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## Understanding the Links between Inequalities and Poverty (LIP)

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# Understanding the relationship between inequalities and poverty: a review of dynamic mechanisms

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## Centre for Analysis of Social Exclusion

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### About the research programme

CASE collaborated with the LSE's International Inequalities Institute to lead a three-year programme of research on the connections between inequality and poverty, *Improving the Evidence Base for Understanding the Links between Inequalities and Poverty*, funded by the Joseph Rowntree Foundation. The programme was designed to expand the evidence base on the links between inequality and poverty and to fill this knowledge gap through: Examining philosophical concerns for poverty and inequality and how they may overlap; Estimating the empirical relationship between income inequality and a variety of poverty measures; Reviewing the existing evidence base on potential mechanisms that may drive any relationship. In other work within the programme we investigate some of mechanisms identified in the evidence review to develop a policy toolkit.

## Editorial note

Magali Duque worked as a Research Assistant in CASE. Abigail McKnight is Associate Professorial Research Fellow and Associate Director of CASE.

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Any errors and ambiguities remain the author's responsibility.

An overview report, summarising the findings from the empirical analysis and the reviews of mechanisms can be downloaded from the CASE website [Understanding the relationship between poverty and inequality: overview report](#).

## Abstract

In this paper we examine the evidence on how dynamic mechanisms, which include earnings and income mobility, poverty dynamics, social mobility and the accumulation of risk and advantage over the lifecycle, may be a contributory factor behind the estimated positive correlation between income inequality and poverty. We find evidence that higher income inequality is related to greater income volatility, lower equalising mobility and lower social mobility. Research on poverty dynamics reveals evidence of poverty persistence, poverty traps and recurrent episodes of poverty. The evidence suggests that higher income inequality linked to lower income mobility, poverty persistence and churning is likely to lead to higher rates of poverty and, therefore, income and poverty dynamics are likely to be a contributory mechanisms behind the observed positive correlation in cross-sectional measures of income inequality and poverty.

Key words: Poverty, inequality, income mobility, poverty dynamics, social mobility, life course analysis

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## **1. Introduction**

This review is part of a programme of research exploring the relationship between economic inequality and poverty. The research in this programme includes empirical analysis estimating the statistical relationship within the UK over time, and across European and OECD countries at various points in time. This research has identified a positive relationship between income inequality and poverty, using a variety of different inequality and poverty measures (Karagiannaki, 2017; Vizard and Yang, 2017). Empirical estimates show that higher income inequality is associated with higher rates of poverty, and increases in income inequality are associated with increases in poverty. A series of literature reviews explore the evidence on how various mechanisms might drive the observed positive correlation between economic inequality and poverty. These include resource constraints (Yang, 2018), crime, the legal system and punitive sanctions (Duque and McKnight, 2019) and the relationship between poverty, inequality and growth (McKnight, 2019). A number of other mechanisms such as spatial segregation, political economy, public opinion and shifts in social and cultural norms have been explored in a related paper (McKnight, Duque and Rucci, 2017). The final stage of this project is the development of an online policy toolkit which assesses a range of policy options linked to mechanisms explored in the reviews, particularly policies which have the potential to have a double-dividend of poverty and inequality reduction.

In this review we examine the evidence on how dynamic mechanisms, which include earnings and income mobility, poverty dynamics, social mobility and the accumulation of risk and advantage over the lifecycle, may be a contributory factor behind the estimated positive correlation between income inequality and poverty.

## **2. Background and motivation**

Much of the research measuring the extent of income poverty or inequality relies on estimates taken at a point in time. Income, used in these measures, is generally measured over a fairly short timeframe, typically up to a year. However, these static 'snapshots' of income miss important aspects which can only be observed by examining income and poverty dynamics. Measuring income mobility is much more data demanding than measuring cross-sectional income inequality because it requires high quality longitudinal data. Measures which assess how household income changes over time allow us to assess income growth, changes in households relative income position, income volatility, whether mobility reduces inequality in income assessed over the longer term, and poverty persistence and recurrent episodes of poverty.

Exploring the relationship between income inequality and poverty through the lens of life course inequalities or lifetime exposure to poverty could also help us to understand why higher levels of cross-sectional inequality are related to higher levels of poverty. Taking a longer term perspective helps us to understand factors associated with the accumulation of advantage and disadvantage, and how exposure to risks and the experience of life events can have a long term impact.

An even longer-term perspective can be gained by looking at intergenerational relationships such as social mobility. An individual's life course is, to some degree, affected by their parents' socio-economic status, and their socio-economic status affects their dependents' prospects.

In this review, we begin by examining the evidence on income mobility and poverty dynamics, looking at short-run dynamics, year-to-year changes and longer-term income dynamics including intergenerational mobility. We also examine the evidence on how life events or circumstances at one point in time can have a long-term impact and shape future life trajectories, reviewing the evidence on how advantage and disadvantage accumulate and shape life course trajectories. The aim is to assess whether income and poverty dynamics may help to explain the positive correlation found between cross-sectional income poverty rates and income inequality.

### **3. Income and earnings mobility**

Income mobility measures changes in household or individual income over time, and can be measured in absolute, real or relative terms. A variety of mobility measures have been developed to capture different types of income mobility. For example, income growth rates can measure absolute or real income increases and decreases over time. In addition, there are measures of income volatility and flux and some measures assess changes in ranked positions in the income distribution.

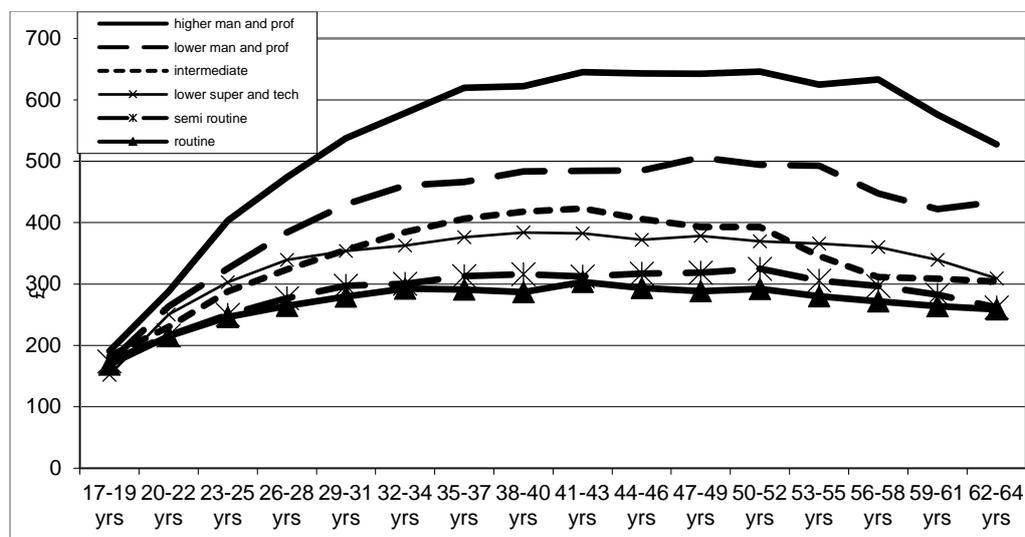
Income mobility can result in inequality in long-run or lifetime income being considerably lower than income inequality measured at a point in time. If this is the case, inequality is, in some sense, 'shared'. For example, in a stylized case where households receive either high income or low income, it is theoretically possible for all households to have a turn being low income and high income and if the spells are of equal length, lifetime income is equal across households. Although the real world is not as simple as this stylized case, there does exist a marked lifecycle pattern to income and this is one of the reasons why lifetime income inequality is typically lower than income inequality measured between the same individuals at a single point in time. Lifecycle patterns in income are largely due to the lifecycle patterns of earnings, with workers initially receiving lower earnings when they enter the labour market, a growth in earnings as workers become more

productive through gaining experience and accumulating skills, a peak in earnings during the latter stages of the working life, and often a decline as workers approach retirement.

Atkinson, Bourguignon and Morrisson (1992) noted the important role mobility plays in reducing inequality in lifetime income or earnings. Higher cross-sectional inequality might be considered less cause for concern if it is accompanied by income mobility which has an equalizing impact on the distribution of lifetime income (Krugman, 1992). Jarvis and Jenkins (1998) also note that for some people greater inequality at a point in time is more tolerable if it is accompanied by mobility that smooths transitory variations in income so that 'permanent' inequality is lower than cross-sectional inequality. However, research has found that although there is income mobility over the lifecycle it is generally not enough to smooth-out cross-sectional differences in income. This is partly because lifetime income trajectories vary in systematic ways: with some households on a lower income trajectories and others are on much higher income trajectories.

Evidence shows that lifecycle earnings profiles vary markedly between different occupations or social class groups. Figure 1 shows how male median weekly earnings age-profiles in 1999 varied between socio-economic classes (NS-SEC classes), with much flatter and lower age-earnings profiles for less advantaged social class groups. Differences in these age-earnings profiles between NS-SEC classes increased between 1975 and 1999, over a period of increasing earnings inequality (Goldthorpe and McKnight, 2006), highlighting the fact that for longer-run earnings inequality to remain constant there would need to be an increase in both upward and downward class mobility.

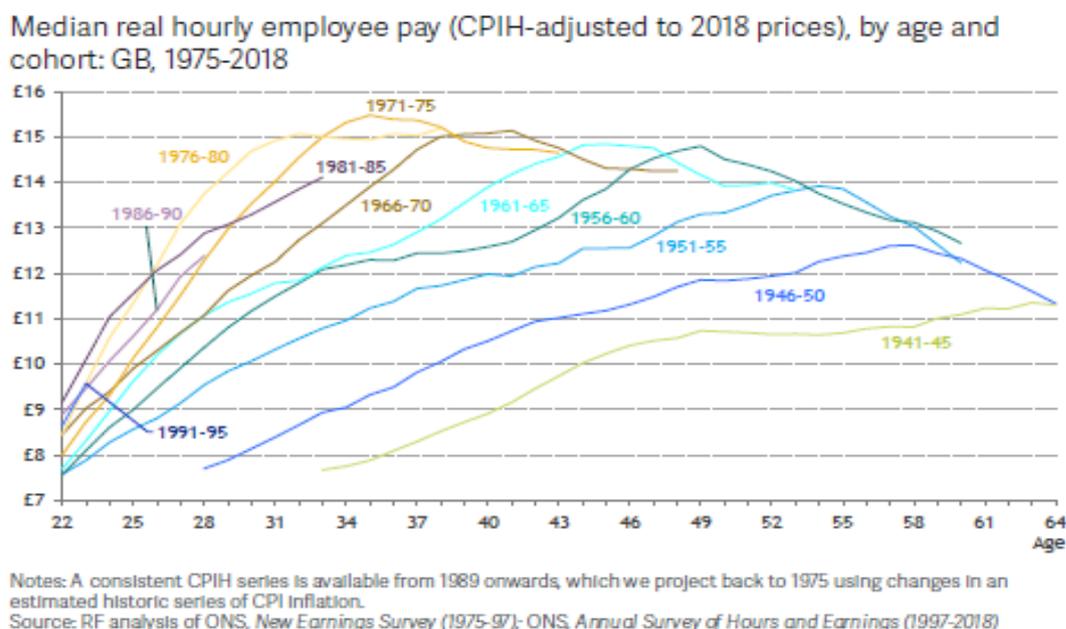
Figure 1 Median gross weekly earnings of male employees by age and NS-SEC -1999



Source: Goldthorpe and McKnight (2006)

The age-earnings profiles shown in Figure 1 are average earnings within social class and age groups at a point in time and have been used to provide an indication of changing social class earnings profiles. However, these earnings profiles are not the same as actual lifetime profiles because individuals can change occupations and social classes over time. In addition, period and cohort effects can shape particular age-earnings profiles. Recent research has been exploring trends in average pay, across the working age between age cohorts. Research by the Resolution Foundation has found that pay progress between generations (age cohorts) stalled around the time of the financial crisis in 2007/08. Prior to this point, it had been reasonable to expect that children in their adult lives will earn more than their parents did at the same age. Figure 2 shows how previously successive cohorts enjoyed higher wages and how the aftermath of the recent financial crisis had a negative impact on the average wages of all cohorts. We also observe lower average wage profiles for younger age cohorts over the last decade with successively lower earnings trajectories for cohorts born after 1980.

Figure 2 Real median wages, by age and birth cohort – 1975-2018

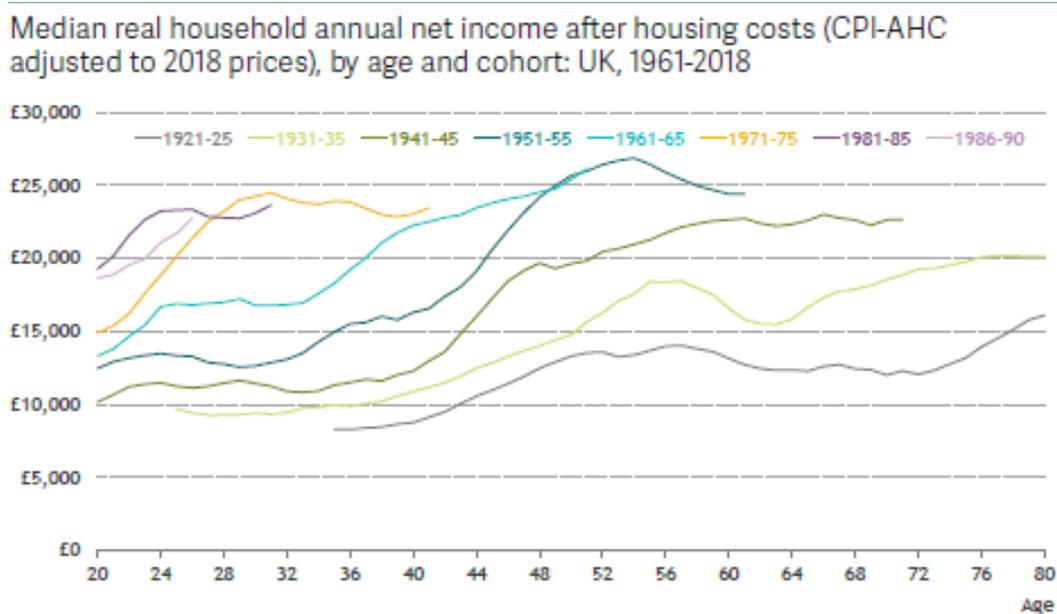


Reproduced from Bangham et al. (2019), figure 9, page 30

Research has also looked at age-income profiles. As income is typically measured at a household level, these profiles are not just affected by changes to labour market earnings but also factors such as changes in household composition, changes in income from other sources (for example, cash transfers, capital income) and changes in taxation. Recent studies have highlighted changes in these age-income profiles between different age cohorts (Cribb, Hood and Joyce, 2016; Gardiner, 2016; Bangham et al., 2019). Taking a generational perspective, until recently

each generation has, on average, fared better than previous generations in terms of real average household income but, like we saw with the age-earnings profiles above, this trend changed with the onset of the financial crisis in 2007/08 (Figure 3). In Figure 3 we can see how individuals born 1986-1990 had lower average incomes through their 20s than the cohort born between 1981 and 1985. Also the cohort born 1981-1985 had lower average income than the cohort born 1971-1975 by their late 20s. In addition, although there has been some growth in real average incomes since the crisis, greater improvements are observed in the oldest age cohorts.

Figure 3 Real median annual net income after housing costs, by age and birth cohort – 1961-2018



Notes: In contrast to our previous assessments of generational income patterns, here we present trends in household income for each individual, rather than just for the head of the household. Incomes are equivalised to account for differences in household size. Data for 1992 and 1993 have been interpolated. Northern Ireland data is missing for 1994-2001. Figures for each cohort are derived from a weighted average of estimates by single year of age for each single birth year; cohorts are only included if all five birth years are present in the data. Data is smoothed using three-year rolling averages.  
Source: RF analysis of IFS, *Households Below Average Income (1961-91)*; DWP, *Family Resources Survey (1994-2018)*

Reproduced from Bangham et al. (2019), figure 51, page 89.

These age-income profiles give us some idea of income mobility over the lifecycle. From an income inequality perspective, income mobility may not always be beneficial. Firstly, although mobility is necessary to smooth income differences over time, actual mobility may not be sufficient to reduce inequality. Where mobility is low, current income is closer to a measure of the concept of 'permanent income' and, therefore, individuals' positions in the lifetime income distribution. Secondly, income changes associated with income volatility, particularly frequent small increases or decreases in income, are unlikely to lead to lower lifetime income inequality. In addition, very volatile income, particularly where income changes are unexpected, can pose a range of budgetary problems for

households. Much less is known about short term volatility of income because it is not generally captured in household surveys, which tend to report income aggregated over a period of a month or a year. Longitudinal analysis of these data usually involves assessing annual changes to income. Limited evidence that is available has shown that there can be considerable short-term volatility in income. Hills, Smithies and McKnight (2006) followed a sample of low income families over the course of a year, collecting detailed information on weekly income. They found substantial short-term volatility in income, some of which was caused by economic and demographic events (job losses or job starts, changes in the composition of the household) and some of the volatility was due to the administration of cash transfers (tax credits and unemployment benefits).

It wasn't until after the British Household Panel Survey (BHPS) was introduced in 1991 that systematic research on UK income mobility became possible. One of the first studies to use this longitudinal information was conducted by Jarvis and Jenkins (1998). Their research made use of the first four waves of BHPS (1991-1994), and found that most income changes from one year to the next are not very large, and when incomes are averaged over a number of years, smoothing transitory variations, substantial 'permanent' income differences between households are revealed (Jarvis and Jenkins, 1998). This research suggests that income mobility in the UK, over this timeframe, is unlikely to lead to a notable reduction in inequality of income assessed over a longer term.

International research has explored how the relationship between income inequality and income mobility varies across countries. Using longitudinal data drawn from the European Union Statistics on Income and Living Conditions (EU-SILC) database, Aristei and Perugini (2015) estimate short-term income mobility 2004-2006 across 25 European countries. The main measure they use is Fields and Ok's index (Fields and OK, 1999a) of absolute income mobility which, as its name suggests, treats positive and negative changes in income with equal weight by simply measuring the 'distance' between income measured at two points in time. This measure provides an estimate of income "flux" or volatility, and can be decomposed into an income growth component (total income growth) and an income transfer component (transfers from losers to gainers). They also use the Shorrocks mobility index (Shorrocks, 1978a, b) to capture longer-run income equalization associated with income mobility. The Shorrocks mobility index is based on a comparison between inequality in income averaged over a number of years, with a weighted average of period-specific income inequality. Finally, these two measures were supplemented with indicators of relative income mobility based on transition probability matrices. Aristei and Perugini (2015) find a positive relationship between income instability and income inequality, with households in higher income

inequality countries experiencing greater income instability. When they classify the 25 countries into six groups that resemble alternative models of capitalism<sup>1</sup>, they find that Social Democratic countries are characterised by strong income stability, due to large and relatively generous welfare states helping to stabilise income and maintain inequality at a relatively low level. In contrast, liberal market economies and Mediterranean countries (particularly Spain and Greece) were found to have greater income instability, with welfare states playing a weaker role (Aristei and Perugini, 2015).

Other research, also using longitudinal EU-SILC data (2003 to 2007), finds a positive correlation between income volatility and inequality in annual income (Van Kerm and Pi Alperin, 2013). This research finds considerable variation across countries in income gains and losses, the extent of progressivity and the reduction of long-term income inequality. Van Kerm and Pi Alperin's (2013) research does not find a systematic relationship between the level of annual income inequality and inequality reducing mobility measured by the Shorrocks index, and conclude that among European countries there is no support for a claim that higher mobility compensates for higher inequality.

Riener (2012) uses European Community Household Panel (ECHP) data for 13 European countries (EU-15 except for Finland and Sweden) using income observations in 1995, 1998 and 2001 to research the relationship between income mobility and income inequality. He uses two measures of income mobility to capture different types of mobility: the Fields and Ok (1999b) mobility index (as used by Aristei and Perugini (2015)); and the Fields (2010) index which measures equalisation of incomes over time by comparing inequality of income averaged over a number of years with inequality of income in a base year. Across the 13 countries studied, he finds considerable heterogeneity not only in the magnitude of relative income mobility but also the relative size of the growth and transfer components. Income mobility, over this period, was found to have an equalizing effect on long-run income in all countries, although the degree to which mobility had an equalising impact varied between countries: at the lower end, Ireland, Belgium and Denmark; at the upper end of the scale were Germany, the Netherlands and Italy. Riener (2012) finds a negative relationship between total relative income mobility and long-run income equalization, no clear relationship between the growth component and the equalization process, but a strong correlation between the transfer component and income equalization. A comparison between two time-periods 1995-1998 and 1998-2001, found a fall in income equalizing

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<sup>1</sup> Liberal market economies; continental European economies; Social-Democratic Countries; Mediterranean countries; Eastern European Countries; and Baltic Countries.

mobility. Overall, this suggests that income growth was unequally distributed and consequently higher relative income mobility was not associated with lower long-run income inequality.

Research examining the relationship between inequality and mobility has also examined the relationship with respect to earnings. Fields (2010) compares the US with France and finds that earnings mobility had an equalizing effect on earnings measured over the long-run among American men in the 1970s but not in the 1980s or 1990s. In France, mobility was found to have been equalizing longer-term earnings since first measured in the late 1960s, with the degree of equalization higher in more recent years than in the past. For the UK, McKnight (2000), Dickens (2000) and Dickens and McKnight (2008) found falls in earnings mobility over the period that earnings inequality increased most (over the 1980s and early 1990s), particularly for men, and this was associated with falls in the equalizing impact of mobility on long-run measures of earnings inequality.

In this section we have reviewed evidence on the relationship between income inequality and income mobility. This evidence suggests that higher income inequality is found to be associated with higher short-term income volatility and lower long-term income inequality equalisation.

#### **4. Poverty dynamics**

As we outlined in the introduction, poverty dynamics may also be an important contributory factor in the observed positive cross-sectional association between income inequality and poverty. Longitudinal data can be analysed to establish whether the typical experience of poverty is transitory or long lived and to identify the characteristics of households most at risk of poverty in the short and long term.

Research on poverty dynamics has analysed poverty entry and exit rates and poverty duration. This research has shown that, point in time estimates of the incidence of poverty can be misleading (see, for example, Bradbury et al., 2001). This is because cross-sectional measures don't provide information on the duration of poverty or the extent to which people churn in and out of poverty. Research on poverty dynamics also shows how the composition of households classified as living in poverty can change over time, and the factors associated with poverty entry and poverty exit.

Jarvis and Jenkins (1998) analysed the first four waves of the BHPS and found a relatively small group of people who were persistently poor and a relatively large number of low income 'escapers' and 'entrants' from one year to the next. The fact that the majority of people in poverty at a single point in time shortly leave poverty, suggests that cross-sectional measures

of poverty might overstate the extent of poverty in a society. However, findings from research using longitudinal data highlights the need to examine poverty dynamics over a greater number of years as this reveals recurrent episodes of poverty. Jenkins, Rigg and Devicienti (2001) estimate that 30 per cent of people who leave poverty return within one year. Oxley, Dang and Antolin (2000) research on six OECD countries estimated that 30 per cent of the 'pool' of people in poverty over a six-year period<sup>2</sup> involved the same individuals revolving in and out of poverty. This churning appears to occur because upwards income mobility tends to be short range.

Jenkins and Van Kerm (2006) contrast income dynamics in the US with West Germany over the 1980s and 1990s and show how in both countries income growth was pro-poor, and therefore inequality reducing, but 're-ranking' meant that cross-sectional income inequality rates actually increased, particularly in the US. Similarly, research by Chzhen, Toczydlowska and Handa (2016) finds that although income growth has tended to be pro-poor for families with children in a number of European countries over the recent crisis (2006-2013), this growth has not been enough to prevent increases in income inequality among families due to re-ranking in the income distribution (poverty exits are replaced by poverty entrants). In addition, this research finds a considerable amount of cross-country variation in annual child poverty entry probabilities ranging from 2 per cent in Denmark and Norway to just over 10 per cent in Estonia, Iceland, Italy and the UK. This variation, coupled with differences in annual exit probability rates, which ranged from 69 per cent in Norway to 17 per cent in Portugal, meant that the typical experience of child poverty varied considerably across countries. In general higher poverty entry rates tended to be coupled with lower poverty exit rates but this was not always the case. Some countries were found to combine low poverty entry and exit rates (Scandinavian countries) while other countries had both high poverty entry and exit rates; Iceland and the UK had some of the highest exit rates with some of the highest entry rates, suggesting a large degree of mobility.

Van Kerm and Pi Alperin (2013) found that the effect of income mobility on poverty rates is ambiguous. Using EU-SILC data 2003-2007, they show that nominal income gains may not be sufficient to move initially low-income individuals above the poverty line, even though their relative income gains can be greater than gains for higher income individuals. In addition, large average income gains can lead to an increase in the relative income poverty line, which can in turn lead to an increase in the share of individuals with incomes below the 60% median income relative poverty

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<sup>2</sup> Canada: 1986-95; Germany: 1984-96; Sweden: 1991-1996; the United Kingdom: 1991-96; and the United States: 1980-93.

line. Although some of the group who were initially poor experienced sufficient income growth to escape poverty, other households experienced falls in their income sufficient for them to fall into poverty. Van Kerm and Pi Alperin (2013) found that across European countries in the EU-SILC data over the period 2003-2007, poverty entrants exceeded poverty exits and consequently poverty rates increased.

Research on poverty dynamics has also sought to identify the key factors in predicting the risk of poverty entry and poverty exit. Bane and Ellwood's (1983) influential work on poverty dynamics in the US covering the period 1972-1981 led the way for establishing a methodology for distinguishing between economic events (for example, job loss) and demographic events (for example, divorce) as predictors for differences in poverty entry and poverty exit rates. They found that economic events dominated but demographic events still played a key role for some groups, particularly affecting poverty entry rates. Polin and Raitano's (2014) more recent study using the longitudinal data in EU-SILC 2005-2007 for 22 EU countries, also finds that economic events are the most important overall, although they find that demographic events were important for predicting poverty entry. Chzhen, Toczydlowska and Handa (2016) also find that economic events, associated with changes in income either due to relative growth in earnings or labour market events (such as job loss), are more important predictors of transitions into or out of poverty than demographic events, which they found to be relatively rare over the short time horizons their study covers (annual changes over a four year time span and some events may be missed due to data limitations). In other research, Vandecasteele (2011) found that demographic events had a greater impact on poverty transitions among more vulnerable groups, and Andriopoulou and Tsakloglou (2015) found that demographic events are somewhat more important predictors of poverty entry and exit in Scandinavian countries.

In 2016 the UK Office for National Statistics (ONS) published the second release of statistics on persistent poverty in the UK and the EU based on data from EU-SILC (ONS, 2016). Defining income poverty as living in a household with income below 60% of median equivalised household disposable income and persistent poverty as living in a household with current income below this poverty threshold, as well as in at least two out of the three preceding years, they estimate that in 2014, 6.5% of people in the UK were in persistent income poverty (equivalent to approximately 3.9 million people). In 2014 the overall relative income poverty rate was 16.8% and therefore this estimate suggests that nearly 4 in 10 people living in poverty were persistently poor (39%). This represents a fall in the persistent poverty rate (down from 7.8% in 2013) and a fall in the share of people living in poverty classified as persistently poor (down from 49% in 2013). Although it is tempting to see this as an improvement, the fact

that these falls are likely to have been driven by an increase in the overall relative income poverty rate (increasing from 15.9% in 2013 (ONS, 2015) to 16.8% in 2014), and therefore new poverty entrants misleadingly have the effect of reducing poverty persistent estimates.

The most recent estimates published by the ONS in this series show that in 2017 the persistent poverty rate for the UK had increased again to 7.8%, which is equivalent to around 4.7 million people (ONS, 2019a). The poverty rate had increased further in 2017 to 17%. This further increase in the poverty rate, bringing in new poverty entrants, will, due to the way in which this measure of persistence is constructed, give the impression that poverty persistence rates are lower.

Alternative estimates of persistence in low income (based on the same relative income poverty threshold as above) using a definition of persistence as income below this threshold in at least three out of the previous four years, are produced by the Department for Work and Pensions (DWP) using longitudinal data from Understanding Society (DWP, 2019). Despite measuring persistence over a slightly longer time period, the DWP estimates that low income (poverty) persistence is 9% over the four year period 2013-2017 (even higher when income is measured after housing costs – 13%). Again this estimate will be affected by the fact that poverty rates increased over this period but because this measure is not so dependent on current poverty status it will be less sensitive.

A 2007 systematic review of the literature on UK poverty dynamics (Smith and Middleton, 2007) identified a number of key findings:

- Point-in-time studies underestimate the scale of poverty in the UK. Over an eight-year period, a third of the population experience poverty at least once: twice as much as the poverty rate at any one time;
- Cross-sectional estimates differentiate only between 'the poor' and the 'non-poor', while research on poverty dynamics highlights different types of poverty – transient, persistent and recurrent;
- While most people who enter poverty leave quickly, a minority experience persistent poverty;
- Many others experience recurrent episodes of poverty because income mobility tends to be short range;
- Poverty in one generation increases the chance of poverty in the next.

Smith and Middleton conclude that it is helpful to distinguish between four types of poverty experience: (1) people who never experience poverty; (2) people who have a one-off, transient experience of poverty; (3) those experiencing recurrent poverty; and (4) those in persistent poverty.

In this section we reviewed existing research on poverty dynamics. This research shows that although many spells of poverty are short, there is a considerable amount of recurrent episodes due to the fact that income gains are often small and short lived. In addition, the research shows that around two in five households in the UK who are defined as living in relative income poverty are persistently poor. These dynamic features of poverty mean that any rise in poverty has long lasting consequences and this stickiness at the bottom of the income distribution could have an impact on inequality.

## 5. Social mobility

Income and poverty dynamics can also be assessed over the very long term by studying intergenerational mobility. Intergenerational<sup>3</sup> social mobility may be an important mechanism behind the estimated cross-sectional positive correlation between income inequality and poverty and in this section we review parts of the literature on social mobility that could help to understand how this mechanism might work. Intergenerational social mobility is a measure of how social and economic status in one generation is transmitted to the next and itself is an important dimension of inequality. A range of social and economic outcome measures are used in the study of social mobility, including family income, individual earnings, education attainment, social class position and occupational status.

Cross country studies have found that social mobility tends to be lower in countries where income inequality is higher (Corak, 2013; Blanden, 2013): a relationship that has become known as the “Great Gatsby Curve”<sup>4</sup>. So for example, countries such as the United States, the United Kingdom and Italy have relatively high inequality and relatively low intergenerational mobility (high intergenerational earnings elasticities), in contrast to the Nordic countries with relatively low income inequality and high intergenerational mobility (low intergenerational earnings elasticities).

If high inequality is associated with low social mobility then, *ceteris paribus*, an increase in inequality is likely to be associated with a fall in social mobility, or vice-versa, within countries over time. There are fewer studies estimating this relationship because of the demanding data requirements. One approach has been to estimate trends in intergenerational mobility using longitudinal data containing information on parents’ and children’s outcomes and then to contrast these estimates with cross-sectional income

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<sup>3</sup> Research also looks at intragenerational social mobility but here we focus on intergenerational social mobility.

<sup>4</sup> Alan Krueger referred to the “Great Gatsby Curve” for the first time in a speech, “The Rise and Consequences of Inequality”, to the Center for American Progress on January 12, 2012, in his capacity as the Chairman of the Council of Economic Advisors.

inequality trends. Lee and Solon (2009) review a number of US studies that estimate trends in intergenerational mobility. They find that some estimate large increases in intergenerational mobility, some estimate large decreases, but most find that estimated changes are statistically insignificant. They have some concern that this may be due to estimates not being comparable as a result of differences in data quality, differences in variable definition and differences in sample sizes. They seek to establish a more reliable set of intergenerational mobility estimates using the US Panel Study of Income Dynamics (PSID) and a sample of sons and daughters born between 1952 and 1975. They use as much of the available data as possible to provide multi-year estimates for parents' family income and their children's family income when they are adults, as a proxy for 'permanent' income. Their results suggest that intergenerational income mobility in the US did not change dramatically for cohorts born between 1952 and 1975. However, they acknowledge that their estimates, particularly at the start of the period where sample sizes are small, are too imprecise to rule out a modest trend in either direction. Hertz (2007), using the same data source, makes further refinements to adjust for attrition and age but also reaches the same conclusion that there does not appear to be a long-run linear trend in intergenerational income mobility in the US over this period. This does not disprove the relationship that the 'Great Gatsby Curve' predicts, as Lee and Solon explain, it may still be too early to assess the impact of increasing inequality in the US on social mobility.

Research on social mobility in the UK has mainly focused on analysing longitudinal information collected from two birth cohorts, one born in 1958 and the other born in 1970<sup>5</sup>. Economists and sociologists who have estimated social mobility using these two birth cohort studies, tend to disagree on trends; with economists finding declining intergenerational income mobility (Blanden et al., 2004) and sociologists finding no such decline in relative intergenerational class mobility (Goldthorpe and Mills, 2004). Both 'sides' have sought to reconcile these differences but, perhaps not surprisingly, they both reach the conclusion that their own findings are superior (Blanden, 2013; Erikson and Goldthorpe, 2010). There clearly are issues around data quality and measurement error that are likely to play a contributory role to the conflicting findings, but also there are important differences in conceptual frameworks which makes a straight comparison between these approaches difficult. However, what is clear is that there is no evidence that social mobility increased over this time period and therefore higher income inequality has not been associated with higher social mobility.

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<sup>5</sup> Some research on this topic has been conducted using the British Household Panel Survey; see for example Nicoletti and Ermisch (2007). However, this has not proved to be very reliable due to small sample sizes.

One of the reasons why it might be difficult to improve social mobility in the context of high economic inequality is that economically advantaged parents use these resources to hoard the best opportunities for their children (for example, within the education system) who then go on to hoard the best opportunities in the labour market. Through these means they become very effective at preventing their children from experiencing downward social mobility and therefore limit opportunities for upward mobility from children from less advantaged family backgrounds (McKnight, 2015). The State has a role to play in helping equalise opportunities and outcomes but when economic inequality is high it is hard for the State to compete with wealthy parents (McKnight, 2017). In the context of high inequality and slow economic growth it becomes even harder to improve any form of social mobility, even absolute social mobility (McKnight and Reeves, 2017).

Another relevant type of intergenerational transmission that has been explored in the literature is the intergenerational transmission of poverty risk. This research has shown that children who grow up in poverty face a higher risk of experiencing poverty in their adult lives and that parental income is a key correlate of intergenerational transmission of poverty (see, for example, Wagmiller and Adelman, 2009; Bird, 2007; Blanden and Gibbons, 2006; Harper et al., 2003; Corcoran, 1995; Rodgers, 1996). This research has found that poverty is transferred as a complex set of positive and negative risk factors that affect the chance of experiencing poverty (Bird, 2007). One potential factor behind intergenerational poverty risk is intergenerational worklessness. Macmillan (2014) finds a moderate relationship in being out of work between fathers and sons in the UK. Although this association couldn't be accounted for by differences in local unemployment rates, sons with fathers who had been out of work had a greater risk of being out of work themselves if they lived in a high unemployment area.

In this section we have reviewed the evidence on social mobility to consider if this is a potential mechanisms behind the positive cross-sectional correlation between income inequality and poverty. This evidence shows that countries with higher income inequality tend to have lower intergenerational income mobility, although within countries studies have not established that an increase in inequality will lead to a fall in social mobility. In high inequality countries, one factor that can limit social mobility is the lack of downward mobility of children from high income backgrounds limiting the opportunities for upward mobility for children from low income backgrounds. Where economic inequality is high, parents with high levels of economic resources have considerable means available to ensure that their children are not downwardly mobile. Evidence on the intergenerational transmission of poverty risks finds that children who

experience poverty in childhood are at a higher risk of poverty in adult life. Overall the evidence on social mobility suggests that increases in inequality can limit upward social mobility for children from economically disadvantaged backgrounds.

## **6. Accumulation of advantage and disadvantage over the lifecycle**

Accumulation of advantage and disadvantage over the lifecycle is another way in which dynamic mechanisms can shape the cross-sectional relationship between inequality and poverty. If the accumulation of disadvantage overtime increases the risk of poverty and persistent poverty, similarly if the accumulation of advantage increases the chance of being economically well-off, then these dynamic mechanisms could be a contributory factor driving the positive correlation between poverty and inequality. In this section we review evidence on the accumulation of experience of living in advantage or disadvantage, particularly evidence on how positions become entrenched through this accumulation.

Research has found that rather than operating in opposition, structural and biographical explanations of poverty and inequality complement each other and their interactions provide interesting insight (Vandecasteele, 2011, p.246). For instance, class is not only a systematic structural determinant of inequality, it is also indicative of inherent cumulative advantages or disadvantages from experiences of risk (Li, 2016, p.222). In other words, structural risk determinants of poverty interact with biographical factors throughout a life 'risk trajectory', where one risk factor reinforces another (Schoon and Bynner, 2003, p.23). As a result, one's risk trajectory determines restrictions for equal opportunities, social mobility and poverty status (Schoon and Bynner, 2003, p.23). Different outcomes for risk trajectories could include, educational outcomes, physical, cognitive and emotional development, social mobility, employment, criminal activity, physical and mental health, citizenship and civic participation (Tomlinson and Walker, 2010, p.1164). We explore evidence on how risk trajectories evolve throughout a person's life, dividing the life course into three main parts: childhood (section 6.1); prime age adult life (section 6.2); and later life (section 6.3).

### **6.1 Childhood**

In the early developmental years, growing up in poverty or other forms of disadvantage can be important determinants of outcomes later in life (see, for example, Tomlinson and Walker, 2010; Schoon and Bynner, 2003, p.23). Cooper and Stewart's (2013; 2017) systematic reviews of the literature identify a causal effect of income during childhood on a range of outcomes. The overwhelming majority of studies they reviewed (61 studies

published between 1988 and 2017) find significant positive effects of income across a range of children's outcomes, including cognitive development and school achievement, social and behavioural development and children's health. They find that income effects are likely to be non-linear, with studies identifying a greater effect from a given amount of income on households with less to begin with, or finding that effects are significant only for lower income households.

Research also finds that household income is not the only family background mechanism influencing outcomes. According to Tomlinson and Walker (2010, p.1178), other factors such as parental guidance, self-esteem and delinquent behaviour can also impact outcomes later in life, such as on educational attainment and employment status. Tomlinson and Walker (2010) find that children living in financially constrained households are less likely to have 'high educational orientation' and obtain high qualifications. McKnight (2019) finds that family background (social class and family income) is associated with child behavioural problems, and these child behaviours have a negative association with cognitive skill outcomes. Quality and length of early education and parental aspirations and involvement have also been found to be strong predictors of academic attainment later in life (see, for example, Gorard et al., 2012; Schoon and Bynner, 2003; Schoon et al., 2002; Robins and Rutter, 1990).

Lawson et al. (2013) find a significant link between a child's socioeconomic status and their cognitive function. Cognitive function development was scientifically measured using prefrontal cortical thickness, which is the mechanism in the brain that demonstrates intelligence, academic success, and development over one's life course (Lawson et al., 2013). They find that prefrontal cortical thickness also reveal a person's sensitivity to environmental factors such as stress, which suggests that differences in parental socio-economic status can positively or negatively impact children's prefrontal development.

Early childhood development studies have found that exposure to disadvantages during childhood is associated with higher risks of health difficulties in adult life (see, for example, McDonough et al., 2015; Stansfeld et al., 2011; Lawson et al., 2013; Needham et al., 2012). Stansfeld et al. (2011, p.549) found, both social causation and health selection contributed to the link between socioeconomic disadvantage during childhood and disorders such as depression and anxiety in mid-life. Cookson et al. (2016) find that low education and income levels can also be correlated with the frequency of seeking medical treatment and outcomes for recovery from treatment.

Experiencing adversity early in life has been found to be a strong predictor of poor health in middle age (McDonough et al., 2015, p.60). A US based

study by Needham et al. (2012) examined the association between parental socioeconomic status (SES) and cell ageing in children which can lead to higher chances of disease later in life. They find that children whose parents never attended college had close to six years of additional cell ageing compared with children who had at least one college-educated parent. The effect of such early disparities accumulate over time, and can limit opportunities for upward social mobility and increase the risk of poverty in adult life (Stansfeld et al., 2011, p.556). While Needham et al.'s study examined the relationship between SES and a marker of cell ageing, in children aged 7 to 13 in the United States, Cooper and Stewart (2013, p.1) argue that, the findings on the effect of income and poverty mechanisms on children's health outcomes are equally relevant in the UK. Stansfeld et al. (2011) find that in the UK, childhood socio-economic background may have lasting consequences for ageing and health throughout the life course.

Throughout childhood and into adult life, healthy lifestyle choices through exposure to familial environment are developed (Friedman and Mare, 2014). In the US, research has found that women who grew up in a single parent household with a mother of low educational status, tend to have lower levels of education and higher chances of poor health and depression. The negative impact of low family income may have an indirect impact on children through its impact on parents. Cooper and Stewart (2013), in their systematic review, find that income also affects maternal mental health, parenting and home environment, which can have an indirect impact on childhood development factors.

On the basis of their life course analysis of the 1958 birth cohort (National Child Development Study (NCDS)) and the 1970 birth cohort (British Birth Cohort Study 1970 (BCS70)), Schoon et al. (2002) conclude that ages 7 and 16 are the most influenced by risk factors because these ages designate important educational and career choice paths in childhood and adolescence for children in the 1958 cohort and age 5 for children in the 1970 cohort<sup>6</sup>. However, other ages may be important during childhood and cannot be ruled out as Schoon et al.'s (2002) estimates are derived from a data source that didn't collect information continuously throughout childhood.

In early childhood, research suggests that cognitive outcomes are most affected, but during adolescence, social and behavioural outcomes matter more (Cooper and Stewart, 2013, p.3). These age ranges for development

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<sup>6</sup> The authors suggest that the changing labour market context experienced by these birth cohorts as they entered the labour market could explain why they didn't find a significance influence of risk factors at age 16 for children of the 1970 cohort (Schoon et al., 2002, p.1498).

are not prescriptive but rather descriptive of how longer-term poverty can affect children's outcomes negatively (Cooper and Stewart, 2013, p.1). Adolescence can be a crucial age as during this time young people are expected to be ready to assume adult responsibilities and to begin the transition from dependence to independence (Schoon and Bynner, 2003, p.24). Schoon and Bynner (2003, p.24) find that young men from socially disadvantaged backgrounds might employ different cost and benefit analysis strategies compared to their privileged peers when deciding whether to drop-out of school or not. Day to day decision making is thus affected by accumulating exposure to risks, specific social class environments and narrow expectations for the future (Schoon and Bynner, 2003, p.25).

## **6.2 Prime-age adult life**

Research on transitions to adulthood or 'emerging adulthood' as Kendig et al. (2014) describes, suggests that parental investments continue to play a major role. Not all young adults benefit from supplemental parental resources that can support an elongated transition period (Kendig et al., 2014, p.271). Results from a US based study on transition to adulthood, using data from the PSID and the Child Development Supplement, indicate that children of lower SES backgrounds transition to adulthood via taking on adult roles very early compared to those from higher SES backgrounds (Kendig et al., 2014, p.281). This transition mechanism is what Burton (2007) calls 'childhood adultification'. In contrast, higher income youth are more likely to obtain financial assistance from their parents allowing them to follow more expensive transitions to adulthood such as that offered through higher education (Kendig et al., 2014, p.282). In addition, young adults from less advantaged family backgrounds might have to take on further family responsibilities such as supporting siblings or even part-time employment which may interfere with schooling and affects the likelihood of dropping out or not continuing on to higher levels of schooling (Kendig et al., 2014, p.273).

Research has also found that cumulative adversity has implications for further detrimental effects even beyond just those associated with early experiences of adversity (Schoon and Bynner, 2003, p.23). This is because social risks do not occur in isolation and each experience of adversity adds to a person's already weakened adjustment skills, contributing to cumulative disadvantage for a person's development (Duckworth and Schoon, 2012, p.40). Using the 1989/90 Longitudinal Study of Young People in England (LSYPE) and the 1970 British Cohort Study (BCS70), Duckworth and Schoon (2012, p.40), found that the relationship between cumulative risk and remaining NEET (not in education, employment or training), is stronger than the likelihood of 'beating the odds'. Therefore,

the risk of being NEET, affects individuals in both the medium term (five years) and longer term (ten years) (Duckworth and Schoon, 2012, p.49).

Some individuals can break the cycle of poverty through their own resilience (Schoon and Bynner, 2003, p.24). Rather than a personality attribute, resilience, Schoon and Bynner (2003, p.22) describe it as a dynamic process of positive adaptation in the face of significant adversity or trauma. In this sense, resilience is a person's competence or ability to successfully adapt to challenges and achieve relevant developmental tasks throughout the life cycle (Schoon and Bynner, 2003, p.22). In essence, resilience describes people's ability to 'beat the odds' (Duckworth and Schoon, 2012, p.40).

Some individuals are exposed to 'protective factors' which can counteract cumulative disadvantages such as achievement in reading and mathematics during middle childhood or positive school experiences, which are linked to positive outcomes including educational attainment, earnings and social inclusion levels (Duckworth and Schoon, 2012, p.40). Yet, highly competent and motivated resilient young people with socioeconomic disadvantage still do not succeed to the same extent as their more privileged peers (Schoon and Bynner, 2003, p.26).

There are many aspects of prime age adult life that we could consider in relation to the accumulation of advantage and disadvantage. Here we will briefly focus on labour market experience (unemployment and low pay) and assets (wealth and debt) as these are likely to be important mechanisms in relation to the positive correlation between inequality and poverty.

We saw earlier that there are wide earnings trajectories between different socio-economic classes, which suggest that there is an element of accumulation of advantage and disadvantage in the labour market. For individuals gaining employment in higher occupations such as managerial and professional occupations we observe rising earnings trajectories, suggesting considerable growth in earnings over the working life, particularly from the early twenties to the mid to late 30s. Increasing earnings are likely to be associated with increases in productivity and rewards to work experience in these occupations. In contrast, although there is some growth in average earnings for those working in lower skilled occupations such as routine and semi-routine occupations, this flattens out after the age of 30 with no further growth in average earnings over the working age profiles. This suggests that productivity gains are limited for those who stay in these occupations and that, on average, there are no returns to work experience.

The accumulation of assets and debts over prime age adult life could also be a mechanism contributing to the positive correlation between inequality

and poverty. Adair Turner in his 2016 book *Between Debt and the Devil: Money, Credit and Fixing Global Finance* outlines a number of ways in which assets/debts may link inequality with poverty. In relation to inequalities in the accumulation of assets and debts, richer people who have incomes in excess of consumption needs, save a higher proportion of their income. They seek to make a high return on these savings which can be channelled through banks and other financial institutions to provide credit for poorer people who may be attempting to maintain or increase consumption despite stagnant or falling real incomes (for example, after the financial crisis) (Turner, 2016, p.120). In fact inequality can increase the aspirations of lower income households trying to emulate the lifestyles of those on higher incomes, increasing their consumption fuelled through credit. These borrowers are not smoothing consumption over the lifecycle, as we traditionally think of the lifecycle pattern of borrowing, but are accumulating unsustainable levels of debt (Turner, 2016, p.121). Many of these low income borrowers will be relying on high interest credit with high debt repayments rolling into the future and trapping them in poverty (Turners, 2016, p.123). As Adair Turner puts it "Rising indebtedness can be both part consequence and part cause of rising inequality" (Turner, 2016, p.64).

### **6.3 Later life**

In the later stages of the lifecycle, income inequality and poverty risk are largely shaped by savings and investments accumulated over the working life in the form of pensions and other wealth holdings. As at other life-stages, the role of the welfare state is critical in reducing the risk of poverty by creating an income floor through state pensions and other cash transfers. Additionally, a pensioner's standard of living is further impacted by the natural ageing process in which a person's frailty is affected by increased risk of illness or disability (mental or physical), and their existing behaviours towards a healthy lifestyle (AgeUK, 2017, p.13; Kanabarm, 2016, p.2). The risk of frailty affects around 10 per cent of those over the age of 65 and 25-50 per cent of those 85 and over (AgeUK, 2017, p.13) and is compounded by socio-economic resources. Official statistics (2015-2017) show that at age 65 men living in the most deprived areas of England were expected to live 15.8 years, 5.2 years fewer than men living in the least deprived areas (ONS, 2019b). In terms of years of good health from age 65, men living in the least deprived areas of England are expected to live 13.3 years, but only 5.8 years if living in the most deprived areas. Women at age 65 living in the least deprived areas are expected to live 4.8 years longer than women living in the most deprived areas (15.8 years). In terms of years of good health from age 65, women living in the least deprived areas are expected to live 13.8 years, but only 6.9 years for women living in the most deprived areas (ONS, 2019b).

A range of factors can be important in determining whether a pensioner enters poverty, exits from poverty or persists in poverty (Kanabarm, 2016, p.1). Following retirement, factors which affect poverty risk in terms of level, duration, and persistence extend beyond defacto differences in basic pension pay-outs, such as additional disability benefits, housing tenure, investments, or other household income sources (Kanabarm, 2016, p.1). In Kanabarm's analysis of Understanding Society data, he finds a high degree of poverty persistence, although the degree and variation in poverty persistence rates exists among individuals with the same characteristics (Kanabarm, 2016, p.23).

Research by the Joseph Rowntree Foundation shows how the downward trend in UK pensioner poverty rates, from around a third in the late 1990s to 13% in 2012/13, has reversed in recent years (increasing to 16% in 2015/16 and 2016/17) (Barnard et al., 2018). This recent increase has been driven by an increase in poverty rates among pensioners living in private rented accommodation (36% living in poverty) which has been affected by falls in housing benefit (Barnard et al., 2018). This reflects how inequalities in the accumulation of housing assets over the working life affect poverty risks and inequality in retirement. As ILO research highlights, the primary objective of social protection in the final stages of life is to keep people from falling into poverty by guaranteeing a humane and decent quality of life (Bonilla García and Gruat, 2003, p.42). Evidence of increasing poverty rates among pensioners, particularly pensioners living in private rented accommodation, indicates that the UK welfare system is becoming less effective at protecting pensioners from poverty.

Inequalities built up over the working life contribute to inequalities in older age (Hills et al., 2010) through incomes, pension entitlements, savings and the accumulation of assets such as housing. These can be seen in terms of large wealth inequalities between different occupation groups as people approach retirement (Hills, et al., 2010). Increases in the proportion of people retiring with a private pension and the value of occupational pensions has increase inequality among pensioners (Barnard et al., 2018). The increases in pensioner income received from private pensions have not been equally distributed, with a concentration in households where more than one adult is in receipt of income from a private pension and very low levels of income from private pensions in low income pensioner households (Barnard et al., 2018).

There is limited academic research examining the relationship between people's working lives and their risk of poverty in old age. Bardasei and Jenkins (2002) used work history data from the BHPS and found that although the total amount of time spent in paid work between the ages of 20 and 60 wasn't related to the risk of low income in older age (60+), the

type of occupation was important. It was largely the case that more time spent working in higher skilled, higher paid occupations, the lower the risk of low income in older age (Bardasi and Jenkins, 2002).

In this section we have reviewed evidence on how disadvantage and advantage might accumulate over the life course. We find evidence across each of the three stage (childhood, prime adult life, later life) we explored that current economic status is affected by an accumulation of risks. The accumulation of disadvantage increases the risk of poverty and persistent poverty, and the accumulation of advantage increases the chance of being economically well-off, suggesting that these dynamic mechanisms could be a contributory factor driving the positive correlation between poverty and inequality.

## **7. Concluding remarks**

In this paper we have looked beyond possible cross-sectional explanations for why we observe a positive correlation between income inequality and poverty by examining dynamic mechanisms. We have reviewed the evidence on income mobility, poverty dynamics, social mobility and how life-courses diverge when they are shaped by differential risk factors through the accumulation of advantage and disadvantage.

Evidence shows that an increase in income inequality is accompanied by an increase in income volatility. Income insecurity can be a problem in and of itself, creating budgetary problems which could lead to higher borrowing among low income households. In addition, higher income inequality is not found to be associated higher income equalising mobility. In fact research has found that equalising income and earnings mobility has fallen over periods in which income inequality increased and, therefore, lifetime income and earnings inequality actually increased.

Research on poverty dynamics shows that although many spells of poverty are short, there is a considerable amount of recurrent episodes (churning) due to the fact that income gains are often small and short lived. In addition, around two in five households in the UK who are defined as living in relative income poverty are found to be persistently poor. These dynamic features of poverty mean that any rise in poverty has long lasting consequences and this stickiness at the bottom of the income distribution could have an impact on inequality. Evidence on the intergenerational transmission of poverty risks finds that children who experience poverty in childhood are at a higher risk of poverty in adult life.

In relation to social mobility, evidence shows that countries with higher income inequality tend to have lower intergenerational income mobility, although within countries studies have not yet been able to establish the

impact of a change in income inequality on social mobility. In high inequality countries, one factor that can limit social mobility is restricted downward mobility among children from high income backgrounds limiting the opportunities for upward mobility for children from low income backgrounds. Where economic inequality is high, parents with high levels of economic resources have considerable means available to ensure that their children are not downwardly mobile.

Evidence on how disadvantage and advantage might accumulate over the life course shows that across each of the three stage (childhood, prime adult life, later life) we explored, current economic status is affected by an accumulation of risks. The accumulation of disadvantage increases the risk of poverty and persistent poverty, and the accumulation of advantage increases the chance of being economically well-off, suggesting that these dynamic mechanisms could be a contributory factor driving the positive correlation between poverty and inequality.

The empirical relationship between economic inequality and poverty established in this research programme is an association and we have not established whether or not there is a casual relationship or the direction of any relationship. This review of the literature on potential dynamic mechanisms affecting the cross-sectional association between inequality and poverty is not a systematic review and the types of relationships we are interested in understanding would be very difficult to establish as casual relationships. However, the evidence we reviewed point in one direction which suggest that poverty and income dynamics are likely to contribute to a positive correlation between income inequality and poverty.

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