

Income Inequality, Poverty and the Impact of the Pension Reform†

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Abstract

This paper examines income inequality and poverty in Cyprus vis-a-vis the European Union (EU) and investigates how these are affected by the recently implemented pension reform. The empirical investigation is conducted using individual household data drawn from the EU Statistics on Income and Living Conditions (EU-SILC, 2007). Income inequality and poverty in Cyprus is close to the EU average. Our estimates suggest that the pension reform decreases income inequality - the Gini coefficient and the S80/S20 ratio are decreased by 1 and 0,4 percentage units, respectively. Furthermore, the poverty rate is estimated to decrease by 1,3 percentage units. In conclusion, the pension reform is adequately targeted and leads to socially desirable results but potentially harmful side effects (higher fiscal deficit, reduced voluntary contributions to pension funds and labour market participation) need to be addressed.

Keywords: income inequality, poverty, pension reform.

1. How income inequality and poverty are measured in the EU

There are various indices proposed in the literature to measure income inequality, with some placing more emphasis on extreme income differences than others, as shown in the seminal papers by Atkinson (1971) and Kolm (1976). In the European Union (EU) inequality is measured by the Gini coefficient and the S80/S20 ratio.

The Gini coefficient measures the cumulative percentage difference between the shares of households in income and population, ranked from the poorer to the richer percentile: in perfect equality each population percentile has one percent of total income and the Gini coefficient is equal

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to zero; in perfect inequality all income goes to one household percentile and the Gini coefficient is equal to one. In practice, the Gini Coefficient takes values between 0,2 to 0,4.

The S80/S20 ratio is a more 'specialised' measure of inequality, in the sense that it focuses on income differences between the very rich and the very poor. More precisely, it is the ratio of the income share of the richest 20% to the income share of the poorest 20% of the population. Thus, the S80/S20 ratio takes a minimum value of one if the richest and the poorest 20% of the population have the same shares in income (perfect equality) and increases with income concentration among the richest 20% of the population. In practice, it takes values between 3 and 8.

The measurement of poverty is also subjective and can be complicated by issues ranging from the appropriate concept of 'the standard of living' to issues about the extent to which absolute or relative poverty is the appropriate measure. The World Bank, for example, defines poverty as 'hunger, lack of shelter, being sick and not being able to see a doctor, not having access to school and not knowing how to read, not having a job, fear for the future, living one day at a time, losing a child to illness brought about by unclear water, powerlessness and lack of representation and freedom'. This is the definition of absolute poverty.¹

The European Union (EU) is committed to fighting poverty (and social exclusion) using the Open Method of Coordination (OMC), based on a list of 18 common indicators agreed at the Laeken European Council. The main measure of monetary poverty included in this list is a 'relative' one, in the sense that it is defined vis-à-vis the overall well being in a country at a particular point in time. There was strong justification for this approach rooted in social science ramifications arising from arguments going beyond the notion of poverty as lack of basic material needs to the notion of social participation and human functioning. Thus, in the EU:

'Poor are the persons, families and groups of persons whose resources (material, cultural and social) are so limited as to exclude them from the minimum acceptable way of life in the Member State in which they live. Due to the poverty faced, these persons, families and groups of persons can encounter multiple disadvantages via unemployment, low income, bad housing conditions, not sufficient health-care and obstacles in lifelong learning, culture, sports and recreation. Usually these persons are excluded and marginalized

¹ The definition of poverty is on the website of the World Bank <http://web.worldbank.org>

from participating in activities (economical, social and cultural) which are the norm for other persons and their access to basic human rights may be limited' (EEC, 1985).

Given the adoption of a relative poverty concept, the poverty in the EU is measured using a 'poverty line' defined in relation to the median income (i.e. the income that leaves half of the households below and the other half above this level). More precisely, poor households are considered to be those with equivalent income below 60% of the median, where 'equivalent' is the household income divided by a number to account for the increasing needs with the number and age of family members. Household incomes in the EU are divided to become equivalent, by the following scales: 1 for the first adult (let's say, the head of the household) + 0,5 times the additional number of persons aged 14 years and above + 0,3 times the additional number of persons aged below 14 years old.

For example, a household income of 30.000 euro is equivalent income to:

- 30.000 euro if the household has only one adult,
- 20.000 euro if the household has two adults (that is 30.000 over 1,5),
- 10.667 euro if the household has two adults and a child below 14 years old (that is 30.000 over 1,8),
- 10.304 euro if the household has two adults, one child below and one child above the age of 14 (that is 30.000 over 2,3),
- etc.

This paper examines how the income inequality and poverty measures in Cyprus compare with other countries of the EU and investigates how these measures are affected by the pension reform implemented on 1st December 2009. The analysis begins with a presentation of inequality and poverty in the EU, in general. Section 3 focuses on income inequality and poverty trends in Cyprus, while Section 4 shows how these figures are affected by the pension reform. Section 5 discusses findings in the literature about inequality and poverty in the EU and concludes the paper.

2. Income inequality and poverty in the EU

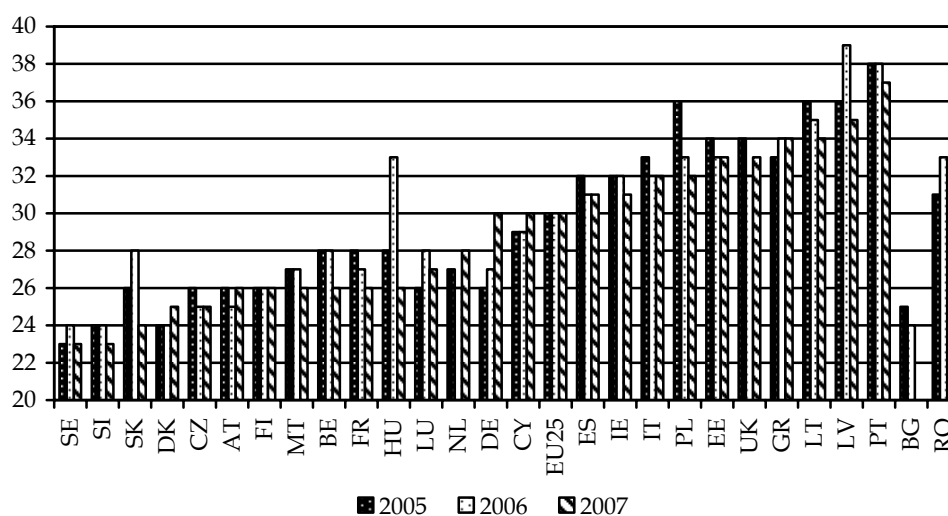
The problems concerning income inequality, poverty and social exclusion have a dominant position in the political agenda of the EU. Since 2000 all member states have produced a National Action Plan for combating poverty and social exclusion, with a view to achieving substantial progress towards this objective by 2010.

2.1. Income inequality

The Gini coefficient for the EU-25 member states is on average around 0,30. For the years 2005 to 2007, as shown in Figure 1, the countries with the largest income inequality were Portugal, Latvia, Lithuania and Greece (around 0,35) while the countries with the smaller income inequality were Sweden, Slovenia, Slovakia and Denmark (around 0,24). The Gini coefficient for Cyprus was 0,30, i.e. equal to the EU-25 average.

FIGURE 1

Gini coefficient²



Source: Eurostat.

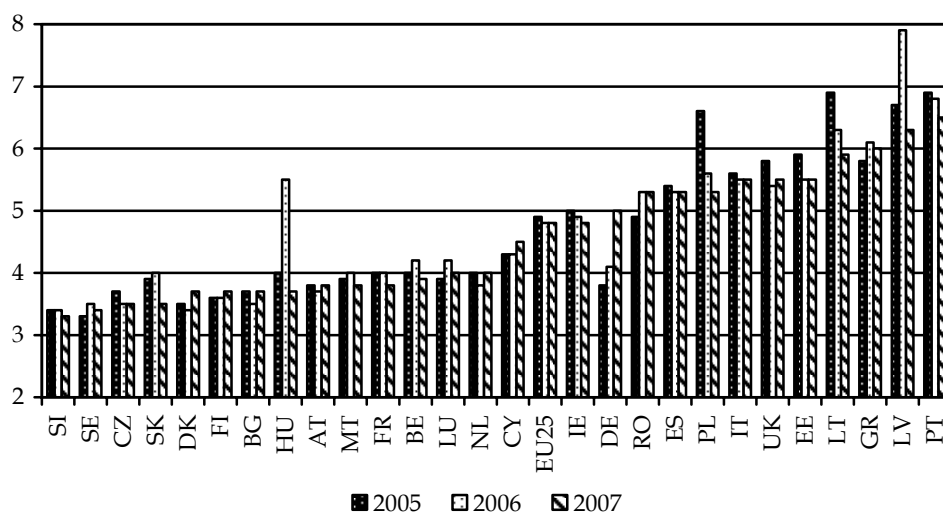
According to a mimeo published by the European Network Against Poverty³ the average of S80/S20 ratio in the EU-25 was 4,9 in 2005, while the same ratio in 2005 was 4,5. Thus, on average, the gap between the richest and poorest 20% of the population in the EU increased between

² The acronyms of the country names in this Figure, as well as in the Figures that follow in this paper, have as follows: AT-Austria, BE-Belgium, BG-Bulgaria, CY-Cyprus, CZ-Czech Republic, DE-Germany, DK-Denmark, EE-Estonia, ES-Spain, FI-Finland, FR-France, GR-Greece, HU-Hungary, IE-Ireland, IT-Italy, LT-Lithuania, LU-Luxembourg, LV-Latvia, MT-Malta, NL-Netherlands, PL-Poland, PT-Portugal, RO-Romania, SE-Sweden, SI-Slovenia, SK-Slovakia, UK-United Kingdom.

³ This mimeo is available at <http://www.poverty.org.uk/summary/eapn.shtml>

2000 and 2005. This gap is relatively low (between 3,3 and 3,8) in Sweden, Slovenia, Czech Republic, Denmark, Finland, Austria and Luxembourg; and relatively high (between 6,6 and 8,2) in Poland, Latvia, Lithuania and Portugal. In Cyprus the S80/S20 ratio is 4,5 - again, close to the EU-25 average. In general, the ranking of countries based on income inequality as measured by the S80/S20 ratio (Figure 2) is similar to the ranking when income inequality is measured by the Gini coefficient (Figure 1).

FIGURE 2
S80/S20 ratio

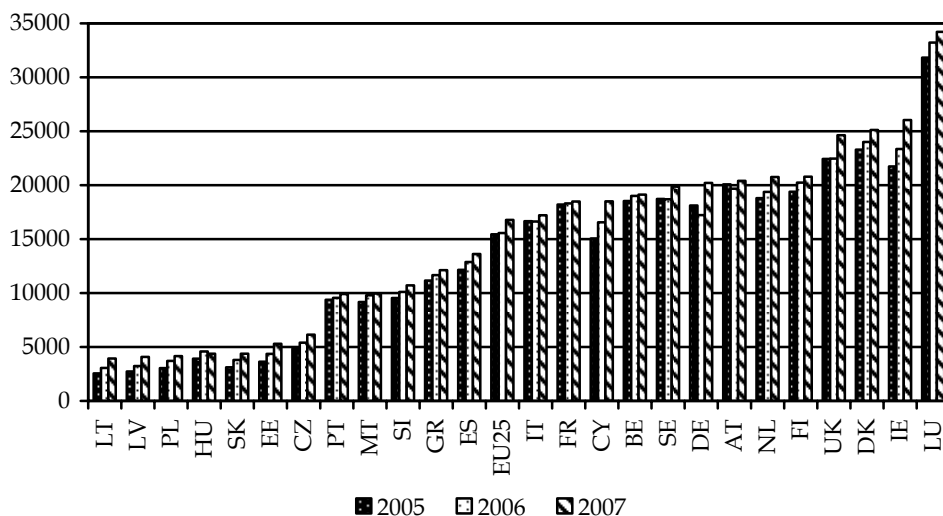


Source: Eurostat.

2.2. Poverty

Figure 3 shows the mean net (after tax) income of each EU-25 member state, and the EU-25 average in 2007. Luxembourg, Ireland, Denmark and United Kingdom were the countries with the highest mean income; while Lithuania, Latvia, Poland and Hungary were the countries with the lowest mean income. The mean net income of Cyprus in the same year was 18.500 euro, that is 10,3% above the EU-25 average (16.778 euro). Here, it is worth noting the substantial rise of mean income of Cyprus between 2005 and 2007.

FIGURE 3

Mean income

Source: Eurostat.

The mean income shows the economic affluence of the country, but a higher mean income does not necessarily imply a low risk of relative poverty. Indeed, as we shall see below - and also reported by other studies, e.g. Gordon (2006) and Lelkes and Zolyomi (2008) - in the EU member states the proportion of the population with income below the poverty line is inversely related to per capita GDP.⁴

Figure 4 shows the poverty rates⁵ in all EU-25 countries. The countries with the higher poverty rates are Lithuania, Spain and Greece, while the countries with the lower poverty rates are Czech Republic, Netherlands and Sweden. The EU-25 average is 16% for the years 2005 to 2007, the same as the corresponding figure for Cyprus.

In general, the Mediterranean countries (but also the United Kingdom and Ireland) have high poverty rates compared to most other EU countries. The countries of Central and Eastern Europe present a non uniform picture,

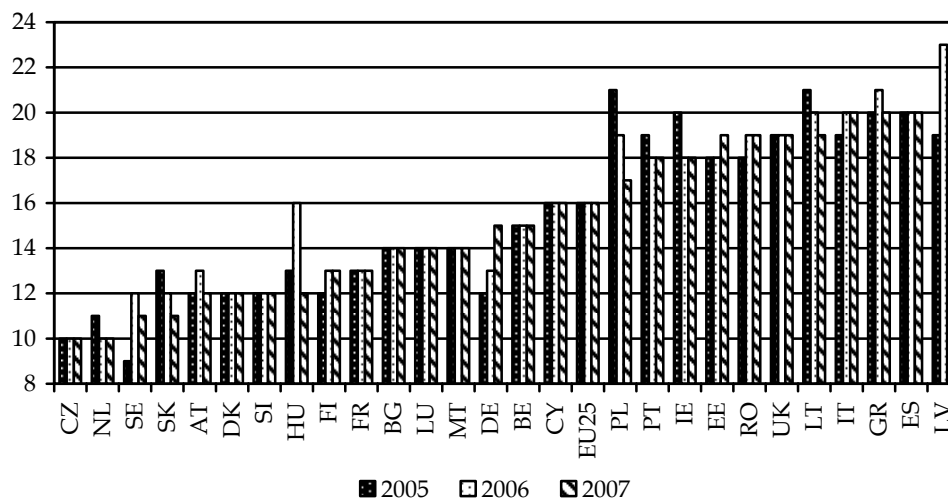
⁴ Recall that the EU defines as poor the households that have equivalent income below 60% of the median national income.

⁵ The poverty rate is the percentage of households with equivalized income below the poverty line.

with some having low (Czech Republic, Slovakia and Slovenia) and others high (Poland, the Baltic countries and Romania) poverty rates.⁶

FIGURE 4

Poverty rate



Source: Eurostat.

3. Inequality and poverty by population group in Cyprus

Cyprus, with income inequality and poverty indices close to those of the EU-25 average may be thought to be among countries that are not in urgent need of measures to redistribute income in favour of the poor. Nevertheless, as we shall see below, the situation is not equally satisfying for certain groups of the population, where poverty is well above the EU-25 average.

3.1. Income inequality trends

Nicolaidou et al (2006) find that the gap between the mean income of the poorest and richest 20% of the population increased between 1991 and

⁶ Gordon (2006) attempts to explain country differences in income inequality and poverty in Europe on the basis of historical socio-political characteristics.

2003 in Cyprus; whereas measured in percentage terms this gap decreased over the same period.

According to the authors, the result above suggests that the overall change in income inequality in Cyprus over the period under investigation is ambiguous. However, for some groups of the population the two measures (simple and percentage income differences) move in the same direction, indicating firmly that there has been a change in their position in income distribution:

- the position of single persons (not pensioner), couples without children and households with head public employee or up to 30 years old has improved; in contrast,
- the position of single parents and households with more than three children or low educated or unemployed or self-employed head or living in rural areas has worsened.

In addition, Nicolaidou et al. (2006), using econometric analysis, examined the characteristics that increase inequality, as measured by the income gap from the mean.

- Characteristics associated with positive income differences from the mean (i.e. higher than average income) are: the education level of both the head and his/her spouse; and to a smaller extent, age of head between 46-60 and living in urban areas.
- Characteristics associated with negative income differences from the mean (i.e. lower than average income) are: being a household with head pensioner or unemployed or self-employed or private employee or over 75 years or female; or households with more adults or dependent persons.

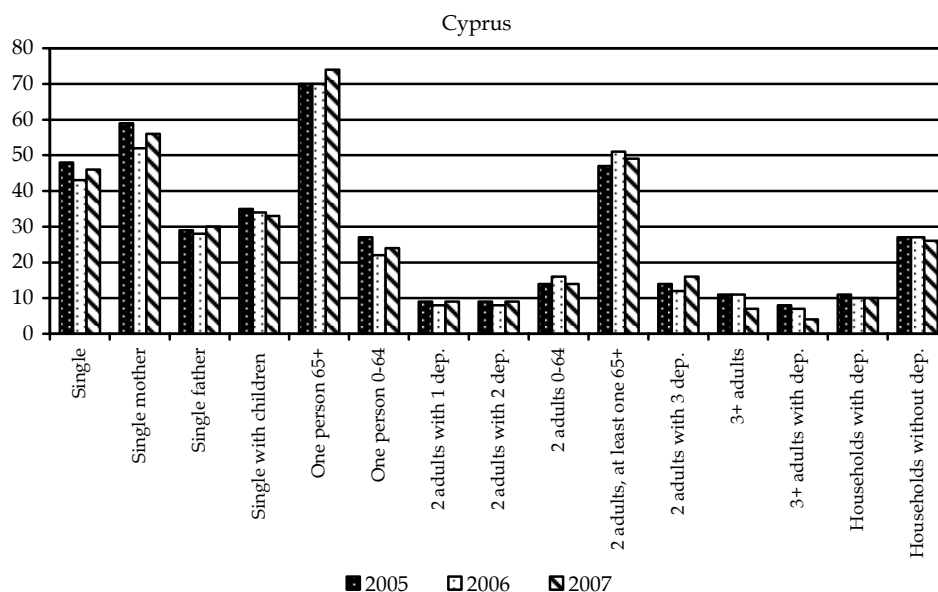
3.2. Poverty among population groups

Figure 5 presents the poverty rate by household type in Cyprus. Households with a single person aged over 65 have the highest poverty rate, which in 2007 reaches 74%. Single mothers follow with a poverty rate of 56% and two-adult households where one is at least 65 years old with 49%.

The very high poverty rate associated with old age in Cyprus is due to the immaturity of the current old age pension system guaranteeing a decent pension to private sector retirees. This pension system was introduced in 1980 and will not fully mature until 2013, when those retiring will have completed at least 33 years. Meantime the pension received by those who have retired during the last thirty years or so falls short of the full old age

pension level. Of course, the situation has been improving over time in the sense that old private sector retirees are gradually replaced by new ones with more years of employment under the current system and, therefore, a higher old age pension. This improvement over time is demonstrated by the increasing replacement ratio from 0,28 in 2005 and 2006 to 0,29 in 2007.⁷

FIGURE 5

Poverty rates by household type

Source: Eurostat.

Although old age is undoubtedly a high poverty risk characteristic in Cyprus, one has to also acknowledge that elderly people are not homeless or living rough. In contrast, most of them are reported in the Family Expenditure Survey data (Statistical Service) to live in satisfactory conditions. This is partly due to family bonds still being strong in Cyprus and resulting in old age persons receiving support from their children and other close relatives. Furthermore, home ownership is widespread among the elderly, as is home production, especially in rural areas.

⁷ The replacement ratio shows the pension received by persons aged 65-74 as a percentage of income from labour of persons aged 50-59 years old. In Cyprus this ratio is far below the EU-25 average (0,49 in 2007, as reported in Eurostat).

Another factor possibly contributing to the poverty rate among older persons appearing mistakenly too high in Cyprus is that a large number of pensioners continue to work in family or other small businesses after their retirement, without declaring their income and from this employment.

4. The impact of the pension reform

Returning to the point that old age pensions in Cyprus are very low (compared to both other EU countries and the average income in the country) one would argue that the decision taken by the government to increase these pensions from 1st December 2009 was long overdue. In this section of the paper we examine how this pension reform has affected income inequality, poverty and the depth of poverty. More precisely, we draw data from the European Union Statistics on Income and Living Conditions (EU-SILC)⁸ to simulate the impact of the reform on the income of households and then compute the resulting change in income inequality and poverty indices used in the EU.

4.1. The pension reform

According to the 1st December 2009 reform, entitled to pension increase are households with (i) incomes below the poverty line and (ii) at least one person receiving pension from the Social Insurance Fund or the Social Pension Fund or a Professional Pension Plan implemented in Cyprus. For the purposes of the reform members of the household, in addition to pensioner, are considered to be his/her spouse and unmarried dependent children, as long as they stay under the same roof.

Using the EU definition the poverty line in Cyprus for 2009 is calculated to be 10.398 euro per year for one-person households and 15.597 euro per year for two-adult households. Notably, the poverty line is the same before and after the pension reform because the increase in pensions does not affect the median income - on the basis of which the poverty line is calculated.

⁸ The EU-SILC database is created by Eurostat in cooperation with the Statistical Services of the member states and contains information about the household and individual characteristics such as the level and sources of income education, employment, health etc. The EU-SILC data are revised to reflect incomes (and the poverty line) in 2009 because only households below the poverty line are entitled to a pension increase.

Households are classified in ten categories on the basis of income from all sources. Each category is entitled to the monthly pension increase shown in Table 1.

According to the Ministry of Labour and Social Insurance, the pension reform benefits 53.385 households (71.207 persons) at a total cost around 57 million euro for the first year of its implementation. This cost does not include government savings from reduction in means-tested social welfare benefits and potential costs arising from behavioural responses (e.g. reduced contributions to old age pension schemes, particularly by self-employed persons).

TABLE 1
*Increase in pensions by income category
(Euro, in 2009)*

Annual household income for one person households	Monthly pension increase	Annual household income for two person households	Monthly pension increase
Up to 5.199	66,67	Up to 7.799	100,00
5.200-5.719	65,50	7.800-8.579	98,25
5.720-6.239	64,08	8.580-9.359	96,13
6.240-6.759	62,67	9.360-10.139	94,00
6.760-7.278	61,25	10.140-10.917	91,88
7.279-7.798	59,83	10.918-11.697	89,75
7.799-8.318	58,42	11.698-12.477	87,63
8.319-8.838	57,00	12.478-13.257	85,50
8.839-9.358	55,58	13.258-14.037	83,38
9.359-10.398	54,17	14.038-15.597	81,25

Source: Pension benefit provision to pensioners with low incomes application form.

4.2. The impact on income inequality

We examine the effect of the pension reform on income inequality by calculating how it affects the share of each population decile in total income (Table 2).

As one would expect, the pension reform decreases income inequality. In particular, the mean income of the poorest 20% of the population (first and second deciles in Table 2) increases by: 738 euro (from 6.736 to 7.474 euro) for the poorest 10%; and 690 euro (from 9.337 to 10.027 euro) for the 11-20% poorest. In contrast, the income shares of households above the poorest 30% decrease, as these households do not benefit from the reform.

The decrease in income inequality from the pension is reflected in a reduction of the Gini Coefficient by one percentage point (from 35% to 34%) and in the S80/S20 ratio by 0.4 units (from 5,86 to 5,46).

TABLE 2
Income distribution among households
(Euro, in 2009)

Income category	Before the reform		After the reform	
	Mean annual income	Percentage to total income	Mean annual income	Percentage to total income
0-10%	6.736	3,0%	7.474	3,4%
11-20%	9.337	4,2%	10.027	4,5%
21-30%	11.789	5,3%	11.861	5,3%
31-40%	14.303	6,5%	14.303	6,4%
41-50%	16.753	7,6%	16.753	7,5%
51-60%	19.329	8,8%	19.329	8,7%
61-70%	22.416	10,1%	22.416	10,1%
71-80%	26.285	11,9%	26.285	11,8%
81-90%	32.413	14,7%	32.413	14,6%
91-100%	61.813	27,9%	61.813	27,7%

Source: Calculations of the authors.

4.3. The impact on poverty

According to our estimation, the percentage of households with income below the poverty line, was 21,7% before and 20,1% after the pension reform. Counting persons, the reform decreases the poverty rate by 1,3 units (from 15% to 13,7%).⁹

In addition to 'how many' it is also important to know 'how far' households (or persons) are below the poverty line: the further its income is below this line the deeper the household is in poverty. The pension reform under consideration increases the pensions of all households below the poverty line; therefore, it decreases the depth of poverty. More precisely, we estimate that the pension reform decreases the depth of poverty from 24% to 19%, meaning that the income of households was, on

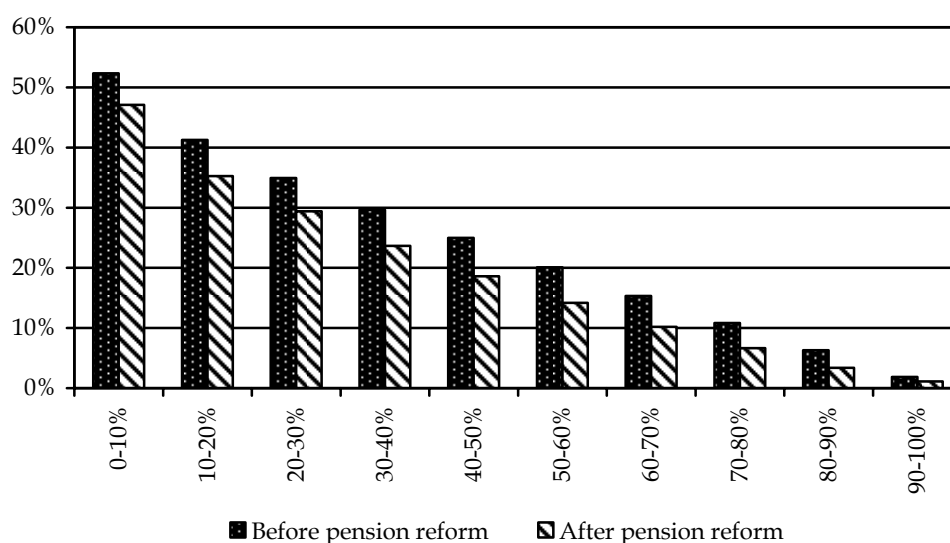
⁹ The poverty rate counting persons is lower because, on average, there are fewer persons in households below than above the poverty line.

average, below the poverty line 24% before and 19% after the reform. In numbers, the average (equivalent) income of households below the poverty line increased by 541 euro, from 8.219 euro before to 8.760 euro after the reform.

Figure 6 shows the average income increase required by each decile of households below the poverty line in order to reach this line before and after the reform. Leftmost is the poorest and rightmost the least poor decile. As expected, the average income in all deciles increases and this increase is larger among households in the poorest deciles.

FIGURE 6

Depth of poverty per income category



Source: Calculations of the authors.

5. Discussion and conclusion

Gordon (2006) argues that European countries with low poverty rate tend to be those with advanced social welfare systems (Scandinavian countries) and ex-communist countries not governed by neo-liberal parties. In other words, as this argument goes, poverty in the EU countries is not due to the lack of income and resources but due to the lack of effective policies for redistributing income and resources from the rich to the poor. Furthermore, Gordon (2007) points to the need for policies combating the phenomenon of 'working poor', arising from very low earnings among some groups of workers.

Lelkes and Zolyomi (2008) examined the poverty situation in EU countries by age group. In general, they found that children and old-age persons are the most vulnerable groups in all countries, with the exemption of Germany where all age groups are almost at the same risk of poverty. The poverty rate among children is high in Poland, Latvia, Spain, Hungary, Italy, Lithuania and the United Kingdom; and low in Finland, Norway, Denmark and Cyprus. The poverty rate among persons aged over 65 is highest in Cyprus (52%), followed by Latvia (30%) and Spain (29%); and lowest in Czech Republic and Netherlands (6%). Lelkes and Zolyomi (2008) also examine absolute poverty in the EU. They define the absolute poverty line at 10 euro per day, adjusted to the true purchasing power in each country. Based on this definition, poverty is lowest in Luxembourg and Cyprus and highest in Latvia and Lithuania.

The pension reform implemented on 1st December 2009 in Cyprus is targeted to reduce the observed very high poverty risk among the elderly. In our view one can praise this reform for yielding results towards achieving its objective: our analysis suggests that the reform reduces substantially income inequality, poverty and the depth of poverty.

Yet, it is reasonable to ask whether it is wise to hand out generous pension increases during an economic recession, when the government deficit seems to be rising. In response to this question one can say that the pension reform is the government's response to pleas for measures to combat economic hardship caused by the economic crisis. This, however, is not a valid argument because the groups hit the hardest by the economic crisis are workers in tourism and construction industries, not the pensioners. Thus, the economy and those affected most by the recession could have been better served with more public works and investment projects rather than pension increases.

A further concern about the pension reform examined in this paper is the potentially harmful effects which the increased social pension can have on social insurance contributions and other forms of savings, especially among the self-employed. This concern arises from the fact that the social pension has now risen closer to the level of the pension one would receive when retiring from a low-paid job. Moreover, the reform can have a negative effect on the labour market participation of older individuals.

In conclusion, the pension reform has been successful in addressing the very high risk of poverty among the elderly in Cyprus but now the government has to address negative side effects of this reform: increased government deficit and potentially reduced social insurance contributions and labour market participation.

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