Poverty Dynamics in Four OECD Countries

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by
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ABSTRACT/RESUME

This study examines the dynamics of poverty for four OECD countries (Canada, Germany, the United Kingdom and the United States). It provides information on patterns of poverty, which groups stay in poverty the longest, and household/individual characteristics and life-course events which appear to be most closely associated with transitions into and out of poverty and the length of time individuals stay in poverty. The analysis finds that the number of people touched by poverty over a six year period is significantly larger that the poverty rate might suggest, but the share of those staying poor for a long time is much smaller. The data suggest that longer-term poor are concentrated among women, lone parents and older single individuals. The study finds that employment status is the main factor affecting transitions into and out of poverty and the duration of poverty.

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Cette étude examine la dynamique de la pauvreté dans quatre pays de l'OCDE (Canada, Allemagne, Royaume Unis et États Unis). Elle fournit des informations détaillées sur la structure de la pauvreté, les groupes qui se trouvent dans la pauvreté de longue durée, les caractéristiques des ménages/ individus et les événements étroitement associés aux périodes de transitions ainsi que la longueur des périodes de pauvreté. Le nombre d'individus touchés au moins une fois par la pauvreté au cours des 6 dernières années est plus important que ne le suggèrent les taux de pauvretés statiques. En revanche, les individus subissant un état de pauvreté persistante s'avèrent être moins nombreux. Les données montrent que les femmes, les familles monoparentales et les retraités vivant seuls sont plus fortement concentrés dans la pauvreté de longue durée. Enfin, parmi les facteurs analysés, l'emploi et ses changements apparaissent comme déterminant sur les mouvements d'entrée et de sortie ainsi que sur la durée des périodes de pauvreté.

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POVERTY DYNAMICS IN FOUR OECD COUNTRIES

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1. Introduction

1.   Poverty rates are helpful indicators of the level of poverty in a country during a specific period of time. However, they do not provide important information about the extent of mobility into and out of poverty or about the length of time people remain in poverty. Whether an individual suffers poverty over a long period of time or a short period is not the same and the policy response is likely to differ.

2.   The present study complements and extends previous work on trends in income distribution and poverty (Oxley *et al.*, 1999) by examining more closely the dynamics of poverty. This study uses longitudinal data sets, which follow individuals over time and permit flows into and out of poverty and the length of stay below the poverty threshold to be estimated. Since these data sets also contain information on individual and household characteristics, they can suggest which types of individual stay longest below the poverty threshold and whether certain changes in household status -- such as getting or losing a job or experiencing divorce -- are associated with transitions into or out of poverty.

3.   This study examines the following subject areas, for four OECD countries for which suitable longitudinal data were available (Canada, Germany, the United Kingdom and the United States):

-    flows into and out of poverty and "events" most closely associated with those transitions;

-    which groups make up the short and longer-term poor;

-    factors affecting the length of time individuals stay in poverty and the risk that people fall back into poverty.

4.   These issues are examined in two ways. First, tabulations give broad orders of magnitude of the flows into and out of poverty, the "events" associated with these transitions, the characteristics of the poor, the duration of poverty spells and the extent of subsequent re-entry into poverty. Second, econometric techniques allow a more precise evaluation of the factors associated with transitions, the duration of spells and the probability of re-entry. However, while these analyses provide a useful characterisation of the nature of poverty, there is no attempt to model household and individual behaviour which underlie transitions into and out of poverty. Thus, conclusions that purport to deal with structural relationships

-- between poverty programmes and transitions into or out of poverty, for example -- need to be drawn with great care. In addition, cross-country comparability of the data is limited, providing another reason to exercise caution in interpreting the results.

5.   The paper is organised as follows. A summary of the main results is presented immediately below. A number of issues concerning the definition of income, poverty and peculiarities of the data sets are then briefly addressed in Section 2. This is followed, in Section 3, by an overview of the various factors affecting poverty transitions using some broad indicators of poverty inflows, outflows and duration across countries. Section 4 looks in greater detail at the factors associated with poverty transitions, while Section 5 examines duration and re-entry. Section 6 concludes. Additional technical material is presented in Annex 1, covering data sources, methodology and more detailed results.

1.1 Main results

6.   Key results of this study are:

-   Between 20 and just under 40 per cent of the population is touched by poverty over a six-year period, a much larger portion than would be suggested by the "static" poverty rates. Within this group, however, the majority have short spells. As spells lengthen, the probability of exit falls such that a small group of the population remains in poverty for long periods of time with, apparently, little chance of exit.

-   The probability of exiting poverty falls with previous experiences in poverty. At the same time, there is a high probability of falling back into poverty. Thus, for the longer-term poor, low probability of exit and high probability of re-entry tend to reinforce each other. People with six or more years in poverty (i.e. the longer-term poor) typically make up 2-6 per cent of the population. However, because of their long stays in poverty they represent around one-third of the total time all individuals spend in poverty (from 30 to just over 50 per cent if five or more years are considered).

-   The tax and transfer system sharply reduces poverty rates, particularly as regards longer-term poverty. The difference in poverty rates pre- and post-taxes-and-transfers is smallest in the United States.

-   For three of the four countries, the characteristics of households experiencing shorter spells in poverty tend to be different from those of the longer-term poor. A large share of the longer-term poor would appear to be women, lone parents and elderly single individuals. A significant share of the longer-term poor work.

-   Obtaining or losing employment is particularly important for transitions into and out of poverty. Gaining employment is the main factor in reducing the length of time spent in poverty. Some aspects of this are:

    -   A large share of transitions occurs when there are employment/earnings-related "events", particularly in the case of exits from poverty. The probability of transiting into poverty is generally higher for employment-related "events" than for family-related "events".

    -   Households with more than one worker are better protected from poverty and have shorter stays in poverty. Increased employment or hours worked by other household members is an important source of exit from poverty and households which get a second job appear to shorten their poverty spells by more than households which obtain a first job.

Multiple-earner households may be capable of adjusting labour supply more easily to compensate for job loss or lower earnings of other household members.

-   Separations and divorce are more important for poverty entry than marriage is for poverty exit and the length of stays for female-headed lone-parent households is significantly longer than other household groups. Employment is the main channel for exit of lone-parent households from poverty and acts to reduce the average length of stay significantly.

2. Defining income and poverty and the data sources

2.1 Definition of income and poverty

7.   Following the methodology in OECD (1997*a*), the focus of attention is the individual (including children), but the unit for calculating income is the household. Individuals are assumed to receive the equivalent disposable income of the household to which they belong. Equivalent income is household disposable income -- i.e. market income and transfers from government less direct taxes and social security payments of all household members -- divided by the square root of the number of individuals in the household. The division by a number less than the size of the household is intended to take account of household economies of scale (see Annex 1, Section 1). This adjustment involves an important element of judgement but has been widely used in other international comparative studies.

8.   To assess the direct impact of the tax and transfer system, the transitions have also been calculated, in some cases, using market income –- i.e. disposable income plus taxes paid to and less transfers received from government -- but using the poverty threshold calculated with household disposable income. The differences in transitions give some indication of the relative importance of market income and the tax and transfer system in exits from poverty. Indirect effects such as when incentives arising from the tax and transfer system affect behaviour and therefore market income, could not be isolated.

9.   The distribution of income is constructed by ranking individuals on the basis of their equivalent income. The poverty threshold was established at 50 per cent of the median equivalent disposable income, a threshold which, once again, has been widely used in international comparative studies. Poverty rates[3] presented in OECD (1997*a*) indicated that using other definitions would significantly affect the level of poverty, but that the trends over time were broadly unchanged. However, where a large number of individuals are grouped in certain segments of the distribution, the pattern of poverty dynamics could be affected[4].

2.2 Data sources and issues

10.   The focus of this study is not the level of poverty, but the dynamics and persistence of poverty -- i.e. the flows into and out of poverty and the time spent in poverty. Such work requires data sets that follow individuals through time (panels). Individuals are characterised in two ways: first, in terms of personal characteristics -- for example, age, sex and education attainment -- and, second, in terms of

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3.   Defined as the head-count ratio or the ratio of the poor to the total population.

4.   For example, Jarvis and Jenkins (1997) find rather significant differences between a relative poverty threshold and a threshold fixed in real terms due to rather a large number of individuals who lie near the authors' chosen poverty thresholds.

household characteristics -- for example, the income of other household members and the age and work attachment of the head of household. Since each individual is followed over time, these data help to identify whether "events" -- such as changes in employment within the household -- coincide with movements into or out of poverty. Moreover, the length of poverty spells can be determined and estimates made of the relationship between the length of spell and individual or household characteristics.

11.   Relatively few OECD countries have sufficiently developed data sets of this kind. This gap is being rapidly filled in many countries -- for example, in Europe through the Eurostat European panel -- but available time spans are generally too short for the kind of analysis carried out here. In some cases, the sample sizes of existing data sets proved too small (Italy), the data contained in them were not sufficiently detailed through time (Belgium, Italy) or access could not be arranged (the Netherlands). For these reasons, the analysis in this study covers four OECD countries -- Canada, Germany, the United Kingdom and United States. While Section 1 in Annex 1 provides more information on these differences, the following points are particularly important in understanding and interpreting the results presented in the remainder of this paper:

  − Data for Germany, the United Kingdom[5] and the United States were drawn from sample surveys, whereas tax files were the main source for Canada. For Canada, a concept referred to as "census families" was used to define households[6], the sample size is much larger, but information on individual and household characteristics is more limited[7].

  − The data for the United Kingdom cover only six years: 1991 to 1996. To preserve comparability with other countries, the descriptive sections were limited to the last six years of available data for all countries.

  − Data for Germany and the United States were drawn from the PSID-GSOEP Equivalent file which has adjusted the German and US panels to make income variables more comparable. They are available up to 1993 for the United States[8] and to 1996 for Germany.

  − Tax models have been used by national research teams to estimate taxes for Germany, the United Kingdom and the United States. However, tax estimates were unavailable for the last two years for the United Kingdom, necessitating the use of pre-tax data for the entire period[9,10].

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5.   Data do not include Northern Ireland. Readers should note that country references in this report have been to the United Kingdom even though the sample only covers Great Britain.

6.   This includes "husbands and wives (common law or legally married) with or without their never-married children, lone parents and their never-married children, with everyone else being a non-family person". Thus there can be several census families living in the same household -- e.g. a divorced daughter with a child living with her parents would be classified a belonging to a separate household.

7.   In addition, it was not possible to trace children over time, for example, as they formed new households.

8.   This means that, for the United States, the effects of recent increases in the generosity of the Earned Income Tax Credit (EITC), as well as increases in the federal minimum wage, cannot be seen.

9.   There is a more general question as to whether estimated tax data should be used at all, because in complex tax systems it becomes more difficult to accurately assess the tax liability of individual households. While this problem may be less severe for comparisons of static distributions of income (as there is likely to be some averaging of the errors across individuals), it may induce more serious errors in the measurement of transitions in individual data used here.

10.   Given that the tax schedule is linear over the range where the poverty line appears, experts in the United Kingdom have suggested that the differences between pre- and post-tax results are likely to be small.

− For Canada, the data are not consistent over time: social assistance benefits were underestimated before 1992 because they were not taxable and hence not included when filing for tax. This appears to have a significant effect on poverty rates, even though those with no other revenue than social assistance would have incomes below the 50 per cent threshold[11].

− In Sections 3 and 4, data cover the last six-year period for all four countries. Section 5 makes use of all available years (Canada: 1986-95; Germany: 1984-96; the United Kingdom: 1991-96; and the United States: 1980-93).

12.   Several general points should also be noted about these data. First, the time unit is the year, which may not be the most appropriate period for policy purposes (Blank, 1989; Ruggles, 1990; Census Bureau, 1998). Indeed, many countries base access to social assistance benefits on previous monthly income. Thus, the poverty spells of those individuals facing poverty for a month or two, but with high enough income in the rest of the year to bring annual income above the poverty line, would be missed (although one might be less concerned about such households). Ruggles (1990) estimates that using annual rather than monthly data could reduce the number of poverty spells by 20-25 per cent in the United States.

13.   Second, due to small sample sizes for those in poverty, in particular in Germany, some problems arise when the data are broken down by characteristic as smaller sub-samples increase the size of sampling error.

14.   Third, rates of entry into and out of poverty are cyclically sensitive (Huff Stevens, 1994; Gottschalk and Moffitt, 1994). While cyclical differences are explicitly taken into account in the econometric analysis of Section 5, this is not the case for the descriptive presentation in Section 3.

3. The dynamics of poverty over a six-year period

3.1 Broad patterns of poverty dynamics

15.   The poverty rate indicates how many are poor at a point in time. However this "snapshot" masks considerable turnover among the poor and variation in the time that the poor stay in poverty. This section presents a fuller picture of poverty patterns over time for both at the level of market income and disposable income.

16.   Three different dimensions of poverty are shown in Figure 1 and Table 1a for the most recent six-year period:

a) The "static" poverty rate -- calculated as the share of poor people in the total population averaged over the period.

b) The rate of longer-term poverty -- calculated as the share of individuals in the total population who were poor in every year through the six-year period (i.e. the "6+ years in poverty" rate).

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11.   This could occur because someone may receive market income for part of the year and take up social assistance for the remainder such that the total income is above the poverty line for the year as a whole.

> *c)* The rate of those poor at least once -- calculated as the share of individuals in the total population who were poor at least once through the period (the "at least once in poverty" rate).

17.   Looking first at the data on a post-tax-and-transfer basis, Figure 1 shows that the poverty situation is both better and worse than the static poverty rates suggest. On the one hand, the share of individuals who are poor throughout the period is low (in the range of 2 to 6 per cent of the population). On the other, the share of the population that was in poverty at least once over the six-year period is large (between 20 and 38 per cent of the population). Thus, while poverty is a short-term "event" for many, it is a much more widespread phenomenon than shown by static poverty rates. These data also suggest that there is considerable turnover amongst the poor and this is corroborated in the second and third panels of Table 1a. The overall entry and exit rates[12] show that 30 to 40 per cent of the pool of the poor turn over every year during the six-year period[13].

18.   Against this background, Table 1b shows the distribution of total time spent in poverty. The left-hand panel shows the share of individuals who, over the six-year period considered, spent from one year to five or more years in poverty[14], including repeat spells in poverty. In Germany, just over 45 per cent remain poor only one year, which is higher than for Canada, the United Kingdom and the United States (26 to 36 per cent). The opposite is the case for those poor for five or more periods which make up 27 to 28 per cent of those touched by poverty for the latter two countries, compared with only around 15 per cent for Canada and Germany.

19.   The right-hand panel shows the share of the total time spent in poverty by each group. To obtain this measure, the shares in the columns in the left-hand side panel are weighted by the length of time each spends in poverty (one to six years) and, then, divided by the total number of years spent in poverty by the whole population (the sum of the weighted values). This measure takes into account the fact that individuals who have been in poverty longer, weigh more heavily in the total number of person-years spent in poverty over the six-year "window". The results show why the longer-term poor are so important for policy -- those with five or more years in poverty experience as much as 50 per cent (the United Kingdom and the United States) of the time spent in poverty over the six-year period, even though this group makes up a much smaller portion of the overall population of the poor. This group tends to suffer more from poverty and -- where they are entitled to support -- may potentially absorb a significant larger share of the total spending on poverty alleviation.

20.   Table 2 examines the length of time individuals who fall into poverty may expect on average to remain there (left-hand panel) and how long they stay out of poverty once they exit (right-hand panel), again on both a pre- and post-tax-and-transfer basis and for the same six-year "window"[15]. Both panels show empirical hazard rates of exit (left-hand panel) and re-entry (right-hand panel) -- i.e. the probability of exit from (or re-entry into) poverty at a certain period, conditional on having been in (or out of) poverty

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12.   Overall rates of entry and exit include, respectively, all individuals falling into poverty at time t or exiting poverty between t and t+1 as a share of the population in period t. The inflows and outflows vary over the cycle and the data presented here are averages over the six-year period. These data consider the entire sample of those interviewed every year -- and hence are "overall" exit rates.

13.   The data also show differing patterns of exits and entries over the period across countries. Poverty rates rose in all countries except Canada (however, the fall probably reflected a discontinuity in the data).

14.   In the table, 5+ is the sum of five and six years or more spent in poverty.

15.   This table only includes individuals where the start of a poverty spell (left-hand panel) or the exit from poverty (right-hand panel) can be observed -- i.e. those cases where the start of the spell can be identified. The sample is a sub-sample of the sample in Table 1, which includes all individuals interviewed in all six years.

until then. For example, the exit hazard in the second period is the share of individuals exiting poverty as a fraction of those (remaining) poor at the end of the first period. A fall in these hazard rates indicates that the share of those who exit or re-enter declines with the length of time spent in or out of poverty –- i.e. in the case of exit rates that people who remain have progressively a more difficult time exiting poverty, the longer the poverty period lasts[16].

21.   Looking first at the post-tax-and-transfer data, Table 2 shows rapid exit for most of the poor (left-hand panel); considerable re-entry into poverty (right-hand panel); and declining probability of exit (and re-entry) as the period lengthens. The importance of re-entry confirms recent research (Gottschalk and Moffitt, 1994; Jarvis and Jenkins, 1997; Huff Stevens, 1995; and Laroche, 1997) and signals considerable recycling into and out of poverty[17]. While cross-country comparisons are difficult because cyclical positions differ across the four countries, Canada and Germany stand out as having particularly high exit rates from poverty and lower re-entry probabilities (less so for Germany) over this period, while the opposite is the case for the United Kingdom and the United States.

3.2 Poverty dynamics before and after taxes and transfers

22.   The tax and transfer system can affect poverty transitions in various ways:

- Transfer payments (or reduced taxes) will initially limit the fall into poverty where net taxes and transfers are generous enough to keep the household above the poverty threshold –- for example, when individuals receive age pensions on becoming retired or insurance benefits on falling unemployed.

- The tax and transfer system can also result in earlier exit of those having fallen into poverty -- for example, there may be delays before disability pensions are granted or older unemployed workers in poverty may receive an age pension large enough to bring them out of poverty on reaching retirement age.

- Finally, as pointed out in OECD (1997), the differences in the tax and transfer systems themselves may affect pre-tax-and-transfer income. For example, generous age-related pensions in Germany may have allowed individuals to withdraw permanently from the labour force, or unemployment benefits may lengthen the period of job search of those of working age[18].

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16.   This can reflect either a declining probability of exit, the longer people stay in poverty, for example because of wastage of their human capital or a sorting process in which those with the best chances of exiting exit first.

17.   The following provides an example of the combined effect of results for exit and re-entry in Table 2. The left-hand panel shows that between 46 per cent (the United States) and 56 per cent (Canada) of those entering poverty would have left by the end of the first year. On the basis of information in the right-hand panel, between 36 per cent (Canada) and 64 per cent (the United States) of these individuals would have fallen back into poverty for at least one year in the following four years.

18.   In some cases, cross-country variation in the difference between pre- and post-tax-and-transfer rates may reflect institutional differences in pension arrangements. In the United States, a larger share of pensions are employer-related than in Germany, thus raising US incomes before tax and transfers. In this case, poverty rates pre-tax-and-transfers for the retired would be lower in the United States than in Germany, all else held equal.

23.   A comparison of the top and bottom panels of Tables 1a, 1b and 2 and Figure 1 suggests that the tax-and-transfer system has a substantial impact on the level of poverty, the time spent in poverty and on the rate of exit from poverty[19]. The left-hand panel of Table 1a confirms the results of OECD (1997) that taxes and transfers sharply reduce the pool of the poor in all four countries -- defined in terms of the same poverty threshold. Not surprisingly, the effect is smallest in the United States while, in the remaining three countries, the difference between poverty rates before and after taxes and transfers is roughly three times as large. A comparison of the top and bottom panels of Figure 1 shows the particularly marked difference in the share of the longer-term poor in Canada, Germany and the United Kingdom –- in the first two countries the rate falls from around 14 per cent to around 2 per cent.

24.   Comparing the pre- and post-tax-and-transfer data in Table 1b shows that, in all countries, the share of those remaining in poverty over the longer term is smaller after taxes and transfers. On a pre-tax-and-transfer basis, the share of total time spent below the poverty threshold over a longer period rises to between two-thirds and three-quarters of the total time all individuals spend on poverty (Table 1b, right panel). The rate at which individuals exit from poverty falls more sharply when moving from a post-tax-and-transfers to a pre-tax-and-transfer basis (although, once again, this is less the case for the United States) (Table 2, bottom panel). The difference pre- and post-tax-and-transfers is less marked for re-entry rates.

25.   One interpretation of these results is that the tax and transfer system both reduces poverty and shortens poverty stays as well, with this effect increasing with the size of income-support programmes. However, changes in household behaviour in countries with more generous transfer systems could, in principle, also lead to an increase in the degree of poverty and the length of poverty stays on a pre-tax and transfer basis, though there is limited evidence to support this hypothesis in the data presented here. In any case, cross-country comparisons need to be treated with caution as cyclical differences have not been taken into account.

3.3 The characteristics of the poor by length of spell

26.   Variation in family and labour-market characteristics between groups of longer-term poor, shorter-term poor and non-poor -- while not implying that these differences have caused longer or shorter stays in poverty -- may provide some guidance in the formulation of anti-poverty policies. Table 3 compares the share of individuals with specific characteristics across four groups for all countries: the total and the non-poor populations, the short-term poor (individuals experiencing only one year in poverty over the period) and the long-term poor (individuals who are poor for at least six years)[20].

27.   Several broad patterns appear from Table 3 (and Table A1 in Annex 1 for the population belonging to households with a working-age head), although they do not necessarily apply to all countries in all cases:

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19.   As shown by Figure 1, the pre-tax-and-transfer poor population is larger than the post-tax-and-transfer population, and includes: a) all those poor on a post-tax-and-transfer basis (but most of whom will now have a lower pre-tax-and-transfer income); and b) all those who are kept out of poverty by the tax-and-transfer system. They are thus not the same sample.

20.   Characteristics are defined at the beginning of the period. Table A1 in Section 1 of Annex 1 presents: a) the same breakdown by characteristics for the population living in households with a working-age head; and b) data for population, the non-poor and the longer-term poor at the beginning and end of the six-year period. A comparison of the two years indicated considerable change in the results for some characteristics between the two years (particularly for the age of the household head). However, these differences do not seem large enough to change the conclusions.

− First, the following groups tend to be over-represented among the longer-term poor: those living in female-headed households, in single-adult households with children, in households headed by an individual in retirement age, in households where the head has lower education (Germany excluded[21]), and in households where there is no worker (and also one worker in Canada and the United States). The concentration of the longer-term poor among these groups probably reflects the fact that many of these conditions, when they occur, tend to last for a long time: for example, in the United Kingdom, lone-parenthood lasts, on average, for around six years (McKay, 1998) and for, older people, incomes change little over time, such that those in poverty tend to stay there for a long period (Census Bureau, 1998).

− Second, there are significant differences between the shorter and the longer-term poor and, on some characteristics, the short-term poor appear to be closer to the non-poor than to the longer-term poor. In particular, the short-term poor have a considerably larger share of households with at least one earner and are less concentrated among households which are headed by women, single adults, lone parents and the less educated. Thus, they appear to come from a wider span of the population.

− Finally, key characteristics of the longer-term poor tend to differ across countries: in both Germany and the United States, women-headed households and lone parents appear particularly important. However, in the United States around 50 percent of the longer-term poor belong to households with at least one worker, as compared with only around 25 per cent in Germany[22]. In Canada, over 60 per cent of the long term poor belong to households with at least one worker. In the United Kingdom, key features are the concentration of the longer-term poor in non-working households, female-headed households, among households headed by an elderly person and among single adults.

4. Factors associated with poverty transitions

4.1 How much does income change during transitions?

28.   An initial question concerns the size of the income changes when transitions occur. Small movements in income of households clustered near the poverty thresholds may lead to many transitions into and out of poverty, but these may not be economically or socially significant. Hence, the distribution of income changes by size are of interest and these are shown in Table 4 in the form of transition matrices for entry and exit. Each cell shows the share of individuals who shift from an originating income range relative to the poverty threshold (shown in the first column) to the ending income range (shown in the first row). For example, the cell in the first column and first row shows the share of individuals who enter poverty with incomes between the poverty threshold and 10 per cent above the poverty threshold before transition, and between the poverty threshold and 10 per cent below the poverty threshold after the

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21.   This may reflect the fact that the education attainment variables (which refer to the head of household) may be a poor measure of total human capital. This may be particularly the case in Germany, where on-the-job training and apprenticeships may make up a larger share of total investment in skills. This may lead to an overestimate of the share of individuals with skills corresponding to "low education".

22.   However, the problem of the working poor appears more severe in the United States where there is a non-negligible share of two-earner households who were poor through the period.

transition. This particular group is one measure of "noise" -- i.e. the number of poverty transitions which result from relatively small changes in income around the poverty line[23].

29.   The results show:

-   That "noise" represents a small part (6 to 9.5 per cent) of total transitions.

-   The bulk of transitions do occur in a range of between 66 per cent and 150 per cent of the poverty line -- in most cases between 55 and 75 per cent of the transitions started and ended in these ranges. The share of transitions in which income fell below one-half of the poverty line (entries) and rose above median income (exits) was generally in the range of 10 to just over 20 per cent.

-   Further decompositions by household type and work attachment[24] suggest that individuals who rise above median income (200 per cent of the poverty line) typically tend to be concentrated among households with more than one worker, without children and who have heads who are more highly educated; they are less concentrated among no-worker and single-worker households, and household heads who are lone parents, less educated and of younger working age and retirement age. The opposite generally holds for individuals falling to below half the poverty line. Individuals in households with large families, no worker and whose head is a lone parent, of younger working age and, surprisingly, more educated tend to be over-represented, while two earner, prime age, older worker or the less educated tend to be under-represented.

4.2 "Events" and transitions

30.   The following sections examine whether transitions may be linked to certain "events" which can propel households into poverty or permit them to exit. Poverty transitions can result from changes in income and in household demography and, very often, such "events" occur at the same time[25]. For example, changes in household size (such as the arrival of a child) affect individual equivalent incomes because total household income is spread among more household members. Alternatively, in the case of separations or divorce, economies of scale are lost as two new households are set up even if the two adults do not change their labour-market status; and, in cases where the mother takes legal responsibility for the children, the income of the original household is not always re-allocated in line with the respective needs of the two new households. The material presented in this section provides a clearer picture of factors which accompany transitions. But the results do not purport to "explain" poverty transitions: changes in both income and household size are, themselves, driven by a number of inter-related decisions about household labour supply, household formation and fertility, as well as government tax and transfer policies[26].

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23.   This range has often been used in studies of this kind to eliminate noise. See for example Ducan et al. (1993).

24.   Available from the authors on request.

25.   Note that household equivalent income is defined as total household income divided by the square-root of household size and that equivalent income can be affected by changes in the numerator and denominator (see Section 2 above and Annex 1, Section 1).

26.   The range of possible combinations can be illustrated by the following examples: while an individual might become poor due to decline in household income following the loss of the job of the household head, the same individual might then exit poverty if other household members get jobs. Households may choose to

31.　　Table 5 presents provides some broad indications about which income components are key to transitions. Transitions into and out of poverty are broken down according to the income component which showed the largest change at the time the transition occurred[27]. As can be seen, cases where the change in employment income was biggest make up the largest share of total transitions (although less so in the United Kingdom), suggesting that labour-market developments are crucial for understanding movements into and out of poverty. There is some difference across countries in the importance of "public transfers" and "other market income" (which includes private pension income, capital income and private transfers): cases where transfers contribute most to the total income change are more important in Canada, Germany and the United Kingdom, and least important in the United States.

4.3 Which "events" have households experienced when they enter and exit poverty

32.　　Table 6 explores in more detail the importance of changes in family structure and in the labour market which are associated with the poverty transitions. For the purposes of this analysis, the total number of transitions is broken down into three broad categories. Further detail on the precise categories is presented in Section 2 of Annex 1.

- Transitions associated with employment/earnings-related "events" including changes in employment status, hours worked and wage rates. Cases where employment changes occurred at the same time as changes in household needs are also included and this sub-category is indicated separately[28].

- Transitions associated with family-structure-related "events" -- mainly cases related to separation/divorce, partnerships/marriage and children or other family members forming new households.

- Transitions associated with other "events" -- which covers all transitions where there were no change in either or employment/earnings or family-status "events". These were mainly cases where there were large changes in transfer payments.

33.　　Table 6 indicates that transitions which were concomitant with employment/earnings-related "events" made up the largest group, with the exception of entries into poverty for the United Kingdom, where "other" transitions among the already unemployed/retired households and changes in family structure weigh heavily. A comparison of the two columns indicates that the role of employment/earnings is more marked at the level of the population living in households with a working-age head, as this group excludes a large number of the retired and this difference is particularly marked for the United Kingdom. Further, the importance of employment/earnings-related "events" is even more marked for exits where they make up around 50 per cent (Germany, the United Kingdom) to over 60 per cent (the United States) of all exits for those in households with a working-age head. In contrast, family-status-related "events" are relatively more important for entries than for exits. Finally, "other" transitions for the unemployed –- which appear largely related to the transfer payments -- are largest in the United Kingdom and smallest in the United States. These differences may reflect transfer systems –- e.g. for United States, unemployment insurance coverage is low and the duration of benefits short and, hence, there are few transitions where

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have children only when they have high enough income, but in other cases, the arrival of children can lead to withdrawal of the prime child-carer from the labour force.

27.　　The income changes were, first, constrained to include only those with the same sign as the change in total income (the opposite sign for taxes). The change in these components of income were then computed and the component with the largest change was identified with the transition.

28.　　These only include cases where there is a change in household size but not in the household head.

transfers make up the largest component of the total change in income. Alternatively, it may reflect the fact that unemployment rates are lower in the United States.

34.   Table 7 cross-tabulates these three categories by family type for the population living in households with a working-age head (Table A3 in Annex 1 presents the data for the whole population[29]), showing where "events" are concentrated. Family characteristics in the top row are defined in the period they are in poverty –- i.e. after the transition into poverty for entrants and before the transition out of poverty for exits[30].

35.   The first and second rows for each country show, respectively, the share of each family type in total transitions and in the total population. A comparison of these two rows suggests that lone-parent households experience higher rates of both exit and entry than would be expected on the basis of their share in the population. This is also the case for single-adult households without children. Looking at the pattern of entries across family types, a large share of poor single-adult households, both with and without children, have entered poverty because of family-structure-related changes or because of transfer-related changes while unemployed (included in "Other factors"), although this is less so in the United States where the share of lone-parent households is larger and the majority of these work (see Berniaux *et al*). Exits from poverty for single households with and without children are dominated to a much greater degree by employment –- many of those suffering a household breakdown tend to exit from poverty by finding jobs or working longer hours and relatively few exit through finding another partner[31]. This group makes considerable effort to become self-supporting.

36.   A key difference across countries is the much larger share of transitions which appear to be transfer-related (included in "Other factors") in Germany and, particularly, in the United Kingdom. In both countries, transfer-related transitions appear to be more frequent in households with no children.

4.4 "Events" and the probability of transitions

37.   The frequencies shown in Tables 6 and 7 show which "events" are associated with transitions but do not show whether those experiencing an "event" are more likely to enter or exit poverty. A number of transitions occur where there is no change in either employment or work attachment and, at the same time, changes in employment and family status can happen without any associated poverty transitions. Table 8 presents estimates of which "events" are more highly correlated with the movements into and out of poverty using logit models.   The estimating equations included, as right-hand-side variables: *a)* employment and family-related "events" underlying Tables 6 and 7 which occurred at the time of the transition; and *b)* a number of control variables defined in the period before transition occurred (shown in Annex 1, Section 2 which also describes methodology and detailed estimates)[32]. The coefficients represent the impact of the various "events", other factors held constant, on the probability of exit and entry. A higher value indicates a higher chance of a poverty transition when an "event" occurs; point estimates

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29.   Considering the total population rather than the population in households with a working-age head affects the results for single-adult and two-adult households without children, two groups with large shares of retirement-age households. These data suggest that the retirement-age households are much less affected by employment changes but face a larger share of transfer-related transitions. This difference is less marked for the United States, where a larger share of retirement-age households work.

30.   While household characteristics could be defined before the transition into poverty or after they leave, the advantage of the approach used here is that it identifies the characteristics of poor households more clearly.

31.   This occurs more frequently in the United States.

32.   Control variables are defined in t for transitions that occur between t and t+1. Note that this approach differs from Section 4.3 where, for poverty entries, the characteristics are defined in t+1.

should be interpreted with some caution. The first two sets of coefficients concern cases where employment-related and family-related "events" occurred singly; the remainder show results in cases where employment- and family-related "events" occurred at the same time.

38. The main conclusions from these estimates are:

  − The employment-related change (no change in family-related "events") most likely to lead to a transition into poverty is when the household finds itself with no worker, though the risk of transition is also significant, if less important, in the case of the loss of an additional worker or reduced hours.

  − Family-related "events" (no change in employment status) generally entail a lower probability of entry than for employment-related "events"[33]. However, the probability of entry increases sharply for all categories of family-related "events" if there is also a loss of job or reduced hours. Put another way, the risk of poverty entry when an employment-related "event" occurs is lower if there is a stable household environment.

  − As regards employment-related "events" and poverty exits, a second earner is generally associated with a higher probability of exit than the move from no worker to one worker. This is consistent with results from the literature which show that most individuals who lose jobs have lower earnings in their next job, in particular if they are displaced workers (Farber, 1993; Fallick, 1996; Antolin, 1999), making it more difficult for households to move above the poverty threshold, particularly where there is a single earner. This also confirms the results in OECD (1998) that getting a job is often only a first step -- albeit an important one -- towards poverty exit.

  − The probability of exit from poverty through marriage is high in the United States, but occurs in relatively few cases.

  − Finally, the addition of variables controlling for characteristics (see Annex 1, Tables A3 and A4) in the period preceding transition occurred, suggest that individuals living in lone-parent and young-head households and who have experienced previous spells in poverty have a higher probability of transiting into poverty whatever the "event". The latter reinforces results presented in Section 5, which show the importance of previous poverty spells in explaining poverty spell duration. In contrast, households that are large and/or have more than one worker have a lower chance of entry and have a higher probability of exit, possibly reflecting their ability to adjust their labour supply. At the same time, lone-parent families have a high probability of falling into poverty relative to other household groups, but a lower probability of exit -- possibly contributing to the larger share of lone parents among the longer-term poor. Similar results hold in the United States for households with a less-educated head.

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33.   There are significant cross-country differences in the coefficients associated with individual family-related "events". Probabilities of entry on divorce, separations or children setting up households appear higher in Germany and the United States relative to other family-related "events" than they do in the United Kingdom. Needs-related effects appear more important in cases where there are more children in the United Kingdom, while additional adults in the household appear more important in the other two countries.

5. How long do people stay in poverty?

39.   An examination of transitions into and out of poverty leads, naturally, to the related question of how long people stay in poverty. As argued previously, poverty may be even more serious when heavily concentrated on individuals who either experience long periods of poverty or who cycle back and forth into and out of poverty, thereby spending more time in poverty than a single spell would suggest. To shed some light on these issues, this section examines some main determinants of poverty duration as well as the probability of re-entry.

5.1 Data and methodology

40.   For this part of the study, the full time period of the panel data sets (see Section 2 above and Annex 1, Section 1) were used (rather than the last six years) to create the sub-sample for estimation. The sub-sample was restricted to all poverty spells where the beginning date could be observed, thus excluding poverty spells in progress whose length was unknown. Because all spells with an observed beginning date are included, an individual can have several spells. Each spell is followed over time until it ends, which can occur because the individual moves out of poverty, because the individual drops out of the sample, or because the panel ends before the individual transits. Using multiple spells per individual allows previous spells to be controlled for and, thus, a better understanding of poverty dynamics. For re-entry, the working sub-sample included all spells out of poverty where the beginning can be observed, and these episodes were then pooled in a manner analogous to spells of poverty.

41.   For each country, the exit (or re-entry) probabilities were estimated using a logit specification controlling for duration of the spell (or period out of poverty), calendar year, and individual and household characteristics. (See Annex 1, Section 3 for further detail.) This permits the differences in spell length to be associated with certain individual or household characteristics: the estimated parameters indicate which groups have a higher or lower probability of exit (or re-entry) and, hence, a shorter or longer average duration in (out of) poverty. The impact of previous spells of poverty on exit and re-entry rates was also examined, potentially correcting for some unobserved heterogeneity.

5.2 What determines the length of time people stay in poverty?

42.   Two estimation approaches were used to measure the impact of the various factors on duration of poverty. First, the characteristics were defined at the time the individual entered poverty, thus assuming that, either, these characteristics largely determine subsequent duration, or they did not change over the period. This approach addresses the question of whether the probability of exit (or re-entry) is conditioned by factors existing at the time the poverty spells began. For example, if a person has a job but falls into poverty (e.g. through reduced wages or hours worked), the poverty spell may be shorter than where an individual became poor while unemployed. Second, the characteristics were allowed to vary over time so as to pick up the effects of changes -- such as getting a job -- on duration, thus supplementing the information in Section 4. Results from the two approaches are broadly similar but those presented in the tables are drawn from the second set of estimates.

43.   The hazard rates for poverty exit for the reference person are shown in Table 9. To demonstrate the impact of the different characteristics of households on expected poverty duration, Table 10 presents the percentage of people remaining in poverty after one year, four years and ten years (where data are available) according to different characteristics which are of key significance. Table 11 presents the average expected duration for selected groups. The results in both tables were calculated using those logit equations for the duration of poverty spells which take into account previous poverty spells. All the results

are presented relative to the reference person, defined as a single, prime-age, male household head with high-school education, no dependant children and who was not working at the time the poverty spell began. Because sample lengths differ across countries, durations are not directly comparable, in particular as regards the United Kingdom. Thus, results for average duration reported in Table 11 are in index form, where 100 represents the average estimated duration for the reference person in each country.

44.   Table 9 (and the results presented in Annex 1, Section 3) shows that the estimated probability of leaving poverty falls as the spell lengthens, indicating that exit becomes more difficult the longer a person stays in poverty. This could be due either to duration dependence because long periods in jobless poverty lead to changing attitudes towards work or erosion of human capital, or a sorting process where those best able to exit do so, leaving an increasingly "adverse" pool of poor. While no explicit tests were carried out to try and distinguish between these two alternatives, controlling for previous poverty spells may go some way towards correcting for unobserved heterogeneity[34].

45.   Table 10 shows, for the reference person (first line, left-hand panel) that more than 50 per cent of those who fall into poverty and who do not obtain a job remain in poverty after one year, with around 10 per cent remaining in poverty for at least ten years for Germany and the United States. The impact of the labour-market status within the family on the length of time spent in poverty can be assessed by comparing the first panel with the middle and right-hand panels. Correspondingly, the impact of different individual characteristics, family type, the cycle and previous poverty experience are shown by comparing rows for individuals with that of the reference person (line 1 for each country in the left-hand panel) with the other combinations of characteristics indicated in the column and row headings. The main policy-relevant results are:

  − Employment by the head of household and by a second wage-earner in the household reduces poverty persistence. The percentage of people remaining in poverty after a year falls by 5-7 percentage points in Canada, Germany and the United States and by about 18 percentage points in the United Kingdom if the head becomes employed. More substantial effects occur if a second member of the household becomes employed. The index for average expected duration (Table 11) falls when the head and someone else become employed by around 20 per cent for Canada and the United States, 36 per cent for Germany and 28 per cent for the United Kingdom.

  − Lone-parent households appear to have significantly longer spells when compared with the reference person. However, when the head becomes employed in lone-parent households, the share experiencing longer-term poverty falls sharply, again emphasising the importance of employment[35].

46.   Other results shown in Annex 1, Table A7 suggest, as well, that:

  − those having experienced previous poverty spells tend to suffer longer spells of poverty -- except in Canada -- possibly picking up some unobserved personal or household characteristics;

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34.   Huff Stevens (1995) finds that, for the United States, duration dependence is important even after controlling for heterogeneity. These tests suggest that effects such as the deterioration of human capital as the spell lengthens or changing attitudes to work or other effects may be present.

35.   Canadian results do not show that people in lone parent households remain longer in poverty than other family groups. Social policies in Canada seem to target lone-parent households, among other groups (e.g. old age people and people with previous poverty experience).

- while the impact of the economic cycle on poverty duration is statistically significant -- indicating that the length of poverty spells is shorter for people who fell into poverty in periods of strong economic growth -- the size of the effect ("high-growth scenario") is quantitatively small over the period considered[36];

- those who are in poor health or disabled suffer longer spells of poverty, but the evidence is only statistically significant for the United States[37];

- there is only weak evidence that children and people in retirement tend to suffer longer poverty spells in all four countries[38]. In Canada old age people are more likely to have shorter spells than other age groups (see footnote 32);

- higher levels of education of the household head or of the individual shortens the length of poverty spells, but the evidence is strong only for the United States[39];

- women, taken by themselves and after controlling for lone-parenthood, do not have longer spells;

- in the United States, non-white households tend to have significantly longer poverty spells: average duration is 10 per cent higher for these groups;

- the results for Canada are somewhat different than for the other three countries. The importance of employment in reducing poverty persistence is also clear in the Canadian case, but certain groups (lone parents and people with previous poverty experiences) which are worst off in the other three countries are not in Canada.

47.   Three main conclusions can be drawn from the results presented in Tables 10 and 11. First, despite differences in poverty rates across countries, factors associated with longer or shorter poverty spells are quite similar across the four countries. Second, access to employment reduces significantly the length of poverty spells and this impact strengthens with the increase in the number of workers in the household. Finally, certain groups (single-headed households, people with previous poverty experience, and in the United States, non-white and low-educated groups as well) suffer longer spells of poverty, even when they have access to employment. The extent of this effect is illustrated for the United States in the last line which shows the outcome when these various characteristics are combined -- 35 per cent of individuals belonging to a non-white, low-educated female-headed household with previous poverty spells would remain in poverty after ten years compared with 10 per cent for the group represented by the reference

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36.   The estimating equation included the growth rate of real GDP as a control variable. The impact of the cycle was estimated by considering a 3 per cent growth rate and recalculating the values for the individuals remaining in poverty.

37.   Health variables are self-reporting evaluations which are always somewhat problematic. In the case of the United States a disability variable was used.

38.   Bane and Ellwood (1986) suggest that children in poverty may also have difficulty in escaping poverty possibly because they tend to belong to larger families or, in a growing number of cases, to lone-parent households. Retired people, once they become poor, may also remain so for long periods because they most often do not have the option of returning to work. The results do not provide strong evidence supporting these hypotheses.

39.   While the results point in this direction in Germany and the United Kingdom, they are not statistically significant.

person. If the lone parent were employed, the share of those remaining in poverty after ten years would fall to 28 per cent.

5.3 Re-entry into poverty

48.   The preceding paragraphs have described how long people remain in poverty. But people may fall back into poverty after exiting, making the duration of single spells a poor guide to assess total time spent in poverty. To measure the magnitude of this effect, the risk of falling back into poverty, conditional on the time spent above the poverty line, was also estimated using the same methods as for spells of poverty.

49.   Table 12 below shows the probability of returning to poverty, conditional on time spent above the poverty line (i.e. the hazard rate of re-entry) and the share of individuals who remain above the poverty line (i.e. the survival rate). Thus, in Germany, for example, after one year out of poverty, around 17 per cent of those previously poor would be back into a new spell of poverty. Of those who remain out of poverty for two years, 14 per cent would fall back into poverty during the next year. Taking a longer-term view, around 50 per cent of individuals would have been back into poverty at least once over a ten-year period.

50.   The factors that affect the length of time an individual will remain out of poverty are basically the same as those which explain the length of time an individual remains in poverty, but with the opposite sign[40]. Therefore, an individual who has characteristics associated with long spells in poverty (those living in single-parent households, who have previous poverty spells, are low-educated (the United States) and who have low levels of employment) would face shorter spells out of poverty with a high risk of cycling back across the poverty threshold.

6. Conclusion

51.   Panel data provide more complete information about poverty and permit a finer analysis of factors associated with entry and exit from poverty and the length of stay. One of the regularities of the results is that the factors that are important for poverty dynamics seem much the same across countries (except for the greater importance of certain household and individual characteristics, such as education and race, in the United States), even though static poverty rates can vary considerably. This limited evidence suggests that the underlying economic and policy forces driving poverty may have a great deal in common across countries, despite sometimes large institutional differences. In this context, the important role of labour markets for entry into and, particularly, exit from poverty should be highlighted, even though family-related "events" are also important for entries. Further, getting a job reduces the expected length of time spent in poverty, even though it may not lead to immediate poverty exit. While transfer payments can make a considerable difference in the level of poverty they tend to play a less important role in poverty exits, although this is less the case for Germany and the United Kingdom. Another important insight is that a large share of the population is touched by poverty -- partly reflecting the normal randomness of labour-market and other life-course "events" -- and suggesting that the benefits of existing transfer systems "insuring" against income loss may be more widely spread than commonly thought. Finally, certain groups (e.g. lone parents) tend to have longer spells in poverty and, in the event of exit from poverty, are more likely to fall back. As a result, they face a higher risk of long-term poverty. With the longer-term poor experiencing between 30 and just over 50 per cent of the total time spent in poverty, the potential

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40.   However, the cycle does not seem to have any effect on the re-entry probability. Huff Stevens (1994) found the same for the United States. This may reflect that those who combine high levels of re-entry and previous poverty spells are probably at the bottom of the employment ladder and are likely to find jobs only where there are extremely low levels of unemployment.

budgetary (not to mention human) cost of poverty is concentrated within such groups. While the distinction between shorter- and longer-term poor is necessarily arbitrary, different policies may be appropriate for these groups. Within this context, particular attention may need to be given to lone-parent households and the working poor.

BIBLIOGRAPHY

ANTOLIN, P. (1999), "Do displaced workers fare worse than other unemployed workers? A European perspective", *OECD Economics Department Working Papers,* forthcoming.

BANE, M-J. and D. Ellwood (1986), "Slipping in and out of poverty: the dynamics of spells", *Journal of Human Resources*, pp. 1-23.

BANE, M-J. and D. Ellwood (1994), *Welfare Realities, From Rhetoric to Reform*, Harvard University Press, Cambridge.

BLANK, R. (1989), "Analysing the length of welfare spells", *Journal of Public Economics*, pp. 245-273.

BURNIAUX, J-M, T-T Dang, D. Fore, M. Förster, M. Mira d'Ercole and H. Oxley, (1998), "Income distribution and poverty in selected OECD countries" *OECD Economics Department Working Papers.*

CENSUS BUREAU (1998), "Dynamics of economic well-being, poverty 1993-94: Trap door? Revolving door? Or both?", *Current Population Reports*, US Department of Commerce, July.

DUCAN, G. J., B. Gustafsson, R. Hauser., G. Schmauss, H. Messinger, R. Muffels, B. Nolan , and J-C Ray (1993), "Poverty dynamics in eight countries", *Population Economics*.

FALLICK, B.C. (1996), "A review of the recent empirical literature on displaced workers", *Industrial and Labor Relations Review*, 50(1), October, pp. 5-16.

FARBER, H.S. (1993), "The incidence and costs of job loss: 1982-91", *Brookings Papers on Economic Activity: Microeconomics,* No. 1, pp. 73-119.

GOTTSCHALK, P. and R. Moffitt (1994), "Welfare dependence: concepts measures and trends", *American Economic Review*, Vol. 84, No. 2, pp. 38-42.

HUFF STEVENS, A. (1994), "The dynamics of poverty spells; updating Bane and Ellwood", *American Economic Review*, Vol. 84, No. 2, pp. 34-37.

HUFF STEVENS, A. (1995), "Climbing out of poverty, falling back in: measuring the persistence of poverty over multiple spells", *National Bureau of Economic Research Working Paper*, No. 5390.

JARVIS, S. and S. Jenkins (1997), "Low income dynamics in 1990s Britain", *Fiscal Studies*, Vol. 18, No. 2, pp. 123-142.

JENKINS, S.P. (1995), "Easy estimation methods for discrete time duration models", *Oxford Bulletin of Economics and Statistics,* 57(1), pp. 129-138.

LANCASTER, T. (1990), "The econometric analysis of transition data", *Econometric Society Monographs 17,* Cambridge University Press.

LAROCHE, M. (1997), "The persistence of low income spells in Canada, 1982-1993", *Department of Finance, Economic and Fiscal Policy Branch Working Paper*, No. 98.

MADDALA, G.S. (1997), *Limited Dependent and Qualitative Variables in Econometrics,* Cambridge University Press, pp. 22-28.

MAURIN and CHAMBAZ (1996), "La persistance dans la pauvreté et son évolution : une évaluation sur données françaises", *Économie et Prévision,* No. 122.

McKAY, S. (1998), "Exploring the dynamics of family change: lone parenthood in Great Britain", in L. Leisering and R. Walker (eds.), *The Dynamics of Modern Society*, The Policy Press, University of Bristol.

MOFFITT, R. (1992), "Incentive effects of the U.S. welfare system: a review", *The Journal of Economic Literature*, Vol. 30, No. 1, March.

MOOD, M.A., F.A. Graybill, and D.C. Boes, (1974), *Introduction to the Theory of Statistics,* McGraw-Hill International Editions, series in Probability and Statistics.

OECD (1995), *OECD Jobs Study*, Paris.

OECD (1997), *Implementing the Jobs Strategy*, Paris.

OECD (1998), *Employment Outlook*, Paris.

OXLEY, H., J-M Burniaux, T-T Dang and M. Mira d'Ercole (1999), "Income distribution and poverty in selected OECD countries", *OECD Economic Studies.*

PINDYCK, R. and D. Rubinfeld (1981), *Econometric Models and Economic Forecasts,* MacGraw-Hill, pp. 273-315.

RUGGLES, P. (1990), *Drawing the Line*, Urban Institute Press, Washington, D.C.

Table 1a. **Poverty rates, gross rates of entry and exit and the share of individuals in poverty over a six-year period**

Average over the period

		Poverty rates (percentage)[1]			Entrants into poverty[2] as percentage of: (average over the period)			Exits from poverty[3] as percentage of: (average over the period)		Percentage of population[4]	
		Beginning year	Ending year	Average over the period	Poor	Non-poor	Total population	Poor	Total population	Poor throughout the period	Poor at least once over the period
Post-tax and transfers											
Canada	1990-95	15.3	9.1	11.4	35.8	4.3	3.7	41.8	5.0	1.8	28.1
Germany	1991-96	8.5	11.3	10.2	39.6	4.2	3.8	37.0	3.5	1.8	19.9
United Kingdom[5]	1991-96	19.5	20.1	20.0	30.4	7.9	6.3	29.1	5.9	6.1	38.4
United States	1988-93	12.9	16.0	14.2	29.7	4.9	4.2	28.6	3.9	4.6	26.0
Pre-tax and transfers											
Canada	1990-95	24.9	27.1	26.3	18.5	6.7	4.9	17.1	4.5	14.3	42.0
Germany	1991-96	24.7	26.9	26.5	17.6	6.3	4.7	13.8	3.5	14.4	38.0
United Kingdom	1991-96	34.7	37.5	36.8	14.4	8.8	5.5	12.3	4.6	23.1	54.4
United States	1988-93	17.4	21.9	19.5	23.9	5.8	4.7	20.4	3.8	8.3	31.5

1. Poverty rate is the number of individuals having adjusted income below 50 per cent of median disposable income, calculated using an equivalence scale equal to 0.5.
2. The total number of poor entering poverty between *t* and *t+1* averaged over the period.
3. The number of poor in period *t* who exit poverty in *t+1*, averaged over the period.
4. The sample includes all those individuals interviewed in each of the six years.
5. Data for the United Kingdom are less comparable to the other countries because they do not include taxes.

Source: OECD.

Table 1b. **Total time over a six-year period that individuals spend in poverty[1]**

		Share of individuals staying in poverty 1-5+ years[2] (percentage)						Share of total years spent in poverty by individuals with 1-5+ years in poverty[3] (percentage)				
		1 year	2 years	3 years	4 years	5+ years	Average	1 year	2 years	3 years	4 years	5+ years
Post-tax and transfers												
Canada	1990-95	35.9	27.0	14.4	9.2	13.5	2.4	14.8	22.1	17.7	15.2	30.3
Germany	1991-96	45.6	19.4	12.0	7.6	15.5	2.4	19.2	16.3	15.2	12.8	36.4
United Kingdom	1991-96	26.0	19.3	13.6	13.2	27.9	3.1	8.3	12.3	13.0	16.9	49.6
United States	1989-93	33.0	18.5	11.2	10.1	27.3	3.0	11.1	12.4	11.2	13.5	51.8
Pre-tax and transfers												
Canada	1990-95	21.5	13.6	10.6	9.8	44.6	3.8	5.7	7.2	8.5	10.4	68.2
Germany	1991-96	20.6	14.3	9.9	9.2	45.9	3.8	5.4	7.5	7.8	9.6	69.8
United Kingdom	1991-96	14.8	12.4	9.7	9.5	53.7	4.2	3.5	5.9	7.0	9.1	74.5
United States	1989-93	27.9	15.1	11.5	8.8	36.7	3.4	8.3	8.9	10.2	10.5	62.1

1. The sample used includes all those individuals interviewed in each of the six years who have experienced poverty (i.e. those included in the last column of Table 1.a).

2. For example, 46.6 per cent of the poor in Germany suffered poverty for one year and 15.2 per cent for five years or more.

3. The following steps were used to calculate the values in each column. First the values in each of the columns of the left hand panel were multiplied (weighted) by the number of years spent in poverty shown in the heading (distinguishing between 5 years and 6+ years). A weight of 6 was given to groups which have six of more years in poverty, thus biasing downward the last column in the right-hand panel. Second, these weighted values were summed over all years to estimate the total number of years spent in poverty by the total population. Third, the values in the columns of the right-hand panel are the results of the first step divided by the total calculated in the second step. The rows sum to 100.

Source: OECD.

Table 2. **Dynamics of poverty: empirical probabilities of exit and re-entry conditional on duration[1]**

		Empirical exit hazards[2] (rate *100)					Empirical re-entry hazards[3] (rate *100)				
		1 year	2 years	3 years	4 years	Average[4] duration	1 year	2 years	3 years	4 years	Average[4] duration
Post-tax and transfers											
Canada	1990-95	55.7	41.3	38.8	35.4	1.6	16.7	9.7	7.9	7.1	2.2
Germany	1991-96	52.7	42.7	32.0	19.1	1.8	25.6	13.0	17.5	15.5	2.5
United Kingdom	1991-96	45.4	37.0	32.3	25.8	2.0	32.8	18.2	11.0	10.0	2.4
United States	1989-93	45.6	31.9	23.1	20.2	2.0	31.8	21.5	18.3	18.6	2.4
Pre-tax and transfers											
Canada	1990-95	41.0	25.3	18.7	14.3	1.9	27.4	16.1	12.2	9.5	2.0
Germany	1991-96	35.4	24.7	17.2	17.1	2.3	29.3	10.2	6.4	3.9	2.5
United Kingdom	1991-96	31.6	23.6	16.9	14.7	2.4	28.7	13.1	13.1	7.5	2.5
United States	1989-93	42.8	28.3	11.8	19.8	2.1	35.1	23.5	17.0	20.7	2.4

1. Latest available six-year period. All spells of poverty (or spells out of poverty for those having just left poverty) whose beginning date is observed and then followed until they end are selected from the sample used in Table 1b. A spell of poverty (or spells of non-poverty in the case of re-entry) may end because the individual transits out of poverty (or re-enters poverty) or because the individual does not transit before the period ends. Therefore, the sample includes spells starting at *t+1*, *t+2*, *t+3* and *t+4* (e.g. in the case of Germany (1991-1996), 1992, 1993, 1994 and 1995).

2. This is calculated as the ratio of those individuals observed to leave poverty after 1, 2, 3 or 4 years in poverty over the population at risk at the beginning of the period. For example, of those who are still in poverty after 1 year, 41.3 per cent are observed to leave poverty between 1 and 2 years in Canada.

3. The re-entry hazard is calculated as the ratio of those individuals observed to fall back into poverty after 1, 2, 3 or 4 years above the poverty line over the population at risk. For example, of those who left poverty and are still above the poverty line after 1 year, 9.7 per cent will fall back into poverty in Canada between 1 and 2 years.

4. The average length of the lag is calculated by weighting the probability by the spell length and summing.

Source: OECD.

Table 3. **Characteristics of the non-poor, shorter-term poor and longer-term poor**

Per cent share of persons with a specified characteristic in each group

Household characteristics	Total population[1]	Non-poor[1]	Poor 1 year[2]	Always poor[1]
Canada				
Head gender				
Head male	83.7	87.9	70.6	72.4
Head female	16.3	12.1	29.4	27.6
	100.0	100.0	100.0	100.0
Work attachment				
No worker	18.3	13.6	45.3	36.4
One worker	31.2	27.9	42.3	43.9
Two workers	39.0	44.3	11.3	17.9
More than two workers	11.5	14.2	1.1	1.8
	100.0	100.0	100.0	100.0
Family type[3]				
Single adult, no children	19.4	16.1	34.3	24.9
Two adults, no children	30.1	32.4	15.5	26.7
Single adult, children	4.4	2.1	11.3	11.6
Two adults, children	31.5	32.4	33.2	29.2
Large families	14.6	16.9	5.7	7.6
	100.0	100.0	100.0	100.0
Age of household head				
Young-age head	28.3	25.0	38.2	28.6
Prime-age head	34.0	35.7	34.8	33.4
Older-working-age head	21.8	22.6	21.6	22.0
Retirement-age head	15.9	16.7	5.4	16.0
	100.0	100.0	100.0	100.0
Education level[4]				
Low education	..	..	..	..
Middle education	..	..	..	..
Higher education	..	..	..	..

Table 3 *(contd.).* **Characteristics of the non-poor, shorter-term poor and longer-term poor**

Per cent share of persons with a specified characteristic in each group

Household characteristics	Total population[1]	Non-poor[1]	Poor 1 year[2]	Always poor[1]
Germany	100.0	80.5	5.5	1.8
Head gender				
Head male	75.4	79.2	57.5	21.4
Head female	24.7	20.8	42.5	78.6
	100.0	100.0	100.0	100.0
Work attachment				
No worker	18.5	15.2	44.6	75.4
One worker	39.3	37.3	48.9	21.3
Two workers	34.8	39.2	3.1	3.3
More than two workers	7.4	8.3	3.4	0.0
	100.0	100.0	100.0	100.0
Family type[3]				
Single adult, no children	14.4	12.2	25.7	30.2
Two adults, no children	41.0	43.6	31.5	18.4
Single adult, children	2.7	1.6	10.9	29.4
Two adults, children	33.6	34.3	24.8	19.5
Large families	8.3	8.3	7.1	2.4
	100.0	100.0	100.0	100.0
Age of household head				
Young-age head	12.7	10.3	22.8	29.7
Prime-age head	45.7	47.3	41.7	33.8
Older-working-age head	26.7	27.7	17.6	10.5
Retirement-age head	14.9	14.6	17.9	26.0
	100.0	100.0	100.0	100.0
Education level[4]				
Low education	28.3	26.0	31.0	29.4
Middle education	52.2	52.7	58.7	64.0
Higher education	19.5	21.3	10.3	6.6
	100.0	100.0	100.0	100.0

Table 3 (*contd.*). **Characteristics of the non-poor, shorter-term poor and longer-term poor**

Per cent share of persons with a specified characteristic in each group

Household characteristics	Total population[1]	Non-poor[1]	Poor 1 year[2]	Always poor[1]
United Kingdom	100.0	61.6	5.6	6.1
Head gender				
Head male	67.7	74.3	53.7	38.4
Head female	32.3	25.8	46.3	61.6
	100.0	100.0	100.0	100.0
Work attachment				
No worker	25.0	10.7	42.7	91.0
One worker	27.2	26.6	33.9	9.0
Two workers	36.1	46.4	19.6	0.0
More than two workers	11.7	16.3	3.8	0.0
	100.0	100.0	100.0	100.0
Family type[3]				
Single adult, no children	10.9	6.2	18.1	40.5
Two adults, no children	42.8	49.9	43.2	14.6
Single adult, children	4.6	1.1	6.1	21.7
Two adults, children	32.4	35.3	21.3	17.3
Large families	9.2	7.6	11.3	6.0
	100.0	100.0	100.0	100.0
Age of household head				
Young-age head	15.5	13.3	17.6	23.5
Prime-age head	47.7	53.6	39.9	23.4
Older-working-age head	20.4	22.0	23.0	11.6
Retirement-age head	16.4	11.1	19.2	41.5
	100.0	100.0	99.7	100.0
Education level[4]				
Low education	33.1	24.4	34.7	63.9
Middle education	36.9	38.0	38.9	29.1
Higher education	30.0	37.6	26.4	7.0
	100.0	100.0	100.0	100.0

Table 3 (*contd.*). **Characteristics of the non-poor, shorter-term poor and longer-term poor**

Per cent share of persons with a specified characteristic in each group

Household characteristics	Total population[1]	Non-poor[1]	Poor 1 year[2]	Always poor[1]
United States	100.0	74.0	3.7	4.6
Head gender				
Head male	79.5	87.0	62.8	25.4
Head female	20.5	13.0	37.3	74.6
	100.0	100.0	100.0	100.0
Work attachment				
No worker	10.7	6.6	17.5	50.0
One worker	32.3	29.1	57.3	41.5
Two workers	42.4	47.6	21.3	6.9
More than two workers	14.6	16.8	3.9	1.6
	100.0	100.0	100.0	100.0
Family type[3]				
Single adult, no children	12.3	10.6	21.7	21.2
Two adults, no children	29.8	34.4	21.1	8.2
Single adult, children	8.1	3.8	14.8	45.7
Two adults, children	35.5	37.7	27.8	13.4
Large families	14.3	13.6	14.6	11.4
	100.0	100.0	100.0	100.0
Age of household head				
Young-age head	19.7	15.7	30.5	35.8
Prime-age head	51.7	55.3	43.3	37.5
Older-working-age head	19.1	20.6	14.7	12.0
Retirement-age head	9.4	8.3	11.5	14.7
	100.0	100.0	100.0	100.0
Education level[4]				
Low education	18.9	12.2	26.4	58.2
Middle education	36.9	35.5	41.1	30.5
Higher education	44.2	52.4	32.5	11.4
	100.0	100.0	100.0	100.0

Note: For definitions see Annex 1, Section 1. Characteristics refer to the household head.

1. Characteristics defined at the beginning of the period.

2. Individuals who are poor in only one year over the period, excluding first and last year.

3. Young, prime-age, older-working-age, and retirement-age refer respectively to households with a head below 30, between 31 and below 50, between 51 and 65, and above 65 years old.

4. Low education is less than higher school; middle is completed high school and higher is more than high-school education.

Source: OECD.

Table 4. **Distribution of transitions by size of income change**[1]

Per cent of total transitions

	Entries into poverty: income range after transit (relative to the poverty line, percentage)											
	Canada						Germany					
	91-100	66-91	50-66	33-50	<33	Total	91-100	66-91	50-66	33-50	<33	Total
Income range before transit (relative to the poverty line, percentage)												
100-110	6.8	7.8	2.0	1.0	1.3	18.9	9.5	4.6	1.7	1.2	0.9	17.9
110-150	11.5	17.0	4.6	2.8	4.0	39.9	14.7	16.0	4.4	3.7	4.5	43.3
150-200	4.6	7.9	3.0	1.7	3.0	20.2	5.1	9.5	3.2	2.9	2.9	23.7
200-300	2.6	5.2	2.1	1.3	2.9	14.1	2.6	4.6	1.5	1.5	1.1	11.4
300+	1.0	2.1	0.9	0.8	1.9	6.7	0.8	1.1	0.4	0.5	1.1	3.8
Total	26.5	40.0	12.6	7.6	13.1	100.0	32.7	35.6	11.3	9.9	10.5	100.0
	United Kingdom						United States					
	91-100	66-91	50-66	33-50	<33	Total	91-100	66-91	50-66	33-50	<33	Total
Income range before transit (relative to the poverty line, percentage)												
100-110	7.1	9.6	3.1	1.3	0.3	21.4	6.0	8.5	3.1	2.0	1.5	21.1
110-150	8.6	18.3	5.6	3.0	1.9	37.4	11.0	20.7	4.9	4.0	3.3	43.8
150-200	4.7	7.7	3.7	2.1	1.5	19.6	4.8	6.6	2.9	2.4	1.8	18.4
200-300	3.4	5.8	2.5	1.6	1.9	15.2	1.9	4.3	2.1	1.5	1.9	11.5
300+	0.9	2.1	1.3	0.4	1.6	6.4	1.1	1.8	0.7	0.6	0.9	5.2
Total	24.8	43.5	16.2	8.4	7.2	100.0	24.7	41.8	13.7	10.5	9.4	100.0

Table 4 (*contd.*). **Distribution of transitions by size of income change**[1]

Per cent of total transitions

	Exits from poverty: income range after transit (relative to the poverty line, percentage)											
	Canada						Germany					
	100-110	110-150	150-200	200-300	300+	Total	100-110	110-150	150-200	200-300	300+	Total
Income range before transit (relative to the poverty line, percentage)												
91-100	5.7	13.3	6.1	2.9	0.9	28.9	9.1	18.5	6.1	1.3	1.2	36.2
66-91	6.3	18.2	9.2	5.2	1.9	40.8	9.2	19.4	6.7	3.2	1.3	39.8
50-66	1.5	4.7	2.8	1.9	0.7	11.6	2.0	6.4	2.4	0.8	0.6	12.2
33-50	0.8	2.6	1.8	1.4	0.5	7.1	0.8	2.5	2.0	0.7	0.3	6.2
<33	1.0	3.6	2.8	2.6	1.5	11.5	1.4	2.1	1.1	1.1	0.0	5.7
Total	15.3	42.4	22.7	14.0	5.5	100.0	22.5	48.9	18.3	7.1	3.3	100.0
	United Kingdom						United States					
	100-110	110-150	150-200	200-300	300+	Total	100-110	110-150	150-200	200-300	300+	Total
Income range before transit (relative to the poverty line, percentage)												
91-100	5.4	12.0	4.8	2.1	1.2	25.5	7.1	12.4	4.2	1.9	0.6	26.2
66-91	9.8	18.9	9.0	5.1	2.0	44.8	8.2	21.7	9.9	2.8	1.2	43.8
50-66	3.0	7.2	3.8	1.9	1.2	17.1	2.7	5.9	3.5	1.7	0.6	14.5
33-50	1.3	3.3	1.7	0.6	0.4	7.3	1.7	4.4	1.6	1.2	0.3	9.2
<33	0.7	1.9	1.3	0.6	0.8	5.3	0.8	2.5	1.3	1.5	0.3	6.3
Total	20.3	43.3	20.6	10.3	5.5	100.0	20.5	46.9	20.5	9.1	3.0	100.0

1.   These tables, often referred to as transition matrices, show, in each cell, the share of individuals who transit who start in a given income range and end in a given income range. The totals are the shares in the rows and columns. Covers most recent six-year period of available data.

Source: OECD.

Table 5. **Frequency of poverty-related events by income component**

Events as a per cent share of transitions into and out of poverty

	Total population			
	Canada	Germany	United Kingdom	United States
Transitions into poverty: *Income components with the largest change at time of transition*				
Earnings of head	25.6	54.3	45.0	56.7
Earnings of spouse	16.7	11.5	12.5	9.2
Other earnings	15.4	2.2	3.1	7.4
Capital and other market income	9.0	9.9	4.9	14.5
Transfers	28.5	21.4	34.1	7.8
Taxes	4.8	0.1	..	0.9
Non-identified	0.0	0.4	0.4	3.6
Sub-total: earnings-related	57.7	68.1	60.5	73.2
Transitions out of poverty: *Income components with the largest change at time of transition*				
Earnings of head	38.1	46.9	36.8	60.7
Earnings of spouse	10.0	11.2	12.1	11.3
Other earnings	5.9	2.9	5.1	6.6
Capital and other market income	5.2	10.3	5.0	10.8
Transfers	38.9	27.9	40.9	7.9
Taxes	1.0	0.5	..	1.4
Non-identified	1.0	0.3	0.0	1.4
Sub-total: earnings-related	54.0	61.0	54.0	78.5
	Working-age population[1]			
	Canada	Germany	United Kingdom	United States
Transitions into poverty: *Income components with the largest change at time of transition*				
Earnings of head	22.1	59.5	54.5	63.0
Earnings of spouse	18.4	12.0	15.2	10.1
Other earnings	16.6	2.2	3.0	6.4
Capital and other market income	9.0	8.5	1.4	9.5
Transfers	29.3	17.5	25.7	7.8
Taxes	4.6	0.2	..	0.7
Non-identified	0.0	0.2	0.3	2.6
Sub-total: earnings-related	57.0	73.7	72.7	79.4
Transitions out of poverty *Income components with the largest change at time of transition*				
Earnings of head	44.4	51.4	44.9	64.4
Earnings of spouse	11.8	12.3	15.2	12.0
Other earnings	6.0	3.2	5.6	6.2
Capital and other market income	4.0	9.1	2.0	7.9
Transfers	31.7	23.0	32.3	7.4
Taxes	1.0	0.6	..	1.2
Non-identified	1.0	0.4	0.0	0.9
Sub-total: earnings-related	62.2	66.9	65.7	82.6

Note: The income changes were constrained to be of the same sign as the change in total income (except taxes). The change in the components were then computed and the component with the largest change was identified with the transition. Covers most recent six-year period of available data.

1.   Refers to individual belonging to households with a working age head.

Source: OECD.

Table 6. **Frequency of "events" associated with poverty transitions**

Per cent share of total transitions

		Entries			Exits		
		Total population	Working-age population[1]		Total population	Working-age population[1]
Canada	Transitions by type:			Transitions by type:		
	Employment/earnings-related	26.1	28.1	Employment/earnings-related	38.4	44.4
	of which: Change in employment accompanied by increasing needs	0.1	0.1	*of which:* Change in employment accompanied by decreasing needs	0.2	0.3
	Family structure-related	19.0	20.4	Family structure-related	16.1	28.1
	Other factors (no change in employment or family status)[2]	37.9	33.7	Other factors (no change in employment or family status)	28.2	19.7
	of which: Unemployed	13.3	7.1	*of which:* Unemployed	19.4	10.3
	Employed	24.6	26.6	Employed	8.8	9.4
	Unidentified	17.0	17.8	Unidentified	17.3	7.8
Germany	Transitions by type:			Transitions by type:		
	Employment/earnings-related	47.5	51.5	Employment/earnings-related	47.5	52.4
	of which: Change in employment accompanied by increasing needs	8.3	9.0	*of which:* Change in employment accompanied by decreasing needs	1.3	1.5
	Family structure-related	23.9	24.3	Family structure-related	13.1	14.5
	Other factors (no change in employment or family status)[2]	23.1	18.2	Other factors (no change in employment or family status)	32.1	25.4
	of which: Unemployed	16.0	10.5	*of which:* Unemployed	20.1	13.1
	Employed	7.1	7.7	Employed	12.0	12.3
	Unidentified	5.5	6.0	Unidentified	7.3	7.7

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Table 6 (*contd.*). **Frequency of "events" associated with poverty transitions**

Per cent share of total transitions

		Entries			Exits		
		Total population	Working-age population[1]			Total population	Working-age population[1]
United Kingdom	Transitions by type:				Transitions by type:		
	Employment/earnings-related	28.3	35.2		Employment/earnings-related	41.6	52.5
	of which: Change in employment accompanied by increasing needs	4.7	6.2		*of which:* Change in employment accompanied by decreasing needs	1.1	1.4
	Family structure-related	23.8	26.9		Family structure-related	8.3	9.4
	Other factors (no change in employment or family status)	37.1	24.4		Other factors (no change in employment or family status)	41.4	27.1
	of which: Unemployed	32.8	19.2		*of which:* Unemployed	35.4	19.7
	Employed	4.3	5.2		Employed	6.0	7.4
	Unidentified	10.8	13.5		Unidentified	8.7	11.1
United States	Transitions by type:				Transitions by type:		
	Employment/earnings-related	53.7	57.4		Employment/earnings-related	63.9	66.6
	of which: Change in employment accompanied by increasing needs	10.1	11.1		*of which:* Change in employment accompanied by decreasing needs	2.9	3.0
	Family structure-related	24.1	25.3		Family structure-related	12.5	13.5
	Other factors (no change in employment or family status)	13.9	8.4		Other factors (no change in employment or family status)	11.4	7.7
	of which: Unemployed	9.6	3.8		*of which:* Unemployed	6.8	2.8
	Employed	4.3	4.6		Employed	4.6	4.9
	Unidentified	8.3	8.9		Unidentified	12.2	12.2

Note: See Annex 1, Section 2, for description. Covers most recent six-year period of available data.

1. Refers to individuals in households with a working-age head.

2. Households which were employed or unemployed in both periods. Largely transfer-related.

Source: OECD.

Table 7. **Frequency of "events" associated with poverty transitions: by family type[1,2]**

Per cent share of total transitions

		Entries			
		Single adult, no child	2 adults, no children	Single adult, children	2 adults, children
Canada	Share of family type in total sample	17.9	42.0	3.4	36.7
	Share of family type in total transitions	23.3	28.5	11.8	36.5
	Transitions which were:				
	Employment/earnings-related	20.4	31.7	13.3	34.9
	of which: Change in employment accompanied by increasing needs	..	0.0	0.0	0.3
	Family structure-related	30.0	14.5	54.6	7.5
	Other factors (no change in employment or family status)[2]	44.8	34.4	20.1	29.7
	of which: Unemployed	12.6	9.1	7.8	0.6
	Employed	32.2	25.3	12.3	29.1
	Unidentified	4.8	19.4	12.0	27.9
Germany	Share of family type in total sample	8.8	38.4	2.3	50.4
	Share of family type in total transitions	18.5	25.3	11.2	45.0
	Transitions which were:				
	Employment/earnings-related	33.8	55.6	23.5	69.0
	of which: Change in employment accompanied by increasing needs	..	7.0	1.3	14.9
	Family structure-related	41.9	24.4	51.3	11.4
	Other factors (no change in employment or family status)[2]	21.5	14.4	21.9	11.8
	of which: Unemployed	18.4	10.5	19.1	6.1
	Employed	3.1	4.0	2.8	5.6
	Unidentified	2.8	5.6	3.3	7.8
United Kingdom	Share of family type in total sample	10.4	40.6	4.3	44.7
	Share of family type in total transitions	23.6	27.3	12.8	36.4
	Transitions which were:				
	Employment/earnings-related	12.2	32.4	15.4	53.6
	of which: Change in employment accompanied by increasing needs	..	2.4	2.0	11.4
	Family structure-related	48.6	21.5	62.2	9.3
	Other factors (no change in employment or family status)	31.2	29.5	16.0	20.5
	of which: Unemployed	29.7	25.8	13.7	14.7
	Employed	1.4	3.6	2.3	5.8
	Unidentified	8.0	16.7	6.4	16.5
United States	Share of family type in total sample	9.5	24.7	10.1	55.7
	Share of family type in total transitions	16.4	17.1	21.1	45.3
	Transitions which were:				
	Employment/earnings-related	46.3	62.1	37.1	69.0
	of which: Change in employment accompanied by increasing needs	..	7.7	5.5	17.6
	Family structure-related	33.8	18.6	50.7	12.5
	Other factors (no change in employment or family status)	16.9	10.4	6.7	6.3
	of which: Unemployed	11.7	6.7	3.3	1.1
	Employed	5.2	3.7	3.4	5.2
	Unidentified	3.0	8.9	5.5	12.2

Table 7 (*contd.*). **Frequency of "events" associated with poverty transitions: by family type[1,2]**

Per cent share of total transitions

		Exits			
		Single adult, no child	2 adults, no children	Single adult, children	2 adults, children
Canada	Share of family type in total sample	17.9	42.0	3.4	36.7
	Share of family type in total transitions	23.4	31.2	11.7	33.7
	Transitions which were:				
	Employment/earnings-related	30.2	29.2	22.3	58.2
	of which: Change in employment accompanied by decreasing needs	..	..	..	..
	Family structure-related	26.5	7.1	40.8	8.5
	Other factors (no change in employment or family status)[2]	37.1	39.4	29.0	11.2
	of which: Unemployed	29.6	30.4	17.3	2.7
	Employed	7.5	9.0	11.7	8.5
	Unidentified	6.2	24.3	7.9	22.1
Germany	Share of family type in total sample	8.8	38.4	2.3	50.4
	Share of family type in total transitions	19.2	22.5	10.4	47.8
	Transitions which were:				
	Employment/earnings-related	51.2	53.9	47.2	66.0
	of which: Change in employment accompanied by decreasing needs	..	0.5	..	2.5
	Family structure-related	17.5	12.9	25.0	11.1
	Other factors (no change in employment or family status)[2]	24.8	22.1	23.6	14.7
	of which: Unemployed	21.4	17.1	18.3	8.2
	Employed	3.4	5.1	5.3	6.5
	Unidentified	6.5	11.1	4.2	8.2
United Kingdom	Share of family type in total sample	10.4	40.6	4.3	44.7
	Share of family type in total transitions	20.6	28.0	11.5	39.9
	Transitions which were:				
	Employment/earnings-related	38.3	40.7	72.2	57.3
	of which: Change in employment accompanied by decreasing needs	..	1.4	..	2.1
	Family structure-related	8.1	10.4	0.0	12.0
	Other factors (no change in employment or family status)	49.0	32.7	24.6	17.7
	of which: Unemployed	44.4	28.0	18.1	10.9
	Employed	4.6	4.7	6.5	6.8
	Unidentified	4.5	16.2	3.2	12.9
United States	Share of family type in total sample	9.5	24.7	10.1	55.7
	Share of family type in total transitions	13.9	13.9	20.3	51.9
	Transitions which were:				
	Employment/earnings-related	71.5	60.3	63.5	67.9
	of which: Change in employment accompanied by decreasing needs	..	2.3	..	4.9
	Family structure-related	8.0	17.7	22.9	10.1
	Other factors (no change in employment or family status)	15.7	10.4	7.3	5.6
	of which: Unemployed	8.8	6.4	3.3	0.6
	Employed	6.9	4.0	4.0	5.0
	Unidentified	4.8	11.6	6.3	16.4

1.   Refers to individuals in household with a working-age head.

2.   Household characteristics are defined in the period after entry into poverty and the period before exit.

Source: OECD.

Table 8. **"Events" associated with entry into and exit from poverty: logit estimates**

Entry	Canada	Germany	United Kingdom	United States
Variables				
Intercept	-2.21**	-2.82**	-2.29**	-2.79**
No change in employment status and family status	*Base*	*base*	*base*	*base*
Employment status change/no change in family status				
Loss of all workers	2.34**	2.81**	1.65**	2.32**
Loss of some but not all workers	0.71**	0.76**	0.03	1.35**
One worker fall in hours	..	2.03**	1.03**	1.69**
More than one worker fall in hours	..	0.15	-1.48**	0.18
Other change	-0.31**	-0.78**	0.05	-0.45**
Change in family status/no change in employment status				
Separations/divorce (spouse becomes head)		2.74**	0.72**	1.14**
Child becomes head		2.38**	0.47*	1.59**
Other becomes head		1.89*	0.67*	-0.25
Arrival of children		0.01	0.89**	0.39**
More members		1.38**	-0.42	1.16**
Less members		0.04	0.37*	-0.13
Simultaneous changes in employment and family status				
Loss of all workers				
Separations/divorce (spouse becomes head)		5.36**	3.75**	3.95**
Child becomes head		5.62**	5.05**	
Other adult becomes head			4.57**	2.68**
Arrival of children		3.71**	2.23**	3.13**
More members		4.02**		
Less members		3.36**	2.46**	3.13**
Loss of some but not all workers				
Separations/divorce (spouse becomes head)	2.08**	2.91**	1.12**	3.34**
Child becomes head		2.57**	1.03**	2.79**
Other adult becomes head		3.22**	-0.28	1.28**
Arrival of children	1.04**	1.45**	-0.43	1.60**
More members	0.88**	2.03**		1.87**
Less members	0.76**	0.80**	0.43**	0.83**
One worker fall in hours				
Separations/divorce (spouse becomes head)		1.80	2.85**	4.40**
Child becomes head		5.62**	3.12*	4.27**
Other adult becomes head				1.51
Arrival of children		3.21**		3.42**
More members		3.92**		1.87**
Less members		2.65**	2.33**	2.05**
More than one worker fall in hours				
Separations/divorce (spouse becomes head)		5.45**		2.75**
Child becomes head				1.29**
Other adult becomes head				1.12
Arrival of children				0.14
More members				0.98*
Less members		2.65**		-1.05
Other change in employment				
Separations/divorce (spouse becomes head)		0.83	0.83**	1.48**
Child becomes head		0.45	0.25	1.64
Other adult becomes head		0.29	1.99**	-1.47**
Arrival of children		0.73	0.66**	0.28
More members	-0.76**	-0.84	-0.68**	0.02
Less members	0.18	-0.01	1.10**	-0.22
Score[1]	**26509** †	**6066** †	**6580** †	**10778** †
Schwartz criterion[2]	**7264**	**9888**	**15711**	**21367**

*   Significant at 5 per cent confidence level.

**   Significant at 1 per cent confidence level.

†   Significant with a p-value of 0.0001.

1.   The score statistic gives a test for the joint significance of the explanatory variables in the model.

2.   The Schwartz criterion is primarily used for comparing different models for the same data. In general, when comparing models, lower values of this criterion indicates a better model.

Table 8 (*contd.*). **"Events" associated with entry into and exit from poverty: logit estimates**

Exit	Canada	Germany	United Kingdom	United States
Variables				
Intercept	-0.15**	0.15	-0.25**	-0.80**
No change in employment status and family status		base	base	base
Employment change/no change in family status				
From zero to at least one worker	0.72**	0.53**	0.45**	0.39**
Additional workers in working households	1.05**	0.99**	1.12**	1.61**
One worker increase in hours	-0.39	1.96**	0.12	1.53**
More than one worker increase in hours		-0.47**	0.33	2.01**
Other change		-0.20	0.64**	-0.06
Change in family status/no change in employment				
Head female becomes spouse	0.83**		0.01	0.31
Child becomes spouse			1.29**	0.94
Other becomes spouse		1.69**		-0.17
Arrival of children	-0.04	0.25	-0.26	-0.40
More members	0.33*		0.28	-0.48
Less members	0.53**	0.57	0.75	1.36**
Simultaneous changes in employment and family status				
From zero to at least one worker				
Marriage (head female becomes spouse)	1.97**	0.30	-0.28	2.38**
Marriage (child becomes spouse)			1.43	
Marriage (other becomes spouse)		2.00**		2.16**
Arrival of children	0.43	0.05		0.84
More members	1.82**		3.92**	0.58
Less members	0.88**	0.63		1.28*
Additional work in working households				
Head female becomes spouse	2.72**	-0.13	0.88*	3.56**
Child becomes spouse				3.37**
Other becomes spouse				2.41**
Arrival of children	0.68*			1.89**
More members	1.73**	2.38*		1.36**
Less members	1.38**	-1.18		2.59**
One worker increase in hours				
Head female becomes spouse				
Child becomes spouse				
Other becomes spouse				1.81
Arrival of children		0.83		0.92*
More members				
Less members				
Two workers increase in hours				
Head female becomes spouse				3.49**
Child becomes spouse				
Other becomes spouse				3.24**
Arrival of children				2.24**
More members				
Less members				2.74**
Other change in employment				
Head female becomes spouse			0.95**	0.68
Child becomes spouse			0.62	0.67
Other becomes spouse				-0.10
Arrival of children			1.09**	-0.13
More members			0.07*	2.45**
Less members			-0.07**	0.43**
Score[1]		358 †	572 †	2234 †
Schwartz criterion[2]		3737	9983	13335

*   Significant at 5 per cent confidence level.

**   Significant at 1 per cent confidence level.

†   Significant with a p-value of 0.0001.

1.   The score statistic gives a test for the joint significance of the explanatory variables in the model.

2.   The Schwartz criterion is primarily used for comparing different models for the same data. In general, when comparing models, lower values of this criterion indicates a better model.

Table 9. **Estimates of exit rates from poverty by length of time spent in poverty**[1]

Length of time above the poverty line	Canada, 1986-1995		Germany, 1984-1996		United Kingdom, 1991-1996		United States, 1980-1993	
	Probability of exiting poverty	Share of those remaining in poverty	Probability of exiting poverty	Share of those remaining in poverty	Probability of exiting poverty	Share of those remaining in poverty	Probability of exiting poverty	Share of those remaining in poverty
1 year	0.50	0.50	0.50	0.50	0.36	0.64	0.41	0.59
2 years	0.45	0.27	0.42	0.29	0.25	0.48	0.34	0.39
3 years	0.40	0.17	0.35	0.19	0.17	0.40	0.28	0.28
4 years	0.35	0.11	0.28	0.13	0.11	0.36	0.22	0.22
5 years	0.30	0.07	0.22	0.10	0.07	0.33	0.18	0.18
6 years	0.26	0.06	0.17	0.09			0.14	0.16
7 years	0.22	0.04	0.13	0.08			0.11	0.14
8 years	0.19	0.03	0.10	0.07			0.08	0.13
9 years			0.07	0.06			0.06	0.12
10 years			0.05	0.06			0.05	0.12

1.   These estimates represent the probability of leaving a poverty spell conditional on the length of time already spent in poverty (see Annex 1, Section 3). These results correspond to an average prime-age individual, with high-school level of education (with no disabilities or health problems).

Table 10. **Percentage of people remaining in poverty[1]**

	No-one employed			Head employed			Head and some other family member employed		
	1 or more years	4 or more years	10 or more years	1 or more years	4 or more years	10 or more years	1 or more years	4 or more years	10 or more years
Canada									
Reference person[2]	54.7	14.6	4.3	48.4	9.6	2.1	43.2	6.6	1.0
Alternative characteristics									
Old age person (65+)	41.5	5.7	0.8	35.5	3.3	0.3	30.9	2.0	0.1
Two or more adults households with children	57.4	17.2	5.7	51.1	11.7	2.9	45.9	8.1	1.5
Germany									
Reference person[2]	55.5	19.0	10.1	38.6	6.1	1.8	27.8	2.1	0.3
Alternative characteristics									
Single parent households	64.4	29.4	18.8	47.6	11.8	5.0	35.8	4.8	1.3
Previous poverty experience	61.1	25.2	15.1	44.1	9.3	3.5	32.6	3.5	0.8
High growth scenario (GDP growth rate = 3 per cent)	51.8	15.9	7.9	36.7	5.2	1.4	26.3	1.7	0.2
United Kingdom									
Reference person[2]	60.7	31.3		42.4	12.3		29.0	4.1	
Alternative characteristics									
Single parent households	64.5	36.3		46.4	15.6		32.3	5.7	
Previous Poverty experience	68.7	42.4		51.1	20.2		36.7	8.2	
United States									
Reference person[2]	58.1	20.7	10.4	52.9	15.5	6.7	44.4	8.9	2.8
Alternative characteristics									
Low educational attainment	62.6	25.9	14.6						
High educational attainment	47.2	10.8	3.9						
Non-white	64.4	28.3	16.6						
Non-white with low education	68.6	34.1	21.9						
Single parent households	62.7	26.1	14.7	57.6	20.2	10.1			
Previous Poverty experience	63.0	26.5	15.0	58.0	20.5	10.3	49.5	12.5	4.9
High growth scenario (GDP growth rate=3 per cent)	56.7	19.2	9.3				43.0	8.0	2.4
The worst hit person[3]	76.4	47.0	34.6	72.5	40.2	27.7			

1. Calculations based on the logit estimates of a duration model of the time spent in single poverty spells by individuals who fall into poverty (see Annex 1, Section 3). Taking the value in the fourth row, third column as an example, the percentage of people who are still in poverty after ten years is 10.1 in Germany, the reference person when no-one is employed in the household.
2. The reference person is a prime-age male, with high-school level of education, who is head of household, single, with no dependent children and not working at the time of falling into poverty.
3. Belonging to a female-headed, single-parent household, non-white with low education and previous poverty spells.

Table 11. **Average duration in poverty according to certain household characteristics**

	Average duration

Canada

	Index
Reference person	100.00
The head is employed	89.73
Head + someone else employed in the household	81.93
Old age person (65+)	79.52
A household with two adults or more and kids	104.61

Germany

	Index
Reference person	100.00
The head is employed	77.31
Head + someone else employed in the household	64.62
One adult (female) with children	111.64
The individual has suffered one previous spell in poverty	107.36
No one employed, previous spell in poverty, one adult (female) with children	

United Kingdom

	Index
Reference person	100.00
The head is employed	85.16
Head + someone else employed in the household	72.42
Female headed household with children	102.61
Previous experience in poverty	105.42
No one employed, previous spell in poverty, one adult (female) with children	107.51

United States

	Index
Reference person	100.00
With low educational attainment	106.28
With high educational attainment	84.75
Non-white person	108.82
Low educated and non-white	114.50
The head is employed	92.69
Head + someone else employed in the household	80.86
Female head, no other adult and children	106.42
Two or more adults without children	92.82
Two or more adults with children	92.98
Head employed, someone else employed, and household with two adults or more and no children	67.37
One other previous experience in poverty	106.85
Disabled	105.48
Previous experience in poverty, non-white, low education and female headed family with no other adults and with children	124.78

Note: The *Reference person* is a prime-age male, with high school level of education, who is head of household, single, with no dependent children and not working at the time of falling into poverty. Average duration is calculated as an index number because differences in the period of coverage across countries vitiates cross-country comparisons of estimated levels. However relative comparisons according to individual characteristics are still possible.

Table 12. **Estimates of poverty re-entry by length of time spent out of poverty[1]**

Length of time above the poverty line	Canada, 1986-1995		Germany, 1984-1996		United Kingdom, 1991-1996		United States, 1980-1993	
	Probability of re-entry into poverty	Share of those remaining above the poverty line	Probability of re-entry into poverty	Share of those remaining above the poverty line	Probability of re-entry into poverty	Share of those remaining above the poverty line	Probability of re-entry into poverty	Share of those remaining above the poverty line
1 year	0.16	0.84	0.17	0.83	0.23	0.77	0.18	0.82
2 years	0.12	0.74	0.14	0.71	0.12	0.68	0.15	0.70
3 years	0.09	0.67	0.11	0.63	0.06	0.63	0.12	0.61
4 years	0.06	0.63	0.09	0.57	0.03	0.61	0.10	0.55
5 years	0.04	0.60	0.07	0.53	0.02	0.61	0.08	0.51
6 years	0.03	0.58	0.06	0.50			0.06	0.48
7 years	0.02	0.57	0.05	0.48			0.05	0.46
8 years	0.02	0.56	0.04	0.46			0.04	0.44
9 years			0.03	0.45			0.03	0.43
10 years			0.02	0.44			0.02	0.42

1. These estimates are for the reference person -- defined as a single, prime-age individuals, with high-school education and no disabilities -- and results would differ for a person with different characteristics. The first column in each panel shows the probability of leaving poverty conditional on having been in poverty in the previous period. Taking the value for the fourth period in Germany as an example, the probability of exiting poverty having already been in poverty for three years is 0.22. The second column shows for each period the share of those who fell poor using the probabilities in column 1. After four years, the share of individuals remaining in poverty in Germany is 0.23.

Figure 1**. Three dimensions of low income: "static" low-income rates and rates for "those always on low income" and "having experienced low income"**

■ "static" low-income rate   ▨ "6 years" low-income rate   ▢ "at least once" low-income rate

Panel A. Post-tax and transfers

Panel B. Pre-tax and transfers
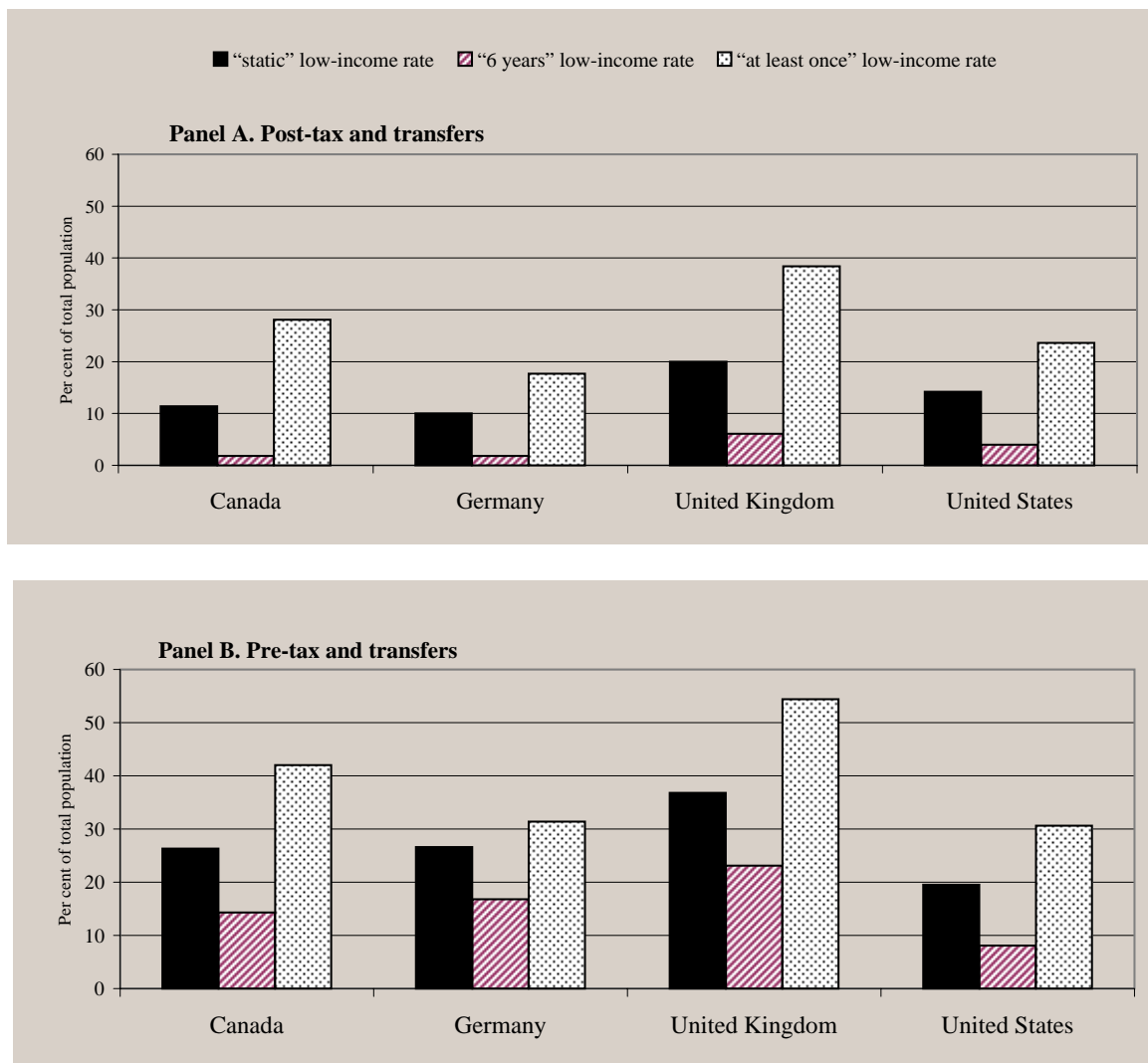
Note: The "static" low-income rate is the share of those below the low-income threshold in the total population in each year averaged over the period. The "6 years" low-income rate is the share of individuals who are on low incomes for the all 6 years as a share of the total population. The rate of persons having experienced low incomes is the share of those who have experienced at least one year of poverty over the six year period as share of the total population.
Source: OECD.

ANNEX 1: TECHNICAL NOTES

52.   This annex contains background information to the main paper. The first section describes the data sources and issues and provides some supplementary descriptive information from Part 3 of the main paper. Sections 2 and 3 explain in greater detail the methodology and the results from Section 4 (poverty transitions) and Section 5 (poverty duration) in the main paper.

1. Data sources and methodology

1.1. Data sources

53.   The data used in this study are longitudinal micro-databases containing socio-economic information on private households for four countries. This type of data set allows individuals to be followed over time.

54.   The *Canadian Longitudinal Administrative Database (LAD):* This data file runs from 1982 to 1994. This is a large file based on tax records and this information is used to attach family-based information to individuals. Inclusion in the sample requires the individual to have filed tax and the person is excluded if he or she stops filing for tax, and are replaced by other filers. The population coverage of the adult population is high, reflecting the high rate of tax filing. While income variables are generally of high quality (except for non-taxable income transfers before 1992), the amount of additional information or more detailed information on employment status, hours worked, and individual characteristics (e.g. education) is limited[41].   In addition to this limited information on individual and household characteristics, it is not possible to trace children over time, for example, as they form new households. To define households a concept referred as "census families" was used as oppose to the household concept on survey data[42].

55.   The *German Socio-Economic Panel (GSOEP)* is a longitudinal data set which contains information on around 28 000 individuals, around 16 000 households. The GSOEP in its current version (1997) contains 13 waves, from 1984 to 1996. It covers all Germany since 1991 (only West Germany from 1984 to 1990). The study only makes use of the West German sub-sample.

56.   Due to German data protection laws, researchers outside Germany only have access to a 95 per cent random sample of the original sample. This study uses the information as provided by the Syracuse University in the GSOEP Equivalent File. The Equivalent File attempts to create a common set of variables for Germany and for the Panel Survey of Income Dynamics (PSID) for the United States.

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41.   These gaps should be filled by the more recent Survey on Labour and Income Dynamics (SLID)

42.   This includes "husbands and wives (common law or legally married) with or without their never-married children, lone parents and their never-married children, with everyone else being a non-family person". Thus there can be several census families living in the same household – e.g. a divorced daughter with a child living with her parents would be classified a belonging to a separate household.

57.   The GSOEP provides full information in each wave of the individual characteristics (e.g. sex, age, nationality), family status (e.g. marital status, relationship with respect to the head of the household, household members), human capital variables (e.g. education) and labour-market status, as well as income information. Data on income in the Equivalent File is based on original information in the GSOEP plus tax simulation done at Syracuse.

58.   The *British Household Panel Survey (BHPS)* runs from 1991 to 1996 and is a nationally representative sample of private households in Great Britain. Its current version includes waves one to six from 1991 to 1996. The sample size is about 5 500 households with around 17 000 individuals. The full sample is used throughout the study. Data for taxes were not available in the data file for all years and pre-tax income was used in this study.

59.   The *Panel Survey of Income Dynamics (PSID)* is a longitudinal survey, starting in 1968, of a representative sample of US individuals and the family units in which they reside. The study is conducted at the Survey Research Center, Institute for Social Research, University of Michigan. It emphasises the dynamic aspects of economic and demographic behaviour, but its content is broad, including sociological and psychological measures. The data are collected annually, and the data files contain the full span of information collected over the course of the study. This study uses the PSID Equivalent file, as provided by the University of Syracuse, which is an attempt to create a homogeneous set of variables, in particular, income variables for Germany and the United States. This file only includes the PSID waves from 1980 to 1993. The sample size used is of around 33 000 individuals grouped in around 7 800 households.

60.   The sample for sections three and four of the study uses only the last six waves available of each longitudinal data set. That is, from 1991 to 1996 for the BHPS and GSOEP Equivalent File; from 1990 to 1995 for the LAD; and from 1988 to 1993 for the PSID Equivalent File. The sample in Section 5 includes all information available. It includes all the West German sub-sample from 1984 to 1996, the LAD sample from 1985 to 1995, the BHPS from 1991 to 1996 and the PSID Equivalent File from 1980 to 1993.

61.   Table 1a uses the information in each of the last six waves, while Table 1b uses a sub-sample of all those individuals interviewed in each of the last six waves. Data in Table 2 is further restricted to include only those spells of poverty whose beginning period can be observed over the last six years or waves. Tables 3 to 7 use a sample consisting of all individuals who transit into or out of poverty between two consecutive years of the sample among all individuals interviewed in each of the last six years, but excluding those individuals who were poor in the first year. Tables corresponding to Section 5 use a sample of all poverty spells of individuals which began between 1984 and 1996 in the West German sub-sample of the GSOEP; between 1991 and 1996 for the BHPS; between 1985 and 1995 for the LAD; and between 1980 and 1993 for the PSID.

62.   Where appropriate, the samples were weighted to make them representative of the whole population.

1.2. Defining poverty thresholds

63.   The household unity and the income and concept employ the same definitions used in Burniaux *et al.* (1998) Annex 1 using an equivalence scale elasticity of 0.5. The poverty threshold is defined as 50 per cent of median income.

1.3. Characteristics of the non-poor, shorter-term poor and longer-term poor (Table 3)

64.   Two tables are presented as background to Table 3: one for the total population (a cut-down version of this is shown in Table 3 of the main text) and for individuals living in households with a

working-age head (referred to below as the "working-age" population (see Table A2). Each table presents information for three groups depending on the poverty experience over the six-year period. These can be defined in terms of a sequence of N's (not poor) and P's (poor):

- The longer-term poor: those poor throughout the period – i.e. with a sequence PPPPPP. This group also includes those poor for six or more years.

- Those never poor: all individuals with a sequence NNNNNN.

- The short-term poor: those only poor once in the six-year period where the beginning and the end of the spell is observed, i.e. individuals with the sequences NPNNNN, NNPNNN, NNNPNN, NNNNPN.

65.   Individuals in each of these three groups were then decomposed by the characteristics of the households in which they live: sex of the household head; employment status (no worker; one worker; two workers and more than two workers); family type (single-adult households with and without children and two or more adult households with and without children); age of the household head broken down into four groups (young heads: 18 to 30 years old; prime-age heads: 31 to 50; older working-age heads: 51 to 65 and retirement-age heads: above 65 years of age); education of the household head (lower education: individuals in households where the head has less than high-school leaving certificate; middle: with high-school leaving certificate; and, higher: is more than secondary leaving certificate).

66.   The degree of concentration of particular characteristics among the longer-term or shorter-term poor is indicated by comparing the shares (by characteristic) for these two groups with the share (for the same characteristic) at the level of the total population and of the non-poor.

67.   Results can depend on the year in which the characteristics are defined for the total population, the "non-poor" and the "always" poor particularly for the breakdown by age which ages over the period. For this reason, the results in Table A1 are also defined at the beginning and end of the period. The results broadly hold whichever period is used.

68.   A comparison between the total population and "working-age" population in Table A.1. shows that the retirement-age households (which are concentrated in single and two adult households without children) are more concentrated among longer-term poor. Take, as an example, single-adult households with no children for the United States. For the total population (left-hand panel) characteristics at the beginning of the period, the share of this group in the long-term poor is 53.3 per cent compared with 13.2 per cent for the non-poor. For the "working-age" population (right-hand panel characteristics defined at the beginning of the period), the share of this group in the long-term poor drops to 11.4 per cent compared with a share of 12.1 for the non-poor. This difference is less marked for the United Kingdom.

Table A1. **Characteristics of the non-poor, shorter-term poor and longer-term poor:
Total population and working-age population**[1]

Per cent share of persons with a specified characteristic in each group

Household characteristics	Total population							Working-age population						
	Total population		Non-poor		Poor 1 year[2]	Always poor		Total population		Non-poor		Poor	Always poor	
	Begin period	End period	Begin period	End period	current year	Begin period	End period	Begin period	End period	Begin period	End period	1 year[1] current year	Begin period	End period
Germany	100.0	100.0	80.5	80.5	5.5	1.8	1.8	100.0	100.0	80.4	80.3	5.6	1.6	
Head gender														
Head male	75.4	70.4	79.2	76.1	57.5	21.4	21.1	77.6	73.0	80.9	78.5	57.8	20.0	14.2
Head female	24.7	29.6	20.8	23.9	42.5	78.6	78.9	22.4	27.0	19.1	21.5	43.2	80.0	85.8
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	101.0	100.0	100.0
Work attachment														
No worker	18.5	24.7	15.2	20.7	44.6	75.4	67.8	4.8	9.1	1.0	4.5	32.2	65.8	54.7
One worker	39.3	37.7	37.3	36.3	48.9	21.3	32.2	44.6	44.1	41.9	41.8	61.1	29.7	45.3
Two workers	34.8	32.3	39.2	36.5	3.1	3.3	0.0	41.5	40.2	46.9	45.6	2.4	4.5	0.0
Two or more workers	7.4	5.2	8.3	6.5	3.4	0.0	0.0	9.1	6.6	10.1	8.2	4.3	0.0	0.0
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Family type														
Single adult, no children	14.4	17.2	12.2	14.5	25.7	30.2	25.2	10.1	11.2	8.8	9.4	21.3	10.0	8.2
Two adults, no children	41.0	42.0	43.6	45.5	31.5	18.4	21.4	33.7	37.3	35.6	39.8	23.5	18.6	23.8
Single adult, children	2.7	2.9	1.6	0.9	10.9	29.4	32.8	3.5	3.7	2.0	1.1	14.3	40.9	51.5
Two adults, children	33.6	31.2	34.3	32.7	24.8	19.5	13.6	42.2	39.4	43.1	41.4	21.7	27.2	16.4
Large families	8.3	6.7	8.3	6.5	7.1	2.4	7.0	10.6	8.5	10.6	8.2	9.2	3.4	0.0
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	90.0	100.0	100.0
Age of household head [3]														
Young-age head	12.7	8.7	10.3	6.1	22.8	29.7	7.8	16.2	10.7	13.3	7.6	25.5	41.3	10.0
Prime-age head	45.7	45.0	47.3	45.4	41.7	33.8	53.9	58.5	57.1	60.8	57.8	58.3	47.0	71.5
Older working-age head	26.7	25.5	27.7	27.4	17.6	10.5	10.2	25.3	32.2	27.0	34.6	16.3	11.7	18.6
Retirement-age head	14.9	20.8	14.6	21.0	17.9	26.0	28.2							
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	101.0	100.0	100.0	100.0	100.0
Education level [4]														
Low education	28.3	28.2	26.0	25.8	31.0	29.4	29.4	27.4	26.9	25.2	24.7	37.7	11.9	15.9
Middle education	52.2	52.0	52.7	52.9	58.7	64.0	62.3	52.1	52.1	52.5	52.9	53.0	78.9	73.2
Higher education	19.5	19.8	21.3	21.3	10.3	6.6	8.4	20.6	21.0	22.3	22.4	9.3	9.2	10.9
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table A1 (*contd.*). **Characteristics of the non-poor, shorter-term poor and longer-term poor:**
Total population and working-age population[1]

Per cent share of persons with a specified characteristic in each group

Household characteristics	Total population							Working-age population						
	Total population		Non-poor		Poor 1 year[2]	Always poor		Total population		Non-poor		Poor	Always poor	
	Begin period	End period	Begin period	End period	current year	Begin period	End period	Begin period	End period	Begin period	End period	1 year[1] current year	Begin period	End period
United Kingdom	100.0	100.0	61.6	61.6	5.6	6.1	6.1	100.0	100.0	66.3	66.3	5.3	4.1	
Head gender														
Head male	67.7	62.1	74.3	70.2	53.7	38.4	33.7	70.6	64.6	75.4	71.4	59.0	43.1	37.6
Head female	32.3	37.9	25.8	29.8	46.3	61.6	66.3	29.4	35.4	24.6	28.7	41.0	56.9	62.5
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Work attachment														
No worker	25.0	28.7	10.7	14.3	42.7	91.0	82.6	12.2	14.2	2.4	4.2	31.5	82.9	66.9
One worker	27.2	25.0	26.6	24.7	33.9	9.0	12.4	29.0	27.7	25.8	24.6	39.0	17.1	23.3
Two workers	36.1	34.3	46.4	45.2	19.6	0.0	4.0	44.5	42.8	53.3	52.4	24.3	0.0	7.7
Two or more workers	11.7	12.0	16.3	15.9	3.8	0.0	1.1	14.3	15.3	18.5	18.9	5.2	0.0	2.1
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Family type														
Single adult, no children	10.9	14.5	6.2	8.2	18.1	40.5	43.2	5.1	7.5	4.8	6.0	16.0	9.0	15.6
Two adults, no children	42.8	46.0	49.9	55.3	43.2	14.6	12.0	35.8	42.0	42.9	50.5	31.8	3.5	4.7
Single adult, children	4.6	4.1	1.1	1.1	6.1	21.7	14.7	5.9	5.3	1.4	1.3	8.4	42.2	45.3
Two adults, children	32.4	27.1	35.3	29.8	21.3	17.3	14.5	41.3	34.8	41.9	35.4	29.4	33.6	28.2
Large families	9.2	8.2	7.6	5.7	11.3	6.0	15.7	11.9	10.5	9.1	6.8	14.4	11.7	6.3
	100.0	99.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Age of household head [3]														
Young-age head	15.5	10.2	13.3	7.8	17.6	23.5	14.1	20.0	13.2	15.9	9.3	23.9	45.8	27.5
Prime-age head	47.7	46.3	53.6	50.1	39.9	23.4	31.0	61.7	59.2	64.5	59.6	55.1	45.5	60.3
Older working-age head	20.4	21.5	22.0	26.1	23.0	11.6	5.9	18.4	27.6	19.6	31.1	21.1	8.7	11.4
Retirement-age head	16.4	21.9	11.1	16.0	19.2	41.5	48.6	..	..	..	..	..	..	0.0
	100.0	100.0	100.0	100.0	99.7	100.0	99.6	100.0	100.0	100.0	100.0	100.0	100.0	99.2
Education level [4]														
Low education	33.1	29.3	24.4	20.9	34.7	63.9	63.1	26.8	21.7	21.2	16.6	24.4	54.7	51.4
Middle education	36.9	34.9	38.0	35.2	38.9	29.1	29.1	40.1	37.8	40.0	36.9	42.2	35.1	35.7
Higher education	30.0	35.8	37.6	43.9	26.4	7.0	7.9	33.2	40.6	38.7	46.5	33.4	10.2	13.0
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table A1 (*contd.*). **Characteristics of the non-poor, shorter-term poor and longer-term poor:**
Total population and working-age population[1]

Per cent share of persons with a specified characteristic in each group

Household characteristics	Total population							Working-age population						
	Total population		Non-poor		Poor 1 year[2]	Always poor		Total population		Non-poor		Poor	Always poor	
	Begin period	End period	Begin period	End period	current year	Begin period	End period	Begin period	End period	Begin period	End period	1 year[1] current year	Begin period	End period
United States	100.0	100.0	74.0	74.0	3.7	4.6	4.6	100.0	100.0	74.6	74.6	4.3	4.2	
Head gender														
Head male	79.5	78.2	87.0	86.3	62.8	25.4	25.3	81.0	80.5	88.0	88.1	65.1	25.0	25.3
Head female	20.5	21.8	13.0	13.7	37.3	74.6	74.8	19.0	19.5	12.0	11.9	34.9	75.0	74.7
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Work attachment														
No worker	10.7	14.5	6.6	10.5	17.5	50.0	53.9	4.1	6.0	1.0	2.7	7.5	39.5	47.1
One worker	32.3	32.2	29.1	28.1	57.3	41.5	35.3	32.9	33.2	28.7	27.7	63.3	49.7	41.0
Two workers	42.4	40.6	47.6	45.8	21.3	6.9	10.4	47.0	46.2	52.0	51.8	24.7	8.8	11.7
Two or more workers	14.6	12.8	16.8	15.7	3.9	1.6	0.4	16.0	14.6	18.3	17.8	4.5	2.0	0.3
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Family type														
Single adult, no children	12.3	14.5	10.6	12.1	21.7	21.2	22.8	10.1	11.5	9.6	10.0	20.2	9.9	12.1
Two adults, no children	29.8	32.9	34.4	38.0	21.1	8.2	11.1	23.2	27.8	27.2	32.5	14.7	5.1	11.2
Single adult, children	8.1	7.9	3.8	3.6	14.8	45.7	41.0	9.5	9.1	4.4	4.1	17.1	57.9	59.7
Two adults, children	35.5	32.3	37.7	34.7	27.8	13.4	13.0	40.7	37.0	43.1	39.9	31.1	14.2	12.9
Large families	14.3	12.4	13.6	11.7	14.6	11.4	12.1	16.6	14.6	15.7	13.6	16.9	12.9	4.0
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Age of household head [3]														
Young-age head	19.7	12.0	15.7	7.9	30.5	35.8	20.3	23.1	13.8	18.3	8.9	35.2	45.7	25.8
Prime-age head	51.7	55.7	55.3	58.3	43.3	37.5	49.8	60.7	65.0	64.3	67.7	50.2	47.8	60.7
Older working-age head	19.1	18.3	20.6	20.3	14.7	12.0	10.1	16.2	21.3	17.4	23.4	14.5	6.5	13.4
Retirement-age head	9.4	14.1	8.3	13.6	11.5	14.7	19.8							
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9
Education level [4]														
Low education	18.9	17.1	12.2	11.2	26.4	58.2	55.1	15.1	13.4	9.2	8.4	21.4	53.1	50.5
Middle education	36.9	37.1	35.5	35.2	41.1	30.5	30.3	37.4	37.5	35.2	34.7	42.7	35.5	36.6
Higher education	44.2	45.8	52.4	53.6	32.5	11.4	14.6	47.5	49.1	55.5	56.8	35.9	11.4	12.9
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1. Refers to individuals in households with a working-age head.

2. Individuals who are poor in only one year over the period, excluding first and last year.

3. Young, prime age, older working age, and retirement age refer, respectively, to households with a head below 30, between 31 and 50, between 51 and below 65, and above 65 years old.

4. Low education is less than higher school; middle is completed high school and higher is more than high-school education.

Source: OECD.

2. Analysis of transitions into and out of poverty

2.1. The data set/sample

69.   Tables 4 to 8 are based on a data set composed of transitions into and out of poverty. As noted, the time period is defined over the last available six years (1991 to 1996 for Germany and the United Kingdom, 1990 to 1995 for Canada, and 1988 to 1993 for the United States). The sample considers all individuals who remained in the longitudinal data set over the six-year period, but only includes those individuals who where not poor in the first year. All transitions are pooled in a new database. The number of observations is then equal to the number of individuals times the number of transitions observed for each individual, thus leading to a larger sample.

2.1.1 Transitions

70.   A transition is defined where the individual's real equivalent household disposable income between two adjacent periods t and $t+1$ straddles the poverty threshold. Thus, between two adjacent periods t and $t+1$ an individual may enter poverty, exit poverty, or may not transit at all (either remaining poor or non-poor). Certain "events" can occur at the same time as transitions (e.g. a change in the employment status of a household), while household characteristics can be identified before or after the transition takes place.

2.1.2 "Events" associated with transitions

71.   Following Bane and Ellwood (1986, 1994), Ducan *et al.* (1993) and, more recently, Maurin and Chambaz (1996), various types of "events" are considered to check whether they occur at the time a transition takes place.

-   *Changes in household employment status* includes changes in the number of persons employed within the household or in hours worked.

-   *Family structure changes* includes, in the case of entries, separation/divorce or a child/relative establishing as a new household. For exits, this category includes partnership/marriage or a child/other becoming spouse. If the relationship of an individual to the head remains stable[43], changes in the size of the family are also considered, distinguishing between those due to additional children (e.g. new-born child) and those where there were more or fewer adults and children (e.g. recomposed families).

-   *Changes in the components of total household income:* Income components considered are household earnings of the household head, spouse and other household workers, capital incomes (including private transfers), transfer payments received from government and direct taxes and social security contributions paid. Transitions are associated with the income component contributing the most to the overall change in income.

72.   Transitions and "events" are shown in greater detail in Box A1.

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43.   That is, where there is no household breakdown or formation.

2.1.3 Household characteristics

73.   Household characteristics are defined as above for the following variables: gender of the household head; employment status of the household[44]; family type[45]; age of household head; education level (of the household head). In addition, a variable to control for the cumulative number of years spent in poverty before entering or exiting poverty was also constructed. Because only a six-year "window" is used, the maximum length of time of the previous time in poverty is three years. The variable is not symmetric for exits and entry -- i.e. both entering and leaving poverty is associated with the number of years in poverty[46]. These variables are shown in more detail in Box A1.

2.2. Construction of Tables 4 to 7

74.   Using the data file for transitions described above, Tables 4 to 7 were constructed in the following manner.

-- *Table 4. Distribution of transitions by size of income change*

75.   Table 4 indicates, in the form of a transition matrix, the frequency of income changes by size which are associated with transitions into or out of poverty. This matrix -- for both entries and exits -- shows the originating income range (relatively to the poverty threshold) in the columns and the ending income range in the rows. This approach differs from simply measuring income variations because the threshold may also change between the two periods, although the size of these changes is likely to be small. The number of changes in the range of 10 per cent below the poverty threshold to 10 per cent above the poverty threshold is one measure of noise -- i.e. transitions associated with small movements in income may be of lesser economic or social consequence.

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44.   For some purposes, a distinction is made between one worker in one-adult households and in two-adult households.

45.   In some cases, traditional families (e.g. two adults and two children only) were distinguished from large families (e.g. two or more adults with two or more children).

46.   It should be noted, however, that true length of the previous spell in poverty cannot be measured accurately for transitions that occur early in the six-year period. Indeed, in the first period no previous periods can be measured at all. Thus, for earlier years there will be too few transitions where the individual has had previous spells in poverty. The inclusion of year dummies may at least partly control for the biases that may result, but it is difficult to judge what the impact will be on the coefficients. In any case, the inclusion of this variable does not affect the other coefficients associated with the other variables. Further tests will be carried out using a slightly longer period for Germany and the United States.

Box A1. Variables defined in the sample

A. Transitions

    1)   Exit from poverty
    2)   Entry in poverty
    3)   No change in status, but poor
    4)   No change in status, but not poor

B. "Events" associated with transitions

   1. Changes in household employment

   Fewer workers
     1)   Loss of all workers
     2)   Loss of some but not all workers
   Less hours worked
     3)   One worker, fall in hours
     4)   Two workers, fall in hours
   More workers
     5)   From zero to at least one worker
     6)   Additional workers in working households
   More hours worked
     7)   One worker, increased in hours
     8)   Two workers, increased in hours
   No change in household work participation
     9)   No change in the number of unemployed adults in household
     10)   No change in the number of employed adults and hours worked in household

   2a. Changes in family structure/entry

     1)   No change in family structure (same head, same size)
     2)   New born child in family (same head, more children)
     3)   More members in family (same head, more adults and children)
     4)   Less members in family (same head, fewer adults and children)
     5)   Separations/Divorce (partner/spouse becomes head)
     6)   New established family (child/other relative becomes head)
     7)   Unclassified

   2b. Changes in family structure/exit

     1)   No change in family structure (same head with or without spouse/partner,
           same size)
     2)   New-born child in family (same head with spouse/partner, more children)
     3)   More members in family (same head with spouse/partner, more adults
           and children)
     4)   Less members in family (same head with spouse/partner, fewer adults
           and children)
     5)   Partnership/Marriage (head female becomes spouse)
     6)   New established family (child/other relative becomes spouse)
     7)   Unclassified

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Box A1 (*contd.*)

3. Largest income component change

1)	Head's earnings fall the most
2)	Partner's earnings fall the most
3)	Other earnings fall the most
4)	Transfer payments fall the most
5)	Taxes increase the most
6)	Head's earnings rise the most
7)	Partner's earnings rise the most
8)	Other earnings rise the most
9)	Transfer payment rise the most
10)	Taxes decrease the most
11)	Income source change not identified

Past poverty experience

Indicates the number of years in poverty before transiting

Period dummies (Year t, t+1)

Dummies capturing structural effect between two consecutive years

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> -- *Table 5. Frequency of poverty-related "events" by income component*

76.   Table 5 associates transitions with changes in income components. While all components can, potentially, contribute to a move into or out of poverty, only the component which contributes the most to the overall income change is considered. The values in the table are the per cent share of transitions where the change in the indicated component was the largest. The largest change was identified from among the income components listed in Box B1, Section 3.

> -- *Table 6. Frequency of "events" associated with poverty transitions; and*

> -- *Table 7. Frequency of "events" associated with poverty transitions by family types*

77.   Table 6 presents "events" associated with entries and exits of poverty broken down in three broad categories. These are shown for both the total population and the working-age population. Table 7 decomposes these same categories of "events" by family types. For a transition which occurs between year *t* and *t+1,* characteristics are defined in (*t+1*) for entry "events" and in (*t*) for exit "events". In doing so, household characteristics are identified when the household is poor, that is, after entering and before exiting. The various "events" can be combined in different ways, depending on the question asked. To allow other aggregations to be made, further information on individual components in this decomposition is provided in Table A2.

2.2.1 Main categories of "events" used in Tables 6 and 7

78.   For the purposes of this study, the various "events" were regrouped into three categories. The examples below are given for transitions into poverty. Cases for transition out of poverty are symmetric, but note that the categories for exits change somewhat (see Table 6 and Box A1)[47].

2.2.1.1 Employment/earnings-related "events"

79.   These refer to changes in employment status, hours and wage rates within a stable family structure. For entry, employment/earnings "events" include:

-   Cases where there are: "fewer workers", "less hours worked" and "no change in family structure".

-   Cases where there are: "fewer workers", "less hours worked" where this occurs at the same time as an increase in family needs (including "more members" and "new-born child" in family). The remainder of employment cases are included in "other events".

-   Cases where there are: "no change in the number of employed adults and hours worked in household" and "no change in family structure" and where the head's, partner's or other family workers' earnings fall the most. (Changes in other income sources are included in the category of "other events".)

2.2.1.2 Family structure-related "events"

80.   These are mainly cases related to separations/divorce (partnership/marriage in the case of exits) and children or other family members forming new households. In all of these cases, changes in household work participation generally follow from this change in household status. For example, a separation of a two-earner household leads to two one-earner households. Such changes in employment status do not occur because of a change in the employment status of the two individuals. For this reason, this group is treated separately from other employment status changes indicated in the preceding group. For entry, this category includes:

-   Cases of: "separations/divorce" and "fewer workers", "less hours worked" or "no change in household work participation". (Cases where there are "more workers" or "more hours worked" are included in the category of "other events".)

-   Cases where there are: "newly-established families" and "fewer workers" or "less hours worked" or "no change in household work participation". (Cases where there are "more workers" or "more hours worked" will be included in the category of "other events".)

-   Cases where there are: "less members in family" (e.g. the head is left (alone) with fewer adults and children) and where there are "fewer workers". (The remainder of employment cases will be included in the category of "other events".)

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47.   For example, in the case of employment/earnings-related "events" associated to exit, "fewer workers" becomes "more workers".

2.2.1.3. Other "events"

81.   These include a range of special categories which do not fit easily into the first two categories, but essentially cover transitions where there is no change either in employment/earnings and family status "events". For example, a person remains unemployed in the two periods but enters poverty. Since employment or earnings-related "events" have already been included in "employment/earnings-related "events", this must reflect changes in other market income, transfers and taxes. Further analysis of the data suggests that the bulk of these movements appear to occur where transfer payments and capital incomes are the largest change. "Other 'events'" includes:

- Cases where there are: "no change in the number of unemployed adults" in both periods and "no change in family structure".

- Cases where there are: "no change in the number of employed adults and hours worked", "no change in family structure" and where other income sources except earnings fall the most (the latter are included in "employment/earnings-related 'events'").

- Of those unemployed and employed in both periods, the table distinguishes between households who enter poverty when the fall in transfer payments or the fall in capital income makes up the largest component of the fall in income. Approximately 90 per cent of these transitions are associated with the fall in these two components.

- A residual labelled "Else" which includes cases where there are: *a)* "more workers", "more hours worked" and "changes in family structure"; and *b)* the remainder of "family-structure-related events" associated to entries. Symmetric cases have to considered for exits.

2.3. *Estimates of the probability of exit and entry (Table 8)*

2.3.1 *Methodological issues*

82.   While Tables 6 and 7 show the frequency of "events" associated to entries or exits, they do not show whether an individual experiencing an "event" is more likely to enter or exit poverty. Estimates of the probability of exit or entry when an "event" occurs, capture such information: these show whether or not an "event" increases the chances of exit or entry. These estimates permit a comparison of which "events" most affect the probability of moving into or out of poverty[48]. The estimation procedure in this section is based on logit models shown in Box A2 (see Maddala, [1997] and Pindyck and Rubinfeld [1981]).

83.   As noted in the main text, these results should be interpreted more as descriptions of exiting patterns rather than causal relations. While it is tempting to see, say, a change in employment status as the cause of poverty entry, the change in employment status itself is the result of a range of market and institutional factors which make up the true factors affecting household behaviour. These have not been addressed here.

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48.   The key feature of logit estimates is that, considering all "events" at the same time, it is then possible not only to separate simultaneous "events", but to test interacting effects and to identify those having the strongest impact on the probability to transit when all others are held constant. These logit models do not intend to provide a full explanation of transitions.

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Box A2. Logit models

The logit model is a regression technique for estimating the influence of events on a binary variable, taking the value of 1 if the event occurs (e.g. exiting poverty) and 0 otherwise (e.g. not exiting poverty). This method allows the estimation of the probability that a transition will occur given changes in employment and/or family structure. Control variables, such as household characteristics and previous poverty experience can also be entered. The estimation procedure needs to take account of the fact that probabilities lie in a range between 0 and 1. The functional form of the logistic function ensures that the estimates are constrained to lie within this interval.

The logit model is based on the cumulative logistic probability function (F) and is specified as:

[1.1] $p_i = F(Z_i) = F(\alpha + \beta X_i) = \dfrac{1}{1 + e^{-(\alpha + \beta X_i)}}$

e denotes the exponential function, p_i is the probability that an individual will transit (into or out poverty), from one year to the next given the information contained in the variables contained in the vector of X_i. The variables in X_i are the factors affecting the probability of transition.

A more tractable form for estimation purposes uses the odds ratio (OR) -- defined as the ratio of the probability that there will be a transition divided by the probability that there will be no transition.

$$OR = p_i / (1 - p_i) = \frac{e^{-(\alpha + \beta X_i)}}{1 + e^{-(\alpha + \beta X_i)}}, \text{ the result being the}$$

[1.2] $OR = \dfrac{p_i}{1 - p_i} = e^{(\alpha + \beta X_i)}$

This can be transformed in a linear form by taking logs of each side so that:

[1.3] $\log(\dfrac{p_i}{1 - p_i}) = \alpha + \beta X_i$

The dependant variable in this equation is simply the logarithm of the odds ratio given X_i. The logit model transforms the problem of predicting probabilities within a range of (0,1) interval to the problem of predicting the odds of an event X_i. While the equation is linear in X_i, the probability is non-linear and constrained to lie between 0 and 1: as p_i goes from 0 to 1, *OR* goes from – infinity to + infinity.

The β coefficients indicate by how much the logarithm of odds ratio varies with the variable. The intercept α is the value of the log of the odds-ratio when all X_i variables are set to zero -- i.e. that is, for the base (or reference) case. The probability of the "event" happening can be calculated using [1.1] once the coefficients of [1.3] have been estimated.

</div>

2.3.2 Specification tests

84.　　　The Chi-Wald test is used to check the significance of the estimated coefficient. Two statistics for goodness of fit are used. The Score statistic tests the joint significance of explanatory variables in the model. For example, Table 8 shows that the combined effect of all explanatory variables is significant with a p-value of 0.0001. The Schwartz Criterion is used for comparing different models for the same data. Lower values of these two statistics generally indicate a better model.

2.3.3 Interpreting the coefficients

85.　　　The estimated coefficient associated with an "event" X measures its impact on the log of the odds-ratio (relative to the reference case), everything else held constant, the reference case here, is an individual experiencing no change in either employment and family structure. The greater the value of the coefficient, the greater is the effect of X_i on the log of the odds-ratio and thus the probability of transiting relative to the reference case. The relative importance of various "events" can be seen by comparing the size of the coefficients.

86.　　　These coefficients can be transformed into probabilities as shown in the following example. The effect of, say, the arrival of an "additional worker in a working household" in Germany (defined below as the variable *MORE*), on the probability of exiting poverty (Table A6, Model 3) can be approximated using [1.3] in Box A2. The first difference gives:

$$[2.1] \quad \Delta \log(\frac{p_i}{1-p_i}) = 1.34 \Delta MORE$$

Using the properties of the logarithm function where $\Delta \log x = \Delta x / x$, then

$$[2.2] \quad \Delta \log(\frac{p_i}{1-p_i}) = \log(p_i) - \log(1-p_i) \approx (\frac{1}{p_i} + \frac{1}{1-p_i})\Delta p_i = \frac{1}{p_i(1-p_i)}\Delta p_i$$

87.　　　As a result, probability to exit poverty is increased by

$$[2.3] \quad \Delta p_i \approx 1.34 [p_i(1-p_i)]$$

which depends on the probability itself and which is the probability of exiting poverty for the reference case ($p_i = \dfrac{e^{-0.11}}{1+e^{-0.11}} = 0.47$) .   Then, the effect of an additional worker in a working household increases the probability of leaving poverty by $\Delta p_i \approx 1.34[0.47(1-0.47)] = 0.33$. In the same way, the impact of a move from "no worker to one worker in households" on the probability to leave poverty can be estimated as follow: $\Delta p_i \approx 0.69[0.47(1-0.47)] = 0.17$. These results indicate that, the chances of leaving poverty are greater for additional workers in working households than moving from no worker to one worker in an unemployed household, when everything else is held constant.

2.3.4 Results

88.   Table 8 shows the factors that affect: 1) the probability of entering poverty for all non-poor individuals; and 2) the probability of exiting poverty for all poor individuals. All variables are dummies, with one category omitted to avoid collinearity. The remaining categories were captured by the intercept (the reference case).

89.   A first set of models estimates the combined impact of employment and family "events" on the probability of transiting into or out of poverty -- i.e. equations with right-hand crossed variables (models 1 and 2). Then, a second set of models (models 3 and 4) is run to measure the effect of family (employment) related "events", independent of changes in employment (family) related "events" –i.e. equations with uncrossed variables. Control variables for household characteristics prior to transition (i.e. education levels, age of household heads), past poverty experience and period dummies were also introduced to assess coefficient stability. Both types of models produce similar results:

  −   employment events have a larger impact on the probability of transiting into poverty than family events;
  −   combined (crossed) family and employment variables have, in all countries, stronger effects than those when only one type of change occurs at the same time (uncrossed variables);

90.   In a second step, additional control variables were added to allow for family and work type in the period preceding transitions, thus accounting for the fact that transition probabilities tend to be stronger for certain "at risk" subgroups. These additional variables generally improve the fit without changing the key results of the two models. The results confirm that:

  −   single parents show higher and significant coefficients compared to other family types for entry probabilities, except in Canada. More workers in the households, lowers the risk of falling into poverty, irrespective of changes in employment and/or family status;

  −   by contrast, the coefficients are negative and significant for single parents for exit probabilities (except in Canada) while those for households with more than two workers are positive, large and significant (except in Germany where these households appear to have enough incomes to remain always above the poverty line);

Table A2. **Frequency of poverty-related "events": further decomposition of the main categories of "events" Germany**

ENTRIES	Total population	Working-age population	EXITS	Total population	Working-age population
Employment/earnings-related events	**47.5**	**51.5**	**Employment/earnings-related events**	**47.5**	**52.4**
Change in employment only (same family structure, same size)	25.1	27.3	Change in employment only (same family structure, same size)	27.8	30.5
Loss of all workers	8.2	8.6	From zero to at least one worker	9.6	10.4
Loss of some but not all workers	6.5	7.1	Additional workers in working households	5.3	5.9
One worker fall in hours	7.9	8.8	One worker increase in hours	12.1	13.3
More than one worker fall in hours	2.5	2.8	More than one worker increase in hours	0.8	0.9
Change in employment and increased family needs	8.3	9.0	Change in employment and increased family needs	1.3	1.5
Same number of workers	3.5	3.8	Same number of workers	0.9	1.0
Loss of workers, including all workers	4.1	4.4	From zero to at least one worker	0.0	0.0
More workers	0.7	0.8	Additional workers in working households	0.4	0.5
No change in employment status and family structure			No change in employment status and family structure		
Total earnings fall the most	14.1	15.2	Total earnings rise the most	18.4	20.4
Family-structure-related	**23.9**	**24.3**	**Family-structure-related**	**13.1**	**14.5**
Separations/divorce (spouse becomes head)	7.2	7.1	Partnership/marriage (head becomes spouse)	0.3	0.3
New established households (child, relative becomes head)	9.7	9.6	New established households (child, relative becomes spouse)	9.4	10.4
Fewer members (head is left with fewer adults or children)	7.0	7.6	More members (head with additional adults or children)	3.4	3.8
Other factors (no change in employment and family status)	**23.1**	**18.2**	**Other factors (no change in employment and family status)**	**32.1**	**25.4**
Unemployed households	16.0	10.5	Unemployed households	20.1	13.1
Employed households	7.1	7.7	Employed households	12.0	12.3
Of which transfers and capital incomes fall the most for both unemployed and employed households	*(21.9)*	*(17.0)*	*of which transfers and capital incomes rise the most for both unemployed and employed households*	*(26.5)*	*(20.8)*
Else	**5.5**	**6.0**	**Else**	**7.3**	**7.7**
Total	100.0	100.0	Total	100.0	100.0

Table A2 (*contd.*). **Frequency of poverty-related "events": further decomposition of the main categories of "events" United Kingdom**

ENTRIES	Total population	Working-age population	EXITS	Total population	Working-age population
Employment/earnings-related events	**28.3**	**35.2**	**Employment/earnings-related events**	**41.6**	**52.5**
Change in employment only (same family structure, same size)	11.2	13.4	Change in employment only (same family structure, same size)	19.0	23.4
Loss of all workers	7.2	8.2	From zero to at least one worker	10.0	11.9
Loss of some but not all workers	3.1	4.0	Additional workers in working households	7.5	9.6
One worker fall in hours	0.7	0.9	One worker increase in hours	1.1	1.4
More than one worker fall in hours	0.2	0.3	More than one worker increase in hours	0.4	0.5
Change in employment and increased family needs	4.7	6.2	Change in employment and increased family needs	1.1	1.4
Same number of workers	1.2	1.6	Same number of workers	0.4	0.5
Loss of workers, including all workers	3.0	3.9	From zero to at least one worker	0.6	0.8
More workers	0.5	0.7	Additional workers in working households	0.1	0.1
No change in employment status and family structure			No change in employment status and family structure		
Total earnings fall the most	12.4	15.6	Total earnings rise the most	21.5	27.7
Family-structure-related	**23.8**	**26.9**	**Family-structure-related**	**8.3**	**9.4**
Separations/divorce (spouse becomes head)	9.4	10.4	Partnership/marriage (head becomes spouse)	3.9	3.7
New established households (child, relative becomes head)	7.8	9.8	New established households (child, relative becomes spouse)	1.1	1.4
Fewer members (head is left with fewer adults or children)	6.6	6.7	More members (head with additional adults or children)	3.3	4.3
Other factors (no change in employment and family status)	**37.1**	**24.4**	**Other factors (no change in employment and family status)**	**41.4**	**27.1**
Unemployed households	32.8	19.2	Unemployed households	35.4	19.7
Employed households	4.3	5.2	Employed households	6.0	7.4
Of which transfers and capital incomes fall the most for both unemployed and employed households	(29.1)	(15.5)	*of which transfers and capital incomes rise the most for both unemployed and employed households*	(39.0)	(24.5)
Else	**10.8**	**13.5**	**Else**	**8.7**	**11.1**
Total	100.0	100.0	Total	100.0	100.0

Table A2 (*contd.*). **Frequency of poverty-related "events": further decomposition of the main categories of "events" United States**

ENTRIES	Total population	Working-age population	EXITS	Total population	Working-age population
Employment/earnings-related events	**53.7**	**57.4**	**Employment/earnings-related events**	**63.9**	**66.6**
Change in employment only (same family structure, same size)	26.5	27.7	Change in employment only (same family structure, same size)	38.6	40.0
Loss of all workers	5.3	4.6	From zero to at least one worker	6.5	5.7
Loss of some but not all workers	10.6	11.4	Additional workers in working households	15.9	17.1
One worker fall in hours	6.7	7.3	One worker increase in hours	10.7	11.3
More than one worker fall in hours	3.9	4.4	More than one worker increase in hours	5.5	5.9
Change in employment and increased family needs	10.1	11.1	Change in employment and increased family needs	2.9	3.0
Same number of workers	4.2	4.7	Same number of workers	1.6	1.7
Loss of workers, including all workers	4.2	4.6	From zero to at least one worker	0.2	0.2
More workers	1.7	1.8	Additional workers in working households	1.1	1.1
No change in employment status and family structure			No change in employment status and family structure		
Total earnings fall the most	17.1	18.6	Total earnings rise the most	22.4	23.6
Family-structure-related	**24.1**	**25.3**	**Family-structure-related**	**12.5**	**13.5**
Separations/divorce (spouse becomes head)	10.1	11.3	Partnership/marriage (head becomes spouse)	7.6	8.3
New established households (child, relative becomes head)	6.0	6.5	New established households (child, relative becomes spouse)	1.5	1.6
Fewer members (head is left with fewer adults or children)	8.0	7.5	More members (head with additional adults or children)	3.4	3.6
Other factors (no change in employment and family status)	**13.9**	**8.4**	**Other factors (no change in employment and family status)**	**11.4**	**7.7**
Unemployed households	9.6	3.8	Unemployed households	6.8	2.8
Employed households	4.3	4.6	Employed households	4.6	4.9
Of which transfers and capital incomes fall the most for both unemployed and employed households	*(13.2)*	*(8.0)*	*of which transfers and capital incomes rise the most for both unemployed and employed households*	*(10.8)*	*(7.4)*
Else	**8.3**	**8.9**	**Else**	**12.2**	**12.2**
Total	100.0	100.0	Total	100.0	100.0

Source: OECD.

Table A3. **Entry model: crossed variables**

Variables	Model 1				Model 2			
	Canada Estimate	Germany Estimate	United Kingdom Estimate	United States Estimate	Canada Estimate	Germany Estimate	United Kingdom Estimate	United States Estimate
Intercept	-2.21**	-2.82**	-2.29**	-2.79**	-1.89**	-1.30**	-0.42**	-1.40**
No change in employment and family structure	*Base*	*Base*	*base*	*base*	*base*	*Base*	*base*	*base*
No change in employment status and family status								
Employment status change/ no change in family status								
Loss of all workers	2.34**	2.81**	1.65**	2.32**	2.48**	3.05**	2.12**	2.47**
Loss of some but not all workers	0.71**	0.76**	0.03	1.35**	1.45**	1.92**	1.22**	2.19**
One worker fall in hours		2.03**	1.03**	1.69**		1.99**	1.09**	1.33**
More than one worker fall in hours		0.15	-1.48**	0.18		1.22**	-0.54	0.89**
Other change	-0.31**	-0.78**	0.05	-0.45**	-0.42**	-0.68**	0.08	-0.46**
Change in family status/no change in employment status								
Separations/divorce (spouse becomes head)		2.74**	0.72**	1.14**	0.73**	2.59**	0.84**	1.01**
Child becomes head		2.38**	0.47*	1.59**		2.72**	0.79**	2.02**
Other adult becomes head		0.89*	0.67*	-0.25		1.91*	0.58	0.10
Arrival of children		0.01	0.89**	0.39**		0.13	0.68**	0.53**
More members		1.38**	-0.42	1.16**	0.83**	0.70**	-0.71	1.21**
Less members		0.04	0.37*	-0.13	0.26*	0.32	0.64**	0.11
Simultaneous changes in employment and family status								
Loss of all workers								
Separations/divorce (spouse becomes head)		5.36**	3.75**	3.95**	3.20**	5.57**	4.06**	4.10**
Child becomes head		5.62**	5.05**			6.71**	6.21**	
Other adult becomes head			4.57**	2.68**			5.22**	3.13**
Arrival of children		3.71**	2.23**	3.13**		4.25**	2.49**	3.45**
More members		4.02**						
Less members		3.36**	2.46**	3.13**	2.79**	4.16**	3.24**	3.60**
Loss of some but not all workers								
Separations/divorce (spouse becomes head)	2.08**	2.91**	1.12**	3.34**	2.82**	3.94**	2.36**	4.08**
Child becomes head		2.57**	1.03**	2.79**		4.10**	2.63**	4.00**
Other adult becomes head		3.22**	-0.28	1.28**		4.64**	1.44*	2.51**
Arrival of children	1.04**	1.45**	-0.43	1.60**	1.67**	2.46**	0.74	2.31**
More members	0.88**	2.03**		1.87**	1.81**	3.68**		2.73**
Less members	0.76**	0.80**	0.43**	0.83**	1.74**	2.15**	1.91**	1.89**
One worker fall in hours								
Separations/divorce (spouse becomes head)		1.80	2.85**	4.40**		2.06	3.10**	3.89**
Child becomes head			3.12*	4.27**		5.84**	3.14*	3.81**
Other adult becomes head		5.62**		1.51				1.34
Arrival of children		3.21**		3.42**		3.05**		2.99**
More members		3.92**		1.87**		3.66**		1.46**
Less members		2.65**	2.33**	2.05**		2.77**		1.52**

Table A3 (*contd.*). **Entry model: crossed variables**

Variables	Model 1				Model 2			
	Canada Estimate	Germany Estimate	United Kingdom Estimate	United States Estimate	Canada Estimate	Germany Estimate	United Kingdom Estimate	United States Estimate
More than one worker fall in hours								
Separations/divorce (spouse becomes head)		5.45**		2.75**		6.71**		3.28**
Child becomes head				2.29**				3.13**
Other adult becomes head				1.12				1.96**
Arrival of children				0.14				0.88**
More members				0.98*				1.66**
Less members		2.65**		-1.05		3.80**		-0.29**
Other change in employment								
Separations/divorce (spouse becomes head)		0.83	0.83**	1.48**		0.36	0.99**	1.57**
Child becomes head		2.45	0.25	0.64		0.26	0.79*	0.37
Other adult becomes head		0.29	1.99**	-1.47**		-0.79	2.57**	-1.71**
Arrival of children		0.73	0.66**	0.28		0.81	0.43	0.28
More members	-0.76**	-0.84	-0.68**	0.02	-0.83**	-0.89	-0.70**	-0.27
Less members	0.18	-0.01	1.10**	-0.22	0.02	0.16	1.53**	-0.18
Control variables								
Young-age head	0.31	0.45**	0.31**	0.47**	0.19**	0.51**	0.18*	0.42**
Prime-age head	*Base*	*base*	*base*	*base*	*base*	*base*	*base*	*base*
Older working-age head	-0.18	-0.37**	-0.09	-0.12*	-0.20**	-0.30**	-0.43**	-0.03
Retirement-age head		-0.17	0.62**	0.27**	-1.39**	-1.19**	-0.64**	-0.19**
Low-education head		1.12**	0.62**	1.37**		1.05**	0.54**	1.42**
Mid-education head		0.62**	0.33**	0.63**		0.52**	0.24**	0.65**
Higher-education head	*Base*	*base*	*base*	*base*	*base*	*base*	*base*	*Base*
Never poor	-1.43	-2.21**	-2.25**	-1.73**	-1.17**	-1.73**	-1.80**	-1.56**
One year in poverty	*Base*	*base*	*base*	*Base*	*base*	*base*	*base*	*base*
Two years in poverty	0.54	0.30	0.20*	0.67**	0.59**	0.17	-0.04	0.59**
Three years in poverty		0.84**	1.05**	0.90**		0.98**	0.92**	0.67**
Period (t; t+1)	0.37	0.15	1.18**	0.49**	0.42**	0.13	0.94**	0.41**
Period (t+1; t+2)	0.21	0.41**	0.96**	0.26**	0.25**	0.38**	0.84**	0.19**
Period (t+2; t+3))	0.13	0.33**	0.56**	-0.05	0.12**	0.30**	0.47**	-0.09
Period (t+3; t+4)	0.09	0.19*	0.36**	0.25**	0.09**	0.17	0.32**	0.20**
Period (t+4; t+5)	*Base*	*base*	*base*	*base*	*base*	*base*	*Base*	*base*
Single adult, no children					*base*	*base*	*base*	*base*
Single adult, children					0.14**	0.63**	1.27**	0.61**
Two adults, no children					0.45**	-0.58**	-0.47**	-0.75**
Two adults, children					0.97**	0.16	0.10	0.11
No worker in household					*base*	*base*	*base*	*base*
One worker in single household					-0.34**	-1.98**	-2.46**	-1.18**
One worker in two-adult household					-1.05**	-1.69**	-1.72**	-0.93**
More than two workers in household					-2.72**	-3.35**	-3.47**	-2.67**
Two workers in two-adult household					-1.85**	-2.88**	-2.83**	-2.09**
Score[1]	**26509 †**	**6066 †**	**6580 †**	**10778 †**	**46443 †**	**6569 †**	**6580 †**	**11616 †**
Schwartz criterion[2]	**7264**	**9888**	**15711**	**21367**	**184160**	**9340**	**13989**	**20304**
N	**661740**	**37870**	**36106**	**57263**	**661740**	**37870**	**36106**	**57263**

*   Significant at 5 per cent confidence level.

**   Significant at 1 per cent confidence level.

†   Significant with a p-value of 0.0001.

1.   The score statistic gives a test for the joint significance of the explanatory variables in the model.

2.   The Schwartz criterion is primarily used for comparing different models for the same data. In general, when comparing models, lower values of this criterion indicates a better model.

Source: OECD.

Table A4. **Exit model: crossed variables**

Variables	Model 1				Model 2			
	Canada Estimate	Germany Estimate	United Kingdom Estimate	United States Estimate	Canada Estimate	Germany Estimate	United Kingdom Estimate	United States Estimate
Intercept	-0.15**	0.15	-0.25**	-0.80**	-0.39**	-0.30	-0.95**	-1.75**
No change in employment and family structure	*Base*	*Base*	*base*	*base*	*base*	*base*	*base*	*base*
No change in employment status and family status								
Employment status change/ no change in family status								
From zero to at least one worker	0.72**	0.53**	0.45**	0.39**	1.11**	1.20**	1.06**	1.68**
Additional workers in working households	1.05**	0.99**	1.12**	1.61**	1.07**	0.54*	0.36**	1.13**
One worker increase in hours		1.96**	0.12	1.53**		1.49**	-0.40	1.19**
More than one worker increase in hours		-0.47**	0.33	2.01**			-1.29**	0.67**
Other change	-0.39**		0.64**	-0.06	-0.62**	-1.03**	-0.25**	-0.95**
Change in family status/no change in employment status								
Head female becomes spouse	0.83**		0.01	0.31	1.00**		-0.17	0.38
Child becomes spouse			1.29**	0.94			1.49**	0.46
Other adult becomes spouse		1.69**		-0.17		2.01**		-0.78
Arrival of children	-0.04	0.25	-0.26	-0.40	0.32	0.05	-0.41	-0.96**
More members	0.33*		0.28	-0.48	0.62**		-0.08	-1.09*
Less members	0.53**	0.57	0.75	1.36**	0.88**	0.16	0.42	0.74**
Simultaneous changes in employment and family status								
From zero to at least one worker								
Marriage (head female becomes spouse)	1.97**	0.30	-0.28	2.38**	2.16**	1.18	0.18	3.95**
Marriage (child becomes spouse)			1.43				2.15**	
Marriage (other becomes spouse)		2.00**		2.16**		2.82**		3.06**
Arrival of children	0.43	0.05		0.84	0.98*	0.52		1.65*
More members	1.82**		3.92**	0.58	2.12**		4.12**	1.45**
Less members	0.88**			1.28*	1.33**			2.20**
Additional work in working households								
Head female becomes spouse	2.72**	-0.13	0.88*	3.56**	2.63**	-0.86	0.04	3.35**
Child becomes spouse				3.37**				3.13**
Other becomes spouse				2.41**				1.67**
Arrival of children	0.68*			1.89**	0.80*			1.33**
More members	1.73**	2.38*		1.36**	1.68**	1.63		0.76
Less members	1.38**	-1.18		2.59**	1.38**	-1.56		1.83**
One worker increase in hours								
Head female becomes spouse		0.83						
Child becomes spouse								
Other becomes spouse				1.81				
Arrival of children				0.92*		0.53		1.05
More members								0.40
Less members								

Table A4 (*contd.*). **Exit model: crossed variables**

	Model 1				Model 2			
Variables	Canada Estimate	Germany Estimate	United Kingdom Estimate	United States Estimate	Canada Estimate	Germany Estimate	United Kingdom Estimate	United States Estimate
Two workers increase in hours								
Head female becomes spouse				3.49**				2.36**
Child becomes spouse								
Other becomes spouse				3.24**				1.53
Arrival of children				2.24**				0.82
More members								
Less members				2.74**				1.48
Other change in employment								
Head female becomes spouse	0.36		0.95**	0.68	0.34		-0.06	-0.27
Child becomes spouse			0.62	0.67			-0.10	-0.62
Other becomes spouse				-0.10				-1.47
Arrival of children	-0.24		1.09**	-0.13	-0.45*		0.55	-1.31**
More members	-0.19		0.07	2.45**	-0.42*		-1.14*	1.27**
Less members	-0.21*	-1.32	-0.07	0.43	-0.54**	-2.10**	-1.32**	-0.76**
Control variables								
Young-age head	0.12**	-0.19	-0.39**	-0.05	0.11*	-0.18	-0.14	0.12*
Prime-age head	base	base	base	base	base	base	base	base
Older working-age head	0.0	-0.06	0.23**	0.53**	0.02	0.01	0.07	0.53**
Retirement-age head	0.72**	-0.11	-0.18*	0.10	0.98**	0.38	0.05	0.63**
Low-education head		-0.27	-0.48**	-0.75**		-0.45**	-0.25**	-0.79**
Mid-education head		-0.24	-0.34**	-0.37**		-0.41*	-0.22**	-0.40**
Higher-education head	base	base	base	base	base	base	base	base
One year in poverty	Base	base	base	base	base	base	base	base
Two years in poverty	-0.47**	-0.64**	-0.20**	-0.58**	-0.47**	-0.60**	-0.11	-0.53**
Three years in poverty	-0.66**	-1.13**	-0.80**	-1.18**	-0.65**	-1.13**	-0.73**	-1.01**
Four years in poverty	-0.86**	-1.39**	-0.92**	-1.08**	-0.88**	-1.42**	-0.78**	-0.90**
Period (t+1; t+2)	-0.03	-0.34*	-0.14	-0.09	-0.06	-0.44**	-0.16	-0.19*
Period (t+2; t+3))	-0.10*	0.48**	0.07	0.40**	-0.11*	0.42**	0.08	0.20**
Period (t+3; t+4)		0.34**	0.24**	0.20**		0.34**	0.18*	-0.02
Period (t+4; t+5)	base	base	base	base	base	base	base	base
Single adult, no children					base	base	base	base
Single adult, children					0.13*	-0.73**	-0.51**	-0.97**
Two adults, no children					-0.10*	0.25	0.51**	0.38**
Two adults, children					-0.32**	0.13	-0.20	-0.06
No worker in household					Base	Base	base	base
One worker in single household					0.30**	1.57**	1.54**	1.83**
One worker in two-adult household					0.40**	0.89**	1.16**	1.45**
More than two workers in household					1.38**		2.11**	2.85**
Two workers in two-adult household					0.87**	1.27**	2.16**	2.37**
Score[1]	**3015†**	**358†**	**572†**	**2234†**	**3415†**	**481†**	**1230†**	**3171†**
Schwartz criterion[2]	**38754**	**3737**	**9983**	**13335**	**38686**	**3643**	**9368**	**12294**
N	**30290**	**1430**	**2889**	**3477**	**30290**	**1430**	**2889**	**3477**

Note: See Table A3.

Source: OECD.

Table A5 **Entry model: uncrossed variables**

Variables	Model 3				Model 4			
	Canada Estimate	Germany Estimate	United Kingdom Estimate	United States Estimate	Canada Estimate	Germany Estimate	United Kingdom Estimate	United States Estimate
Intercept	-2.30**	-2.92**	-2.32**	-2.79**	-1.82**	-1.41**	-0.40**	-1.35**
No change in employment structure	Base	Base	base	base	Base	base	base	base
Loss of all workers	2.48**	3.30**	2.13**	2.61**	2.49**	3.71**	2.66**	2.80**
Loss of some but not all workers	0.86**	0.89**	-0.07	1.26**	1.53**	2.09**	1.08**	2.08**
One worker fall in hours		2.22**	1.18**	1.79**		2.23**	1.30**	1.41**
More than one worker fall in hours		0.15	-2.18**	0.15		1.28**	-1.25**	0.81**
Other change	-0.29**	-0.81**	0.07	-0.48**	-0.55**	-0.82**	0.13*	-0.56**
No change in family structure	Base	base	base	base	base	base	base	base
Separations/divorce (spouse becomes head)	1.37**	2.24**	0.96**	2.00**	1.26**	2.12**	1.05**	1.88**
Child becomes head		2.00**	1.31**	1.65**		2.46**	1.83**	1.98**
Other becomes head		2.12**	1.17**	-0.22		2.06**	1.41**	-0.08
Arrival of children	0.40**	0.30*	0.62**	0.41**	0.36**	0.40**	0.42**	0.43**
More members	0.17**	1.14**	-0.81**	0.87**	0.35**	1.30**	-0.87**	0.79**
Less members	0.15**	0.21	0.58**	-0.16*	0.35**	0.52**	0.88**	0.04
Control variables								
Young-age head	0.28**	0.44**	0.24**	0.46**	0.19**	0.51**	0.11	0.42**
Prime-age head	Base	Base	base	base	base	base	base	Base
Older working-age head	-0.24**	-0.41**	-0.12*	-0.14*	-0.20**	-0.35**	-0.46**	-0.05
Retirement-age head	-0.82**	-0.15	0.56**	0.24**	-1.38**	-1.19**	-0.68**	-0.24**
Low-education head		1.12**	0.60**	1.38**		1.09**	0.50**	1.42**
Mid-education head		0.63**	0.31**	0.62**		0.56**	0.21**	0.64**
Higher-education head	Base	Base	base	base	base	base	base	Base
Never poor	-1.29**	-2.21**	-2.21**	-1.74**	-1.06**	-1.71**	-1.77**	-1.57**
One year in poverty	Base	Base	base	base	base	base	base	Base
Two years in poverty	0.54**	0.36*	0.19*	0.64**	0.56**	0.24	-0.05	0.55**
Three years in poverty		0.91**	1.08**	0.91**		1.09**	0.94**	0.67**
Period (t; t+1)	0.02	0.15	1.19**	0.49**	0.03	0.13	0.95**	0.41**
Period (t+1; t+2)	-0.06*	0.42**	0.99**	0.25**	-0.09**	0.38**	0.84**	0.18**
Period (t+2; t+3))	-0.09**	0.35**	0.61**	-0.05	-0.11**	0.32**	0.50**	-0.09
Period (t+3; t+4)		0.20*	0.41**	0.25**		0.17	0.38**	0.20**
Period (t+4; t+5)	Base	base	base	Base	base	base	base	base
Single adult, no children					base	base	base	base
Single adult, children					0.14**	0.62**	1.30**	0.63**
Two adults, no children					0.42**	-0.50**	-0.54**	-0.78**
Two adults, children					0.95**	0.27	0.07	0.10
No worker in household					base	base	base	Base
One worker in single household					-0.34**	-2.14**	-2.66**	-1.28**
One worker in two-adult household					-1.08**	-1.91**	-1.83**	-0.95**
More than two workers in household					-2.76**	-3.62**	-3.35**	-2.70**
Two workers in two-adult household					-1.85**	-3.08**	-2.81**	-2.09**
Score[1]	**41742 †**	**6026 †**	**5888 †**	**10626†**	**49019 †**	**6603 †**	**7904 †**	**11469 †**
Schwartz criterion[2]	**190008**	**9173**	**15673**	**21017**	**182609**	**8845**	**13932**	**19956**
N	**661740**	**37870**	**36106**	**57263**	**661740**	**37870**	**36106**	**57263**

Note: See Table A3.

Source: OECD.

Table A6. **Exit model: uncrossed variables**

Variables	Model 3				Model 4			
	Canada Estimate	Germany Estimate	United Kingdom Estimate	United States Estimate	Canada Estimate	Germany Estimate	United Kingdom Estimate	United States Estimate
Intercept	-0.21**	-0.11	-0.40**	-0.82**	-0.42**	-0.61**	-1.04**	-1.76**
No change in employment structure	Base	base	Base	base	base	base	base	base
From zero to at least one worker	0.83**	0.69**	0.70**	0.49**	1.16**	1.33**	1.28**	1.81**
Additional workers in working households	1.14**	1.34**	1.47**	1.69**	1.16**	0.98**	1.77**	1.27**
One worker increase in hours		2.08**	0.18	1.55**		1.64**	-0.34	1.24**
More than one worker increase in hours			1.10**	2.10**			-0.50	0.83**
Other change	-0.38**	-0.47**	0.73**	-0.03	0.62**	-1.01**	-0.11	-0.89**
No change in family structure	Base	base	base	base	1.26**	base	base	base
Head female becomes spouse	1.32**	-0.78	0.03	1.61**		-0.82	-0.13	1.84**
Child becomes spouse			1.12**	1.62**			1.32**	1.49**
Other becomes spouse		1.94**	1.81*	0.67**		2.11**	1.85*	0.28
Arrival of children	-0.21*	0.03	0.15	-0.11	0.17	-0.14	0.24	-0.41**
More members	0.63**	1.44	1.96**	0.34	0.58**	1.11	0.70**	0.03
Less members	0.45**	-0.21	0.64**	1.07**	0.45**	-0.51	0.38	0.62**
Control variables								
Young-age head	0.13**	-0.22*	-0.39**	-0.04*	0.13**	-0.16	-0.14	0.13*
Prime-age head	Base	base	base	base	base	base	base	base
Older working-age head	0.02	0.04	0.30**	0.53**	0.04	0.14	0.13	0.51**
Retirement-age head	0.78**	0.03	-0.05	0.15	1.01**	0.56**	0.15	0.66**
Low-education head		-0.18	-0.47**	-0.78**		-0.34*	-0.25**	-0.82**
Mid-education head		-0.09	-0.34**	-0.38**		-0.24	-0.23**	-0.41**
Higher-education head	Base	base	base	base	base	base	base	base
One year in poverty	Base	base	base	base	base	base	base	base
Two years in poverty	-0.47**	-0.61**	-0.20**	-0.57**	-0.47**	-0.58**	-0.11	-0.53**
Three years in poverty	-0.65**	-1.09**	-0.78**	-1.18**	-0.64**	-1.07**	-0.71**	-1.01**
Four years in poverty	-0.86**	-1.39**	-0.91**	-1.07**	-0.88**	-1.43**	-0.75**	-0.90**
Period (t+1; t+2)	-0.04	-0.36*	-0.12	-0.09	-0.07	-0.46**	-0.15	-0.20*
Period (t+2; t+3))	-0.10*	0.49**	0.05	0.40**	-0.11*	0.44**	0.06	0.20**
Period (t+3; t+4)		0.33**	0.25**	0.19*		0.34**	0.18*	-0.03
Period (t+4; t+5)	Base	base	base	base	base	base	base	base
Single adult, no children					base	base	base	base
Single adult, children					0.12*	-0.71**	-0.50**	-1.00**
Two adults, no children					-0.09	0.25	0.48**	0.34**
Two adults, children					-0.29**	0.19	-0.24*	-0.11
No worker in household					base	base	base	Base
One worker in single household					0.26**	1.50**	1.54**	1.82**
One worker in two-adult household					0.32**	0.87**	1.10**	1.45**
More than two workers in household					1.32**		2.17**	2.91**
Two workers in two-adult household					0.82**	1.33**	2.08**	2.37**
Score[1]	**3201 †**	**457 †**	**700 †**	**2376 †**	**3570 †**	**568 †**	**1279 †**	**3143 †**
Schwartz criterion[2]	**38574**	**3573**	**9788**	**13110**	**38407**	**3487**	**9242**	**11789**
N	**30290**	**1430**	**2889**	**3477**	**30290**	**1430**	**2889**	**3477**

Note: See Table A3.

Source: OECD.

3. The persistence of poverty: duration models

91.   This Note describes the methodology used to examine the persistence of poverty and the re-entry probabilities in Section 5. It also presents the estimated equations of the probability of leaving poverty (or non-poverty in the case of re-entry) conditional on the length of time the individual has already been in poverty (i.e. conditional on duration). More detailed results are shown in Tables A7 and A8.

3.1. The sample

92.   This analysis uses all the information available for all countries in their respective longitudinal data sets described in Section 1. Thus, the period considered is 1985 to 1995 for Canada; 1984 to 1996 for Germany; 1991 to 1996 for the United Kingdom; and 1980 to 1993 for the United States.

93.   The econometric approach is based on conditioning spells to select the working sample using the full time period available (see Section 1). There are two sub-samples, one for exits and another one for re-entries. The sample for estimating the probability of exiting poverty, consist of all poverty spells with observed beginning dates. Thus, it is a sample of spells. Throughout the analysis, all poverty spells already in progress in the initial year of the sample are excluded, since the length of poverty spells already in progress at the start of the survey is unknown.

94.   The sample has spells which can begin at different dates within the period available for each country. Each spell is associated with an individual and an individual can have several spells of poverty over the period. Therefore, the sample has multiple spells per individual. Longitudinal data permit the spell (and its associated individual) to be followed over time until the spell of poverty ends. A spell of poverty ends because: *a)* the individual moves out of poverty; *b)* the individual drops out of the sample; or *c)* the available period ends before the individual transits into or out of poverty. The latter two cases correspond to "right-censored" exits of poverty.

95.   As each spell corresponds to an individual, his personal and household characteristics also define the spell, as well as the length of time the spell lasts (i.e. the length of time the associated individual remains in poverty). These characteristics make up the explanatory or right-hand-side variables in the estimation equation (see below.)

96.   The sample for estimating the re-entry into poverty after exit consists of all spells in which the associated individual left poverty at any time within the full sample period. Parallel with poverty, a spell out of poverty ends if: *a)* the associated individual falls back into poverty; *b)* drops out of the sample; or, *c)* the available period ends. As for exits, this is a sample of multiple spells of non-poverty per individual, with different entry dates and some right-censored observations.

3.2. The model

97.   Section 5 estimates how long individuals may expect to remain in poverty (or out of poverty after exiting) conditional on initial spells, personal and household characteristics, and the length of time already spent in poverty (or out of poverty), i.e. duration. The standard methodology for examining duration in a specific state (e.g. unemployment, poverty, out of poverty, etc.) is to estimate the probability that an individual who has been in a state (e.g. unemployment, poverty, out of poverty, etc.) until T, leaves that

state at exactly period T[49]. This procedure is generally referred to as the "hazard of exiting" or "conditional probability of leaving the state (conditional on time already spent in it)".

98.   The most common approach of estimating hazards uses continuous duration models of the Weibull-type (see Lancaster, 1990). However, as the available data are on a yearly basis -- and thus more discrete than continuous -- it is more appropriate to use an approach which analyses the probability of leaving the state (of poverty or non-poverty) in a specific period, conditional on having been in that state at the beginning of the period. The discrete time approach also allows the use piece-wise techniques (Lancaster, 1990 and Jenkins, 1995) which are more flexible and the results are less likely to be constrained by the functional form underlying certain continuous time models such as the Weibull. The analytic form of this model is shown in Box A3.

99.   This discrete conditional probability is then estimated using a "binary" response model (e.g. the left-hand variable takes values 1 or 0 depending on whether the spell ends because the individual exits poverty or not). The explanatory variables for this "model" would then be the length of the present spell, variables defined according to the individual's personal and household-related characteristics (shown in Box A3), calendar-time variables and other variables related to previous spells experienced over the sample period. Some specific points in this regard are:

-     To estimate this discrete probability, conditional on the length of time the present spell has already been running, the working sub-sample has to be expanded. A record is created for each year that the spell has been underway -- i.e. the working sub-sample is expanded according to the length of the spell (see STB [Stata Technical Bulletin], 1998). For example, if a spell lasts for six years (i.e. the corresponding individual has a duration of six years in poverty) there will be six records: the first one for duration equal to 1 and the last one for duration equal to 6. Each record has a value equal 1 if the spell ends (i.e. the individual exits) and 0 if it does not end[50]. The new sample is made up of as many row/observations as spells multiplied by their number of years the poverty period lasts. The resulting variable indicating whether the exit occurred is the dependent variable in the probability model.

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49.   Because the working sample described above is a sample of spells and each spell corresponds to an individual and vice versa, this study estimates the probability that a spell in poverty which has already been running for T periods ends at T.

50.   Where the spell ends because right censoring the value will also be zero.

Box A3. The analytical model

Let T be a random variable indicating the duration of a spell in poverty or the length of time the corresponding individual have been in poverty[1]. Let the distribution function of duration, T, be $F(t) = Prob(t<T)$ $t> = 0$ at point t, and let the density function be $f(t) = dF/dt$.

By the law of conditional probability (Lancaster, 1990), the hazard or conditional probability is:

$\theta(t) = Pr\{t \le T / T \ge t\} = f(t)/[1-F(t)]$

Assuming that T has a logistic form, i.e. $F(t) = exp(t)/[1+exp(t)]^2$ such that the probability of escaping poverty in a given year is represented by a standard logit specification

$\theta(t) = exp(t)/[1+exp(t)]$

The length of time a spell has been running (or an individual remains in poverty) can be expressed as a function of a set of variables, *X,* which vary across spells (according to individuals) and time. It includes personal and family characteristics (age, education, gender, family type), labour-market situation of the family and individual (e.g. employment status of the head, number of employed people in the household, working-age people in the household).

Therefore, $T_i = \alpha_{id} + \beta_{it} X_{it}$ for all individuals *i*

The probability of exiting poverty in year *t* for an individual *i* with a current duration in poverty of *d* years is given by the following hazard function:

$\theta idt = exp(\alpha_{id} + \beta_{it} Xit)/[1+exp(\alpha_{id} + \beta_{it} X_{it})]$

Thus, exit probabilities are functions of duration effects, α_d, and other variables in *X* which vary across people and time (e.g. calendar-year dummies to measure specific-year effects[3], and time varying explanatory variables).

The probability of not exiting at t with a current duration of *d* years is:

$1 - \theta i_{dt} = 1/[1+exp(\alpha_{id} + \beta_{it} X_{it})]$

The observed values that we have in the data sets are outcomes of a binomial process (exiting at duration *d* or not) with probabilities given above and varying from trial to trial according to the duration and *X* for all individuals *i*.

_____

1.   Or out of poverty after a spell of poverty in the case of re-entry.

2.   The logistic function is characterised by its accumulative distribution function (Mood *et al.,* 1974):

   $F(x) = 1/[1+exp(-x)]$
   which it is equal to $exp(x)/[1+exp(x)]$
   The probability density function is then: $dF/dx = f(x) = exp(-x)/[1+exp(-x)]^2 = exp(x)/[1+exp(x)]^2$.

3.   The GDP growth rate was entered to allow for this and to pick up the cycle.

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Box A3 (*contd.*)

The equation is estimated by maximising the likelihood function for all observations. This function is the product of the likelihood of: *a)* spells of observed duration *d*; and *b)* of right-censored observations. The probability of having a spell which we observe the beginning and ending date (i.e. a spell of observed duration *d*), is given by the product of the probability of not exiting during all of the preceding years and the probability of exiting exactly at *d*:

$$[\prod_{1}^{d-1}\frac{1}{1+\exp(\alpha_{d}+\beta_{it}X_{it})}][\frac{\exp(\alpha_{d}+\beta_{it}X_{it})}{1+\exp(\alpha_{d}+\beta_{it}X_{it})}]$$

The probability of having a spell of at least duration *d* years, but where the beginning date but not the ending date is observed because it is right-censored, is given by the probability of not having left until *d*:

$$\prod_{1}^{d}\frac{1}{1+\exp(\alpha_{d}+\beta_{it}X_{it})}$$

Therefore, the likelihood to maximise is:

$$L = [\prod_{1}^{d-1}\frac{1}{1+\exp(\alpha_{d}+\beta_{it}X_{it})}][\frac{\exp(\alpha_{d}+\beta_{it}X_{it})}{1+\exp(\alpha_{d}+\beta_{it}X_{it})}]*\prod_{1}^{d}\frac{1}{1+\exp(\alpha_{d}+\beta_{it}X_{it})}$$

- The explanatory or right-hand-side variables (shown in Box A4) can be defined in two different ways. First, they can be defined at the time the spell began, that is at the time the individual fell into poverty (or exited poverty for re-entry) and they are fixed over time. Second, they can vary over time. The first approach addresses questions such as, would individuals living in a household where the head is working leave poverty sooner than otherwise? The second approach addresses questions of a more dynamic nature: would individuals living in a household where the head becomes employed have a greater chance of leaving poverty sooner than otherwise? The results presented here and in the main text are based on the second approach. The results of the first approach -- available on request -- are broadly similar.

- Finally, given that individuals can have more than one spell, it is possible to introduce an additional variable (spell number) to control for this. For example, an individual who has suffered three spells over the 1980-1993 period in the United States will contribute three spells to the sample[51]. This variable takes the value 1 for the first spell and the value 2 and 3 for the second and third spells. This variable indicates whether individuals with multiple spells have a higher or lower probability of exit; it may also go some way to addressing the problem of unobserved heterogeneity -- and associated bias for the other variables -- as many of the unmeasured characteristics associated with longer stays may be captured by this variable.

- Calendar-year dummies were entered to allow for specific year effects as well as a cyclical variable.

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51. Each of the three spells would, in turn, contribute to as many records as the length of each spell.

Box A4. Explanatory variables for estimates of the duration of poverty and re-entry

Age groups: <16, 16-24, 25-34, 35-49, 50-64, 65+

Education level: two variables are available, the level attained:

                         1.   lower than high school,
                         2.   high school,
                         3.   higher than high school

and the number of years of formal education. Those individuals without stated education level, children, were assigned the education level of the head of household.

Gender

Race: whether the individual was white or non-white (only in the United States)

Employment status: whether the individual was employed or not

Household composition: number of adults
                                  number of children in the household
                                  number of adults working

Family type: single adult (head) with no children
                                  single adult (head) with children
                                  two or more adults with no children
                                  two or more adults with children

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100.   An additional test was performed in which the available sample was broken into two parts. The second part of the sample was used to estimate the probability of exiting poverty conditional on duration. The first part was used to create a variable for *previous* spells of poverty. The results of this exercise confirm those presented in the tables at the end of this note that previous spells in poverty increase the length of time in poverty or reduces the chances of earlier exit.

3.3. Comments on the explanatory variables and estimations

101.   The explanatory variables presented in Box A4 were all defined for the individual and for the head of his household. Therefore, an individual can be associated with his own personal characteristics (e.g. age, education, gender), and those related to the household (s)he belongs to (e.g. household type, the number of children in the household and the number of workers in the household), and those associated to the head of the household (e.g. education, age, gender of the head, health status of the head, employment status of the head).

102.   Furthermore, each individual is associated with a variable that counts the *number of spells* in poverty and dummy variables that account for the *duration* of the spell and *year dummies or calendar years*. In final specifications, the GDP growth rate replaced the year dummies.

103.   The variables related to age and education were introduced in the estimation process as either dummies controlling for individual characteristics or as dummies controlling for the age and educational level of the household head. The results are similar for both specifications. The estimated equations reported below (Tables A7 and A8) use the age, gender and educational level of the individual.

104.   The factors that explain duration persistence and re-entry appear quite similar across countries. The employment status of the household seems to be the main factor leading to shorter poverty spells. The number of adults working in the household as well as the employment status of the household head (i.e. whether the head of the household is employed or not) are highly significant.

105.   Belonging to a lone-parent household appears to be one of the most important factor leading to longer spells[52]. The dummy variable controlling for single-adult households with children was interacted with the gender of the head. The results presented below only show this variable without its interaction, but other estimated results -- available on request -- show that the negative effect of lone parents is completely due to female lone parents in all three countries. This confirms the commonly found result for the United States that individuals in female-headed households and, in particular, those with children are more prone to remain in poverty for long periods. The equations also confirm that the non-white population in the United States stays longer in poverty.

106.   Variables indicating the age of the individual do not appear significant. In particular, there is no evidence that children, taken as a group, appear to stay longer in poverty. Education (except for the United States) does not appear to affect the length of poverty spells. Health status also appears significant only in the United States, where is a measure of disability instead of self-reported health as in Germany and the United Kingdom. However, both education and poor health status appear to affect the re-entry into poverty (following an exit) in all three countries.

107.   The results for Canada, while confirming the importance of employment to reduce poverty persistence, differ slightly from the results of the other three countries. The main distinction is that certain groups (e.g. lone parents and people with previous poverty experience) which are in disadvantage in the other three countries are not so in Canada. And old age people seem to fare much better in Canada.

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52.   The estimated results reported for the United Kingdom for lone parent households are not statistically significant. When using the more appropriate monthly measure of household income in the BHPS, lone parent households are worst off than other households.

Table A7. **Logit estimates of the probability of exiting poverty conditional on duration**

	Canada		Germany		United Kingdom		United States	
	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Constant	0.02	0.05	0.10	0.15	0.08	0.22	-0.04	0.09
Age								
Less than 16			-0.17	0.09**	0.00	0.11	-0.07	0.05
16 to 34	0.07	0.02*	-0.06	0.08	0.01	0.10	-0.01	0.05
50 to 64	-0.17	0.03*	0.03	0.11	0.06	0.14	0.20	0.07*
65 or more	0.53	0.04*	0.15	0.13	-0.08	0.15	-0.05	0.08
Female	0.03	0.02	-0.10	0.06	-0.06	0.06	-0.03	0.03
Education								
Lower than high school			-0.05	0.06	0.13	0.07	-0.19	0.03*
More than high school			0.13	0.14	0.03	0.10	0.44	0.04*
Employment status								
Working-age people (hh)	0.12	0.02*	..	..	0.08	0.05	..	..
Number of children in the household	-0.07	0.01*	0.09	0.03*	-0.10	0.05*	-0.01	0.01
Head employed	0.05	0.02*	0.69	0.06*	0.74	0.08*	0.21	0.04*
Number of people employed in the household	0.21	0.02*	0.49	0.07*	0.59	0.07*	0.34	0.02*
Family Type								
Lone parents	0.06	0.04	-0.37	0.12*	-0.16	0.16	-0.19	0.06*
Household with two or more adults and no children	0.0	0.03	0.02	0.09	0.05	0.10	0.45	0.06*
Household with two or more adults and children	-0.11	0.04*	-0.11	0.11	-0.06	0.15	0.21	0.06*
Other variables								
Head with bad health			0.08	0.07	0.16	0.10	-0.16	0.04*
Non-white			..	..	..	..	-0.27	0.03*
Number of previous spells	-0.02	0.02	-0.23	0.05*	-0.35	0.13*	-0.20	0.02*
Duration	-0.21	0.01*	-0.32	0.02*	-0.52	0.04*	-0.29	0.01*
GDP growth rate	-0.01	0.00	0.03	0.01*	..	..	0.02	0.01*

Note: Number of observations: Germany: 6907; United Kingdom: 5192; United States: 28489.
Log likelihood: Germany: -4349.3; United Kingdom: -2971.4; United States: -15231.8.

* means significant at 5 per cent.

Table A8. **Logit estimates of the probability of re-entering poverty conditional on duration**

	Canada		Germany		United Kingdom		United States	
	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Constant	-1.27	0.05*	-0.84	0.17*	0.37	0.28*	-1.40	0.11*
Age								
Less than 16			0.17	0.10	0.23	0.13	0.13	0.05*
16 to 34	-0.08	0.02*	0.17	0.09	0.39	0.13*	0.11	0.05*
50 to 64	0.12	0.03*	0.21	0.12	-0.03	0.18	0.04	0.07
65 or more	-0.50	0.04*	-0.38	0.15*	0.43	0.17	0.02	0.08
Female	-0.01	0.02	0.14	0.06*	0.14	0.07**	0.12	0.03*
Education								
Lower than high school			0.15	0.06*	0.10	0.09	0.40	0.03*
More than high school			-0.63	0.15*	-0.31	0.12*	-0.41	0.04*
Employment status								
Number of children in the household	0.06	0.01*	0.06	0.03	-0.11	0.05*	0.11	0.01*
Head employed	0.02	0.02	-0.79	0.07*	-0.86	0.09*	-0.14	0.05*
Number of people employed in the household	-0.18	0.02*	-0.48	0.06*	-0.79	0.08*	-0.25	0.02*
Family Type								
Lone parents	0.01	0.05	0.44	0.15*	0.76	0.20*	-0.10	0.07
Household with two or more adults and no children	0.29	0.03*	-0.24	0.11*	-0.17	0.12	-0.40	0.06*
Household with two or more adults and children	0.42	0.04*	0.05	0.12	0.06	0.18	-0.28	0.07*
Other variables								
Head with bad health			-0.49	0.08*	-0.05	0.11	0.37	0.04*
Non-white			..	..	..	..	0.49	0.03*
Number of previous spells	-0.01	0.02	0.22	0.05*	-0.20	0.17	0.03	0.02
Duration	-0.35	0.01*	-0.25	0.02*	-0.73	0.05*	-0.25	0.01*
GDP growth rate	-0.02	0.01*	0.01	0.02	-0.03	0.02	0.00	0.01

Note: Number of observations: Germany: 13 850; United Kingdom: 5 840; United States: 34 851.
Log likelihood: Germany: -4 325.2; United Kingdom: -2 363.6; United States: -14 914.6.

* means significant at 5 per cent .

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