Chapter 2

WHEN MONEY IS TIGHT: POVERTY DYNAMICS IN OECD COUNTRIES

Summary

Despite substantial economic growth in the OECD area during recent decades, a significant portion of the population consists of individuals whose household income does not support living conditions considered adequate in their country of residence. Individuals living under such conditions are typically labelled as being in poverty, even if their physical subsistence needs can be met. Although the exact standards for assessing poverty vary from country to country, reducing the incidence and persistence of poverty is a goal shared by all. Attainment of this goal is complicated by the diversity of poverty experiences across individuals and countries. Many analyses of poverty focus on its level at one or a few points in time. This approach provides useful information about the extent of poverty and how it differs over time and across countries, but it typically says little about individual poverty experiences and therefore the best approach to poverty reduction. Some individuals experience only a single, short spell of poverty, while others are caught in a poverty trap. The shares of transitory versus persistent poverty may vary substantially across countries, as may the relationship of poverty persistence to personal, family, and social characteristics. The design of effective policies for ameliorating poverty depends on a detailed understanding of these patterns and relationships.

This chapter is intended to aid in the development of national policies to reduce poverty by examining the patterns and determinants of poverty incidence, transitions, and persistence – collectively referred to as "poverty dynamics." Although past work has investigated poverty dynamics across a number of OECD countries, the present work is distinguished by its inclusion of data for the larger number of European Union countries surveyed in the European Community Household Panel. The empirical analysis is organised according to the length of the period for which poverty persistence and transitions into and out of poverty can be followed, based on several available data sources. Short-run poverty dynamics are investigated for twelve EU member states, Canada, and the United States, using three-year panels. Longer-run poverty dynamics over a 6- to 8-year period also are analysed, albeit for a smaller number of countries (four) for which the requisite longitudinal data could be accessed. The short and long-panel data are used for tabulations and econometric analyses that describe the patterns of poverty dynamics and their relationships to key family and individual characteristics. These characteristics include features of the economic and social environment such as work attachment, availability of earnings and other income sources, family structure, education, age, and the structure of government taxes and transfers.

Among key findings, the analyses reveal the seeming paradox that poverty is simultaneously fluid and characterised by long-term traps. The typical poverty spell is short and many short spells appear to represent transitory setbacks for persons with adequate income over the longer term. However, the typical year spent in poverty is lived by persons who experience multiple years of poverty and whose long-term incomes are below the poverty threshold on average, even though their yearly income may periodically exceed the poverty threshold. In all countries, persistent poverty is closely associated with the lack of workers in households and households with a single adult and children. However, given the relatively small shares of such households in the population, much time spent in poverty is nonetheless associated with working households or households characterised by more traditional forms of family structure. Movements in and out of poverty are more frequently associated with changes in employment status rather than changes in family structures, although the two are closely related. In EU member countries, but less so in the United States, public taxes and transfers are closely related to poverty transitions and persistence. Compared to the EU member states, poverty transitions in the United States and Canada appear more closely related to changes in family

structure, and a greater share of total time spent in poverty in the United States is experienced by households with substantial work attachment.

The strong relationship between employment status and poverty transitions and persistence is in line with the general thrust of employment-oriented social policy. However, the high incidence of poverty among working households indicates the need for policies that improve employment retention and enhance movement up job ladders for individuals in households that exit poverty, in addition to policies emphasising job placement. The empirical analyses also confirm the finding of earlier studies that a more extensive welfare state reduces poverty in a single year, but extend that finding with evidence that these types of public transfers also tend to reduce poverty persistence. When these transfer payments take the form of in-work benefits, they can also reinforce incentives for increased employment.

Introduction

Tackling the problems of poverty and social exclusion is a high priority for OECD countries. Among the complexities that policy makers must confront are the widely varying experiences of individuals and the families to which they belong. Analysis of poverty typically focuses on the poverty population at one or a few points in time. Although useful for tracking the broad evolution of poverty over time, such figures obscure large differences across individuals in their economic histories and prospects, the diversity of paths into and out of poverty that they might face, and the resulting differences across individuals in the length of time spent in poverty. For some, poverty is transitory. Other individuals, however, are in a poverty trap, implying a low standard of living and an elevated risk of social exclusion over a prolonged period.

Public policies assuring minimum consumption levels and reintegration into the economic mainstream may be desirable for all those in poverty, whether their expected stay is short or long. However, to be effective, policies aimed at combating poverty must be based on a clear understanding of individual poverty experiences. This includes accurately characterising spells of poverty in terms of their typical duration, understanding the economic needs and prospects of individuals at risk of poverty and also understanding their likely response to assistance. To that end, this chapter analyses the "dynamics" of poverty, including the duration of poverty spells and the frequency and types of movements into and out of poverty. This analysis is intended to provide more comprehensive comparisons of the incidence, intensity and persistence of income poverty across different OECD countries. Differences in poverty experiences across population groups within individual countries are also analysed. Finally, the determinants of these patterns are explored, especially in so far as they can inform the assessment of alternate policy strategies for combating poverty.

The empirical analysis is organised according to the length of the period for which poverty persistence and transitions into and out of poverty can be followed. Section I sets the stage for the empirical analysis that follows, defining the key issues to be addressed and describing the definitions and data sources used to measure income poverty and its dynamics. Section II analyses poverty dynamics over a three-year period, the longest time period for which longitudinal data are available for a sizeable number of OECD countries. Even over this short period, a dynamic view of poverty offers important new insights. Longer-run poverty dynamics are analysed in Section III, albeit for a smaller number of countries for which the requisite longitudinal data could be accessed. This analysis sheds further light on the extent and causes of long-lasting poverty, as well as the factors facilitating – or impeding – durable escapes from poverty.

Main findings

The chapter's main findings are:

- The analysis of poverty dynamics suggests an overall paradox: poverty is simultaneously fluid and characterised by long-term traps. Most poverty spells are short and many short spells appear to represent transitory set-backs for persons with adequate income over the longer-term. However, the typical year spent in poverty is lived by persons who experience multiple years of poverty and whose long-term incomes are less than one-half the national median value. Repeat spells help to explain this apparent paradox, since most individuals who exit poverty in a given year will re-enter it within a short time frame. While relatively few persons are continuously poor for an extended period of time, most individuals with poverty experience in a given year receive a multi-year income stream that does not lift them above poverty-level income standards on

average. Accounting for these patterns noticeably increases the measured persistence of poverty.

- The two faces of poverty are evident in all of the countries analysed, but their relative importance varies. In general, countries with higher poverty rates, as conventionally measured (*i.e.* with respect to annual incomes), are also characterised by greater poverty persistence. This means that a longer-run view of poverty tends to accentuate, rather than mute, international differences in poverty. In the three-year panels, 44% of the annual-income poor in Denmark (the lowest poverty rate country) also had three-year average income below the poverty line as compared with 89% in the United States (the highest poverty rate country). In the longer panels, the persistence of poverty and its concentration within the population is greatest for the United States. Canada, the United Kingdom and Germany exhibit lower persistence and concentration than the United States, although persistence and concentration are quite high in Germany when poverty measurement is based on income received prior to government taxes and transfers.

- The main patterns of poverty incidence and persistence are robust to the use of alternative poverty scales based on different adjustments for family size and poverty thresholds. Adopting a higher poverty threshold increases poverty incidence and persistence, but cross-country comparisons are little affected by the use of alternative *relative* poverty scales. Adoption of an *absolute* poverty standard would substantially alter cross-country comparisons, to the advantage of countries with high average incomes, but it is questionable whether such an approach can be meaningfully implemented using the datasets analysed in this chapter.

- The profile of households at above-average risk of experiencing poverty is qualitatively similar in all countries, with the risk being elevated for households in which the head is female, young, a single parent or has not finished upper secondary schooling, as well as for households in which no adult is employed. Moreover, in most of the countries analysed, children face higher risks of poverty than adults. The concentration of poverty on the most vulnerable groups tends to rise with the persistence of poverty. Since the high-risk groups often represent only a small share of the total population, lower-risk household types (*e.g.* those with a male head or one or more workers) can nonetheless account for a majority of all persons in poverty.

- Many of the working-age households poor in a given year contain no employed adults, but the overlap between employment and poverty is considerably increased when intermittent work over a multi-year period is considered. This suggests that low-paying and precarious jobs better characterise the experience of many poor households than persistent exclusion from the labour market.

- Transitions in and out of poverty are often coincident with job-related changes, such as changes in the number of workers in a household or the number of months worked during the year. Changes in family structure are less frequently coincident with these transitions. However, poverty entries associated with a decrease in the number of workers frequently are due to a worker leaving the household, rather than a continuing household member losing a job (loss of a worker happens approximately one-third of the time in EU member countries and nearly two-thirds of the time in the United States). In EU member countries, but not the United States, changes in public transfer income play an important role in causing poverty transitions.

- Regression analyses that control for household and individual characteristics confirm the importance of employment-related and demographic characteristics for poverty transitions and persistence. Regressions using the long-run panels reveal that individuals most prone to poverty based on measurable characteristics will spend more than half of a given 6-8 year period in poverty. Despite the importance of household and individual characteristics for determining relative poverty risks within a country, the regression analyses for the short-run panels reveal substantial variation in poverty dynamics across countries, which are little affected by controlling for international variation in the distribution of these poverty-related characteristics.

- Simple cross-country correlation analysis suggests that a more extensive welfare state, as well as directing a higher share of social spending to low-income households, contributes to decreased poverty persistence, in addition to the well-established effectiveness of these programmes at lowering cross-sectional poverty. There is also some evidence that a higher share of low-paid employment in total employment may increase poverty persistence, while higher union density may decrease it. International differences in employment and unemployment rates do not appear to play much of a role in explaining differences in poverty persistence.

- Among the four countries for which requisite data are available, the tax and transfer system reduces poverty the most in Germany, followed by Canada, the United Kingdom and the United States. This reduction is most pronounced among the retirement-age population in each country. In the United States, government taxes and transfers have virtually no effect on poverty rates among individuals in working-age households, when evaluated using the chapter's base-case definition of poverty as income less than half the national median value. However, the anti-poverty effectiveness of these fiscal policies would be greater if it were evaluated using a lower poverty standard, such as the official US poverty line.

I. Overview of the issues and empirical approach

A. Issues to be addressed

This chapter builds upon several recent OECD studies of income inequality and poverty, which are part of the broad upsurge of research on these topics motivated by concerns that economic inequality is rising. The available evidence shows that income inequality has increased recently in many OECD countries, with rising employment polarisation and increased earnings dispersion accounting for an important part of this trend [Förster (2000); Gregg and Wadsworth (1996); Nolan and Hughes (1997)]. But national experiences are by no means uniform, and differences in the distribution of employment and earnings also play an important role in explaining international differences in overall income inequality and the incidence of poverty in cross-sectional data [Oxley *et al.* (1999); Smeeding, Rainwater and Burtless (2000)].

While most studies continue to rely on cross-sectional data or longitudinal data for a single country, Duncan *et al.* (1993, 1995) and Oxley *et al.* (2000) undertook internationally comparative analysis of poverty *dynamics* using longitudinal micro data. These authors identify large, year-to-year movements into and out of poverty for the six to eight relatively wealthy countries in their samples. This turnover implies that cross-sectional poverty rates can be misleading, understating the share of the population experiencing poverty at least once over a multi-year period and overstating the share of the population that is persistently poor.

The empirical analysis in Sections II and III below examines poverty dynamics for a larger number of countries than is analysed by Duncan *et al.* (1993, 1995) and Oxley *et al.* (2000) and looks at several issues in greater depth. Particular attention is devoted to analysing the links between labour markets and poverty dynamics, because the deterioration in earnings and job security for certain groups of workers (*e.g.* those with low educational attainment) appears to have contributed to a rise in the number of the "working poor" in some OECD countries [Keese *et al.* (1998); Nolan and Marx (1999); Mishel, Bernstein and Schmitt (2001)]. A second motivation for analysing these links is the increased emphasis that OECD governments are placing on "employment-oriented social policy", that is, programmes supporting increased employment as a core strategy for reducing poverty and social exclusion [OECD (2000)].

Focusing too exclusively on employment-related events and short-run poverty dynamics, however, could obscure the persistent nature of poverty for key population groups. In their seminal work on this topic using American data, Bane and Ellwood (1986) found that most poor individuals at a point in time are in the midst of a long spell of poverty, and that certain family structures (such as single motherhood) greatly increase the risk of persistent poverty. Moreover, upon exiting poverty, an individual's income may exceed the poverty threshold by only a small amount, and for only a short period of time. Accordingly, the analyses in this chapter emphasise the *persistence* and *cumulative impact* of poverty, in addition to its *dynamics*.

The ultimate purpose of the chapter is to inform debate concerning the nature, causes and remedies for income poverty in OECD countries. Key questions include whether the burden of poverty is borne relatively equally across the population or concentrated among small subgroups. If individual poverty experiences largely reflect transitory income variation associated with employment instability, then policies such as unemployment benefits, job placement services and macroeconomic policy may be the best remedy. On the other hand, to the extent that poverty is concentrated among groups that face enduring obstacles to employment – such as workers lacking basic skills or single mothers with children – policies such as "second-chance" adult education and subsidised child-care may be more effective. Accordingly, the impacts of employment experience and family structure on poverty dynamics are analysed in detail. Finally, the persistence of poverty may depend in part on the structure of tax and transfer policies, with the possibility of dependence on transfers being a key concern [Gallie and Paugam (2000); Lindbeck (1995*a*, *b*)]. Thus, a final set of questions centres on how tax and transfer policies affect the incidence and dynamics of poverty. In order to address these issues, three-year panel data have been assembled for fourteen countries, along with longer panels for a smaller number of countries.

B. Measuring poverty and its dynamics

The unit of analysis adopted is the individual, but each individual's poverty status is assessed in terms of the adequacy of the total income available to the household of which he or she is a member.[1] The primary income variable used in the analysis is annual, disposable (*i.e.* after direct taxes and public transfers) money income. In order to adjust for family size, annual disposable income is divided by the modified OECD equivalence scale.[2] The resulting "equivalent" income measure is an estimate of potential consumption for each individual in a household[3] and individuals are defined as being in poverty if their equivalent disposable income falls below 50% of the median of the distribution of equivalent disposable income in a country. (See Box 2.1 for a discussion of the interpretation of *relative* poverty measures, such as that adopted here, and how they differ from *absolute* poverty measures.)

The equivalence scale and poverty threshold adopted here are to some extent arbitrary. However, these choices – or minor variations of them – are common in the research literature [*e.g.* CBS (2000); Layte *et al.* (2000*a*); Oxley *et al.* (2000)] and they facilitate comparison of the results in Sections II and III with those reported in previous studies. Given variation across countries in family sizes and the density of the income distribution around the poverty threshold of 50% of median income,

Box 2.1. Relative *versus* absolute poverty measures

A key choice in defining poverty is specifying the income threshold below which persons are classified as being poor. This chapter uses a *relative* poverty threshold, which is set at an income value equal to half the national median value. In other words, individuals are included in the poverty population if their available income is substantially lower than that of a typical person in their country of residence. The main alternative is to set the poverty threshold at the minimum income required to afford an adequate *absolute* standard of living. Absolute poverty standards are commonly used in the context of developing countries. For example, the World Bank uses the concept "extreme poverty", which is defined as having an income below 1 USD per day, a threshold thought to approximate the minimum resources required for physical survival.* Some OECD countries also use absolute poverty measures (*e.g.* the official US poverty line). Others have adopted a relative definition, such as 60% of average income, the standard used by Eurostat and some EU member states.

The chapter's analysis of poverty dynamics is affected by the choice to use a relative, rather than absolute, poverty measure. International comparisons of poverty are very sensitive to this choice when national average income values differ. Moving to an absolute poverty measure would reduce poverty in higher income countries relative to that in lower income countries. Since poverty persistence is positively correlated with the level of annual poverty, an absolute measure would also reduce poverty persistence in higher income countries relative to that in lower income countries.

At a practical level, it does not appear that an absolute poverty measure can be implemented reliably with the datasets used in this chapter. The major difficulty is that income levels are much less comparable across countries than are relative incomes within a single country [Eurostat (2000*b*)]. For example, income underreporting in the European Community Household Panel (ECHP) appears to differ between countries. If PPP prices are used to convert an absolute poverty threshold into different national currencies, poverty estimates are inflated in countries with greater underreporting. (Tabulations not reported suggest that this is a severe problem for several ECHP countries.) A second difficulty is that the cash income concept available in these datasets is not well suited for comparison of absolute living standards, because it does not account for international differences in the provision of non-market benefits, such as public health care, housing or education. For these and related reasons (*e.g.* limitations to using PPP prices to compare living standards), internationally comparative research on poverty in developed countries almost always adopts a relative measure of poverty.

There are also theoretical justifications for using a relative measure of poverty when analysing the dynamics of low income and social exclusion in developed countries. In order to participate fully in the social life of a community, individuals may need a level of resources that is not too inferior to the norm in that community. For example, the clothing budget that allows a child not to feel ashamed of his school attire is much more closely related to national living standards than to the strict requirements for physical survival. Also, relative income poverty – particularly if persistent – is associated with elevated risks of deprivation (*e.g.* inadequate diet and housing) and self-assessed economic stress (*e.g.* having troubles making ends meet or being behind on making payments) [Layte *et al.* (2000*b*); Whelan *et al.* (1999)]. Finally, from a normative perspective, it may be considered unfair for members of a community to benefit unequally from a general increase in prosperity. Such relative comparisons raise complex social and normative issues, but the associated relative poverty measures provide a useful construct for assessing economic performance. However, when making international comparisons of poverty and its dynamics, it must be borne in mind that the same relative poverty threshold (*e.g.* half median income) may correspond to different absolute standards of living.

* The first of seven international development goals adopted by the United Nations was to halve the share of people living in extreme poverty between 1990 and 2015 [World Bank (2001)].

the cross-country comparisons and poverty dynamics may be sensitive to the measures used. However, past research suggests that most qualitative comparisons will not be greatly affected [Förster (2000); Oxley *et al.* (1999)]. This issue is investigated in Annex 2.B by applying alternative equivalence scales and poverty thresholds to assess the robustness of the main analysis results. Most of the qualitative results discussed in the text are quite robust across these variations.

Because this chapter focuses on poverty dynamics, it is especially important to define measures of poverty that account for poverty transitions and persistence. Two basic types of measures are used in the empirical analyses in Sections II and III. Consistent with past work, various measures of the number of years individuals remain poor, as well as the rates at which they enter and exit poverty, are examined. These standard measures are supplemented by a different, relatively new concept that accounts for income streams over longer periods than a single year. This measure, referred to below as "permanent-income poverty", is defined by averaging income levels over multiple years and comparing average income with the average poverty threshold over the same period. Individuals whose average income falls below the average poverty threshold are identified as "permanent-income poor", implying that their income stream over periods longer than a year (up to 8 years in Section III) is insufficient to maintain an adequate living standard. This measure is motivated by the permanent-income hypothesis, according to which living standards are more closely related to "permanent-income" (*i.e.* income "smoothed" over a relatively long period) than to income in a single year.[4] For example, the income of some individuals exiting poverty in any given year may exceed the poverty threshold by only a small amount and for only a short period of time.[5] For such an individual, if the time spent in poverty is at an income level substantially below the poverty threshold, the short period spent above the poverty threshold may not indicate the attainment of a level of purchasing power that enables a sustained escape from poverty. In Sections II and III, this measure of long-term poverty is combined with standard measures of poverty transitions and persistence to provide a fuller analysis of the burden of income poverty than can be achieved through use of the annual poverty rate alone.

C. Data sources

In order to analyse these issues, longitudinal ("panel") data are required that allow the equivalent household incomes of a representative sample of persons to be followed over a multi-year period. Information about the labour market status of all household members is also required, if the link between poverty dynamics and employment and earnings is to be studied. Until recently, longitudinal data sufficient for studying these issues have been available for only a few OECD countries.[6]

Longitudinal data suitable for the analysis of poverty dynamics have recently become available for a larger and more diverse group of OECD countries. The analysis in Sections II and III is based on data from two major sources:

- *The European Community Household Panel (ECHP)* provides three waves of data (reporting incomes for the years 1993-1995) for twelve of the fifteen EU member countries [Eurostat (1997, 2000*a*)].[7] The ECHP represents an advance in the harmonisation and comparability of panel data from different countries, because the participating country surveys were developed with reference to a common set of technical specifications.
- A research group at Cornell University has assembled panel data for four countries, harmonised them and made them available to researchers. Their *Cross-National Equivalent Files (CNEF)* provide panel data for Canada, Germany, the United Kingdom and the United States [Burkhauser *et al.* (2000)].[8] Two noteworthy features of the CNEF data are *i)* they contain more waves of data (6-19 years) than the panel available from the ECHP and *ii*) they provide reliable estimates of household income prior to direct taxes and public transfers (*i.e.* "market income"), as well as of disposable income after accounting for taxes and transfers.

A key advantage of the ECHP data is its broad country coverage which – in conjunction with other data sources – enables comparative analyses of short-run poverty dynamics across a broader and more diverse group of OECD countries. In addition to the ECHP data, three-year extracts from the longer CNEF panels for Canada and the United States are used in the analysis of shorter-run poverty dynamics, further increasing the diversity of the country sample.

A key shortcoming of the national panels from the ECHP is the limited number of waves. A second shortcoming is that they do not provide a reliable pre-fiscal income measure. The CNEF data are, thus, extremely valuable for providing long panels that enable more comprehensive and detailed analyses of poverty dynamics, both for pre- and post-fiscal income. In addition to enabling poverty dynamics to be analysed over longer periods, these data enable comparisons of the effects of national tax and transfer systems by providing the appropriate income variables defined identically. The analysis of longer-run poverty dynamics in Section III accordingly

compares results using two income variables for each country: equivalent *disposable* income ("post-fisc"), defined as income after accounting for household size, direct taxes paid and public transfers received (*i.e.* the income variable used to study short-run dynamics in Section II); and equivalent *market* income ("pre-fisc"), which is income after accounting for household size, but prior to taxes and transfers. The poverty threshold for *both* income variables is set at 50% of the median of the distribution of equivalent disposable (post-fisc) income, since the distribution of post-fisc income better reflects prevailing consumption patterns.

International comparisons of income distribution using cross-sectional data raise many difficulties of comparability that have been analysed in detail [Atkinson *et al.* (1995); The Canberra Group (2001)]. Making such comparisons using data from different longitudinal surveys raises addition difficulties that have yet to be studied nearly as extensively. Five potentially important difficulties, which need to be borne in mind when interpreting the empirical results in Sections II and III, are:

- Panel data are subject to attrition which may result in nonrepresentative samples and, hence, biased estimates. *Attrition bias* may be particularly acute for the ECHP, since attrition rates are quite high for some of the participating countries (the largest example being 25% attrition between waves 1 and 2 for the United Kingdom) and the poverty population appears to drop out of the sample at a disproportionate rate in most of these countries. External validation checks are somewhat reassuring concerning the size of resulting biases in cross-sectional estimates of poverty incidence in waves 2 and 3 [CBS (2000); Eurostat (2000*b*)], but attrition bias appears more severe for estimates based on samples of individuals present in *all* three waves of ECHP (see Annex 2.A.). Accordingly, single-year poverty measures in this chapter generally are estimated using independent, cross-sectional samples, while the multi-year measures of poverty dynamics are necessarily estimated using multi-wave samples. Estimates based on the *conditional* distributions of spell lengths and rates of poverty entry and exit may not be as strongly affected by attrition bias as are *unconditional* "headcounts" of the number of persons who are poor.[9] Unfortunately, it is not possible to verify that this is indeed the case.
- Although extensive efforts have been made to harmonise the data across countries, differences remain since the underlying survey instruments and data collection protocols differ. The problem of *incomplete harmonisation* is probably worse for comparisons between countries across different data sources (*e.g.* between CNEF-based estimates for Canada and ECHP-based estimates for Italy) than for comparisons between countries from any single data source (*e.g.* comparisons between ECHP-based estimates for Germany and Portugal). However, there appears to be significant international differences in the extent to which household incomes are underreported in the ECHP.[10]
- Reporting errors in the income variables may create spurious transitions into and out of poverty. It is difficult to assess the extent to which *measurement error* causes poverty persistence to be misestimated. However, the effect is likely to be smaller for measures based on estimates of permanent-income than for those based on year-to-year changes in poverty status.
- The time periods used to study poverty dynamics in the different countries are not fully comparable. The most important instance of *non comparable time periods* is that poverty dynamics for the United States are studied for an earlier period (*i.e.* the mid-1980s-1992) than that studied for the other countries, due to data consistency problems in the American data for more recent years.[11] Although the periods chosen are those for which business cycle conditions in the United States approximated those in the other countries studied, this difference means that the results do not reflect the impact on American poverty dynamics of recent reforms in welfare programmes and more generous in-work benefits (*i.e.* expansion of the Earned Income Tax Credit). On the other hand, the PSID data for income years after 1992 show greater poverty incidence and persistence in the United States, so that the use of these data would reinforce the comparative results for the United States. Exclusion of these data can be regarded as representing a somewhat conservative approach to the assessment of American poverty.
- The data sources and methods used here mean that certain facets of poverty dynamics are not examined. Very short poverty spells are missed, since poverty is analysed at annual frequencies, and poverty among the homeless and institutionalised populations is not considered.

II. Poverty dynamics over three years

This section focuses on short-run poverty dynamics in twelve EU member states, Canada and the United States. The estimates of poverty dynamics reported

here are based on a three-year observation window (1993-1995 for most of the countries). Use of such a short period implies several important caveats for the analysis results. First, the multi-year statistics reported may be subject to attrition bias since they are calculated from samples consisting of persons interviewed in three consecutive waves of the corresponding panel dataset. Second, the poverty dynamics observed over the three-year periods analysed here may not generalise to other three-year periods, when business-cycle conditions differ.[12] A final caveat concerns the truncation of poverty spells. Total *completed* spell lengths cannot be observed for persons poor in either the first or third years of the panel, since these spells may extend beyond the frames of the observation window. As a result, the analysis here is better understood as pertaining to the experience of poverty over a fixed, three-year period, rather than as a full analysis of poverty spell dynamics. The analysis of longer panels in Section III provides a richer picture of poverty dynamics over a longer period, including the prevalence of repeat spells.

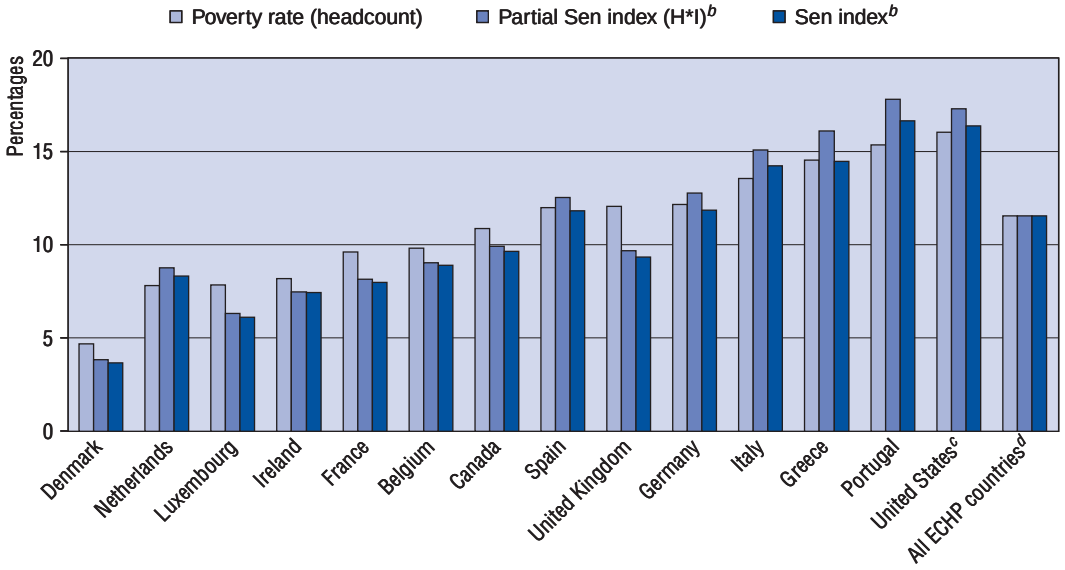
A. Poverty incidence over three years

Cross-sectional poverty rates: the baseline

Chart 2.1 displays poverty rates based on annual income data. For the EU member states, these "headcount" rates range from a low of 4.7% of the population in Denmark to a high of 15.3% in Portugal (values reported in Table 2.1). The United States is just above the higher end of the range, at 16%, while Canada and the larger EU member states (France, Germany, Italy and the United Kingdom) are in between the extremes.

The standard "headcount" measure of poverty can be supplemented by modified poverty measures, based on the work of Sen (1976), which incorporate information on the intensity of poverty at a point in time. Accordingly, two additional poverty measures are reported in Chart 2.1, namely a "partial Sen index" that multiplies the headcount by the average percentage gap between the incomes of individuals in poverty and the poverty threshold, and the full Sen index, which also incorporates the Gini coefficient for the incomes of the poor.[13] The latter two indices are

Chart 2.1. **Alternative single-year poverty measures,[a] average values for 1993-1995**



ECHP: European Community Household Panel.
Note: Countries are ranked from left to right by increasing poverty rates.
a) See text for the definition of the three poverty measures.
b) Normalized so that the value for all countries is equal to the headcount for all countries.
c) Data refer to 1987-1989.
d) Calculated as population-weighted averages of the national figures for all ECHP countries.
Sources: ECHP, waves 1994, 1995 and 1996 for EU countries; SLID for Canada; PSID for the United States.

Table 2.1. **Alternative poverty rates, 1993-1995**

	Number of observations[a]	Annual poverty rate[b]	Poor at least once	Always poor[c]	Permanent-income poverty[c, d]
		Percentages			
Belgium	7 515	9.8	16.0	2.8 (0.17)	5.2 (0.32)
Denmark	5 710	4.7	9.1	0.8 (0.08)	1.8 (0.20)
France	15 470	9.6	16.6	3.0 (0.18)	6.6 (0.40)
Germany	10 748	12.1	19.2	4.3 (0.22)	8.1 (0.42)
Greece	13 114	14.5	25.1	6.5 (0.26)	12.2 (0.49)
Ireland	10 187	8.2	15.3	1.3 (0.08)	5.3 (0.35)
Italy	18 372	13.5	21.5	5.6 (0.26)	10.4 (0.48)
Luxembourg	2 467	7.8	12.7	2.2 (0.17)	5.1 (0.40)
Netherlands	10 942	7.8	12.9	1.6 (0.12)	4.5 (0.35)
Portugal	12 832	15.3	24.2	7.8 (0.32)	13.4 (0.56)
Spain	17 538	12.0	21.3	3.7 (0.17)	8.7 (0.41)
United Kingdom	8 713	12.1	19.5	2.4 (0.12)	6.5 (0.34)
ECHP average[e]	**133 608**	**11.7**	**19.2**	**3.8 (0.20)**	**7.9 (0.41)**
Canada	32 687	10.9	18.1	5.1 (0.28)	8.9 (0.49)
United States[f]	7 325	16.0	23.5	9.5 (0.40)	14.5 (0.62)

ECHP: European Community Household Panel.

a) Number of persons present in all three waves of the panel data. The larger number of observations available in the three separate cross-sectional samples was used to calculate annual poverty rates.

b) The poverty rate is the number of individuals having equivalent household disposable income below 50% of the median equivalent household disposable income. This is calculated separately for years 1993-1995 and then averaged.

c) Figures in brackets show the ratio of the number of persons with the indicated poverty status to the number of persons ever poor.

d) Percentage of the sample for whom average (equivalent) income over the three years falls below the poverty line over this period, *i.e.* the sum of equivalent income across the three years is less than the sum of the poverty threshold income across the three years.

e) Calculated as population-weighted averages of the figures for all ECHP countries.

f) Data refer to 1987-1989.

Source: ECHP, waves 1994, 1995 and 1996 for EU countries; SLID for Canada; PSID for the United States.

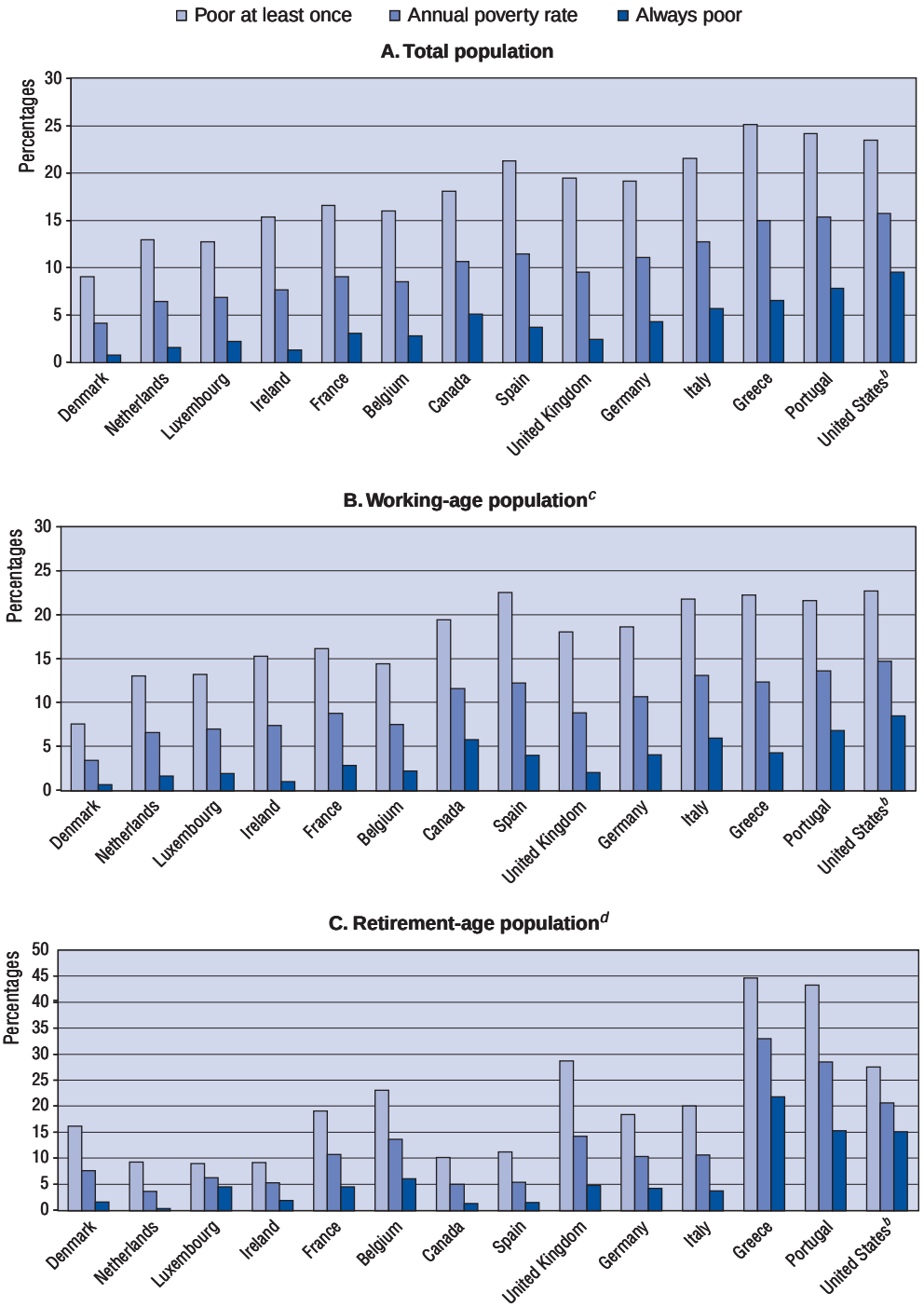
normalised so that their value equals the value of the headcount for the full-pooled (all-country) sample.[14] Broad cross-country comparisons are not much affected by moving to the more comprehensive indices, which take account of poverty intensity, but there is a tendency for average intensity to be higher in countries with a higher headcount poverty rate (correlation of 0.65). Accordingly, incorporating information on the poverty income gap into the poverty index tends to accentuate international differences in the estimated severity of poverty (the cross-country variance for the partial Sen index is 1.7 times larger than that for the headcount rate).

Multi-year measures of poverty incidence

Table 2.1 juxtaposes the annual headcount poverty rate with two alternative rates incorporating basic information on the dynamics of poverty over a three-year period. The ECHP sample average poverty rate[15] of approximately 12% reflects the fact that nearly 20% of the sample experienced poverty at least once during 1993-1995. However, only about 4% of the population in the EU member states, or about one-fifth of those who experience poverty at least once, are in poverty for all three years.

The "always-poor" group is much smaller than the "ever-poor" group in all countries, indicating that many poverty spells are short (Chart 2.2). However, the relative size of these groups varies due to international differences in the persistence of poverty. The ratio of the "always-poor" rate to the "ever-poor" rate ranges from under 10% in Denmark and the Netherlands to 32% in Portugal and 40% in the United States (Table 2.1). The general pattern is for spells to be more persistent in countries with higher annual poverty rates, so that international rankings are much the same across the three measures, but (proportional) differences are substantially greater for the share of the population poor in all three years. Finally, cross-country comparisons of poverty incidence and persistence are substantially different for the retirement-age population (*i.e.* those living in household with a head aged 65 years or older) than for the working-age population (Chart 2.2, Panels B and C). These differences reflect changes in the relative importance of different income sources (*e.g.* earnings and pensions) over the life course, but the net effect can be either to increase or lower poverty incidence and persistence, depending on national circumstances. In addition to breakdowns by age of the household head, breakdowns by age of the individual also are of interest. Probably the most important group in this regard is children, as discussed in Box 2.2.

Chart 2.2. Alternative multi-year poverty rates, 1993-1995[a]



Note: Countries are ranked from left to right by increasing annual poverty rates for the total population, as reported in Table 2.1.
a) Poverty rates are calculated using the sample of persons present in all three waves.
b) Data refer to 1987-1989.
c) Head of household 15 to 64 years of age.
d) Head of household 65 years or older.
Sources: ECHP, waves 1994, 1995 and 1996 for EU countries; SLID for Canada; PSID for the United States.

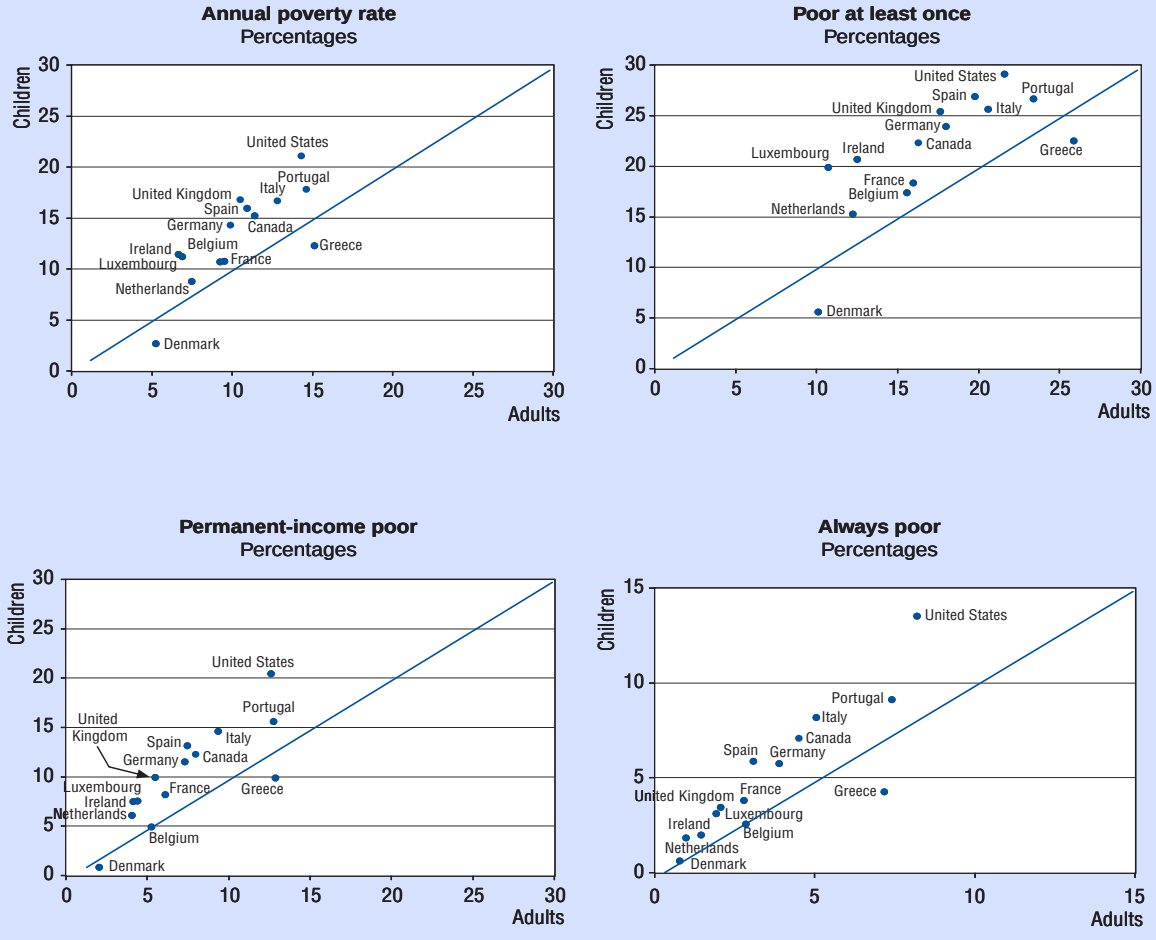
Box 2.2. Child poverty

Among broad population groups whose poverty experience can be examined separately, perhaps the most important is children. As noted by Bradbury *et al.* (2000), separate concern about child poverty is based on several straightforward considerations. Children represent a country's future, which suggests an economic basis for investment in their well-being. Moreover, children's vulnerability and inability to respond to market incentives argue strongly in favour of collective action and direct transfers to maintain their living standards.

Although cross-country variation in child poverty rates has been a topic of study for some time, it is only recently that cross-country comparisons of the *dynamics* of child poverty have begun to appear. The key early contribution was Duncan *et al.* (1993), which focused on families with children using data from the mid-1980s for eight countries. More recently, the various contributions in Bradbury *et al.* (2001), analyse data on child poverty in a variety of countries, from a comparative perspective.

The data used here also enable separate analyses of child poverty. Although a complete analysis is not within the scope of this chapter, the large country sample available here can be exploited to provide highly informative basic tabulations regarding child poverty dynamics. These tabulations are provided in the accompanying chart, which compares child poverty with adult poverty, using the four key poverty measures from Table 2.1. The first panel compares annual poverty rates between the child and adult populations, in each of the 14 countries included in the analysis of short-run poverty dynamics. The subsequent panels display analogous comparisons for three measures of poverty dynamics over three years: "poor at least once", "permanent-income poor", and "always poor".

Child *versus* adult poverty over three years[a]



a) Children are persons aged 17 and younger in the first wave (each wave for the annual poverty rate).
Sources and definitions: See Table 2.1.

Box 2.2. **Child poverty** *(cont.)*

Points lying above the 45-degree diagonal line indicate a child poverty rate that exceeds the adult rate. The child poverty rate exceeds the adult rate in nearly all cases. Moreover, the excess poverty risk faced by children appears to increase with a country's adult or overall poverty rate: the vertical distance above the diagonal line is greater for countries with higher adult poverty rates. On the other hand, the excess poverty risk faced by children does not appear to be more pronounced for the more persistent forms of poverty (permanent-income poverty and always-poor status). In other words, it would appear that, once poor, poverty dynamics are similar for children and adults.

These tabulations suggest that a focus on child poverty is justified by relatively high poverty rates and average poverty persistence experienced by the child population in most countries, in addition to broader economic and social arguments concerning the role and position of children in society. This conclusion is reinforced by the regression analyses reported in Sections II and III, which indicate that the relatively high poverty risks faced by children remain even after controlling for the effects of related variables (such as family structure).

A "permanent-income" measure of poverty, based on the adequacy of income averaged over the three years of the panel,[16] provides a less reassuring view of poverty persistence than that offered by tabulations of persons continuously poor over the period. For the ECHP countries, this measure of "permanent-income poverty" (final column of Table 2.1) averages about 41% of the ever-poor rate and 67% of conventional headcount poverty. The relative incidence of permanent-income poverty is higher in Canada than in the ECHP countries, and higher still in the United States. In the latter country, permanent-income poverty is 62% of the ever-poor rate and nearly as high as conventional headcount poverty (14.5% *versus* 16%), suggesting that a very high proportion of the persons observed in poverty in any single year lack the financial resources to support an adequate standard of living, at least over the three-year horizon used here.

Chart 2.3 presents a combined view of these two faces of poverty persistence: the relatively low risk of being continuously poor over a multi-year period (the lowest segment of the 100% bar) versus the greater risk that permanent income is too low to support an adequate living standard, even if income periodically rises above the poverty line (sum of the two lower segments in the 100% bars). While the permanent-income poor group is significantly larger than the always-poor group in all countries, the share of persons ever poor who are permanent-income poor varies widely, from one in five in Denmark to over 60% in the United States. Among persons poor during part of the three-year period, but escaping permanent-income poverty (the two upper segments in the 100% bars), a large share nonetheless have very modest incomes. For about one-third of this group, income averaged over the three years is below 60% of median equivalent income (third segment in the 100% bars).[17] Again, international differences are pronounced. The share of persons ever poor with average incomes of at least 60% of the median ranges from over 50% in Denmark to under 20% in the United States.

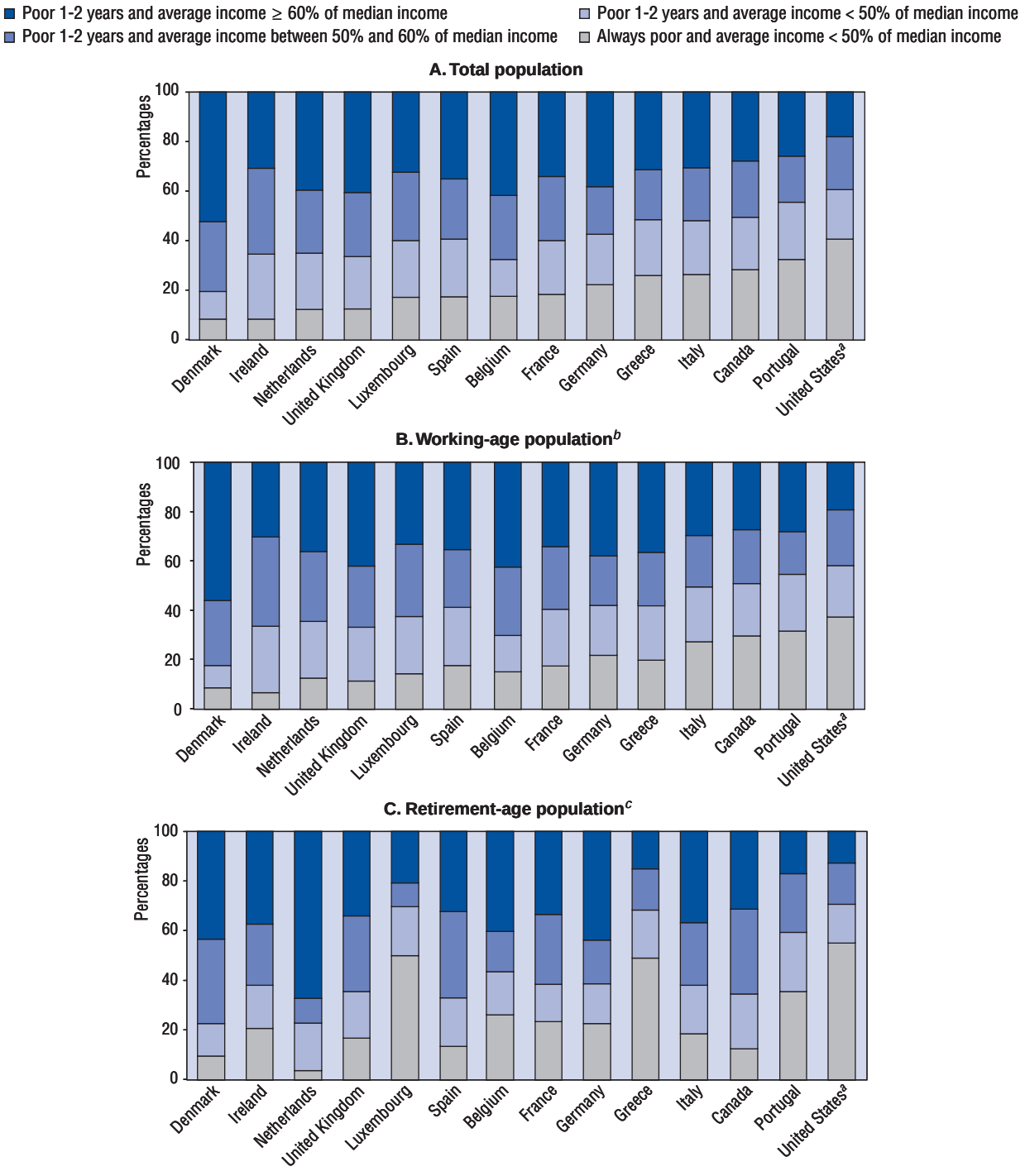
B. Short-run dynamics

Entry and exit rates

Table 2.2 lists entry and exit rates from poverty (relative to the "at-risk" populations) and the average duration of poverty for spells sampled during the three-year period. On average across all countries, about 5% of the population not previously poor enter poverty each year. Not surprisingly, the risk of falling into poverty tends to be higher in countries with more poverty (correlation of 0.85). Nonetheless, much of the population appears largely exempt from the risk of poverty in all countries. Across the ECHP sample and in Canada, nearly two-thirds of those entering poverty previously had an income of at least 60% of median equivalent income, meaning they experienced a significant year-to-year decline in income but may have permanent-incomes significantly above the poverty threshold.

Annual exit rates from poverty average 46% in the ECHP, exceeding 50% in four EU member states. By contrast, the exit rate in Canada is about 36%, and in the United States less than 30% of persons in poverty escape each year. As a general pattern, the exit rate is lower in countries with higher annual poverty rates (correlation of –0.81), consistent with the earlier finding that lower cross-sectional poverty is associated with less poverty persistence. Parallel to the finding for entries, the majority of persons exiting poverty experience significant income gains. Equivalent income rises above 60% of the median for 70% of poverty exiters in the ECHP sample, for 67% of exiters in the United States, and for 62% of exiters in

Chart 2.3. **Poverty duration and 3-year average income of persons ever poor, 1993-1995**



Note: Countries are ranked by increasing rate of the always poor for the total population.
a) Data refer to 1987-1989.
b) Head of household 15 to 64 years of age.
c) Head of household 65 years or older.
Sources: ECHP, waves 1994, 1995 and 1996 for EU countries; SLID for Canada; PSID for the United States.

Table 2.2. **Gross rates of entry and exit and average duration of poverty, 1993-1995**

	Annual poverty rate	Yearly rate of entry[a]	Yearly rate of exit[b]	Average duration[c]
	Percentages			
Belgium	9.8	4.7 (71.9)	48.2 (78.8)	1.6
Denmark	4.7	3.1 (76.2)	60.4 (74.6)	1.4
France	9.6	4.6 (54.6)	46.9 (64.9)	1.6
Germany	12.1	5.1 (70.3)	41.1 (71.5)	1.7
Greece	14.5	6.5 (55.2)	38.8 (73.2)	1.8
Ireland	8.2	5.0 (62.2)	54.6 (58.9)	1.5
Italy	13.5	5.3 (60.4)	40.6 (72.0)	1.8
Luxembourg	7.8	3.6 (62.1)	47.4 (60.3)	1.6
Netherlands	7.8	4.2 (66.1)	55.7 (77.1)	1.5
Portugal	15.3	5.4 (55.9)	37.0 (66.0)	1.9
Spain	12.0	5.9 (67.3)	49.6 (70.3)	1.6
United Kingdom	12.1	6.0 (62.5)	58.8 (69.1)	1.5
ECHP average[d]	**11.7**	**5.2 (63.4)**	**46.1 (70.2)**	**1.7**
Canada	10.9	4.8 (63.2)	36.4 (62.2)	1.8
United States[e]	16.0	4.5 (57.3)	29.5 (66.6)	2.0

ECHP: European Community Household Panel.
a) Number of persons entering poverty between t and t + 1, as a share of the population not in poverty in t, averaged over the period. Figures in brackets show the percentage of entries for which prior equivalent income was at least 60% of the median.
b) Number of poor in t who exit poverty in t + 1, as a share of the population in poverty in t, averaged over the period. Figures in brackets show the percentage of exits resulting in equivalent income of at least 60% of the median.
c) Average number of years for those with poverty experience.
d) Calculated as population-weighted averages of the national figures for all ECHP countries.
e) Data refer to 1987-1989.
Source: ECHP, waves 1994, 1995 and 1996 for EU countries; SLID for Canada; PSID for the United States.

Canada. Lower exit rates generate longer durations, but the short observation window means that the average duration of poverty varies within a narrow band, from 1.4 to 2.0 years per poverty spell.

Total years in poverty and permanent-incomes of persons ever poor

Table 2.3, Panel A provides more detailed information about the duration of poverty than is embodied in the average duration. The left panel displays the simple spell distribution, or share of total spells lasting one year, two years, or three years. Most spells are short. About half of persons in the ECHP countries and Canada who were ever poor during 1993-1995 experienced only a single year of poverty (37% for the United States).[18] However, as indicated in the right panel, longer spells account for a large share of the total time spent in poverty: spells of three years account for over one-third of the total time spent in poverty in ECHP countries, despite less than one fifth of the persons ever poor having been persistently poor. Across countries, the share of all poverty years attributable to persistently poor individuals generally increases with the annual poverty rate (correlation of 0.87). In the United States, 60% of the total years spent in poverty are attributable to persons persistently poor, compared with a share of under 20% in Denmark.

Similar conclusions are reached when the distribution of permanent-income is analysed in the same way (Table 2.3, Panel B). The majority of persons experiencing poverty are not permanent-income poor in most of the countries (Portugal and the United States being the exceptions). However, a majority of the years spent in poverty are attributable to the permanent-income poor in almost all countries (only in Denmark is the share significantly below 50%). The concentration of poverty years on the permanent-income poor rises strongly with the annual poverty rate (correlation of 0.96).

In sum, the descriptive analysis of three-year poverty dynamics suggests an overall paradox: poverty is both highly fluid and characterised by long-term traps. There is much movement into and out of poverty, with most spells being short and most of the persons who ever enter poverty not experiencing long-term financial deprivation. At the same time, a significant number of people are trapped in long-run poverty. Although it is not unusual for their incomes periodically to exceed the poverty threshold, their incomes averaged over the longer term are low. In most OECD countries, this group accounts for over one-half of the total years spent in poverty (as measured by annual income).

Table 2.3. **Distribution of poverty duration and permanent income for persons ever poor, 1993-1995**

Percentages

A. Duration of poverty

	Annual poverty rate	Share of persons staying in poverty			Share of total years spent in poverty attributable to persons with 1 to 3 years in poverty		
		1 year	2 years	3 years	1 year	2 years	3 years
Belgium	9.8	57.5	25.2	17.4	35.9	31.5	32.6
Denmark	4.7	71.6	20.1	8.3	52.4	29.4	18.2
France	9.6	54.9	26.8	18.3	33.6	32.8	33.6
Germany	12.1	48.6	29.2	22.2	28.0	33.6	38.4
Greece	14.5	47.1	27.0	25.9	26.3	30.2	43.5
Ireland	8.2	59.3	32.4	8.3	39.8	43.5	16.8
Italy	13.5	48.8	25.0	26.2	27.5	28.2	44.3
Luxembourg	7.8	55.0	27.9	17.1	33.9	34.4	31.6
Netherlands	7.8	62.8	25.1	12.1	42.0	33.6	24.4
Portugal	15.3	41.7	26.0	32.3	21.9	27.2	50.9
Spain	12.0	55.6	27.1	17.3	34.4	33.5	32.0
United Kingdom	12.1	65.4	22.3	12.3	44.6	30.3	25.1
ECHP average[a]	**11.7**	**53.9**	**26.2**	**19.9**	**32.4**	**31.5**	**36.0**
Canada	10.9	47.0	24.8	28.2	26.0	27.4	46.7
Unites States[b]	16.0	36.9	22.5	40.6	18.1	22.1	59.8

B. Permanent income

	Permanent-income poverty rate	Share of persons with three-year average equivalent income of:			Share of total years spent in poverty attributable to persons with three-year average equivalent income of:		
		At least 60% of the median	At least 50% but less than 60% of the median	Less than 50% of the median	At least 60% of the median	At least 50% but less than 60% of the median	Less than 50% of the median
Belgium	5.2	41.8	25.7	32.4	30.4	20.4	49.3
Denmark	1.8	52.4	28.1	19.5	41.4	25.5	33.1
France	6.6	34.1	25.8	40.1	22.2	19.9	57.9
Germany	8.1	38.3	19.3	42.5	25.5	14.3	60.2
Greece	12.2	31.3	20.2	48.5	19.2	14.2	66.6
Ireland	5.3	30.7	34.8	34.5	25.1	28.1	46.8
Italy	10.4	30.7	21.3	48.1	18.7	15.3	66.0
Luxembourg	5.1	32.3	27.7	40.0	21.9	23.0	55.1
Netherlands	4.5	39.7	25.4	34.9	28.5	21.4	50.1
Portugal	13.4	25.8	18.7	55.5	14.8	12.1	73.0
Spain	8.7	35.2	24.1	40.7	23.6	18.6	57.8
United Kingdom	6.5	40.5	25.9	33.6	29.6	21.2	49.2
ECHP average[a]	**7.9**	**35.7**	**22.9**	**41.4**	**23.7**	**17.3**	**59.1**
Canada	8.9	27.8	22.8	49.4	19.6	13.6	66.8
Unites States[b]	14.5	18.1	20.0	61.9	11.4	10.9	77.7

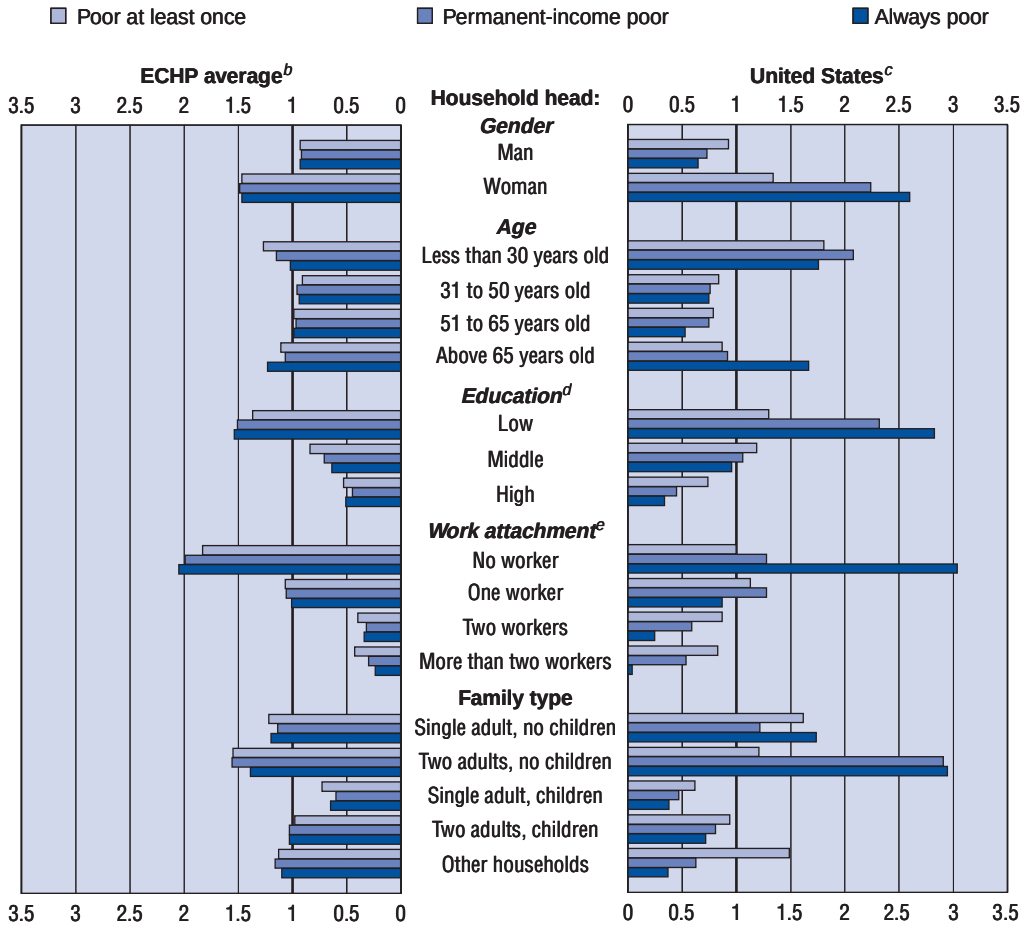
ECHP: European Community Household Panel.
a) Calculated as population-weighted averages of the national figures for all ECHP countries.
b) Data refer to 1987-1989.
Source: ECHP, waves 1994, 1995 and 1996 for EU countries; SLID for Canada; PSID for the United States.

C. Factors associated with short-run poverty dynamics

Poverty experience by household and work characteristics

This subsection examines how the burden of poverty – particularly permanent-income poverty – is distributed across different groups in the population. Chart 2.4 provides an overview of differences in the relative risk of poverty according to household characteristics (values above 1.0 reflecting above-average risks of poverty). These patterns are shown separately for the population-weighted ECHP sample of countries and the United States. In most respects, the profile of households at an above-average risk of experiencing poverty is similar in Europe and the United States: the risk of poverty is elevated for households in which the head is female, young,

Chart 2.4. Relative risks of short and long-term poverty for different population groups,[a] 1993-1995

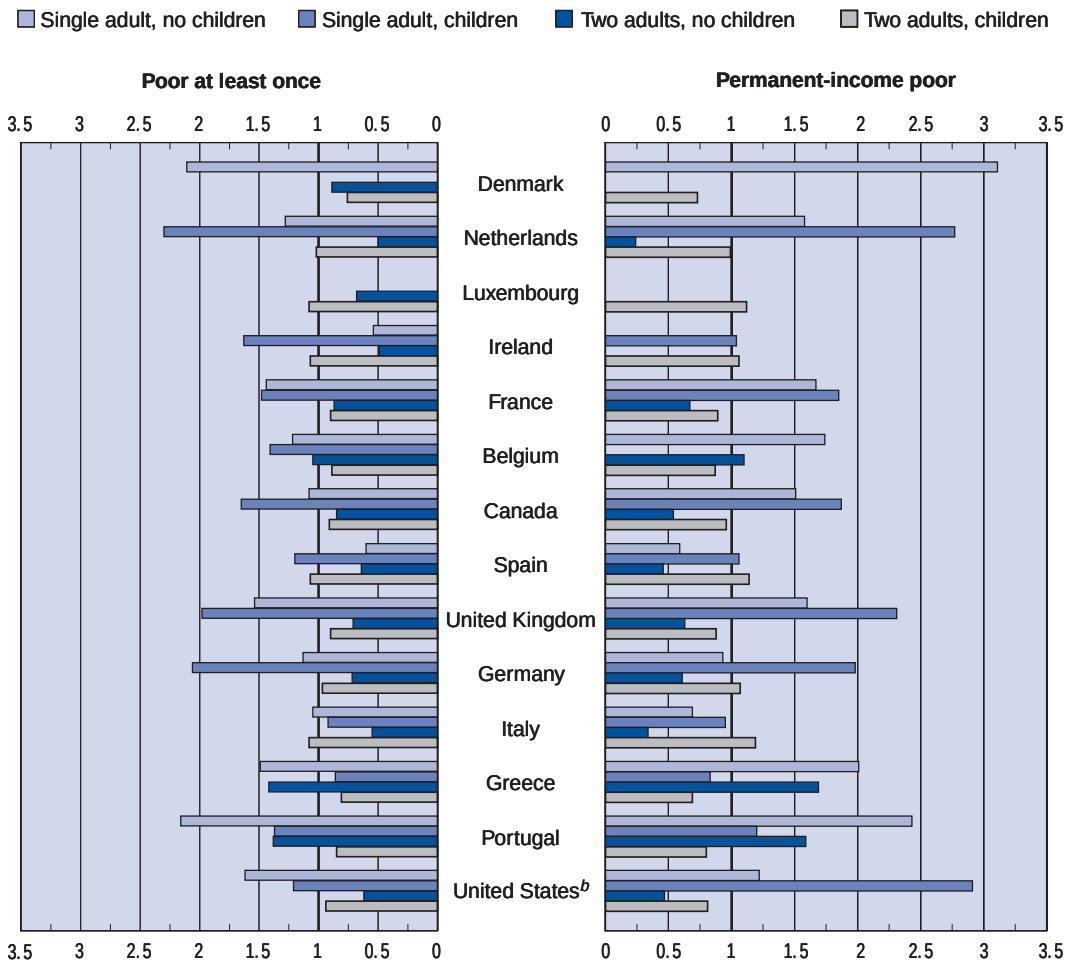


ECHP: European Community Household Panel.
a) Ratio of the poverty rate for the specified group to that for the entire population. Groups defined in terms of characteristics at the beginning of the period.
b) Calculated as population-weighted averages of the national figures for all ECHP countries.
c) Data refer to 1987-1989.
d) Low education is less than upper secondary education, middle is completed upper secondary education, high is tertiary-level education.
e) In the ECHP, an individual is classified as "employed" in a given year if the number of months employed equals or exceeds the number of months he spent not working. For the United States, the definition is based on having worked at least 1 000 hours in a given year.
Sources: ECHP, waves 1994, 1995 and 1996 for EU countries; PSID for the United States.

a single parent or has not finished upper secondary schooling, as well as for households in which no adult is employed for a significant part of the year.[19]

Comparing the ECHP and United States risk profiles in Chart 2.4 suggests that the association between household characteristics and increased poverty risk is stronger in the United States, particularly so for the risk of being permanent-income poor or always poor. However, this is partially due to offsetting differences in the risk profiles of different EU member states. There is considerable variation in demographic risk profiles among the EU member countries, some of which reflect poverty concentrations similar to those observed for the United States. For example, the risk of poverty for single-adult families with children is about double the average risk for the entire population in Germany, the Netherlands, and the United Kingdom, as well as in the United States (Chart 2.5). Similarly, the extent to which low educational attainment elevates the risk of poverty is

Chart 2.5. **Relative risks of short and long-term poverty by family type,[a] 1993-1995**

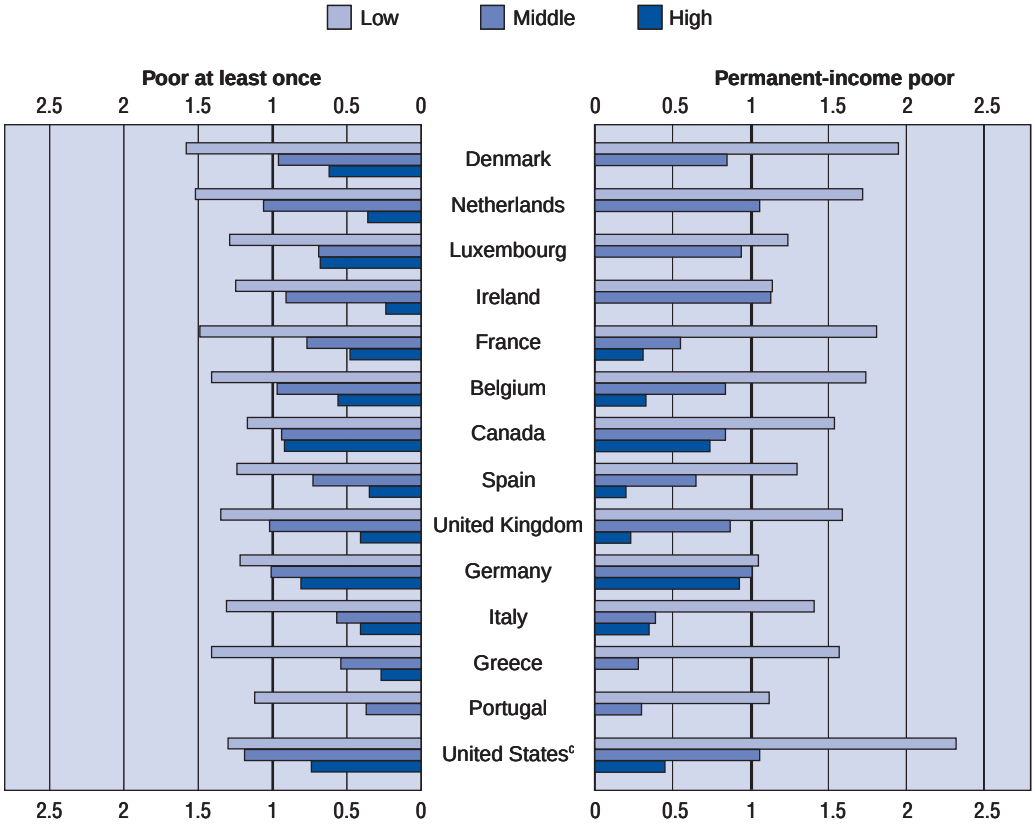


Note: Countries are ranked in descending order by average annual poverty rate as reported in Table 2.1.
Values not reported when fewer than 30 observations are available.
a) Ratio of the poverty rate for the specified group to that for the entire population.
b) Data refer to 1987-1989.
Sources: ECHP, waves 1994, 1995 and 1996 for EU countries; SLID for Canada; PSID for the United States.

nearly as strong in many EU member states as in the United States, while this association is virtually absent in Germany (Chart 2.6).

These data can inform policy design by identifying the composition of the poverty population, including significant differences in the household characteristics between the permanent-income poor and the short-term poor. Table 2.B.1 (in Annex 2.B) provides country-by-country tabulations of the distribution of the household characteristics over the total population and four measures of poverty intensity over three years: non-poor, poor one year, permanent-income poor, and always poor. These distributions reflect the combined impacts of differential poverty risks and the demographic composition of the total population. One important lesson that emerges is that household types with above-average poverty rates can nonetheless constitute a small share of the population of concern for anti-poverty programmes. For example, persons living in female-headed and single-parent households are everywhere a minority of the poverty population, despite facing elevated risks.[20] Consequently,

Chart 2.6. **Relative risks of short and long-term poverty by educational attainment of head,[a, b] 1993-1995**



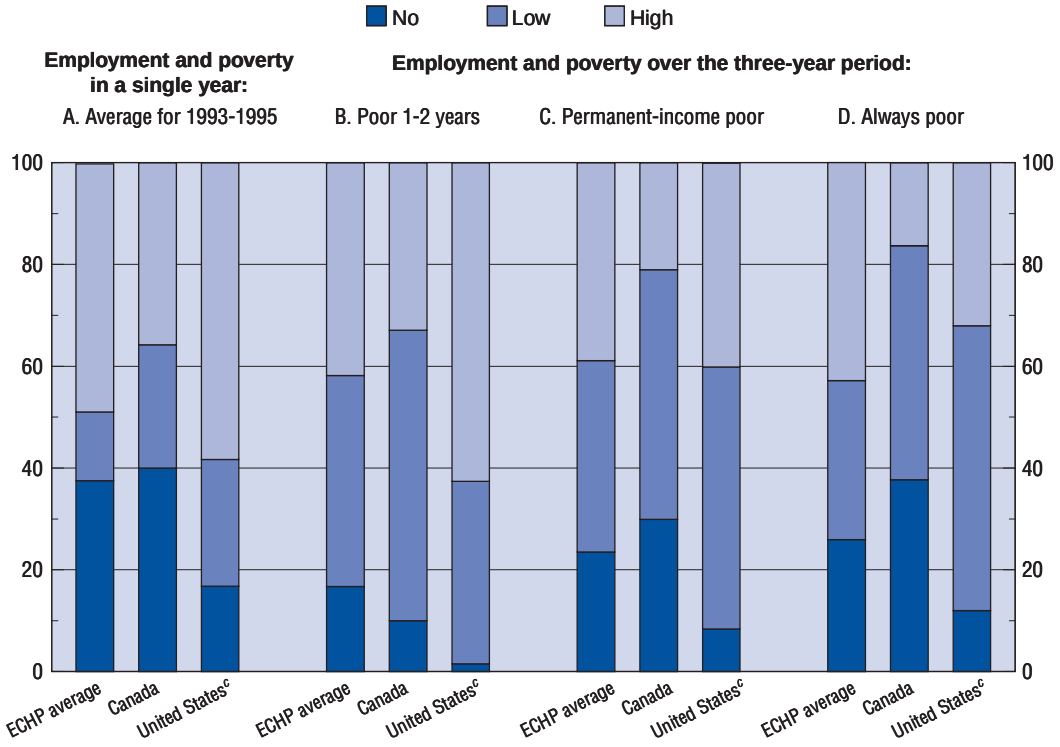
Note: Countries are ranked in descending order by average annual poverty rate as reported in Table 2.1.
Values not reported when fewer than 30 observations are available.
a) Ratio of the poverty rate for the specified group to that for the entire population.
b) Low education is less than upper secondary education, middle is completed upper secondary education, high is tertiary level education.
c) Data refer to 1987-1989.
Sources: ECHP, waves 1994, 1995 and 1996 for EU countries; SLID for Canada; PSID for the United States.

in targeting anti-poverty measures it is important not to focus exclusively on "high-risk" populations. Households with a male head and those with one or more workers do not show up among the high-risk groups, yet they account for the majority of the permanent-income poor population in EU member states and the United States.[21]

Due to intermittent employment, the overlap between work and poverty is larger when labour market attachment is assessed over a multi-year period, rather than being assessed exclusively at the beginning of the period. Chart 2.7 contrasts the extent of "working poverty" in a single year (Panel A), with the greater overlap between employment and poverty incidence over three years. For the working-age population, even the permanent-income poor and the always poor are unlikely to live in households in which no adult worked for pay, although they are more likely to report low employment levels (*e.g.* intermittent or part-time employment). Thus, the extent of working poverty appears to be greater than has been suggested by previous research based on cross-sectional data [Nolan and Marx (1999); OECD (1997)] and many poor households are characterised by low-paid or precarious employment, rather than persistent exclusion from the labour market.

Analysis of differences in poverty risk and persistence for different types of households can inform policy making in another way. Namely, these differences represent critical evidence for understanding the factors causing poverty. The analyses in the next three subsections examine these links: documenting family- and job-related events associated with individual poverty transitions; assessing correlations between national measures of poverty and the

Chart 2.7. **Overlap between poverty and employment among working-age households,[a, b] 1993-1995**



ECHP: European Community Household Panel.
a) Head of household 18 to 64 years of age.
b) High level of employment is defined as at least the equivalent of one full-time, full-year worker, with two months of part-time employment considered to equal one full-time month. In panel A, this criteria is applied for a single year, but in panels B-D, it must hold for all three years. Low level of employment is defined as all other households with positive employment.
c) Data refer to 1987-1989.
Sources: ECHP, waves 1994,1995 and 1996 for EU countries; SLID for Canada; PSID for the United States.

economic, demographic and institutional context; and reporting econometric models that examine poverty risk factors and durations in a multivariate context.

Events coincident with poverty entry and exit

Family structure, job status and other individual characteristics are clearly related to the risks of falling into and remaining in poverty. This subsection uses the three-year panels to analyse the relationships among transitions. Tables 2.4 (family-related events), 2.5 (job-related events) and 2.6 (family- and job-related events) display tabulations of the frequency with which changes in family structure or job status are coincident with entries and exits to and from poverty. The first two of these tables examine these two types of events independently, while the third takes account of the close interrelationship that often exists between them. This events-based analysis complements that in the previous subsection, which examined associations between household characteristics at the beginning of the period and subsequent poverty experience.

For the ECHP countries, 25% of entries into poverty and 15% of exits coincided with events such as marriages, births or the establishment of a new family (Table 2.4). Family-related events are more frequently observed in Canada and the United States, coinciding with 41% of entries and 31% of exits in Canada, and 37% of entries and 27% of exits in the United States. In EU member states as a group, Canada, and the United States, separation/divorce is the most common family-related event associated with poverty entry, but only in Canada and the United States is marriage associated with an important share of exits. It is also notable that the strong majority of

Table 2.4. Frequency of family-related events associated with poverty transitions, 1993-1995

Entries

	Number of observations	Percentage of total entries associated with: No change in family structure[a]	New born child[b]	More members in family[c]	Less members in family[d]	Separation/ divorce[e]	Newly established family[f]	Other changes
Belgium	632	83.5	–	–	(2.2)	(4.3)	(1.7)	–
Denmark	339	61.0	–	15.6	–	(7.3)	9.6	–
France	1 285	72.9	(2.0)	3.4	3.1	9.1	6.8	(2.7)
Germany	936	78.4	(3.0)	(2.7)	(1.8)	7.2	(3.0)	(3.9)
Greece	1 481	78.6	(1.7)	3.4	4.8	6.9	2.1	(2.4)
Ireland	784	67.7	5.5	4.1	6.5	5.3	(2.0)	(8.9)
Italy	1 702	74.4	2.8	(0.9)	5.1	6.3	2.9	(7.5)
Luxembourg	185	68.3	–	–	(5.8)	(8.8)	–	–
Netherlands	848	71.4	(3.4)	4.2	3.7	5.0	5.7	(6.5)
Portugal	1 315	77.7	3.5	2.5	6.0	4.5	(2.1)	(3.7)
Spain	1 897	74.7	3.2	(1.5)	6.0	6.7	(1.0)	(6.9)
United Kingdom	1 015	74.1	4.1	3.9	3.6	8.5	(2.6)	(3.1)
ECHP average[g]	**12 419**	**75.3**	**3.0**	**2.7**	**3.8**	**7.3**	**3.3**	**4.7**
Canada	2 182	58.8	4.3	1.6	3.7	12.6	12.9	6.0
United States[h]	564	62.6	8.8	2.5	4.2	10.9	8.8	2.3

Exits

	Number of observations	Percentage of total exits associated with: No change in family structure[a]	New born child[b]	More members in family[c]	Less members in family[d]	Marriage[i]	Newly established family[f]	Other changes
Belgium	573	90.1	(2.6)	–	–	(3.1)	–	–
Denmark	262	79.3	–	–	(5.4)	(7.3)	–	–
France	1 333	85.6	(1.5)	(1.5)	4.6	4.4	–	–
Germany	954	88.7	–	–	4.0	(2.2)	–	–
Greece	1 566	81.3	(1.9)	(1.7)	5.7	3.6	(0.7)	(5.0)
Ireland	655	79.2	7.3	–	5.6	(4.2)	–	–
Italy	2 045	79.8	2.4	2.2	2.7	5.3	(1.0)	(6.5)
Luxembourg	183	75.8	–	–	(12.5)	(5.9)	–	–
Netherlands	684	76.4	–	(1.9)	11.7	5.4	–	–
Portugal	1 696	82.4	2.2	1.8	2.9	(1.6)	(1.0)	(8.1)
Spain	2 084	83.3	(0.8)	1.6	3.9	4.2	(1.2)	(5.0)
United Kingdom	1 062	87.9	(1.8)	(1.1)	(2.8)	3.8	–	–
ECHP average[g]	**13 097**	**84.8**	**1.6**	**1.4**	**3.8**	**3.8**	**0.6**	**4.0**
Canada	1 980	68.5	2.5	1.7	5.2	8.9	4.5	8.6
United States[h]	698	73.0	1.4	2.9	12.2	8.1	1.3	1.3

ECHP: European Community Household Panel.
– Estimates not reported due to fewer than 10 obervations.
(Estimates based on less than 30 observations).
a) Same head, same size.
b) No split, no change in marital status, same head, more children.
c) No split, no change in marital status, same head, more members (same number or fewer children).
d) No split, no change in marital status, same head, fewer members.
e) There is a spouse/partner (woman) in t – 1 and not in t.
f) Split-off household and a child/other relative becomes head or spouse.
g) Calculated as population-weighted averages of national figures for all ECHP countries, except in cases where the national estimate for exactly one country has not been reported due to fewer than 10 observations of data. In such cases, the ECHP average is calculated excluding that country.
h) Data refer to 1987-1989.
i) There is a spouse/partner in the household in t and not in t – 1.
Sources: ECHP, waves 1994, 1995 and 1996 for EU countries; SLID for Canada; PSID for the United States.

Table 2.5. **Frequency of job-related events associated with poverty transitions**

Entries

	Number of observations	Percentage of total entries associated with: Fewer workers[a]	*Of which:* Head	*Of which:* Spouse	Less months at work[b]	*Of which:* Head	*Of which:* Spouse	Earnings decrease by at least 10%[c]	Other
Belgium	608	30.7	55.8	17.5	5.0	(54.3)	–	21.5	42.8
Denmark	339	32.9	57.2	36.4	11.3	(49.1)	–	22.8	32.9
France	1 285	21.5	41.5	39.5	11.7	67.4	(16.6)	25.7	41.2
Germany	907	24.6	36.0	35.3	9.0	79.3	–	31.5	34.9
Greece	1 479	37.4	41.0	29.7	6.9	56.0	(23.1)	32.3	23.4
Ireland	784	36.4	56.1	(6.1)	6.7	(32.3)	(25.1)	20.2	36.6
Italy	1 702	34.9	32.9	24.8	6.1	59.8	(21.0)	26.5	32.5
Luxembourg	184	33.8	–	–	(13.5)	(88.1)	–	35.9	(16.8)
Portugal	1 308	47.6	43.1	25.8	4.7	73.3	–	18.3	29.5
Spain	1 896	42.9	51.7	15.7	15.4	63.2	18.5	29.5	12.1
United Kingdom	1 015	27.0	34.1	38.8	7.9	74.4	–	25.2	40.0
ECHP average[d]	**11 507**	**30.3**	**40.2**	**29.1**	**9.2**	**68.6**	**14.9**	**27.4**	**33.1**
Canada	2 182	30.0	66.5	29.5	22.3	69.3	27.1	36.0	11.7
United States[e]	564	42.3	54.8	42.1	20.5	78.0	39.3	30.6	6.6

Exits

	Number of observations	Percentage of total exits associated with: More workers[a]	*Of which:* Head	*Of which:* Spouse	More months at work[b]	*Of which:* Head	*Of which:* Spouse	Earnings increase by at least 10%[c]	Other
Belgium	553	22.7	68.0	32.9	10.3	(32.0)	(27.4)	26.4	40.5
Denmark	262	22.8	63.8	(32.7)	18.6	(55.3)	–	40.5	18.1
France	1 329	32.5	63.8	28.6	12.8	60.6	(11.4)	30.3	24.4
Germany	928	25.5	50.5	25.6	4.2	(60.0)	–	31.6	38.7
Greece	1 566	31.1	55.2	24.4	7.9	53.6	36.7	40.9	20.1
Ireland	655	35.0	48.6	(7.1)	12.3	39.7	–	27.8	24.9
Italy	2 038	30.4	42.7	20.7	8.7	46.8	(13.0)	30.4	30.5
Luxembourg	182	18.9	(46.9)	(43.4)	(11.8)	–	–	45.4	(23.9)
Portugal	1 689	48.0	52.6	23.0	10.9	43.1	(11.7)	25.1	16.0
Spain	2 081	41.8	66.4	16.4	14.1	62.0	15.5	33.7	10.5
United Kingdom	1 062	26.6	71.2	32.9	7.8	81.0	(18.6)	26.9	38.7
ECHP average[d]	**12 345**	**30.9**	**58.2**	**24.5**	**9.1**	**59.7**	**15.7**	**30.6**	**29.5**
Canada	1 980	29.4	72.2	29.3	23.1	77.2	36.6	35.2	12.4
United States[e]	698	30.5	39.6	42.3	29.8	71.9	34.1	32.7	7.1

ECHP: European Community Household Panel.
– Estimates not reported due to fewer than 10 observations.
(Estimates based on less than 30 observations).
a) In the ECHP, an individual is classified as "employed" in a given year if the number of months employed equals or exceeds the number of months he/she spent not working. For Canada and the United States, the definition is based on having worked at least 1 000 hours in a given year.
b) No change in the number of workers. Canadian and United States values are based on annual hours worked having changed by at least 160 in the indicated direction.
c) No change in the number of workers nor in months worked.
d) Calculated as population-weighted averages of national figures for all ECHP countries, except in cases where the national estimate for exactly one country has not been reported due to fewer than 10 observations of data. In such cases, the ECHP average is calculated excluding that country.
e) Data refer to 1987-1989.
Source: ECHP, waves 1994, 1995 and 1996 for EU countries; SLID for Canada; PSID for the United States.

Table 2.6. Frequency of family and job-related events associated with poverty transitions

Entries

	Number of observations	Percentage of total entries associated with:					
		Change in family structure	Fewer workers[a]	Largest decrease in:			Other
				Earnings[b]	Transfers[b]	Capital and other income[b]	
Belgium	632	16.5	20.7	18.1	33.3	7.2	4.2
Denmark	339	39.0	15.2	13.5	26.0	–	–
France	1 285	27.1	10.8	21.7	35.3	3.1	1.9
Germany	936	21.6	15.9	27.2	26.0	7.5	1.8
Greece	1 481	21.4	25.6	29.8	8.8	9.9	4.5
Ireland	784	32.3	21.0	17.3	22.7	5.0	1.7
Italy	1 702	25.6	21.4	24.1	23.2	3.9	1.8
Luxembourg	185	31.7	(15.6)	27.1	20.3	–	–
Netherlands	848	28.6	. .	37.5	32.3	–	–
Portugal	1 315	22.3	35.5	17.6	17.9	3.8	2.8
Spain	1 897	25.3	30.1	22.4	17.5	4.1	0.6
United Kingdom	1 015	25.9	16.2	17.5	32.9	5.8	1.7
ECHP average[c]	**12 419**	**24.8**	**18.4**	**21.7**	**25.6**	**5.2**	**4.4**
Canada	2 182	41.2	9.3	26.1	16.9	6.4	0.2
United States[d]	564	37.5	15.0	27.6	2.8	16.5	0.7

Exits

	Number of observations	Percentage of total exits associated with:					
		Change in family structure	More workers[a]	Largest increase in:			Other
				Earnings[b]	Transfers[b]	Capital and other income[b]	
Belgium	573	9.9	18.2	17.0	41.5	[13.4]	
Denmark	262	20.7	16.3	29.2	27.6	–	–
France	1 333	14.4	26.9	22.4	29.6	3.1	3.7
Germany	954	11.3	21.9	26.7	32.0	[8.1]	
Greece	1 566	18.7	22.2	38.0	15.8	3.3	2.0
Ireland	655	20.8	27.7	20.6	29.9	–	–
Italy	2 045	20.2	23.6	29.2	24.2	[2.8]	
Luxembourg	183	24.2	(10.1)	29.4	23.7	–	–
Netherlands	684	23.6	. .	33.2	41.2	–	–
Portugal	1 696	17.6	41.2	16.0	22.0	2.4	1.0
Spain	2 084	16.7	34.5	30.6	15.2	[2.9]	
United Kingdom	1 062	12.1	20.5	23.7	40.3	[3.4]	
ECHP average[c]	**13 097**	**15.2**	**24.2**	**25.4**	**27.9**	**2.0**	**5.3**
Canada	1 980	31.5	15.6	25.5	19.6	7.5	0.4
United States[d]	698	27.0	19.1	36.8	3.8	13.2	0.1

ECHP: European Community Household Panel.
. . Data not available.
– Estimates not reported due to fewer than 10 obervations.
(Estimates based on less than 30 observations).
[Combined value for "Capital and other income" and "Other"].
a) No change in family structure.
b) No change in family structure nor in the number of workers.
c) Calculated as population-weighted averages of the national figures for all ECHP countries.
d) Data refer to 1987-1989.
Source: ECHP, waves 1994, 1995 and 1996 for EU countries; SLID for Canada; PSID for the United States.

poverty transitions do not coincide with a change in family structure in any of the countries.[22]

Table 2.5 lists job-related events that might cause poverty transitions and shows that there is a strong association. The link appears to be particularly strong in the United States. For example, in the United States, 31% of poverty exits coincided with an increase in the number of workers in the household, another 30% with an increase in the number of months worked (with an unchanged number of workers), and 33% with an earnings increase of at least 10% (despite no changes in the number of workers or months worked). A near mirror-image picture is observed for entries into poverty, except that changes (here, reductions) in annual months worked among the employed is less common (21%). The principal difference between the ECHP countries and the United States is that changes in months worked among the employed much less frequently accompany poverty transitions in the former (6% of transitions *versus* 21-30%).[23]

Are, therefore, family-related events a less important cause of poverty transitions than job-related events? This issue is complex, since family- and job-related changes can be closely related (or even two sides of the same coin, as when divorce reduces the number of workers in a household). In order to probe further whether job-related events are indeed more important than family-related events, Table 2.6 looks at the two types of changes in concert. A lower-bound estimate of the impact of job-related events is produced by first identifying all households with a change in family structure and then calculating job-related events only for the remaining subsample (*i.e.* those with a stable family structure). The effect is to substantially reduce the relative importance of changes in the number of workers in the household, particularly for entries into poverty (the shares falling from 30% to 18% in the ECHP on average and, much more dramatically, from 30% to 9% in Canada and from 42% to 15% in the United States). In other words, in about one-half or more of the cases in which a reduction in the number of workers coincides with the beginning of a poverty spell, the precipitating event was a worker leaving the household or a related family event, rather than job loss by a continuing family member.

Nonetheless, Table 2.6 confirms that year-to-year changes in earnings often accompany poverty transitions in households where there is no change in either family structure or the number of workers. Earnings account for the largest change in income in the majority of such transitions in the United States. Earnings changes are also important in Canada and the ECHP countries, but public transfer payments play an important role as well. In the ECHP countries, changes in transfer payments account for the largest share of the change in income for more poverty transitions than do changes in earnings. The importance of changes in transfers for poverty transitions in Europe is in marked contrast to the situation in the United States and suggests that the more extensive welfare state characteristic of most European countries affects poverty dynamics, in addition to its well-documented effect in lowering the cross-sectional incidence of poverty [Förster (2000); Smeeding *et al.* (2000)]. Canada is somewhat of an intermediate case, with the contribution of transfers lying between that in the EU and in the United States. Interestingly, in the EU, Canada, and the United States, reductions in transfer payments are nearly as important for poverty entries as are increases in transfer payments for exits.

Correlates of cross-country differences in poverty

The preceding analysis demonstrates significant differences in short-run poverty dynamics, both across population groups within countries and across OECD countries. However, more sophisticated statistical tools are required to characterise this variation adequately and better identify the underlying causal relationships. This and the following subsections present some components of such an analysis. The preceding analysis identified a number of *individual* demographic and labour market factors that should be incorporated into an econometric analysis of poverty dynamics. However, that analysis provides only partial guidance as to the *macro* factors that may also account for international differences in poverty dynamics and need to be taken into account. The cross-country correlations reported in Table 2.7, which are based on aggregate data for the fourteen countries referred to in the preceding analyses, help identify such factors.[24]

Consistent with public transfer payments playing an important role in poverty status, all seven measures of poverty incidence and persistence are strongly negatively correlated with the two measures of social spending generosity and the measure of the extent to which this spending is targeted to low-income households (13 of 14 of these correlations are statistically significant despite the small sample size). Several other factors are also identified as potentially affecting the overall extent of poverty. Higher GDP per capita is significantly correlated with lower poverty intensity in a single year, while a higher share of low-educated adults is correlated with higher poverty intensity. However, neither factor is significantly related to poverty persistence. By contrast, the share of low-paid in total employment (as well as its persistence) is positively correlated with all four measures of poverty persistence, but this correlation is statistically significant only for the ratio of permanent-income poverty rate to the

Table 2.7. Correlations of national measures of poverty with measures of the economic, demographic and institutional context

ECHP countries, Canada and the United States

Panel A. Poverty measures correlated with employment and unemployment

Poverty measures	Employment/ population ratio, total	Employment/ population ratio, women	Share of working-age households with no employment	Standardised unemployment rate	Unemployment rate for men aged 25 to 54	Unemployment rate for women aged 25 to 54
Single-year measures						
Poverty rate	–0.068	–0.103	–0.418	0.021	–0.106	0.011
Intensity	–0.227	–0.284	–0.369	0.050	–0.184	0.154
Sen index	–0.108	–0.151	–0.485*	0.016	–0.154	0.043
Three-year measures						
Permanent-income poverty	–0.102	–0.142	–0.556**	0.005	–0.135	0.019
Ratio of permanent-income to single-year poverty	–0.266	–0.293	–0.591**	0.073	–0.036	0.090
Ratio of always poor to ever poor	0.149	0.106	–0.559**	–0.233	–0.359	–0.197
1-exit rate	0.012	–0.029	–0.476	–0.193	–0.321	–0.137

Panel B. Poverty measures correlated with wage setting and social expenditure

Poverty measures	Low-pay share	Average cumulative years in low-paid employment	Union density	Public social expenditure as % of GDP	Share of general government transfers received by the three bottom deciles of the income distribution for the working-age population	Gross replacement rates for unemployment benefits
Single-year measures						
Poverty rate	0.365	0.830**	–0.551*	–0.638**	–0.452	–0.820**
Intensity	0.027	0.243	–0.362	–0.358	–0.582*	–0.512*
Sen index	0.270	0.686	–0.506	–0.610**	–0.554*	–0.767**
Three-year measures						
Permanent-income poverty	0.384	0.712	–0.532*	–0.685**	–0.562*	–0.737**
Ratio of permanent-income to single-year poverty	0.484*	0.530	–0.614**	–0.705**	–0.541*	–0.598**
Ratio of always poor to ever poor	0.294	0.584	–0.400	–0.577**	–0.507	–0.546**
1-exit rate	0.314	0.434	–0.405	–0.553**	–0.598*	–0.521*

Panel C. Poverty measures correlated with income distribution and population characteristics

Poverty measures	GDP per capita in PPPs	Income Gini coefficient for total population	Income Gini coefficient for working-age population	Dependency ratio for 1990	Incidence of lone-parent families	Share of population 25 to 64 years of age not having finished upper secondary education
Single-year measures						
Poverty rate	–0.304	0.836**	0.823**	0.001	–0.001	0.264
Intensity	–0.424	0.436	0.439	–0.232	–0.221	0.472
Sen index	–0.348	0.813**	0.801**	–0.054	–0.048	0.372
Three-year measures						
Permanent-income poverty	–0.334	0.822**	0.807**	–0.031	–0.100	0.375
Ratio of permanent-income to single-year poverty	–0.285	0.728**	0.750**	–0.039	–0.219	0.439
Ratio of always poor to ever poor	0.027	0.571*	0.572*	–0.242	0.190	0.111
1-exit rate	0.041	0.559*	0.579*	–0.234	0.134	0.123

* Significant at the 10% level.
** Significant at the 5% level.

Source: Employment and unemployment measures: OECD (2000), *Employment Outlook*; Low-pay share: OECD Earnings Structure Database; Average cumulative years in low-paid employment: OECD (1997), *Employment Outlook*, Chapter 2; Union density: OECD (1997), *Employment Outlook*, Chapter 3; Public social expenditure: OECD Social Expenditure Database; Replacement rates: OECD (1999), *Benefit Systems and Work Incentives*; GDP per capita: OECD Analytical Database; Gini coefficients: Förster, M.F. (2000); Dependency ratio and incidence of lone parent families: OECD (2000*a*); Education measure: OECD (2000), *Education at a Glance*: OECD *Indicators*.

annual poverty rate. This measure of poverty persistence also falls significantly as union density rises, perhaps due to the association between higher unionisation and wage compression[OECD (1997)]. No significant correlations are found between aggregate employment and unemployment rates on the one hand and any of the poverty measures on the other. This demonstrates that some of the strong associations found at the micro-level, such as that between higher household employment and a lower risk of poverty, may be weaker at the macro level. More sophisticated statistical techniques are used in the next subsection to simultaneously account for micro and macro factors affecting poverty dynamics.

Econometric models

To further explore the relationship between short-run poverty and related characteristics, econometric models of poverty transitions are estimated using the three-year panel data. The intent of these models is two-fold. First, multivariate techniques are used to better isolate the independent effects of different variables affecting poverty transitions. The variables controlled for are measured in the first year of the sample only, and they include age of the individual and the household head, the head's educational attainment, number of workers in the household, family structure, and country (the exact list is provided in Table 2.8). The second aim is to assess the extent to which international differences in the distribution of these characteristics account for the cross-country differences in poverty dynamics documented earlier in this section.

The models are estimated using maximum likelihood for a logit specification, which is commonly used to model the effects of explanatory variables on an outcome variable that has only two possible discrete outcomes.[25] Equations are estimated over the entire pooled (all country) ECHP sample, for three separate dependent variables: the incidence of poverty exits, the incidence of permanent-income poverty among the sample of individuals ever poor, and the incidence of "always poor" among the sample of individuals ever poor. These dependent variables were chosen to provide a concise assessment of the effects of the independent variables (including country effects) on both dynamics and short-term persistence. The estimated coefficients are then used to form predicted probabilities of the different outcomes for individuals defined by specified combinations of characteristics.

The results of these analyses, in Table 2.8, indicate large and significant effects of the explanatory variables on the measured poverty outcomes. The magnitude of these effects are measured by listing the predicted probability for an individual with the specified characteristics, relative to the predicted probability for the reference person (see the table notes for the definition of the reference person). In general, the measured characteristics substantially affect the exit probability and probabilities of long-term poverty, with some variation in the effects across the different outcomes. The exit rates are affected most by the education of the household head, whereas the probability of permanent-income poverty and always-poor status are affected most by the number of workers in the household at the start of the three-year period. In the extreme, a child in a family with a low education head and no workers faces an exit probability that is about 14 percentage points (27%) lower and probabilities of permanent-income poverty and always-poor status that are 27 percentage points (73%) and 21 percentage points (148%) higher than the reference person. Somewhat surprisingly, however, individuals in households consisting of a single adult with children have significantly higher exit probabilities and lower probabilities of long-term poverty than an individual in a reference family (two adults with children).[26]

As indicated by the estimated country effects at the bottom of the Table 2.8, the measured poverty outcomes vary substantially across countries. Controlling for related characteristics has little effect on the estimated country effects: the correlations between the unconditional (unadjusted) country effects and the conditional (regression-adjusted) country effects are high, ranging from 0.80 to 0.95 across the three outcomes listed. Conditional on individual characteristics, Denmark, Ireland and the United Kingdom exhibit high poverty exit rates and low rates of permanent poverty, and Portugal and Italy exhibit low exit rates and high rates of permanent poverty. Correlations between the regression-adjusted country effects and the macro variables analysed in the previous section are similar to those reported in Table 2.7, suggesting that some of these variables affect poverty dynamics in ways that are not mediated by the individual and household variables controlled for in these regressions.

III. Poverty dynamics over longer periods

A. Data

Longer-run poverty dynamics are now examined using data from the Cross-National Equivalent Files (CNEF). These files include data from the Canadian Survey of Labor and Income Dynamics (SLID), the German Socio-Economic Panel (GSOEP) the British Household Panel Survey (BHPS), and the United States Panel Study of Income Dynamics (PSID). Eight-year panels were constructed covering income years 1985-1992 for the United States and 1990-1997 for Germany and the United

Table 2.8. Estimated impact on poverty persistence over three years of individual and family characteristics and country of residence[a] (ECHP countries only)

Percentage rates implied by multivariate logistic regressions[b]

	Exit rate (annual)	Permanent-income poor given ever poor	Always poor given ever poor
	(1)	(2)	(3)
Reference person[c]	50.3	37.1	14.4
Age of person (reference person = working age)			
Child (less than 18 years)	45.0***	42.9***	17.6***
Retirement age (older than 65 years)	52.8*	33.4***	13.1
Age of head (reference person = 31-50 years)			
Young adult (30 years or younger)	55.0***	33.3***	12.0***
Older working age (51-65 years)	51.5	35.5*	13.6
Retirement age (older than 65 years)	46.4***	36.9	14.8
Education of head (reference person = medium)			
Low (less than upper secondary degree)	43.7***	46.8***	20.8***
High (tertiary degree)	57.0***	30.5***	12.7*
Number of workers in household (reference person = one)			
None	48.3***	48.4***	21.8***
Two or more	52.4*	23.7***	9.3***
Family structure (reference person = two adults with children)			
Single adult, no children	45.4***	36.7	16.9***
Two adults, no children	52.4*	30.8***	12.6***
Single adult with children	52.9**	31.8***	12.1***
Other family types	53.3***	35.5	13.0***
Extreme case[d]			
Child in family with low education head and no workers	36.8***	64.1***	35.7***
Country (reference person = ECHP average)			
Belgium	54.0*	25.2***	11.0***
Denmark	66.5***	17.1***	5.0***
France	51.6	34.0**	12.5
Germany	40.2***	44.6***	20.5***
Greece	45.3***	41.4***	18.0***
Ireland	62.1***	24.5***	4.1***
Italy	44.8***	42.1***	20.7***
Luxembourg	54.6	31.9	11.3
Netherlands	54.9**	48.9***	15.8**
Portugal	39.6***	51.3***	24.9***
Spain	53.6***	33.8***	12.1***
United Kingdom	64.4***	27.7***	7.7***
Number of observations	30 081	26 256	26 256
Log likelihood	–20 051.7	–17 073.4	–13 031.0
Likelihood ratio test for all coefficients [Chi-square (24)]	1 094.0***	1 937.3***	1 797.3***
Likelihood ratio test for country effects [Chi-square (11)]	626.1***	772.5***	954.1***
Relative variation of adjusted country effects[e, f]	1.04	1.27	1.16
Correlation of adjusted and unadjusted country effects[f]	0.95	0.80	0.91

ECHP: European Community Household Panel.

* , ** and *** denote differences from the reference person that are statistically significant at 10%, 5% and 1% levels respectively.

a) Characteristics measured in the first sample year.

b) Fitted probabilities from logistic regression models estimated by maximum likelihood using data for 1993-1995.

c) The reference person is a working-age adult living in a family with two adults and children. The household contains one worker and its head has a medium-level education and is between the ages of 31 and 50 years. The reference person is allocated across ECHP countries according to their population weights.

d) The extreme case differs from the reference person by the characteristics indicated.

e) Ratio of the coefficient of variation for the adjusted country effects to the coefficient of variation for the unadjusted country effects.

f) Unadjusted country effects are cross-country differences in mean values of the three poverty measures. Adjusted country effects are differences in the fitted poverty measures for a reference person as defined in note *c*).

Sources: ECHP, waves 1994, 1995 and 1996.

Kingdom; the data for Canada were limited to a six-year panel covering income years 1993-1998.

The choice of sample years was dictated by several practical considerations. Primary among these was the comparability of the results in terms of panel duration and economic conditions during the analysis years. As noted earlier, the American PSID data are available through income year 1996. However, due to changes in survey procedures and data processing delays, the data for income years 1993-1996 are not fully comparable to data from the earlier years. As a result of these PSID data issues, a 1990s American panel that is comparable to the German and British panels is not feasible. To the extent that poverty dynamics in the United States changed between the 1980s and 1990s, this may pose problems of comparability. However, tabulations from the US Census Bureau and other sources suggest that the poverty rate was not that different in the United States between the late 1980s and the mid to late 1990s, which suggests that using American data from the earlier period is not too problematic.[27]

As noted earlier, household income data in the CNEF files are available in "pre-fisc" and "post-fisc" forms. Pre-fisc (market) income is income prior to the payment of direct taxes or receipt of public transfers. Post-fisc (disposable) income refers to income net of direct taxes paid and public transfers received. This latter variable provides an income definition that is essentially identical to the ECHP income variable. For both income variables, household size and associated economies of scale in consumption are incorporated by dividing income by the OECD modified equivalence scale. Individuals are identified as being in poverty if their family's equivalent disposable income falls below 50% of the median of the distribution of equivalent disposable income in their country of residence. The same threshold, based on the distribution of equivalent disposable income, is used to define the poverty line for calculations involving disposable and market income. The CNEF files also provide detailed information on employment and family characteristics, which are exploited below.

B. Poverty incidence and duration

Table 2.9 displays poverty rates and the incidence of permanent-income and short-term poverty, with separate panels for the total population and individuals in working-age and retirement-age households.[28] In general, post-fisc poverty is lowest in Germany, followed by Canada, the United Kingdom, and the United States.[29] The impact of the tax and transfer system is quite large in Germany and Canada. In Germany, for the population as a whole, the poverty rate is higher by about a factor of three when market (pre-fisc) income is used compared with disposable (post-fisc) income. Most of this difference arises within the German retirement-age population: the annual average poverty rate is higher by a factor of ten when the pre-fisc measure is compared with post-fisc income. Poverty in the United Kingdom and the United States also is higher when measured in pre-fisc terms than in post-fisc terms, although the difference for these two countries is not as pronounced as it is for Germany and Canada. In the United States, the tax and transfer system has almost no effect on poverty rates for individuals in working-age households. However, for individuals in retirement-age households, public redistribution reduces poverty more in the United States than in the United Kingdom. Despite the substantial redistributional effects of public taxes and transfers for retirement-age households, poverty rates based on post-fisc income are higher for individuals in retirement-age households than for individuals in working-age households in all of these countries except Canada.

Table 2.9 also indicates that the incidence of poverty is high in the United Kingdom and the United States, with about 30-40% of the population experiencing at least one year of poverty during the 8-year panel, depending on which income measure is used. Poverty incidence is lower in Canada and Germany, although these countries exhibit an especially high incidence of poverty among individuals in retirement-age households based on the pre-fisc income measure.

The final two columns of Table 2.9 provide an initial indication of the extent of poverty persistence in the four countries. In general, the share of "always-poor" individuals relative to the average annual poverty rate is low in Germany and the United Kingdom, although not when using the pre-fisc income measure in Germany. The share of "always-poor" individuals is higher in the United States and Canada than in the other two countries. Using the post-fisc income measure, the ratio of "always poor" to the annual poverty rate ranges from a low of about 15% in the United Kingdom to a high of 27% in the United States. Perhaps most striking is the high incidence of permanent-income poverty relative to the average annual poverty rates in all four countries. The number of individuals whose long-term average income falls below the average poverty threshold is about 45% to 100% as large as the number of poor individuals in a given year, depending on the country and the income measure used. This indicates the importance of developing measures of poverty persistence that incorporate income streams accruing over periods longer than one year.

Table 2.10 displays entry and exit rates from poverty, with separate panels for individuals in working-age and retirement-age households. These rates are calculated as the incidence of transition relative to the "at risk" population. In general, higher poverty rates are associated with higher

Table 2.9. Alternative poverty rates in the longer panels: Canada, Germany, the United Kingdom and the United States

A. Total population

	Number of individuals[a]	Annual poverty rate[b]	Poor at least once	Always poor	Permanent-income poverty[c]
		Percentages			
Canada, 1993-1998					
Post-fisc	29 883	11.5	23.8	3.0	8.3
Pre-fisc	29 883	24.7	38.3	12.7	20.6
Germany, 1990-1997					
Post-fisc	5 491	9.6	17.4	1.0	4.1
Pre-fisc	5 491	27.7	38.8	12.9	19.9
United Kingdom,[d] 1990-1997					
Post-fisc	8 179	15.1	31.2	2.2	9.8
Pre-fisc	8 179	20.1	48.4	2.7	12.4
United States, 1985-1992					
Post-fisc	6 243	16.8	34.0	4.5	12.5
Pre-fisc	6 243	21.0	38.2	7.6	16.0

B. Working-age population[e]

	Number of individuals[a]	Annual poverty rate[b]	Poor at least once	Always poor	Permanent-income poverty[c]
		Percentages			
Canada, 1993-1998					
Post-fisc	24 803	12.4	25.0	3.3	9.0
Pre-fisc	24 803	19.8	32.8	8.1	14.9
Germany, 1990-1997					
Post-fisc	4 301	9.4	17.5	0.9	4
Pre-fisc	4 301	16.1	24.9	3.3	7.3
United Kingdom,[d] 1990-1997					
Post-fisc	6 441	14.7	30.4	2.4	9.6
Pre-fisc	6 441	18.3	47.4	2.1	10.7
United States, 985-1992					
Post-fisc	5 137	15.7	33.9	3.9	11.9
Pre-fisc	5 137	15.9	33.0	4.8	12.0

C. Retirement-age population[f]

	Number of individuals[a]	Annual poverty rate[b]	Poor at least once	Always poor	Permanent-income poverty[c]
		Percentages			
Canada, 1993-1998					
Post-fisc	3 650	6.9	12.7	0.4	2.7
Pre-fisc	3 650	54.3	68.1	45.0	56.6
Germany, 1990-1997					
Post-fisc	982	9.9	16.4	1.6	4.7
Pre-fisc	982	67.9	84.3	50.2	66.8
United Kingdom,[d] 1990-1997					
Post-fisc	1 397	15.1	33.9	2.0	11.5
Pre-fisc	1 397	24.6	52.3	5.2	19.8
United States, 1985-1992					
Post-fisc	863	18.8	38.6	8.5	17.5
Pre-fisc	863	39.1	68.8	24.2	40.0

a) Number of persons present in all waves of the panel data. The larger number of observations available in the separate cross-sectional samples for each year was used to calculate annual poverty rates.
b) The poverty rate is the number of individuals having equivalent household disposable income below 50 per cent of the median equivalent household disposable income. This is calculated separately for each year and then averaged.
c) Percentage of the sample for whom average (equivalent) income falls below the average poverty line over the indicated period *i.e.*, the sum of equivalent income is less than the sum of the poverty threshold income.
d) Data refer to Great Britain only.
e) Head of household 15 to 64 years of age (throughout the panel).
f) Head of household 60 years or older (throughout the panel).
Source: Canada: SLID; Germany: GSOEP; United Kingdom: BHPS; United States: PSID.

Table 2.10. **Gross rates of entry and exit and average duration of poverty: Canada, Germany, the United Kingdom, and the United States**

	Annual poverty rate	Yearly rate of entry[b]	Yearly rate of exit[c]	Average duration[d]
	A. Working-age population[a]			
	Percentages			
Canada, 1993-1998				
Post-fisc	12.4	4.5	33.7	2.6
Pre-fisc	19.8	5.0	24.1	3.1
Germany, 1990-1997				
Post-fisc	9.4	2.7	45.0	1.9
Pre-fisc	16.1	3.4	24.9	2.6
United Kingdom,[e] 1990-1997				
Post-fisc	14.7	5.3	34.5	2.3
Pre-fisc	18.3	9.1	39.0	2.0
United States, 1985-1992				
Post-fisc	15.7	5.1	30.0	2.5
Pre-fisc	15.9	5.0	26.8	2.5
	B. Retirement-age population[f]			
	Annual poverty rate	Yearly rate of entry[b]	Yearly rate of exit[c]	Average duration[d]
	Percentages			
Canada, 1993-1998				
Post-fisc	6.9	2.2	51.4	1.8
Pre-fisc	54.3	10.5	6.0	4.9
Germany, 1990-1997				
Post-fisc	9.9	2.4	39.0	2.2
Pre-fisc	67.9	17.2	6.4	5.4
United Kingdom,[e] 1990-1997				
Post-fisc	15.1	6.2	34.2	2.2
Pre-fisc	24.6	10.4	30.0	2.4
United States, 1985-1992				
Post-fisc	18.8	6.4	17.9	3.0
Pre-fisc	39.1	14.1	11.4	3.8

a) Head of household 15 to 64 years of age (throughout the panel).
b) Number of persons entering poverty between t and t + 1, as a share of the population not in poverty in t, averaged over the period.
c) Number of poor in t who exit poverty in t + 1, as a share of the population in poverty in t, averaged over the period.
d) Average length of poverty spells for spells of positive duration (years).
e) Data refer to Great Britain only.
f) Head of household 60 years or older (throughout the panel).
Source: Canada: SLID; Germany: GSOEP; United Kingdom: BHPS; United States: PSID.

entry rates, lower exit rates, and corresponding longer average duration. The main exception to this pattern is found for individuals in working-age households in the United Kingdom based on pre-fisc income (Panel A, sixth row). For example, the annual poverty rate for this group is somewhat higher than the corresponding rates (post-fisc and pre-fisc) for the same group in the United States. However, the entry and exit rates for this group in the United Kingdom are high and the average duration of poverty is low compared to the corresponding figures for the United States. This finding suggests that poverty based on the market income distribution is a more transitory phenomenon in the United Kingdom than in the United States. The impact of direct taxes and transfer payments on poverty dynamics also varies, particularly for the working-age population. For this group, post-fisc poverty is less persistent than pre-fisc poverty in Canada and Germany, about equally persistent in the United States, and somewhat more persistent in the United Kingdom.

Table 2.11 provides a breakdown of spell durations similar to that from Table 2.3 for the ECHP data, for the working-age and retirement-age populations. However, given the longer time span of the CNEF files, the poverty spells here are divided into more duration categories. In addition, the measure of duration is a standard spell-based measure, rather than a person-based measure: spells are defined as continuous time spent in poverty (with multiple

Table 2.11. **Poverty spell durations for persons ever poor: Canada, Germany, the United Kingdom and the United States**

Percentages

A. Working-age population[a]

	Annual poverty rate	Share of poverty spells lasting:[b]				Share of total years in poverty for spells lasting:[b]			
		1 year	2 to 3 years	4 to 6 years	7 to 8 years	1 year	2 to 3 years	4 to 6 years	7 to 8 years
Canada, 1993-1998									
Post-fisc	12.4	59.3	29.1	11.6	–	22.1	28.5	49.5	–
Pre-fisc	19.8	52.3	30.6	17.1	–	15.4	23.0	61.7	–
Germany, 1990-1997									
Post-fisc	9.4	65.4	21.3	7.8	5.5	33.9	24.9	19.2	22.0
Pre-fisc	16.1	44.7	31.7	12.6	11.0	16.9	27.4	22.5	33.2
United Kingdom,[c] 1990-1997									
Post-fisc	14.7	48.7	31.4	11.7	8.3	21.4	31.6	22.4	24.5
Pre-fisc	18.3	58.0	27.5	9.1	5.4	29.3	32.0	20.3	18.4
United States, 1985-1992									
Post-fisc	15.7	46.3	28.4	14.4	10.9	18.7	26.4	24.8	30.1
Pre-fisc	15.9	45.2	29.3	12.7	12.8	17.7	26.3	21.2	34.8

B. Retirement-age population[d]

	Annual poverty rate	Share of poverty spells lasting:[b]				Share of total years in poverty for spells lasting:[b]			
		1 year	2 to 3 years	4 to 6 years	7 to 8 years	1 year	2 to 3 years	4 to 6 years	7 to 8 years
Canada, 1993-1998									
Post-fisc	6.9	72.1	23.0	4.9	–	39.5	30.5	30.0	–
Pre-fisc	54.3	26.5	23.0	50.5	–	3.4	6.8	89.8	–
Germany, 1990-1997									
Post-fisc	9.9	60.1	23.1	10.0	6.8	27.9	24.4	22.7	25.0
Pre-fisc	67.9	18.6	15.4	14.4	51.6	3.5	7.0	13.1	76.5
United Kingdom,[c] 1990-1997									
Post-fisc	15.1	52.7	27.6	13.6	6.0	23.2	28.9	28.6	19.3
Pre-fisc	24.6	49.8	27.1	14.2	9.0	20.0	25.9	27.1	27.0
United States, 1985-1992									
Post-fisc	18.8	48.3	19.9	13.6	18.2	15.4	15.0	20.8	48.8
Pre-fisc	39.1	36.0	21.9	12.2	29.9	9.0	13.1	15.1	62.8

– Not applicable.
a) Head of household 15 to 64 years of age (throughout the panel).
b) Poverty spell duration measured as consecutive years in poverty (individuals may have repeat spells).
c) Data refer to Great Britain only.
d) Head of household 60 years or older (throughout the panel).
Source: Canada: SLID; Germany: GSOEP; United Kingdom: BHPS; United States: PSID.

spells possible per person), rather than total years spent in poverty for each person (as in the earlier analyses of short-term poverty). The left-side panel, which decomposes spells by duration, indicates that most spells are of short duration in all four countries. Spells of one year account for about 35-65% of all spells (excluding several figures for the retirement-age population). In general, higher poverty rates imply a greater incidence of long spells.

Despite the high share of short spells among total spells, the right-side panel of Table 2.11 shows that the total amount of time spent in poverty is quite heavily weighted towards long spells. Using the pre-fisc income measure for individuals in working-age households (Panel A), about one-third of the total time spent in poverty in Germany and United States is spent in spells of 7-8 years. The corresponding share for post-fisc income is only slightly lower in the United States, but falls to approximately one-fifth in Germany. In Canada, about half or more of the total time in poverty is spent in spells of 4 to 6 years (the upper limit in the SLID panel).

C. Long-term poverty transitions and repeat spells

In analyses above, a "permanent-income" measure of poverty was used, based on smoothing yearly income receipts over periods longer than a year. This measure serves the dual purpose of averaging out transitory income fluctuations and accounting for the poverty gap, or amount by which income falls short of the poverty threshold. As such, the permanent-income poverty measure

provides a more accurate indication of the burden of persistently low income than do standard measures based purely on yearly income.

The permanent-income poverty measure also relates to the incidence of repeat spells. Using a standard spell-based measure of poverty experience, an individual who is in poverty for 3 years, out for 1 year, and then back in for 4 years would be recorded having two spells of poverty, lasting 3 and 4 years. However, this pattern suggests persistent poverty in living standards over the entire period. To fully understand the persistence of poverty, an assessment of the incidence of repeat spells is necessary. Alternatively, one can examine "permanent exits" from poverty, defined as a poverty exit in a year that is not followed by a return spell of poverty.

Table 2.12 displays tabulations of (total) yearly exits, repeat spells, and permanent exits. The second column of the table displays standard exit rates, as defined in Table 2.10. In order to allow repeat spells to be observed, the sample for estimation of these rates is restricted to years 2-4 of each country panel (and years 2-3 in Canada, for which only six years of data are available). Exits followed by repeat spells are thus possible during 6 years of the 8-year panels, and choosing the first three measured exit years allows for a significant number of repeat spells to occur.[30] The third column of Table 2.12 lists the incidence of repeat spells, which are calculated as a share of exits in each year of this restricted sample. The final column lists the permanent exit rate, as defined in the preceding paragraph, calculated as a share of individuals in poverty.

The results in Table 2.12 indicate that less than one-half of exits from poverty are permanent in the sense that they do not result in a return to poverty within a relatively short time frame. Probably the most striking finding is the uniformity of this result across countries and the two income measures. For the three countries with 8-year panels, among individuals exiting poverty in a given year, about 55% to 65% of individuals from working-age households and about 65% to 85% of individuals from retirement-age households will return to poverty within 3 to 6 years. The incidence of repeat spells is more limited in the Canadian panel, but this is largely due to this panel's shorter length. Thus, as the final column of the table indicates, the share of the poverty population whose income prospects improve significantly from one year to the next is quite low. For example, within the working-age population in each country, only 10% to 20% of the poverty population in each year leaves poverty without returning within the next 2 to 6 years.

The importance of repeat spells, as documented in Table 2.12, suggests that the burden of poverty is best understood by focusing on total time spent in poverty rather than consecutive years. The tabulations displayed in Table 2.13 illustrate this point by comparing poverty duration figures based on these alternative measures of duration, using the post-fisc income measure. In general, measuring poverty duration as total years per person rather than continuous spell lengths increases the average duration slightly for Canada but about a year for the three other countries, for which 8-year panels are available; this represents a substantial increase relative to a continuous-spell average of about 2 to 3 years. The final two columns of the table show that the share of poverty durations of 4 years or more is substantially higher when poverty duration is measured as total years per person rather than continuous spell lengths. The impact of repeat spells on total years would be even greater if a longer period were analysed.

Using the continuous spell measure of poverty, Table 2.14 provides information on how the burden of poverty is distributed across individuals in households with different degrees of employment attachment or different family structures. The sample is again restricted to individuals from working-age households, and post-fisc income is used. The characteristics are defined in the first year of the panel. The results indicate that the burden of poverty – as measured by average poverty rates, average time in poverty, and the share of total time spent in poverty – falls heavily on households with no worker and households with a single adult and children present. For example, the share of total time in poverty accounted for by households consisting of a single adult with children is about two to three times as great as that group's population share in each of the four countries. Some important variation is evident across countries, however. Compared to the other three countries, a much larger proportion of poverty time in the United States is accounted for by individuals from families with one of more workers at the start of the panel: 77.4% in the United States, versus 48.0% in Canada, 58.1% in Germany and 49.5% in the United Kingdom. This result suggests that poverty is a greater problem among working families in the United States, and that policies to lift the earnings prospects of low-paid workers may be more effective there than in Canada, Germany or the United Kingdom.

D. Econometric models of expected duration and permanent-income poverty

The preceding analyses have identified important relationships between household and individual characteristics and the expected duration and severity of poverty experiences. In addition, the results in Tables 2.12-2.13 indicated that due to the incidence of repeat poverty spells, poverty persistence is better represented by total time in

Table 2.12. **Repeat poverty spells and permanent exits:[a] Canada, Germany, the United Kingdom and the United States**

	A. Working-age population[b]			
	Number of observations	Yearly exits[c] (%)	Repeat spells[d] (%)	Yearly permanent exits[e] (%)
Canada, 1993-1998				
Post-fisc	5 597	34.8	43.8	19.6
Pre-fisc	9 879	24.2	39.2	14.7
Germany, 1990-1997				
Post-fisc	506	42.0	57.0	18.1
Pre-fisc	982	24.7	50.9	12.1
United Kingdom,[f] 1990-1997				
Post-fisc	2 603	33.3	55.9	14.7
Pre-fisc	2 629	34.2	66.6	11.4
United States, 1985-1992				
Post-fisc	2 528	29.8	52.8	14.1
Pre-fisc	2 251	29.6	59.6	12.0
	B. Retirement-age population[g]			
	Number of observations	Yearly exits[c] (%)	Repeat spells[d] (%)	Yearly permanent exits[e] (%)
Canada, 1993-1998				
Post-fisc	405	52.5	24.0	39.9
Pre-fisc	4 263	6.4	54.2	2.9
Germany, 1990-1997				
Post-fisc	154	40.6	64.9	14.3
Pre-fisc	1 766	7.0	83.8	1.1
United Kingdom,[f] 1990-1997				
Post-fisc	578	37.0	70.6	10.9
Pre-fisc	1 005	32.2	74.8	8.1
United States, 1985-1992				
Post-fisc	455	19.0	77.8	4.2
Pre-fisc	977	12.4	83.1	2.1

a) Figures tabulated based on first half-sample; see text for explanation.
b) Head of household 15 to 64 years of age (throughout the panel).
c) Calculated as a share of the population in poverty.
d) Calculated as a share of exits.
e) Exits not resulting in a repeat spell, calculated as a share of the population in poverty.
f) Data refer to Great Britain only.
g) Head of household 60 years or older (throughout the panel).
Source: Canada: SLID; Germany: GSOEP; United Kingdom: BHPS; United States: PSID.

poverty (including the incidence of permanent-income poverty) than by the more standard measure of continuous poverty duration. To further identify the relationships between key characteristics and the persistence of poverty, multivariate regression models are estimated. These analyses complement the short-panel regression analyses by providing information regarding how the modelled characteristics affect expected poverty duration over longer periods. The sample periods are the same as those used for the preceding long-panel analyses, which included eight-year panels for Germany, the United Kingdom, and the United States, and a six-year panel for Canada.

The models estimated are ordered logit models for total time in poverty, and bivariate logit models for the incidence of permanent-income poverty. Ordered models are used to estimate the relationship between a set of explanatory variables and an outcome variable whose values can be represented as a limited number of discrete integers. These integer categories represent the realised categorical outcomes for an unobserved continuous (latent) variable, with higher integer values corresponding to higher values of the latent variable. In the context of total years in poverty, the latent variable can be thought of as cumulative time in poverty, with the realised values corresponding to observed years in poverty. The dependent variable used here includes zero years in poverty as a separate category, thereby ranging in value from zero to eight (six for Canada). The estimated coefficients indicate the

Table 2.13. **Distribution of continuous spells and total time in poverty: Canada, Germany, the United Kingdom and the United States**

Post-fisc income

A. Working-age population[a]

	Average duration[b]	Share of total years in poverty for periods of:			
		1 year	2 to 3 years	4 to 6 years	7 to 8 years
Canada, 1993-1998					
Continuous spells[c]	2.6	22.1	28.5	49.5	–
Total time[d]	2.8	12.2	28.3	59.6	–
Germany, 1990-1997					
Continuous spells[c]	1.9	33.9	24.9	19.2	22.0
Total time[d]	2.8	14.6	27.1	29.6	28.7
United Kingdom,[e] 1990-1997					
Continuous spells[c]	2.3	21.4	31.6	22.4	24.5
Total time[d]	3.4	8.1	22.7	35.9	33.4
United States, 1985-1992					
Continuous spells[c]	2.5	18.7	26.4	24.8	30.1
Total time[d]	3.5	8.6	18.4	34.6	38.4

B. Retirement-age population[f]

	Average duration[b]	Share of total years in poverty for periods of:			
		1 year	2 to 3 years	4 to 6 years	7 to 8 years
Canada, 1993-1998					
Continuous spells[c]	1.8	39.5	30.5	30.0	–
Total time[d]	2.0	27.7	34.9	37.4	–
Germany, 1990-1997					
Continuous spells[c]	2.2	27.9	24.4	22.7	25.0
Total time[d]	3.3	9.2	19.5	37.3	34.0
United Kingdom,[e] 1990-1997					
Continuous spells[c]	2.2	23.2	28.9	28.6	19.3
Total time[d]	3.6	7.3	21.5	38.6	32.6
United States, 1985-1992					
Continuous spells[c]	2.9	15.4	15.0	20.8	48.8
Total time[d]	4.1	5.7	16.1	23.5	54.8

– Not applicable.
a) Head of household 15 to 64 years of age (throughout the panel).
b) Average number of years in poverty for those with poverty experience.
c) Poverty spell duration measured as consecutive years in poverty (individuals may have repeat spells).
d) Poverty duration measured as total years in poverty during the period.
e) Data refer to Great Britain only.
f) Head of household 60 years or older (throughout the panel).
Source: Canada: SLID; Germany: GSOEP; United Kingdom: BHPS; United States: PSID.

effects of the explanatory variables on the probability of observing an outcome in categories indexed by higher rather than lower integer values. Because zero years in poverty is included as a separate category, the estimated coefficients indicate the effects on poverty incidence and poverty duration. The estimated coefficients are then used to predict expected total years in poverty for individuals with different characteristics. The incidence of permanent-income poverty is modelled using a bivariate logit model similar to that used for the regression analyses of short-run poverty, and the estimated coefficients are used to fit probabilities of permanent-income poverty for individuals defined by specified combinations of characteristics. The explanatory variables are identical to those used in the regression analyses from the short-run panels: age of the individual and household head, the head's educational attainment, number of workers in the household, family structure, and country. Both models are estimated using maximum likelihood.[31]

Panels A-D of Table 2.15 list the regression results for Canada, Germany, the United Kingdom, and the United States, respectively. The results largely confirm those from the short-panel regression analyses of exit rates and the probabilities of permanent-income poverty and always-poor status, as displayed in Table 2.8. Individuals who are

Table 2.14. **Poverty rates and time in poverty by work and family characteristics**[a, b]

Working-age population,[c] post-fisc income

	Sample share	Annual poverty rate	Average time in poverty[d]	Share of total time in poverty[e]
Canada, 1993-1998	**100.0**	**10.6**	**2.9**	**100.0**
Work attachment				
No worker	14.5	38.6	3.8	51.9
One worker	41.2	8.6	2.5	33.2
Two workers or more	44.3	3.3	2.0	14.8
Family type				
Single adult, no children	5.6	20.1	3.9	10.2
Two adults, no children	19.2	5.0	2.3	9.3
Single adult, children	10.4	23.0	3.3	22.4
Two adults, children	60.8	9.2	2.8	52.9
Other	4.0	13.1	2.6	5.2
Germany, 1990-1997	**100.0**	**6.0**	**2.8**	**100.0**
Work attachment				
No worker	7.4	34.0	3.4	42.0
One worker	57.6	5.1	2.7	48.7
Two workers or more	35.0	1.6	1.6	9.4
Family type				
Single adult, no children	11.9	10.3	3.1	20.4
Two adults, no children	11.2	3.4	2.9	6.4
Single adult, children	9.7	18.3	3.3	29.6
Two adults, children	62.1	3.7	2.3	38.0
Other	5.1	6.7	2.4	5.7
United Kingdom,[f] 1990-1997	**100.0**	**12.9**	**3.4**	**100.0**
Work attachment				
No worker	13.7	47.1	4.8	50.5
One worker	42.2	11.4	2.8	37.1
Two workers or more	44.2	0.0	2.3	12.4
Family type				
Single adult, no children	4.1	12.4	3.4	4.0
Two adults, no children	15.7	5.3	2.9	5.9
Single adult, children	9.6	35.6	4.4	26.9
Two adults, children	68.6	11.6	3.2	62.0
Other	2.1	8.0	2.2	1.2
United States, 1985-1992	**100.0**	**14.5**	**3.5**	**100.0**
Work attachment				
No worker	6.4	54.5	5.4	24.6
One worker	48.8	16.2	3.5	54.4
Two workers or more	44.8	7.0	2.6	21.0
Family type				
Single adult, no children	9.5	13.7	3.1	8.9
Two adults, no children	12.3	6.5	3.1	5.3
Single adult, children	11.4	36.4	4.7	29.4
Two adults, children	65.5	12.4	3.3	55.4
Other	1.4	11.1	2.1	1.0

a) Characteristics defined at the beginning of the period.
b) Sample restricted to persons present in all waves.
c) Head of household 15 to 64 years of age (throughout the panel).
d) Average number of years for those with poverty experience.
e) Share of total time in poverty by individuals with the indicated characteristics; figures sum to 100% across work or family type categories.
f) Data refer to Great Britain only.
Source: Canada: SLID; Germany: GSOEP; United Kingdom: BHPS; United States: PSID.

children and are from families in which the head is young, has low educational attainment, is single, and in which there are few workers face more years in poverty and a greater probability of permanent-income poverty than do other individuals. The number of workers in the family has the most pronounced effect on the poverty outcomes listed. In contrast to the short-panel analyses, however, individuals in families headed by a single adult with children face significantly higher poverty risks than do individuals in two-parent families. Children face greater risks of poverty

Table 2.15*a*. **Estimated effects of individual and family characteristics on total time in poverty and the probability of permanent-income poverty: Canada, 1993-1998**[a]

Estimates from multivariate regressions

	Expected total time in poverty (years)[b]	Permanent-income poor (probability as percentage rate)[c]
Reference person[d]	0.5	6.3
Age of person (reference person = working age)		
Child (less than 18 years)	0.6**	6.6
Retirement age (older than 65 years)	0.5	6.3
Age of head (reference person = 31-50 years)		
Young adult (30 years or younger)	0.7***	7.6*
Older working age (51-65 years)	0.5	6.0
Retirement age (older than 65 years)	0.2***	3.0***
Education of head (reference person = medium)		
Low (less than upper secondary degree)	0.8***	11.1***
High (tertiary degree)	0.3***	4.1***
Number of workers in household (reference person = one)		
None	1.7***	30.3***
Two or more	0.3***	2.4***
Family structure (reference person = two adults with children)		
Single adult, no children	0.6*	6.8
Two adults, no children	0.3***	1.9***
Single adult with children	0.8***	8.1**
Other family types	0.7***	6.5
Extreme cases[e]		
Child in family with young single head	1.1***	10.1***
Child in family with young single head, head low education, no workers in family	3.5***	57.8***
Number of observations	20 431	20 431
Log likelihood	–16 326.8	–4 539.3

* , ** and *** denote differences from the reference person that are statistically significant at 10%, 5% and 1% levels respectively.

a) Characteristics measured in the first sample year.

b) Based on fitted probabilities from an ordered logit model of total years spent in poverty (0 to 6), estimated by maximum likelihood.

c) Fitted probabilities from a logit model estimated by maximum likelihood.

d) The reference person is a working-age adult living in a family with two adults and children. The household contains one worker and its head has a medium-level education and is between the ages of 31 and 50 years.

e) The extreme cases differ from the reference person by the characteristics indicated.

Source: SLID.

Table 2.15*b*. Estimated effects of individual and family characteristics on total time in poverty and the probability of permanent-income poverty: Germany, 1990-1997[a]

Estimates from multivariate regressions

	Expected total time in poverty (years)[b]	Permanent-income poor (probability as percentage rate)[c]
Reference person[d]	0.2	1.2
Age of person (reference person = working age)		
Child (less than 18 years)	0.2***	2.0
Retirement age (older than 65 years)	0.1*	1.5
Age of head (reference person = 31-50 years)		
Young adult (30 years or younger)	0.4***	2.3
Older working age (51-65 years)	0.1*	0.6
Retirement age (older than 65 years)	0.1*	0.4**
Education of head (reference person = medium)		
Low (less than upper secondary degree)	0.4***	3.4**
High (tertiary degree)	0.2***	0.4*
Number of workers in household (reference person = one)		
None	0.9***	6.5***
Two or more	0.1***	0.1
Family structure (reference person = two adults with children)		
Single adult, no children	0.2	1.9
Two adults, no children	0.1***	0.7
Single adult with children	0.4***	4.0***
Other family types	0.2	0.7
Extreme cases[e]		
Child in family with young single head	1.1***	11.8***
Child in family with young single head, head low education, no workers in family	4.7***	68.3***
Number of observations	5 490	5 490
Log likelihood	–3 736.3	–697.6

* , ** and *** denote differences from the reference person that are statistically significant at 10%, 5% and 1% levels respectively.

a) Characteristics measured in the first sample year.

b) Based on fitted probabilities from an ordered logit model of total years spent in poverty (0 to 8), estimated by maximum likelihood.

c) Fitted probabilities from a logit model estimated by maximum likelihood.

d) The reference person is a working-age adult living in a family with two adults and children. The household contains one worker and its head has a medium-level education and is between the ages of 31 and 50 years.

e) The extreme cases differ from the reference person by the characteristics indicated.

Source: GSOEP

Table 2.15*c*. **Estimated effects of individual and family characteristics on total time in poverty and the probability of permanent-income poverty: United Kingdom,[a] 1990-1997[b]**

Estimates from multivariate regressions

	Expected total time in poverty (years)[c]	Permanent-income poor (probability as percentage rate)[d]
Reference person[e]	0.7	4.9
Age of person (reference person = working age)		
Child (less than 18 years)	1.1***	7.5***
Retirement age (older than 65 years)	0.8	9.8**
Age of head (reference person = 31-50 years)		
Young adult (30 years or younger)	1.5***	11.1***
Older working age (51-65 years)	0.6**	2.7***
Retirement age (older than 65 years)	0.4***	1.5***
Number of workers in household (reference person = one)		
None	2.5***	35.4***
Two or more	0.3***	1.0***
Family structure (reference person = two adults with children)		
Single adult, no children	0.6*	4.8
Two adults, no children	0.3***	1.5***
Single adult with children	1.1***	5.4
Other family types	0.3***	0.8***
Extreme cases[f]		
Child in family with young single head	2.9***	17.7***
Child in family with young single head, no workers in family	5.6***	69.6***
Number of observations	8 127	8 127
Log likelihood	–8 695.2	–1 743.0

* , ** and *** denote differences from the reference person that are statistically significant at 10%, 5% and 1% levels respectively.

a) Data refer to Great Britain only.

b) Characteristics measured in the first sample year. Data include no information on the household head's educational attainment.

c) Based on fitted probabilities from an ordered logit model of total years spent in poverty (0 to 8), estimated by maximum likelihood.

d) Fitted probabilities from a logit model estimated by maximum likelihood.

e) The reference person is a working-age adult living in a family with two adults and children. The household contains one worker and its head is between the ages of 31 and 50 years.

f) The extreme cases differ from the reference person by the characteristics indicated.

Source: BHPS

Table 2.15*d*. Estimated effects of individual and family characteristics on total time in poverty and the probability of permanent-income poverty: United States, 1985-1992[a]

Estimates from multivariate regressions

	Expected total time in poverty (years)[b]	Permanent-income poor (probability as percentage rate)[c]
Reference person[d]	1.1	8.3
Age of person (reference person = working age)		
Child (less than 18 years)	1.5***	14.4***
Retirement age (older than 65 years)	1.2	8.8
Age of head (reference person = 31-50 years)		
Young adult (30 years or younger)	2.0***	16.6***
Older working age (51-65 years)	0.8***	6.3
Retirement age (older than 65 years)	0.7***	5.2
Education of head (reference person = medium)		
Low (less than upper secondary degree)	2.5***	25.5***
High (tertiary degree)	0.5***	2.7***
Number of workers in household (reference person = one)		
None	2.9***	32.9***
Two or more	0.6***	3.3***
Family structure (reference person = two adults with children)		
Single adult, no children	1.1	7.9
Two adults, no children	0.5***	2.9***
Single adult with children	1.8***	17.1***
Other family types	1.1	3.4*
Extreme cases[e]		
Child in family with young single head	3.5***	45.5***
Child in family with young single head, head low education, no workers in family	7.0***	94.5***
Number of observations	6 143	6 143
Log likelihood	–6 825.4	–1 561.7

* , ** and *** denote differences from the reference person that are statistically significant at 10%, 5% and 1% levels respectively.

a) Characteristics measured in the first sample year.

b) Based on fitted probabilities from an ordered logit model of total years spent in poverty (0 to 8), estimated by maximum likelihood.

c) Fitted probabilities from a logit model estimated by maximum likelihood.

d) The reference person is a working-age adult living in a family with two adults and children. The household contains one worker and its head has a medium-level education and is between the ages of 31 and 50 years.

e) The extreme cases differ from the reference person by the characteristics indicated.

Source: PSID.

in general in all four countries, although the effect is small in Canada and Germany. The table also lists poverty risks for individuals with combinations of characteristics that all increase the risk. The first extreme case – a child in a family with a young single head – combines adverse demographic characteristics, which leads to a substantial net increase in poverty risk. The inclusion of earnings-related characteristics in the final row – head's education and the number of workers in the household – is associated with especially large increases in poverty risks. In each of the four countries, an individual defined by the complete set of extreme (poverty-inducing) characteristics is very likely to spend more than half of the sample period in poverty and faces a risk of permanent-income poverty that is greater than 50%. In the United States, such an individual is likely to spend 7 of the 8 sample years in poverty and almost certainly face a long-term living standard that is below the poverty threshold on average.

Conclusions

The chapter's analysis of poverty dynamics suggests an overall paradox that has important implications for policy making: poverty is both fluid and characterised by long-term traps. Most poverty spells are short and many short spells appear to represent transitory set-backs for persons with adequate income over the longer-term. However, the typical year spent in poverty is lived by persons who experience multiple years of poverty – often as a consequence of repeat spells – and whose long-term incomes are less than one-half the national median value. While relatively few persons are continuously poor for an extended period of time, many of those observed in poverty in a given year are permanent-income poor. Although the two faces of poverty are evident in all of the countries analysed, countries with higher poverty rates as conventionally measured (*i.e.* with respect to annual incomes), are also characterised by greater poverty persistence. Anti-poverty programmes need to reflect this fundamental heterogeneity within the poverty population, while also taking account of differences in national starting points.

Family structure, job status and other individual characteristics are clearly related to the risks of falling into and remaining in poverty. These relationships can inform policy design, but it is important to distinguish between *transitions* in labour market and demographic status that are associated with poverty transitions, and enduring labour market and demographic *states* that are associated with persistent poverty. For example, although job loss and gain appear to be associated with many poverty transitions, female headship and low education appear to be more strongly associated with persistent poverty. A complicating factor is that countries differ significantly in the extent to which poverty – especially persistent poverty – is concentrated on these "high-risk" groups, due to variations in both the strength of the association between these characteristics and poverty risks and the sizes of these groups relative to the total population. One important lesson that emerges is that household types with above-average poverty rates can nonetheless constitute a small share of the population of concern for anti-poverty programmes. For example, persons living in female-headed and single-parent households are everywhere a minority of the poverty population, despite facing elevated risks. Consequently, in targeting anti-poverty measures it is important not to focus exclusively on "high-risk" populations. Households with a male head and those with one or more workers do not show up among the high-risk groups, yet they account for the majority of the permanent-income poor population in EU member states, Canada and the United States.

The empirical analyses show that changes in employment status are associated with many poverty transitions and that the extent to which the working-age poor – including the permanent-income poor – work is considerably increased when intermittent work over a multi-year period is taken into account. This is in line with the general thrust of employment-oriented social policy, but also suggests that these policies should not be limited to the objective of placing poor adults into jobs. Many of the poor hold low-paid jobs or cycle between short-lived jobs and non-employment, rather than being continuously excluded from the labour market. Accordingly, an effective employment-oriented social policy should also pursue the objects of insuring income adequacy among working households, improving employment retention among poverty exiters, and helping low-paid workers to move up job ladders. As regards income adequacy, the empirical analysis confirms the finding of earlier studies that a more extensive welfare state, as well as directing a greater share of social spending to low-income households, reduces poverty in a single year, but extend that finding with evidence that these types of public transfers also t end to decrease poverty persistence. When these transfer payments take the form of in-work benefits, they can also reinforce incentives for increased employment. Much less is known about how to improve employment retention or minimise low-pay traps [Freedman (2000)]. Measures targeted directly at low-income individuals in low-paid or precarious jobs, such as access to training, clearly deserve attention, but indirect measures encouraging high levels of labour demand and better paying jobs may also make an important contribution to an overall strategy to ameliorate poverty.

NOTES

1. This approach is standard in the research literature [see Oxley *et al.* (2000) and the sources cited there]. Studying poverty dynamics at the level of individuals has two advantages. The first advantage is normative: when assessing the extent of poverty, larger families receive greater weight than smaller families. The second advantage is analytical: the poverty status of individuals can be traced over time, whereas it is often unclear how to define changes over time in the poverty status of family units when family structure changes (*e.g.* through marriage or divorce).
2. This scale was introduced by Hagenaars *et al.* (1994) and allocates a weight of 1.0 to the first adult in the household, a weight of 0.5 to all additional household members aged 14 years and over, and a weight of 0.3 to all children under the age of 14 years.
3. Household equivalised income has several potentially important limitations as an estimate of potential consumption. First, it implicitly assumes that household resources are shared equally among all members of the household. Second, no account is taken of consumption not requiring market purchases, such as publicly funded consumption (*e.g.* health care or educational services available free of charge to all citizens) or consumption based on transfers made within extended families.
4. Two limitations of the permanent-income poverty measure should be noted. First, families may not always be able to insulate current consumption levels from temporarily low incomes, even if income averaged over multiple years appears to be adequate. Second, the empirical analysis in this chapter uses simple averages of income over 3- to 8-year periods to estimate permanent income. A fuller analysis would adopt a longer time horizon, incorporate time discounting and differentiate between predictable and unpredictable changes in income.
5. Using a long panel from the United States, Stevens (1999) found that many individuals who exit poverty undergo repeat spells within a relatively short time frame.
6. For example, Oxley *et al.* (2000) analysed data for only six, relatively high-income OECD countries: Canada, Germany, the Netherlands, Sweden, the United Kingdom and the United States.
7. Austria joined the ECHP in the second wave and Finland in the third wave. Sweden does not participate in the ECHP.
8. The underlying surveys are the Survey on Labour and Income Dynamics (SLID) for Canada, the German Socio-Economic Panel (GSEOP) for Germany, the British Household Panel Survey (BHPS) for the United Kingdom, and the Panel Study of Income Dynamics (PSID) for the United States. For these files, the CNEF staff have analysed and recoded key variables to provide consistent definitions across the surveys. Observations corresponding to the low-income oversample for the United States and the foreign oversample for Germany were excluded from the analyses presented here. Note that the BHPS data do not include Northern Ireland and that country references to the United Kingdom in Section III of this chapter should be understood as referring to data for Great Britain only.
9. This will be the case if attrition affects the short-term poor about as strongly as the persistently poor. *A priori*, it is not clear which group would be the most difficult to track. The former are undergoing important changes in their economic status, which may be associated with events such as marriage and migration that reduce the probability of successful re-interview. However, the latter will tend to be under greater economic stress, which may interfere with continuing survey participation.
10. Among the ECHP countries, underreporting of incomes appears to be greater in several southern countries. For this and additional reasons, Eurostat (2000*b*) cautions against making international comparisons of income levels estimated from the ECHP.
11. Although the American data are available through income year 1996, the data for income years 1993-1996 are based on the PSID early-release files. These require more pre-analysis and cleaning than the final-release PSID files. In addition, the PSID switched to telephone and computer-aided survey techniques beginning in survey year 1993 (income year 1992), which may have affected the pattern of income reporting. Examination of the PSID data revealed that the variance of income and measured poverty rates increased sharply beginning in the first year of the early-release files (income year 1993), which suggests lack of panel comparability across the final-release and early-release files.
12. In all of the sample countries, business-cycle conditions are roughly similar during the periods considered, corresponding to an economic expansion.
13. See Sen (1976) for discussion. Letting H = the headcount (percentage of the population in poverty), I = the percentage average poverty income gap, and G = the Gini coefficient for incomes of the poor, the Sen index P is:
$P = H[I + (1 – I)G]$.
14. Without this normalisation, the units of measurement of the partial and full Sen indices would not be comparable to that of the headcount poverty rate.
15. The ECHP averages are calculated as population-weighted averages of the individual country figures.
16. More precisely, the "permanent-income poverty" rate is defined as the share of individuals whose average income in the three years is below the average of the poverty thresholds

in the three years. In more formal terms, such a measure also would account for the extent of inflation during the sample period; however, auxiliary tabulations verified that in practice accounting for inflation has only a small impact on measured permanent-income poverty. Also, the permanent-income approach to consumption and well-being accounts for discounting based on interest rates, under the assumption that capital markets enable unconstrained borrowing and lending by households. This assumption may be problematic for households at risk of poverty.

17. Eurostat has adopted 60% of median equivalent disposable income as its primary poverty threshold.

18. There is a slight imprecision here in speaking of "spell durations", since some of the persons with two years of poverty may have had two one-year spells during the three-year period (*i.e.* in the first and third years). Furthermore, completed spell lengths are underestimated because no adjustment is made for either left or right truncation bias.

19. For simplicity, household characteristics are measured at the start of the period (*i.e.* 1993 for the ECHP countries and Canada and 1987 for the United States). Some of these characteristics can change over the course of the three-year period, as is emphasised in the next subsection, which analyses the links between changes in family- and job-related characteristics and changes in poverty status.

20. These two groups do, however, account for over 40% of the always poor in the United States. There is, of course, considerable overlap between the two groups.

21. There is considerable variation among the ECHP countries in the overlap between employment and poverty. In five of these countries (Belgium, Denmark, France, Ireland and the United Kingdom), a majority of the permanent-income poor are members of households in which no adult worked for a major part of 1993.

22. The sharp differences between the figures tabulated using the ECHP and those for Canada and the United States, using the CNEF, may be due in part to differences in survey design. For example, the ECHP may not track families that split as closely as the PSID and SLID. Auxiliary tabulations indicated similar overall rates of family structure change in the ECHP and CNEF samples for countries present in both samples (Germany and the United Kingdom), although the CNEF shows more family structure changes associated with poverty transitions for those countries.

23. It is possible that this difference is due – at least in part – to differences between the ECHP and the PSID and SLID in the survey questions used to estimate annual months worked. Employment tabulations from the ECHP are based on information concerning months spent on different activities, whereas employment tabulations from the PSID and SLID are based on a variable measuring hours worked.

24. The motivation for identifying relevant macro factors is not simply that of correct model specification in the econometric analysis of the micro-data. It is also possible that indirect policies, such as enhancing the overall employment rate in a country, might be an important component of a comprehensive anti-poverty strategy.

25. The independent variables are measured as indicator ("dummy") variables that take the value 0 or 1. Although other functional forms (most notably the probit) also are commonly used to estimate such models, the estimation results for dependent variables with expected values that do not lie close to 0 or 1 (such as those here) are relatively insensitive to functional form. Maddala (1983), Chapter 2, discusses estimation of logit and related models.

26. The above-average poverty rates of single-parent families in Chart 2.4 appear to result from their typically lower employment.

27. Tabulations from the United States Current Population Survey Annual Demographic Supplement indicate that the United States poverty rate was about three-fourths of a point to a point higher on average during income years 1993-97 than it was during income years 1985-89. See Dalaker (1999) for official US Census Bureau tabulations, or Daly and Valletta (2000).

28. For the longer panels, working-age households are defined as those where the head is under 65 and retirement-age households as those where the head is 60 or older. Because these age restrictions are imposed *throughout* the sample frame, some observations do not appear in either sub-sample. The age cut-offs were chosen to distinguish between the two sub-samples as clearly as possible while maintaining reasonable behavioural assumptions.

29. Except for the annual poverty rate, which is calculated based on individuals present in the eight separate cross-section samples, these calculations are restricted to individuals present in all eight waves of the panels. Due to sample attrition, the annual poverty rates are lower when the sample is restricted to individuals present in all waves, with the difference being especially large for Germany (see the results in the second column of Table 2.14). For Germany and the United States, the annual poverty rates reported here are close to those reported in Oxley *et al*. (2000), based on a similar sample period. However, the annual poverty rate for the United Kingdom reported in Oxley *et al.* is higher than that reported here. This difference may arise in part because the income data for the United Kingdom used by Oxley *et al*. did not account for tax payments, whereas the data for the United Kingdom used here account for direct taxes based on the methodology described in Bardasi *et al*. (1999).

30. Repeat spells become more likely as the sampling window lengthens. Note that restricting the sample to exits occurring in the first three years means that the exit rates reported in column 2 of Table 2.12 differ slightly from those in Table 2.10.

31. Greene (1997, Chapter 19) describes estimation of the ordered logit model. A probit specification also could be used, but the results are unlikely to be sensitive to this choice.

Annex 2.A

External validation of poverty estimates from the ECHP data

Section I.C noted a number of potentially serious data quality problems that could bias the chapter's analysis of poverty dynamics. Several of these issues are assessed here through comparison of annual poverty rates estimated using the ECHP data and estimates derived from other data sources. Eurostat has sponsored external validation studies of the ECHP which find that annual poverty rates calculated from the second wave are reasonably similar to estimates calculated using the poverty definition and data source preferred by national statistical authorities, in four of the five countries for which data were available [CBS (1999, 2000)]. Table 2.A.1 presents additional comparisons along these lines, which are based on a relatively consistent poverty definition and which shed light on the extent of attrition bias that results from analysing persons in all three waves of the ECHP.

Comparison of the first two columns of Table 2.A.1 provides evidence that attrition is a significant problem in the ECHP. Annual poverty rates calculated using the three waves as independent cross-sectional samples are higher in most of the countries than those calculated for persons in all three waves. Attrition bias appears to be largest in the United Kingdom, where annual poverty calculated for the longitudinal sample is 2.6 percentage points lower than the cross-sectional estimate. The United Kingdom is also the country with the highest sample attrition rates, especially between the first and second waves. Disproportionate attrition among the poverty population appears to be less pronounced in the other ECHP countries and completely absent in Greece and Portugal. As noted in the text, annual poverty rates reported in the body of the chapter are always calculated using each wave of the panel as an independent cross-sectional sample so as to avoid attrition bias. The multi-year measures of poverty dynamics are necessarily estimated using longitudinal samples. However, they need not be affected by attrition bias in the same way as are estimates of annual poverty since what matters here are differences in attrition rates between persons experiencing poverty. When CNEF data for Germany and the United Kingdom are used to calculate estimates of three-year poverty dynamics analogous to the ECHP estimates reported in Section II, the estimates differ somewhat, but most qualitative patterns remain (*e.g.* the United Kingdom still has below-average poverty persistence compared with other countries having a similar level of annual poverty).

Columns 3 and 4 of Table 2.A.1 report cross-sectional annual poverty rates from two alternative data sources, namely, the OECD questionnaire on distribution of income [Förster (2000)] and the Luxembourg Income Study (LIS) [Smeeding *et al*. (2000)]. The main value of these comparisons is to gauge the reliability of the net household income variable in the ECHP relative to that available in alternative data sources that have been more extensively evaluated

Table 2.A.1. **Alternative annual poverty rate estimates for the ECHP country sample**[a]

	ECHP data for 1993-1995[b]		Alternative data sources	
	Separate cross-sectional sample for each year	Persons in all three waves	OECD questionnaire on distribution of household incomes[c]	Luxembourg Income Study (LIS)[d]
Belgium	9.8	8.5	7.8	5.5
Denmark	4.7	4.1	5.0	7.1
France	9.6	9.0	7.5	7.4
Germany	12.1	11.1	9.4	7.5
Greece	14.5	15.0	13.9	. .
Ireland	8.2	7.6	11.0	. .
Italy	13.5	12.7	14.2	13.9
Luxembourg	7.8	6.9	. .	3.9
Netherlands	7.8	6.4	6.3	7.9
Portugal	15.3	15.4	. .	. .
Spain	12.0	11.5	. .	10.4
United Kingdom	12.1	9.5	10.9	13.2

ECHP: European Community Household Panel.
a) Poverty rates defined as per cent of persons having equivalised household income below 50% of the median value.
b) Separate poverty rates were calculated for each year and then averaged.
c) Values for either 1994 or 1995.
d) Value for a single year in the 1990s.
Source: ECHP, waves 1994, 1995 and 1996; Förster (2000), Table 5.1; Smeeding *et al*. (2000), Table A-1.

or contain larger samples. It should be noted, however, that only in the LIS does the definition of net household income include near-cash, public benefits, and the methods used to estimate direct taxes paid by households differ considerably across the three data sources. The poverty rate estimates based on the two alternative sources differ somewhat, both with respect to each other and with respect to estimates based on ECHP data. However, there does not appear to be any uniform bias in ECHP poverty rates, since they can be higher or lower than those from the other two sources. Furthermore, the overall ranking of countries is quite consistent across the different data sources.

Several implications follow for the chapter's analysis of poverty dynamics. First, estimates of the level of annual poverty are quite sensitive to the choice of data source and the precise definition and methods used to measure net household income. (This sensitivity is greatly magnified if a common, absolute poverty line is used in all countries.) Second, the larger cross-country differences in poverty rates calculated using the ECHP appear, nonetheless, to be qualitatively informative. Finally, very little can be said about whether ECHP data accurately reflect poverty dynamics, conditional on having experienced poverty. Evaluation of the quality of these estimates remains as an important topic for future research.

Annex 2.B

Robustness of poverty estimates across alternative equivalence scales and income thresholds

Table 2.B.1 presents tabulations for six key measures of poverty incidence and persistence, using four alternative definitions of poverty. The first column presents estimates using the chapter's base-case definition. Columns 2-4 present estimates calculated using different equivalence scales and income thresholds. These results are useful for assessing the robustness of the empirical results in Sections II-III. Using the square-root equivalence scale to adjust for family size, as has been done in several recent OECD studies [Förster (2000); Oxley *et al.* (1999, 2000)], produces estimates that are very close to those obtained using the modified OECD equivalence scale. By contrast, varying the poverty threshold substantially alters the level of poverty, since setting a higher income threshold causes more persons to fall below it. Poverty persistence also tends to increase with the poverty threshold. Nonetheless, the qualitative results that have been emphasised in the chapter's analysis prove quite robust to variations in the poverty threshold. When the poverty measures in Table 2.B.1 are correlated across two different thresholds, the average correlation is nearly 0.95 and almost all of the correlations exceed 0.90. In other words, international comparisons of relative poverty incidence or persistence are little affected by these variations in how poverty is defined. The profile of persons most at risk of poverty is similarly robust.

Table 2.B.1. **Robustness of poverty estimates across different equivalence scales and income thresholds, 1993-1995**

		50% median income, OECD equivalence scale	50% median income, square root equivalence scale	40% median income, OECD equivalence scale	60% median income, OECD equivalence scale
		(1)	(2)	(3)	(4)
Belgium	Annual poverty rate	9.8	9.0	5.1	15.8
	Poor at least once	16.0	14.9	9.1	23.5
	Always poor	2.8	2.5	1.1	5.8
	Permanent poor	5.2	5.0	2.0	10.6
	Entry rate	4.7	4.3	2.8	6.9
	Exit rate	48.2	49.5	56.8	40.8
Denmark	Annual poverty rate	4.7	4.7	2.4	9.1
	Poor at least once	9.1	9.2	4.7	15.9
	Always poor	0.8	0.7	0.1	2.6
	Permanent poor	1.8	2.1	0.9	5.4
	Entry rate	3.1	3.1	1.7	5.3
	Exit rate	60.4	64.4	72.8	46.5
France	Annual poverty rate	9.6	8.6	4.9	16.4
	Poor at least once	16.6	15.1	9.4	25.7
	Always poor	3.0	2.5	0.8	7.3
	Permanent poor	6.6	5.5	2.3	12.8
	Entry rate	4.6	4.2	2.6	6.7
	Exit rate	46.9	49.9	62.8	35.8
Germany	Annual poverty rate	12.1	11.6	7.8	17.2
	Poor at least once	19.2	18.4	12.9	26.1
	Always poor	4.3	4.0	2.2	7.1
	Permanent poor	8.1	7.7	4.2	13.0
	Entry rate	5.1	4.8	3.5	7.0
	Exit rate	41.1	42.0	47.1	35.4
Greece	Annual poverty rate	14.5	14.0	10.3	20.6
	Poor at least once	25.1	24.3	18.7	33.2
	Always poor	6.5	5.9	4.0	10.7
	Permanent poor	12.2	11.2	7.6	18.5
	Entry rate	6.5	6.1	4.5	8.7
	Exit rate	38.8	41.5	42.8	33.4
Ireland	Annual poverty rate	8.2	8.4	3.9	18.5
	Poor at least once	15.3	15.9	7.2	29.8
	Always poor	1.3	2.0	0.3	7.8
	Permanent poor	5.3	5.3	1.7	15.9
	Entry rate	5.0	4.4	2.6	7.7
	Exit rate	54.6	50.7	55.6	37.9
Italy	Annual poverty rate	13.5	11.7	8.6	20.6
	Poor at least once	21.5	18.9	14.6	30.9
	Always poor	5.6	4.3	2.8	10.3
	Permanent poor	10.4	8.0	5.5	17.0
	Entry rate	5.3	4.6	3.5	7.4
	Exit rate	40.6	44.3	49.2	34.1
Luxembourg	Annual poverty rate	7.8	8.0	3.7	15.6
	Poor at least once	12.7	12.9	6.4	22.9
	Always poor	2.2	2.9	0.9	7.2
	Permanent poor	5.1	4.9	1.6	12.4
	Entry rate	3.6	3.4	2.0	5.3
	Exit rate	47.4	45.2	54.7	34.2
Netherlands	Annual poverty rate	7.8	7.5	4.7	13.0
	Poor at least once	12.9	12.1	8.1	20.1
	Always poor	1.6	1.6	0.7	4.3
	Permanent poor	4.5	4.4	1.7	9.3
	Entry rate	4.2	3.8	2.7	5.8
	Exit rate	55.7	53.7	59.7	44.1

Table 2.B.1. **Robustness of poverty estimates across different equivalence scales and income thresholds, 1993-1995** *(cont.)*

		50% median income, OECD equivalence scale	50% median income, square root equivalence scale	40% median income, OECD equivalence scale	60% median income, OECD equivalence scale
		(1)	(2)	(3)	(4)
Portugal	Annual poverty rate	15.3	15.6	10.0	21.6
	Poor at least once	24.2	23.7	17.2	32.1
	Always poor	7.8	8.3	3.8	12.4
	Permanent poor	13.4	13.7	7.4	19.7
	Entry rate	5.4	4.9	3.9	7.5
	Exit rate	37.0	33.5	47.0	30.0
Spain	Annual poverty rate	12.0	11.4	7.5	19.2
	Poor at least once	21.3	20.6	14.2	31.0
	Always poor	3.7	3.5	1.9	8.3
	Permanent poor	8.7	7.8	4.4	15.7
	Entry rate	5.9	5.7	4.1	8.3
	Exit rate	49.6	51.1	56.0	39.7
United Kingdom	Annual poverty rate	12.1	12.2	5.9	19.4
	Poor at least once	19.5	19.4	10.9	28.2
	Always poor	2.4	2.7	0.5	6.3
	Permanent poor	6.5	6.7	1.8	13.1
	Entry rate	6.0	5.7	3.4	8.1
	Exit rate	58.8	56.0	74.1	43.6
ECHP average	Annual poverty rate	11.7	11.0	6.9	18.1
	Poor at least once	19.2	18.1	12.2	27.7
	Always poor	3.8	3.5	1.7	7.7
	Permanent poor	7.9	7.2	3.7	14.0
	Entry rate	5.2	4.9	3.3	7.3
	Exit rate	46.0	47.2	54.4	37.4
Canada	Annual poverty rate	10.9	11.8	6.1	17.1
	Poor at least once	18.1	19.1	11.7	25.6
	Always poor	5.1	5.5	2.1	9.5
	Permanent poor	8.9	9.7	4.6	15.2
	Entry rate	4.8	5.0	3.5	6.3
	Exit rate	36.4	35.2	46.1	28.2
United States	Annual poverty rate	16.0	16.5	10.4	22.2
	Poor at least once	23.5	23.8	16.5	30.4
	Always poor	9.5	10.0	5.4	14.3
	Permanent poor	14.5	14.9	8.8	21.2
	Entry rate	4.5	4.6	3.7	6.1
	Exit rate	29.5	27.8	35.1	23.2

ECHP: European Community Household Panel.
Source: See Table 2.1.

Annex 2.C

Characteristics of the non-poor, 1-year poor and 3-year poor: detailed table

Table 2.C.1 provides detailed information on the demographic characteristics, work attachment and educational attainment of persons never poor, poor one year, permanent-income poor, and poor three years during 1993-1995.

Table 2.C.1. Characteristics of the non-poor, shorter-term poor and longer-term poor, 1993-1995

Household characteristics[a]		Belgium					Denmark					France				
		Total population	Non-poor	Poor at least once	Permanent-income poor	Always poor	Total population	Non-poor	Poor at least once	Permanent-income poor	Always poor	Total population	Non-poor	Poor at least once	Permanent-income poor	Always poor
Head gender	Man	85.1	86.6	77.5	74.8	69.2	87.6	88.4	79.2	69.3	(67.8)	86.6	87.8	80.1	76.6	75.8
	Woman	14.9	13.4	22.5	25.2	30.8	12.4	11.6	20.8	30.7	(32.2)	13.4	12.2	19.9	23.4	24.2
Head age	Less than 30 years old	10.5	10.5	10.7	10.9	(9.9)	14.2	13.4	22.8	(31.8)	(28.7)	13.5	12.5	18.4	19.1	15.1
	31 to 50 years old	56.0	57.5	47.9	41.4	43.6	55.5	57.1	40.4	35.7	–	54.9	56.6	45.8	45.6	45.9
	51 to 65 years old	19.2	18.9	20.6	20.4	(15.8)	17.2	17.5	13.4	[32.5]	–	18.6	18.2	20.7	21.0	19.9
	Above 65 years old	14.3	13.0	20.7	27.4	30.6	13.1	12.0	23.4		(26.2)	13.0	12.6	15.0	14.4	19.1
Work attachment[b]	No worker	27.9	22.6	56.2	67.6	76.5	21.6	18.8	49.4	72.4	86.1	24.4	19.5	49.1	62.1	63.9
	One worker	33.2	33.3	32.8	28.2	17.9	30.2	30.1	31.2	(20.3)	–	38.6	38.3	39.8	33.4	33.7
	Two workers	36.8	41.6	[11.0]	–	–	42.6	45.4	14.8	–	–	34.9	39.8	10.0	3.5	–
	More than two workers	2.1	2.4		–	–	5.6	5.7	(4.6)	–	–	2.2	2.5	(1.1)	(1.1)	–
Family type	Single adult, no children	11.5	11.0	14.0	19.9	23.7	15.3	13.6	32.3	47.8	(48.8)	10.3	9.4	14.8	17.1	16.9
	Two adults, no children	19.9	19.7	21.0	22.0	19.7	26.3	26.6	23.5	(12.5)	–	20.2	20.7	17.5	13.6	15.7
	Single adult, children	8.1	7.5	11.5	(7.6)	(7.2)	5.4	5.5	(4.1)	–	–	6.8	6.1	10.1	12.5	13.6
	Two adults, children	56.8	57.9	50.8	[50.6]	[49.4]	51.5	52.8	39.4	37.4	(42.4)	58.5	59.6	52.8	52.0	47.5
	Other households	3.7	3.9	(2.7)			1.4	1.5	–	–	–	4.3	4.2	4.9	4.8	6.4
Education level[c] *of head*	Low	35.9	33.3	50.7	62.4	64.7	25.7	24.3	40.5	50.0	(73.6)	39.8	36.1	59.4	71.9	72.8
	Middle	32.4	32.6	31.6	27.2	25.1	39.4	39.6	37.7	33.6	–	40.2	41.9	31.0	21.9	21.9
	High	85.1	86.6	77.5	74.8	69.2	34.9	36.2	21.7	(16.4)	–	20.0	21.9	9.6	6.1	(5.3)

Household characteristics[a]		Germany					Greece					Ireland				
		Total population	Non-poor	Poor at least once	Permanent-income poor	Always poor	Total population	Non-poor	Poor at least once	Permanent-income poor	Always poor	Total population	Non-poor	Poor at least once	Permanent-income poor	Always poor
Head gender	Man	86.2	87.9	79.1	80.6	84.2	90.6	91.5	88.1	85.8	81.6	85.9	86.7	81.5	80.4	70.6
	Woman	13.8	12.1	20.9	19.4	15.8	9.4	8.5	11.9	14.2	18.4	14.1	13.3	18.5	19.6	(29.4)
Head age	Less than 30 years old	12.2	11.0	17.3	14.2	13.2	9.8	10.2	8.6	6.3	4.0	15.0	14.7	16.1	17.4	(12.4)
	31 to 50 years old	48.8	49.2	46.9	53.5	53.6	51.8	55.3	41.5	35.5	26.3	56.6	55.2	64.4	64.2	61.6
	51 to 65 years old	25.8	26.5	22.9	20.4	19.8	25.8	25.3	27.4	26.6	27.5	18.2	19.1	13.1	11.6	(11.0)
	Above 65 years old	13.2	13.3	12.9	11.8	13.4	12.6	9.3	22.5	31.6	42.3	10.2	11.0	6.3	6.9	(15.0)
Work attachment[b]	No worker	24.0	20.1	40.7	37.1	39.0	18.5	14.1	31.7	39.9	52.4	28.4	22.8	59.1	55.9	81.1
	One worker	39.2	40.1	35.5	36.9	31.2	51.9	50.5	56.1	53.4	43.2	44.5	46.2	35.0	40.8	(18.9)
	Two workers	31.8	34.4	20.8	22.3	26.6	25.8	30.8	10.7	5.6	[4.4]	21.4	24.5	4.3	–	–
	More than two workers	5.0	5.5	3.0	3.7	(3.2)	3.8	4.6	1.6	(1.0)		5.7	6.5	1.5	–	–
Family type	Single adult, no children	13.8	13.4	15.6	12.8	11.6	5.4	4.6	8.1	10.9	15.8	6.5	7.0	3.5	(3.9)	–
	Two adults, no children	24.3	25.9	17.4	14.9	16.5	14.8	12.7	21.0	24.9	31.5	7.6	8.3	3.8	(5.0)	–
	Single adult, children	5.1	3.8	10.5	10.0	(7.0)	4.8	5.0	4.1	4.0	(3.1)	9.2	8.2	15.0	9.6	(23.3)
	Two adults, children	52.1	52.5	50.7	56.0	61.1	58.1	61.8	47.0	40.2	29.3	67.0	66.2	71.5	70.8	62.1
	Other households	4.8	4.5	6.0	6.3	(3.8)	16.9	15.9	19.8	20.0	20.4	9.7	10.3	6.2	10.8	–
Education level[c] *of head*	Low	22.7	21.5	27.6	23.9	22.3	58.2	50.2	82.3	91.7	96.2	54.6	52.3	67.9	62.3	83.4
	Middle	48.3	48.2	48.7	49.0	44.9	23.6	27.2	12.8	6.6	2.7	31.4	31.8	28.7	35.4	–
	High	29.1	30.3	23.7	27.2	32.8	18.2	22.6	4.8	(1.6)	(1.1)	14.1	15.9	3.4	(2.3)	–

Household characteristics[a]		Italy					Luxembourg					Netherlands				
		Total population	Non-poor	Poor at least once	Permanent-income poor	Always poor	Total population	Non-poor	Poor at least once	Permanent-income poor	Always poor	Total population	Non-poor	Poor at least once	Permanent-income poor	Always poor
Head gender	Man	87.7	88.3	85.7	88.0	88.3	89.4	90.4	81.9	78.7	76.2	87.2	89.0	75.2	70.2	75.4
	Woman	12.3	11.7	14.3	12.0	11.7	10.6	9.6	18.1	21.3	(23.8)	12.8	11.0	24.8	29.8	(24.6)
Head age	Less than 30 years old	10.2	9.9	11.2	10.2	12.7	12.3	11.9	15.5	(16.8)	–	13.2	11.7	23.5	27.2	29.0
	31 to 50 years old	50.6	51.3	48.1	51.1	50.6	55.9	55.1	61.7	53.7	61.4	55.8	56.9	48.6	46.4	44.0
	51 to 65 years old	26.0	25.4	28.4	29.0	28.1	20.5	21.3	14.8	(15.6)	–	17.7	17.6	18.2	20.1	[27.0]
	Above 65 years old	13.2	13.5	12.3	9.7	8.6	11.3	11.8	(8.0)	(13.9)	–	13.2	13.7	9.7	(6.3)	
Work attachment[b]	No worker	20.7	18.0	30.9	31.1	33.2	18.8	17.7	26.6	41.4	(47.6)	..	..	..	..	..
	One worker	43.1	39.9	54.5	57.5	58.0	45.4	44.0	54.5	46.2	52.4	..	..	..	..	..
	Two workers	29.9	34.8	12.1	10.7	7.9	30.4	32.2	[18.8]	–	–	..	..	..	..	..
	More than two workers	6.3	7.3	2.6	(0.8)	(0.9)	5.5	6.1		–	–	..	..	..	..	..
Family type	Single adult, no children	6.8	6.7	7.1	4.7	(3.6)	9.4	9.5	(8.7)	–	–	13.1	12.6	16.8	20.7	(26.9)
	Two adults, no children	14.3	16.0	7.8	4.8	3.6	19.8	20.7	13.5	(19.9)	–	26.3	28.1	13.2	6.4	(7.0)
	Single adult, children	6.0	6.1	5.5	5.7	7.3	4.9	4.5	(8.1)	–	–	5.1	4.2	11.8	14.2	–
	Two adults, children	60.0	58.6	64.9	71.7	73.4	51.6	51.1	55.7	57.7	56.4	54.8	54.6	56.1	54.4	57.0
	Other households	13.0	12.5	14.7	13.1	12.1	14.2	14.3	14.0	(10.9)	–	0.7	0.5	(2.1)	(4.3)	–
Education level[c] *of head*	Low	60.1	55.3	78.7	84.7	86.5	51.7	49.5	66.9	64.0	52.3	18.4	17.0	28.0	31.7	24.7
	Middle	30.9	34.4	17.7	12.1	10.9	29.4	30.7	20.4	27.5	[47.7]	60.5	59.9	64.4	63.8	[75.3]
	High	8.9	10.3	3.7	3.2	(2.6)	18.9	19.8	12.8	(8.5)		21.1	23.0	7.6	(4.5)	

Table 2.C.1. **Characteristics of the non-poor, shorter-term poor and longer-term poor, 1993-1995** *(cont.)*

		Portugal					Spain					United Kingdom				
		Total population	Non-poor	Poor at least once	Permanent-income poor	Always poor	Total population	Non-poor	Poor at least once	Permanent-income poor	Always poor	Total population	Non-poor	Poor at least once	Permanent-income poor	Always poor
Head gender	Man	88.2	90.0	82.5	81.5	81.0	87.9	88.0	87.3	87.9	83.6	84.9	88.0	72.5	66.9	62.7
	Woman	11.8	10.0	17.5	18.5	19.0	12.1	12.0	12.7	12.1	16.4	15.1	12.0	27.5	33.1	37.3
Head age	Less than 30 years old	10.0	10.7	7.8	4.5	3.6	13.1	12.6	14.8	12.0	13.6	15.2	14.1	19.9	22.8	16.9
	31 to 50 years old	52.8	54.6	47.4	48.5	47.5	51.1	50.7	52.5	58.1	55.1	51.5	52.9	45.7	45.4	46.6
	51 to 65 years old	25.3	25.8	23.5	24.3	25.7	24.7	24.2	26.8	25.2	26.7	19.5	20.8	14.1	10.5	(9.1)
	Above 65 years old	11.9	8.9	21.2	22.7	23.2	11.1	12.5	5.9	4.7	4.5	13.7	12.2	20.2	21.3	27.3
Work attachment[b]	No worker	16.4	8.3	41.8	47.6	49.9	23.7	18.9	41.4	49.2	50.0	24.5	17.6	53.1	65.5	68.8
	One worker	32.7	31.0	38.3	39.9	40.5	48.7	48.7	48.7	45.8	45.7	32.1	31.3	35.4	30.7	26.7
	Two workers	37.7	45.1	14.7	10.8	7.2	23.7	27.8	8.5	4.1	[4.3]	37.0	43.6	9.8	[3.8]	–
	More than two workers	13.1	15.6	5.2	(1.7)	(2.4)	3.9	4.6	1.3	(0.8)		6.4	7.5	(1.6)		–
Family type	Single adult, no children	3.7	2.3	8.0	9.0	10.9	3.8	4.2	2.3	2.3	(3.5)	11.3	9.8	17.4	18.1	25.7
	Two adults, no children	11.1	9.7	15.3	17.7	17.0	11.2	12.3	7.2	5.1	(4.4)	23.9	25.6	16.9	15.0	17.8
	Single adult, children	6.8	6.0	9.3	8.2	6.8	6.5	6.2	7.8	6.9	9.5	7.8	6.0	15.5	18.1	14.6
	Two adults, children	60.9	63.8	51.6	48.7	49.9	62.5	61.3	67.1	71.3	68.9	52.5	53.8	47.5	46.2	[41.8]
	Other households	17.5	18.1	15.8	16.5	15.4	15.9	16.0	15.6	14.4	13.6	4.5	4.9	2.7	(2.6)	
Education level[c] *of head*	Low	86.4	83.1	96.5	97.0	97.9	66.8	62.4	83.0	87.0	88.2	41.0	37.5	55.4	65.1	70.5
	Middle	7.7	9.2	2.8	[3.0]	[2.1]	14.2	15.3	10.3	9.2	7.6	33.2	33.1	34.0	28.9	[29.5]
	High	5.9	7.6	(0.7)			19.0	22.4	6.6	3.8	4.3	25.8	29.5	10.7	6.0	

		All ECHP countries					Canada					United States[d]				
		Total population	Non-poor	Poor at least once	Permanent-income poor	Always poor	Total population	Non-poor	Poor at least once	Permanent-income poor	Always poor	Total population	Non-poor	Poor at least once	Permanent-income poor	Always poor
Head gender	Man	86.7	88.1	80.7	80.5	80.9	87.2	90.0	79.7	75.9	64.2	82.2	87.5	76.1	60.2	53.7
	Woman	13.3	11.9	19.3	19.5	19.1	12.8	10.0	20.3	24.2	35.8	17.8	12.5	23.9	39.8	46.3
Head age	Less than 30 years old	12.6	11.9	15.8	14.5	13.0	14.6	13.4	18.4	17.3	25.7	17.0	13.0	30.7	35.3	29.9
	31 to 50 years old	51.7	52.7	47.5	49.9	49.1	63.2	64.0	61.0	62.6	53.7	50.7	53.7	42.6	38.3	38.1
	51 to 65 years old	22.7	22.8	22.4	21.9	22.1	18.4	18.3	18.1	18.0	19.5	19.4	21.2	15.4	14.5	10.3
	Above 65 years old	13.0	12.7	14.2	13.8	15.8	3.8	4.2	2.5	2.2	1.1	13.0	12.2	11.2	11.9	21.7
Work attachment[b]	No worker	23.3	18.6	42.6	46.4	47.7	19.1	12.6	35.6	51.8	67.6	18.0	13.4	18.0	23.1	54.6
	One worker	39.6	38.9	42.3	41.9	40.0	39.9	40.9	39.1	37.6	27.1	42.0	41.4	47.2	53.6	36.5
	Two workers	32.1	36.8	13.0	10.2	11.0	35.8	40.6	20.2	9.8	5.2	35.1	39.4	30.6	20.6	8.7
	More than two workers	5.0	5.7	2.1	1.5	1.2	5.3	5.9	5.2	0.8	0.1	5.0	5.8	4.2	2.7	0.2
Family type	Single adult, no children	9.8	9.3	12.0	11.2	11.8	6.5	5.7	7.0	9.9	15.3	13.1	11.0	21.2	16.0	22.7
	Two adults, no children	19.6	20.8	14.2	11.8	12.8	24.3	26.3	20.7	13.0	7.0	21.2	24.2	13.2	9.9	8.1
	Single adult, children	6.3	5.5	9.8	9.8	8.8	10.1	7.8	16.6	18.9	27.8	10.0	6.4	12.2	29.1	29.5
	Two adults, children	56.5	56.8	55.2	58.1	58.1	54.3	55.5	49.5	52.2	44.5	54.0	56.6	50.9	44.0	39.1
	Other households	7.8	7.5	8.8	9.0	8.6	4.9	4.7	6.2	6.1	5.4	1.7	1.8	2.6	1.1	0.6
Education level[c] *of head*	Low	43.1	39.5	58.9	65.1	66.4	30.4	27.5	35.5	46.7	54.5	17.7	11.9	23.1	41.0	50.1
	Middle	35.5	36.9	29.8	25.2	22.8	15.7	15.8	14.8	13.3	18.4	35.8	35.2	42.6	38.1	34.3
	High	21.3	23.7	11.3	9.7	10.8	53.9	56.8	49.8	40.0	27.1	46.5	52.9	34.4	20.9	15.6

ECHP: European Community Household Panel.
. . Data not available.
– Estimates not reported due to fewer than 10 observations.
(Estimates based on less than 30 observations).
[Combined value for the two categories].
a) Characteristics defined at the begining of the period.
b) In the ECHP, an individual is classified as "employed" in a given year if the number of months employed equals or exceeds the number of months he spent not working. For Canada and the United States, the definition is based on having worked at least 1 000 hours in a given year.
c) Low education is less than upper secondary education, middle is completed upper secondary education, high is tertiary level education.
d) Data refer to 1987-1989.
Source: ECHP, waves 1994, 1995 and 1996 for EU countries; SLID for Canada; PSID for the United States.

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