

3.2. Income inequality indices in the European Union (EU15)¹

Vlassis Missos

3.2.1. Introduction

The growing interest in the current economic research focusing on income inequality is an indication of the fears harbored by those institutional agencies actively participating in the process of reorienting and implementing social policy. Some of the most intriguing questions that have risen among policy makers in Europe are related to the continuous research and ongoing evaluation of several factors contributing to the upsurge of income inequality.² In addition, they also contribute to the formulation of an extensive agenda consisting of relevant proposals and political initiatives aimed at developing a common view as well as means for achieving the goal of a less unequal distribution of income. After all, that is also the rationale which has led to the formation of the Europe 2020 Strategy, where the basic targets on income inequality, poverty and social exclusion have been translated into a set of specific policy measures to be implemented at a European level.

In the same context, most of the recent studies concerning the unequal state of income distribution make particular use of the concept of total disposable (after taxes have been subtracted) household income which, after having gone through a standard statistical procedure, is allocated among the members of the household. In that respect, individual income is deduced from the household income, based upon an “equivalence scale”, according to the number of members in a household both adults and underaged individuals, generally dependent family members. Hence, the term individual “equivalized disposable income” corresponds to a statistical measure that should be

distinguished from the concept of earned “income”, on the assumption that the total household earnings are allocated among the members of the household, independently of whether they have participated in its production or not (the income is allocated among the economically active as well as the inactive population). During the last few years, statistical weighting follows the OECD adjusted scale, also adopted by Eurostat.³

Furthermore, the official database used for the construction of the basic income inequality indices regarding personal distribution stems from the annual sample Survey of Income and Living Conditions (EU-SILC), which is conducted by all statistical authorities at a national level under the supervision of Eurostat. The whole process of ordering and managing the collected micro-data follows the basic principles of a broadly accepted methodology that is applied among the countries of the EU, allowing for the construction of indices that are methodologically consistent, while also permitting comparability between national economies. In that way, the investigation of income inequality between EU countries becomes feasible, given the various qualitative differences that exist between the national welfare states. However, due to the significant time resources required for collecting and retrieving the information of a great number of questionnaires, the publication of EUSILC surveys is subject to delays. The availability of the micro-data is characterized by a significant time lag. For example, during the period this paper was written, the most recently published and complete micro-database refers to the EUSILC of 2017, which corresponds to household income earned in the previous year (2016).

This presentation is limited to three simple and easily captured indices of income inequality, based on the EUSILC database. These are the *Gini* index, the income quintile share ratio (s80/s20) and the relative poverty rate. Concerning the first and the third, along with the parallel interpretation of the aforementioned magnitudes, the impact of the social welfare system on income inequality is also investigated. The latter is achieved by dividing the total expenditures between

1. The group of the EU15 corresponds to a statistical sub-category containing all countries that were members of the European Union before the 1st of May 2004. More specifically, the category of the EU15 refers to the following: Austria (AU), Belgium (BE), France (FR), Germany (DE), Denmark (DK), Greece (EL), Ireland (IE), Spain (ES), Italy (IT), the Netherlands (NL), Portugal (PT), Sweden (SE), Finland (FL), the United Kingdom (UK) and Luxembourg (LU).

2. EC (2017), “European semester thematic factsheet: Addressing inequalities”, European Commission.

3. Hagenaars, A., K. de Vos & M.A. Zaidi (1994), *Poverty Statistics in the Late 1980s: Research Based on Micro-data*, Office for Official Publications of the European Communities. Luxembourg.

pensions and other social transfers (apart from pensions), so that their contribution to the reduction of the overall inequality is calculated separately.

3.2.2. Basic income inequality indices

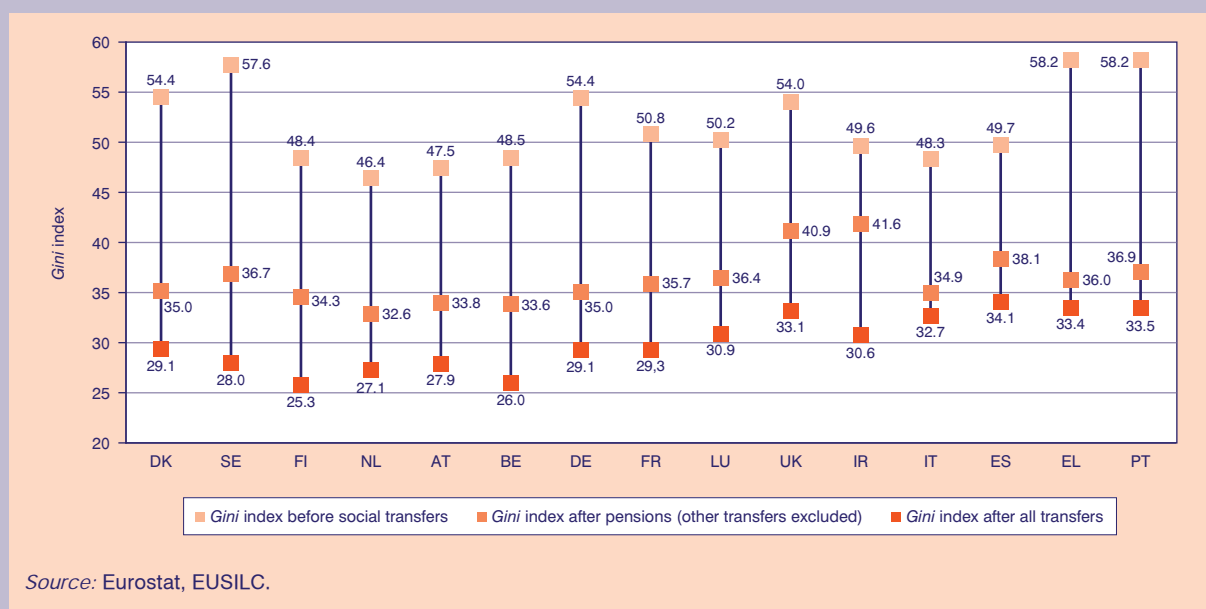
The *Gini* index is one of the most prominent and comprehensible indices for measuring income inequality. Its range of values spans between 0 and 100, with the lower boundary standing for absolute equality and the upper for the exact opposite, i.e., absolute inequality. For our current purposes, apart from the numerous interpretations proposed in order to understand what the *Gini* actually means, it would suffice to conceive the index as capturing the average distance between the distribution of income as it already exists to that which would have been if absolute equality had prevailed, as a percentage of the total disposable income.⁴ In other words, higher (lower) values of *Gini* correspond to a higher (lower) level of inequality.

Figure 3.2.1 depicts the *Gini* index in three different versions for all countries of the EU15 for the year 2016 (EUSILC 2017). Firstly, *Gini* is calculated according to the distribution of equivalized disposable income, estimated before and after social transfers have been realized. As far as the second version, *Gini* reflects the

level of total inequality as it is deduced from the new distribution of income after pensions have been reimbursed to the beneficiaries. Furthermore, the third version refers to the inequality of income distribution after all other social transfers have been paid. In that way, the impact of total social transfers on income inequality may be estimated as a whole or in part, depending on the manner social expenditures are analyzed.

It is obvious that among the countries of the EU15, the values of the *Gini* index measured before social transfers are substantially different. In the Netherlands (46.4), Austria (47.5) and Italy (48.3), inequality appears to be relatively low, whereas in Greece and Portugal, it tends to be higher (58.2 for both). In addition a clear disproportional downturn in the level of inequality is shown immediately after the amount of pensions is calculated. For example, even though the Netherlands (32.6) and Austria (33.8) still remain at the lower ranks of inequality, countries like the UK (40.9) and Ireland (41.6) are estimated to be at the highest. Lastly, after the rest of the social transfers are paid, inequality drops even lower, rearranging the ranking of income inequality among the countries of the EU15. Finland (25.3) and Belgium (26.0) now present the lowest levels, whereas Spain (34.1) and Portugal (33.5) take the highest places.

FIGURE 3.2.1
Gini index, before and after social transfers, EU15, 2016



4. Cowell F. A. (2011), *Measuring inequality*, 3rd edition, Oxford University Press.

FIGURE 3.2.2
Income quintile share ratio (s80/s20), 2015 and 2016, EU15

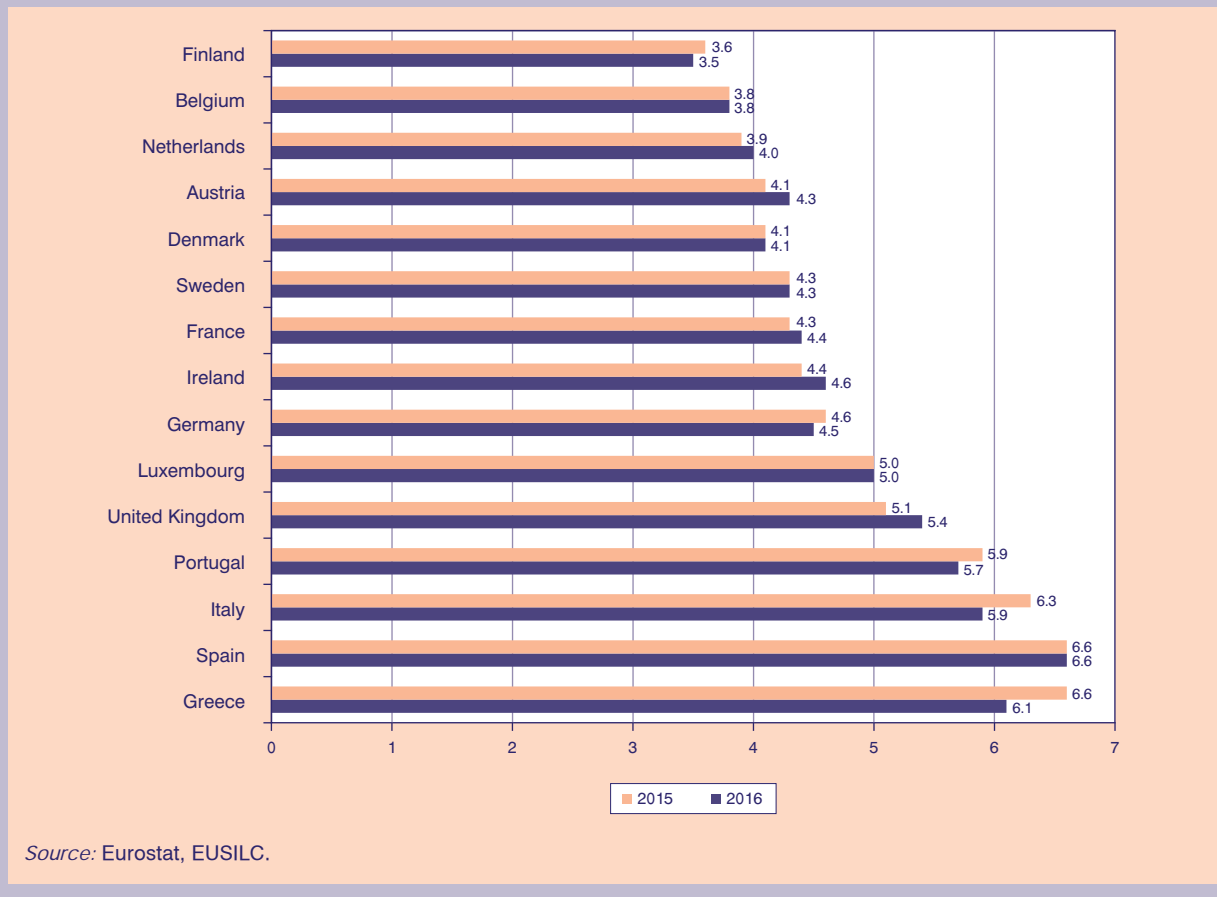
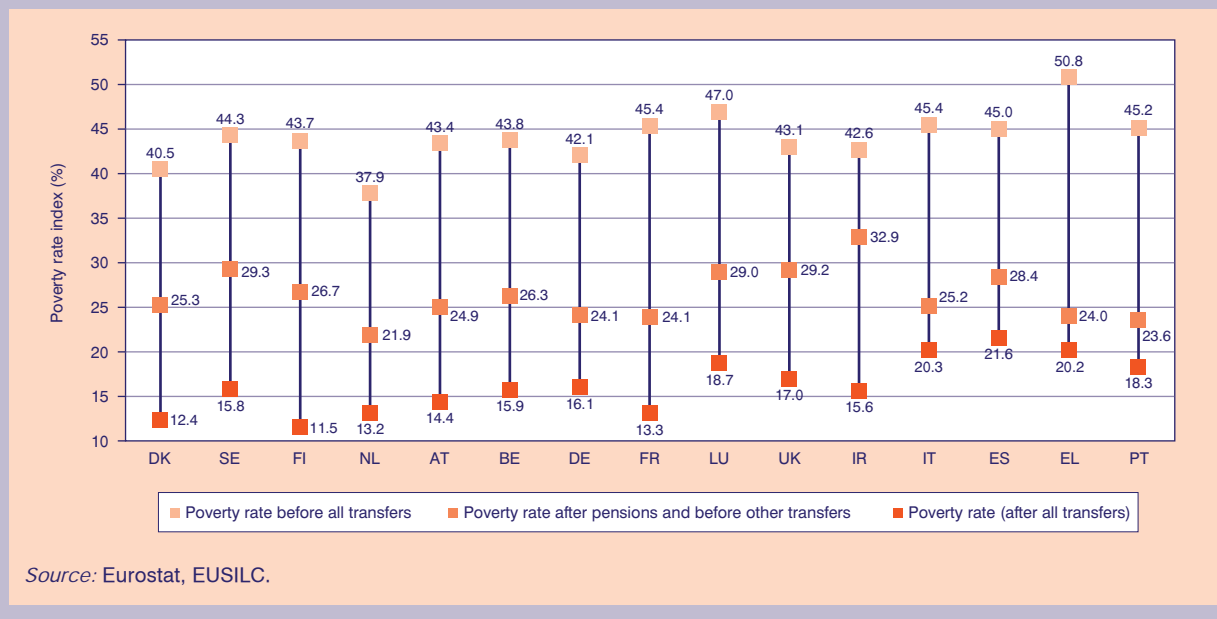


FIGURE 3.2.3
The poverty rate index, before and after social transfers, 2016, EU15



An additional index used to record inequality is the income quintile share ratio (s_{80}/s_{20}). Based on the definition of personal income as stated above, we take a further step, ranking the population from the poorest to the wealthiest households, creating five equally populated groups. As a measure, the ratio of the fifth, wealthiest, quintile over the first, poorest, captures the difference between the two extremes. Thus, the higher the value of the index, the greater the distance between the two shares of the distribution, meaning that inequality is exacerbated. Accordingly, Figure 3.2.2 above presents the index of income distribution between the two quintiles for the years 2015 and 2016 and for all countries of the EU15, as it is measured by the EUSILC. According to the EUSILC 2017 survey, the inequality index is lower for Finland (3.5), Belgium (3.8) and the Netherlands (4). On the contrary, higher values are calculated for Spain (6.6), Greece (6.1) and Italy (5.9). In addition, an important issue has to do with the fact that, from 2015 to 2016, the relation between the two quintiles improved in Italy, Portugal and Greece, whereas the most significant increases have been found for the UK and Ireland.

An additional qualitative aspect of income distribution is presented by the poverty rate index. According to this conventional measure, the rate of poverty is calculated as the part of the population whose level of disposable income is less than 60% of the median. Following the distinction between pensions and other social transfers, Figure 3.2.3 above depicts the rates of poverty for 2016, as calculated before and after pensions and other transfers have been realized. While Greece is estimated to have the highest poverty rate

before all transfers (50.8%), at the same time, the impact of pensions seems to have been of utmost importance since the index was reduced by 26.8 percentage points. On the contrary, the contribution of the rest of the transfers seems to be relatively minimal, since the rate of poverty ends up at 20.2%, i.e., reduced by just 6.6 percentage points. Apart from Greece, Spain, Italy and Portugal, in the rest of the EU15 countries, the contribution of pensions and of social transfers in the reduction of income poverty is –more or less– of equal value. For example, in the case of Ireland, it has been observed that pension payments contribute less than the rest of the social expenditures put together.

3.2.3. Conclusions

EUSILC micro-data allow for the construction of indices that assist us in evaluating the level of income inequality in the EU15. The above presentation makes it apparent that the degree of inequality among the countries of the EU15 has been significantly varied. One of the main differences between the systems of social welfare is that the overall impact of social expenditures depends on the internal design and fabrication that exists in each one of them. In Italy, Spain, Greece and Portugal, the role of pensions is extremely important, whereas in countries like Denmark, Sweden, Finland, the Netherlands and the UK, the impact between pensions and the other social transfers is clearly more balanced. Finally, between 2015 and 2016, in the countries of southern Europe, the distance between the upper and the lower quintiles of income was limited.