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How clear are relative poverty measures to the common public?

Prepared by Statistics Portugal[1]

Abstract

Description and main conclusions:

The agreed standard for measuring poverty in the EU and OECD is based on the calculation of country relative poverty lines, with the benefits of tacitly accounting for country differences between different levels of income and changes in the income distribution in time. The relative poverty lines correspond to a specific percentage of the median of the disposable income distribution (60% for the EU-SILC and 50% for the OECD), the centre of gravity of the distribution being the leading value for the analysis of poverty. The standard poverty indicator is the percentage of people living with an equivalent income smaller than the relative poverty line.

However this standard has a drawback when time arrives to inform and explain common people about changes in poverty. In a common sense, a general rise of earnings and benefits is expected to result in the decreasing of the rate of poverty. Unfortunately, this is not necessarily so, the outcome depending on the balance between all individual changes, its impact on the median of the income median and the size of changes between poorer, less poorer and non poor people. As a limit, take the hypothetical case where all incomes are equally multiplied and inflation close to zero – the result would be no change in the relative poverty rate.

This weakness is becoming particularly evident when in a context of income decreasing as has been happening in various EU countries, which leads common sense to expect a rise on the rate of poverty. Again, this is not necessarily true and a global balanced shrink of incomes is likely to result in the maintenance, or even the reduction, of the relative poverty indicator.

Similarly to any other goods or services, improving a statistical indicator implies its adequacy and clearness to the users. As a consequence, there is a need to quickly overcome the gap between the standard for measuring poverty and the perception people have about the evolution of living conditions, namely through the use of absolute measures of poverty aimed at reflecting a minimum level of income considered adequate. This is however a complex task, implying a discussion between different fields of knowledge, which can be substituted in the near future by the increase use of anchored measures of poverty.

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HOW CLEAR ARE RELATIVE POVERTY MEASURES TO THE COMMON PUBLIC?

Contributed Paper

Prepared by Eduarda Góis, Statistics Portugal

I. Introduction

The agreed standard for measuring poverty in the EU and OECD is based on the calculation of country relative poverty lines, with the benefits of tacitly accounting for country differences between different levels of income and changes in the income distribution in time. The relative poverty lines correspond to a specific percentage of the median of the disposable income distribution (60% for the EU-SILC and 50% for the OECD), the centre of gravity of the distribution being the leading value for the analysis of poverty. The standard poverty indicator is the percentage of people living with an equivalent income smaller than the relative poverty line.

However, this standard has a drawback when time arrives to inform and explain common people about changes in poverty. In a common sense, a general rise of earnings and benefits is expected to result in the decreasing of the rate of poverty. But using the current convention this is not necessarily so, the outcome depending on the balance between all individual changes, its impact on the median of the income distribution and the size of changes between poorer, less poorer and non poor people. As a limit, take the hypothetical case where all incomes are equally multiplied and inflation is close to zero – the result would be no change in the relative poverty rate.

This weakness is becoming particularly evident when in a context of income decreasing as has been happening in various EU countries, which leads common sense to expect a rise on the rate of poverty. Again, this is not necessarily true and a global balanced shrink of incomes is likely to result in the maintenance, or even the reduction, of the relative poverty indicator.

Similarly to any other goods or services, improving a statistical indicator implies its adequacy and clearness to the users. As a consequence, there is a need to quickly overcome the gap between the standard for measuring poverty and the perception people have about the evolution of living conditions, namely through the use of absolute measures of poverty aimed at reflecting a minimum level of income considered adequate. This is however a complex task, implying a discussion and broad consensus between different fields of knowledge, which can be partially substituted in the near future by the increase use of anchored measures of poverty.

II. Some notes about poverty measurement

In common sense, poverty is the condition someone experiences when is not capable to access the set of goods and services that ensures a decent life in the society he or she belongs to. Experiencing poverty is commonly associated to the lack of basic rights like adequate food, health care, housing, education, work and social integration.

For statisticians, the challenge is to define a consistent and accurate way to measure poverty that provides citizens, governments and social committed public and private institutions with information to tackle social disadvantages. Such measures are also to be comparable in time and between different regions and groups of people, and can be classified as subjective, based on a self-assessment by people, or objective, when dealing with the shortage of economic resources (economic poverty). As far as possible, those measures shall also be transparent and easily perceived by its users.

When measuring economic poverty, a decision has to be made concerning the definition of the poverty line, i.e. the value used to distinguish between poor and non poor and calculate the proportion of poor people in the population. The poverty line is the threshold under which someone is considered poor, most frequently expressed in terms of an income variable.

Such a poverty line can be defined as an absolute poverty line, representing the cost of the set of goods and services that ensures a decent life in a society, independently from the behaviour of the income distribution. In a specific society, its usefulness depends on overcoming difficulties achieving a common consensus about the definition of the basic set of goods and services, which gets harder when enlarging the scope of poverty measurement to various regions. In this sense, the definition of an absolute poverty line faces similar issues to the definition of a subjective poverty measure. Nevertheless, however difficult it is to define a consensual set of goods and services, an absolute poverty line presents the advantage of avoiding a mixture of effects of different sizes and orientation, making available a fixed reference income that can easily be perceived by any citizen when evaluating a country social condition. Moreover, using an absolute poverty line ensures that a general rise of earnings and benefits result in the decreasing of the poverty rate, and that a general decrease of incomes result in the rise of the poverty rate, as expected.

On the other hand, a strictly relative poverty line, i.e. a proportion of the median or the mean of the income distribution, can be chosen. The calculation of poverty rates based on this kind of threshold features the advantage of automatically reflecting differences in the income distribution between different regions and in time, but does not provide an easy interpretation in line with common sense, especially when income is mostly decreasing. Hypothetically, if

there was a proportional increase (or decrease) of all incomes and zero inflation, the poverty line would change in the same proportion and direction, but the proportion of poor people would remain the same. In real life, the outcome of a strong change on incomes (either a rise or a decrease) depends on the balance between all individual changes, its impact on the median of the income and the size of changes between poorer, less poorer and non poor people. It can, for instance, ultimately lead to a rise in the relative poverty rate in the context of a general increase of earnings and benefits, which is contrary to common expectations.

This weakness is becoming particularly evident when in a context of income decreasing as has been happening in various EU countries, like Portugal, which leads common sense to expect a rise on the rate of poverty. Again, this is not necessarily true and a global balanced shrink of incomes is likely to result in the maintenance, or even the reduction, of the relative poverty indicator.

III. Some notes about the path of disposable income and poverty rates in Portugal

In the European Statistical System, economic poverty has been followed since 1994, first in the context of the European Community Household Panel (ECHP), and from 2004 onwards using the European Union Statistics on Income and Living Conditions (EU-SILC). Both projects are characterised by the focus on country strictly relative poverty lines estimated using the households' annual monetary disposable incomes by adult equivalent[2]. The convention is a core relative poverty line corresponding to 60% of the median equivalent monetary income in each country.

Portuguese household income survey data has integrated both ECHP – 1994 to 2001 – and EU-SILC – as from 2004. During the last five years, Statistics Portugal has been pursuing the gradual reduction of the gap between the income reference period and the dissemination date of income based estimates, with the publication of year *n* income based indicators in July *n+2*[3]. As disseminated in July 2013, most recent data concerns a relative poverty line of 4 994 euros and a rate of relative economic poverty of 17.9% in 2011 (EU-SILC data collected in 2012).

Another priority by Statistics Portugal is to ensure that poverty data is increasingly used, therefore understood. This is being achieved through the annual dissemination of short annual reports with a technically correct explanation but not too much complex analysis of the EU agreed main indicators on poverty, inequality and deprivation. In that context, difficulties

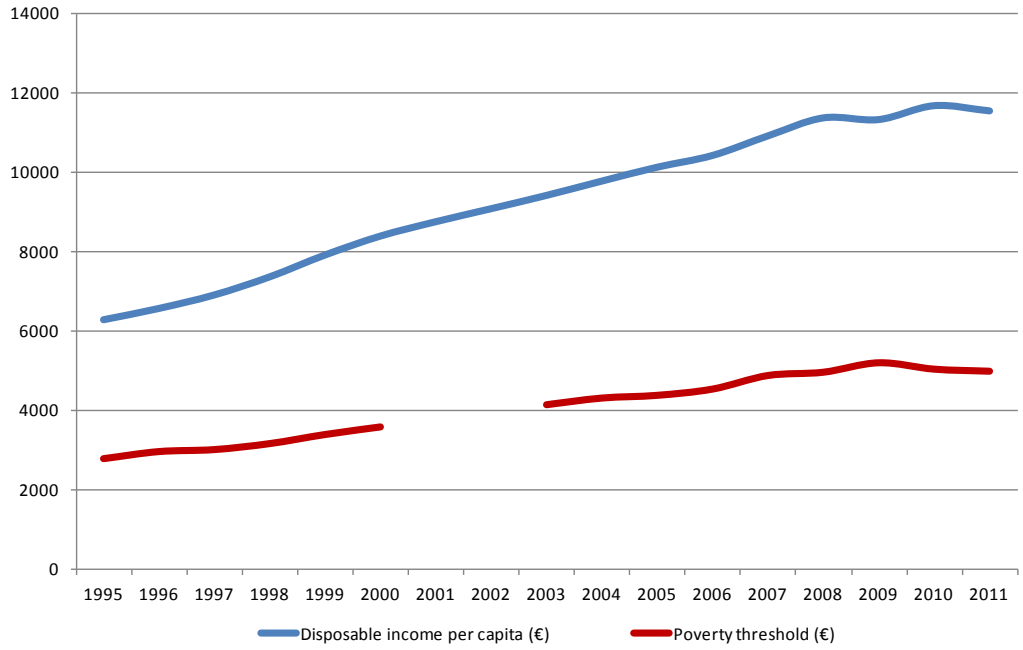
[2] Through the application of the so-called "OECD modified equivalence scale", assigning a value of 1 to the household head, of 0.5 to each additional adult member and of 0.3 to each child.

[3] Concerning timeliness, the national goal is currently the dissemination of 2012 income based indicators (EU-SILC 2013) during the first quarter of 2014.

emerged when trying to explain the decrease of the poverty rate in 2011 simultaneously to a decrease in disposable income.

For illustration purposes, the B6.G aggregate (Disposable income) is used. To get close to the concept of equivalent income used in EU-SILC, the value of B6.G is divided by the number of residents as estimated by the Annual estimates of resident population, while the designation "disposable income per capita" is adopted.

Figure 1: Disposable income per capita and poverty thresholds, Portugal, 1995-2011



Source: Statistics Portugal - Annual economic accounts for households and Statistics on Income and Living Conditions (EU-SILC); Eurostat - ECHP

In Portugal, between 1995 and 2011, the poverty threshold increased on average 3.7% per year, next to an average increase of 3.9% in the disposable income per capita. The linear correlation between the two series is extremely high[4] and the ratio between the poverty threshold and the disposable income per capita varied from 43% to 46%.

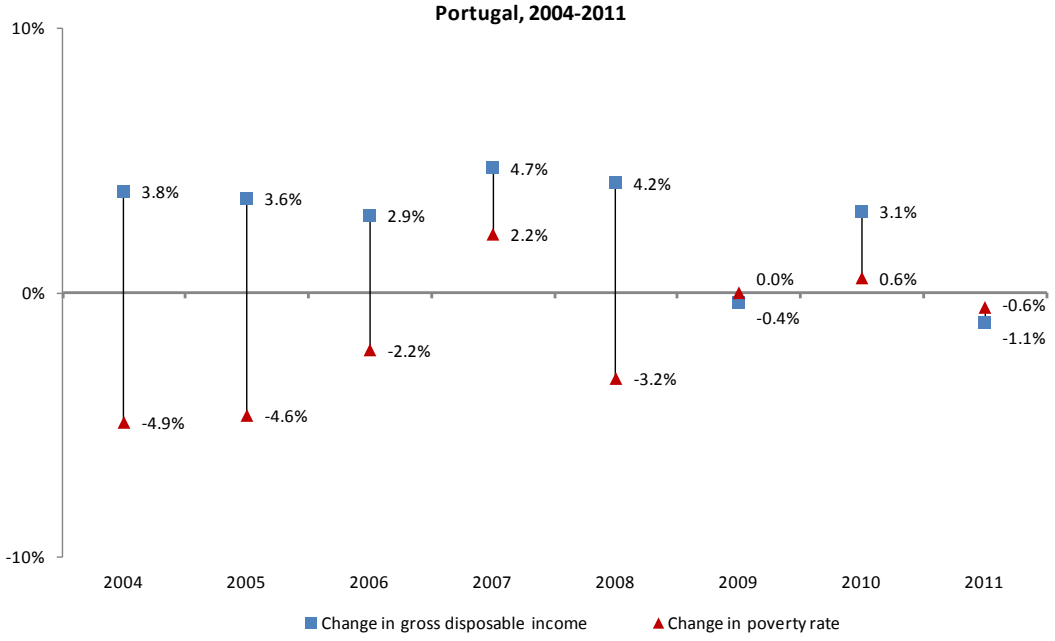
In particular, after the adoption of EU-SILC, two different periods can be identified, a first one corresponding to increasing annual poverty thresholds, on average 3.9% from 2003 to 2009, and a second one covering 2010 and 2011, with an annual average reduction of 2.1%. On average, the disposable income per capita rose 3.1% per year between 2003 and 2009, while falling 1.1% in 2011. One first conclusion is that the course of the Portuguese 60% median poverty thresholds is consistent to the evolution of the country income disposable income per capita.

[4] The close association between the disposable income per capita and the poverty threshold reflects the relation between the disposable income per capita in National Accounts and the equivalent disposable income as estimated in SILC.

One step further, as from 2003, there is also a high linear correlation between disposable income per capita and the relative poverty rates, as expected considering the population estimates varied on average less than 0.1% in the years under review.

However, a linear negative association between the annual rates of change in disposable income per capita and the annual changes of relative poverty rates is not observed in general, as shown in the next figure.

Figure 2: Annual rates of change in disposable income per capita and in poverty rates, Portugal, 2004-2011



Source: Statistics Portugal - Annual economic accounts for households and Statistics on Income and Living Conditions (EU-SILC)

Between 2004 and 2006, and in 2008, the relative poverty rates decreases in counterweight to the increase in disposable income, but this counterweight relation does not hold for the remaining years. If in 2009 that can be explained by a feeble increase in disposable income corresponding to an unchangeable poverty rate, the pattern in 2011 is absolutely striking: disposable income falls by 2.6% but, against any common sense expectations, the poverty rate also decreases (-0.6%) leading to a decrease of circa -0.8% in the number of poor people when the effect is cumulated to a decrease of 0.3% in resident population.

IV. The use of anchored poverty rates

As seen before, the standard EU core relative poverty rate strictly considers, by definition, the median of the country annual equivalent income distribution. Consequently, when this median income decreases, the poverty line (60% of the median equivalent income) also decreases and some people are no longer considered poor despite their income has not been changing.

The EU standard relative poverty can be supplemented by the increase use of an anchored poverty line, i.e. a new series of annual poverty thresholds whose values are the price updated poverty line observed in a specific base year. As a result we get a series of poverty lines independent to the income distribution effects in time, only dependent on the income distribution in the base year and on the trajectory of the consumer price index. Even though, for the years covered by EU-SILC, a strong linear relation between the disposable income data and the anchored threshold data is kept. The dissemination of data anchored at 2004[5] has been a common procedure by Eurostat, however lacking some importance in the analysis.

If using the poverty rate anchored at 2004, the path of the new poverty thresholds is smoother, because the annual variations in CPI tend to be smaller than the ones on disposable income in the years under review.

Table 1: Calculation of anchored poverty indicators at 2004

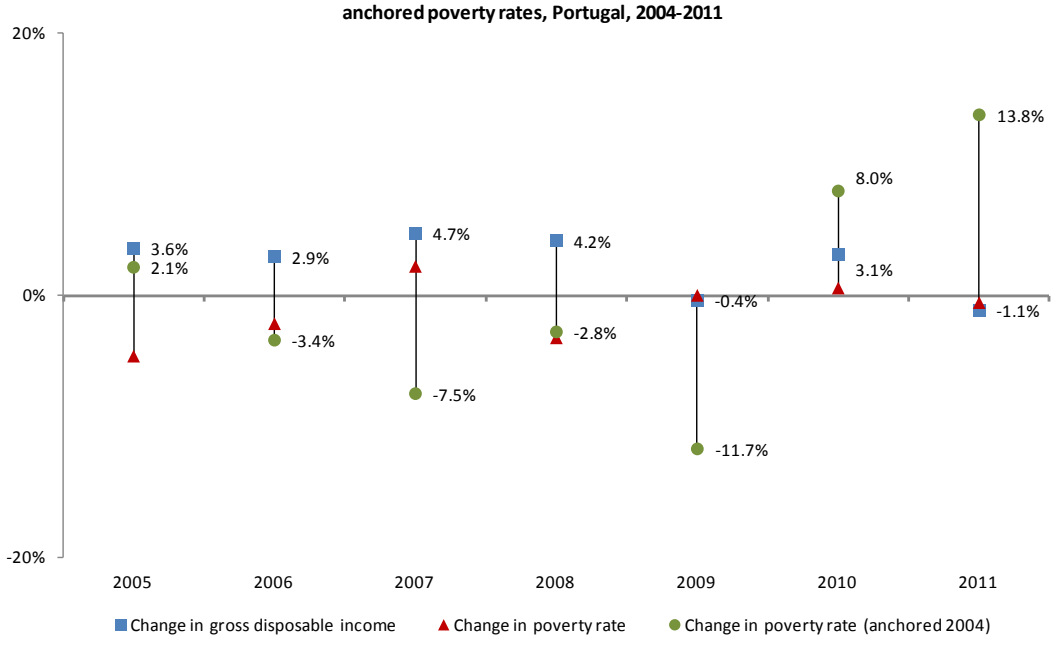
Income reference year	Disposable income per capita		Poverty threshold (€)	Relative poverty rate (%)	CPI change (%)	Anchored poverty threshold at 2004		Anchored poverty rate at 2004 (%)
	€	Change (%)				€	Change (%)	
2004	9,776		4,317	19.4%	2.4%	4,317		19.4%
2005	10,125	3.6%	4,386	18.5%	2.3%	4,520	2.3%	19.8%
2006	10,422	2.9%	4,544	18.1%	3.1%	4,661	3.1%	19.1%
2007	10,914	4.7%	4,886	18.5%	2.5%	4,775	2.4%	17.7%
2008	11,368	4.2%	4,969	17.9%	2.6%	4,899	2.6%	17.2%
2009	11,325	-0.4%	5,207	17.9%	-0.8%	4,858	-0.8%	15.2%
2010	11,674	3.1%	5,046	18.0%	1.4%	4,926	1.4%	16.4%
2011	11,543	-1.1%	4,994	17.9%	3.7%	5,106	3.7%	18.7%

Source: Statistics Portugal - Annual economic accounts for households, Statistics on Income and Living Conditions (EU-SILC) and Consumer Price Index (CPI)

On the other hand, the income distribution evolution effect is not included in the poverty thresholds anymore, turning up at the anchored poverty rates calculation, whose variations are clearer and, in general, reflect an expected counterweight when compared to the ones in disposable income per capita. This conclusion is not observed in all years, but the use of the anchored poverty lines also highlights the years where specific reasons other than the income distribution effect de per se occurred. For instance, in 2005 the increase in the anchored poverty rate no matter the increase in disposable income is contemporaneous to a rise in CPI that outweighed the rise on income.

[5] 2004 income reference year, collected in 2005.

Figure 3: Annual rates of change in disposable income per capita, relative poverty rates and anchored poverty rates, Portugal, 2004-2011



Source: Statistics Portugal - Annual economic accounts for households and Statistics on Income and Living Conditions (EU-SILC)

In 2009 the disposable income per capita slightly decreased but there was a significant rise of 24.4%[6] on social protection expenditures per capita in the social exclusion function that can contribute to the explanation of the strong decrease in the anchored poverty rate; the increase in the mean household equivalent income for those with an equivalent income lower than the standard poverty line accounted for 5.3% in 2009 (1.2% for those with an equivalent income over the standard poverty line).

The results of the analysis of the anchored poverty lines are particularly interesting when splitting the data according to economic cycles, opposing the one that occurred from 2004 to 2009, generally characterised by the increase in disposable income per capita and a fall of the 2004 anchored poverty rates, as from 2010 where anchored poverty rates started to rise.

V. Conclusion

The main advantage of a standard relative poverty line such as the one in use in the EU is that it automatically reflects differences in the income distribution between different regions and in time, adjusting to the centre of gravity of the income distribution. It targets the notion that poverty is relative and that being poor is to a considerable extent a relative condition, depending on the condition of other residents.

However this is not consistent to the condition of people falling under a certain level of income, not allowing the access to a minimum set of goods and services ensuring a dignified

[6] Annual - Statistics Portugal, Social protection survey – SEEPROS.

life in the European society. This condition is increasingly likely to happen in European countries where household income is strongly decreasing, not only because of wages and salaries reductions, where minimum criteria are usually applied, but because of unemployment.

The reference to the EU standard relative poverty line reduces the standard poverty core measure to an apparent structural condition, with the variation on the 2004 to 2011 series ranging from 19.4% to 17.9% (around 1.9 million people) and a residual impact of the implemented social actions.

Moreover, by construction, the standard poverty line tends to vary in line with the household disposable income. In Portugal and 2011 there was a reduction of the disposable income for a considerable proportion of people, mainly those in the centre of the distribution because the reducing policies had preserved the condition of the poorest. As a consequence the poverty line, i.e. the value used as the reference for the definition of the poverty status, decreased and a number of income amounts were not longer classifying its receivers as poor. As a result the poverty rate corresponds to the minimum observed in the EU-SILC for Portugal (17.9%) and the indicator is likely to lose relevance.

The proposal is to supplement the EU standard relative poverty by the increase use of an anchored poverty line, independent from the income distribution effects in time, with the advantage of being an indicator already available in Eurostat website.

Finally some care has to be taken when choosing the base year. Even integrating a price revision, an anchored poverty line is absolute in essence and must be periodically revised especially when strong changes occur in the income structure.

References

FARINHA RODRIGUES, Carlos (2007): “Distribuição do rendimento, desigualdade e pobreza: Portugal nos anos 90”, Edições Almedina S.A., Coimbra, Portugal.

FARINHA RODRIGUES, Carlos (2013): “Pobreza”, in “Portugal Social de A a Z – temas em aberto”, Impresa Publishing – Expresso, pp. 191-203.

INE-ES (2007): “Poverty and its measurement. The presentation of a range of methods to obtain measures of poverty”. Instituto Nacional de Estadística, Madrid, España.

RAVALLION, Martin and CHEN, Shaohua (2009): “Weakly Relative Poverty”, Policy Research Working Paper 4844, The World Bank Development Research Group Director’s office and the Poverty and Inequality Team