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MONITORING ABSOLUTE AND RELATIVE POVERTY: "NOT ENOUGH" IS NOT THE SAME AS "MUCH LESS"

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Financial poverty indicators assess which people have few financial resources and are thereby at risk of having an unacceptably low living standard. Most countries use one or several "official" poverty indicators, but they typically use either an absolute or a relative benchmark to determine what is unacceptable; absolute benchmarks are based on basic needs or rights while relative benchmarks depend on what is considered to be a "normal" living standard. Applying the absolute U.S. and the relative EU poverty indicators on the U.S. and 15 EU member states, this research shows that it makes sense to use both benchmarks.

JEL Codes: I32, I38

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1. Introduction

Financial poverty indicators provide insights into the situation of people whose resources are so low that they are unable, or unlikely, to achieve an acceptable minimum level of well-being. Most countries use one or several "official" financial poverty indicators on which progress is regularly monitored and which

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serve as a basis for policy interventions. The U.S. uses an absolute poverty indicator that is based on a minimum cost of living threshold which is compared to a family's gross income. The financial poverty indicator that is used by the European Union (EU) member states is based on a relative concept of poverty; the poverty threshold is set at 60 percent of national median income and compared to households' disposable income. The resulting poverty figures receive a lot of attention in the media and public debates. National governments use the numbers to illustrate the success of their policies or use them as a basis for target setting in the core political arena (e.g. the U.K. Blair government on child poverty). Financial poverty figures can also play a role in the actual implementation of poverty alleviation programs. The U.S. poverty line, for instance, is used to determine eligibility for programs or benefits; when a household's income is less than 130 percent of the poverty line it qualifies as a beneficiary for the food stamp program.

The adequacy of financial poverty indicators is also at the center of many political and academic debates. Since its introduction in the 1960s, the U.S. poverty measure has been hotly disputed; it led to the installment of a scientific research board that proposed a quasi-relative poverty indicator, but thus far it has been too difficult to change the old methodology (Citro *et al.*, 1995, pp. 140–5). In 2001, the EU endorsed a set of indicators including a relative poverty indicator, but the recent enlargements of the EU have raised doubt on the adequacy of the relative poverty indicator to compare and monitor progress on poverty between member states (Marx and van den Bosch, 2007).[1]

To monitor income poverty, countries typically use either an absolute or a relative indicator; in the U.S., relative poverty indicators play no role, while out of 18 EU poverty and social inclusion indicators there is not a single indicator reflecting the minimum cost of living in a particular country or region. This may be a problem as absolute and relative indicators reflect different perceptions of poverty; people in absolute poverty have not enough financial means to achieve a basic living standard, while people in relative poverty have much less financial means to achieve what is considered a normal living standard. As the choice for a particular indicator influences the estimates of the number of poor, measuring only one perspective means missing out on what happens according to the other perspective. Although absolute and relative poverty groups partially overlap, there is also a group of people who are poor in relative terms but not in absolute terms (or, depending on the country, vice versa). Over time, developments in these groups may not run parallel either.

To see to what extent this is a concern, this paper estimates absolute and relative poverty in the U.S. and 15 EU member states using the official U.S. and EU financial poverty indicators. We apply both methods to representative EU and U.S. household surveys covering annual data from 1993 to 2000. We adjust the EU and U.S. poverty measurement methods such that differences between absolute and relative poverty estimates only reflect the conceptual differences in setting the poverty line. Subsequently, the paper separates and analyzes the indi-

[1]These so-called Laeken indicators are used to monitor progress on the fight against poverty and social exclusion in its member states. Although the EU member states agreed to combat poverty and social exclusion, the design and implementation of policies to fight these problems is the responsibility of the member states.

vidual effects of the two underlying factors driving these poverty patterns: (changes in) the level and distribution of income, and (changes in) the poverty line.

This study is one of the very few that provides comparable absolute and relative poverty estimates between the EU member states and the U.S. for a period of consecutive years.[2] It is the first and only study that estimates poverty using the official EU and U.S. poverty measures and thereby provides the interesting perspective of how poverty would have developed during the 1990s had the U.S. adopted the EU approach and vice versa. Our focus in this paper is primarily on poverty differences within countries since financial poverty is predominantly a national policy issue. However, the large variations in experience across the studied countries emphasizes that there is no such thing as a typical pattern in absolute and relative poverty experiences. Finally, although the theoretical effects of conceptual and resulting technical choices are well discussed in the literature on poverty measurement, our extensive empirical analysis of the individual effects on the estimates of poverty contributes to further understanding the possible consequences of such choices.

This paper is organized as follows. Section 2 introduces the concepts and terminology and further explains the EU and U.S. poverty methodologies. Section 3 discusses the data and the methodology used to arrive at cross-nationally comparative poverty estimates. Section 4 presents the results and analyzes the individual effects of (changes in) the poverty line and income distribution on poverty headcount estimates. Section 5 concludes.

2. Key Concepts in Measuring Poverty and their Applications in the EU and U.S.

2.1. *Measuring Poverty*

Any poverty analysis involves the following key concepts: welfare indicator, poverty line, unit of observation, unit of analysis, equivalence scales, and poverty measure (see, e.g. Ravallion, 1994; Duclos and Araar, 2006). The welfare indicator is a measure for the dimension of well-being that is being studied while the poverty line represents the threshold value of the welfare indicator. Together, they determine the poverty status; when the level of well-being is below the poverty line, the unit of analysis is considered "poor."

The poverty line separates acceptable from unacceptable levels of well-being and thus essentially reflects a value judgment. The benchmark for determining the poverty line, however, can be either exogenous or endogenous to the welfare distribution in a given society. It can be based on the conviction that every human being has certain basic needs or rights, irrespective of the society. In contrast, the benchmark can also be set in accordance to what is considered a "normal" living standard in a particular society. The resulting poverty indicators are more commonly classified as absolute (exogenous) or relative (endogenous).

[2]Various studies have estimated relative poverty, and sometimes also absolute poverty, using data from the Luxembourg Income Studies which do not provide information on consecutive years (Smeeding and Ross, 1997; Smeeding *et al*., 2000; Smeeding, 2006). In Marlier *et al*. (2007) the EU poverty methodology is applied on U.S. data from the Current Population Survey.

When measuring financial poverty, the level at which information is collected (unit of observation) differs from the level at which poverty is calculated (unit of analysis): information on financial resources is collected at a household level while poverty is typically calculated counting individuals. Financial resources, and the items on which they are spent, are generally shared at a household level and thus contribute to the level of well-being of all household members. To arrive at an individual level, equivalence scales are used to adjust the welfare indicator for differences in household size and composition because these differences, *ceteris paribus*, also generate differences in well-being. Equivalence scales take into account that larger households typically have lower expenditures per member because they share resources (i.e. house, car) or because they can buy larger quantities of food for a lower unit price, but they may also adjust for differences in food requirements between age and gender groups.

Finally, a poverty measure aggregates the individual poverty status from the unit of analysis to a population statistic. A widely used group of poverty measures is the Foster–Greer–Thorbecke (FGT) class of decomposable poverty measures which reflect the percentage of poor individuals as well as the depth and severity of poverty experienced (Foster *et al.*, 1984). In this study we mainly use the head-count index which simply reflects the percentage of poor individuals.

2.2. *U.S. and EU Poverty Methodologies*

The U.S. poverty methodology was developed in the 1960s by Molly Orshansky, an economist working for the Social Security Administration. The poverty line incorporates a food and a non-food component (Fisher, 1992). The lowest food plan from the Agriculture Department served as the basis for the food poverty line; this food plan measured the costs of a nutritionally adequate diet for families under economic stress. To incorporate non-food needs, the food poverty line has been multiplied by the reciprocal of the average share of food expenditures in total income. The U.S. poverty line is a set of poverty lines; depending on the family size and the age of household members, one of the 48 poverty lines applies.[3] The poverty status of a family and its members is obtained by comparing its gross annual income to the poverty line of that family type. The poverty lines do not vary by region or state and are annually updated for inflation using the consumer price index for urban consumers. Although there have been some minor changes in the methodology over time, the current poverty lines are essentially the same as those developed in the 1960s. As a result of increases in living standards, the U.S. poverty line has fallen from 50 percent of median income in 1963 to about 27 percent of median income in 2000 (Citro *et al.*, 1995, p. 30; Smeeding, 2006, p. 71).

When the EU member states decided to combat poverty and social exclusion by means of the open method of coordination during the 2001 Nice summit, they also indicated that progress on this agenda should be measured using a set of common indicators. The open method of coordination "involves fixing guidelines for the Union, establishing quantitative and qualitative indicators to be applied in each member state, and periodic monitoring" (Atkinson *et al.*, 2002, p. 5). Note,

[3]The poverty lines are publicly available on the website of the Bureau of Census (www.census.gov/hhes/www/poverty/threshld).

however, that the design and implementation of policies to fight poverty and social exclusion still remains the responsibility of the member states. Named after the Laeken European Council who endorsed the indicators in 2001, a set of common statistical indicators was developed (Atkinson *et al.*, 2002). These "Laeken indicators" cover four dimensions of social inclusion: financial poverty, employment, health, and education. The financial poverty indicators are based on a relative poverty line that is set at 60 percent of national median disposable income. To arrive at equivalent adult income, a household's disposable income is adjusted for the demographic composition of the household using the modified OECD equivalence scales.[4]

The U.S. and EU poverty methods differ in terms of their main components: they use a different benchmark for determining the poverty line; they use different equivalence scales; and even though they both use income as an indicator for financial resources, the U.S. uses gross income while the EU uses disposable income. The official poverty threshold of the U.S. reflects an absolute poverty concept as it is based on the achievement of adequate levels of nutrition. The European method entails a relative poverty concept that judges inadequacy when someone has much fewer resources than the middle person in that country. It should be noted that the U.S. poverty line also includes a relative element in its methodology as its non-food component has been based on the *average* share of food expenditures in households' budget. However, this aspect only influenced the construction of the initial poverty line in the 1960s; the poverty line is not sensitive to changes in the average standard of living. Furthermore, implementing any absolute poverty concept requires taking into account context specificities such as the local customary diets and price levels of a society. It is this aspect of the U.S. poverty methodology that has received a large chunk of the criticism; by only updating the national (instead of regional) poverty lines with the urban consumer price index, the current methodology does not adequately adjust for changes in the budget share of food expenditures and prices in basic need items such as food, clothing, transport, and shelter (Citro *et al.*, 1995). Essentially, the U.S. poverty threshold reflects the costs of satisfying a basic minimum in the1960s, expressed at current price levels.

Our use of the term "absolute" refers to the conceptual benchmark that is used to determine acceptable levels of well-being and not to the technicalities involved in constructing an absolute poverty line. As the choice for a benchmark reflects a value judgment, i.e. what constitutes poverty, it thus represents the conceptual heart of any poverty methodology. It is for this reason that we focus on the consequences of choosing either an absolute or a relative benchmark for measuring poverty levels and developments of poverty over time. Despite its limitations, the U.S. poverty updating methodology will show a similar behavior over time as compared to a more adequate updating methodology.[5] [6]

[4]The modified OECD equivalence scale gives a weight of 1 to the first adult in the household, a weight of 0.5 to other members aged over 14 years, and a weight of 0.3 to children aged under 14.

[5]This assumes that the monetary value changes of a better updating methodology are smoothed, for instance by a moving average mechanism, so that they do not cause any significant "jumps" in the annual poverty figures.

[6]Absolute poverty lines have a tendency to rise as the average living standard rises because of changing perceptions of what constitutes a basic good or a basic need (Ravallion *et al.*, 2008). We do not incorporate this tendency in our study.

3. Data, Definitions, and Limitations

In this paper we apply the U.S. and EU poverty lines to representative survey data of the U.S. and 15 EU member states using common definitions of the welfare indicator (disposable income) and a common equivalence scale (the modified OECD equivalence scales). As the definitions and limitations of the constructed variables are influenced by data constraints, we first discuss which surveys we used before explaining how we constructed comparable welfare indicators and poverty lines.

For the U.S., we use data from the Panel Study of Income Dynamics (PSID) from 1994–2001. The PSID is a nationally representative longitudinal survey containing information on individual and family level economic and demographic topics. Started as an annual survey in 1968, the PSID has been a biennial survey since 1997. The PSID is available in two formats: the original PSID, and the so-called Cross-National Equivalent Files (CNEF) which contains equivalently defined variables for the panel surveys of four countries (Germany, U.K., Canada, and U.S.).[7] Although the official poverty rates are estimated by the Bureau of Census using the March Supplement of the Current Population Survey (CPS), we use the PSID–CNEF because the main variables in the PSID are harmonized with two datasets that also served as the basis for the European survey data we use in this study. This facilitates the construction of comparable welfare indicators.

For the European Union, we use the European Community Household Panel (ECHP). The ECHP is a survey on household income and living conditions carried out in eight waves from 1994 to 2001 and includes the so-called EU-15 countries.[8] The data provide cross-sectional and longitudinal information on household and individual level topics such as income, education, housing, health, and social relations. Comparability of the ECHP data is achieved through common survey structure and procedures, common standards on sampling requirements, and where possible, on data processing and statistical analysis. Eurostat, the European statistics office, uses the ECHP and its successor (SILC) to calculate the EU financial poverty indicators (Eurostat, 2003). Although both the ECHP and PSID–CNEF also have a longitudinal component, this paper only uses the repeated cross-sections of the data.[9]

To arrive at comparable poverty estimates, the main challenge lies in the construction of comparable welfare indicators and poverty thresholds. The U.S. poverty methodology uses gross income while the EU methodology uses disposable income. We use disposable income because it better reflects the funds that a household can actually spend on consumption. The advantage of using the PSID–CNEF is that the income variables also include imputed variables indicating the tax burden of households and thus provide an indicator for disposable income in

[7]More information on the PSID–CNEF can be obtained from the website of Cornell University based College of Human Ecology (http://www.human.cornell.edu/che/PAM/Research/Centers-Programs/German-Panel/cnef.cfm).

[8]Included are: Austria (1995–2001), Belgium, Denmark, Finland (1996–2001), France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Sweden (1997–2001), and the U.K.

[9]The number of households and individuals observed per survey wave and country are summarized in Table S1 in the supplemental online appendix.

the U.S.[10] The indicator of total net disposable income includes income from wages and salary, earnings from self employment, capital, private transfers, and social protection benefits. We do not include capital gains (or losses) and in kind benefits, with one exception: for the U.S. we included the value of food stamps because these in kind transfers can be considered as "near money" as they are issued in the form of an electronic debit card that can be used to purchase food items in a range of supermarkets. Moreover, the food stamp program is one of the main poverty alleviation programs in the U.S.; not including the value of these benefits would thus ignore this important poverty reduction effort in the poverty estimates. Although the income variables in the ECHP are constructed using the same (or similar) methodology for all member states, the use of register data for Sweden, Finland, and Denmark may yield higher poverty rates than survey-based poverty estimates.[11] Another limitation influencing the cross-national comparability of our poverty estimates is that the simulated tax burden in the PSID–CNEF assumes a 100 percent take up rate of the higher tax deductions for low income families with children (Earned Income Tax Credit (EITC)). However, not all eligible households actually receive the EITC, resulting in underestimating U.S. poverty rates.[12] [13]

While both survey data have been collected from 1994–2001, the income variables reflect household income in the year previous to the survey (1993–2000). However, the information on household size and composition, which is also used to determine the household weights needed for estimating equivalent adult income, is based on the actual survey year. As income is the central indicator in a poverty analysis, we attribute the poverty estimates to the period 1993–2000.

To arrive at comparable absolute poverty lines for the 15 EU member states, we obtained the U.S. poverty thresholds from the Bureau of Census and converted the 1993 dollar thresholds to the member states' currencies using 1993 values of the historical Purchasing Power Parity (PPP) indices from the International Comparison Program.[14] After the conversion of the U.S. thresholds to the 1993 national purchasing power values, we updated the thresholds to other years using national consumer price indices that are provided in the ECHP. The relative EU poverty

[10]Federal and state income tax burdens have been imputed using the NBER TAXSIM model and PSID data while payroll taxes have been estimated using the tax rates reported by the Social Security Bulletin (Lillard *et al*., 2006).

[11]ECHP data from Sweden, Denmark, and Finland are based on statistical registers drawn from administrative records. Comparison of Finnish household survey data with the Finnish ECHP data based on statistical registers shows considerable higher income levels for the lowest two income deciles using survey data. As the other ECHP countries use survey data, this affects within country poverty levels as well as cross-country poverty rankings (Rendtel *et al*., 2004).

[12]To claim the EITC, a special tax form has to be completed and submitted. According to a study of the Internal Revenue Service on participation in the EITC program for the tax year 1996, up to 18 percent of the of the eligible individuals did not file a tax return (IRS, 2002).

[13]Supplemental information is provided in Tables S2–S6 the online appendix: Table S2 summarizes the construction of the disposable income variable; Table S3 summarizes key income comparability issues between countries; Tables S4 and S5 summarize the average per capita and per adult equivalent income levels by country and survey round; and Table S6 summarizes a number of data quality indicators by country and survey year.

[14]We use the private consumption PPPs from the historical series constructed on the basis of 2005 data by the International Comparison Program. The values were retrieved from the United Nations website (http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=699, accessed February 16, 2010).

line is set according to the median in the national (equivalent adult) income distribution and is thus based on the disposable income variable in the respective surveys.

4. Results

4.1. *Relative and Absolute Poverty Trends During the 1990s*

The absolute and relative poverty rates using the EU and U.S. poverty lines are summarized in Figure 1 (and Table A1 in the appendix); to facilitate the comparison of poverty trends within countries, the scaling on the vertical axes in Figure 1 varies per country. At a first glance a striking variation between absolute and relative poverty within and across countries can be observed. In the U.S., 11 percent of the population lives in absolute poverty[15] while this number more than doubles for relative poverty rates (23 percent). Despite a wide difference in poverty levels, absolute and relative poverty trends in the U.S. follow a similar pattern. The latter can certainly not be said for Ireland where relative poverty increases from 17 to 21 percent over the period 1993–2000, while absolute poverty strongly declines from 47 to 18 percent. Opposing or diverging trends can also be observed for countries like Spain, France, Finland, and Sweden. Like the U.S., a large difference between absolute and relative poverty levels can be found for Greece, Spain, Luxembourg, Portugal, and to a somewhat lesser extent in Denmark and Austria. The Netherlands, where absolute and relative poverty estimates have similar levels and follow a similar trend, seems to be the exception rather than the rule. Further, in countries with a higher living standard, absolute poverty is typically lower than relative poverty, while in countries such as Greece, Italy, and Portugal, absolute poverty levels are higher than relative poverty levels. Sweden, Ireland, France, and the U.K. started in 1993 with higher absolute than relative poverty levels but this relation reversed during the remainder of the period.

The attractiveness and popularity of poverty indicators, and especially poverty headcounts, lies in their simplicity; they summarize rather complex and continuously changing personal situations into one population-based snapshot. The choice for a particular poverty benchmark is not trivial: some people are simultaneously touched by relative and absolute poverty but there is also a group of people that is poor according to one poverty concept and not the other. The above discussed patterns show that the size and composition of both poverty groups in a country can change substantially and in various ways, even over a period of merely 8 years (covering, say, two government periods). To better understand the implications of using either an absolute or a relative benchmark for counting the poor and assessing pro-poor policymaking, the paper further analyzes the underlying factors driving these results in more detail: (changes in) the level and distribution of income, and (changes in) the poverty line.

[15]The absolute poverty rate for the U.S. differs from the official U.S. poverty estimates published by the Bureau of Census because we use: (1) another dataset, namely the PSID–CNEF as opposed to the March Supplement of the Current Population Survey; (2) disposable income as opposed to pre-tax income; and (3) the modified OECD equivalence scales as opposed to the household specific poverty lines as defined by Molly Orshansky.

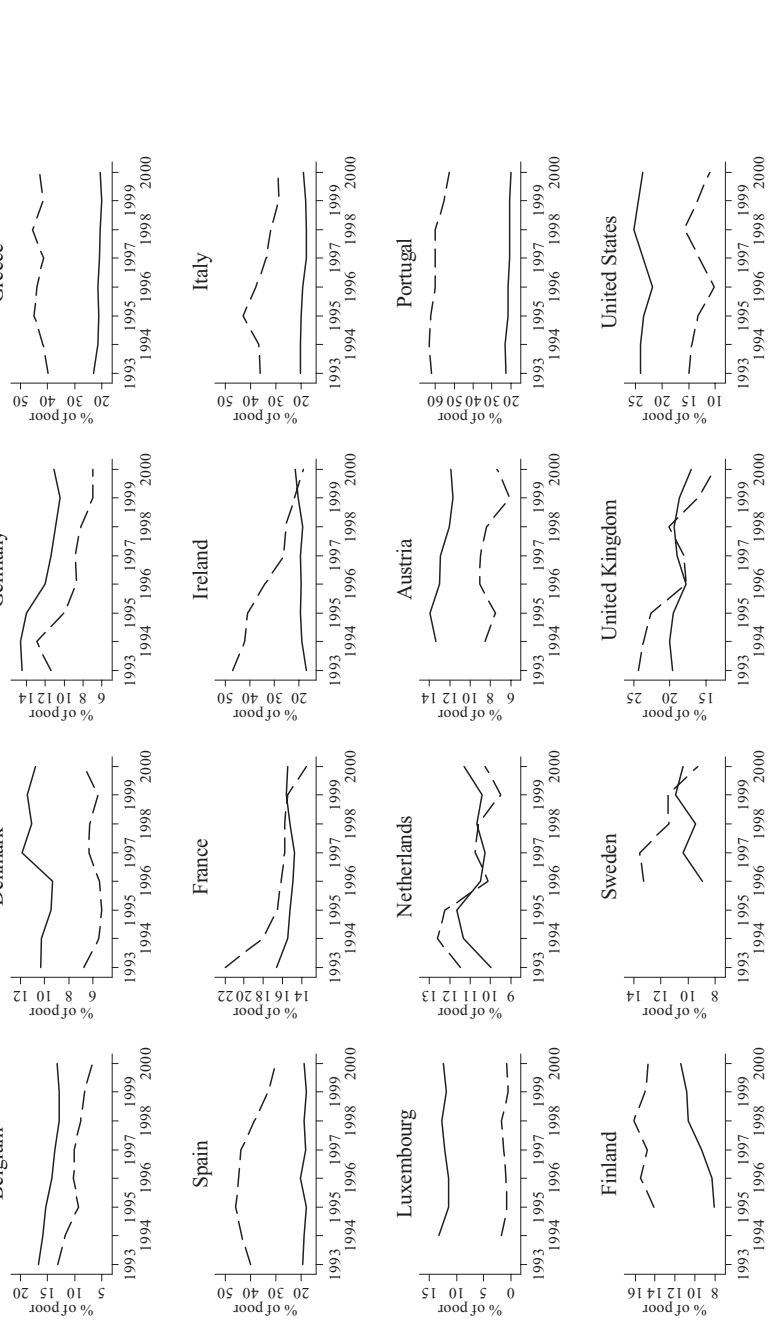

Figure 1. Poverty Incidence (in % of individuals over the period 1993–2000)

Note: To facilitate comparison of absolute and relative poverty trends within countries, we used different scales on the vertical axes. For the U.S. there are no observations for 1997 and 1999.

Source: Own calculations ECHP and PSID–CNEF.

Changing certain aspects in the estimation methodology affects the point estimates but does not alter the wide variation in observed differences between absolute and relative poverty.[16] First, applying the original U.S. equivalence weighting scheme to the absolute poverty estimates does not affect the variation in observed trends but has a large influence on absolute poverty levels. Second, applying the U.S. equivalence weighting scheme to the relative poverty line results in only small changes in the overall relative poverty estimates but nevertheless strongly alters the poverty risk of certain population characteristics. Jointly these results serve as a clear reminder that even rather small differences in equivalence scales have very large effects on the poverty estimates and relative poverty risks of various groups. Finally, choosing a different benchmark year for the conversion of U.S. poverty thresholds to their respective Purchasing Power Values in the EU member states affects the poverty level but not its trend.[17]

4.2. *(Changes in) the Level and Distribution of Income*

In the U.S. and EU poverty methodologies, income is used as the welfare indicator providing information about the level of financial resources of households and their members and the living standard that they are likely to achieve with such income levels. While the average income level or living standard in a country is an important factor explaining absolute poverty, the dispersion of those incomes is the main factor driving relative poverty. Countries with higher income levels typically have fewer people in absolute poverty, and countries with higher income dispersion generally have more people in relative poverty. The first relationship is illustrated in appendix Table A2 by the second and last columns which reflect the average income per country and the absolute poverty rate in 2000. Richer countries like the U.S., U.K., Luxembourg, Belgium, and Denmark have lower absolute poverty levels than lower income countries such as Italy, Spain, Portugal, and Greece. The second relationship is illustrated in Table A2 by the 4th and 8th columns: countries with higher income dispersion as measured by the Gini index, such as the U.S., Ireland, Greece, and Portugal also have higher relative poverty rates. Within a country, relatively large differences between absolute and relative poverty levels are typically found in countries with lower average incomes and/or countries with higher dispersion.

However, these general relationships do not suffice to "predict" absolute and relative poverty levels in a country. The U.S. has the highest average living standard as well as the highest degree of income dispersion; that being said it is still striking to see that in terms of absolute poverty levels the U.S. is found in the middle of the country ranking and not among the lowest absolute poverty levels. This is in contrast to Luxembourg, where the absolute poverty line is located at a similar point in the income distribution (at 34 percent of the median in comparison to 39 percent of the median for the U.S.), and there is virtually no absolute

[16]These findings are illustrated in more depth in Figures S1, S2, S3, and S4 and Table S7 in the supplemental online appendix.

[17]Choosing a different benchmark year particularly affects absolute poverty levels in Greece, Ireland, Finland, and France.

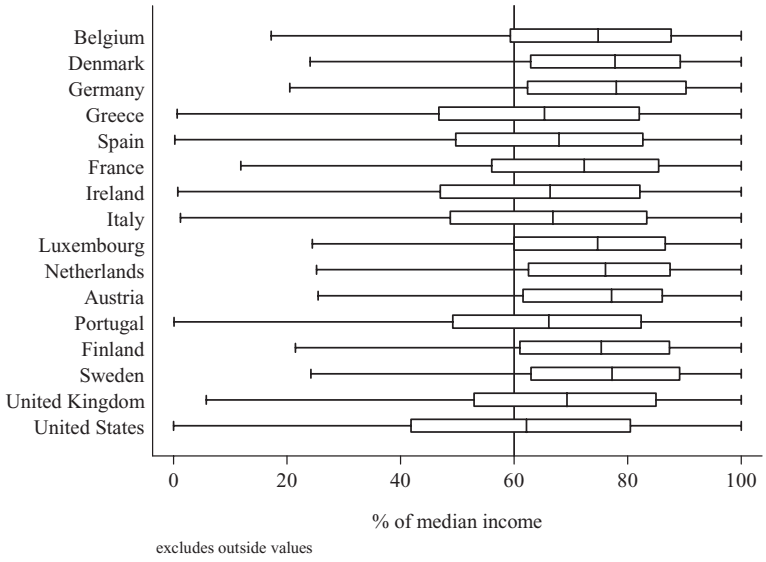

Figure 2. Dispersion of Income Below Median (2000)
Source: Own calculations ECHP and PSID–CNEF.

poverty.[18] The key to understanding this difference is that relative poverty indicators are influenced by dispersion in the lower part of the welfare distribution vis-à-vis the middle of the distribution; it is not incomes of the likes of Bill Gates in a country that are used as a reference for determining what is normal but it is the Joneses' income. Moreover, absolute poverty lines do not depend on the income distribution but their locus in that distribution affects the magnitude of the estimates.

These aspects can be illustrated in Figure 2 which shows boxplots for each country using the 2000 income distribution. As the median is the benchmark for setting the EU relative poverty indicator, income levels above the median do not influence the poverty estimates. Therefore, the boxplots are drawn using only the observations in the lower half of the income distribution. Boxplots graphically summarize a number of key characteristics of the income distribution: the box includes all observations within the 25th and 75th percentiles and the vertical line within the box indicates the 50th percentile (i.e. the median); the larger the spread of the income distribution, the wider the box is. The lines outside the box are called "whiskers"; the observations outside the whiskers are outliers.[19] To facilitate comparison between countries, the income distribution is rescaled by setting median income in each country to 100 percent. The vertical line in the figure at 60 percent indicates the relative EU poverty line; individuals with an income below this line

[18]Table S8 in the online appendix lists the U.S. single adult poverty line as a fraction of median disposable income (equivalent adult income using modified OECD equivalence scales) by country and survey wave.

[19]The end of the whisker represents the income value that is one step below/above the 25th/75th percentile. One step is 1.5 times the spread of the difference between the income values at the 25th and 75th percentiles.

are poor in a relative sense. The relative poverty rate can also be approximated from the figure; in Luxembourg, for instance, the relative poverty rate is 12.5 percent. For this country the 60 percent of median income line coincides with the 25th percentile of the boxplot; as the boxplot only summarizes the national income distribution up to the median, the 25th percentile in the plot actually represents the 12.5th percentile of the total income distribution.

Figure 2 confirms that the countries with the highest dispersion also have higher relative poverty rates (U.S., U.K., Ireland, Portugal, Italy, Greece, and Spain). However, the position of the box also matters; the box of the U.S. lies considerably further to the left than the boxes of the other countries. If it would lie more to the right, i.e. the income of those people would be higher, U.S. relative poverty rates would be lower than in the current situation. Furthermore, Table A2 (columns 6 and 7) reports that the loci of the absolute poverty lines in the income distribution vary between 34 percent of the median for Luxembourg and 105 percent of the median for Portugal. For most of the countries the absolute poverty lines lie somewhere between 50 and 60 percent of median income. For countries with low absolute and relative poverty rates, the lower half of the income distribution is denser at income levels toward the median (i.e. the box of the boxplot lies more to the right).

The shape of the income distribution is the result of a complex set of factors, including factors such as the macroeconomic situation, development of sectors in the economy and resulting employment opportunities, and household living arrangements, but also a wide range of government interventions including tax and social protection arrangements. Changes in any of these factors affect the income distribution and will thereby also affect absolute and relative poverty rates; but not necessarily in the same direction.

To illustrate this we have computed so-called Growth Incidence Curves (GICs) that are displayed in Figure 3 (Ravallion and Chen, 2003). A GIC plots the income changes at each percentile of the aggregate distribution between two time periods. The curve does not necessarily reflect the experienced income growth of the individuals or households making up that distribution because they can also move within the income distribution: individuals lose a job, get promotion, retire, and thereby change their position in the income ranking; being poor (or not) is a status that applies to individuals and not to income quantiles. The GICs in Figure 3 have been calculated for each country using the 1993 and 2000 income distributions and express average annual real growth rates. The curve shows the GIC and the horizontal line reflects the average annual growth rate of median income.[20] If all incomes grow at the same rate, the GIC is flat and the shape of the income distribution remains the same.

A first observation is that all countries experienced positive income growth along the whole income distribution. This corresponds to the decreases in absolute poverty since 1993 (Table A1): real progress lifts people out of absolute poverty as they now have an increased purchasing power. It should be noted though that as

[20]To enhance comparability between countries, we excluded the lowest and highest 5 percentiles because they had a too large effect on the scaling of the vertical axis. For the same purpose, we allowed the scale of the vertical axis to differ by country.

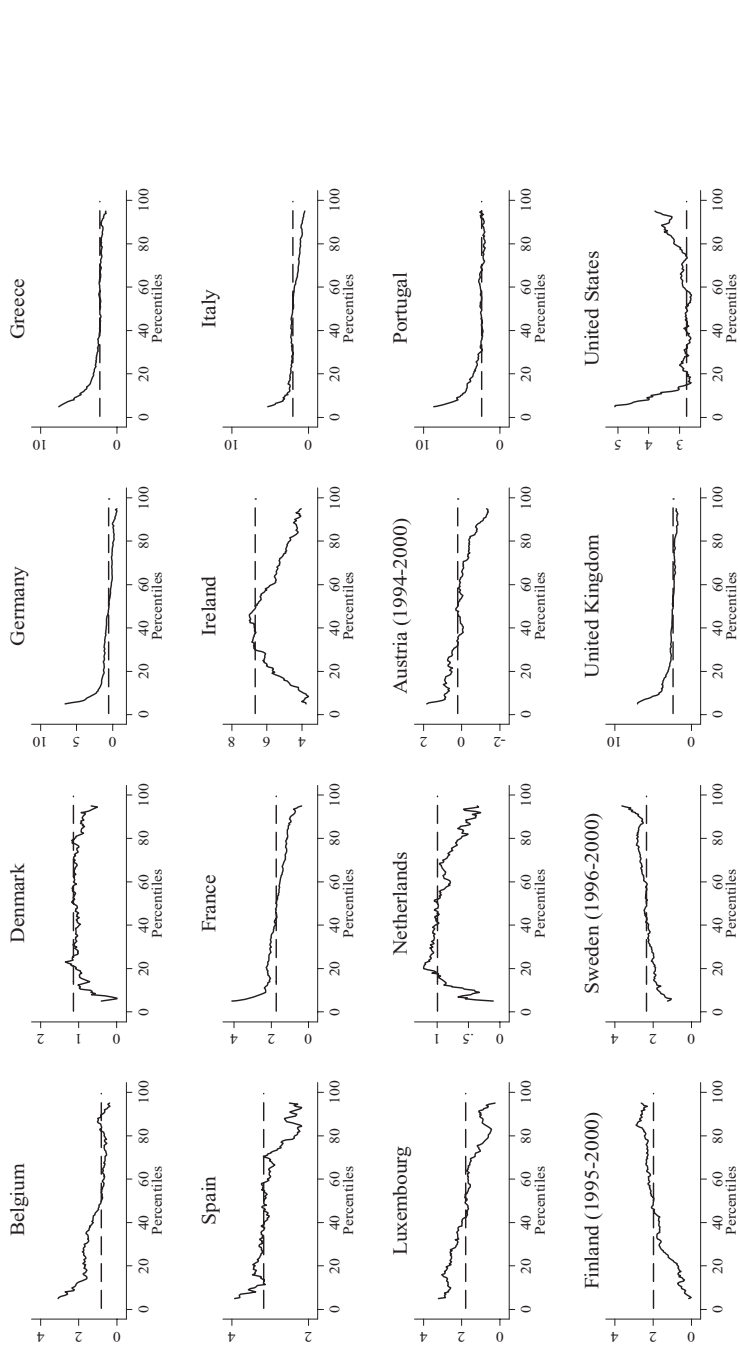

Figure 3. Growth Incidence Curves (expressed in real annual growth rates, based on income distributions of 1993 and 2000)

Note: To facilitate comparison of growth differences between income percentiles within countries, we used different scales on the vertical axes and excluded the lowest 5% and highest 5% observations.

Source: Own calculations ECHP and PSID–CNEF.

these GICs only compare the 1993 and 2000 income distributions, they do not necessarily reflect the impact of economic cycles on poverty and income inequality occurring between intermediate years. In the U.S., U.K., Ireland, Netherlands, and Luxembourg, Gross Domestic Product (GDP) grew during the whole period while all other member states experienced a GDP decline in 1993 followed by growth in the remaining years; for Germany, Greece, Italy, and Austria unemployment only recovered toward the end of the 1990s (World Development Indicators, 2009). With GDP growth for most of the period, the GICs in Figure 3 *grosso modo* reflect this experience.

Figure 3 further shows striking differences between countries as to the magnitude and distribution of that growth. In many countries, the lower end of the income distribution experienced higher income growth than other parts of the distribution, but this is not the case in Denmark, Finland, Sweden, the Netherlands, and Ireland where the opposite pattern occurs. Ireland, for instance, experienced very high economic growth during the 1990s. Every income percentile benefited from this growth but the middle income groups benefited much more than other groups: percentile income growth rates are mostly at or above 4 percent per annum, but middle percentiles grew up to more than 6 percent per year. Note that there are contrasting experiences among the faster growing countries (Ireland, Spain, Portugal, Finland, and Sweden). In Spain and Portugal the lower 20 percentiles had higher growth rates than the median income percentile, while Ireland, Finland, and Sweden experienced the opposite. As middle incomes represent the benchmark for setting a relative poverty line, relative poverty rates are influenced by the distribution of growth. When lower incomes grow more than middle incomes, relative poverty rates are likely to decrease (and vice versa). In sum, real income growth at lower income levels reduces absolute poverty, while more than proportionate income improvements at lower income levels are needed to reduce relative poverty. The net effect on absolute and relative poverty, however, depends on the interplay between the level and distribution of income and the setting of the poverty lines, an issue to which we turn in the next section.

4.3. *(Changes in) Poverty Line*

Financial poverty statistics reflect society's concerns about those people whose resources are so low that they are unable, or unlikely, to achieve an acceptable minimum level of well-being. The strength of poverty indicators, i.e. providing simple and understandable figures that give information about the status of people with few means, also gives rise to its most important weakness: at which point is a situation acceptable and at which point it is not anymore? This question is the focus of an ongoing debate in the poverty literature and beyond. Among practitioners, the consensus is that this problem can be partially tackled by a range of sensitivity analyses in which one estimates poverty statistics by somewhat varying its key inputs in the estimation process (i.e. a somewhat higher or lower poverty line, different income definitions etc.). This practice is very useful and important, but only once one has chosen a particular poverty concept. The analysis in this paper contributes to the debate at a conceptual level; this paper empirically illustrates the consequences applying the conceptually distinct official

poverty indicators of the U.S. and EU on the simplest poverty statistic of all, the poverty headcount. At this point we can actually move to the heart of the debate; selecting the benchmark on which a poverty line is based and its influence on the resulting estimates. The two poverty indicators that we use in this paper reflect conceptually distinct value judgments as to what poverty is. Let us momentarily abstract from the measurement specifics of both indicators and answer the question at a conceptual level. Absolute poverty lines reflect the level of financial resources that are needed to satisfy a set of basic needs or rights in a given society. Relative poverty lines reflect the level of financial resources below which people have much less than what is considered normal or typical in a given society. Thus, in case of an absolute poverty approach the costs of satisfying basic needs or basic rights are the benchmark for setting the poverty line and in case of a relative approach the typical or normal citizen serves as the benchmark.

The absolute poverty indicator, when it was developed by Molly Orshansky, was quite a successful attempt to obtain a monetary value for the financial resources needed to attain a basic living standard in the beginning of the 1960s in the U.S. The main benchmark for obtaining this value was the economy food plan for emergency or temporary use when family funds were low. The food plan specified the food items that would be needed to achieve a fully nutritional diet (Fisher, 1992). The monetary allowance for other, non-food, basic needs, however, was not determined on the basis of the actual costs of achieving basic needs as shelter, clothing, health, and transport, but it multiplied the food budget with the reciprocal of the share of food expenses for an average U.S. family. In Section 2, we briefly discussed the main reasons why the current official U.S. poverty line has lost its relation to the current costs of achieving basic needs in the U.S. Our methodology of revaluing the U.S. poverty lines to their respective national purchasing power levels in the 15 EU member states, as discussed in Section 3, suffers from similar limitations. Ideally, a PPP conversion should have the following result: an income equal to the poverty line in Italy should allow a household to purchase the same or similar goods and services as the income value of the poverty line in, say, the Netherlands. As the price and quantities of the goods used to determine the PPP rates do not only include those that are needed to satisfy basic needs, it is doubtful that our method achieves this objective.[21] These considerations are as relevant for making comparable absolute poverty estimates in the EU as they are for making comparable estimates between, for instance, states in the U.S. In the concluding section we shortly reflect upon a number of methods that have tried to tackle this comparability issue for absolute poverty lines.

At this point we merely want to emphasize that since absolute and relative poverty lines are based on different perceptions of what poverty is, this difference by itself is sufficient to yield variations in poverty estimates. The monetary value of both thresholds may thus lie at different loci in the income distribution and their values may develop in different directions over time. As Table A2 illustrates, the monetary value of the absolute poverty line can be above, at, or below the monetary value of the relative poverty line. Furthermore, absolute poverty lines are

[21]Figure S4 in the online appendix already shows that the choice for a PPP benchmark year can yield a difference of 4 percentage points in the absolute poverty estimate for Greece.

annually updated for increases in the cost of living while relative poverty lines change with median income developments. In the countries in this study, low and stable inflation is an explicit monetary policy target and the monetary authorities are rather successful in achieving this target. As a result, price changes tend to be less volatile than changes in economic growth (and hence income) over the business cycle.[22]

Figure 4 shows the effects of both updating methods on poverty trends. To isolate the effect of the updating mechanism we start from the relative poverty threshold in 1993 and update this threshold using both methods.[23] Subsequently, we calculate the poverty rate according to each updating mechanism. The method of updating of a relative poverty line with consumer prices is also called an "anchored" poverty line and is one of the secondary Laeken indicators on poverty and social exclusion (Atkinson *et al.*, 2002). The updating methods influence the poverty trends in all countries; over time we can see a divergence in poverty trends. At the end of the whole period, poverty rates computed with the price index have decreased for all countries in comparison to their 1993 level. Depending on the country, poverty rates using the median updating mechanism declined, increased, or remained constant. Divergence in trends is largest for countries that experienced high economic growth. Ireland is an extreme case as the poverty trends are not just diverging but even move in opposite directions. Furthermore, poverty estimates with the median updating mechanism are more stable than the trends using inflation updating. This is because the updating mechanism used with relative poverty lines functions as an in-built stabilizer on the poverty rates. In good times, the threshold is increased by the increase in median income, but in bad times, the threshold could even decline (or increase by less than the inflation rate; a decline in real terms). Conversely, in a recession it is thus possible to find a rise in absolute poverty while relative poverty declines. This characteristic underlines another important difference between relative and absolute poverty indicators: even though they each evaluate the outcome of economic development by focusing on its impact on low income levels, their assessment of what constitutes progress in welfare is different. The absolute indicator evaluates any improvement in purchasing power while the relative indicator only detects progress when it is more than proportionally shared by low income groups. The updating mechanism thus also reflects a value judgment on what constitutes progress.

5. Conclusion

The EU uses a relative poverty concept to monitor financial poverty while the U.S. uses an absolute poverty concept. In this paper we applied both EU and U.S. official poverty measurement methodologies on survey data for the U.S. and 15 EU member states with the aim to investigate whether much information is lost when using only one indicator. The results show that within country differences between absolute and relative poverty can be substantial at a given time point and

[22]This is illustrated by Figure S5 in the online appendix which reports the annual growth rates of the absolute and relative poverty lines in the Netherlands.

[23]For Austria, Finland, and Sweden we start with the year in which their first survey was held.

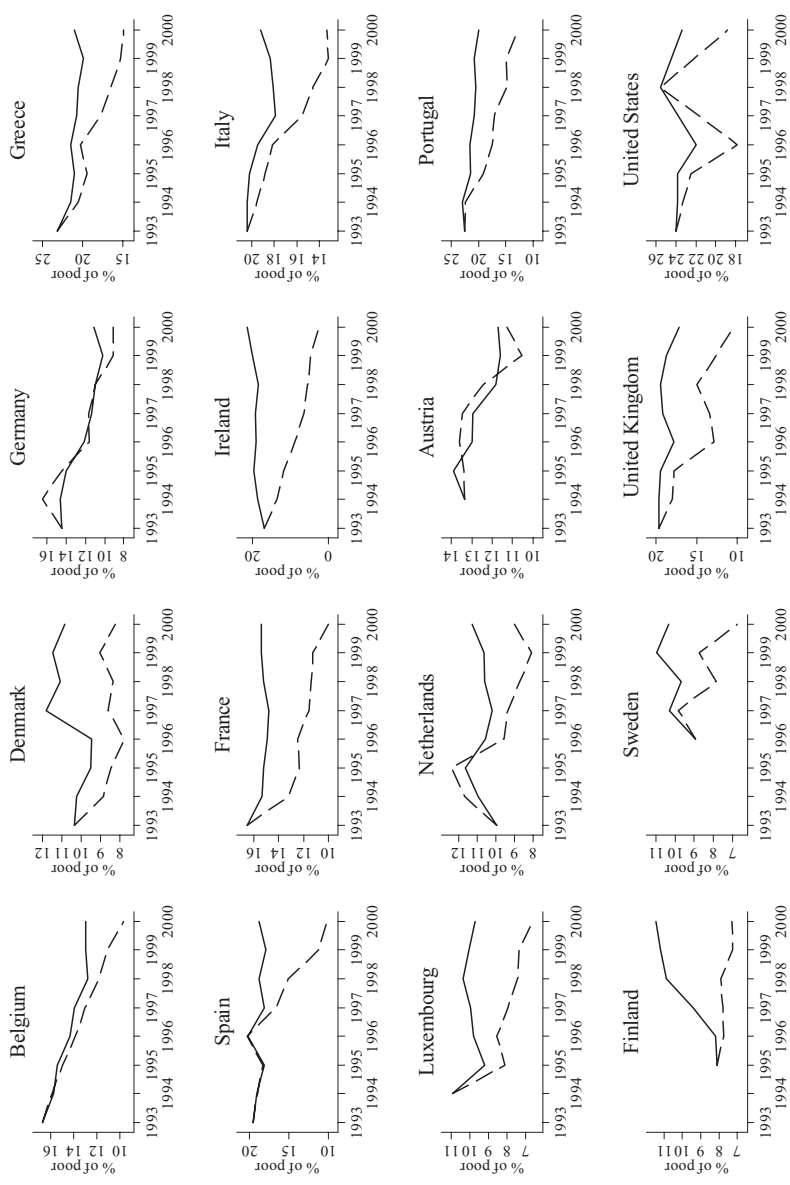

Figure 4. The Impact of Updating Mechanisms on Poverty Incidence

Note: To facilitate comparison of absolute and relative poverty trends within countries, we used different scales on the vertical axes. For the U.S. there are no observations 1999 and 1997.

Source: Own calculations ECHP and PSID–CNEF.

that absolute and relative poverty rates regularly show different trends over time. The large variation in experiences between the 16 countries further emphasizes the point that there is no such thing as a typical pattern in poverty experience.

Subsequently, we separated and analyzed the individual effects of the two underlying factors driving these poverty patterns: (changes in) the level and distribution of income, and (changes in) the poverty line. The analysis of the income distributions showed that the average income level is an important factor explaining absolute poverty while the dispersion of those incomes is the main factor driving relative poverty. However, economic opportunities and government interventions influence the shape of the income distribution and thereby also influence the density of the income distribution at various income levels. Depending on the loci of the absolute and relative poverty lines, a country with a high living standard may still end up with a considerable absolute poverty rate while a country with more income dispersion may still manage to have a comparatively low relative poverty rate. Further, absolute and relative poverty indicators reflect conceptually distinct value judgments as to what poverty is: absolute poverty lines reflect the level of financial resources that are needed to satisfy a set of basic needs or rights in a given society while relative poverty lines reflect the level of financial resources below which people have much less than what is considered normal or typical in a given society. As a result, their monetary values can differ, thereby yielding different poverty estimates. Absolute or relative poverty concepts also implicitly judge pro-poor development in a different way; the absolute indicator positively values any improvement in the standard of living of the poor while the relative indicator only detects progress when it is more than proportionally shared by the poor.

Although we used the EU and U.S. poverty measurement methodologies to illustrate typical differences between absolute and relative poverty indicators, there are many alternative methodologies. For the reasons indicated in Sections 2 and 3, it is not certain that the absolute poverty lines we used here indeed are a proxy for the current costs of achieving a basic living standard in the studied countries. When developing an absolute threshold, a balance has to be found between obtaining an adequate measure for the costs of basic needs in a given society versus the costs of obtaining this information. It is in this respect that many of the absolute poverty methods in part rely on the expenditure distribution to determine such a basic minimum, in effect thereby incorporating a relative element in setting a basic needs threshold. For instance, one of the key recommendations for improving the U.S. poverty method made by the panel on poverty and family assistance is to use a certain percentage of the median level of expenditures on basic goods and services (Citro *et al*., 1995, pp. 7, 147–57).[24] Alternatively, in the EU, so-called

[24]Alternatively, the so-called poverty-relevant PPPs that are currently being developed by the International Comparison Program of the World Bank specifically take into account the costs and quantities of goods and services consumed by people living on the threshold level (ICP Newsletter, Volume 3, Number 3, October 2006, available at www.worldbank.org). However, its method of determining the threshold level also involves elements of the expenditure distribution. Second, Ireland is one of the few countries that uses, in addition to its relative poverty indicator, a hybrid indicator combining the information from the relative poverty line with that of a set of deprivation indicators (Whelan *et al*., 2003, 2006; Maitre *et al*., 2006). Finally, the so-called budget method is a popular method in developing countries to establish a national minimum by means of pricing a basket of basic goods and services (Ravallion *et al*., 2008).

"anchored" poverty lines are used to track the influence of real income progress on poverty; in this method the value of the relative poverty line is fixed in terms of its purchasing power at a given year (Atkinson *et al.*, 2002). Although the anchored poverty line is able to track real income increases it does so at a "much less than normal" income level while income developments of groups below the basic needs level may be different. Consequently, changes in absolute poverty may thus differ in magnitude and sign from changes in anchored relative poverty; though this is more likely to occur in countries with very different poverty lines or those experiencing large structural changes in their economy.

A key consideration for selecting a poverty measurement methodology is that a poverty indicator only makes sense when its benchmark approximately reflects society's ideas about what constitutes poverty. Having "much less than normal" and "not enough to cover the basics" are common perceptions of poverty. The results in this paper suggest that it makes sense to monitor the level of well-being of low income groups using both absolute and relative poverty concepts. This aspect is particularly relevant in an enlarged EU where the combined effects of ongoing structural reforms and improvements in living standards in the new EU member states are likely to drive large variations between absolute and relative poverty over time. Using both absolute and relative poverty concepts would be relevant for tracking developments in both poverty groups but it could also introduce more flexibility in pro-poor policymaking and formulating its respective objectives. For instance, absolute and relative poverty concepts could be used as an argument to have different low income target groups for anti-poverty (absolute concept) and redistributive (relative concept) initiatives. Or, depending on the type of intervention one could apply a specific pro-poor growth criterion; tax brackets used to determine child tax credits to low income families may be updated with median income growth rates while basic pensions and welfare payments are updated with inflation.

Appendix

TABLE A1

Poverty Incidence (in % of Individuals over the Period 1993–2000)

	Relative Poverty (EU indicator)								Absolute Poverty (U.S. indicator)							
	1993	1994	1995	1996	1997	1998	1999	2000	1993	1994	1995	1996	1997	1998	1999	2000
Belgium	16.7	15.9	15.3	14.2	13.8	12.8	12.9	13.3	13.2	11.7	9.4	10.2	10.1	9.0	8.2	6.8
Denmark	10.3	10.2	9.5	9.3	11.9	11.1	11.5	10.8	6.7	5.5	5.2	5.5	6.3	6.2	5.6	6.7
Germany	14.4	14.6	14.0	12.1	11.4	10.9	10.5	11.1	11.4	12.9	10.0	8.7	8.9	8.2	7.0	6.9
Greece	23.1	21.5	21.0	21.5	20.8	20.5	19.9	20.5	39.8	41.6	44.9	44.0	41.5	45.5	41.8	42.8
Spain	19.6	19.0	18.0	20.3	18.2	18.8	18.0	18.8	39.9	43.5	45.7	44.5	43.6	38.3	33.0	30.0
France	16.6	15.4	15.2	14.9	14.7	15.2	15.6	15.4	22.0	18.1	16.5	16.2	15.8	15.8	15.5	13.5
Ireland	16.8	18.6	19.5	19.1	19.2	18.5	20.1	21.4	47.0	42.0	40.6	33.8	26.0	25.4	21.7	18.2
Italy	20.4	20.4	20.1	19.5	18.0	18.0	18.4	19.3	36.0	36.8	42.9	37.9	33.7	32.0	28.9	29.0
Luxembourg	–	13.2	11.5	11.4	12.2	12.7	11.9	12.5	–	1.7	0.8	0.9	1.3	1.7	0.5	0.8
Netherlands	10.0	11.3	11.7	10.5	10.3	10.7	10.4	11.3	11.5	12.6	12.2	10.1	10.8	10.6	9.5	10.3
Austria	–	13.4	14.0	13.0	12.9	12.0	11.7	11.9	–	8.6	7.5	9.1	9.0	8.4	6.1	7.3
Portugal	22.5	22.9	21.5	21.6	20.8	20.5	20.8	20.1	62.1	63.1	62.3	60.2	60.1	60.0	55.5	52.6
Finland	–	–	8.1	8.3	9.4	10.7	10.9	11.4	–	–	14.1	15.4	14.8	16.1	15.0	14.7
Sweden	–	–	–	8.9	10.4	9.5	10.9	10.4	–	–	–	13.3	13.6	11.4	11.5	9.3
United Kingdom	19.6	20.0	19.5	17.8	19.0	19.4	18.7	17.1	24.3	23.7	22.7	17.8	18.0	20.2	16.1	13.7
United States	24.0	23.8	23.7	21.6	–	25.4	–	23.4	14.9	14.5	13.2	10.2	–	15.8	–	11.0

Note: Not available (–).
Source: Own calculations ECHP and PSID–CNEF.

TABLE A2

INDICATORS FOR THE LEVEL AND DISTRIBUTION OF INCOME AND POVERTY RATES (2000)

	y(a) (in PPP USD)	y(m) (in PPP USD)	Gini of $F(y)$	Gini of $F_m(y)$	z_r/y(m)	z_a/y(m)	H_r	H_a
Belgium	19,499	16,970	0.280	0.144	0.60	0.52	13.3	6.8
Denmark	18,542	17,684	0.216	0.139	0.60	0.50	10.8	6.7
Germany	18,598	16,520	0.253	0.142	0.60	0.52	11.1	6.9
Greece	11,015	9,491	0.328	0.200	0.60	0.89	20.5	42.8
Spain	13,927	11,868	0.327	0.191	0.60	0.74	18.8	30.0
France	17,423	15,739	0.270	0.160	0.60	0.58	15.4	13.5
Ireland	15,059	13,877	0.288	0.182	0.60	0.56	21.4	18.2
Italy	12,970	11,917	0.294	0.201	0.60	0.72	19.3	29.0
Luxembourg	29,015	25,441	0.265	0.136	0.60	0.34	12.5	0.8
Netherlands	17,328	15,433	0.261	0.150	0.60	0.58	11.3	10.3
Austria	18,218	16,771	0.242	0.145	0.60	0.53	11.9	7.3
Portugal	10,275	8,053	0.369	0.187	0.60	1.05	20.1	52.6
Finland	14,990	13,739	0.244	0.142	0.60	0.63	11.4	14.7
Sweden	15,705	14,316	0.242	0.142	0.60	0.58	10.4	9.3
United Kingdom	19,029	16,500	0.306	0.179	0.60	0.55	17.1	13.7
United States	28,771	22,882	0.394	0.228	0.60	0.39	23.5	11.0

Note: Income (y) is expressed in 2000 PPP dollars. y(a), adult equivalent average income; y(m), adult equivalent median income; F(y), total income distribution; $F_m(y)$, income distribution below median; z_r, relative poverty line; z_a, absolute poverty line; H_r, relative poverty rate; H_a, absolute poverty rate. z_a reflects the single working-age adult U.S. poverty line.

Source: Own calculations ECHP and PSID–CNEF.

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Supporting Information

Additional Supporting Information may be found in the online version of this article:

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Table S2. Construction of Disposable Income Variable
Table S3. Income Components in ECHP by Country

Table S4. Average Per Capita Disposable Income by Country and Survey Year (in PPP USD)
Table S5. Average Adult Equivalent Disposable Income by Country and Survey Year (in PPP USD)
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