

Patterns of persistent poverty: Evidence from EU-SILC

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The persistent at-risk-of-poverty rate is one of the EU's 11 primary indicators of social inclusion but it has received little attention compared to the current at-risk-of-poverty rate. Evidence about poverty persistence is an important complement to information about poverty prevalence at a point in time: it is widely agreed that poverty is worse for an individual, the longer he or she experiences it.

According to EU definitions, the current at-risk-of-poverty rate for a country is the proportion of persons with an equivalised household disposable income below 60% of the national median equivalised household income; the persistent at-risk-of-poverty rate is the proportion of persons who are currently income poor and who were income poor in at least two of the preceding three years. Because of the way the persistent poverty rate is defined, a country's persistent poverty rate must be smaller than its current poverty rate.

We compare persistent at-risk-of-poverty rates and profiles across European nations using the 2008 EU Statistics on Income and Living Conditions (EU-SILC) database, and consider the extent to which the EU's persistent and current at-risk-of-poverty rates reveal similar pictures about the nature of income poverty in practice. Two specific questions we address are: to what extent do the longitudinal and cross-sectional measures rank EU countries differently? Do they provide similar estimates of the profile of income poverty across population subgroups?

Our analysis reveals that not only are country rankings according to persistent and poverty rates the same, but also there is an almost linear relationship between the two rates. In addition, the structure of poverty in a given country – as revealed by poverty profiles by age and sex – is also very similar across EU countries. In this sense, the EU measure of persistent poverty adds relatively little additional information to that which is revealed by the more commonly-used current poverty measure.

This finding raises questions about how poverty persistence might best be summarised within EU-SILC, and we discuss these issues.

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Abstract

The persistent at-risk-of-poverty rate is one of the EU's 11 primary indicators of social inclusion but it has received little attention compared to the current at-risk-of-poverty rate. Using the 2008 EU Statistics on Income and Living Conditions (EU-SILC) database, we compare persistent income poverty rates across European nations and examine differences in poverty profiles for subgroups defined by age and sex. We draw attention to similarities between the profiles for persistent at-risk-of-poverty rates and at-risk-of-poverty rates, and are led to question the relevance of the former measure in its current form as a key EU indicator of social progress.

Keywords

Persistent poverty, income poverty, poverty, EU-SILC, Europe

JEL Codes: I32, D31

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Introduction

The monitoring and measurement of social protection and social inclusion in the European Union (EU) has been increasingly institutionalised over the last decade. Since the Lisbon European Council in 2000, the Open Method of Coordination (OMC) has provided a framework within which member states agree upon common objectives for the EU as a whole and a set of common indicators to assess national and EU progress towards these goals.¹ The first set of commonly-agreed indicators relating to social inclusion – the so-called Laeken indicators – was agreed in December 2001, and has been revised on a continuous basis since then. (For the most recently agreed list, see European Commission 2009.) Since the launch of the Social OMC, the at-risk-of-poverty rate – the proportion of persons with an equivalised household disposable income below 60% of the national median equivalised household income – has been the most commonly discussed EU social inclusion indicator. It is also one of the three indicators named in the EU's Headline Targets for social inclusion agreed upon in June 2010 in the context of the Europe 2020 strategy. (For more information, see e.g. Marlier and Natali 2010.) In this paper, we examine another of the primary indicators of social inclusion, the persistent at-risk-of-poverty rate. In principle, evidence about poverty persistence is an important complement to information about poverty prevalence at a point in time: it is widely agreed that poverty is worse for an individual, the longer he or she experiences it. We compare persistent at-risk-of-poverty rates and profiles across European nations, and consider the extent to which the EU's persistent and current at-risk-of-poverty rates reveal similar pictures about the nature of income poverty in practice. Two specific questions we address are: to what extent do the longitudinal and cross-sectional measures rank EU countries differently? Do they provide similar estimates of the profile of income poverty across population subgroups?

The persistent at-risk-of-poverty rate measures the proportion of persons in a country who are currently income poor and who were income poor in at least two of the preceding three years. It has received much less attention than the at-risk-of-poverty rate, not least

¹ See the European Commission's explanation of the Social OMC at <http://ec.europa.eu/social/main.jsp?catId=753&langId=en>. On the development of the EU's social indicators, see Atkinson et al. (2002). On the potential for these indicators to strengthen social policy analysis, see Marlier et al. (2007).

because longitudinal data spanning a four year period take longer to become available than cross-sectional data for a single year. Moreover, there has been a gap in availability of pan-European longitudinal data since the end of data collection by the European Community Household Panel (ECHP) and the start of the longitudinal component of the EU Statistics on Income and Living Conditions (EU-SILC): see below.

The more that the pictures provided by the measures of current and persistent income poverty are the same, the stronger is the argument for focusing on the current poverty indicator, since estimates of current poverty are cheaper to derive (panel data are expensive to collect), can be produced in a more timely fashion, and are more statistically robust because they are based on larger sample sizes (see below). Our analysis is therefore relevant to future discussions within the Social OMC about what the various indicators of income poverty should be and the intimately-related questions of what data should be collected and how.

The major EU data source used in the context of the Social OMC is EU-SILC.² By contrast with the input harmonisation approach used previously – data collection using a common and harmonised longitudinal survey instrument (the ECHP) – there is now output harmonisation, according to which member states deliver, annually to Eurostat, data referring to harmonised lists of target variables produced according to common concepts and classifications. Member states have quite a lot of discretion about the data collection instruments used to derive the data: for instance, the cross-sectional and longitudinal components may come from separate sources (and the longitudinal dataset does not have to be linkable with the cross-sectional dataset even if, in practice, it is often the same source that is used for both data sets). There is also the issue, to which we return, of the extent to which cross-sectional and longitudinal components yield statistics for a given country and year that are consistent with one another. If the information gain from existing EU-SILC longitudinal data collection instruments regarding patterns of income poverty is relatively small, then it is time for a re-think – about whether to modify the instruments or to modify the persistent at-risk-of poverty indicator itself.

Our substantive findings complement earlier research about persistent poverty in Europe. Our analysis is up-to-date – we use the latest EU-SILC data release available at the time of writing (2008 is the latest survey year) – and the data cover both ‘old’ EU-15 member

² For an overview of EU-SILC, see Wolff, Montaigne, and Rojas González (2010). To access further information about EU’s regulations concerning the SILC, data documentation provided by Eurostat, and SILC variable lists, we recommend the EU-SILC web portal provided by the GESIS research institute at <http://www.gesis.org/dienstleistungen/daten/amtliche-mikrodaten/european-microdata/eu-silc/eu-silc-further-information/>.

states and ‘new’ member states – the countries that became full EU member states from 2004, most of which are in eastern Europe. Our research therefore differs from most previous cross-national comparative research about persistent poverty rates in Europe, as much of this is based on ECHP data (which cover the period 1994–2001) and refers to old member states only. Examples of this research include, inter alia, Fouarge and Layte (2005), and Whelan, Layte, and Maître (2003, 2004). There are *Statistics in Focus* articles about persistent poverty based on the ECHP by Mejer and Linden (2000) and Dennis and Guio (2003). An official EU report with discussion of ECHP-based statistics about persistent at-risk-of-poverty rates is European Communities (2002). OECD (2001) and Valletta (2006) study persistent poverty rates in selected European countries using national panel surveys and administrative data. Persistent poverty can also be studied in terms of poverty spell lengths rather than counts of numbers of year poor over a period but spell-based approaches are infeasible with EU-SILC given its four-year span. Studies comparing poverty spell lengths across EU countries using ECHP data include Andriopoulou and Tsakloglou (2011), Callens and Croux (2009), Damioli (2011), and Fourage and Layte (2005).

EU-SILC-based estimates of persistent at-risk-of-poverty rates are becoming available for most EU countries. Up-to-date information is provided by Eurostat’s online tables and charts (Eurostat 2011). Information is also provided, though using an earlier EU-SILC data release by, inter alia, Social Situation Observatory (2010*a, b*) and Van Kerm and Pi Alperin (2010). Compared to these sources, we provide greater detail about patterns of persistent poverty across EU countries, use a later year’s data (which allows substantially more countries to be included), and undertake more extensive analysis of the extent to which patterns of persistent at-risk-of-poverty rates are similar to at-risk-of-poverty rates.

More information about the EU-SILC longitudinal and cross-sectional data that we use is provided in the next section. We explain our choice of countries with references to data consistency checks, and define income, poverty status, and a classification of individuals into seven subgroups according to age and sex. For brevity, we refer henceforth to the at-risk-of-poverty rate as the current poverty rate, and the persistent at-risk-of-poverty rate as the persistent poverty rate. We refer to poverty rather than income poverty. (We are not concerned with the measurement of material deprivation in this paper but we discuss it briefly in our concluding section.) The third section compares persistent poverty rates across countries and draws attention to a high cross-country correlation between persistent and current poverty rates. In the fourth section, we go beneath the overall country-level statistics to describe how patterns of persistent poverty differ across subgroups within countries. We

use poverty profiles for this analysis – describing and comparing structures of persistent poverty with reference to subgroup poverty rates, subgroup shares of the total population of poor individuals, and subgroup poverty relative risks. (These terms are defined below.) In the penultimate section, we compare persistent poverty profiles with current poverty profiles, and argue that they are similar. The implications of our findings are discussed further in the concluding section.

Data, definitions, and the EU-SILC database

Our analysis is based on the longitudinal EU-SILC files (UDB 2008-1, released 2010-08-01) and on the cross-sectional files (UDB 2008-2, released 2010-08-01). The longitudinal files refer to data covering the four survey years 2005–2008 for 21 countries, of which 9 are new member states: see Table 1.³

Table 1. EU member states included in EU-SILC longitudinal files (UDB release 2008-1)

EU-15 member states	New member states
Austria (AT) *	Cyprus (CY)
Belgium (BE)	Czech Republic (CZ)
Finland (FI) ‡	Estonia (EE)*
Ireland (IE) *	Hungary (HU)
Italy (IT)	Latvia (LV)
Luxembourg (LU)	Lithuania (LT)
Netherlands (NL) ‡	Poland (PL)
Norway (NO) † * ‡	Slovenia (SI) ‡
Portugal (PT)	Slovakia (SK)
Spain (ES)*	
Sweden (SE)* ‡	
United Kingdom (UK)	

†: Norway is an EU Associate Member. *: country excluded from the subgroup analysis of this paper because of inconsistencies between longitudinal and cross-sectional files (see text). ‡: data collection using linked administrative registers (see text). Of the current EU-27 member states, data are unavailable in this release for four EU-15 countries (Denmark, France, Germany, Greece) and for three new member states (Bulgaria, Malta, Romania).

The reference period for income data is the calendar year (January–December) preceding the year of data collection (with two exceptions), so the four income years covered by the longitudinal data are 2004–2007. The exceptional countries are Ireland for which the data refer to the 12 months prior to the interview, and the United Kingdom for which the

³ The cross-sectional files contain data for all 25 EU nations plus Norway and Iceland.

income reference period refers to the period around the date of interview (in 2008) with income totals subsequently converted to annual equivalents.⁴ Longitudinal data collection methods differ across countries, but they can be classified broadly into those that rely on linked administrative registers (Finland, the Netherlands, Norway, Slovenia, and Sweden) and those relying on household surveys with a four-year rotating panel design (the other 16 countries).⁵

Following EU official definitions, the poverty status of an individual is determined by the equivalised household disposable income of the household to which he or she belongs. Household disposable income is the aggregate across all adult household members of all money income receipts during the reference period, with direct tax payments deducted from the total. Included is income from employment (including the imputed benefit of company cars) and self-employment, cash benefits and pensions from the government and financial transfers received from other households, and income from investments, savings and occupational pensions. Direct taxes include income taxes and employee social insurance contributions. Money incomes are equivalised using the modified OECD scale. For further details of the sources included in household income and the equivalence scale, see Eurostat (2010).

A person is counted as being poor in a given year if his or her equivalised household disposable income is less than 60 per cent of the national median equivalised household income for that year. The *current poverty rate* for a particular country or group within a country is the proportion of persons in that country or group who are poor in a given year. The *persistent poverty rate* for a particular country or group within a country is the proportion of persons in that country or group who are currently poor and who were poor in at least two of the preceding three years. In this paper, the current year refers to income year 2007.⁶

We compare poverty rates across subgroups within and between countries using an exhaustive partition of the population into seven subgroups defined by sex and age in 2008. The first subgroup is dependent children, characterised using the EU-SILC definition (individuals aged less than 18 years, or aged between 18 and 24, living with at least one of two parents and not economically active). The other six groups refer to adults aged less than

⁴ These differences in income reference period are unlikely to be a major source of non-comparability. Böheim and Jenkins (2006) argue using British Household Panel Survey data that current income and annual income definitions lead to very similar estimates of income distribution statistics.

⁵ For more extensive discussion of SILC register and survey data collection methods, see Lohmann (2011).

⁶ Except for Ireland and the UK: see earlier.

30 years, 30–59 years, and 60 or more years, classified separately by sex.⁷ Our subgroup partition has the advantage of identifying vulnerable groups such as dependent children and elderly people, especially women. The two middle age groups refer to individuals of working age, with the age 30 boundary chosen because in southern Mediterranean countries many children do not leave the parental home until around that age (Iacovou 2010).

The main reason for using a subgroup partition based on age and sex is that breakdowns by these variables are the only ones that are mandated for the EU's persistent poverty measure in its role as one of the primary EU indicators. Our age categories correspond closely with those specified in revised Laeken indicators (0–17, 18–64, 65+), but we take the opportunity to look at the middle age group in more detail.⁸

For our comparisons of persistent and current poverty rates in aggregate and by subgroup, we use estimates of current poverty rates derived from the longitudinal file in order to ensure that our comparisons are based on the same samples of same individuals. Poverty lines are derived from the cross-sectional datasets rather than the longitudinal datasets, since the larger sample size of the former is likely to lead to more reliable estimates of the median income.⁹ All measures are computed for survey year 2008 (income year 2007). For the persistent poverty rates, this means that we count the proportion of individuals poor in 2007 as well as in at least two of the three previous years. The data release that we use is the first that allows a longitudinal analysis of this kind for a wide range of countries. Earlier EU-SILC longitudinal data releases contained four years of longitudinal data for 14 countries only (of which only one is a new member state): see Van Kerm and Pi Alperin (2010).

For each country, the estimates of aggregate and subgroup current poverty rates and estimates of subgroup population shares that are derived from the longitudinal file can be benchmarked relative to corresponding estimates from the cross-sectional file. The cross-sectional file estimates of these statistics are likely to be more reliable because sample sizes are substantially larger than for the longitudinal data, and the longitudinal data may also be affected by attrition: the four-year rotating design of the longitudinal instruments used by most countries implies that four-year longitudinal samples are typically four times smaller than samples pertaining to one cross-section year, even without taking into account any

⁷ Subgroup membership cannot be ascribed in the longitudinal data for a small fraction of individuals in five countries (primarily because of missing information on activity status). These observations with missing data are omitted from our analysis altogether. They represent less than 0.1% of the sample in three countries, but are close to 1% in Norway and 2.9% in the UK.

⁸ A finer age partition was eschewed in order to maintain cell sizes.

⁹ Eurostat includes a derived variable summarising current poverty status in the cross-sectional files but not in the longitudinal files.

potential additional effects of attrition. Reassuringly, we generally find close agreement between corresponding estimates of subgroup shares and subgroup poverty rates computed from the two sources. Nevertheless, detailed examination led us to exclude five of the 21 countries from our analysis that use subgroup breakdowns (Sections 4 and 5). Specifically, our longitudinal files' estimates of subgroup population shares (as defined above) differ markedly from our cross-sectional files' estimates in the cases of Ireland, Norway, and especially Spain.¹⁰ And we also find dissonances in the estimates of subgroup poverty rates for Estonia, Ireland, and Sweden.¹¹ A sixth country, Austria, was also omitted from our subgroup analyses because of an implausibly low subgroup persistent poverty rate.¹²

All estimates presented in this paper are derived using the sampling weights supplied by Eurostat in the EU-SILC files.¹³

Persistent poverty rates in 21 European countries

Persistent poverty rates in 2007 (survey year 2008) for the 21 European countries in our sample are shown in Figure 1. New member states are identified by dark-coloured bars; old member states are identified using light-coloured bars. The rates shown are generally close to those shown in Eurostat's (2011) online database in terms of levels, though coverage differs. We have data for six countries that Eurostat does not report estimates for (CZ, IE, IT, PT, SE, UK), and there are three countries for which Eurostat reports estimates but which are not included in the EU-SILC longitudinal data release (GR, MT, IS). For each of the 15

¹⁰ For example for Ireland the proportion of women aged less than 30 years is 54% larger in the cross-section sample than in the longitudinal sample (7.2 per cent compared to 3.3 per cent). For Norway there were substantial inconsistencies in estimates of the proportion of dependent children (26 per cent in the cross-sectional file versus 19.9 per cent in the longitudinal file) and the proportion of women aged 60+ (11.6 per cent versus 15.5 per cent). Inconsistencies in subgroup population shares are particularly large for Spain for women aged less than 30 years (5.8 per cent versus 2.1 per cent), for women aged 30–59 (22.3 per cent versus 11.1 per cent), as well as for men aged 30–59 (22.6 per cent versus 34.2 per cent). All comparisons refer to survey year 2008. Detailed comparisons are available from the authors on request.

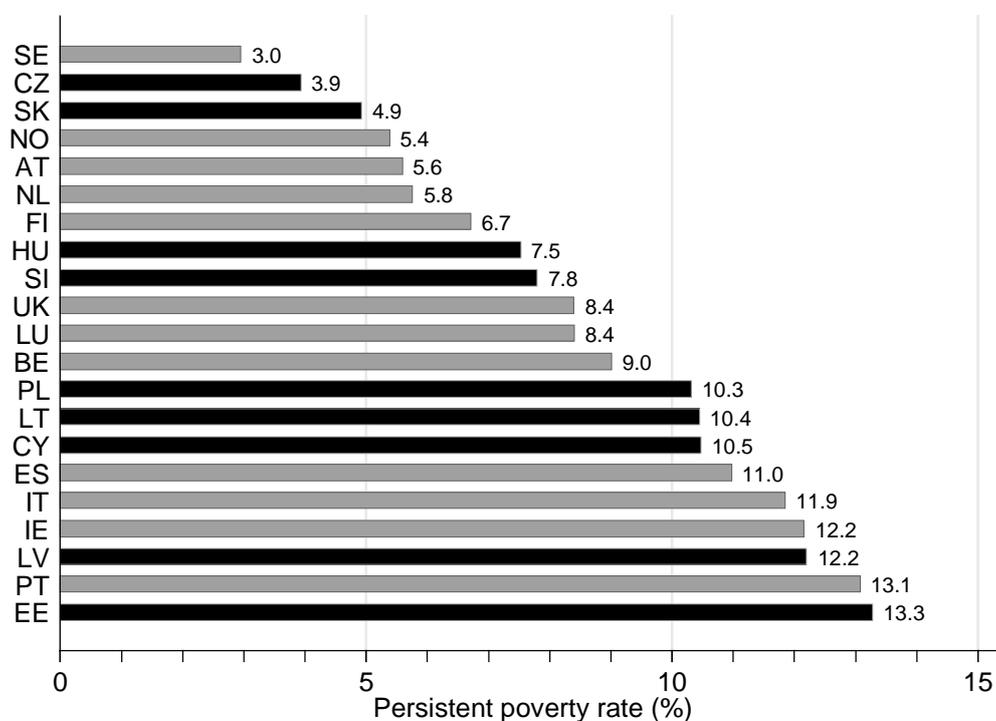
¹¹ For Sweden, there is a marked difference in estimates of aggregate current poverty rate: 12.1 per cent in the cross-sectional file but only 7.0 per cent in the longitudinal file. Similarly, there are several marked inconsistencies in estimates of subgroup poverty rates. For Ireland, the aggregate poverty rate is 15.5 per cent in the cross-sectional file but 20.1 per cent in the longitudinal file and, for men aged less than 30 years the estimates are 9.4 per cent in the cross-sectional file but 21.6 per cent in the longitudinal file. For Estonia, there are large differences in subgroup poverty rates among e.g. elderly men (23.3 per cent against 32.1 per cent) and elderly women (42.1 per cent against 51.4 per cent). All comparisons refer to survey year 2008. Detailed comparisons are available from the authors on request.

¹² The rate is zero for adult men aged less than 30 years. The rate is also zero for adult women aged less than 30 years in Ireland.

¹³ We use the four-year longitudinal weights for all countries except Finland, Luxembourg, and Portugal. For these three countries, we use the Eurostat-supplied base weights since no longitudinal weights are provided in the data release.

remaining countries, our estimates and Eurostat's are very close – within half a percentage point of each other.

Figure 1. Persistent poverty rates in 21 European countries, 2007



Notes. Authors' estimates from EU-SILC. New member states are identified by black bars. Country acronyms are explained in Table 1.

Persistent poverty rates vary immensely, ranging from 3 per cent in Sweden to more than four times as large, 13.3 per cent, in Estonia. There are countries located throughout the range; there is no clumping at particular points. The range and variation in rates across new member states are as large as for old member states. The persistent poverty rate in the Czech Republic is almost as low as that in Sweden. There are new member states with middle-ranking rates. And the persistent poverty rate in Estonia is virtually the same as that in Portugal.

It appears that differences in persistent poverty rates are associated with differences in country type, where we classify countries into six types according to welfare state regime (cf. Esping-Andersen 1990) and other features such as geographic location. Nordic countries have relatively low persistent poverty rates (SE, NO, FI) whereas Mediterranean ones have relatively high rates (CY, ES, IT, PT). In-between are Western European countries (AT, NL, LU, BE) and Central European countries (CZ, SK, HU, SI, PL) for which rates are generally

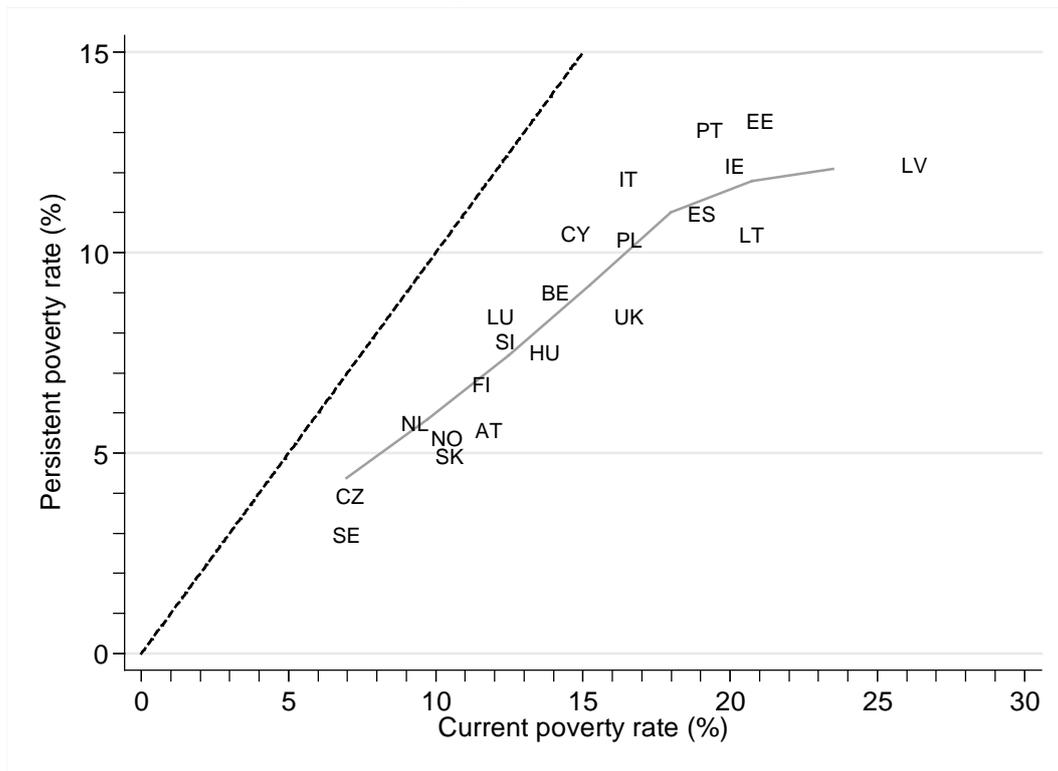
below average. In contrast, the three Baltic states have above-average persistent poverty rates (LT, LV, EE). The two Anglo-Saxon countries differ markedly: the UK's persistent poverty rate is the median rate whereas the rate in Ireland is some 50 per cent greater.

The five countries where longitudinal data are collected using administrative record linkage tend to have below average persistent poverty rates: the range is between 3.0 per cent for Sweden and 7.8 per cent in Slovenia, with the Netherlands and Finland in between. Although the data collection instrument may be partly responsible for this tendency (Lohmann 2011; Van Kerm and Pi Alperin 2010), it is at least as plausible that it arises from other features of the five countries (as distinguished in the previous paragraph).

Since our goal in this paper is to provide an extended description of patterns of persistent poverty captured in EU-SILC rather than to try to provide explanations, we defer to future research more in-depth analysis of cross-country differences in persistent poverty rates in terms of differences in country type.

We are interested in examining similarities and differences between persistent and current poverty rates. Figure 2 provides evidence about this at the country level, plotting persistent poverty rates (as shown in Figure 1) against current poverty rates. There are two distinct features of the relationship. First, persistent poverty rates are lower than current poverty rates in all 21 countries. This is to be expected since, according to the EU's definition of persistent at-risk-of-poverty, persistently poor individuals are a subset of individuals in poverty in 2007. Thus, the key information captured by the persistent poverty measure is how far a country lies below the dotted line in Figure 2. The two measures coincide only if all the individuals who were poor in 2007 were also poor in two of the three previous years (the case when persistent poverty is the norm). The persistent poverty rate is zero if all of the individuals currently poor were never poor more than once in the preceding three years (the case when poverty is transitory rather than persistent). The extent to which the persistent poverty rate is less than the current poverty rate ranges between 28 per cent (IT) and 57 per cent (SE). For ten countries, the shortfall in rates is between 28 per cent and 40 per cent (in ascending order: IT, CY, LU, PT, BE, EE, SI, PL, NL, IE); for seven, it is between 40 per cent and 50 per cent (FI, ES, CZ, HU, NO, UK, LT), for four, it is greater than 50 per cent (AT, SK, LV, SE). But there is no clear relationship between these proportionate shortfalls and a country's overall persistent poverty rate (or current poverty rate).

Figure 2. The association between persistent and current poverty rates: 21 European countries, 2007



Notes. Authors' estimates from EU-SILC. The non-parametric regression line shown in grey was derived using a local polynomial smoother. Country acronyms are explained in Table 1.

The second feature of Figure 2 is the very close association between persistent and current poverty rates. Countries with higher current poverty rates also have higher persistent rates. A non-parametric regression curve fitted to the points suggests an almost perfect linear relationship, at least up to current poverty rates of around 20 per cent (see the grey line in Figure 2). (Latvia's persistent poverty rate does not deviate as much from other high poverty countries as its current poverty rate does.) The cross-country Pearson correlation in rates is 0.91, or 0.93 if Latvia is excluded. (The Spearman rank correlation is 0.92 in both cases.) There is also some suggestion from the figure that there is greater dispersion around the regression line at higher current poverty rates. For example, Italy and the UK have similar rates of current poverty (approximately 16.5 per cent), but the UK has a persistent poverty rate of about 8 percent compared to that of about 12 per cent for Italy.

The close association between a longitudinal measure of poverty and the current poverty rate is also found when other measures besides the EU's persistent poverty rate are considered. For example, the 21-country Pearson correlation between current poverty rates and persistent poverty rates calculated using a UK definition is 0.87 (0.91 if Latvia is excluded). Persistent poverty on the UK measure is defined as being poor at least three years

out of four, i.e. the same as the EU measure except that there is no conditioning on current poverty status in the fourth year. (See Department for Work and Pensions 2009.) The cross-country Pearson correlation between the current poverty rate and the proportion of individuals poor in all four years is 0.76 (0.82 if Latvia is excluded). The corresponding Spearman correlation is 0.84 (0.86).

We examine below whether the close association between persistent and current poverty rates also exists when one looks at the structure of poverty within and between countries. Before doing so, we describe the structure of persistent poverty using poverty profiles.

Profiles of persistent poverty: differences by age and sex

A *poverty profile* is a device for showing how an aggregate poverty rate depends on poverty rates across different groups within a population and the relative size of those groups.¹⁴ In their two manifestations, poverty profiles reveal which subgroups account for most of the total poverty and which subgroups are most at risk of poverty, and these patterns can be contrasted across countries.

To construct a poverty profile one needs an exhaustive partition of every individual within a population into one of a set of subgroups according to the individual's characteristics. (Seven subgroups defined by age and sex are used in this paper: see the Introduction.) Given this classification, one can exploit the fact that virtually all commonly-used measures of poverty, including the poverty rate, can be expressed as a weighted sum of the poverty within each subgroup, where the weight of each subgroup is its population share (the number of people in the group expressed as a proportion of the total population).¹⁵ In algebraic terms, and for a given country and year, the relationship is:

$$P = v_1P_1 + v_2P_2 + v_3P_3 + \dots + v_KP_K \quad (1)$$

where P is the aggregate poverty rate, P_k is the poverty rate of subgroup k , and v_k is subgroup k 's population share, for each subgroup $k = 1, \dots, K$. Equation (1) shows that country A can have a higher persistent poverty rate than country B either because persistent poverty rates are

¹⁴ See e.g. the discussion in Chapter 7 of the World Bank Institute's *Poverty Manual* (Khandker et al. n.d.).

¹⁵ The decomposition property holds for all additive poverty indices, of which the poverty rate ('headcount ratio') is an example. The property does not hold for the Sen poverty index. See Foster, Greer, and Thorbecke (1984).

higher for some subgroups, or some groups with relatively high rates are more numerous; or both.

A poverty profile summarises which groups account for the largest share of the aggregate poverty rate and which groups are most at risk of poverty, for a particular country in a given year. The *poverty share* of subgroup k , S_k , is the product of its population share and its poverty rate, divided by the aggregate poverty rate:

$$S_k = v_k P_k / P. \quad (2)$$

The *poverty relative risk* of subgroup k , R_k , is equal to its poverty rate divided by the aggregate poverty rate:

$$R_k = P_k / P = S_k / v_k. \quad (3)$$

Cross-country comparisons in terms of subgroup poverty shares and relative risks are useful because poverty share and relative risk statistics are standardised. For each country, the country's subgroup poverty shares add up to one; a larger share means a greater contribution to total poverty. For each country, a subgroup with a relative risk equal to one has the same poverty rate as the average (the aggregate rate); and a subgroup relative risk greater (less) than one implies that the subgroup has an above-average (below-average) poverty rate. Relative risk statistics also indicate which subgroups are over- or under-represented in the aggregate poverty count relative to their numbers in the population: as (3) shows, a subgroup's relative risk can also be expressed as the ratio of its poverty share to its population share.

The main practical issue with constructing poverty profiles using EU-SILC data is the amount of information to summarise given that there are many countries –one has to compare differences in vectors of statistics rather differences in a single statistic. (Poverty profiles are more often used to describe poverty in pairs of countries, or poverty at two points in time for the same country.) We are therefore selective in what we report and use graphs to summarise sets of statistics compactly.

Differences in subgroup persistent poverty rates versus differences in subgroup population shares

We find that differences in persistent poverty rates are primarily due to differences in subgroup poverty rates across countries rather than differences in subgroup population shares. (For the subgroup analysis, six countries are dropped from the original 21 for the reasons discussed earlier.) This is illustrated by counterfactual analysis based on eqn. (1).

Specifically, the countries with the lowest and highest persistent poverty rates are the Czech Republic (3.9 per cent) and Portugal (13.1 per cent). We ask what would the aggregate persistent poverty rate be in each of the countries if instead they all had the same subgroup distribution of population shares as (a) the Czech Republic or (b) Portugal (but their own distribution of subgroup poverty rates), and also what if they all had the same subgroup distribution of persistent poverty rates as (c) the Czech Republic; or (d) Portugal (but their own distribution of subgroup population shares)?

In cases (a) and (b), the counterfactual persistent poverty rates for each country are very similar to the observed persistent poverty rates. For example, in case (a) the counterfactual persistent poverty rate for Portugal is 12.8 per cent (the observed rate is 13.1 per cent). So, swapping population shares makes very little difference. In contrast, the counterfactual aggregate poverty rates in case (c) are almost identical to the observed rate for the Czech Republic; and those in case (d) almost identical to the observed rate for Portugal. For example, in case (c) the counterfactual persistent poverty rate for Portugal is 3.9 per cent (equal to the observed rate for the Czech Republic). So, swapping subgroup poverty rates makes a very big difference.

In sum, differences in population composition (defined by age and sex) can be ruled out as the driver of differences in persistent poverty rates across countries. In additional analysis (not shown), we have compared the distributions of subgroup population shares of all 15 countries and confirmed that they are similar. For further evidence, see below also.

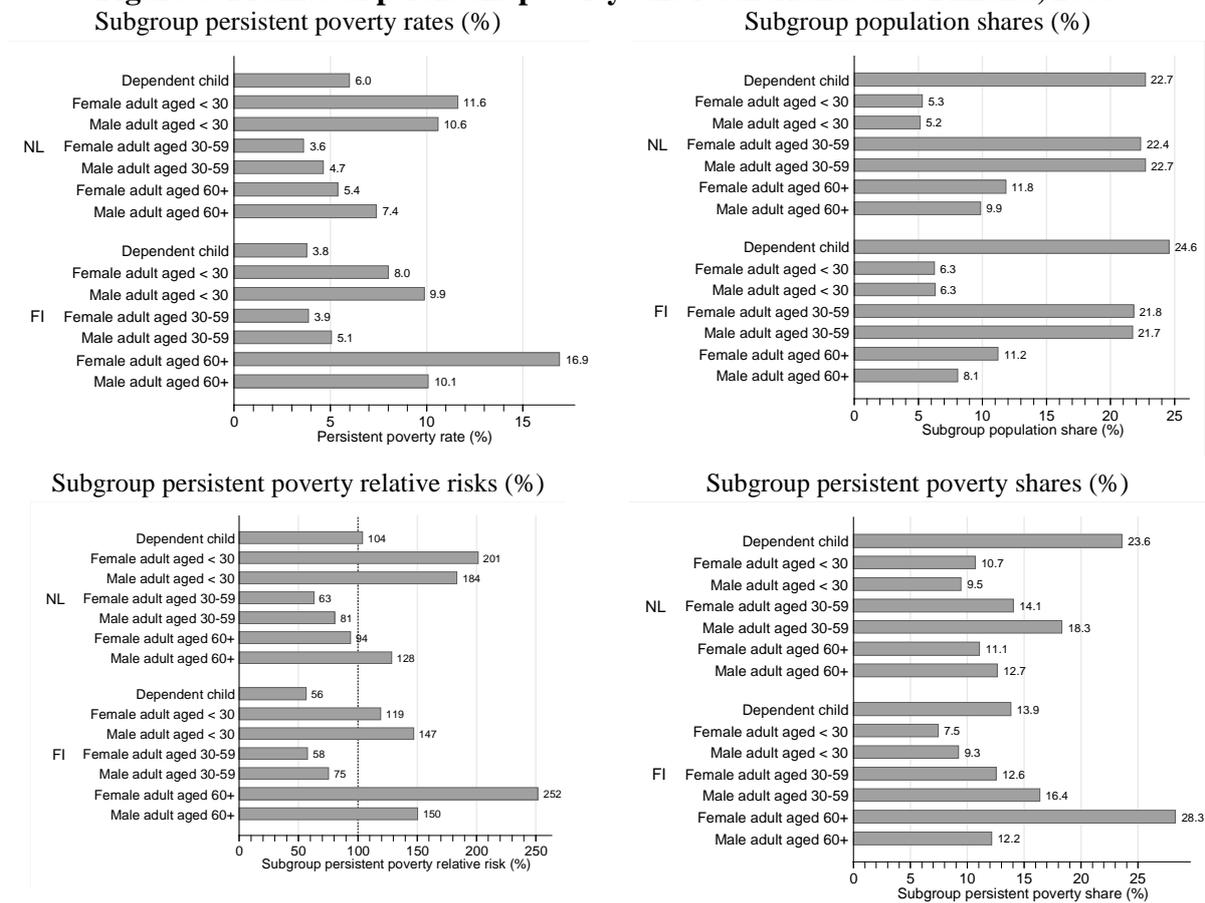
Profiles of persistent poverty: details for eight countries

We now look at persistent poverty profiles in greater detail. To make the comparisons more manageable, we report estimates for only eight countries. The country selection covers the range of persistent poverty rates and the six country types identified earlier. Specifically, we focus on two EU-15 countries (NL, FI) and two new member states (CZ, SK) with low persistent poverty rates, and two EU-15 countries (IT, PT) and two new member states (LT, LV) with high persistent poverty rates. Profiles are shown in Figures 3–6 respectively for each of the four pairs. Each figure has the same format: the top left-hand quadrant shows subgroup persistent poverty rates and the top right-hand quadrant shows subgroup population shares. The bottom left-hand quadrant shows subgroup poverty relative risks and the bottom right-hand quadrant shows subgroup poverty shares.

The earlier claim that distributions of subgroup population shares are very similar across countries is confirmed by inspection of these graphs. (Typically, dependent children form about one fifth of the population. The population share of adult men and women aged less than 30 is around one tenth; of men and women aged 30–59, around 45 per cent; and of men and women aged 60+, around one quarter.) We therefore focus on differences in the other three distributions, especially differences in the standardised statistics (persistent poverty shares and relative risks).

Pairs of countries with similar aggregate persistent poverty rates have broadly similar poverty profiles (with the exception of the Netherlands and Finland) but, otherwise, profiles differ for countries with different persistent poverty rates and from different types.

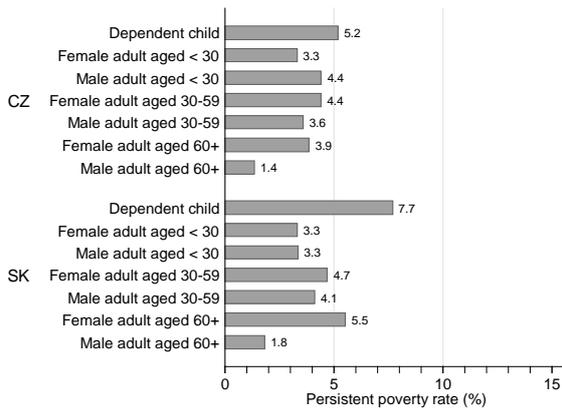
Figure 3. Profiles of persistent poverty: the Netherlands and Finland, 2007



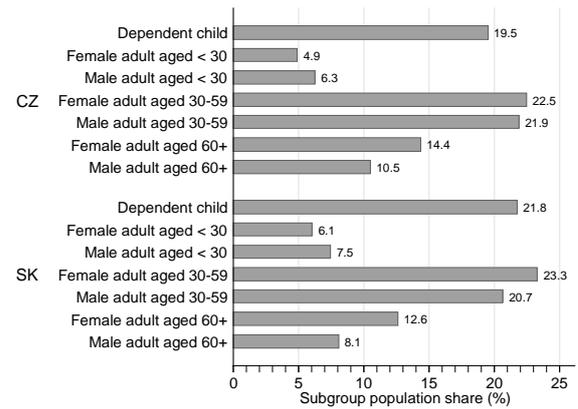
Notes. Authors' estimates from EU-SILC. The overall persistent poverty rates are 5.8% (NL) and 6.7% (FI).

Figure 4. Profiles of persistent poverty: Czech Republic and Slovakia, 2007

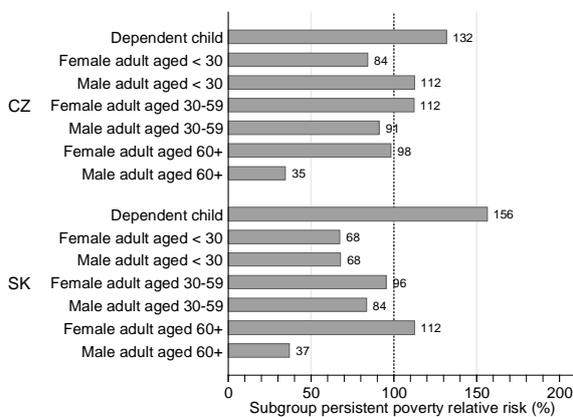
Subgroup persistent poverty rates (%)



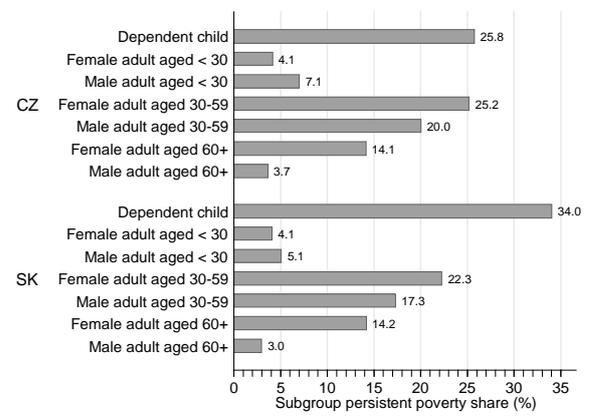
Subgroup population shares (%)



Subgroup persistent poverty relative risks (%)



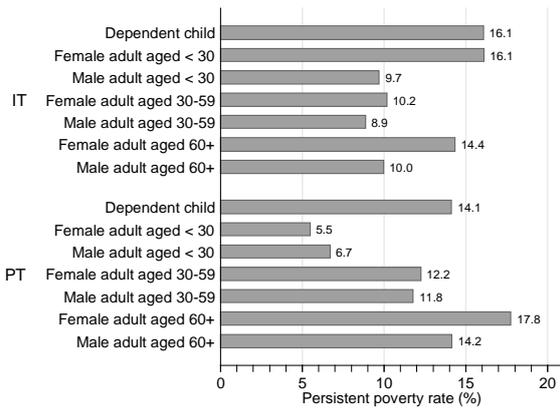
Subgroup persistent poverty shares (%)



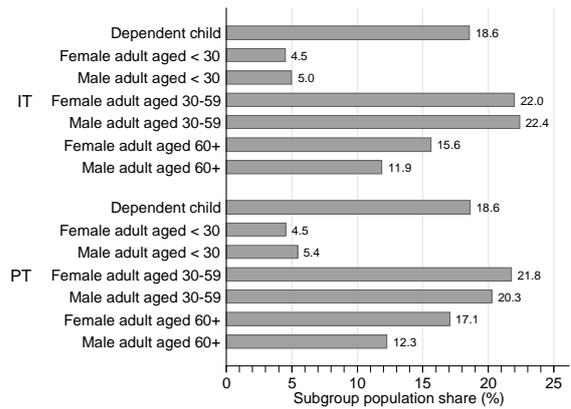
Notes. Authors' estimates from EU-SILC. The overall persistent poverty rates are 3.9% (CZ) and 4.9% (SK).

Figure 5. Profiles of persistent poverty: Italy and Portugal, 2007

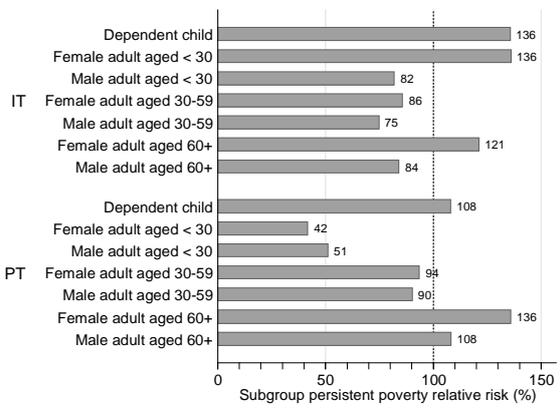
Subgroup persistent poverty rates (%)



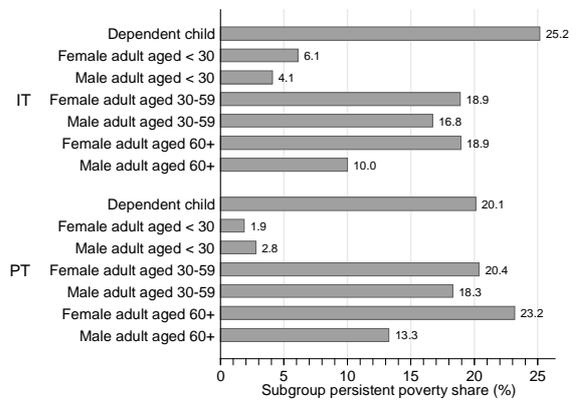
Subgroup population shares (%)



Subgroup persistent poverty relative risks (%)

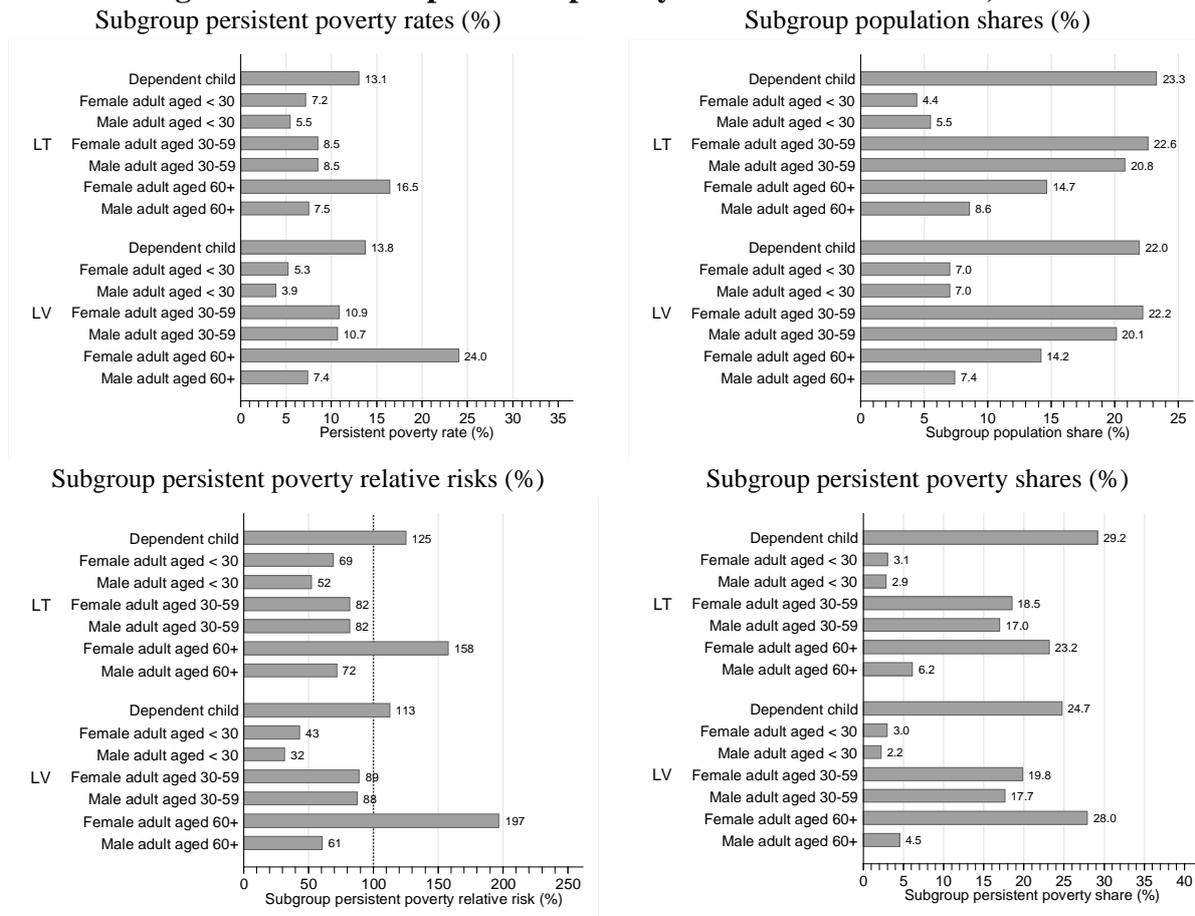


Subgroup persistent poverty shares (%)



Notes. Authors' estimates from EU-SILC. The overall persistent poverty rates are 11.9% (IT) and 13.1% (PT).

Figure 6. Profiles of persistent poverty: Lithuania and Latvia, 2007



Notes. Authors' estimates from EU-SILC. The overall persistent poverty rates are 10.4% (LT) and 12.2% (LV).

The Netherlands and Finland have similar persistent poverty rates (5.8 per cent and 6.7 per cent respectively), but their poverty profiles differ: see Figure 3. The main cross-national similarity is that persistent poverty rates are greatest for adults aged less than 30 (around 10 per cent) and also that the rates for adults aged 30–59 are around 5 per cent (slightly greater for men than women in both countries). There are small cross-national differences in persistent poverty rates among dependent children (6 percent in the Netherlands compared to 4 per cent in Finland). But the main factor explaining the striking difference in profiles are the differences for men and women aged 60+. In the Netherlands, elderly women have a lower persistent poverty rate than elderly men (5.4 per cent compared to 7.4 percent) whereas, in Finland, the sex differential is reversed and much larger: for women, the persistent poverty rate is a large 17 per cent compared to a rate of 10 per cent for men. As a result, relative risks for elderly women are also very large in Finland (252 per cent of the national average rate shown by the vertical dotted line in the bottom left-hand quadrant) and nearly one in three of poor Finns are elderly women. By contrast, in the

Netherlands, elderly women are under-represented among the poor relative to their population numbers (their persistent poverty rate is close to the national average), and they comprise just over one in ten of the poor. Nearly a quarter of the persistently poor are dependent children in the Netherlands but only around 14 per cent in Finland. Children's persistent poverty rates are around half the national average in Finland, but close to the national average in the Netherlands.

The Czech Republic and Slovakia are also countries with low persistent poverty rates. For these new member states, and unlike the Netherlands and Finland, persistent poverty rates are broadly similar across the seven subgroups (approximately 4 per cent) though, in both countries, rates are higher for dependent children (above 5 per cent) and lower for men aged 60+ (below 2 per cent) and the groups have high relative risks (rates above the national average). See Figure 4. Also, because dependent children are a relatively numerous group, they form a relatively large share of the persistently poor: a quarter in the Czech Republic and a third in Slovakia. In contrast, elderly men are a relatively small group and this, combined with their low persistent poverty rate, means that in both countries fewer than one in twenty of the poor are from this group.

Italy and Portugal are two Mediterranean countries with high persistent poverty rates (12 per cent and 13 per cent respectively), and also with broadly similar poverty profiles: see Figure 5. Compared to the countries discussed so far, there is a more distinct U-shaped relationship between persistent poverty rates and age, i.e. rates are highest for dependent children and elderly men and women, and lower for adults aged less than 60. There are cross-national differences from this broadbrush description, nonetheless. The most striking contrast is in persistent poverty rates for adult women aged less than 30: the rate is 16 per cent in Italy compared to 5 per cent in Portugal. Put another way, in Italy, this group of women have a persistent poverty rate that is some 30 per cent greater than the national average (and for men of the same age the rate is 20 per cent lower than the national average). For Portugal, both men and women of this age group have persistent poverty rates that are half or less than half the national average. However, these differences do not correspond to large cross-national differences in profiles summarised in terms of the distribution of poverty shares. This is because adults aged under 30 comprise a relatively small proportion of the population (around one in ten). The main difference in the composition of the poor between Italy and Portugal is that in Italy dependent children form a slightly larger share (25 per cent of the poor compared to 20 per cent) and elderly people form a slightly smaller share (19 per cent

compared to 23 per cent for elderly women; 10 per cent compared to 13 per cent for elderly men).

Poverty profiles for Lithuania and Latvia, two Baltic member states with high persistent poverty rates (10 per cent and 12 per cent respectively), are shown in Figure 6. Compared to Italy and Portugal, there is greater homogeneity in persistent poverty rates across subgroups. There is a U-shaped relationship between rates with age but it is less marked. This greater homogeneity is reminiscent of the picture for the Czech Republic and Slovakia discussed earlier (which suggests that it is a feature of former Communist countries more generally), but there is an important difference – in addition to the large difference in aggregate persistent poverty rates of course. That is, in both Lithuania and Latvia, elderly women have distinctively high persistent poverty rates and form a relatively large proportion of the persistently poor. (They share this feature with Finland, their Nordic neighbour. See Figure 3.) In Latvia, the persistent poverty rate for elderly women is 24 per cent (about twice the national average rate); in Lithuania, it is 17 per cent (some 60 per cent above the national average rate). Elderly men in the two Baltic states have persistent poverty rates that are below the national average, and they form a relatively small proportion of the persistently poor (as in the Czech Republic and Slovakia, but not as in Italy, Portugal, Finland, or the Netherlands).

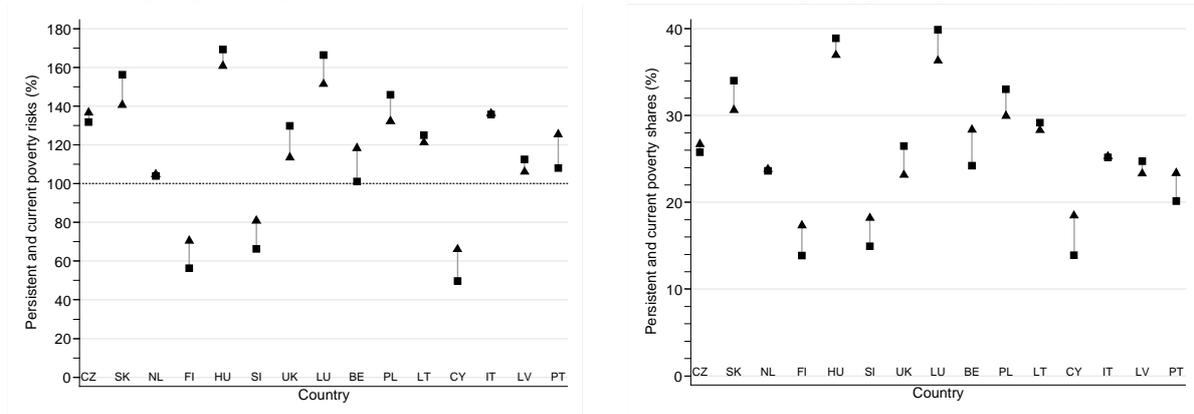
In sum, this discussion indicates that persistent poverty profiles are heterogeneous across EU member states. Similar profiles are found only when attention is restricted to countries with similar persistent poverty rates and belonging to the same country type. We now return to the question of how similar these persistent poverty profiles are to profiles of current poverty.

Similarities between persistent and current poverty profiles

We investigate the similarity of persistent and current poverty profiles across countries directly, subgroup by subgroup, by showing information about poverty relative risks and poverty shares (since these are standardised statistics in the sense defined earlier). For brevity, we report estimates for only two groups, dependent children and women aged 60+, as these are two of the most vulnerable groups in many countries. See Figures 7 and 8. (Estimates for the other five subgroups, available from the authors, lead to similar conclusions about similarity of profiles.) In each graph, the left-hand panel shows subgroup

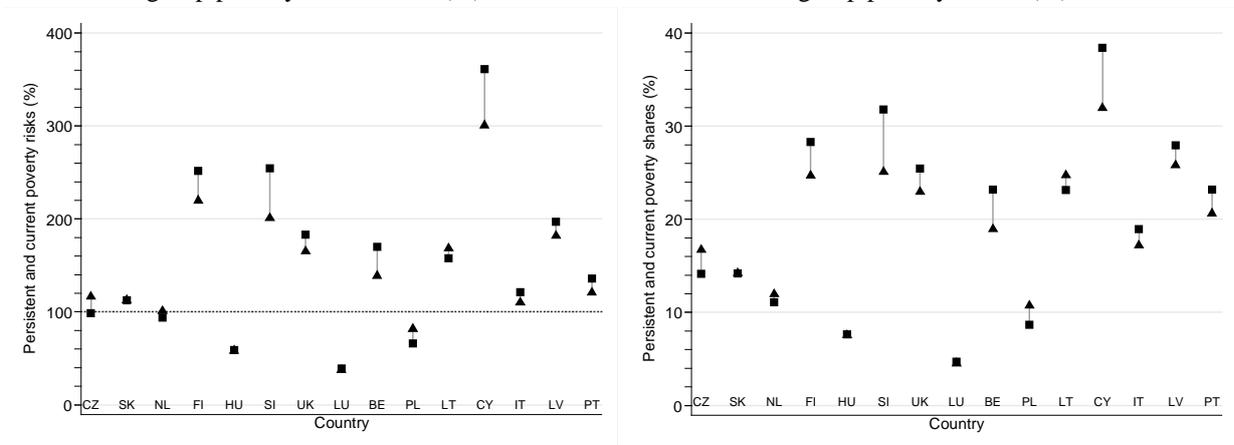
poverty relative risks, and the right-hand panel shows subgroup poverty shares. Squares show persistent poverty estimates; triangles show current poverty estimates. Countries are ordered from left to right in ascending order of national persistent poverty rates.

Figure 7. Persistent and current poverty profiles: dependent children, 2007
 Subgroup poverty relative risks (%) Subgroup poverty shares (%)



Notes. Authors' estimates from EU-SILC. Squares show persistent poverty estimates; triangles show current poverty estimates. Countries are ordered from left to right in ascending order of national persistent poverty rates.

Figure 8. Persistent and current poverty profiles: women aged 60+ years, 2007
 Subgroup poverty relative risks (%) Subgroup poverty shares (%)



Notes. Authors' estimates from EU-SILC. Squares show persistent poverty estimates; triangles show current poverty estimates. Countries are ordered from left to right in ascending order of national persistent poverty rates.

The shorter the length of the lines connecting the squares and triangles within Figures 7 and 8, the more similar are subgroup persistent and current poverty relative risks and shares. The general impression provided by the graphs is that corresponding pairs of statistics for a given country are close to each other, but distances are smaller for elderly women than for dependent children. For instance, for elderly women, persistent poverty relative risks are noticeably different from current poverty relative risks in only three (or perhaps four) of the 15 countries. (The same is true for poverty shares.) The greater difference between persistent

and current poverty relative risks for dependent children is to be expected since incomes fluctuate less for elderly households than they do households of working age.¹⁶ But even for children, the differences between persistent and current poverty relative risks (and shares) are not especially large. The Pearson and Spearman rank correlations between the rankings of the 15 countries by persistent and current poverty relative risks are 0.96 for dependent children, and 0.98 for elderly women.

In addition, observe that, for both subgroups, there is no obvious relationship across the 15 countries between subgroup poverty relative risks and shares and aggregate persistent poverty rates (which are closely correlated with aggregate current poverty rates). For instance, the data points within each panel do not increase or decrease systematically with aggregate persistent poverty rates. Figure 7 also reveals that poverty relative risks (persistent and current) for dependent children are above the national average for all but three of the 15 countries. The exceptions are Cyprus, Finland, and Slovenia. It also turns out that these are the three countries with the largest poverty risks for elderly women (Figure 8). Conversely, the three countries with the lowest poverty relative risks for elderly women (Hungary, Luxembourg, and Poland) are three of four countries with the highest poverty risks for dependent children. An inverse relationship between children's and elderly women's poverty relative risks does not appear to be a general feature of the data when all 15 countries are taken together. The same is true when profiles are summarised using subgroup poverty shares rather than poverty relative risks.

Observe, finally, that the graphs underscore the earlier conclusion about the diversity of poverty profiles across EU countries.

Summary and conclusions

We have described patterns of persistent poverty across the EU in 2007 (survey year 2008), updating and extending existing information. We have examined the structure of poverty in terms of differences across seven subgroups defined by age and sex, and shown that there is substantial cross-national heterogeneity in poverty profiles. Similarities in profiles only become apparent when attention is restricted to countries with similar aggregate persistent poverty rates and of the same welfare state and economy type.

¹⁶ UK evidence on this is provided by Jenkins (2011: chapter 6).

The second contribution of our paper is the demonstration of the strong association between not only aggregate persistent and current poverty rates but also between persistent and current poverty profiles. We find that the EU measure of persistent poverty adds relatively little additional information to that which is revealed by the more commonly-used current poverty measure. We have not taken account of the sampling variability of estimates but, were we to do so, there would be even more uncertainty associated with whether corresponding longitudinal and cross-sectional statistics differ from one another. An apparent difference in point estimates may turn out not to be statistically different from zero. More generally, we have pointed to a number of issues with the EU-SILC longitudinal data files that also constrain analysis, notably the small but non-negligible number of inconsistencies that appear when estimates of current poverty rates and subgroup poverty shares from the longitudinal files are benchmarked against estimates from EU-SILC cross-sectional files.

Our findings concerning similarities between patterns of current and persistent poverty and data inconsistencies are relevant to future developments in the monitoring and measurement of poverty within the EU's Social OMC. The rationale for collecting longitudinal poverty indicators as well as cross-sectional poverty indicators is that the former adds additional information content, and the EU-SILC longitudinal data collection instruments have been largely (though not only) developed to provide information related to the longitudinal indicators. Our findings provide evidence in favour of a reconsideration of the persistent poverty measures that are currently employed in EU official statistics to capture the longitudinal dimensions of income poverty.

We wish to make it clear that we are not arguing that longitudinal perspectives on poverty are without value and that, by implication, reliance should be on cross-sectional perspectives alone. The difficulties in the EU context arise from using a relatively short time frame (four years) over which to assess changes in people's income and (related) from using a particular measure of persistent poverty – one that counts the number of years poor retrospectively over the four-year period while also restricting attention to the individuals who are poor in the fourth year. There is a substantial body of analysis based on household panels with longer time windows than EU-SILC and using a range of different longitudinal measures of poverty that demonstrates that a longitudinal perspective on poverty complements and extends the cross-sectional perspective (see Jenkins 2011 for a review).

We are also not arguing that persistent income poverty measures derived from the longitudinal EU-SILC instruments should be discarded in favour of reliance on the information provided by measures of material deprivation derived from cross-sectional

instruments. Persistent income poverty and material deprivation are distinct concepts. For example, Whelan, Layte, and Maître state that '[w]hile a substantial association is found between persistent income poverty and relative life-style deprivation, they are also tapping somewhat different phenomena (2003: 13), and 'there is clearly a great deal relating to the processes of accumulation and of erosion of resources that is not fully captured in the persistent poverty measure. In the absence of such information, ... both types of indicators (sic) should be used in the formulation and evaluation of policies' (2003: 14).

Our arguments concern the specific measures used to summarise the longitudinal dynamics of income poverty. If we suppose that extension of the EU-SILC's longitudinal instruments to cover periods longer than four years would not be supported by most countries (because of the additional costs and the new technical challenges that this would represent), then the focus of methodological reconsideration should be the EU persistent poverty measure per se. One possible direction could be to adopt a different measure of persistent poverty such as the UK's indicator that does not restrict attention to the group of people who are also currently poor. Another potential direction would be to summarise the dynamics of poverty directly. Differences in current poverty rates across countries and the length of time that people remain poor or non-poor reflect differences in poverty entry rates and poverty exit rates. Statistics on annual poverty transition rates would be straightforward to compile using existing EU-SILC instruments, and these could be observed over the four-period. We propose that consideration of modifications such as these be added to the list of potential improvements to methodology and data that Eurostat are currently considering (Wolff, Montaigne, and Rojas González 2010).

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