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Changes in inequality and poverty in Greece: 2007-2015

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Abstract

The Greek crisis was the deepest and longest ever recorded in an OECD country in the post-war period. Output declined by over a quarter and disposable income by almost 40%, while the rate of unemployment exceeded 27%. The article explores the effects of the crisis on the level and the structure of aggregate inequality and poverty using the data of the EU-SILC for the period 2007–2015. The results show that inequality rose, but the magnitude of the change varies considerably across indices. The recorded increases are larger when the indices used are relatively more sensitive to changes close to the bottom of the income distribution. Unlike claims often made in the public discourse, the elderly improved their relative position in the income distribution while there was substantial deterioration in the relative position of the enlarged group of the unemployed. All poverty indicators suggest that poverty increased markedly, especially when “anchored” poverty lines are used. Substantial changes are observed regarding the structure of poverty. Despite an increase in the population share of households headed by pensioners, their contribution

to aggregate poverty declined considerably, with a corresponding increase in the contribution of households headed by unemployed persons (or households with unemployed members). The changes are starker when distribution-sensitive poverty indices are utilized.

Key words: *poverty, inequality, Greece, economic crisis*

1. Introduction

Greece experienced the deepest and longest crisis among developed countries in the postwar period (Reinhart and Rogoff, 2009). According to Eurostat,¹ between the last year with a positive growth rate before the crisis (2007) and the last year covered by our analysis (2015), GDP per capita declined by 24.6% in real terms. However, a considerable part of the enormous consolidation effort undertaken since 2010 was based on tax increases that reduced the real incomes of the household sector both directly (income and property taxes) and indirectly (consumption taxes). As a result, the EU-SILC data used in the article suggest that during the same period the decline in real disposable income per capita was substantially larger, 35.2% (Graph 1).²

Naturally, such a deep and prolonged crisis is expected to affect both the living standards of various population groups in absolute terms and their relative position in the income distribution. “Poverty” and, to a lesser extent, “inequality” were almost constantly at the forefront of the public discourse in the years of the crisis. The main claims made in this discourse were that poverty and inequality rose steeply during the crisis and that successive wage and pension cuts led to

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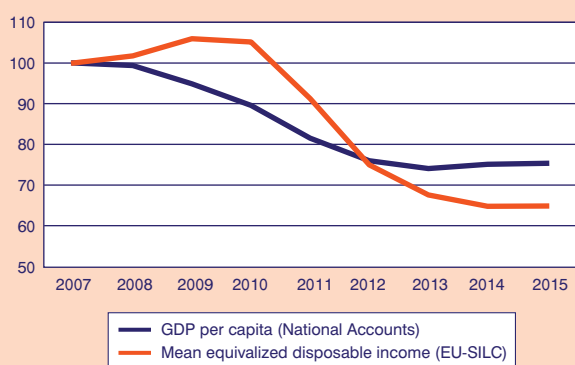
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1. All references to Eurostat estimates are derived from <<http://ec.europa.eu/eurostat/web/>> or <http://ec.europa.eu/economy_finance/ameco/> accessed on various dates in March 2018.

2. GDP per capita is deflated using the GDP deflator while disposable income per capita is deflated using the Consumer Price Index. Note that in 2008 and 2009, due to lax fiscal policies, GDP declined while disposable income rose. If the fall in disposable income per capita is measured peak (2009) to bottom (2014), the proportional decline is even larger, 38.9%.

GRAPH 1
Evolution of GDP per capita and mean equivalized disposable income in real terms (2007:100)



Source: Eurostat, EU-SILC 2008-2016 (incomes 2007-2015), own calculations.

the impoverishment of large segments of the population, especially the elderly.

A number of empirical investigations can be found in the literature examining in depth the above claims, as well as the effects of particular policies adopted in recent years (Matsaganis and Leventi, 2013, 2014a, 2014b; Koutsogeorgopoulou et al., 2014; Mitrakos, 2014; Kaplanoglou, 2015; Katsikas et al., 2015; Kaplanoglou and Rapanos, 2018; Giannitsis and Zografakis, 2018). They use a variety of data and methods. Some use real data and some simulated estimates, while the observation period varies across studies and, hence, their results are not always strictly comparable. Nonetheless, they confirm that poverty rose during the crisis, especially when “anchored” poverty lines are used.

The present work is an extension and update of Andriopoulou et al. (2018) and aims to provide a picture of the changes in aggregate inequality and poverty in Greece between 2007 and 2015 (the last year for which information is available) using the data of the European Union Statistics on Income and Living Conditions (EU-SILC), as well as a decomposition of poverty and, to a lesser extent, inequality in 2007 and 2015 with a focus on the most important socioeconomic differences across groups. Section 2 provides a literature review. Section 3 deals with data and methodological issues. Section 4 presents and discusses our empirical findings, and Section 5 concludes.

2. Poverty and Inequality before the crisis

Inequality and poverty in Greece in the pre-crisis years were studied in quantitative terms in sufficient depth, using a number of data sets, primarily Household Budget

Surveys, the European Community Household Panel (ECHP) and the EU-SILC (indicatively, Pashardes, 1980; Kanellopoulos, 1986; Tsakloglou, 1990, 1992, 1993, 1997; Sarris and Zografakis, 1993; Tsakloglou and Mitrakos, 1998, 2000, 2006; Tsakloglou and Panopoulou, 1998; Papatheodorou, 1998; Papatheodorou and Petmesidou, 2006; Mitrakos and Tsakloglou, 2000, 2012a, 2012b; Papatheodorou et al., 2008). Regarding inequality, the main findings were that, unlike many other developed countries, in Greece inequality had been gradually but not continuously declining since the mid-1970s, that inequalities “within population groups” were far more important in shaping aggregate inequality than inequalities “between population groups” irrespective of the partitioning criterion (with the possible exception of education) and that inequality in Greece was higher than in most EU countries.

When “relative” (or “floating”) poverty lines were employed, poverty recorded a modest decline from the 1970s until the eruption of the crisis, while the decline was very substantial when the poverty line used was “anchored” in real purchasing-power terms. In the earlier years, poverty was primarily a rural phenomenon, while in more recent years, with the declining importance of the agricultural sector, the elderly became the largest group in poverty, although they did not experience extreme poverty. Relative poverty in Greece was found to be higher than the EU average, while there was evidence that poverty was, to some extent, “state dependent” (Andriopoulou and Tsakloglou, 2011, 2015). Nevertheless, for the majority of the people experiencing a fall below the poverty line, poverty was a transient phenomenon with poverty entries and exits affected by specific socioeconomic characteristics and events (demographic and labour market) (Andriopoulou and Tsakloglou, 2016). Considerable overlap could be observed between the groups of the “poor” and the “socially excluded” (Andriopoulou et al., 2013).

Finally, the redistributive role of the state in Greece was limited in comparison to other EU countries, with indirect taxation being regressive, social insurance contributions almost neutral and direct taxation and social transfers progressive (Tsakloglou and Mitrakos, 1998; Heady et al., 2001; Kaplanoglou and Newbery, 2003, 2008; Papatheodorou, 2006). At the same time, in-kind transfers in the field of public education and public health care had a substantial progressively redistributive effect (Paulus et al., 2010; Koutsampelas and Tsakloglou, 2013).

3. Data and methodology

The data used in the article come from the European Union Statistics of Incomes and Living Conditions

(EU-SILC) for the period 2007-2015. The EU-SILC is a harmonized cross-national longitudinal survey, carried out annually in all EU member-states. It contains detailed information on income, employment, health, education, housing, migration, social transfers and social participation, as well as socio-demographic characteristics of the participating households and their members.

The concept of resources used here is “disposable monetary household income”, which is the sum of monetary incomes of all household members from all sources after the subtraction of direct taxes and social insurance contributions. Despite its popularity, monetary income is not necessarily the most appropriate concept of resources for distributional studies in turbulent periods (Deaton, 1993; Sen, 1995). In order to take into account differences in the needs of households with differences in size and composition, household incomes are standardized using the household equivalence scales used by Eurostat (they assign, respectively, weights of 1.0, 0.5 and 0.3 to the household head, each additional adult and each child –person aged below 14– in the household).³

Changes in the level of aggregate inequality are measured using the Gini index, the Mean Log Deviation (MLD) and two members of the Atkinson family of inequality indices for inequality aversion parameters 0.25 and 0.75 (ATK0.25 and ATK0.75, respectively). These indices satisfy the standard axioms of inequality measurement (symmetry, mean independence, population invariance and the principle transfers). Each index of inequality corresponds to a different Social Welfare Function and is relatively more sensitive to changes in different parts of the income distribution. Of the indices used here, the Gini index is relatively more sensitive to changes in the middle of the income distribution, ATK0.25 is more sensitive to changes close to the top of the distribution, while ATK0.75 and the MLD are more sensitive to changes close to the bottom of the distribution (Cowell, 2011). Further, MLD is “strictly additively decomposable”; that is, when the population is partitioned in non-overlapping and exhaustive groups using a particular criterion (demographic, occupation-

al, etc.), it allows the identification of the contribution of each population group to aggregate inequality as well as the identification of the contribution of disparities between population groups to aggregate inequality (Shorrocks, 1980; Anand, 1983; Tsakloglou, 1993). Hence, MLD is used for the analysis of the structure of inequality.

For the purposes of poverty analysis we rely on the use of the Foster et al. (1984) parametric family of indices (FGT) when setting the value of the poverty aversion parameter to 0, 1 and 2 (FGT0, FGT1 and FGT2). FGT0 is the most well-known index of poverty –the poverty rate, which is the proportion of the population that falls below the poverty line. FGT1 is the “income gap ratio”, which is the share of the total income that would be needed to eliminate poverty. FGT1 is not sensitive to the extent of inequality among the poor (and, hence, to the extent of extreme poverty), while FGT0 is sensitive to neither the average depth of poverty nor the extent of inequality among the poor. Of the indices used here, only FGT2 satisfies the standard axioms of poverty measurement (focus, symmetry, monotonicity, ranked deprivation, normalization and transfer; Seidl, 1988).

Although all members of the Foster et al. (1984) family of indices are “additively decomposable” (that is, they can identify the contribution of each population group to aggregate poverty when the population is grouped into non-overlapping and exhaustive groups), due to space limitations, we rely on FGT0 and FGT2 to analyse the structure of poverty.

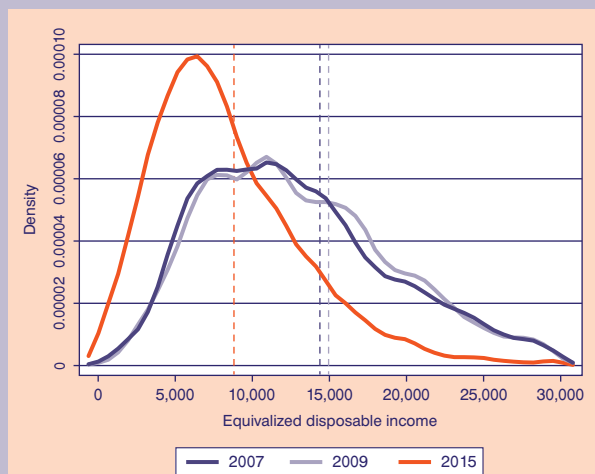
Unlike inequality, which is a “relative” concept, poverty can be used in “relative” or “absolute” terms.⁴ Hence, when examining inter-temporal changes in the level and structure of poverty, we use both “floating” and “anchored” poverty lines. The “floating” poverty lines used are those of Eurostat that set the poverty line equal to 60% of the median equivalized income of the contemporaneous income distribution. The “anchored” poverty line is the poverty line of the base year (2007) adjusted for the cost of living for each subsequent year.⁵

3. Following the practice of the Luxembourg Income Study (LIS) database, we removed households with equivalized incomes less than 1% and more than ten times the mean equivalized income of the corresponding distribution (“top and bottom coding”). The number of households removed from the sample does not vary substantially across years and the results do not depend on this treatment. Note that all inequality and most poverty indices cannot be calculated if there are negative income values in the sample.

4. In other words, a population member may be unable to reach a particular fixed in time and/or space standard of living (“poverty in absolute terms”) or his/her standard of living is quite low in comparison with the reference population (“poverty in relative terms”).

5. The year 2007 was selected as a reference year due to the fact that it was the last year with a positive growth rate before the emergence of the economic crisis. This does not mean that we consider the level of welfare of that year as sustainable, because it was based on extremely high “twin deficits” (budget and current account).

GRAPH 2
Kernel density function & mean values
for years 2007, 2009 and 2015



Source: Eurostat, EU-SILC 2008-2016 (incomes 2007-2015), own calculations.

4. Empirical results

4.1. Inter-temporal changes

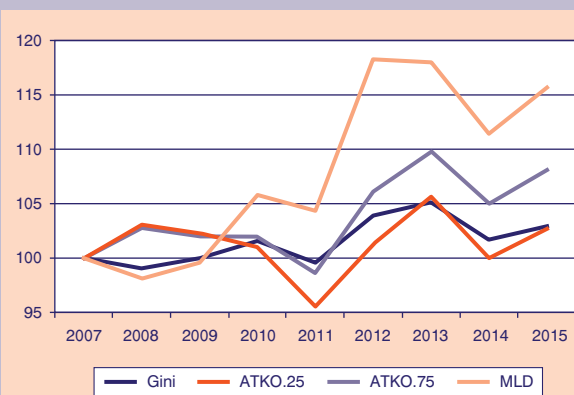
4.1.1. Changes in income distribution

Graph 2 presents the distributions of equivalized disposable income per capita for 2007 and 2015 in constant prices using kernel density functions. A massive shift of the distribution to the left is evident. A higher concentration is observed around the mode in 2015 than in 2007 that, *prima facie*, could be an indication of a decline in inequality. However, many more observations are concentrated close to the bottom of the distribution in 2015 than in 2007, operating in the opposite direction.⁶

4.1.2. Changes in aggregate inequality

Graph 3 depicts the evolution of the four inequality indices, when their values are standardized to 100 for the base year (2007). In the first three years (2007-2010), the changes in the indices are relatively small and not uniform— an indication of intersecting Lorenz curves. All indices decline between 2010 and 2011 and, in fact, the index that declines most is ATK0.25, indicating that the decline in top incomes was larger than the decline in the incomes of the rest of the population. This is probably the combined effect of a decline in profits and the

GRAPH 3
Inequality trends (2007-2015)



Source: Eurostat, EU-SILC 2008-2016 (incomes 2007-2015), own calculations.

step tax increases that affected primarily the top end of the income distribution. In the next year, inequality rose sharply according to all indices; presumably the effect of the sharp increases in unemployment and the lack of adequate social protection for those affected. Interestingly, between 2012 and 2013 all indices record a substantial increase in inequality, apart from MLD which registers a very marginal decline. This is another indication of intersecting Lorenz curves, this time close to the bottom of the distribution. Finally, all indices record a robust decline between 2013 and 2014. This is probably the result of the stabilization in output and a marginal decline in unemployment in 2014, combined with specific policies targeted towards the poorest segments of the population in that year (income-related family benefits, a lump-sum, one-off “social dividend” to the poorest segment of the population). In 2015 all indices record a clear increase, probably due to the first package of fiscal consolidation measures of the 3rd bailout programme.

All in all, between 2007 and 2015 inequality rose by -15.6%, 8.1%, 2.7% and 3.0% according to MLD, ATK0.75, ATK0.25 and Gini, respectively. Careful inspection of the data reveals that between 2007 and 2015 there was a decline in the income shares of the two bottom deciles by -0.6 and -0.1 percentage points, respectively, but also of the top decile by -0.5 percentage points and a corresponding increase in the income shares of the seven middle deciles (results available from the authors on request).

6. For exposition purposes, both distributions are cut off at the annual level of 30,000 euros per capita (in equivalized terms). Naturally, the distribution of 2007 has a fatter right tail above this threshold than the 2015 distribution.

4.1.3. Changes in aggregate poverty

Graph 4 presents the evolution of the three poverty indices using both “floating” (orange lines) and “anchored” (blue lines) poverty thresholds when their values are standardized to 100 for the base year (2007). When floating poverty lines are used, the indices remain stable for the first couple of years and then rise until 2012, but in a very different pattern. During this period, 2009-2012, the estimate of the poverty rate (FGT0), rises by almost 15% whereas the estimates of FGT1 and FGT2 rise by around 50% and 87%, respectively. Clearly, not only was there an increase in the share of the population falling below the poverty line, but also a decline in the incomes of the poor vis-à-vis the poverty line (increase in the “depth” of poverty) as well as an increase in inequality among the poor. In 2013 and 2014 all indices record a decline, while in 2015 FGT0 decreases while the two other indicators FGT1 and FGT2, capturing the depth of poverty, increase. The values of all indices are higher in 2015 than in 2007, but the differences in the proportional increases are substantial. FGT0 is 5.5% higher, while FGT1 and FGT2 are 37.4% and 69.9% higher, respectively.

The pattern is very different when the poverty line used is “anchored”: that is, fixed in real terms to its value in 2007. In the first couple of years, all indices decrease substantially, by almost 25% cumulatively. However, in the period 2009-2013 their values rise sharply and they only decline a little in 2014. In 2015 FGT0 decreases, while FGT1 and FGT2 rise. In the end of the period under consideration, the respective values

of FGT0, FGT1 and FGT2 are 101.4%, 168.1% and 228.7% higher than in 2007 –a tremendous increase that it is accounted for primarily by the decline in disposable incomes.

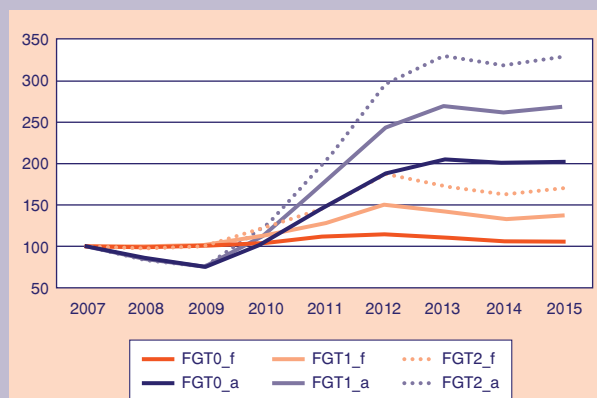
4.2. Changes in the structure of inequality and poverty

4.2.1. Changes in population shares and mean group incomes

For the purposes of our analysis, the population is grouped using two criteria. The first criterion is the socio-economic group of the household head. Eight groups are formed: Self-employed with employees, Self-employed without employees in the agricultural sector, Self-employed without employees outside agriculture, Private sector employees, Public sector employees, Unemployed, Pensioners and Other. In Table 1, the first two columns report the group population shares in 2007 and 2015, respectively, while the next two show the group mean incomes, normalized by the national average of the corresponding year.

The main effect of the crisis was the spectacular rise in the unemployment rate. Despite high growth rates before the crisis, the rate of unemployment in 2007 was quite high, 8.4%. By 2015 it had reached 25.7%.⁷ This is reflected in our data. Between 2007 and 2015 the share of the population living in households headed by unemployed persons rose from 2.2% to 9.4%. Furthermore, even though the mean income of the group was only 64% of the national average in 2007, it dropped to 53% in 2015. This should be attributed partly to the fact that between these years long-term unemployment shot up (in 2015 over three-quarters of the unemployed were long-term unemployed) and the income protection for this group was almost non-existent. Besides the gradual ageing of the population, during the crisis, a considerable proportion of people who were close to retirement chose to exit the labour market and take early retirement. In our data, this is reflected in the rise of persons living in households headed by pensioners from 28.9% to 33.6%. However, unlike what is often heard in the public discourse, the relative income position of this group rose during the crisis (even though it decreased substantially in real terms). In 2007, on average, the members of this group had incomes 5% lower than the population mean. By 2015 their incomes were 7% higher than the national average.

GRAPH 4
Poverty trends (2007-2015)



Source: Eurostat, EU-SILC 2008-2016 (incomes 2007-2015), own calculations.

7. It had peaked two years earlier at 27.5%.

TABLE 1 Population shares and group mean incomes

Population group	Population share		Mean income	
	2007	2015	2007	2015
Socio-economic group of household head				
Employer	7.3	4.7	1.35	1.27
Self-employed (agriculture)	5.8	4.7	0.65	0.68
Self-employed (non-agriculture)	3.6	3.1	1.00	1.04
Employee (private sector)	31.4	25.1	1.01	1.04
Employee (public sector)	9.4	9.2	1.24	1.23
Unemployed	2.2	9.4	0.64	0.53
Pensioner	28.9	33.6	0.95	1.07
Other	11.4	10.2	0.91	0.92
Households with/without unemployed				
No unemployed in household	88.1	69.8	1.03	1.13
At least 1 unemployed in household	11.9	30.2	0.78	0.71
GREECE	100.0	100.0	1.00	1.00

Source: Eurostat, EU-SILC 2008-2016 (incomes 2007-2015), own calculations.

Naturally, the increase in the share of these two groups was counterbalanced by the decline in the share of the population living in households with employed heads. This effect was not symmetric for all groups. One distinguishing feature of the Greek labour market is the large share of the self-employed. According to Eurostat, the share of the self-employed among all employed persons in Greece is by far the largest in the EU. The corresponding share in Greece was 28.9% in 2007 and, despite a substantial decline in the number of self-employed in absolute terms, rose to 33.6% in 2015, versus 15.0% in the EU27 in both years, using Eurostat figures. Reflecting the small size of the average Greek firm, the share of self-employed with employees among all employed persons was substantially higher in Greece than in the EU27 (7.3% vs 4.7%). The effects of the crisis on small firms were devastating and the number of self-employed with employees declined by almost 40% in the period under examination. These changes are reflected in the estimates reported in the first two columns of the table. The shares of the population living in all types of

households headed by employed persons declined –far more so those for those headed by self-employed with employees and private sector employees. The relative mean incomes of these groups in comparison to the national average did not change considerably during the crisis, with population members living in households headed by self-employed with employees and public sector employees being substantially above the national average, while those living in households headed by self-employed in the agricultural sector had monetary incomes below two thirds of the national average (however, unlike the rest of the population, they are likely to have in-kind incomes in the form of consumption of their own agricultural production).⁸

The second panel of the table is, essentially, a companion to the first panel and refers to the second partitioning criterion used. As noted earlier, a very large proportion of the unemployed are not household heads and there are many households with unemployed members. In this panel the partitioning criterion is the presence of

8. The evidence of the columns of the upper panel of Table 1 seems to run contrary to two popular myths used in the public discourse: (a) that during the crisis there was a substantial migration of unemployed persons from urban areas to rural areas in order to get involved in agricultural activities, and (b) that although public sector employees did not experience unemployment, they paid a very high price since their salaries were reduced far more than private sector salaries, with obvious consequences for their living standards in relative terms.

at least one unemployed member in the household. In 2007, 11.9% of the population was living in households with at least one unemployed member. By 2015 this figure had risen to 30.2%. Moreover, the relative mean income of this group declined from 78% to 71% of the mean national income.⁹

4.2.2. Inequality decomposition

Table 2 reports the results of inequality decomposition using MLD. The results reported in the first panel of the

table show that the only group with a decline in inequality between 2007 and 2015 was that of the households headed by pensioners, while the only group whose contribution to aggregate inequality rose substantially was that of households headed by unemployed persons (from 2.6% to 13.5%). This is a consequence of both a rise in its population share and the level of inequality within the group. On the contrary, the contribution of the rather heterogeneous group of population members living in households headed by self-employed with employees and private sector employees declines,

TABLE 2 Structure of inequality

Population group	Inequality		% Contribution ¹⁰		Change
	2007	2015	2007	2015	
Socio-economic group of household head					
Employer	33.3	35.1	13.3	7.8	-5.5
Self-employed (agriculture)	14.2	21.2	4.5	4.7	0.2
Self-employed (non-agriculture)	27.3	32.4	5.4	4.8	-0.6
Employee (private sector)	15.7	17.7	27.2	21.1	-6.1
Employee (public sector)	7.6	10.4	4.0	4.5	0.6
Unemployed	22.2	30.3	2.6	13.5	10.9
Pensioner	13.9	12.1	22.1	19.4	-2.7
Other	21.4	26.2	13.4	12.7	-0.6
“Within groups”	16.8	18.6	92.6	88.7	-3.9
“Between groups”	1.4	2.4	7.4	11.3	3.9
Households with/without unemployed					
No unemployed in household	17.8	17.1	86.2	56.7	-29.5
At least 1 unemployed in household	17.8	23.1	11.7	33.2	21.5
“Within groups”	17.8	18.9	97.9	89.9	-8.0
“Between groups”	0.4	2.1	2.1	10.1	8.0
GREECE	18.2	21.0			

Source: Eurostat, EU-SILC 2008-2016 (incomes 2007-2015), own calculations.

9. The population was also partitioned by household type, age of population member and education level of the household head. Due to space limitations, the results are not shown here but are available from the authors on request. They are in line with the results reported in Table 1. Between 2007 and 2015 there was an increase in the population share of elderly households and a decline in the share of households with children (due primarily to emigration –“brain drain”– and, to a lesser extent, population ageing), while there was an increase in the share of households with better educational qualifications. In terms of group mean incomes, there was a substantial improvement in the relative position of the elderly and the members of the households headed by persons with lower educational qualifications (usually, elderly).

10. The contribution of each population group shows the share (percentage) of the particular group in the formulation of total inequality (it is derived by dividing the inequality index for each group by the total inequality index for the whole population and by multiplying it with the share of each population group). The sum of contributions of the particular group is the percentage change “within groups” at the bottom of the panel. The remaining figure to reach 100% is the percentage change “between groups” (it equals the inequality index of the group assuming that all the members of the group have the mean income of the group and divided by the inequality index for the whole population, multiplied by 100).

primarily because of the declines in the population shares of these groups. In spite of the large increase in its population share, the contribution of the group of population members living in households headed by pensioners declines marginally. This, in turn, should be attributed to the decline in the level of inequality within the group, especially vis-à-vis the national average. Further, the contribution of “between socio-economic groups” disparities to aggregate inequality rose considerably. Whereas such disparities accounted for 7.4% of aggregate inequality in 2007, their contribution rose to 11.3% in 2014.

To some extent, the results in the second panel of Table 2 complement those reported in the first panel. As noted earlier, most unemployed persons are not household heads. This increased considerably the heterogeneity of the group of persons living in a household with at least one unemployed member. Hence,

although inequality declined marginally in the group of persons living in households with no unemployed members, it rose substantially in the group of persons living in households with unemployed members. The latter combined with the sharp increase in the population share of the group leads to a staggering increase of its contribution to aggregate inequality from 11.7% to 33.2%. The increase in its population share combined with the decline in its relative mean income leads to a rise in the share of inequalities “between groups” from 2.1% in 2007 to 10.1% in 2015.¹¹

4.2.3. Poverty decomposition

Table 3 presents changes in the structure of poverty between 2007 and 2015. The first two columns show the estimates of FGT0 (the poverty rate) for the various groups in 2007 and 2015 using contemporaneous (“floating”) poverty lines, set at 60% of the median equivalized income of the population in the corre-

TABLE 3 Structure of poverty

Population group	FGT0		FGT0 Contribution % ¹²		FGT2		FGT2 Contribution (%)	
	2007	2015	2007	2015	2007	2015	2007	2015
Socio-economic group of household head								
Employer	19.7	16.4	7.2	3.7	2.97	2.21	9.5	2.7
Self-employed (agriculture)	43.5	48.7	12.7	11.0	5.00	8.97	12.8	10.9
Self-employed (non-agriculture)	30.1	23.2	5.5	3.5	4.15	4.26	6.6	3.4
Employee (private sector)	16.2	18.9	25.7	22.7	1.78	2.77	24.6	18.0
Employee (public sector)	3.0	3.1	1.4	1.3	0.26	0.19	1.1	0.5
Unemployed	40.1	55.8	4.3	25.0	9.36	14.60	8.8	35.4
Pensioner	18.6	13.2	27.1	21.2	1.37	1.29	17.3	11.2
Other	27.7	25.1	15.9	12.3	3.84	4.66	19.2	12.4
Households with/without unemployed								
No unemployed in household	18.6	13.4	82.6	44.6	1.92	1.84	74.3	33.2
At least 1 unemployed in household	28.9	38.3	17.4	55.4	4.90	8.54	25.6	66.9
GREECE	19.8	20.9	100.0	100.0	2.27	3.86	100.0	100.0

Source: Eurostat, EU-SILC 2008-2016 (incomes 2007-2015), own calculations.

11. When inequality decomposition analysis is performed using other criteria, the most striking result is, probably, the sharp decline of the contribution inequality “between educational groups” to aggregate inequality from 20.9% to 13.0%.

12. The contribution of each population group shows the percentage contribution of this group to overall poverty according to the indicator used (it is derived from the group poverty index divided by the index value for the total population and multiplied by the population share of each group).

sponding year. As shown at the bottom of the table, in 2007, 19.8% of the population falls below the poverty line, while by 2015 this percentage rises to 20.9%.¹³ The next two columns report the contributions of the corresponding groups to aggregate poverty according to FGT0. This exercise is replicated for FGT2, as shown in the remaining columns of the table. The estimate of FGT2, which unlike FGT0, is sensitive to both the distance of the poor from the poverty line and the extent of inequality among the poor, is 70% higher in 2015 vis-à-vis the estimate for 2007.

In 2007 there were two population groups with poverty rates exceeding the national average by a wide margin: members of households headed by self-employed without employees in the agricultural sector (43.5%) and unemployed persons (40.1%). Yet, due to their small population shares, the contributions of these groups to the aggregate poverty rate were small. The bulk of the poor could be found in households headed by pensioners (27.1%) and private sector employees (25.7%). By 2015 the situation was very different. The poverty rate of the group of persons living in households headed by unemployed individuals rose to 55.8%, while that of the members of households headed by pensioners dropped from 18.6% to 13.2%. As a consequence and combined with the changes in the population shares, there was a dramatic change in the composition of the poor. In 2015 the most important contributor to aggregate poverty was the group of persons living in households headed by unemployed individual (25.0%), while, despite the increase in its population share, the contribution of the group of individuals living in households headed by pensioners dropped to 21.2%. At the other extreme, in both years poverty appears to be a rare phenomenon in households headed by public sector employees.

Turning to the estimates derived using FGT2, it can be noticed that the relative rankings of the groups are relatively similar with those reported when FGT0 is used. However, the quantitative differences across groups are larger and broadly in line with the group mean incomes and their evolution reported in Table 1. In both cases, two groups stand out as high poverty-risk groups: members of households headed by self-employed in agriculture and members of households headed by unemployed persons. Nonetheless,

in 2007, using FGT0, poverty appears to be more common in the former than in the latter group, whereas according to FGT2, the estimate for the latter group is almost twice as high as that of the former group. Apparently, extreme poverty was more common in the latter group. In fact, in both years, the FGT2 estimates for the former group were a little more than twice as high as the national average, whereas for the latter they were more than four times the national average.

Turning to the contributions to aggregate poverty, it is stunning to report that in 2015 the group of members of households headed by unemployed persons, which accounted for less than 10% of the total population, contributed over 35% to aggregate poverty. At the other extreme, the contribution of households headed by public sector employees (population share 8.3%) was almost non-existent (0.5%), while that of the group of households headed by pensioners, with a population share of 33.6%, was just 11.2%.

A similar picture emerges in the second panel of the table where the population is grouped according to the existence of unemployed members in the household. In both years, the group of individuals living in households with unemployed members faced a markedly higher poverty risk than the rest of the population, irrespective of the poverty indicator. Both relative risks vis-à-vis the national averages and contributions of the group to aggregate poverty rose markedly in 2015. As a consequence, this group, which included a little less than a third of all population members in 2015, accounted for around half of the poor and almost two-thirds of the recorded poverty when using FGT2.¹⁴

5. Conclusions

We examined developments in the levels and the structure of inequality and poverty in Greece during the recent crisis, using the information of EU-SILC. During the period under examination, 2007-2015, there was a decline in the income shares of the two lowest and the top decile. As a result, indices sensitive to the existence of very low incomes record a substantial increase in inequality, while indices that are relatively more sensitive to changes in the middle or the top of the distribution record a more modest increase in in-

13. These rates are marginally lower than those reported by Eurostat, 20.1% and 21.2%, respectively, due to the top and bottom coding procedure applied here.

14. Estimates of poverty decompositions using other partitions of the population and/or an "anchored" poverty line are available from the authors on request. They show a decline in the poverty risk and the contributions of the elderly and persons living in households headed by persons with low educational qualifications, and a corresponding increase in the risk and contributions of households with children and households headed by better educated persons.

equality. Relative poverty, measured using “floating” poverty lines, recorded an increase that appears to be quite substantial when distribution-sensitive poverty indices are utilized. Taking into account that disposable income declined by almost 40% in the period under examination, it is not surprising to find that poverty using “anchored” poverty lines shot up. Depending on the index and its sensitivity to the existence of very low incomes, the estimated poverty indices rose between 100% and 250%.

Changes in the structure of inequality and, particularly, poverty were driven primarily by the enormous increase in unemployment. Regarding its structure, both before and during the crisis, inequality emanated primarily from differences “within” rather than “between” population groups. During the crisis, the importance of differences between socio-economic groups in shaping aggregate inequality rose. With respect to the structure of poverty, the effects of the increase in unemployment are enormous. On the contrary, despite the decline in their income in absolute terms during the crisis, pensioners improved considerably their relative position, and their contribution to aggregate poverty declined substantially.

What are the driving forces behind the observed changes? The explanation can, probably, be found in Greece’s social model. Greece was arguably the most typical case of the “Mediterranean male-breadwinner welfare state” in the “old” EU member-states. According to the OECD, Greece’s labour market lacked flexibility. Even before the crisis, youth and female unemployment rates were the highest in the EU, but for as long as at least one family member –usually, the male breadwinner– had a formal attachment to the labour market, there was an internal redistribution of resources within the family and, hence, strong family ties acted as a social shock absorber. Even though welfare spending as a share of GDP rose sharply in the years before the crisis,¹⁵ it was directed mainly to pensions. The redistributive effects of welfare spending in reducing poverty and inequality were marginal in comparison to other EU countries, and Greece’s levels of inequality and poverty were among the highest in the EU.

The limitations of this system became evident when the crisis erupted. Many household heads lost their jobs and a considerable proportion of the population was left with limited or even zero financial resources. Unemployment insurance was flat, inadequate and provided for a limited period of time; long-term unemployment assistance was almost non-existent, and Greece

was one of the very few members of the EU without a Minimum Income Guarantee scheme. Unsurprisingly, the experience of the crisis for several households with unemployed heads and/or unemployed members was a free fall without a safety net. This partly explains the sharp increase in the contributions of these groups to aggregate inequality and aggregate poverty when indices sensitive to the existence of very low incomes are utilized.

The only segment of the population with a minimum income guarantee in place was pensioners. During the crisis there were cuts in pensions. However, unlike what is often heard in the public discourse, the cuts in pensions were far lower than the decline in average incomes. This is evident in the substantial improvement of pensioner household incomes in relative terms during the crisis. Moreover, cumulatively and also unlike what is often heard in the public discourse, the cuts in pensions were anything but uniform. High pensions were cut proportionally far more than low-level pensions. This explains the decline in inequality among pensioner households during the crisis.

A number of measures aimed to mitigate the effects of the crisis were taken, but always under very hard budget constraints. Some of these measures were one-off, whenever financial resources were available (for example, the “social dividend”), some were more structural in nature (for example, the introduction of income-related family benefits, unemployment assistance for long-term unemployed workers and unemployment insurance for the self-employed). Furthermore, a scheme for the introduction of a generalized Minimum Income Guarantee scheme was also piloted during the period under examination. At the same time, many measures were taken to liberalize the labour market, in the expectation that they would boost employment. A number of simulation studies (see, for example, Matsaganis et al., 2017) seem to suggest that several of these measures had the intended effects, but were “too little, too late”.

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15. According to Eurostat, the share of social welfare protection in GDP rose from 18.5% in 1995 to 26.6% in 2009. The rise continued in the first years of the crisis and in 2012 Greece’s social welfare spending was the third highest in the EU.

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