a solidarity factor. It can be argued that the burden, e.g. on the property of the richest or even the less rich strata, had been unduly nonexistent before the crisis. However, the burden imposed during the crisis on these two groups and the lowest-income groups was strongly asymmetric, occurred in an extremely adverse economic environment and very abruptly, which made the adjustment particularly painful.

Second, during this period a number of new divides emerged in the Greek society, between:

[89] It is crucial to recall the importance of distinguishing between those who are reflected by the various statistics and those who are not even included.

[90] As mentioned in Th. Piketty (2013), p. 417ff., inequality is a complex question, which cannot be highlighted by just one index. It is for this reason that in this study we focused on households, individuals, deciles and top incomes and more inequality indices, showing how different aspects of inequality are hiden behind average figures.

- those who have income and those who have not any, mostly due to their exclusion from the labour market;
- those who fully declare their income for tax purposes and those who, even during the crisis, can hide income;
- those who can use their power to recoup a large part of their income losses and those who have no such chance;
- those who still enjoy preferential tax exemptions or state-facilitated tax avoidance, although some groups among them have remarkably increased their incomes during the crisis, and the remaining taxpayers;
- those who, thanks to political interventions, have only mildly been affected by the crisis and those who continue to struggle, lagging behind;
- among the "haves" of 2008, those who have been pauperized and those who are now better off than before.

The emergence and persistence of such divides implies that certain categories of people have come out as winners from the crisis. The notion of "winners" does not necessarily mean that all of them are better off relative to a benchmark before or at the beginning of the crisis. Rather, it means that some groups have achieved either an improvement of their relative position in the income hierarchy or an upward income development. And of course it makes a lot of difference if this development has been the result of skills, hard work or even ability to exploit opportunities or the result of political decisions.

Third, the tax measures affected many households and individuals among the "bottoms", but also many belonging to the "tops" which –perhaps partly due to tax evasion– are statistically recorded as "bottoms". In fact, more groups with lower and medium-to-high incomes were for the first time required to pay tax, for incomes unchanged or lower than before. The resulting discontent stoked a political polarization and even extreme political affiliations.

Fourth, counter-intuitively and in contrast with what is observed in other countries, inequality in real property is not so high. The respective inequality indices are indeed higher than those for income and appear stable or declining over time. This however should be seen in the context of the fact that real property, which had for decades been used also by medium- and low-income groups as a primary tool for channeling savings and as a shelter from political or economic shocks, has become a trap for these same groups, which in the crisis period faced a much heavier property tax burden relative to the wealthier groups.

Fifth, our analysis focused on changes in incomes and the impact on inequality and poverty. However, there are additional relevant factors which could not possibly be discussed here. Perhaps the most important among these factors is household debt, especially the mortgage loans contracted by households when their income levels and prospects were very different before being swept out by the crisis. During the crisis, a significant number of households remained with one or more members unemployed or with lower income as calculated in this study. On top of that, they found themselves with a high debt to banks, which was very difficult or impossible to service with their reduced income. This impact is not feasible to factor in, and even less so to differentiate across income groups, but it appears that it is very significant.

The above findings suggest that inequality does not arise only in respect of wages or total income or income from property or other sources. Apart from these sources, at least the following additional sources of inequality exist:

Inequality in the applicable tax regime.

Inequality in the applicable social security regime, given the existence of contribution exemptions or a disproportionate contributions/earnings relationship for several categories of workers.

Inequality in the evolution of wages/salaries and pensions; inequality is much lower among older cohorts of workers and becomes much higher when more recent cohorts are included. The same applies for pensioners, although to a lesser extent.

Inequalities in access to a number of professions, due to long-established barriers to entry or "artificial privileges", statutory fees and reserved activities. As a result, production costs increase, leading, in the case of tradables, either to lower competitiveness or to a squeeze on wages in order to offset the higher costs and lower competitiveness resulting from the lack of competition in intermediate products or services.

These findings are different and complex aspects of one and the same reality, which was created during the crisis. Whether seen as a result of the crisis or as factors behind the unfolding of the crisis, they highlight an urgent need for crucial political choices, of which we will mention the following three:

(a) Designing and implementing policies to stimulate growth. This choice is urgently necessary for a number of reasons: first, growth will enable a gradual exit from poverty; second, it will lead to an improvement of macroeconomic aggregates linked to the level of GDP (government deficit and debt ratios, new investments, real incomes); and third, it will allow a return to conditions of higher and better paid employment and more social convergence.

(b) Effectively tackling tax evasion, contribution evasion, preferential tax exemptions or tolerance on the part of the government towards these phenomena, which remain a major factor behind inequality and the crisis in Greece. The preponderance of these phenomena means that inequality in income distribution is generated both in the market and in the personal distribution of income, which includes government intervention. In these conditions, market rationality, where it exists, is not neutral. The inequality-creating functioning of the market itself is generated outside the market, largely as a result of government interference in the market's rules of operation.

(c) Focus on raising the productivity and efficiency of the State, eliminating political corruption and the costs associated with an invisible corruption tax'[91] that these conditions impose on the economy and society.

These three problems were not central to the policies implemented during the crisis. Yet, the relationship between inequality[92], growth and efficiency of the government sector is important because growth is key to a successful fiscal consolidation and stabilisation. Fiscal consolidation without growth is doomed to fail, and vice versa. Therefore, the question arises whether and to what extent inequality affects growth and, in so doing, determines the success or failure of policy responses to the crisis.

The growth rate is a function of capital and other inputs (independent variables) that are mobilised at any given time in a productive system (labour, knowledge, technology-innovation, natural resources). According to several analyses, the degree of inequality also enters into the growth function as an independent variable exerting a direct and negative effect on growth. Equally significant is the effect on growth from the level of corruption and the efficiency of the government sector and government policy, along with the choices of the Troika. Furthermore, inequality and the other factors (policy, corruption, efficiency) affect negatively the independent variables in the growth function (labour, investment, innovation, etc.), thus determining not only directly but also indirectly, yet significantly, the growth rate and the overall performance of the country.

[91] T. Giannitsis (2013), Greece in crisis, p. 106 ff.

[92] This analysis uses the notion of inequality rather than solidarity, as it is measurable and has been the subject of more extensive theoretical and empirical research.

Besides its economic aspect, growth is also a political variable in the sense that the "political success" of a government, especially in circumstances of crisis, depends also on the growth this government achieves. However, the term "growth" is not so clear as one would think. It is useful to distinguish between the growth which is potentially feasible, although "feasible" is hard to define, and a notion of growth that is more like wishful thinking, i.e. a construct of the expectations which are formed in a society and also determine the degree of political success.

If, therefore, higher inequality is negatively related to growth (either directly or indirectly, through other variables), the question is to what extent the evolution of inequality can affect growth, thereby also political developments in Greece.

The main conclusion is that the level of inequality in Greece was high before the crisis and remains so, although it declined slightly during the crisis. Before the crisis, the policy tool to address inequality was government borrowing as a means of creating income and financing social expenditure and public investment [93]. Borrowing served, and quite well indeed, as a substitute for a policy of redistribution and mitigation of inequalities[94]. But if this choice accumulates more and more debt and the country enters a crisis, the resulting slump in growth cancels the positive results achieved over a number of years and leads to a violent backtracking. This pattern characterised the path of Greece[95] in recent years.

It was also found (Table 6.3), that inequality after taxes compared with pre-tax inequality is limited by 6.0% in 2008 and by 7.1% in 2012. That is, government intervention has mitigated inequality. However, given the profound upheavals that occurred during this period, the fact that the government's inequality-reducing contribution increased by merely one percentage point between 2008 and 2012 is a very poor performance. It is an indication that the additional tax burden was imposed on the same population of taxpayers, failing to expand the tax base and reduce tax evasion. If amid conditions of drastic reductions in low and higher incomes, the tax burden mainly affects the same population of taxpayers and hardly those people who in one way or another evade, or affects evenly the tops and the bottoms, then it is ultimately regressive and leads to more inequality, with socially painful results. And if, as we saw, low incomes face a significantly heavier tax burden, then the regressive character becomes even more pronounced.

These developments raise the question: Could the intensity of the crisis have been mitigated? Could the government's or the Troika's policy limit the depth of the recession and the pauperisation of wider social strata? If the contraction of GDP had been one percentage point smaller, GDP would have been higher by EUR 2 billion, if it had been two percentage points smaller the output gain would have been about EUR 3.5-4 billion, and such differences would have positive social or growth effects.

In the context of this reasoning, it is very important to mention also a further driver of growth: the liquidity of the economy, given that liquidity constraints were one major factor behind the collapse of many firms, production activities, exports and employment. The contraction of GDP and the crisis definitely played an important role. However, a critical role was also played by the government's insistence on maintaining a high level of public expenditure which had soared in the years before the crisis. Unable to finance public spending with the Troika loans, the government raised significant amounts from banks, squeezing domestic liquidity. This was not a necessary consequence of the crisis. A different adjustment strategy would not have such a strong negative impact on growth, employment and incomes and would have made possible a milder tax burden. Hence, it is the political choices that led to this result and exacerbated the adverse economic and social impacts.

[93] T. Giannitsis (2015).

[94] K. Bonesmo Fredriksen (2012), p. 10ff.

[95] St. Zografakis, P. Spathis (2010), T. Giannitsis (2013), p. 81ff and (2015).

Last but not least, solidarity is directly linked with policy inefficiencies. Inefficient or bad policies may result in reverse solidarity, insofar as inefficiency can be avoided, in particular when the outcome of the desired burden or relief of specific social groups is the result of a choice. We can say that inefficiency refers to a collective outcome, but from a policy perspective inefficiency is evaluated against the objectives pursued by the ineffective policy. Such a choice therefore prevents the effort to increase the productivity of public expenditure. An increase in the productivity of public expenditure, by a rationalization of processes, greater transparency, a reduction of waste or corruption, downsizing of functions that do not serve any real purpose and better use of human and physical resources, would have beneficial effects on macroeconomic aggregates. However, such a policy would be detrimental from a partisan viewpoint. Thus, except for some limited interventions, mainly in the health sector, little use of this tool was made in the period reviewed.

In conclusion, the policies pursued included many inefficiencies. In the years 2009-2014, the *primary* fiscal deficits accumulated additional debt of EUR 42 billion, the additional loans to Greece were EUR 230 billion, nominal GDP fell by EUR 55 billion (-24.7%), headcount unemployment increased by one million, income from wages was cut by 27.4% and the country's prospects are still surrounded by high uncertainty. All these changes sum up to an exorbitant bill, suggesting that policymakers (national and European) showed neither solidarity nor effectiveness in crucial crisis management issues.

It could be said that the accumulation of a high external debt by Greece in the pre-crisis period came at a high price. However, borrower responsibility is the flipside of lender responsibility, and in this case neither side behaved responsibly. Moreover, after the crisis broke out, the "lender responsibility principle", stating that lenders are responsible for their own wrong choices or practices, which has been central to decisions on the Banking Union in 2014, was ignored in 2010-12. Aiming to protect private bank lenders and their countries from the risk of being sanctioned for their business conduct, the euro area countries turned bank loans to Greece into official (public) loans.

Accepting that a crisis management with such a bottom line result was effective and that therefore there was no room for a more positive alternative, would be a very heroic stance. However, an analysis of these issues would be another long chapter beyond the scope of this study.

References

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

Andriopoulou E., Papadopoulos F., Tsakloglou P. (2013), Poverty and Social Exclusion in Greece. Intersections and Differentiations (INE/GSEE, Athens, in Greek language).

Bakker B., Felman J. (2014), The Rich and the Great Recession (IMF, WP/14/225).

Bonesmo Fredriksen K. (2012), Inequalities in the European Union (OECD, Economic Department, WP 952).

Böwer U., Michou V., Ungerer Chr. (2014), The Puzzle of the Missing Greek Exports (European Economy, Economic Papers 518).

Castro F. de, Salto M., Steiner H. (2013), The gap between public and private wages: new evidence for the EU (European Economy, Economic Papers 508).

Cholezas I. and P. Tsakloglou (2009), "Earnings inequality in Europe: Structure and patterns of inter-temporal changes", pp 122-146 in P. Dolton, R. Asplund and E. Barth (eds), Education and iInequality across Europe, Edward Elgar, Cheltenham.

Christofides L., Michael M. (2013), Exploring the public-private sector wage gap in European countries IZA, Journal of Labour Studies, 2:15.

Christopoulou R., Monastririotis V. (2014), The public-private duality in wage reforms & adjustment during the Greek crisis (Eliamep, Crisis Observatory, Research Paper No,9).

Cingano F. (2014), Trends in Income Inequality and its Impact on Economic Growth (OECD, Social, Employment and Migration Working Papers No 163, pp. 13-16).

Danchev, S., Maniatis Y., Touriki K. (2014), "An assessment of the existing framework of tobacco taxation in Greece (IOBE, in Greek language).

Deacon B., Cohen S. (2011), From the global politics of poverty alleviation to the global politics of social solidarity, Global Social Policy 11:233-249.

Depalo D., Giordano R., Papapetrou E. (2014), Public-private wage differentials and the distribution of skills across sectors.

European Commission (2012), Possible reforms of real estate taxation: Criteria for successful policies (European Economy, Occasional Papers 119).

European Commission (2014), Cross-country Review of Taxes on Wealth and Transfers of Wealth (EY-October 2014).

Giannitsis T. (2013), Greece in the Crisis (Polis, Athens, in Greek language).

Giannitsis T. (2015), Die Griechische Staatsverschuldung und die Krise, in U.-D. Klemm, W. Schultheiß (eds), Die Krise in Griechenland (Campus Verlag).

Giannitsis T., Kastelli I., Mavri D., Zografakis St. (2009), Technology and competitiveness in Greece (Papazissis, Athens, in Greek language).

Gupta S., Davoodi H., Alonso-Terme (1998), Does corruption affect income inequality and poverty? (IMF).

Gutierrez R. (2014), Welfare Performance in Southern Europe: Employment Crisis and Poverty Risk, South European Society and Politics.

Hills J., Paulus A., Sutherland H., Tasseva I. (2014), A lost decade? Decomposing the effect of 2001-11 tax-benefit policy changes on the income distribution in EU countries.

IMF (2014), Fiscal Policy and Income Inequality.

Kaplanoglou G., Newbery, D.M. (2003), "The redistribution impact of indirect taxation in Greece", Economic Bulletin, No 21, July, pp. 7-34, Bank of Greece (in Greek language).

Kaplanoglou G., Rapanos B. (2014), "Who pays the indirect taxes in Greece. First insights for the period of crisis", in «Fiscal adjustment: How much just is the distribution of the burden?», (Budget Office of the Parliament, Hellenic Parliament, pp. 11-33 (in Greek language).

Kaplanoglou G., Rapanos V., Bardakas C. (2013), Does fairness matter for the success of fiscal consolidation? (Economic Discussion Reports, University of Athens, Department of Economics).

Karavitis N., Maniatis Y., Danchev, S.,(2012), "The alignment of the Special Consumption Tax on Heating and Fuel Oil (IOBE, in Greek language).

Matsaganis M. (2011), Social Policy in Difficult Times (Kritiki, in Greek language).

Matsaganis M. (2013), The Greek Crisis: Social Impact and Policy Responses (FES).

Matsaganis M. (2014a), Poverty and public policy in Greece during the crisis, in: Fiscal adjustment: how just is the distribution of burden? (Budget Office at the Greek Parliament, in Greek language), pp. 49-57.

Matsaganis M., Leventi Chr. (2014), Effects of the crisis and austerity in seven EU countries.

Mitrakos Th. (2013), Inequality, poverty and living conditions in Greece: Recent developments and prospects, Social Cohesion and Development 8 (1)37:58.

Mitrakos Th., Tsakloglou P., (1999), "The redistribution impact of special consumption taxes", Economic Bulletin, No. 13, July, pp. 49-74, Bank of Greece (in Greek language).

Mitrakos, Th., Cholezas, I. and Tsakloglou P., (2010), "Determinants of youth unemployment in Greece, with emphasis on tertiary education graduates", Economic Bulletin of the Bank of Greece 33, pp. 23-68.

Ostry J., Berg A., Tsangarides Ch. (2014), Redistribution, Inequality and Growth (IMF, Staff Discussion Note).

Paskow M., Dewilde C. (2012), Income Inequality and Solidarity in Europe (GINI Discussion Paper 33).

Paulus A., Sutherland, H., Tsakloglou, P. (2010), "The distributional impact of in kind public benefits in European countries", Journal of Policy Analysis and Management 29, pp. 243–266.

Pavlou G., Danchev, S., Maniatis Y. (2013), "The industry of alcoholic beverages in Greece " (IOBE, in Greek language).

Piketty Th. (2013), Le Capital au XXIe siècle (Seuil).

Pyatt G., Chen C., and Fei J., (1980) "The distribution of income by factor components", *Quarterly Journal of Economics*, vol. 94, pp. 451-474.

Sabbagh C. (2003), The dimension of social solidarity in distributive justice, Social Science Information, 42(2), 255-276.

Santamouris M. et al. (2014), Freezing the poor. Indoor environmental quality in low and very low income households during the winter period in Athens.

Schmid K. D., Stein U. (2013), Explaining rising income inequality in Germany (Institut für Makroökonomie und Konjunkturforschung).

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

Smith N, Laitinen A. (2009), Taylor on solidarity, Thesis Eleven, Nr 99, 48-70.

Sotiropoulos D. (2012), The social situation of Greece under the crisis. Basic socio-economic data for Greece, 2011 (FES).

Subasic E., Reynolds K., Turner J. (2008), The Political Solidarity Model of Social Change: Dynamics of Self-Categorisation in Intergroup Power Relations, Personality and Social Psychology Review 12:329-352.

Tsakloglou P. and T. Mitrakos (1998), **"**On the distributional impact of excise duties: Evidence from Greece**"**, *Public Finance*, 1998, vol. 53, pp. 78-101.

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

Zografakis S., and Th. Mitrakos (2012), "The risk of low income in households of employees and unemployed during the current crisis", Bank of Greece, in "Social Policy and social cohesion in Greece under the current the economic crisis", pp. 173-215, Athens.

Zografakis St., Spathis P. (2010), "Economic crisis and the labour market: the end of fiscal deviations and their implications", in: Bank of Greece, "The Greek labour market: features, developments and challenges", pp. 13-43 (in Greek language).

Zografakis S. and Spathis P. (2011), "The economic crisis and labour market", Essays in Economics, Applied Studies on the Greek Economy, Centre of Planning and Economic Research, pp. 227-259.

Zografakis S, (2014), "The apartment building and the index of despair", in "Fiscal Adjustment: How Fair is the distribution of the Burdens?", Parliamentary Budget Office, pp. 1-8, Athens.

ANNEX I Greece: Main Economic Indicators (2004-2014)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Employment persons, annual percentage change	2.4	0.9	1.8	1.3	1.3	-0.6	-2.7	-6.9	-7.8	-3.8	0.6
Unemployment rate	10.6	10.0	9.0	8.4	7.8	9.6	12.7	17.9	24.5	27.5	26.8
GDP, at current market prices, annual percentage change	8.1	3.2	9.4	6.9	4.0	-1.9	-4.7	-8.2	-6.5	-6.1	-0.9
GDP at current market prices per head of population (EU15=100)	64.8	64.7	67.3	68.5	71.7	74.4	68.5	61.6	56.8	53.4	51.6
GDP at 2010 market prices, annual percentage change	5.0	0.9	5.8	3.5	-0.4	-4.4	-5.4	-8.9	-6.6	-3.3	0.6
GDP at 2010 market prices per person employed, annual percentage change	2.5	0.0	3.9	2.2	-1.7	-3.9	-2.8	-2.1	1.4	0.5	0.0
Industrial production, annual percentage change (construction excluded)	0.6	-1.6	0.9	2.3	-4.4	-9.0	-6.6	-8.1	-3.6	-3.6	
Private final consumption expenditure at 2010 prices, annual percentage change	4.3	4.6	2.9	3.6	3.0	-1.0	-7.1	-10.6	-7.8	-2.0	-0.6
Gross fixed capital formation at 2010 prices, annual percentage change	5.5	-12.9	17.4	17.8	-6.6	-13.2	-20.9	-16.8	-28.7	-4.6	4.5
Nominal compensation per employee, annual percentage change	4.2	9.1	2.7	4.7	3.3	3.2	-2.6	-2.3	-2.0	-7.1	-1.5
Real compensation per employee (private consumption deflator), annual percentage change	1.3	6.1	-0.6	1.3	-0.9	2.3	-6.1	-4.6	-2.7	-5.6	-0.5
Real unit labour costs (2010=100)	94.2	100.5	96.1	95.4	96.0	100.5	100.0	99.1	95.7	91.1	91.0
Minimum earnings, annual percentage change[1]	4.8	4.9	6.2	5.4	6.2	5.7	1.7	0.9	-19.6	-2.9	0.0
Exports of goods and services at 2010 prices, annual percentage change	18.5	3.4	5.2	10.6	3.5	-18.5	4.6	0.0	1.2	2.1	5.3
Imports of goods and services at 2010 prices, annual percentage change	7.1	-0.7	13.7	15.1	2.6	-19.6	-5.5	-9.0	-9.1	-1.6	0.4
Balance on current transactions with the rest of the world, percentage of GDP at market prices)	-9.3	-9.7	-12.8	-15.8	-16.3	-13.2	-12.0	-10.5	-4.3	-2.7	-2.8
Nominal effective exchange rate (NEER), annual percentage change	1.7	-1.0	0.0	1.3	2.4	1.2	-2.8	0.5	-2.0	2.0	
Real effective exchange rate (REER), on the basis of relative consumer prices, annual percentage change[1]	1.9	-0.1	0.8	1.6	2.5	1.6	-0.5	0.4	-3.7	-0.6	
Real effective exchange rate (REER), on the basis of unit labour costs in total economy, annual percentage change[1]	4.3	0.5	0.8	3.6	7.1	3.3	-5.1	-2.3	-12.2	-7.8	
Consumer Price Index, annual rates of change[2]	2.9	3.5	3.2	2.9	4.2	1.2	4.7	3.3	1.5	-0.9	-1.3
Consumer Price Index, annual rates of change -Poor Households[3]	2.2	3.7	3.6	2.8	4.7	0.7	4.3	3.7	2.1	0.1	
Consumer Price Index, annual rates of change -Rich Households2[3]	2.8	4.3	2.7	2.7	3.8	1.3	4.7	2.6	1.0	-1.4	
Price deflator GDP at market prices, annual percentage change	3.0	2.3	3.4	3.2	4.4	2.6	0.8	0.8	0.1	-2.8	-1.5
Price deflator private consumption expenditure, annual percentage change	2.8	2.8	3.3	3.4	4.3	1.0	3.7	2.4	0.7	-1.6	-1.0
Price deflator imports of goods and services, annual percentage change	2.1	3.4	3.3	2.2	5.5	-1.4	5.3	6.3	4.2	-3.1	-0.9

Source: European Economy, Statistical Annex, autumn 2014

[1]: Bank of Greece

[2]: Hellenic Statistical Authority (El.STAT.)

[3]: Process statistical data and Hellenic Statistical Authority (El.STAT.)

Publisher: Hans-Böckler-Stiftung, Hans-Böckler-Str. 39, 40476 Düsseldorf, Germany
Phone: +49-211-7778-331, IMK@boeckler.de, http://www.imk-boeckler.de

IMK Study is an online publication series available at:
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ISSN: 1861-2180

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