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Parents' work entry, progression and retention, and child poverty

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Abbreviations

AHC	After housing costs (a definition of income that deducts the cost of housing)
BHC	Before housing costs (a definition of income that does not deduct the cost of housing).
BHPS	British Household Panel Survey
CSA	Child Support Agency
CTC	Child Tax Credit
DWP	Department for Work and Pensions
FACS	Families and Children Study
FRS	Family Resources Survey
HBAI	Households Below Average Income
IWC	In Work Credit (for lone parents)
WFTC	Working Families' Tax Credit
WTC	Working Tax Credit

Glossary

Dependent child	A natural, adopted or step child under the age of 16 or aged 16–18 and in full-time education.
Equivalised	Adjusted for family size and composition, here usually using the modified Organisation for Economic Co-operation and Development (OECD) equivalence scale.
Family	The benefit or tax unit; that is, an adult, their spouse or partner with whom they are living as husband and wife, and any dependent children for whom they are responsible.
Fathers	Men living in the same household as their dependent children.
Fathers in couples	Men living in the same household as their dependent children and a spouse or partner with whom they are living as husband and wife.
Full-time work	Work involving usual weekly work hours of 30 or more.
Hazard rate	Probability of leaving a particular state between consecutive months.
High income	Defined in this report as income equal to or greater than the median.
Logistic regression	A variant of a regression model in which a binary variable (one that can only take values one or zero) is related to a range of explanatory variables.

Lone fathers	Men living in the same household as their dependent children without a spouse or partner with whom they are living as husband and wife.
Lone mothers	Women living in the same household as their dependent children without a spouse or partner with whom they are living as husband and wife.
Low income	Defined in this report as income below the median.
Mini-jobs	Work involving usual weekly hours of less than 16.
Modified OECD equivalence scale	A method of adjusting the incomes of families of different sizes and compositions so that they are more comparable; see Department for Work and Pensions (2007).
Mothers in couples	Women living in the same household as their dependent children and a spouse or partner with whom they are living as husband and wife.
Part-time work	Work involving usual weekly hours of between 16 and 29 inclusive.
Poverty	Living in a family with an income of less than 60 per cent of median equivalised household income.
Poverty entry	Movement from not being in poverty in one month to being in poverty in the next month.
Poverty exit	Movement from being in poverty in one month to not being in poverty in the next month.
Poverty transition	Changes in poverty status between consecutive months, including both poverty entries and exits.
Weibull regression	A variant of a regression model that models the time until a transition out of a state occurs.
Work	Formal paid employment or self-employment of any number of hours.

Work entry	Movement from not being in work in one month to being in work in the next month.
Work exit	Movement from being in work in one month to not being in work in the next month.
Work spell	A continuous period of working. This may include movements between jobs.
Work transition	Change in work status between consecutive months, including both work entries and exits.

Summary

Recent policy initiatives have focused on facilitating formal paid employment for parents as a means of lifting children out of poverty. Although entry into employment may not automatically mean that family income rises above poverty thresholds, it might be hoped that progression up the work ladder in terms of earnings and hours would allow those families who do not immediately escape poverty to advance out of poverty. But there is a danger that families may simply move from non-work poverty to a long-term in-work poverty trap. Moreover, retention in work is far from guaranteed: some parents may not remain in employment for very long and find themselves following a cycling pattern into and out of work without permanently escaping poverty.

This report documents the dynamic patterns in work and poverty for families using data for the years 2001 to 2006 from the Families and Children Study. The analysis examines the degree to which simply moving into work is an important factor in lifting families out of poverty or whether significant retention and progression within employment are key elements in allowing families to escape from poverty. It also investigates the relationships between work progression and work retention, considering how failure to remain in work for very long may be related to a lack of employment advancement.

On average, 21 per cent of families with children are in poverty in each month (Chapter 4). The poverty rate is higher for lone mothers (41 per cent) and lone fathers (33 per cent) than for couples (13 per cent). The poverty rate is much lower for working parents than for parents out of work, but work provides no guaranteed protection against poverty. For couples, it is the father's work participation which is critical to the likelihood of the family being in poverty. Persistent poverty is relatively rare: on average, just under four per cent of families are continuously in poverty during three-year periods. But some experience of poverty is quite prevalent: just over 40 per cent of families (and 75 per cent of lone-mother families) will be in poverty in at least one month during a three-year period. There is also considerable movement into and out of poverty and the proportion of months in poverty has some correlation with the proportion of months in work, while frequent cycling into and out of work is associated with cycling into and out of poverty.

Moving into work is an important factor in lifting families out of poverty (Chapter 5). Some 65 per cent of families who were in poverty in the month prior to work entry move out of poverty when a parent enters work and the proportion of parents with income below the poverty threshold falls from 48 per cent to 20 per cent with work entry. On the other hand, just under one-third of parents (32 per cent) enter poverty when they leave work and some 46 per cent of parents are in poverty in the month following work exit. The likelihood of poverty exit with work entry is higher for fathers than for mothers in couples or for lone mothers and falls with the number of children, rises with qualification level and is higher for owner-occupiers. The probability of escaping from poverty also depends upon some key work characteristics, falling with the amount of time spent out of work, rising with hourly earnings and being higher for those entering full-time work.

During the first three years following work entry, the poverty rate declines slightly for mothers in couples (from 11 per cent to nine per cent) but falls more substantially for lone mothers (from 37 per cent to 18 per cent) and for fathers (from 22 per cent to 16 per cent) (Chapter 6). Most of the decline for lone mothers reflects a genuine reduction in the likelihood of poverty for these mothers, but much of the smaller declines in the poverty rate for mothers in couples and for fathers can be accounted for by those in poverty being more likely to leave work than those not in poverty. This, together with an upturn in the poverty rate in the third year, means that there is very little decline in the poverty risk for mothers in couples and fathers who remain in work throughout the three years. However, this upturn and lack of decline in poverty for these groups tend to be driven by those working in part-time and/or mini-jobs (i.e. less than 30 hours per week). Within the work spell, there is considerable turnover in the poverty population: 19 per cent of mothers in couples, 59 per cent of lone mothers and 34 per cent of fathers are in poverty at some point during the three years, with substantial proportions of parents leaving and entering poverty during the period. A sizeable proportion of poverty transitions reflect small shifts in income around the poverty threshold: over half of poverty exits involve parents moving just above the poverty line (to between 60 and 70 per cent of median income), while two-thirds of poverty entries involve parents falling into poverty from just above the poverty line.

Controlling for other demographic characteristics, mothers in couples are more likely to exit poverty and less likely to enter poverty than other parents, while lone mothers are the least likely to exit poverty and the most likely to enter. Parents with higher qualifications are more likely to exit and less likely to enter poverty. The probability of poverty exit also varies across ethnic groups, but it is not significantly different across any other demographic factors. On the other hand, the probability of poverty entry varies significantly by the age of the youngest child, the number of children, ethnicity and homeownership. Controlling for other work characteristics, parents who have spent longer out of work prior to work entry are less likely to exit poverty and more likely to enter poverty once in work. Higher hourly earnings are associated with a greater likelihood of poverty exit and a smaller risk of poverty entry, while those working part-time are less likely to exit poverty and more likely to enter poverty than either those working full-time or those working in mini-jobs.

Just over one-third of poverty exits and poverty entries can be attributed at least in part to a change in the parent's earnings rather than solely to changes in other family income or changes in the number of children in the family. Both poverty exit and poverty entry are associated with changes in the two key determinants of total earnings: hourly earnings and weekly hours. The changes in hourly earnings and weekly hours associated with poverty transitions occur without any changes in other work characteristics. There is no evidence that job-related training or other educational or training courses are associated with a higher poverty exit rate. There is some evidence that job-related training, particularly that involving training away from the job, is associated with a lower poverty entry rate, but there is no association between other educational or training courses and poverty entry.

The proportion of parents remaining in work for three years or more is greater for high-income parents (those with family income at or above the median in the month of work entry) than for low-income parents (those with family income below the median in the month of work entry) (Chapter 7). Within the low-income group, work retention is significantly longer for fathers than for lone mothers, but there are no significant differences between parent types within the high-income group. Within the low-income group, work retention is also related to parent's age, health and whether they are owner-occupiers, while ethnicity and homeownership are significant factors within the high-income group. Within the low-income group, work retention is longer for those with higher hourly earnings, those in part-time or full-time work rather than in mini-jobs, the self-employed and those working in larger firms. The same association with the weekly hours group is the only significant factor for the high-income group.

Very few of the work progression measures captured by changes in work characteristics have significant relationships with work retention. Within the low-income group, work retention is lower for those moving to non-permanent work than for those remaining in permanent work. Within the high-income group, work retention is lower for those with smaller rises or greater declines in weekly hours and for those changing job or industry. Within the low-income group, work retention is significantly higher for those with job-related training, particularly if it involves some time training on the job and is of shorter duration, and for those undertaking two or more educational or training courses. Within the high-income group, job-related training, especially that of longer duration, is associated with higher work retention. However, given that expected longer work retention may lead to training, it is only possible to conclude that there is a positive association between the two, not that there is a causal relationship by which training leads to longer work retention.

In conclusion, the evidence presented here suggests that while work entry is an important factor in reducing child poverty for all types of parents, work retention and progression only reduce the poverty risk for lone mothers, with little benefit to mothers in couples or fathers. Indeed, although longer work retention guards against the high risk of poverty entry associated with work exit, it is no guarantee

against the danger of falling into poverty within work for all groups of parents. All in all, the small role currently played by work retention and work progression in reducing the likelihood of poverty for families with children leaves considerable scope for improvements in advancement within work to help lift working parents and their children out of poverty.

1 Introduction

Recent policy initiatives have focused on facilitating formal paid employment for parents as a means of lifting children out of poverty. Although entry into employment may not automatically mean that family income rises above poverty thresholds, it might be hoped that progression up the work ladder in terms of earnings and hours would allow those families who do not immediately escape poverty to advance out of poverty. But there is a danger that families may simply move from non-work poverty to a long-term in-work poverty trap. Moreover, retention in work is far from guaranteed: some parents may not remain in employment for very long and find themselves following a cycling pattern into and out of work without permanently escaping poverty.

This report documents the dynamic patterns in work and poverty for families with children using data for the years 2001 to 2006 from the Families and Children Study (FACS). The analysis examines the degree to which simply moving into work is an important factor in lifting families out of poverty or whether significant retention and progression within employment is a key element in allowing families to escape from poverty. It also investigates the relationships between work progression and work retention, considering how failure to remain in work for very long may be related to a lack of employment advancement.

The next chapter briefly reviews the previous literature on poverty and work dynamics for families in the United Kingdom, while the following chapter describes the data source used in this report. Chapter 4 presents an overview of both the cross-sectional and longitudinal relationships between poverty and work participation for families with children, while Chapter 5 focuses on the changes in family poverty when a parent enters or leaves work. The following two chapters consider the poverty dynamics during the three years following a work entry, highlighting which types of parents are most likely to remain in work and progress out of poverty and identifying the work characteristics and types of work progression most closely associated with such advancement. Chapter 8 concludes.

2 Previous literature

A comprehensive review of the literature on poverty dynamics in the United Kingdom was recently published in Smith and Middleton (2007). That report highlighted a small number of studies considering the relationships between family poverty and work dynamics, including Jenkins *et al.*, (2001), Oxley *et al.*, (2000) and Adelman *et al.*, (2003). These three studies used data from the British Household Panel Survey to analyse interview-on-interview (annual) changes in poverty status and employment status, covering the years 1991 to 1996 in the case of Oxley *et al.*, and 1991 to 1999 in the cases of Jenkins *et al.*, and Adelman *et al.*, More recent work by Barnes *et al.*, (2008) uses data from waves 3 to 7 (2001 to 2005) of the Families and Children Study (FACS) to explore the impacts of movements into and out of paid employment on income poverty and economic hardship for families with children.[1] As in the earlier research, the Barnes *et al.*, report considers changes between annual interviews.[2]

For the overall population, entry into poverty is closely associated with a change in work circumstances, as Smith and Middleton report:

> *'A number of studies suggest that about 60 per cent of poverty entries were associated with falling income. Job loss dominated as the key poverty trigger with a decrease in earnings being the next most common trigger.'*
>
> (Smith and Middleton, 2007, page 5)

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1 The study also focuses on how economic circumstances change following employment transitions for families that receive in-work tax credits.

2 Although not explicitly examining poverty, Evans *et al.*, (2004) use data from the FACS for the years 1999 to 2002 and longitudinal panel data from the Labour Force Survey for the years 1992 to 2002 to study the cycling of lone parents between work and benefits. In examining work retention and progression in terms of pay, they found that low-paid jobs for lone parents have shorter work retention (higher work exit rates) than higher-paid work, although low-paid jobs also have a small probability of being 'stepping stones' for work advancement. As with the other studies, this analysis was based on interview-on-interview changes.

On the other hand, movement into work and increases in work hours or earnings are reported as the most important events to trigger an exit from poverty. Jenkins *et al.*, (2001) highlight the importance of work for keeping families out of poverty and for escaping from poverty: they report that over 70 per cent of poverty exits among those in lone-parent families were related to employment changes. More specifically, Barnes *et al.*, (2008) show that, following a transition into work, 70 per cent of families have moved out of poverty by the next interview and this proportion rises to 77 per cent for lone-parent families and 78 per cent for couple families for those who remain in work until the following interview. However, the previous literature has also shown that work participation alone is no guarantee of remaining out of poverty: the risks of falling below the poverty threshold are smaller for households with more earners and, most importantly, for households with full-time workers in sustained employment. These previous findings highlight the potential importance of work retention and work advancement (in terms of work hours and employment tenure) in enabling some families to escape from poverty.

This report makes several advances on this previous literature for the United Kingdom. First, as in the study by Barnes *et al.*, (2008), it analyses a larger and more up-to-date sample of families with children than used in most existing studies by using data from the FACS for the years 2001 to 2006. Second, unlike all previous studies, the analysis does not rely on interview-on-interview changes in poverty and work status, but uses the between-interview monthly activity history data on work participation and hours to construct a more detailed monthly measure of poverty dynamics than previously used.[3] Third, the analysis considers how work characteristics are related to changes in poverty within spells of work, highlighting how employment progression may help families to escape from in-work poverty. Finally, it examines work retention for families, considering which types of parents are most likely to remain in employment and how work retention is related to work progression, focusing particularly on the relationships for low-income families.

[3] In addition, the unit of analysis for the work spells examined in Chapters 5 to 7 is the individual parent rather than the family, highlighting the role of work for second earners, particularly mothers in couples, as well as the simple presence of any working parent.

3 Data source

The analysis uses data from waves 3 to 8 (2001 to 2006) of the Families and Children Study (FACS).[4, 5, 6] FACS is an ongoing annual panel survey of families in Great Britain, defined as households with dependent children under the age of 16 or aged 16 to 18 and in full-time education. The initial two waves (in 1999 and 2000) contained only lone parents and low-income couples, but the survey has contained a nationally representative sample of approximately 7,000 families since the third wave in 2001. Most interviews are conducted in the autumn of each year. The main respondent to the survey is the Child Benefit recipient, which is usually the mother, but there is also a shorter interview for the partner in couples or a proxy partner interview with the respondent if the partner is not available.

The survey collects extensive information on family circumstances at the time of interview. As well as providing a wide range of current demographic, background and work data, the survey asks about different sources of net income including earnings, tax credits and benefit receipts. In addition to the questions asked about the family's circumstances at the time of interview, the survey also collects information on work and partnership histories between interviews with spells

4 The British Household Panel Survey (BHPS) was not used because it contains a much smaller sample of families with children, particularly if the sample is restricted to post-2000. The poverty rate for families with children derived from the BHPS also tends to be lower than that for the official Households Below Average Income (HBAI) statistics (see, for example, Brewer *et al.*, (2009)). As far as the authors are aware, there has been no published work using a monthly poverty series from the BHPS.

5 There are currently no administrative data that can be used to construct a monthly series of poverty status for families with children in the United Kingdom.

6 Family poverty has also been analysed using FACS data in Berthoud *et al.*, (2004) and Barnes *et al.*, (2008).

dated by calendar month.[7] For each previous work spell, information is collected on usual net earnings and hours. In addition, the respondent is asked for the date they last changed address.[8]

The poverty measure used in this report is based on that used by the Households Below Average Income (HBAI) publication, which is estimated from the Family Resources Survey (FRS). The HBAI series uses weekly net disposable household income comprising of total income from all sources of income of all household members. Income is equivalised for household size and composition using the modified Organisation for Economic Co-operation and Development (OECD) equivalence scale. This equivalisation adjusts the household income to reflect the extent to which households of different sizes and children of different ages require a different level of income to achieve the same standard of living so that the equivalised measure is directly comparable across all households regardless of size and composition. An individual is defined as living in poverty if they live in a household with equivalised net income below 60 per cent of the median for all households. Two measures of income and poverty are presented in the HBAI: before housing costs (BHC) and after housing costs (AHC). In line with previous work, this report considers only the BHC measure throughout. In order to study changes in poverty around the time of work entries and exits, and during the 36 months following a work entry, a monthly history of poverty state was constructed for each family during the months they were in the FACS survey between April 2001 and April 2007.[9] Further details on the construction of this monthly series are provided in Appendix A.

Throughout the report, the analysis uses pooled data over all six years as the sample sizes are insufficient to allow annual disaggregation. However, year dummy variables are included in some models in Chapters 5 and 6 to consider whether there have been any changes over the period.[10]

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7 The work histories in the FACS for the respondent and partner were analysed in Brewer and Paull (2005). They have previously been used in Brewer and Paull (2006) and both the work histories and partnership histories were used in Paull (2007).

8 For documentation providing a specific description of survey questions and structure, see http://www.esds.ac.uk/longitudinal/access/facs/l4427.asp

9 A small number of interviews in the 2006 survey were conducted in the spring of 2007 and a few families have information covering the period up to April 2007.

10 Unweighted results are presented throughout the report because the unweighted poverty rates were closer to the official HBAI statistics than the weighted rates and weighting made little difference to the results otherwise. In addition, the survey weights provided in the FACS have not been used in previous publications.

4 Overview of family work and poverty

In order to set the context for the dynamic analysis to follow, this chapter presents background material on the cross-sectional relationships between family work and poverty and summary statistics on the poverty dynamics. All statistics are based on a pooled sample from the Families and Children Study (FACS) over the six-year period 2001 to 2006.

Table 4.1 shows the proportion of families in poverty by family type and work participation for the pooled cross-sectional sample of monthly observations derived from the FACS data.[11] On average, 21 per cent of families with children are in poverty each month. The poverty rate is considerably lower for couples (13 per cent) than for lone mothers (41 per cent) or lone fathers (33 per cent). Part of the reason for this is that couple families are much more likely to have a working father than lone parents and, as would be expected, poverty rates are considerably lower when a parent or, in particular, both parents are earning. However, two important points are particularly noteworthy in Table 4.1. First, work participation is far from a complete safeguard against poverty, particularly for lone parents. On average during the period considered here, 61 per cent of non-working lone mothers were in poverty, while 22 per cent of working lone mothers had incomes below the poverty threshold. Second, for couple families, it is the father's work participation which is critical to the likelihood of the family being in poverty. Over half of couple families with only a mother working are in poverty, while only 21 per cent of those with only a father working are in poverty.

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[11] Similar statistics are presented in figures 2.1 and 2.4 in Barnes *et al.*, (2008) for interview data in wave 7 (2005) of the FACS. While the proportions in work are very similar to those presented here, there are larger differences in the poverty proportions which are likely to be due to the fact that the proportions reported here cover the entire period 2001 to 2006 while those in Barnes *et al.*, are only for autumn 2005. The differences may also be due to the fact that Barnes *et al.*, define work as being in work for 16 or more hours each week, whereas the measure used here is those working any number of hours.

Table 4.1 Poverty rates by family type and work participation

Family type and work participation	Percentage poverty rate	Percentage of family type
Couples		
Neither works	67	6
Only mother works	51	4
Only father works	21	23
Both parents work	3	68
Couples, all	**13**	**100**
Lone mothers		
No work	61	49
Works	22	51
Lone mothers, all	**41**	**100**
Lone fathers		
No work	62	42
Works	13	58
Lone fathers, all	**33**	**100**
All families	21	

Note: The numbers of monthly observations are 357,160 for couples, 136,243 for lone mothers and 6,257 for lone fathers.

Turning to the dynamic aspect of poverty, Table 4.2 investigates the degree of poverty persistence and the recurrence of poverty among families by considering poverty dynamics within three-year segments.[12, 13] Among all families, 59 per cent never experience poverty within the three years, while 38 per cent are in poverty in some, but not all, months and just under four per cent are in poverty in every month in the three years.

[12] As many families had data for 66 months or just over (covering the period from April 2001 to autumn interviews in 2006), these three-year segments were constructed allowing an overlap of six months, where needed, to allow two three-year segments for each of these families. The most recent three-year period was used for families with shorter data periods.

[13] The analysis was also performed for five-year segments, which generated very similar statistics to those for three years (with the exception of the number of poverty spells), suggesting that the patterns observed for three years for individual families may repeat over longer periods for those families.

Table 4.2 Summary of poverty dynamics within three-year periods

Family type and work dynamics	Percentage of families who are			For those in poverty in some months	
	Never in poverty	In poverty in some months	In poverty in every month	Mean percentage of months in poverty	Mean number of poverty spells
Couples					
Father never works:					
+ mother never works	16	70	14	48	7
+ mother works some months	[6]	[69]	[25]	[52]	[7]
+ mother works all months	[40]	[47]	[13]	[55]	[9]
Father works some months:					
+ mother never works	3	84	14	52	6
+ mother works some months	6	91	3	35	6
+ mother works all months	37	63	0	26	5
Father works all months:					
+ mother never works	57	38	6	44	7
+ mother works some months	71	28	0	27	6
+ mother works all months	91	8	0	23	5
Couples, all	**70**	**28**	**2**	**33**	**6**
Lone mothers					
Never works	12	69	19	53	7
Works some months	8	85	7	46	7
Works all months	57	40	3	32	6
Lone mothers, all	**25**	**66**	**9**	**45**	**7**
Lone fathers					
Never works	[5]	[74]	[21]	[54]	[7]
Works some months	[15]	[77]	[8]	[55]	[6]
Works all months	[74]	[26]	[0]	[18]	[5]
Lone fathers, all	**41**	**52**	**7**	**47**	**6**
All families	**59**	**38**	**4**	**39**	**6**

Notes: Square brackets denote percentages or means calculated using a sample base of fewer than 50 observations. The sample consists of 6,799 three-year segments for couples, 2,325 three-year segments for lone mothers and 84 three-year segments for lone fathers. The mean number of poverty spells includes left-censored spells that are ongoing at the start of the three-year period and right-censored spells that are ongoing at the end of the three-year period.

The cross-section statistics in Table 4.1 indicated that 87 per cent of couples, 59 per cent of lone mothers and 67 per cent of lone fathers are not in poverty in any given month, but Table 4.2 shows that 70 per cent of couples will never experience poverty within three years, while only 25 per cent of lone mothers and 41 per cent of lone fathers will remain out of poverty for the entire period, indicating greater turnover in the individuals in poverty for lone parents than for couples. Relatively few families of either type are in poverty in every month in the period, although some nine per cent of lone mothers experience this persistent poverty. For those families in poverty in some, but not all, months, an average 39 per cent of months are spent in poverty with an average of six separate spells of poverty. This high frequency of poverty transitions could reflect repeated minor changes in income for families with income close to the poverty threshold.

Like the cross-section poverty rate, the persistence of poverty is closely related to the work participation of parents. Interestingly, the proportions experiencing poverty in some months and the average number of poverty spells are of a similar magnitude for families of constant work participation with one parent who never works and families where one parent works in some of the months. It should also be noted that even in families where parents never work, few are in poverty in every month – for example, although 61 per cent of lone mothers who are not working at a point in time are in poverty, only 19 per cent of lone mothers who never work in the three years are in poverty in every month during the period.

Figures 4.1 and 4.2 examine the relationship between work participation and poverty more closely by plotting the mean number of months in poverty against the number of months in work and the mean number of spells in poverty against the number of work spells[14] for mothers in couples, lone mothers and fathers in couples.[15] The correlations are far from perfect for all three groups, but fathers in couples and lone mothers have the strongest relationship between their work behaviour and poverty, while mothers in couples have the weakest association, indicating again the dominant role of the work participation of fathers in couples in the determination of family poverty. Lone mothers have unusually high numbers of poverty spells for each number of work spells, suggesting that they may be more subject than couple families to income fluctuations within work spells or within periods out of work.

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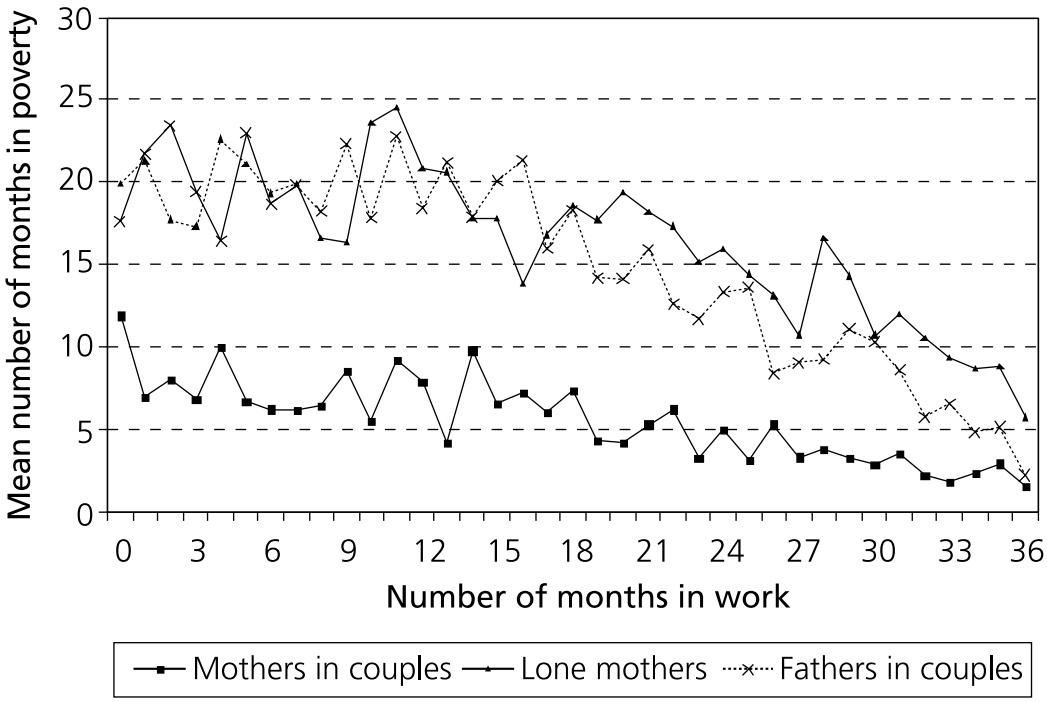
[14] Work spell refers to a continuous period in work without regard to any change in employer or employment position.

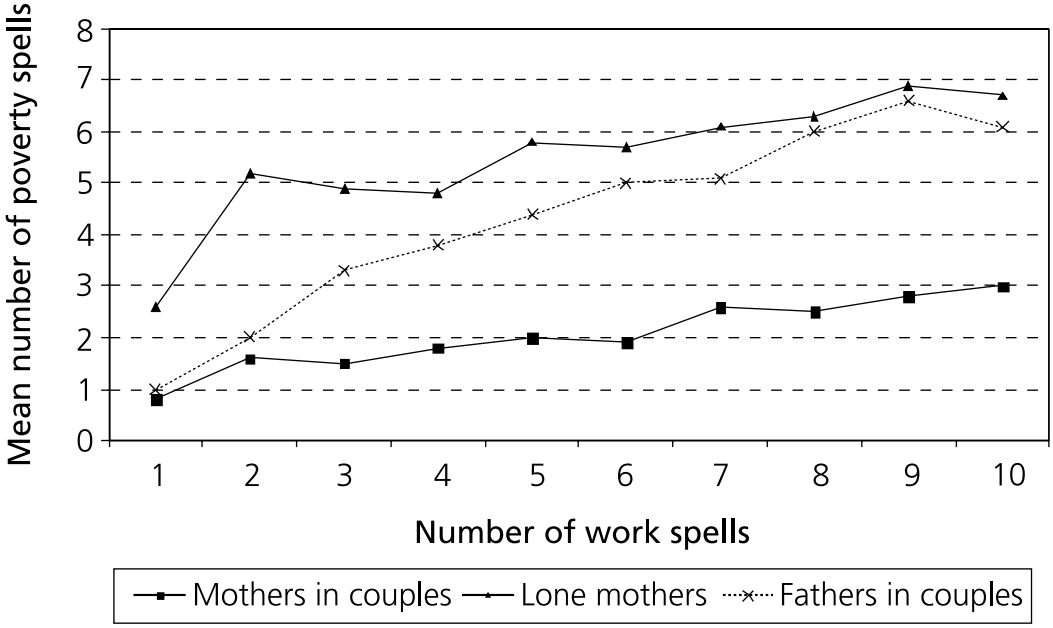
[15] The sample of lone fathers was too small to be included in Figures 4.1 and 4.2.

Figure 4.1 Number of months in poverty by number of months in work within three-year periods



Notes: The sample size for mothers in couples ranges from 30 for those with four months in work to 3,561 for those with 36 months in work. The sample size for lone mothers ranges from 16 for those with nine months in work to 744 for those with 36 months in work. The sample size for fathers in couples ranges from seven for those with two months in work to 5,620 for those with 36 months in work.

Figure 4.2 Number of poverty spells by number of work spells within three-year periods



Notes: The sample size for mothers in couples ranges from 199 for those with ten work spells to 3,590 for those with one work spell. The sample size for lone mothers ranges from 64 for those with three work spells to 767 for those with one work spell. The sample size for fathers in couples ranges from 58 for those with ten work spells to 5,639 for those with one work spell. The mean number of poverty spells and number of work spells include left-censored spells that are ongoing at the start of the three-year period and right-censored spells that are ongoing at the end of the three-year period.

Examining consecutive pairs of months in the FACS data[16] shows that 78 per cent of families are not in poverty in both months, one per cent are not in poverty in the first month but are in poverty in the second, 20 per cent are in poverty in both months and one per cent are in poverty in the first month and not in the second month. The monthly poverty exit rate is five per cent – that is, five per cent of those in poverty in any given month will no longer be in poverty in the subsequent month.[17] On the other hand, the monthly poverty entry rate is one per cent – that is, one per cent of those not in poverty in any given month will be in poverty in the subsequent month.[18]

The analysis in subsequent chapters will abstract from changes in family structure as a source of movements into and out of poverty and focus on the impact of work factors. To illustrate the importance of work factors relative to the dynamics

16 There are 488,052 pairs of consecutive months in the FACS data.

17 To be precise, the poverty exit rate is calculated as (1/21)×100 = 5 per cent.

18 To be precise, the poverty entry rate is calculated as (1/79)×100 = 1 per cent.

in family structure, Table 4.3 presents the prevalence of associated changes in partnership, number of children and work participation over pairs of consecutive months with poverty exits and poverty entries.

Table 4.3 Changes in family structure and work participation associated with poverty transitions

Percentage of poverty transitions associated with:	Poverty exits	Poverty entries
No changes in partnership, number of children or work participation	50	58
Partner joins family	7	1
Partner leaves family	2	5
Birth	4	4
Increase in number of dependent children (not births)	1	1
Decrease in number of dependent children	6	2
Mother enters work	19	2
Mother leaves work	2	16
Father enters work	12	0
Father leaves work	0	13
Number of observations (poverty transitions)	4,429	4,288

Notes: Columns sum to over 100 per cent as some poverty transitions are associated with more than one factor, but there were very few cases with more than one factor associated with a poverty transition. The proportions of poverty exits with only a single associated factor were six per cent for partner joins the family, two per cent for partner leaves the family, three per cent for births, less than one per cent for increase in the number of dependent children, six per cent for decrease in the number of dependent children, 18 per cent for mother enters work, two per cent for mother leaves work, 11 per cent for father enters work and less than one per cent for father leaves work. The proportions of poverty entries with only a single associated factor were one per cent for partner joins the family, four per cent for partner leaves the family, four per cent for births, one per cent for increase in the number of dependent children, one per cent for decrease in the number of dependent children, two per cent for mother enters work, 15 per cent for mother leaves work, less than one per cent for father enters work and 13 per cent for father leaves work.

Over half of all poverty transitions (50 per cent of poverty exits and 58 per cent of poverty entries) are not associated with any change in family structure or work participation, suggesting that the source lies in changes in earnings or other income relative to the poverty line. Changes in parents' work participation is the most closely associated factor: 31 per cent of poverty exits are associated with a parent entering work and 29 per cent of poverty entries are associated with a parent leaving work, with a slightly stronger association with changes in mothers' work participation than with changes in fathers' work participation. Changes in the number of children in the family have a more minor association with changes

in poverty, with ten per cent of poverty exits and seven per cent of poverty entries associated with births or the arrival or departure of dependent children, although, interestingly, changes in both directions are fairly evenly associated with both movements into and out of poverty. Just eight per cent of poverty exits and six per cent of poverty entries are associated with a change in partnership, with the arrival of a partner more closely associated with poverty exit and the departure of a partner more closely associated with poverty entry.[19]

The main points from this background chapter can be summarised:

- On average, 21 per cent of families with children are in poverty each month. The poverty rate is higher for lone mothers (41 per cent) and lone fathers (33 per cent) than for couples (13 per cent). The poverty rate is much lower for working parents than for parents out of work, but work does not guarantee protection against poverty. For couples, it is the father's work participation which is critical to the likelihood of the family being in poverty.
- Persistent poverty is relatively rare: on average, just under four per cent of families are continuously in poverty during three-year periods. But some experience of poverty is quite prevalent: over 40 per cent of families (and 75 per cent of lone mothers) will be in poverty in at least one month during a three-year period. There is also considerable movement between poverty states: those who switch states during the three-year period spend an average 39 per cent of the months in poverty with an average six spells in poverty.
- The proportion of months in poverty has some (but not complete) correlation with the proportion of months in work for parents, while frequent cycling into and out of work is associated with cycling into and out of poverty. The correlations are strongest for fathers in couples and weakest for mothers in couples.
- Half of poverty exits and a majority of poverty entries (58 per cent) are not associated with any change in partnership, number of children or work participation. Work transitions are more closely associated with poverty transitions than changes in family structure: 31 per cent of poverty exits are associated with a parent entering work while 29 per cent of poverty exits are associated with a parent leaving work.

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[19] Jenkins *et al.*, (2001) show that demographic events are associated with 17 per cent of poverty exits for couples with children and 14 per cent of poverty exits for lone parents for annual changes in BHPS data (Table 3.3), which is broadly consistent with the proportions in Table 4.3. Similar figures for poverty entry presented in Table 3.5 in Jenkins *et al.*, cannot be directly compared, however, as the family status is defined at the year after the poverty entry and the demographic changes of movements into the 'family with children' category are likely to be correlated with movements into poverty.

5 Work entry and work exit

Work participation is one of the most important determinants of family income and poverty status, but it does not provide a complete safeguard against poverty. This chapter considers the impact of movements into and out of work on the prevalence of poverty among families, investigating which types of families are most likely to escape poverty when a parent enters work and which work characteristics are most closely associated with an escape from poverty.

The unit of analysis in this chapter is individual work entries and exits, but the poverty status for the parent is still determined by equivalised family income and may be affected by other changes in the family that occur in the same month as the work entry.[20] All statistics are based on a pooled sample from the Families and Children Study (FACS) over the six-year period 2001 to 2006. The category for fathers includes both those with partners and those without partners, although the vast majority of the sample consists of fathers in couples. Unsurprisingly, there are more work entries for mothers than for fathers, as mothers may be returning to work after maternity leave or a period of absence to care for children as well as for more usual labour market reasons.[21]

Some 48 per cent of parents are in poverty in the month prior to work entry, with 17 per cent still in poverty after work entry and 31 per cent escaping poverty when they enter work (final column, Table 5.1). This means that 65 per cent of those

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20 Work entries and exits that coincided with a change in partnership status were excluded from the analysis.

21 There are also more work exits for mothers than for fathers, consistent with other research showing a greater propensity for mothers than for fathers to both leave and enter work (see Paull (2006)).

in poverty prior to work entry leave poverty when they enter work.[22] This poverty exit rate is highest for fathers (73 per cent), but similar for mothers in couples (63 per cent) and lone mothers (60 per cent).[23,24] The main difference between the two groups of mothers, however, is that a much smaller proportion of mothers in couples are in poverty prior to work entry. Indeed, over three-quarters of mothers in couples were not poor prior to work entry, due to the fact that many will have working partners.

Table 5.1 Poverty transitions with work entry

	Mothers in couples	Lone mothers	Fathers	All parents
Percentage remaining in poverty	9	31	20	17
Percentage leaving poverty	15	46	53	31
Percentage entering poverty	1	6	2	3
Percentage remaining out of poverty	75	17	26	50
Total	**100**	**100**	**100**	**100**
Percentage poverty exit rate (% of those initially in poverty who are not in poverty after work entry)	63	60	73	65
Number of observations	2,391	1,055	1,000	4,446

Notes: The poverty exit rate is calculated as the proportion of those initially in poverty (sum of the first two rows in each column) who are not in poverty after work entry (the second row in each column). The fathers group includes both fathers in couples and lone fathers.

22 There were also 116 parents (2.6 per cent) whose families entered poverty when they entered work (34 mothers in couples, 63 lone mothers and 19 fathers). Most of these cases are associated with a loss in benefit income (101 cases) and/or a loss in tax credit income (50 cases), while only 16 cases are associated with a loss in partner's earnings, four cases with a loss in child maintenance income and 12 cases with a loss in other income.

23 The poverty transition rates for lone mothers with work entry (including the proportion who move into poverty with work entry) are similar to those presented for lone parents in Figure 3.3 (middle bar) in *Barnes et al.*, (2008). There is no similar direct comparison for mothers in couples and fathers as Barnes *et al.*, only consider work entry for couple families where there is no working parent at the initial interview (Figure 3.4).

24 Jenkins *et al.*, (2001) report a poverty exit rate with work entry (defined as a rise in the number of workers in the family) of 53 per cent for lone parents (Table 3.7) and 62 per cent for couple families (Table 3.8). The slightly lower exit rates reported in Jenkins *et al.*, may reflect a rise over time in the exit rate, as they use data covering the period 1991-99 before the advent of the new in-work tax credits, or it may arise from considering annual interview-on-interview changes for all lone parents rather than monthly changes for lone mothers.

Tables 5.2 to 5.4 present the poverty transitions and poverty exit rates at work entry by the number of weekly hours in the new work. Three categories are considered: mini-jobs of less than 16 hours, part-time work of 16 to 29 hours and full-time work of 30 or more hours. It should be noted that the part-time category defined here does not include those working less than 16 hours as it is more usually defined. The tables also present the statistics for the groups entering work of 16 or more hours and who would be eligible for working tax credits. The final column of the tables reproduces the numbers from Table 5.1 for comparison.

Table 5.2 Poverty transitions with work entry by work hours: mothers in couples

	Weekly work hours				
	Mini-jobs (<16)	**Part-time (16–29)**	**Full-time (30+)**	**Tax credit (16+)**	**All**
Percentage remaining in poverty	10	10	8	9	9
Percentage leaving poverty	10	15	23	18	15
Percentage entering poverty	2	1	1	1	1
Percentage remaining out of poverty	78	74	69	72	75
Total	**100**	**100**	**100**	**100**	**100**
Percentage poverty exit rate (% of those initially in poverty who are not in poverty after work entry)	50	60	74	67	63
Number of observations	1,014	823	533	1,356	2,391
Proportion of all work entries (row %)	43	35	22	57	100

Notes: The poverty exit rate is calculated as the proportion of those initially in poverty (sum of the first two rows in each column) who are not in poverty after work entry (the second row in each column). The number of observations in all work entries is slightly greater than the sum across different hours categories as it includes those with missing work hours.

Almost half of mothers in couples entering work (43 per cent) enter mini-jobs, working less than 16 hours each week, while a further 35 per cent work between 16 and 29 hours inclusive and only 22 per cent enter full-time work (Table 5.2). The poverty exit rate is higher for those entering work with more hours, although it should also be noted that those entering longer work hours are more likely to have been in poverty prior to the work entry, so the proportions in poverty after work entry are not very different across the three work hours categories (12 per cent, 11 per cent and nine per cent for mini-jobs, part-time and full-time respectively). While only considering those who enter work of 16 or more hours a week excludes a large proportion of the entire work entry sample, the poverty transitions are very similar to those for all work entries, with just a slightly higher poverty exit rate, reflecting the similarity in poverty transitions for those entering mini-jobs and those entering part-time work and the fact that relatively few mothers in couples enter full-time work.

Table 5.3 Poverty transitions with work entry by work hours: lone mothers

	Weekly work hours				
	Mini-jobs (<16)	**Part-time (16–29)**	**Full-time (30+)**	**Tax credit (16+)**	**All**
Percentage remaining in poverty	37	36	14	29	31
Percentage leaving poverty	38	42	61	48	46
Percentage entering poverty	8	7	3	5	6
Percentage remaining out of poverty	17	15	22	17	17
Total	**100**	**100**	**100**	**100**	**100**
Percentage poverty exit rate (% of those initially in poverty who are not in poverty after work entry)	51	54	81	62	60
Number of observations	224	556	268	824	1,055
Proportion of all work entries (row %)	21	53	26	79	100

Notes: The poverty exit rate is calculated as the proportion of those initially in poverty (sum of the first two rows in each column) who are not in poverty after work entry (the second row in each column). The number of observations in all work entries is slightly greater than the sum across different hours categories as it includes those with missing work hours.

Most lone mothers entering work enter part-time work (53 per cent), with roughly equal proportions entering mini-jobs and full-time work (21 per cent and 26 per cent respectively) (Table 5.3). Interestingly, mini-jobs and part-time work have very similar poverty transition rates for lone mothers, with the poverty exit rate only slightly higher for part-time work (54 per cent) than for mini-jobs (51 per cent). Full-time work offers a much greater likelihood of escaping poverty for lone mothers, with 81 per cent of those in poverty before work entry no longer in poverty after work entry. Only looking at jobs of at least 16 hours a week shows similar poverty transition rates to those for the entire sample of work entries among lone mothers, partly because it is dominated by the part-time hours category which has similar poverty transition rates to the omitted mini-jobs category.

The vast majority of fathers entering work enter full-time work (79 per cent), while very few enter part-time work (15 per cent) or mini-jobs (six per cent). Yet the poverty transition rates for the three categories are very different, with only 27 per cent of the initially poor who enter mini-jobs escaping poverty compared with 46 per cent for those entering part-time work and 80 per cent for those entering full-time work. As so few fathers enter mini-jobs, ignoring these yields very similar poverty transition rates to the entire work entry sample.

Table 5.4 Poverty transitions with work entry by work hours: fathers

	Weekly work hours				
	Mini-jobs (<16)	Part-time (16–29)	Full-time (30+)	Tax credit (16+)	All
Percentage remaining in poverty	38	39	15	18	20
Percentage leaving poverty	14	33	60	56	53
Percentage entering poverty	6	6	1	2	2
Percentage remaining out of poverty	42	22	25	24	26
Total	**100**	**100**	**100**	**100**	**100**
Percentage poverty exit rate (% of those initially in poverty who are not in poverty after work entry)	27	46	80	76	73
Number of observations	64	148	781	929	1,000
Proportion of all work entries (row %)	6	15	79	94	100

Notes: The poverty exit rate is calculated as the proportion of those initially in poverty (sum of the first two rows in each column) who are not in poverty after work entry (the second row in each column). The number of observations in all work entries is slightly greater than the sum across different hours categories as it includes those with missing work hours. This table includes both fathers in couples and lone fathers.

Turning to the other end of the work spell, almost one-third (32 per cent) of parents enter poverty when they leave work (Table 5.5). As might be expected, there is some symmetry in the poverty rate at either end of the work spell, with almost half of parents in poverty in the month prior to work entry and in the month following a work exit (48 per cent and 46 per cent respectively). However, the proportions in poverty in the month following the work entry (19 per cent) and in the month preceding work exit (17 per cent) are also broadly similar, which suggests that work retention may not be very beneficial for reducing the prevalence of poverty. However, it should be noted that those leaving work may not be typical of all parents in work and that circumstances just prior to work exit may be unusually adverse. The poverty entry rate at work exit differs substantially across different types of parents, with mothers in couples being particularly unlikely to be in poverty prior to work exit or to enter poverty, while some 44 per cent of lone mothers and over half of fathers (54 per cent) enter poverty upon

leaving work. Interestingly, a sizeable proportion of lone mothers (seven per cent) exit poverty when they leave work.[25, 26]

Table 5.5 Poverty transitions with work exit

	Mothers in couples	Lone mothers	Fathers	All parents
Percentage remaining in poverty	7	26	18	14
Percentage leaving poverty	2	7	2	3
Percentage entering poverty	16	44	54	32
Percentage remaining out of poverty	76	23	27	51
Total	**100**	**100**	**100**	**100**
Percentage poverty entry rate (% of those initially not in poverty who are in poverty after work exit)	17	66	67	39
Number of observations	1,989	790	1,058	3,837

Notes: The poverty entry rate is calculated as the proportion of those initially not in poverty (sum of the third and fourth rows in each column) who are in poverty after work exit (the fourth row in each column). The fathers group includes both fathers in couples and lone fathers as there were too few lone fathers to be analysed as a separate group.

One important aspect for policy discussion about how work can help families to escape poverty is to consider which types of families are least likely to escape poverty even when a parent enters work and to examine which work characteristics are most closely associated with enabling parents to leave poverty. To address this, Table 5.6 analyses the poverty exit rate with work entry by demographic background and

25 The transition rates for lone mothers are of a similar magnitude to those presented in Barnes *et al.*, (2008) (Figure 4.3, top two bars), although a direct comparison is not possible as Barnes *et al.*, disaggregated the statistics by initial receipt of in-work tax credits. There are no direct comparisons for mothers in couples and fathers, as Barnes *et al.*, consider work exit for couple families rather than individual parents (Figure 4.4) and the poverty entry rates are substantially different between the mothers and fathers.

26 Jenkins *et al.*, (2001) report a slightly lower poverty entry rate with work exit of 62 per cent for lone parents (Table 3.12), which may, as before, reflect changes over time as they use the earlier data period of 1991–99, or may arise from considering annual interview-on-interview changes for all lone parents rather than monthly changes for lone mothers. They also consider the poverty entry rate for couple children households (Table 3.13), but separate rates for mothers in couples and fathers are not identified.

Table 5.7 by work characteristics.[27] Each table presents the average poverty exit rate for different types of characteristics and lists which factors have significant differences in the probability of poverty exit in a multivariate regression model that controls for related differences in other characteristics. Insufficient sample sizes meant that the analysis of work characteristics could not be disaggregated by parent type.

Table 5.6 shows the differences in the likelihood of leaving poverty with work entry for demographic characteristics:

- As already shown above, fathers are more likely than either type of mother to leave poverty with work entry: this is a statistically significant difference which is not explained by the other demographic factors.
- The poverty exit rate rises with the age of the youngest child from 63 per cent for parents with a youngest child aged under 5 to 67 per cent for those with a youngest child aged over 11, but the differences are not large and not statistically significant.
- The number of children in the family does have a significant impact on the likelihood of poverty exit, falling from 67 per cent for those with one child to 56 per cent for those with three or more children. This may reflect the fact that escaping poverty requires higher in-work income for larger families than for smaller families.
- The age, ethnicity and health of parents are not significant factors.
- Parents' education is a significant factor: for parents with no qualifications, the poverty exit rate is 54 per cent, compared with 76 per cent of those who are college educated.
- Owner-occupiers are more likely to leave poverty than parents living in other types of housing: while 72 per cent of owner-occupiers initially in poverty will exit poverty with work entry, only 60 per cent of those initially in poverty and living in rented or other types of accommodation transit out of poverty.
- Exit from poverty with work entry was more likely in 2001–02 and 2003–04 than in other years, with a poverty exit rate of approximately 70 per cent in these two years compared with around 60 per cent in most other years.

[27] Most of the work characteristics are those reported at the first interview in the same job spell with the exception that hours and hourly earnings may have been reported retrospectively for work spells falling between interviews.

Table 5.6 Poverty exit rates with work entry by demographic background

Characteristic	Percentage poverty exit rate	Significant factors in the probability of poverty exit controlling for differences in other factors
Mothers in couples	61	Fathers more likely to exit than mothers in couples or lone mothers
Lone mothers	60	
Fathers	73	
Youngest child's age		Not significant
Less than 5 years	63	
5 to 11 years	65	
Over 11 years	67	
Number of children		Probability of exit falls with the number of children
1 child	67	
2 children	66	
3+ children	56	
Age		Not significant
Less than 30 years	62	
30 to 45 years	65	
Over 45 years	69	
Highest qualification		Probability of exit rises with qualification level
None	54	
NVQ 1/below GCSE	63	
NVQ 2/GCSE	61	
NVQ 3/A levels	69	
NVQ 4/5	71	
College	76	
White ethnic group	65	Not significant
Black ethnic group	66	
Other ethnic group	58	
Owner-occupier	72	Owner-occupiers more likely to exit than renters and other
Rented/other housing	60	
No health problem	64	Not significant
Health problem	65	

Continued

Table 5.6 Continued

Characteristic	Percentage poverty exit rate	Significant factors in the probability of poverty exit controlling for differences in other factors
Financial year 2001–02	70	More likely to exit:
Financial year 2002–03	60	in 01–02 than 02–03, 04–05, 05–06, 06–07;
Financial year 2003–04	71	in 03–04 than 02–03, 05–06, 06–07
Financial year 2004–05	65	
Financial year 2005–06	61	
Financial year 2006–07	58	

Notes: Factors are defined as significant at the five per cent level in a logistic regression model for the probability of poverty exit including all the factors as explanatory variables. The model contained 2,052 observations. Youngest child's age, the number of children, age and highest qualification were included as continuous variables. There were no differences in the significance of the factors in the model estimated using only work entries into work of 16 or more weekly hours. The only difference in the significance of the factors in a model for the whole sample with only year dummies is that exits were not significantly more likely in 2001–02 than in 2004–05.

Table 5.7 presents the differences in the likelihood of leaving poverty with work entry for work characteristics. The regression models identifying significant factors in the probability of escaping poverty were estimated both with and without the time spent out of work, hourly earnings and weekly hours in order to identify whether the remaining characteristics were important because of an association with these factors. The model was also estimated using only entries into work of 16 or more hours, but there were no differences in the significance of the factors from the model with all work entries.

Table 5.7 Poverty exit rates with work entry by work characteristics

Characteristic	Percentage poverty exit rate	Significant factors in the probability of poverty exit controlling for differences in other factors
Time spent out of work		Probability of exit falls with time out of work
Less than 6 months	73	
6 to 48 months	65	
More than 48 months	51	
Hourly earnings		Probability of exit rises with hourly earnings
Less than £4	35	
£4 to £6	60	
Greater than £6	81	
Weekly hours		Full-time more likely to exit than mini-jobs and than part-time
Mini-job (1–15 hours)	50	
Part-time (16–29 hours)	54	
Full-time (30+ hours)	80	
Employed	64	Not significant
Self-employed	65	
Non-permanent work	66	Not significant
Permanent work	64	
Non-supervisory role	61	Not significant
Supervisory role	70	[Supervisory more likely to exit in model without hourly earnings and weekly hours]
Firm size		Not significant
1–9 employees	57	[Probability of exit rises with firm size in models without hourly earnings and/or weekly hours]
10–24 employees	63	
25–499 employees	69	
500+ employees	71	

Notes: Factors are defined as significant at the five per cent level in a logistic regression model for the probability of poverty exit including all the factors as explanatory variables. The model contained 1,727 observations. Time spent out of work, hourly earnings and firm size were included as continuous variables. Supervisory role and the permanency of position are not recorded for the self-employed in the survey and these were assumed to be non-supervisory and permanent for the self-employed. There were no differences in the significance of the factors in the model estimated using only work entries into work of 16 or more weekly hours. There were no differences in the significance of the factors in the model without the time-out-of-work variable. The only difference in the significance of the factors in the model without hourly earnings and in the model without weekly hours is that the probability of exit rose with firm size. The differences in the significance of the factors in the model without hourly earnings and without weekly hours are that the probability of exit was greater for those entering work in a supervisory role and rose with firm size.

The likelihood of leaving poverty with work entry differs across several work characteristics:

- Parents who have been absent from work for longer are less likely to exit poverty when they enter work: 73 per cent of those initially in poverty who have been out of work for less than six months will leave poverty compared with 51 per cent of those initially in poverty who have been out of work for more than 48 months.
- Unsurprisingly, the poverty exit rate is significantly and strongly related to hourly earnings, with only 35 per cent of those initially in poverty and earning less than £4 per hour when they enter work leaving poverty, compared with 81 per cent for those earning more than £6 per hour.
- There is a distinct difference in the propensity to leave poverty between full-time work on the one hand and part-time and mini-jobs on the other hand, reflecting both the wage penalty for working less than full-time and that the size of the contribution that earnings make to raising family income is directly related to the number of hours worked.[28] Of particular note is the fact that there is little difference in the poverty exit rates for those entering mini-jobs and those entering part-time work in spite of this marking the threshold for eligibility for tax credits.
- Parents entering supervisory work are more likely to exit poverty than parents entering non-supervisory work. Without controlling for hourly earnings and weekly hours, supervisory role is a significant factor in the poverty exit rate, but it is no longer significant with controls for these factors, showing that supervisory roles raise the likelihood of escaping poverty through their association with a combination of higher hourly earnings and higher weekly hours.
- The poverty exit rate rises with firm size from 57 per cent for those joining a firm with fewer than ten employees to 71 per cent for those joining firms with 500 or more employees. Without controlling for hourly earnings or weekly hours, firm size is a significant factor in the poverty exit rate, but it is no longer significant with controls for hourly earnings and/or weekly hours, showing that larger firms raise the poverty exit rate through an association with higher hourly earnings and higher weekly hours.
- Type of work (employment or self-employment) and permanency of work are not significant factors.

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[28] Jenkins *et al.*, (2001) also show that the poverty exit rate is higher when there is a rise in the number of full-time workers than simply a rise in the number of workers (Tables 3.7 and 3.8). However, the difference in the exit rate between the hours categories is smaller than that reported here

The main findings from this examination of work entry and exit can be summarised:

- Some 65 per cent of parents who are in poverty in the month prior to work entry escape from poverty when they enter work. The proportion of parents in poverty declines from 48 per cent in the month prior to work entry to 20 per cent in the month after work entry.
- Just under one-third of parents (32 per cent) enter poverty when they leave work and some 46 per cent of parents are in poverty in the month following work exit.
- The poverty exit rate is only slightly higher for mothers entering part-time work (16–29 weekly hours) than for mothers entering mini-jobs (less than 16 weekly hours). The exit rate is considerably higher for both mothers and fathers entering full-time work (30 or more weekly hours).
- Controlling for other demographic factors, fathers are more likely to exit poverty with work entry than mothers in couples or lone mothers. The likelihood of poverty exit with work entry falls with the number of children, rises with qualification level and is higher for owner-occupiers than for parents in other types of housing.
- Controlling for other work characteristics, the poverty exit rate with work entry falls with the amount of time spent out of work, rises with hourly earnings and is higher for those working full-time than for those with other jobs. Entering a supervisory position and entering a larger firm are also associated with a higher poverty exit rate through the associated higher hourly earnings and weekly hours.

6 Poverty dynamics within work spells following work entry

Even if families do not immediately escape poverty when a parent enters work, the hope is that advancement within employment will lift the parent up the earnings ladder and enable the family to gradually climb out of poverty. This chapter examines the dynamics of poverty in the three years following a parent entering a new work spell. Section 6.1 considers aggregate poverty rates and the underlying poverty dynamics for each type of parent. This reveals that a sizeable proportion of families move into poverty during the first three years following work entry, and the subsequent analysis accordingly considers poverty entries as well as exits during the initial years in a work spell. Section 6.2 presents the dynamics of work hours and hourly earnings following work entry, focusing on the distinction between mini-jobs, part-time work and full-time work. Section 6.3 investigates which types of families are most likely to move out of and into poverty and which types of work and work progression are associated with the greatest rates of change in poverty status. Section 6.4 summarises the findings of this chapter.

This chapter uses information from individual work spells for up to 36 months following work entry for parents within periods of unchanged partnership and thereby parent type.[29] For most of the analysis, the unit of observation is the month (or paired consecutive months) within this period, using monthly observations from all work spells regardless of the spell length. Hence, the number of observations for each month declines as the spell lengthens from the time of work entry due to

[29] The sample includes only periods with stable partnership status and abstracts from the impact of partnership changes. As there are very few partnership changes within the first three years of work spells, this abstraction made little difference to the results. An analysis of partnership transitions and work participation and characteristics using the Families and Children Study (FACS) data was presented in Paull (2007).

parents leaving work or no longer being observed in the survey.[30] For the statistics on poverty dynamics and weekly hours transitions within the first, second and third years after work entry (Tables 6.1 and 6.3), the sample includes all spells of sufficient length for each of the yearly periods. For reasons explained below, the analysis of work progression in Section 6.3.3 uses a sample based on changes between interviews (approximately one year apart) within the 36 months following work entry.[31]

All statistics are based on a pooled sample from the Families and Children Study (FACS) over the six-year period 2001 to 2006. The sample consists of all workers and is not restricted to those with weekly hours of 16 or more. Although this restricted sample would focus on those potentially eligible for working tax credits, it would omit those in mini-jobs which, as shown in Chapter 5 and to be reiterated in Table 6.3, form a substantial proportion of parents, particularly mothers, at the beginning of a work spell. Hence, the sample with all workers is preferred.[32] As before, it should be noted that the poverty status for the parent is still determined by equivalised family income and that it is possible for the individual's poverty status to change due to variations in their partner's income or changes in the number of dependent children in the family. The category for fathers includes both those with partners and those without partners, although the vast majority of the sample consists of fathers in couples.

6.1 Poverty patterns following work entry

The proportion of mothers in couples in poverty gradually declines from 11 per cent in the month of work entry to a low of 7 per cent at around 20 months after work entry and subsequently rises to reach 9 per cent by 36 months after work entry (Figure 6.1). The pattern for fathers is similar, with a downward trend from 22 per cent in poverty in the month of work entry for the first two years followed by a rise in the third year, with 16 per cent of fathers in poverty at the end of three years. In contrast, the proportion of lone mothers in poverty declines substantially over the entire period, from 37 per cent in the month of work entry to 18 per cent at the end of three years. Hence, the poverty rate declines substantially with work retention for lone mothers, but there are only minor reductions for mothers in couples and fathers as the period in work lengthens.[33]

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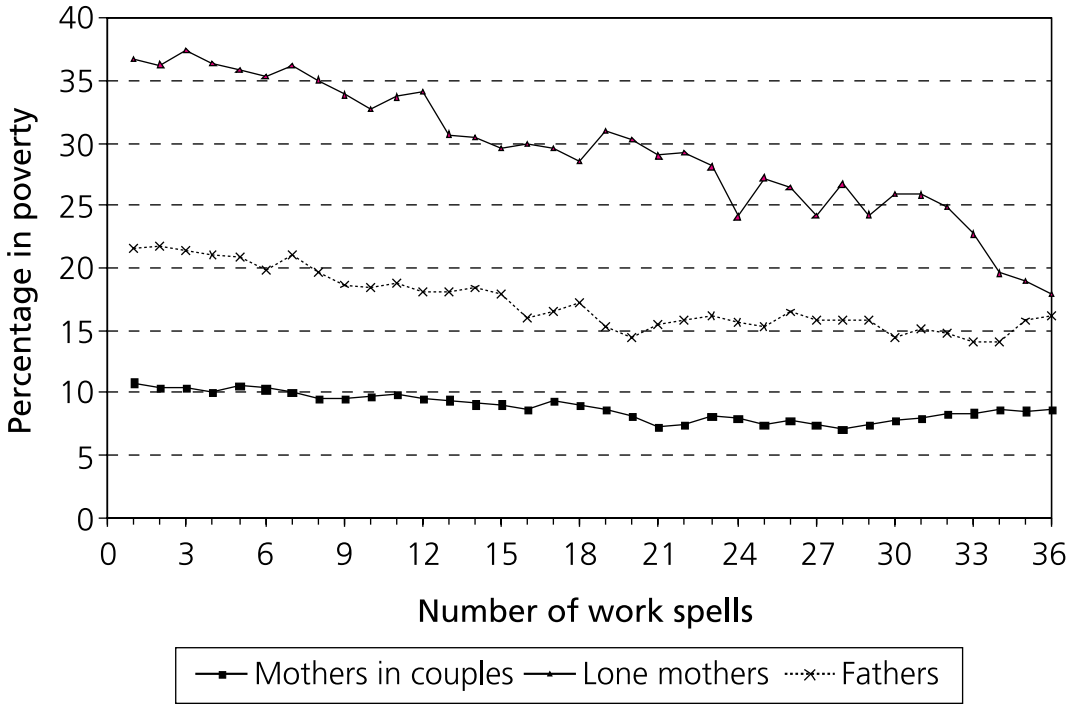
30 To use a sample only of spells lasting at least 36 months would not be representative of the poverty dynamics for earlier months after work entry.

31 If a work spell does not last long enough to cover at least two interviews, it cannot be included in this sample.

32 The regression models in Section 6.3 were also estimated for the restricted sample of those with weekly hours of 16 or more and any differences in the results from the main sample are listed in the table notes.

33 Appendix B presents results from a simulation of the effect of the In Work Credit for lone parents on the poverty rate for mothers.

Figure 6.1 Percentage in poverty over the work spell



Notes: The sample size ranges from 2,391 in month one to 426 in month 36 for mothers in couples, from 1,055 in month one to 134 in month 36 for lone mothers and from 1,000 in month one to 174 in month 36 for fathers.

The changing proportions in poverty in Figure 6.1 may reflect two underlying dynamics. First, those in work throughout the period may move into or out of poverty, generating genuine changes in the likelihood of poverty for those remaining in work. Second, the sample gradually diminishes over the work spell as some parents leave work or are no longer observed in the survey (data censoring).[34] This may generate a sample 'selection effect' if parents who leave work within the three years or are no longer observed in the survey are more or less likely to be in poverty than those who remain in work and in the survey. For example, if those in poverty are more likely to leave work than those not in poverty, the proportion in poverty will fall as the work spell lengthens due to the selection effect without any individual necessarily moving out of poverty.[35]

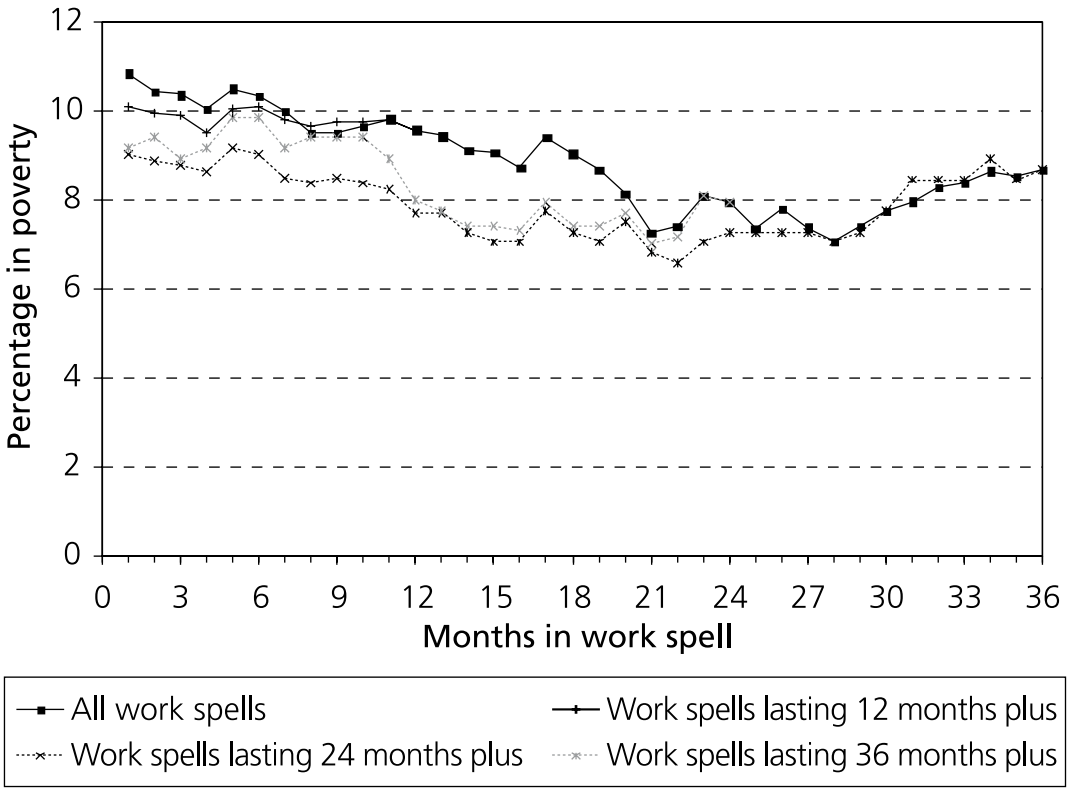
Figures 6.2 to 6.4 investigate the relative importance of the sample selection effect by considering the poverty rate among groups with differing spell lengths. Presenting the poverty rates conditional upon reaching a certain spell length

[34] Work retention and the relationships between work exit and various factors are investigated in detail in Chapter 7 of this report.

[35] It is assumed that data censoring (parents no longer being observed in the survey) is independent of poverty state and the selection effect is attributed to a relationship between parents leaving work and poverty status.

shows the change in the likelihood of poverty for individuals who remain in work throughout that period. The difference between this conditional line and the average rate for all work spells reflects the residual selection effect of individuals leaving the sample.

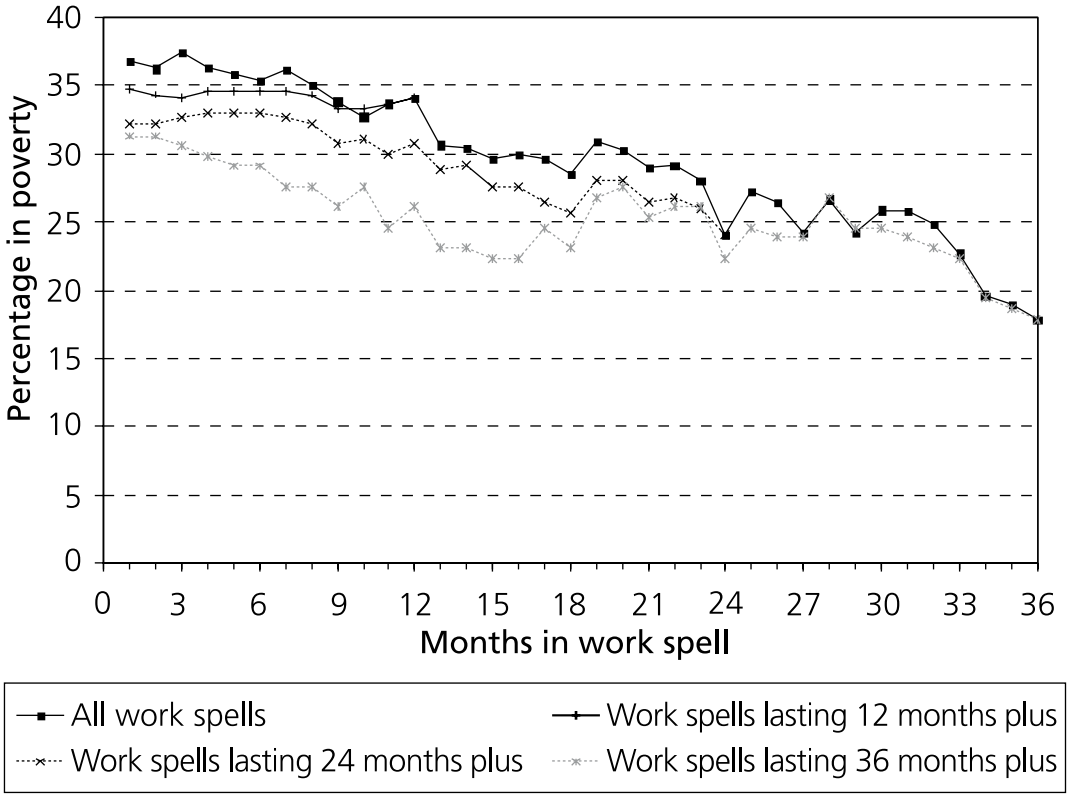
Figure 6.2 Percentage in poverty over the work spell: mothers in couples



Note: The sample size ranges from 2,391 in month one to 426 in month 36.

During the first year in the work spell, the poverty rate for mothers in couples with work spells lasting at least 12 months declines from ten per cent to 9.5 per cent, which is less than the decline from 11 per cent to 9.5 per cent observed for all work spells (Figure 6.2). This shows that much of the (small) initial decline is due to mothers in poverty being more likely to leave the sample than those not in poverty. Between 12 and 24 months, the conditional poverty rate for those in work for at least 24 months is actually slightly higher at the end of the year, showing that the decline in poverty for all work spells is again a selection effect. The rise in poverty in the final year, however, reflects a genuine rise in the likelihood of poverty for the remaining mothers.

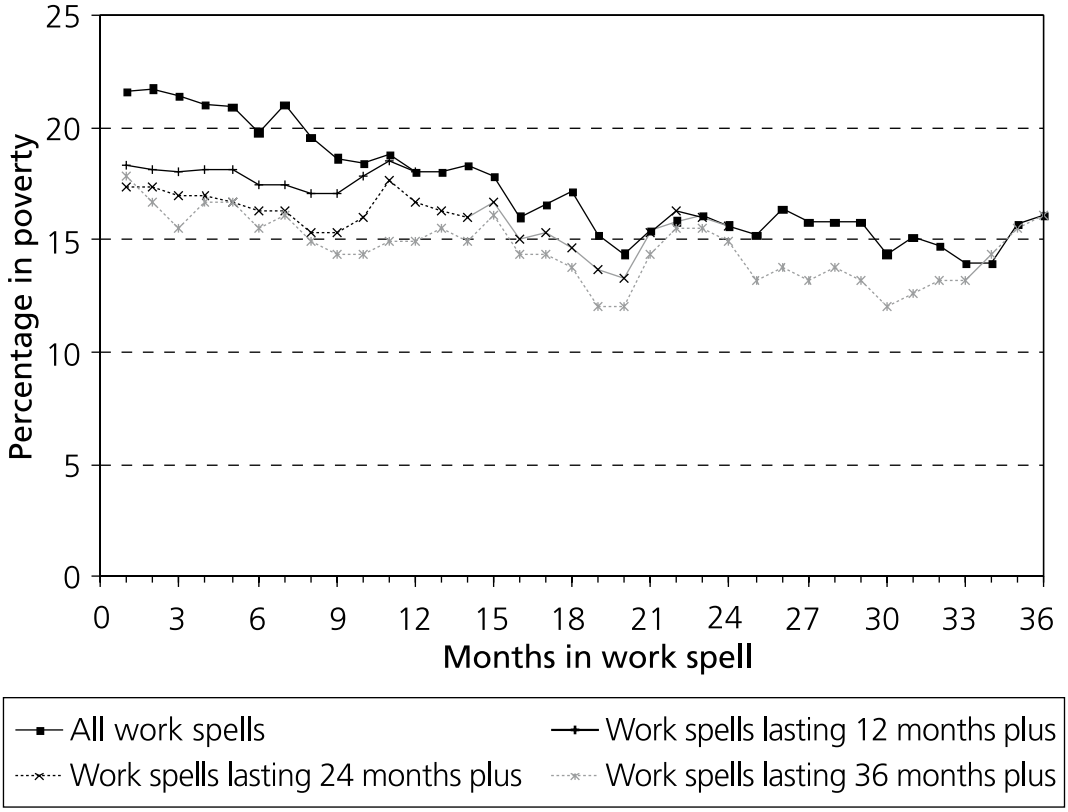
Figure 6.3 Percentage in poverty over the work spell: lone mothers



Note: The sample size ranges from 1,055 in month one to 134 in month 36.

The picture is similar for lone mothers during the first year, with much of the decline in the poverty rate due to selection (Figure 6.3). However, most of the decline over years two and three is due to a fall in the likelihood of poverty for individuals who remain in work rather than selection. Indeed, the poverty rate among lone mothers who remain in work for at least three years declines from 31 per cent at work entry to 18 per cent by the end of the three years. For fathers, selection explains the entire poverty decline in the first year, while both selection and a fall in the poverty likelihood for those remaining in work play a role in the decline in the poverty rate in the second year (Figure 6.4). In the final six months of the three-year period, a substantial rise in the likelihood of poverty for fathers remaining in work is initially masked by a counterbalancing selection effect.

Figure 6.4 Percentage in poverty over the work spell: fathers



Note: The sample size ranges from 1,000 in month one to 174 in month 36.

The average poverty rates presented in Figures 6.1 to 6.4 do not show the degree of movement into and out of poverty. A little-changing average rate could disguise substantial turnover in the poverty population, with movements out of poverty by some individuals offsetting or partly balancing movements into poverty by other individuals. Table 6.1 explores the degree of poverty cycling by presenting the pattern of monthly poverty transitions from work entry until one year, two years and three years after the start of the work spell.

Although between seven and 11 per cent of mothers in couples are in poverty at any point of time during the first three years following a work entry (from Figure 6.2), only three per cent remain in poverty throughout the three years and 19 per cent are below the poverty threshold at some point during the three years (Table 6.1). The proportions making a single transition out of or into poverty over three years are very similar, at four per cent and three per cent, and, in combination with the nine per cent who make more than one poverty transition,[36] mean that 14 per cent of mothers in couples exit poverty at least once during the period, while 13 per cent enter poverty at least once. The poverty dynamics conditional on the work spell lasting at least three years are very similar to the unconditional

[36] Those with two or more transitions must have both left poverty and entered poverty at least once.

numbers, with a very small tendency for those with more transitions in the initial years to leave the work spell before three years.

Table 6.1 Monthly poverty transitions within work

	All work spells			Work spells lasting at least 3 years		
	After 1 year	After 2 years	After 3 years	After 1 year	After 2 years	After 3 years
Percentage of mothers in couples						
Always in poverty	5	3	3	5	3	3
Exit poverty	4	5	4	4	4	4
Two-plus poverty transitions	2	7	9	1	7	9
Enter poverty	4	4	3	2	3	3
Never in poverty	85	82	81	87	83	81
Number of observations	1,327	754	426	426	426	426
Percentage of lone mothers						
Always in poverty	23	10	4	16	8	4
Exit poverty	10	16	18	14	17	18
Two-plus poverty transitions	4	20	31	6	21	31
Enter poverty	10	7	6	9	8	6
Never in poverty	53	47	41	55	46	41
Number of observations	515	257	134	134	134	134
Percentage of fathers						
Always in poverty	11	6	6	9	7	6
Exit poverty	6	9	6	8	8	6
Two-plus poverty transitions	4	11	17	3	10	17
Enter poverty	6	7	5	5	6	5
Never in poverty	73	68	66	76	69	66
Number of observations	539	300	174	174	174	174

Note: The transitions capture all monthly changes in poverty status between work entry and one year, two years and three years after work entry respectively.

In line with the higher average poverty rate for lone mothers than for mothers in couples, lone mothers have a much higher proportion (59 per cent) who experience poverty at some point over the three years. Although the fraction always in poverty in the first year is considerably higher for lone mothers (23 per cent) than for mothers in couples (five per cent), this proportion is much smaller and closer to that for mothers in couples after three years (four per cent compared to three per cent), reflecting considerable rises in the proportions either simply exiting poverty

or with two or more poverty transitions. Indeed, there is considerable poverty turnover for lone mothers: after three years, over half have experienced some poverty transition, with 49 per cent having left poverty at least once and 37 per cent having entered poverty at least once. The degree of movement in the poverty dynamics conditional on the work spell lasting at least three years for lone mothers is very similar to, but slightly higher than, the unconditional numbers, suggesting a small tendency for those with fewer transitions in the initial years to leave the work spell before three years.

The picture of poverty dynamics for fathers broadly lies between that for mothers in couples and that for lone mothers. Some one-third of fathers will experience poverty at some point during the first three years following work entry, while six per cent will always be in poverty throughout the period. The degree of turnover is always higher than that for mothers in couples, but is considerably lower than that for lone mothers, particularly in the third year. The dynamics conditional on the work spell lasting at least three years suggest a very small tendency for those with more transitions to leave the work spell before three years.

Overall, the poverty dynamics presented in Table 6.1 show that while the aggregate proportion in poverty may decline as the work spell lengthens, there is considerable turnover, with much larger proportions both moving into and moving out of poverty than shown in the changes in the average rate. The higher poverty rate for lone mothers also reflects a greater degree of turnover for these parents. Finally, while those in poverty are more likely to leave the work spell (Figures 6.2 to 6.4), the evidence suggests that those with more poverty transitions are no more or less likely to leave the work spell than those with stable poverty status.

A final issue for this summary picture of poverty dynamics is to consider the degree to which poverty transitions reflect small shifts in income around the poverty line rather than substantial changes in income levels. Table 6.2 seeks to address this question by presenting the family income level in the month following a poverty exit and in the month preceding a poverty entry.

Table 6.2 Size of poverty transitions within work

	Mothers in couples	Lone mothers	Fathers	All parents
Percentage of poverty exits to income group				
Less than 70 per cent of median	52	63	53	56
Equal to or greater than 70 per cent of median but less than median	36	33	40	36
Equal to or greater than median	13	4	8	8
Total	**100**	**100**	**100**	**100**
Number of observations	207	187	129	523
Percentage of poverty entries from income group				
Less than 70 per cent of median	61	79	61	67
Equal to or greater than 70 per cent of median but less than median	24	18	31	24
Equal to or greater than median	15	3	8	9
Total	**100**	**100**	**100**	**100**
Number of observations	199	171	140	510

Notes: Base is all transitions into and out of poverty by those in work. The income group is measured in the month following a poverty exit and in the month preceding a poverty entry.

Just over half of poverty exits for mothers in couples and for fathers place the family just above the poverty line, at between 60 and 70 per cent of median income. A slightly higher proportion for mothers in couples (13 per cent) than for fathers (eight per cent) reflect a substantial jump to income at or above the median level. For lone mothers, a higher proportion of exits (63 per cent) are a movement to just above the poverty line, while fewer (four per cent) involve a large rise in income to the median level or above. The picture is similar for poverty entries, with slightly higher proportions than those for exits involving movements close to the poverty line, possibly due to a failure of income to keep pace with a rising poverty threshold in some cases. A higher proportion of mothers in couples than of fathers enter poverty from above the median income level, while the vast majority of entries for lone mothers reflect movements from just above the poverty line. Overall, while most poverty transitions result from movements relatively close to the poverty line (56 per cent of poverty exits and 67 per cent of poverty entries), substantial proportions also reflect much larger changes in circumstances.

6.2 Weekly work hours and hourly earnings following work entry

Weekly work hours are a potentially critical factor in lifting families with children out of poverty, for two reasons. First, as already seen in Chapter 5 for work entry, entering full-time work rather than work with shorter hours greatly increases the likelihood that a family will leave poverty with work entry. Longer work hours hold the potential for higher earnings, both through simply raising the total amount of earnings for any given hourly pay and through the potential to raise hourly pay by escaping the 'part-time pay penalty' – that is, the association between shorter hours and lower hourly pay. Second, many parents, particularly mothers, work short hours (and often very short hours in mini-jobs), leaving considerable potential to lengthen hours and thereby raise earnings to a substantial degree. For example, doubling hours as a means to doubling earnings is potentially more feasible than doubling the hourly wage rate for parents. This section therefore examines how weekly work hours change over the first three years following a work entry and the relationship between weekly hours and hourly earnings (pay) for parents following work entry. The investigation focuses on three key hours groups: mini-jobs defined as less than 16 hours each week, part-time work defined as 16 to 29 hours each week and full-time defined as at least 30 hours each week.[37]

The proportion of mothers in couples in mini-jobs falls from 43 per cent at the start of the work spell to 27 per cent after three years, while the proportion in part-time work rises from 35 per cent to 40 per cent and the proportion in full-time work increases from 22 per cent to 33 per cent (Figure 6.5). There are similar dynamics for lone mothers, with the proportion in mini-jobs declining by 11 percentage points and the proportion in full-time work rising by 11 percentage points over the first three years in work (Figure 6.6). The proportion working part-time returns to its original level by the end of the period, after a temporary rise between one and two years. Hence, there is substantial change over the work spell in the working hours for both types of mothers, with a sizeable movement towards longer hours groups and the potential to escape or avoid poverty through higher total earnings. [38]For fathers, the proportion in full-time work increases slightly at the expense of both part-time work and mini-jobs, but the changes are small (Figure 6.7).

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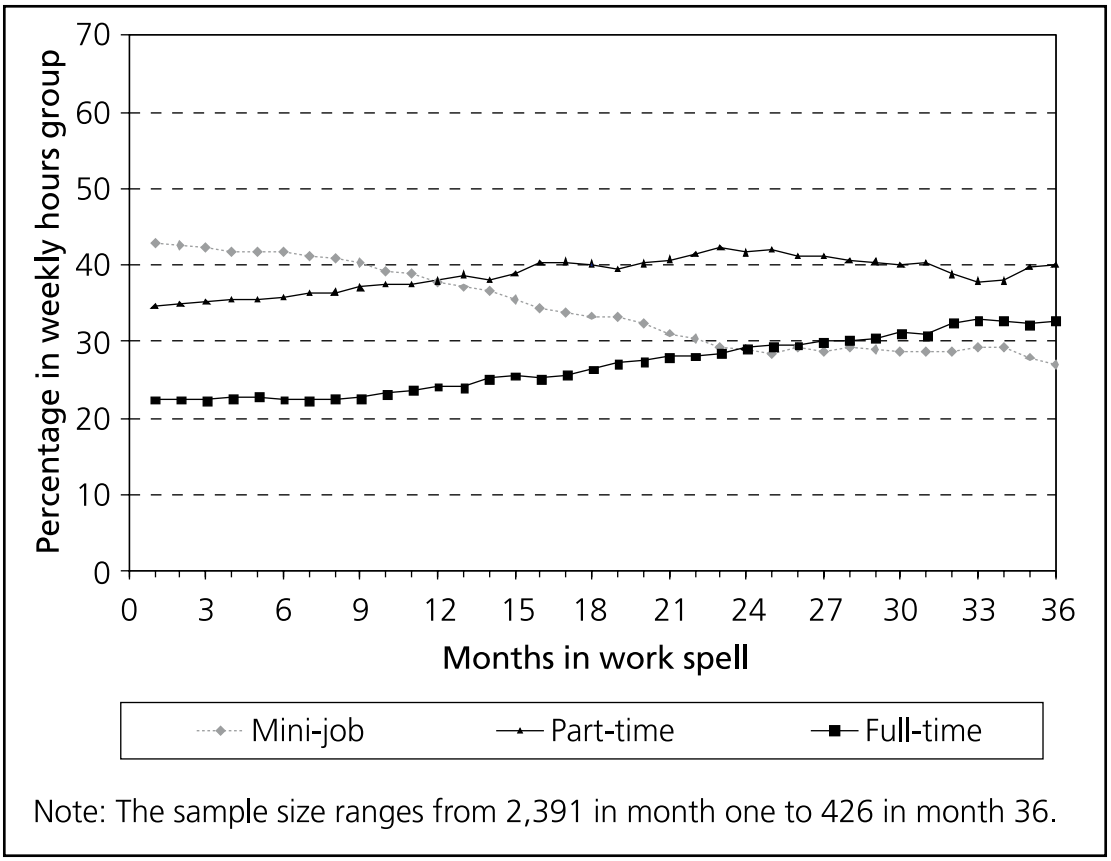
[37] It should be noted that the more conventionally used part-time measure (less than 30 hours each week) has here been divided into mini-jobs and a part-time measure defined as excluding those below 16 hours each week.

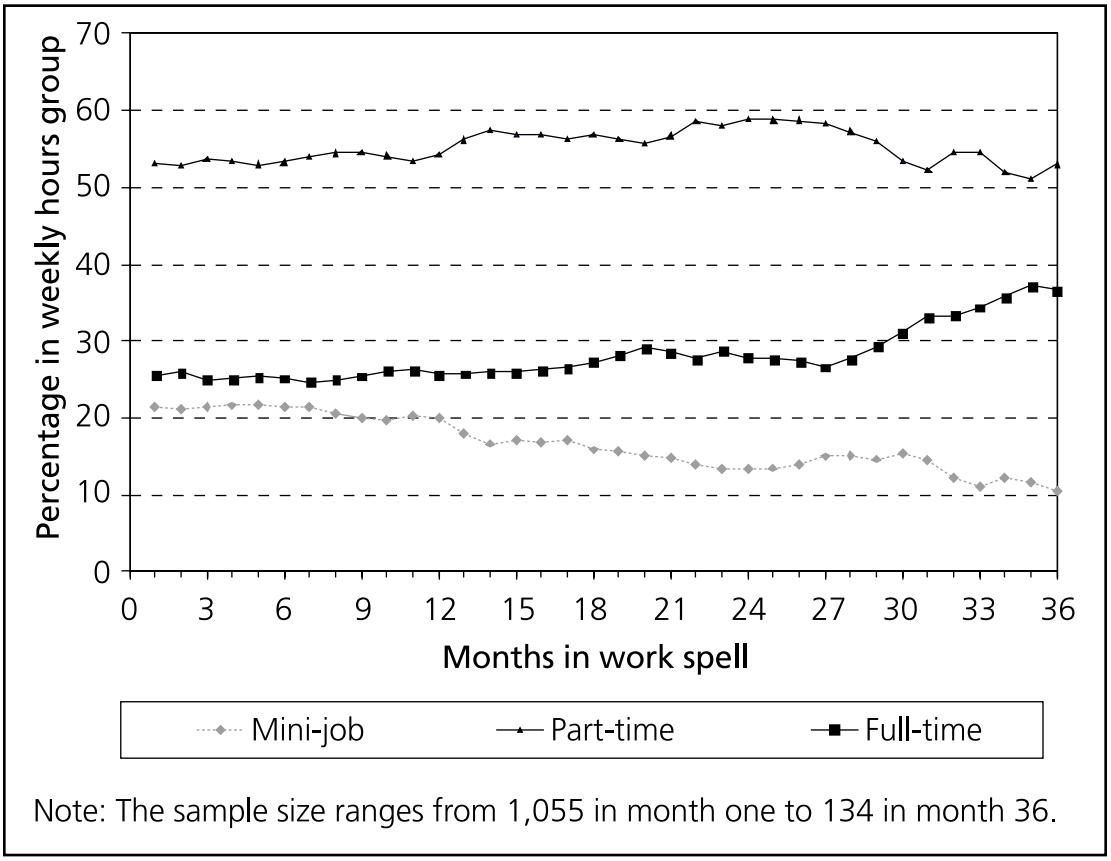
[38] Analysis similar to that shown in Figures 6.2 to 6.4 conditioning the working hours on spell length showed that there were no marked selection effects in the hours worked for mothers in couples or for the other two parent types.

Figure 6.5 Weekly work hours: mothers in couples



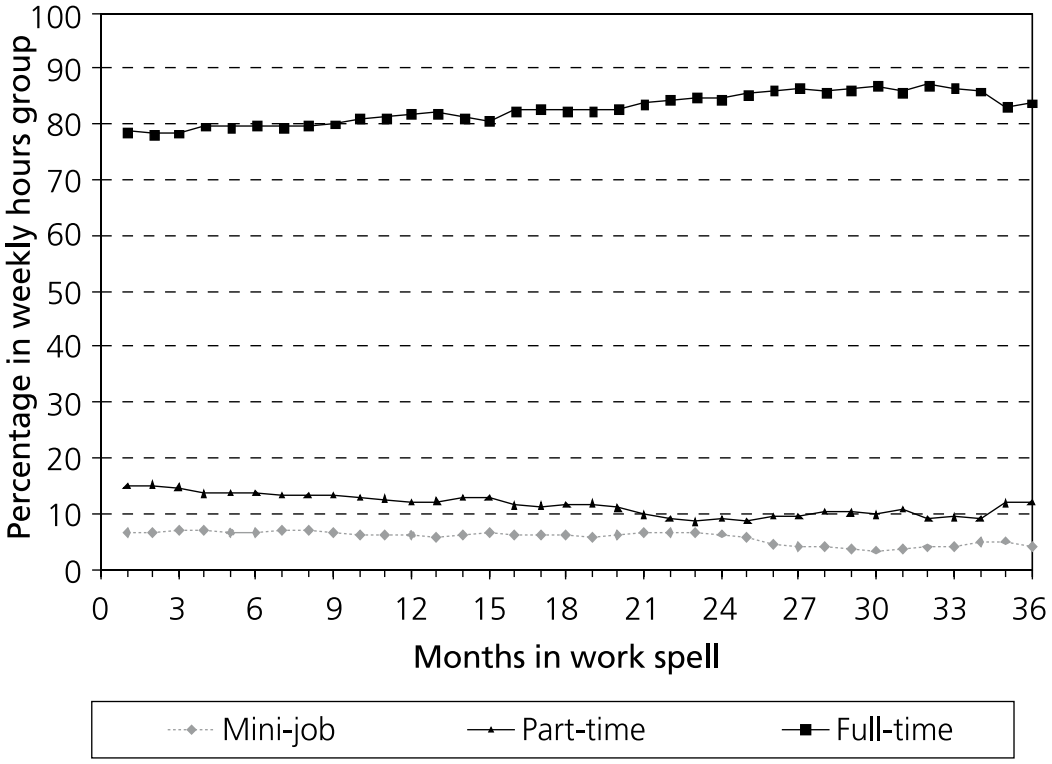
Note: The sample size ranges from 2,391 in month one to 426 in month 36.

Figure 6.6 Weekly work hours: lone mothers



Note: The sample size ranges from 1,055 in month one to 134 in month 36.

Figure 6.7 Weekly work hours: fathers



Note: The sample size ranges from 1,000 in month one to 174 in month 36.

As was the case with poverty status, the aggregate proportions in each hours group could mask turnover in the individuals in each group and, while on average, mothers generally increase their weekly work hours as the work spell lengthens, it is possible that some mothers may reduce their hours. Table 6.3 investigates the dynamics in work hours, presenting the pattern of transitions between the month of work entry and one year, two years and three years after the start of the work spell.

More than half of mothers in couples and lone mothers (55 per cent and 60 per cent respectively) remain working in the same hours groups throughout the first three years following a work entry (Table 6.3). By the end of three years, mothers in couples with unchanged hours group are almost equally likely to be in any of the categories, due to a fall in the proportions always working in mini-jobs or part-time since the start of the spell. In contrast, lone mothers with unchanging hours group are considerably more likely to have remained in part-time work throughout the three years. The vast majority of fathers (81 per cent) remain in the same hours group throughout the three years, with almost three-quarters having worked full-time throughout the period.

Table 6.3 Weekly hours transitions within work

Percentage with transitions between weekly hours groups	Mothers in couples After years			Lone mothers After years			Fathers After years		
	1	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
No transitions									
Always in mini-job (MJ)	35	24	19	18	12	10	5	4	2
Always part-time (PT)	30	24	18	49	44	35	10	6	5
Always full-time (FT)	19	18	17	21	17	15	78	75	74
Total	**84**	**65**	**55**	**87**	**73**	**60**	**93**	**85**	**81**
Moving up hours									
MJ to PT	5	11	12	2	4	5	1	1	1
MJ to FT	1	3	2	1	2	1	0	1	1
PT to FT	3	6	8	4	7	10	2	5	4
MJ to PT to FT	0	1	2	0	0	1	0	0	1
Total	**10**	**20**	**24**	**6**	**13**	**17**	**4**	**7**	**6**
Moving down hours									
FT to PT	2	4	4	3	6	4	1	2	3
FT to MJ	0	1	0	1	0	0	0	0	0
PT to MJ	2	3	3	2	0	1	1	2	1
FT to PT to MJ	0	0	0	0	0	0	0	1	0
Total	**5**	**8**	**7**	**5**	**7**	**4**	**2**	**4**	**4**
Transitions both up and down	**1**	**7**	**14**	**1**	**6**	**19**	**1**	**4**	**8**
Additional item: percentage in mini-job at some point	45	47	49	23	23	25	8	10	7
Number of observations	1,314	747	420	513	255	134	535	298	174

Notes: The transitions capture all monthly changes in hours group between work entry and one year, two years and three years respectively. The totals from the four rows in bold sum to 100 per cent (subject to rounding).

As reflected in the upward aggregate trends in work hours over the work spell, almost a quarter (24 per cent) of mothers in couples and 17 per cent of lone mothers move in a single direction up the hours groups during the three years, while the less dynamic trends in the aggregate statistics for fathers reflect that only six per cent of fathers simply move up hours. For mothers in couples, the predominant movement is from mini-job to part-time, while for lone mothers and fathers, the most common upward movement is from part-time to full-time. For all types of parents, very few jump straight from mini-job to full-time or make two gradual steps from mini-job to part-time to full-time. Much smaller, but not unimportant, fractions of parents move down the hours groups, the most common pattern being from full-time to part-time. For fathers, the proportions making a single movement down the hours groups almost balance those moving up.

Most surprising, however, are the substantial proportions of all types of parents who have transitions in both directions. Consequently, large and similar proportions of mothers in couples and lone mothers make at least one move up the hours groups in the three years (38 per cent and 36 per cent respectively), while substantial and, again, similar proportions make at least one move down the hours groups (22 per cent and 23 per cent respectively). Sizeable proportions of fathers also make at least one transition to a longer hours group (14 per cent) or at least one transition to a shorter hours group (13 per cent).

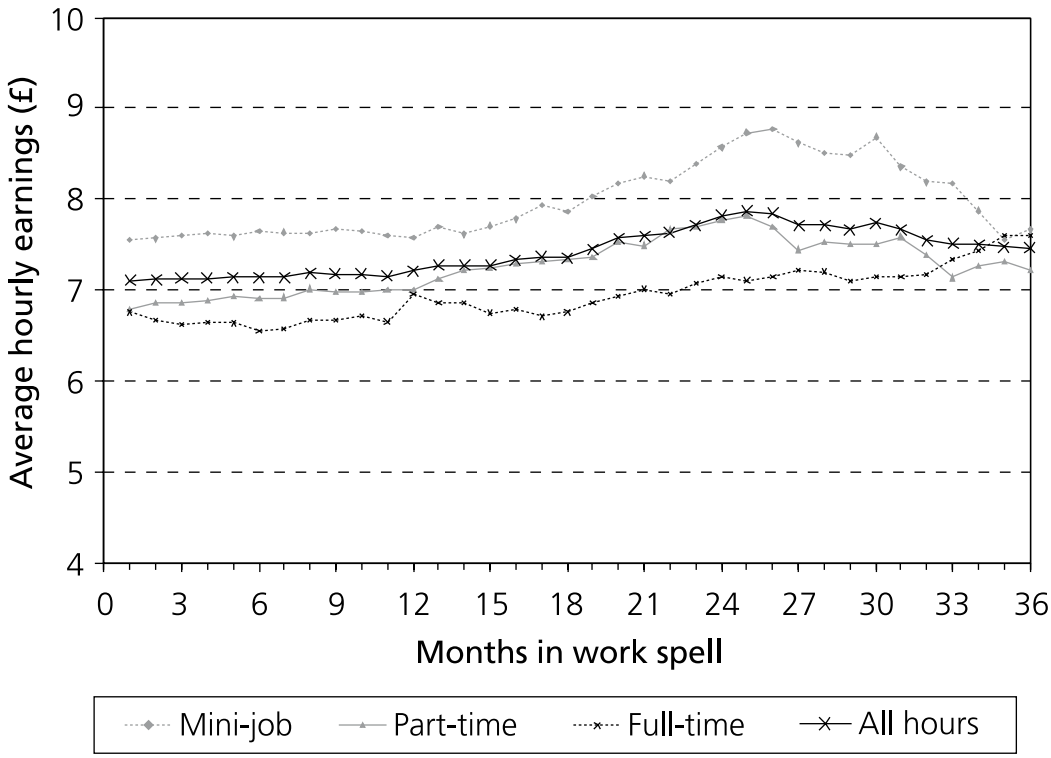
Hence, the evidence suggests that there is considerable turnover between the three major hours groups, particularly for mothers, showing that, while many parents make major progression in terms of work hours during the first three years following work entry, sizeable proportions have reasons to substantially reduce their weekly work hours.

Table 6.3 also shows that almost one-half of mothers in couples and a quarter of lone mothers work in mini-jobs at some point during the first three years in the work spell. This reiterates further the importance of mini-jobs for mothers returning to work, both for policy in terms of the lack of eligibility for tax credits for this group and for analysis that is restricted to only those working 16 or more hours each week in terms of potentially omitting a substantial proportion of working mothers.

Figures 6.8 to 6.10 present the average hourly earnings over the work spell for each hours group. The sample contains all those working in the hours category in the month in the work spell. The earnings measure is indexed so that the figures show changes in real terms.[39] The average hourly earnings are not presented for mini-jobs for fathers because of the small sample size.

[39] In addition, the hourly earnings were trimmed to those of £50 or less as a very small number of high outliers introduced considerable randomness into the hourly earnings profiles.

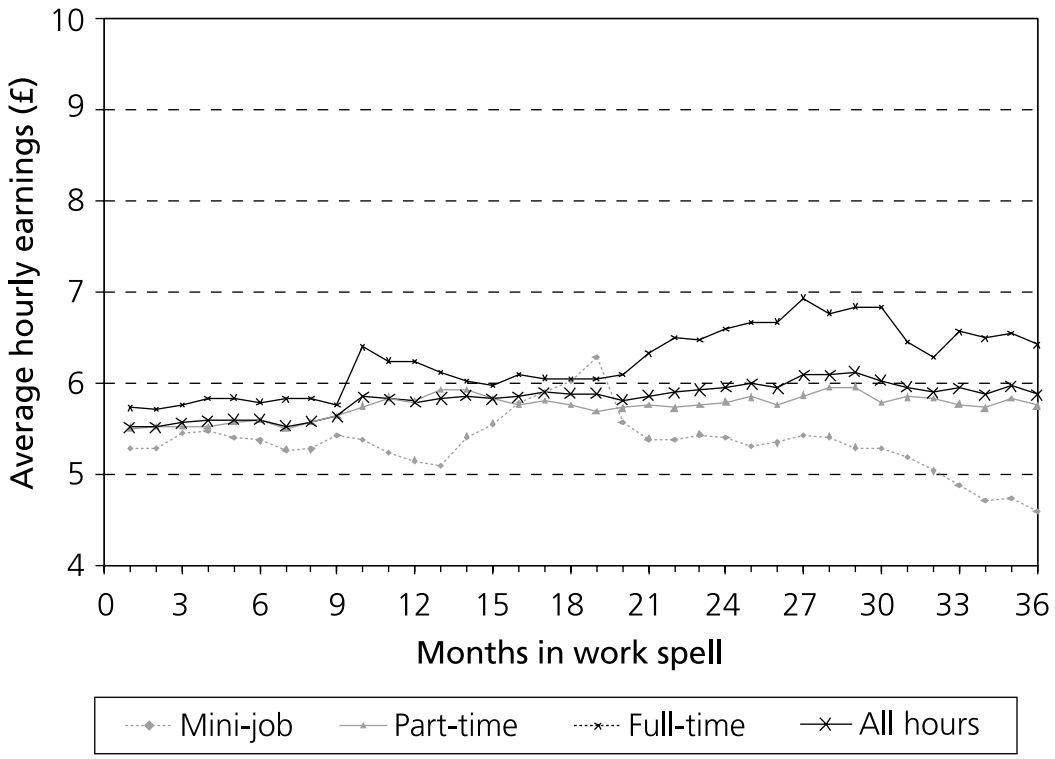
Figure 6.8 Average hourly earnings by weekly hours group: mothers in couples



Notes: The sample contains all those working in the hours category in the month in the work spell. The sample size ranges from 2,391 in month one to 426 in month 36.

Surprisingly, the average hourly earnings for mothers in couples are higher for those in mini-jobs than for those in part-time work, while those in part-time work have higher average hourly earnings than those in full-time work in most months (Figure 6.8). However, while the average hourly earnings rise in the second year for all three hours groups, they decline in the third year for those in mini-jobs and part-time work, while they show some growth for those in full-time work. Averaging over all hours groups, average hourly earnings for mothers in couples rise substantially only in the second year and they fall to a lesser degree in the third year.

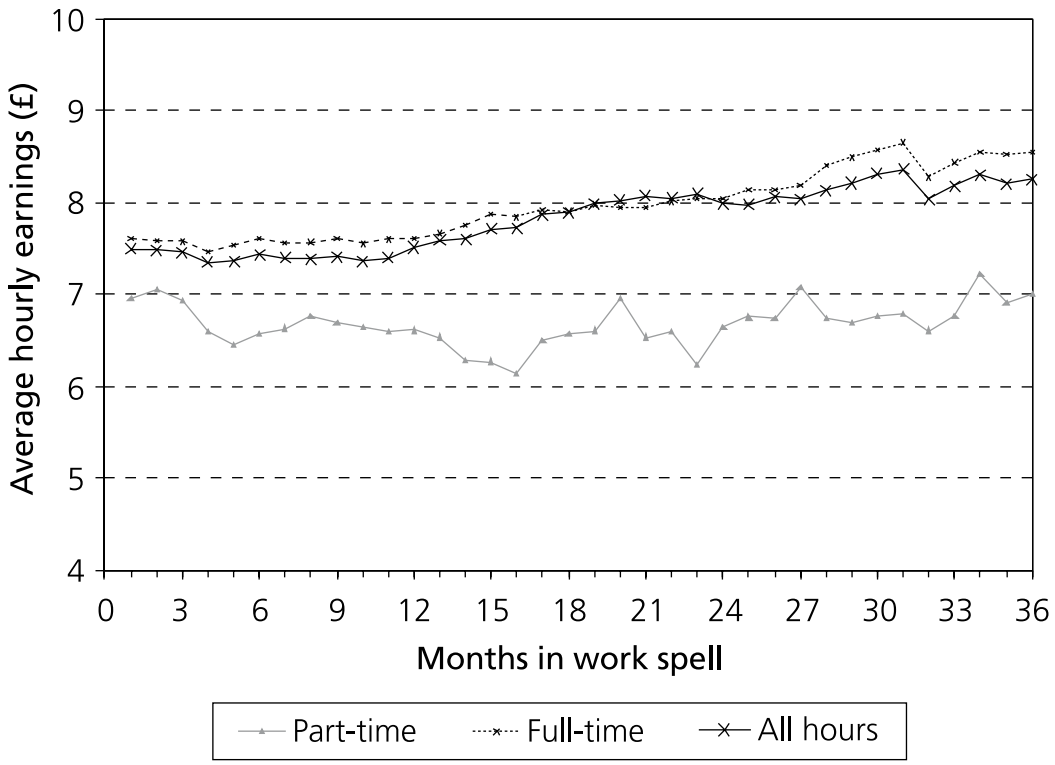
Figure 6.9 Average hourly earnings by weekly hours group: lone mothers



Notes: The sample contains all those working in the hours category in the month in the work spell. The sample size ranges from 1,055 in month one to 134 in month 36.

For lone mothers, full-time work has the highest hourly earnings in all bar one month, with average earnings for part-time work higher than those for mini-jobs in most months (Figure 6.9). Average hourly earnings in full-time work grow steadily between about six months and just over two years, while those for part-time do not rise to any substantial degree and those for mini-jobs fall during the third year, leading to a much wider gap between the hours groups by the end of the three years. Averaging over all hours groups, hourly earnings for lone mothers rise gradually for the first two years, but decline slightly in the third year.

Figure 6.10 Average hourly earnings by weekly hours group: fathers



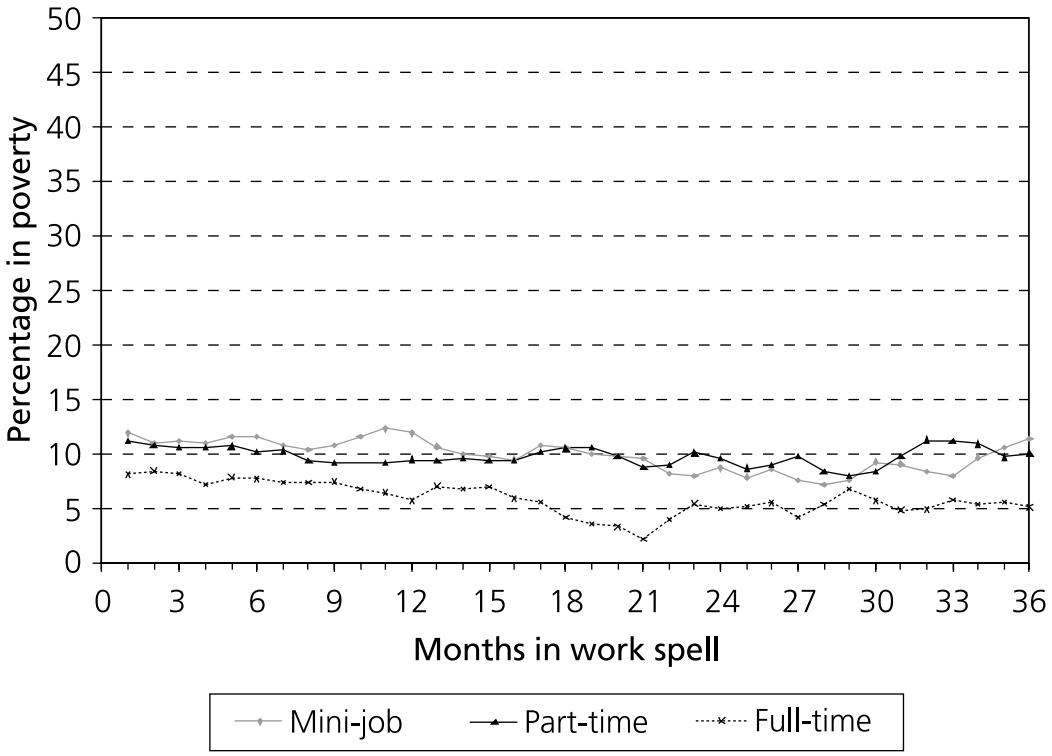
Notes: The sample contains all those working in the hours category in the month in the work spell. The sample size ranges from 929 in month one to 167 in month 36.

For fathers, the closeness of the full-time and all-hours lines shows the predominance of full-time work for this group. Full-time work has higher average hourly earnings than part-time work throughout the period. Average hourly earnings in full-time work rise quite steadily over the period, while in part-time work they initially fall after work entry before gradually rising again to their initial level.

Hence, the pattern of average hourly earnings matches prior expectations for lone mothers and fathers, with full-time work paying more per hour than part-time work or mini-jobs and full-time hourly earnings rising, on average, with work retention. For mothers in couples, the differences in hourly earnings at the start of the work spell run counter to expectations, but the greater growth for full-time work means that there is little difference between the three hours categories after three years.

Figures 6.11 to 6.13 present poverty rates by weekly hours group over the first three years following work entry for each parent type. Again, the sample contains all those working in the hours category in the month in the work spell. The poverty rate for fathers in mini-jobs is not presented due to the small sample size. Figure 6.11 for mothers in couples has been specifically scaled to facilitate comparisons with the other two types of parents.

Figure 6.11 Poverty rate by weekly hours group: mothers in couples



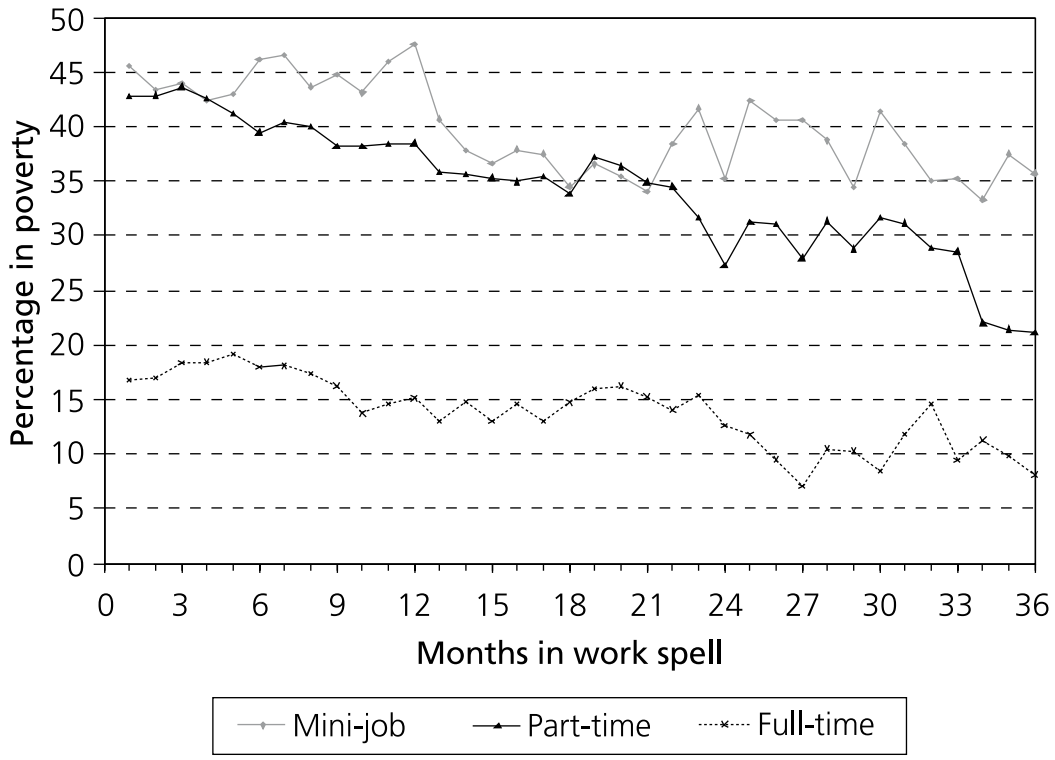
Notes: The sample contains all those working in the hours category in the month in the work spell. The sample size ranges from 2,391 in month one to 426 in month 36.

For all three parent types, the poverty rate is lower for those in full-time work than for those in part-time work or mini-jobs, but the difference is much smaller for mothers in couples than for lone parents or fathers. For mothers in couples, the lower poverty rate reflects the fact that the effect of lower hourly earnings on overall earnings for those in full-time work (shown in Figure 6.8) is more than offset by the effect of longer hours generating higher overall earnings. It also partly reflects that the poverty status for mothers in couples is in large part determined by other family income rather than by their own earnings. Interestingly, the poverty rates for lone mothers and fathers in full-time work are broadly similar in spite of fathers in full-time work having higher average hourly earnings than lone mothers (shown in Figures 6.9 and 6.10). The considerably lower poverty rates for those in full-time work than in mini-jobs or part-time work for both types of parents reflect both slightly higher hourly earnings for those in full-time work and the longer hours generating higher total earnings.

For mothers in couples, there is little difference in the poverty rate between those in part-time work and those in mini-jobs, partly reflecting the higher hourly earnings for these mothers in mini-jobs than in part-time work and, possibly, that

the additional hours in part-time work over mini-jobs are not sufficient to affect the poverty status. However, the similarity between the two shorter hours groups may mostly reflect, again, the importance of other family income in determining poverty status for mothers in couples. For lone mothers, the poverty rate is generally higher for those in mini-jobs than for those in part-time work, but the pattern of this difference over the months mirrors that of the difference in hourly earnings (shown in Figure 6.9), suggesting that it may be the hourly earnings differential rather than the actual difference in hours which explains the difference in poverty rates for lone mothers.

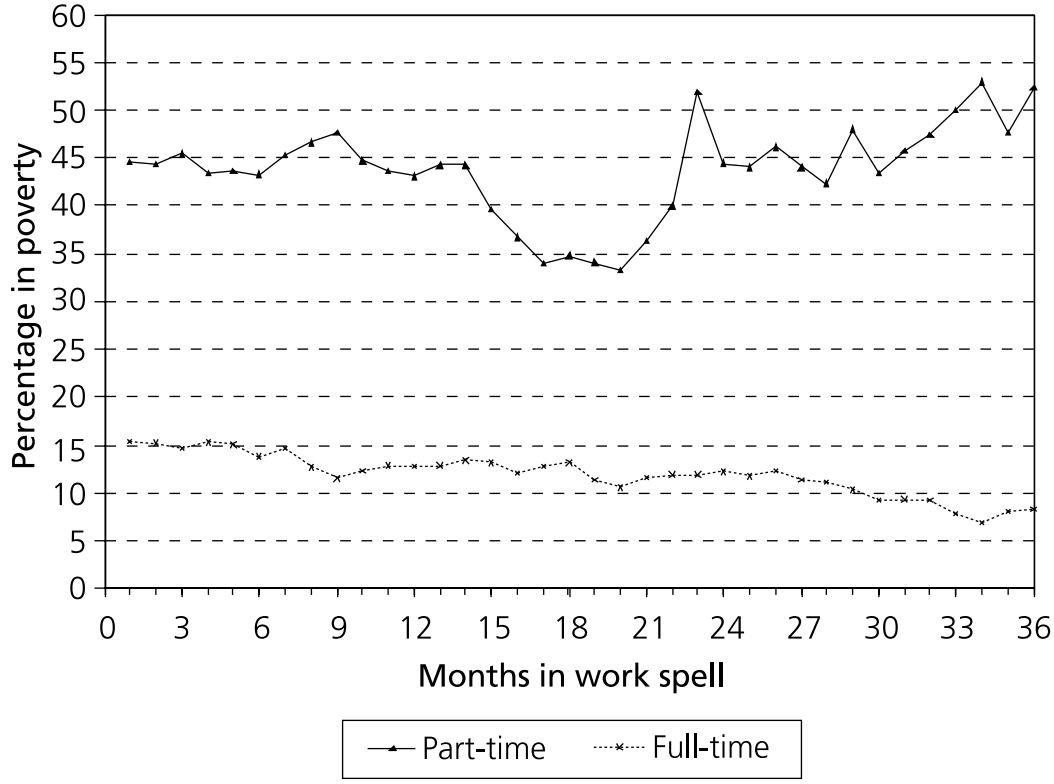
Figure 6.12 Poverty rate by weekly hours group: lone mothers



Notes: The sample contains all those working in the hours category in the month in the work spell. The sample size ranges from 1,055 in month one to 134 in month 36.

For all three parent types, the proportions of those in full-time work who are in poverty declines over the work spell. This may reflect a combination of several factors: a work selection effect (those in poverty are less likely to remain in work); an hours selection effect (those with higher hourly earnings may be more likely to increase their hours to full-time); a rise in hourly earnings for those in full-time work (shown in Figures 6.8 to 6.10); and, particularly for mothers in couples, a rise in other family income over time.

Figure 6.13 Poverty rate by weekly hours group: fathers



Notes: The sample contains all those working in the hours category in the month in the work spell. The sample size ranges from 929 in month one to 167 in month 36.

For mothers in couples, the proportions of those in part-time work and of those in mini-jobs who are in poverty reflect the trends in the hourly earnings for these groups, with gradual declines in the poverty rate until around 30 months after work entry followed by a sharp rise almost back to initial levels by the end of three years. For fathers, the poverty rate among part-time workers is actually higher after three years than at the point of work entry. Therefore, among these two groups, it is those not in full-time work who seem to be driving the upturn discussed in relation to Figure 6.1. In contrast, the poverty rate among lone mothers working part-time halves over the period, while the proportion in poverty also declines quite notably for lone mothers in mini-jobs.

Overall, for all types of parents, full-time work is associated with a steady decline in the poverty rate over the work spell. For lone mothers, part-time work and mini-jobs are associated with even more substantial reductions in the poverty rate as time in work lengthens. However, for mothers in couples and fathers, poverty rates tend to increase among those working less than 30 hours per week after two years in work, as illustrated in Figures 6.11 and 6.13. These trends may be due to genuine movements into or out of poverty for those remaining working in a particular hours group or could be due to selection effects and changes in

the composition of individual parents working at the different hours levels. The following section attempts to identify the degree to which movements out of poverty are associated with different hours levels and with changes in weekly hours.

6.3 Poverty transitions following work entry

The investigation of poverty dynamics within work spells has not only shown substantial changes in the aggregate poverty rate within work spells, but also highlighted a high degree of movement both out of poverty and into poverty for parents who are continuously working. This section considers how these movements are related to family background, work characteristics and work progression.

This examination presents the differences across these variables in the proportions of those initially in poverty who leave poverty (the percentage poverty exit rate) and the proportions of those initially not in poverty who enter poverty (the percentage poverty entry rate). These poverty exit and entry rates are measured on a monthly basis for the demographic and work characteristics, but on an (approximately) annual basis for the work progression variables, partly because of limitations in the data (described in Section 6.3.3) and partly to allow for a time lag in the effects.

For all three groups of characteristics, the results from logistic regression models for the likelihood of poverty entry and for the likelihood of poverty exit are also presented, identifying which factors are statistically significantly important for the poverty transitions controlling for related differences in the other characteristics. The results presented are for samples of all workers, but the models were also estimated for samples of only workers with weekly work hours of 16 or more and any differences in the results from the main sample are listed in the table notes.[40]

One important caveat to note is that the base sample for the poverty exit rate is individuals in poverty in the initial month, which, in some cases and for some characteristics, can be quite small and makes it less likely that significant factors will be identified. The small sample size also meant that the analysis of the work characteristics and work progression could not be disaggregated by parent type.

6.3.1 Demographic background

On average over the three years of a work spell, five per cent of parents in poverty in one month will not be in poverty in the following month and one per cent of parents not in poverty in one month will be in poverty in the following month. Tables 6.4 and 6.5 present these monthly poverty exit and poverty entry rates by demographic characteristics and show which types of families are most likely to move out of or into poverty during the first three years of a work spell. The rates are presented to one decimal place to highlight differences in the very low percentages.

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[40] The restricted sample for the changes in work characteristics and training models included only those with weekly hours of 16 or more at both the beginning of the period and at the end.

Table 6.4 Monthly poverty exit rates within work spells by demographic background

Demographic characteristic in initial month	Percentage poverty exit rate	Significant factors in the probability of poverty exit controlling for differences in other factors
Mothers in couples	5.9	Mothers in couples more likely to exit than
Lone mothers	4.0	lone mothers
Fathers	4.6	
Youngest child's age		Not significant
Less than 5 years	5.1	
5 to 11 years	4.3	
Over 11 years	4.8	
Number of children		Not significant
1 child	4.8	
2 children	5.1	
3+ children	4.2	
Age		Not significant
Less than 30 years	4.6	
30 to 45 years	4.8	
Over 45 years	4.7	
Highest qualification		Probability of exit rises with education level
None	4.0	
NVQ 1/below GCSE	5.1	
NVQ 2/GCSE	4.6	
NVQ 3 / A levels	4.7	
NVQ 4/5	5.3	
College	7.1	
White ethnic group	5.0	White group more likely to exit than other
Black ethnic group	2.9	group
Other ethnic group	2.1	
Owner-occupier	5.4	Not significant
Rented/other housing	4.3	
No health problem	4.7	Not significant
Health problem	5.0	

Continued

Table 6.4 Continued

Demographic characteristic in initial month	Percentage poverty exit rate	Significant factors in the probability of poverty exit controlling for differences in other factors
Financial year 2001–02	3.9	More likely to exit:
Financial year 2002–03	6.8	in 02–03 than 01–02, 05–06, 06–07;
Financial year 2003–04	4.9	in 03–04 than 06–07;
Financial year 2004–05	5.0	in 04–05 than 05–06, 06–07;
Financial year 2005–06	4.2	in 05–06 than 06–07
Financial year 2006–07	2.8	

Notes: Factors are defined as significant at the five per cent level in a logistic regression model for the probability of poverty exit including all the factors as explanatory variables. The model contained 10,731 observations. Youngest child's age, the number of children, age and highest qualification were included as continuous variables. There are several differences in the significance of the factors in the model estimated for the sample with weekly work hours of 16 or more (sample size 7,663): fathers are more likely to exit than lone mothers; black ethnic group is more likely to exit than other ethnic group; owner-occupiers are more likely to exit than those in rented/other housing; education is not significant; and poverty exits are more likely in 2002–03 than in 2003–04 and 2004–05 and there is no significant difference between 2004–05 and 2005–06. The differences in the significance of the factors in a model for the whole sample with only year dummies are that there were no significant differences in poverty exits between 2004–05 and 2005–06 but poverty exits were more likely in 2002–03 than in 2003–04 or 2004–05.

Table 6.5 Monthly poverty entry rates within work spells by demographic background

Demographic characteristic in initial month	Percentage poverty entry rate	Significant factors in the probability of poverty entry controlling for differences in other factors
Mothers in couples	0.6	Mothers in couples less likely to enter than
Lone mothers	1.7	lone mothers or fathers. Fathers less likely
Fathers	1.1	to enter than lone mothers.
Youngest child's age		Probability of entry rises with age of
Less than 5 years	0.8	youngest child
5 to 11 years	1.0	
Over 11 years	1.0	
Number of children		Probability of entry rises with number of
1 child	0.8	children
2 children	0.8	
3+ children	1.3	

Continued

Table 6.5 Monthly poverty entry rates within work spells by demographic background

Demographic characteristic in initial month	Percentage poverty entry rate	Significant factors in the probability of poverty entry controlling for differences in other factors
Age		Not significant
Less than 30 years	1.1	
30 to 45 years	0.8	
Over 45 years	1.0	
Highest qualification		Probability of entry falls with education level
None	1.5	
NVQ 1/below GCSE	1.5	
NVQ 2/GCSE	1.0	
NVQ 3/A levels	0.8	
NVQ 4/5	0.7	
College	0.3	
White ethnic group	0.9	Black group less likely to enter than other group
Black ethnic group	0.4	
Other ethnic group	1.3	
Owner-occupier	0.6	Owner-occupier less likely to enter than rented/other housing
Rented/other housing	1.6	
No health problem	0.9	Not significant
Health problem	1.1	
Financial year 2001–02	1.3	More likely to enter:
Financial year 2002–03	1.4	in 01–02 than 03–04, 04–05;
Financial year 2003–04	0.7	in 02–03 than 03–04, 04–05, 05–06;
Financial year 2004–05	0.8	in 06–07 than in 03–04
Financial year 2005–06	0.7	
Financial year 2006–07	0.9	

Notes: Factors are defined as significant at the five per cent level in a logistic regression model for the probability of poverty entry including all the factors as explanatory variables. The model contained 56,189 observations. Youngest child's age, the number of children, age and highest qualification were included as continuous variables. There are several differences in the significance of the factors in the model estimated for the sample with weekly work hours of 16 or more (sample size 41,393): lone mothers and fathers show no difference; age of youngest child is not significant; and poverty entries are more likely in 2006–07 than in 2005–06. The differences in the significance of the factors in a model for the whole sample with only year dummies are that there was no significant difference between 2003–04 and 2006–07 but entries were more likely in 2002–03 than in 2006–07.

The results from regression models identifying statistically significant factors controlling for other characteristics show that:

- mothers in couples are more likely to exit poverty than lone mothers. The poverty exit rate for mothers in couples is 5.9 per cent compared with 4.0 per cent for lone mothers, while fathers have an intermediate exit rate of 4.6 per cent (although not statistically significantly different from either group of mothers). On the other hand, mothers in couples have the lowest poverty entry rate (0.6 per cent) and lone mothers the highest (1.7 per cent), with, again, fathers in the intermediate position with a poverty entry rate of 1.1 per cent;
- the likelihood of poverty exit is not related to the age of the youngest child, but the poverty entry rate rises with the age of the youngest child;
- the likelihood of poverty exit is not related to the number of children, but the poverty entry rate rises with the number of children;
- parents' age is not a significant factor in the likelihood of poverty exit or entry;
- the likelihood of poverty exit rises and the likelihood of poverty entry falls with the highest qualification level of the parent. The differences across qualification group are quite substantial: the poverty exit rate is 4.0 per cent for those with no qualifications compared with 7.1 per cent for the college-educated, while the poverty entry rates are 1.5 per cent and 0.3 per cent for the two groups respectively;
- parents of white ethnicity are more likely to exit poverty than those of other (non-white and non-black) ethnicity, while those of black ethnicity are less likely to enter poverty than the other ethnicity group;
- parents' health is not a significant factor in the likelihood of poverty exit or entry;
- type of housing is not significant for poverty exit, but owner-occupiers are less likely to enter poverty than those in rented or other types of housing;
- poverty exits were particularly likely to occur in 2002–03 and particularly unlikely in 2006–07. However, poverty entries were also more likely to occur in 2002–03 than most other years.

6.3.2 Work characteristics

Tables 6.6 and 6.7 present the monthly poverty exit and poverty entry rates by work characteristics and show which types of work are most closely associated with poverty transitions during the first three years of a work spell. It should be noted that the characteristics are measured in the initial month of the pair[41] and may reflect characteristics most conducive to poverty transitions within that characteristic or may reflect those with the greatest potential for change with

[41] Most of the work characteristics are those reported at the closest interview in the same work spell, with the exception that hours and hourly earnings may be retrospectively reported for work spells falling between interviews.

improvement or deterioration in earnings. For example, full-time work may have a higher poverty exit rate because there are more opportunities for earnings growth within full-time work, but, on the other hand, part-time work may have a higher poverty exit rate because it has greater potential to increase hours. As was the case with the models for work entry in Chapter 5, the regression models were also estimated without the time spent out of work, hourly earnings and weekly hours variables in order to identify whether the remaining characteristics were important because of an association with these factors. As in Tables 6.4 and 6.5, the rates are presented to one decimal place to highlight differences in the very low percentages.

Table 6.6 Monthly poverty exit rates within work spells by work characteristics

Work characteristic in initial month	Percentage poverty exit rate	Significant factors in the probability of poverty exit controlling for differences in other factors
Time spent out of work		Probability of exit falls with time out of work
Less than 6 months	5.5	
6 to 48 months	5.2	
More than 48 months	3.7	
Hourly earnings		Probability of exit rises with hourly earnings
Less than £4	4.0	
£4 to £6	4.8	
Greater than £6	5.9	
Weekly hours		Full-time more likely to exit than those in
Mini-job (1–15 hours)	5.1	mini-jobs or part-time
Part-time (16–29 hours)	4.0	[Part-time less likely to exit than mini-jobs in
Full-time (30+ hours)	6.0	model without hourly earnings]
Employed	4.7	Not significant
Self-employed	4.8	
Non-permanent work	3.9	Not significant
Permanent work	4.9	
Non-supervisory role	4.6	Not significant
Supervisory role	4.6	

Continued

Table 6.6 Continued

Work characteristic in initial month	Percentage poverty exit rate	Significant factors in the probability of poverty exit controlling for differences in other factors
Firm size		Probability of exit rises with firm size
1–9 employees	3.8	
10–24 employees	5.0	
25–499 employees	5.1	
500+ employees	4.7	

Notes: Factors are defined as significant at the five per cent level in a logistic regression model for the probability of poverty exit including all the factors as explanatory variables. The model contained 10,183 observations. Time spent out of work, hourly earnings and firm size were included as continuous variables. Supervisory role and the permanency of position are not recorded for the self-employed in the survey and these were assumed to be non-supervisory and permanent for the self-employed. There are no differences in the significance of the factors in the model estimated for the sample with weekly work hours of 16 or more (sample size 7,411). There were no differences in the significance of the factors in the model without the time-out-of-work variable; in the model without the weekly hours variable and in the model without hourly earnings and weekly hours. The only difference in the significance of the factors in the model without hourly earnings was that the probability of exit was smaller for those in part-time work than for those in mini-jobs.

Table 6.7 Monthly poverty entry rates within work spells by work characteristics

Work characteristic in initial month	Percentage poverty entry rate	Significant factors in the probability of poverty entry controlling for differences in other factors
Time spent out of work		Probability of entry rises with time out of work
Less than 6 months	0.8	
6 to 48 months	0.9	
More than 48 months	1.1	
Hourly earnings		Probability of entry falls with hourly earnings
Less than £4	1.5	
£4 to £6	1.3	
Greater than £6	0.5	
Weekly hours		Part-time more likely to enter than those in
Mini-job (1–15 hours)	0.8	mini-jobs or full-time
Part-time (16–29 hours)	1.1	
Full-time (30+ hours)	0.8	
Employed	0.9	Not significant
Self-employed	0.9	

Continued

Table 6.7 Continued

Work characteristic in initial month	Percentage poverty entry rate	Significant factors in the probability of poverty entry controlling for differences in other factors
Non-permanent work	0.8	Not significant
Permanent work	0.9	
Non-supervisory role	0.9	Not significant
Supervisory role	0.7	[Supervisory less likely to enter in model without hourly earnings]
Firm size		
1–9 employees	1.0	Not significant
10–24 employees	0.8	[Probability of entry falls with firm size in models without hourly earnings]
25–499 employees	0.8	
500+ employees	0.6	

Notes: Factors are defined as significant at the five per cent level in a logistic regression model for the probability of poverty entry including all the factors as explanatory variables. The model contained 53,762 observations. Time spent out of work, hourly earnings and firm size were included as continuous variables. Supervisory role and the permanency of position are not recorded for the self-employed in the survey and these were assumed to be non-supervisory and permanent for the self-employed. The only difference in significance of the factors in the model estimated for the sample with weekly work hours of 16 or more (sample size 39,700) is that time spent out of work is not significant. There were no differences in the significance of the factors in the model without the time-out-of-work variable and in the model without the weekly hours variable. The only differences in the significance of the factors in the model without hourly earnings and in the model without hourly earnings and weekly hours were that the probability of entry is smaller for those in supervisory roles and falls with firm size.

The results from regression models identifying statistically significant factors controlling for other characteristics show that:

- the likelihood of poverty exit falls and the likelihood of poverty entry rises with the time spent out of work prior to the work entry;
- the likelihood of poverty exit rises and the likelihood of poverty entry falls with hourly earnings;
- those in full-time work are more likely to exit poverty than those in mini-jobs or part-time work. Interestingly, those in part-time work are less likely to exit poverty than those in mini-jobs, but this is explained by an association with higher hourly earnings for those in mini-jobs than those in part-time work. On the other hand, those in part-time work are more likely to enter poverty than those in mini-jobs or those working full-time;
- there is no difference in the poverty exit or entry rates between those who are employed and those who are self-employed;

- there is no difference in the poverty exit or entry rates between those who are in permanent work and those who are in non-permanent work;
- there is no difference in the poverty exit rate between those who are in supervisory roles and those in non-supervisory roles. Those in supervisory roles are less likely to enter poverty, but this is explained by an association with higher hourly earnings for those in supervisory work;
- the likelihood of poverty exit rises with firm size. The likelihood of poverty entry falls with firm size, but this is explained by an association with higher hourly earnings for those in larger firms.

6.3.3 Work progression

Having examined which types of families and which types of work are most closely associated with poverty transitions during the first three years in a spell of work, the next step is to consider how important work progression (or deterioration) is to the likelihood of escaping (or falling into) poverty. The measures of work progression considered here are divided into changes in work characteristics and training variables. The changes in work characteristics include changes in hourly earnings, changes in weekly hours, movements between supervisory and non-supervisory roles, movements between permanent and non-permanent positions,[42] changes in firm size, and changes in job,[43] occupation or industry. The training variables include whether the individual had undertaken any job-related training in the past 12 months, the type of this training in terms of whether it was on the job or away from the job, the amount of time spent in this training[44] and the number of educational or training courses undertaken in the past 12 months.[45] As the only work characteristics reported for job spells falling completely between interviews are earnings and hours, changes in the remaining

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42 Information on supervisory role and the permanency of position is only recorded for the employed in the FACS survey and the self-employed were assigned as non-supervisory, permanent positions for the estimation of the regression models.

43 A change in job is defined as a movement between different employers or between employment and self-employment.

44 The information on job-related training was collected in the work section of the survey for the employed and is assumed to be zero for the self-employed in the regression models.

45 Questions about educational and training courses are included in the qualifications section of the questionnaire. The survey also asked whether courses were completed, but this information was not used as completion depended upon whether the course was ongoing at the time of interview. There were also questions about the level of qualifications worked towards or obtained, but these had no clear relationships with the poverty dynamics and have been omitted from this report.

work variables can only occur once between each interview. Similarly, the training variables are only recorded once at the time of interview and refer to the gap since the previous interview. Consequently, changes between the interviews (which are approximately annual[46]) are used to analyse the relationships between poverty transitions and work progression and the sample consists of one observation for each pair of interviews within the first 36 months of a work spell.[47]

Before analysing work progression, it is important to note that poverty transitions following work entry may occur for reasons unrelated to the work behaviour of the parent under consideration, including changes in family structure and changes in other family income. Table 6.8 provides a decomposition of the poverty transitions observed between (roughly annual) interviews during the first three years of work spells into those associated with changes in the number of children[48] and those with a constant number of children but associated with different types of changes in the earnings of the parent under consideration (referred to below as 'own earnings'). Changes in the number of children impact on the family poverty status through the equivalence scale and are treated as the first categorisation factor before all others because a change in equivalence scale has such a large impact relative to changes in earnings or other family income. Poverty exits for families without any change in the number of children are then categorised into four types where:

- a rise in own earnings is sufficient to lift family income from the previous year's level to above the current poverty line (earnings change alone sufficient);
- a rise in own earnings is only sufficient to raise income above the poverty line in combination with a rise in other income (earnings change not sufficient but required);
- there is a rise in own earnings, but a rise in other family income would alone be sufficient to raise income above the poverty line (earnings change contributes but not required);

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46 Almost all interviews are conducted between September and December, but not necessarily always in the same month for each family; hence, the gap between interviews is only approximately one year.

47 A considerable drawback of using these annual changes is the smaller sample sizes (as shown in the bottom row of Table 6.8). As the training variables do not require a previous interview to identify them, the sample for the analysis of the training variables is boosted by additional observations between the month of work entry and the first interview if the first interview is seven months or more after entry. Because of the smaller sample sizes, the reported statistically significant results are extended to include those that are significant at the ten per cent level for the work progression variables.

48 The spells are defined over periods of unchanging partnership, so there is no need to include partnership changes in this analysis.

- own earnings do not change or they fall (no earnings change or change counter to transition).

Poverty entries are categorised in an analogous manner, with a small additional complication that own earnings and other family income may be responsible for moving the family into poverty if they rise but not to a sufficient degree to keep pace with a gradually rising poverty line.

Table 6.8 The role of earnings in annual poverty transitions

	Poverty exit	Poverty entry
Percentage of transitions associated with the:		
• fall in the number of children	10	5
• rise in the number of children	6	11
No change in the number of children and:		
• earnings change alone sufficient for transition	31	26
• earnings change not sufficient but required for transition	6	8
• earnings change contributes to but not required for transition	25	24
• no earnings change or change counter to transition	22	26
Total	100	100
Number of observations	196	184

Notes: See text for a description of the categories.

Some 16 per cent of poverty entries and 16 per cent of poverty exits are associated with a change in the number of children in the family (Table 6.8). As would be expected, most of the poverty exits are associated with a fall in the number of children and most of the poverty entries with a rise in the number of children, but sizeable proportions have changes in the number of children in the opposite direction to expectation. Just over one-third of both types of transitions can be attributed solely or partially to the own earnings change, while almost half of all transitions could have occurred without any change in those earnings (assuming other family income is independent of own earnings). Indeed, around one-quarter of poverty transitions occur in spite of changes in earnings in a counter direction. Hence, many of the movements out of and into poverty observed during the three years following work entry are not driven by the earnings or work behaviour of the parent entering work. Nevertheless, there may still be a connection between work progression and poverty transitions in cases where own earnings are crucial to the change in poverty status.

There are two ways of examining the relationship between work progression and poverty transitions: first, by considering the proportion of those making poverty transitions who have associated work progression and whether this proportion is different from the proportion for those in a stable poverty state; and second,

by asking whether those with a particular measure of work progression are more likely to make a poverty transition than those without work progression. The first of these questions is addressed in Table 6.9, while the second is considered in Tables 6.10 to 6.13.

Table 6.9 Prevalence of work progression by poverty transition

Percentage with changes in work characteristics or training between (roughly annual) interviews	Poverty transition group between (roughly annual) interviews						
	Stay poor	Exit poverty		Enter poverty		Stay non-poor	All
		not via earn.	via earn.	not via earn.	via earn.		
Hourly earnings							
Fall by more than 5%	35	29	15	41	62	32	33
Rise by more than 5%	38	44	74	29	16	39	39
Weekly hours							
Fall by 5 or more hours	10	12	9	11	23	14	14
Rise by 5 or more hours	22	30	30	20	20	22	23
Move to permanent work	9	9	8	7	9	8	8
Move to non-permanent work	3	5	4	3	8	4	4
Move to supervisory role	12	10	18	12	13	9	10
Move to non-supervisory role	4	2	4	5	5	6	6
Fall in firm size	16	15	15	15	18	15	15
Rise in firm size	13	15	21	22	12	17	17
Change job	26	28	37	29	33	25	26
Change occupation	24	26	37	30	40	29	29
Change industry	21	20	23	21	32	18	19
Job-related training	24	28	34	28	12	35	33
Educational or training course							
One course	15	16	24	21	8	19	18
Two or more courses	8	9	14	15	7	13	12
Numbers of observations							
Work change variables	215	125	71	122	62	2,278	2,873
Training variables	450	184	95	168	88	3,530	4,515

Note: 'via earn.' indicates a poverty transition that would not have occurred without at least some change in earnings; 'not via earn.' indicates a poverty transition that would have occurred without any change in earnings.

Parents moving out of poverty are more likely than other parents to have experienced a rise in their hourly earnings of more than five per cent over the year and are less likely than other parents to have experienced a decline in their hourly earnings of more than five per cent (Table 6.9). The converse is true for those entering poverty, who are more likely to have had a substantial decline and less likely to have had a substantial rise in their hourly earnings than other parents. The differences are particularly marked for those transitions identified as having total earnings changes critical to the poverty transition. Similarly, those entering poverty via earnings are particularly likely to have experienced a substantial fall in weekly hours, while those leaving poverty (whether with the critical earnings connection or not) are particularly likely to have had a substantial rise in weekly hours.

Changes in the other work characteristics and training variables are often more prevalent among those for whom changes in earnings are critical to moving across the poverty line than among other parents. Those exiting poverty via earnings are relatively more likely to have moved to a supervisory role, to have changed job or occupation,[49] and to have undertaken job-related training or educational or training courses. Those entering poverty via earnings are more likely to have moved from permanent to non-permanent work, to have experienced a fall in firm size and to have changed job, occupation or industry, while they are less likely than the other groups to have undertaken job-related training or educational or training courses. However, it seems to be changes in hourly earnings that are particularly important, as the differences in work progression between those who enter and exit poverty and those without any change in poverty status are not large for any of the other measures of work progression.

In spite of this lack of any strong prevalence of work progression among those escaping poverty, it may still be the case that work progression is associated with a greater likelihood of escaping from poverty and with a smaller probability of poverty entry. Tables 6.10 and 6.11 present the annual poverty exit and poverty entry rates by the changes in work characteristics and show which changes are statistically significantly important in the likelihood of either poverty transition. The regression models were also estimated without changes in hourly earnings and without changes in weekly hours in order to identify whether the remaining characteristics were important because of an association with these factors, but exclusion of these variables did not alter the significance of any other factors in either the poverty exit or poverty entry model.

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[49] This is usually the characteristic recorded at the first interview within the work spell, with the exception of hourly earnings and hours which may have been recorded retrospectively for work spells falling between interviews.

Table 6.10 Annual poverty exit rates within work spells by changes in work characteristics

Change between (roughly annual) interviews	Percentage poverty exit rate	Significant factors in the probability of poverty exit controlling for differences in other factors
Hourly earnings		Probability of exit rises (falls) with greater
Fall by more than 5%	38	increase (decrease) in hourly earnings
Unchanged within 5%	43	
Rise by more than 5%	57	
Weekly hours		Probability rises (falls) with greater increase
Fall by 5-plus hours	[49]	(decrease) in weekly hours
Unchanged within 5 hours	44	
Rise by 5-plus hours	56	
Remain non-permanent	[44]	Not significant
Move to permanent	[47]	
Remain permanent	47	Not significant
Move to non-permanent	[60]	
Remain non-supervisory	48	Not significant
Move to supervisory	51	
Remain supervisory	48	Not significant
Move to non-supervisory	[40]	
Firm size		Not significant
Falls	45	
Unchanged	46	
Rises	54	
Do not change job	46	Not significant
Change job	52	
Do not change occupation	46	Those changing occupation more likely to
Change occupation	53	exit poverty
Do not change industry	48	Not significant
Change industry	47	

Table 6.10 Continued

Notes: Square brackets show rates based on fewer than 50 observations. Factors are defined as significant at the ten per cent level in a logistic regression model for the probability of poverty exit including all the factors as explanatory variables. The model contained 375 observations. Change in hourly earnings and change in weekly hours were included as continuous variables. The only differences in the significance of the factors in the model estimated for the sample with weekly work hours of 16 or more (sample size 258) are that change in weekly hours and change in occupation are not significant. There were no differences in the significance of the factors in the model without the change-in-hours variable and in the model without the change-in-hourly-earnings and change-in-weekly-hours variables. The only difference in the significance of the factors in the model without the change-in-hourly-earnings variable is that the change-in-hours variable is not significant.

Table 6.11 Annual poverty entry rates within work spells by changes in work characteristics

Change between (roughly annual) interviews	Percentage poverty entry rate	Significant factors in the probability of poverty entry controlling for differences in other factors
Hourly earnings		Probability of entry falls (rises) with greater
Fall by more than 5%	11	increase (decrease) in hourly earnings
Unchanged within 5%	7	
Rise by more than 5%	5	
Weekly hours		Probability of entry falls (rises) with greater
Fall by 5-plus hours	8	increase (decrease) in weekly hours
Unchanged within 5 hours	8	
Rise by 5-plus hours	7	
Remain non-permanent	5	Not significant
Move to permanent	8	
Remain permanent	8	Not significant
Move to non-permanent	8	
Remain non-supervisory	8	Not significant
Move to supervisory	10	
Remain supervisory	6	Not significant
Move to non-supervisory	6	
Firm size		Not significant
Falls	8	
Unchanged	7	
Rises	8	

Continued

Table 6.11 Continued

Change between (roughly annual) interviews	Percentage poverty entry rate	Significant factors in the probability of poverty entry controlling for differences in other factors
Do not change job	7	Not significant
Change job	9	
Do not change occupation	7	Not significant
Change occupation	8	
Do not change industry	7	Not significant
Change industry	10	

Notes: Factors are defined as significant at the ten per cent level in a logistic regression model for the probability of poverty entry including all the factors as explanatory variables. The model contained 2,371 observations. Change in hourly earnings and change in weekly hours were included as continuous variables. The only difference in the significance of the factors in the model estimated for the sample with weekly work hours of 16 or more (sample size 1,681) is that moving to permanent rather than remaining non-permanent has a greater likelihood of poverty entry. There were no differences in the significance of the factors in the models without the change-in-hours variable, without the change-in-hourly-earnings and without both variables.

The results from regression models identifying statistically significant factors controlling for other characteristics show that:

- the likelihood of poverty exit rises with greater increases in hourly earnings and falls with greater decreases in hourly earnings. On the other hand, the likelihood of poverty entry falls with greater increases in hourly earnings and rises with greater decreases in hourly earnings;
- the likelihood of poverty exit rises with greater increases in weekly hours and falls with greater decreases in weekly hours. On the other hand, the likelihood of poverty entry falls with greater increases in weekly hours and rises with greater decreases in weekly hours;
- those changing occupation are more likely to exit poverty than those remaining in the same occupation. However, the magnitude of the difference is not large: the poverty exit rate is 53 per cent for those changing occupation compared with 46 per cent for those remaining in the same occupation.

Hence, both poverty exit and poverty entry are associated with changes in the two key determinants of total earnings: hourly earnings and weekly hours. The fact that no other factors (aside from the small occupation effect for poverty exit) are significant even when hourly earnings and weekly hours are excluded from the regression models indicates that the changes in hourly earnings and weekly hours associated with poverty transitions occur without any change in other work characteristics.

The poverty exit rates by the training variables are presented in Table 6.12. The table presents the changes over a single year and over two years, where the training is reported to have taken place during the first year. The latter allows for the possibility that there may be a lag in the impact of training on poverty. Although the percentage poverty exit rate is higher for those with job-related training (and, broadly, for those spending longer amounts of time in training) and for those undertaking one or more educational or training courses, the differences are small and not statistically significant. This may be because the sample sizes are too small to conclude whether these factors genuinely have any impact.

Table 6.12 Annual poverty exit rates within work spells by training

	Change over one year		Change over two years	
Training between (roughly annual) interviews	Percentage poverty exit rate	Significant differences in the probability of poverty exit	Percentage poverty exit rate	Significant differences in the probability of poverty exit
No job-related training	37	Not significant	53	Not significant
Job-related training	43		55	
Type of job-related training				
Only on the job	40	Not significant	57	Not significant
Only away from the job	44		[46]	
Both	[51]		[70]	
Time in job-related training		Not significant		Not significant
Half a day	[41]		[50]	
One day	[33]		[50]	
Two to three days	[40]		[50]	
Four to five days	[50]		[71]	
Less than two weeks	[57]		[67]	
Two weeks or more	[45]		[52]	
Educational or training courses		Not significant		Not significant
None	36		52	
One course	44		[64]	
Two or more courses	47		[56]	

Notes: Square brackets show rates based on fewer than 50 observations. Factors are defined as significant at the ten per cent level in a logistic regression model for the probability of poverty exit including all the factors as explanatory variables. The model for one year contained 668 observations and the model for two years contained 270 observations. Time in job-related training was included as a continuous variable. There were no differences in the significance of the factors in the one-year model estimated for the sample with weekly work hours of 16 or more (sample size 453). The only differences in the significance of the factors in the two-year model estimated for the sample with weekly work hours of 16 or more (sample size 173) are that training both on the job and away from the job has a lower probability of poverty exit than training only on the job and that undertaking two or more courses has a higher probability of poverty exit than undertaking no courses.

Table 6.13 Annual poverty entry rates within work spells by training

	Change over one year		Change over two years	
Training between (roughly annual) interviews	**Percentage poverty entry rate**	**Significant differences in the probability of poverty entry**	**Percentage poverty entry rate**	**Significant differences in the probability of poverty entry**
No job-related training	8	Not significant	9	Those with
Job-related training	4		5	training less likely to enter poverty
Type of job-related training				Only on the job less likely to enter
Only on the job	5	Not significant	6	poverty than only
Only away from the job	4		6	away from the
Both	4		2	job or both
Time in job-related training				
Half a day	6	Not significant	13	Not significant
One day	5		5	
Two to three days	4		5	
Four to five days	5		3	
Less than two weeks	4		3	
Two weeks or more	4		6	
Educational or training courses				
None	7	Not significant	8	Not significant
One course	6		8	
Two or more courses	6		5	

Notes: Factors are defined as significant at the ten per cent level in a logistic regression model for the probability of poverty entry including all the factors as explanatory variables. The model for one year contained 3,552 observations and the model for two years contained 1,494 observations. Time in job-related training was included as a continuous variable. There were no differences in the significance of the factors in the one-year model estimated for the sample with weekly work hours of 16 or more (sample size 2,440). In the two-year model estimated for the sample with weekly work hours of 16 or more (sample size 987), none of the factors is significant.

The analogous statistics for poverty entry are presented in Table 6.13. The difference in poverty entry rate between those in job-related training and those without job-related training is quite marked, although the patterns for the other training variables are inconclusive. Over the two years, the results from the regression model controlling for other characteristics show that those undertaking job-related training are significantly less likely to enter poverty and that those

with some training away from the job are less likely to enter poverty than those only training on the job. Hence, while there is no evidence that training raises the probability of poverty exit during the first three years following work entry, there is some evidence to suggest that job-related training may help guard against poverty entry in the longer term, particularly if it involves some training away from the job.

6.4 Summary

The main findings in this chapter on poverty dynamics within the first three years of a work spell can be summarised:

- The poverty rate declines slightly for mothers in couples (from 11 per cent to nine per cent) but falls more substantially for lone mothers (from 37 per cent to 18 per cent) and fathers (from 22 per cent to 16 per cent). Most of the decline for lone mothers reflects a genuine reduction in the likelihood of poverty for these mothers, but much of the smaller declines in the poverty rate for mothers in couples and fathers can be accounted for by those in poverty being more likely to leave work than those not in poverty. This, together with an upturn in the poverty rate in the third year among those not working full-time, means that there is very little decline in the poverty risk for mothers in couples and fathers who remain in work throughout the three years.
- There is considerable turnover in the poverty population: 19 per cent of mothers in couples, 59 per cent of lone mothers and 34 per cent of fathers are in poverty at some point during the three years, with substantial proportions of parents leaving and entering poverty during the period.
- A substantial proportion of poverty transitions reflect small shifts in income around the poverty threshold: over half of poverty exits involve parents moving just above the poverty line (to between 60 and 70 per cent of median income), while two-thirds of poverty entries involve parents falling into poverty from just above the poverty line.
- The proportions of mothers in couples and of lone mothers working in mini-jobs decline substantially over the three years, while the proportion working full-time rises. The proportion of mothers in couples working part-time also rises, to a lesser degree. There is little change in work hours for fathers. Underlying these aggregate patterns, there are substantial movements up and down the hours groups, particularly for mothers.
- Controlling for other demographic characteristics, mothers in couples are more likely to exit poverty and less likely to enter poverty than other parents, while lone mothers are the least likely to exit poverty and the most likely to enter. Parents with higher qualifications are more likely to exit and less likely to enter poverty. The probability of poverty exit also varies across ethnic groups, but it is not significantly different across any other demographic factors. On the other hand, the probability of poverty entry varies significantly by the age of the youngest child, the number of children, ethnicity and homeownership.

- Controlling for other work characteristics, parents who have spent longer out of work prior to work entry are less likely to exit poverty and more likely to enter poverty once in work. Higher hourly earnings are associated with a greater likelihood of poverty exit and a smaller risk of poverty entry, while those working part-time are less likely to exit poverty and more likely to enter poverty than either those working full-time or those working in mini-jobs.
- Just over one-third of poverty exits and poverty entries can be attributed at least in part to a change in the parent's earnings rather than solely to changes in other family income or changes in the number of children in the family.
- Both poverty exit and poverty entry are associated with changes in the two key determinants of total earnings: hourly earnings and weekly hours. The changes in hourly earnings and weekly hours associated with poverty transitions occur without any change in other work characteristics.
- There is no evidence that job-related training or other educational or training courses are associated with a higher poverty exit rate. There is some evidence that job-related training, particularly that involving training away from the job, is associated with a lower poverty entry rate, but there is no association between other educational or training courses and poverty entry.

7 Work retention

Regardless of the impact of work progression on poverty rates for working parents, the high proportion of parents who enter poverty upon work exit means that simply staying in work is an important factor in reducing family poverty. This chapter examines how work retention is related to family background and work characteristics at the time of work entry and to work progression within the work spell.[50] All statistics are based on a pooled sample from the Families and Children Study (FACS) over the six-year period 2001 to 2006.[51]

The analysis is disaggregated into two income groups: a low-income one defined as those with income below the median and a high-income one defined as those with income at the median or higher.[52] This permits the identification of the potential impact of work progression on work retention for the low-income group, who have a greater risk of poverty than those higher up the income distribution.[53] For most of this chapter, these income groups are defined in the first month after work entry, but they are defined at the initial interview in the pairs of interviews used for the work progression analysis.

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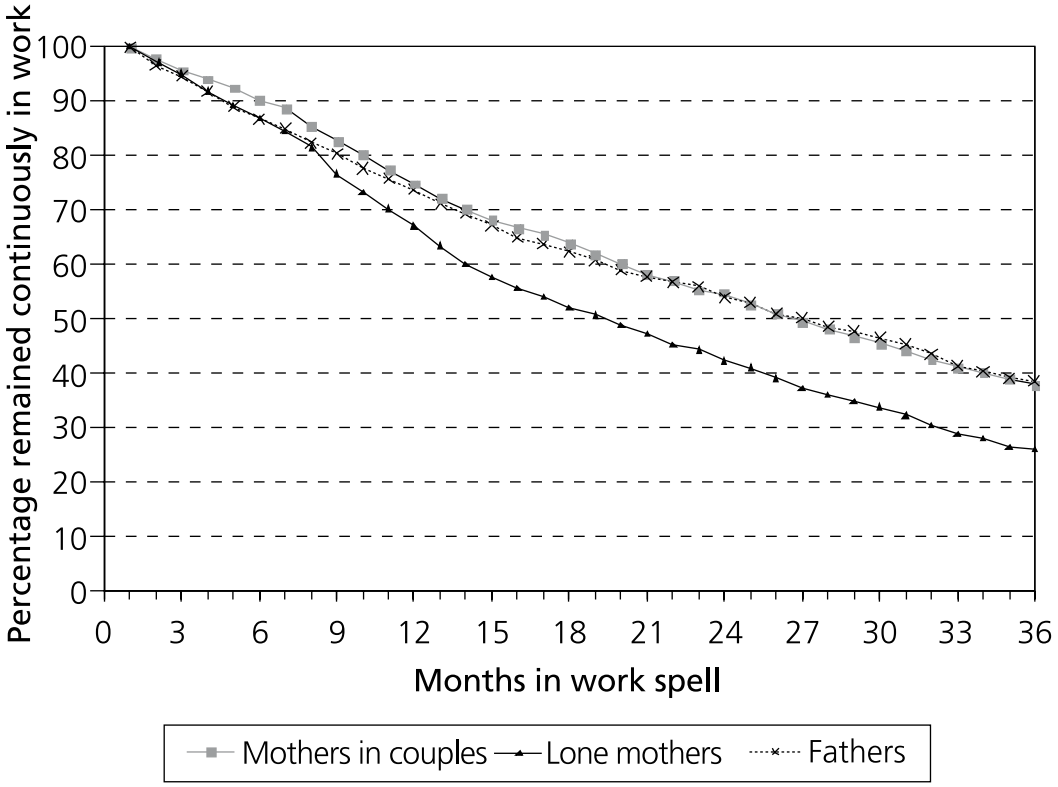
50 It should be emphasised that the work spell refers here to participation in work and not employment with a particular employer or specific position.

51 Yearly dummies cannot be included in the models as in Chapters 5 and 6 because the censoring of the sample in 2006 means that each year has a different potential length of work spell before it is censored.

52 The groups were divided at the median to allow for reasonable sample sizes in both groups.

53 Regressions estimated for the entire sample had significant factors that were also observed in the low-income and/or high-income regressions, with the exceptions that spells were longer for fathers than for mothers in couples, that age and qualification level were significantly positively related to spell length, and that spells were shorter for mini-jobs and part-time than for full-time in the combined sample.

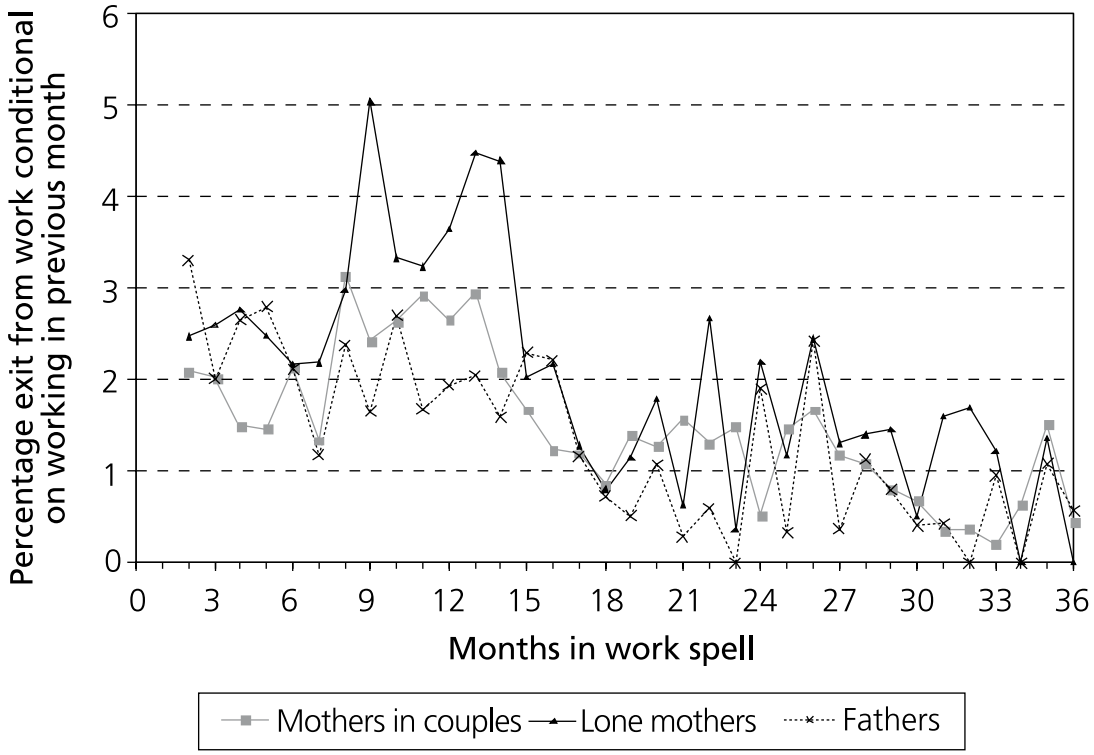
Figure 7.1 Proportions remaining in work by type of parent



Notes: The sample sizes range from 2,391 in month one to 426 in month 36 for mothers in couples, from 1,055 in month one to 134 in month 36 for lone mothers, and from 1,000 in month one to 174 in month 36 for fathers.

By way of introduction, Figure 7.1 presents the proportions remaining in work for each parent type in the first three years following work entry. Although retention rates are slightly higher for mothers in couples than for lone mothers and for fathers during the first six months, the main distinction is the considerably lower retention rates for lone mothers, with the gap developing during the second half of the first year.

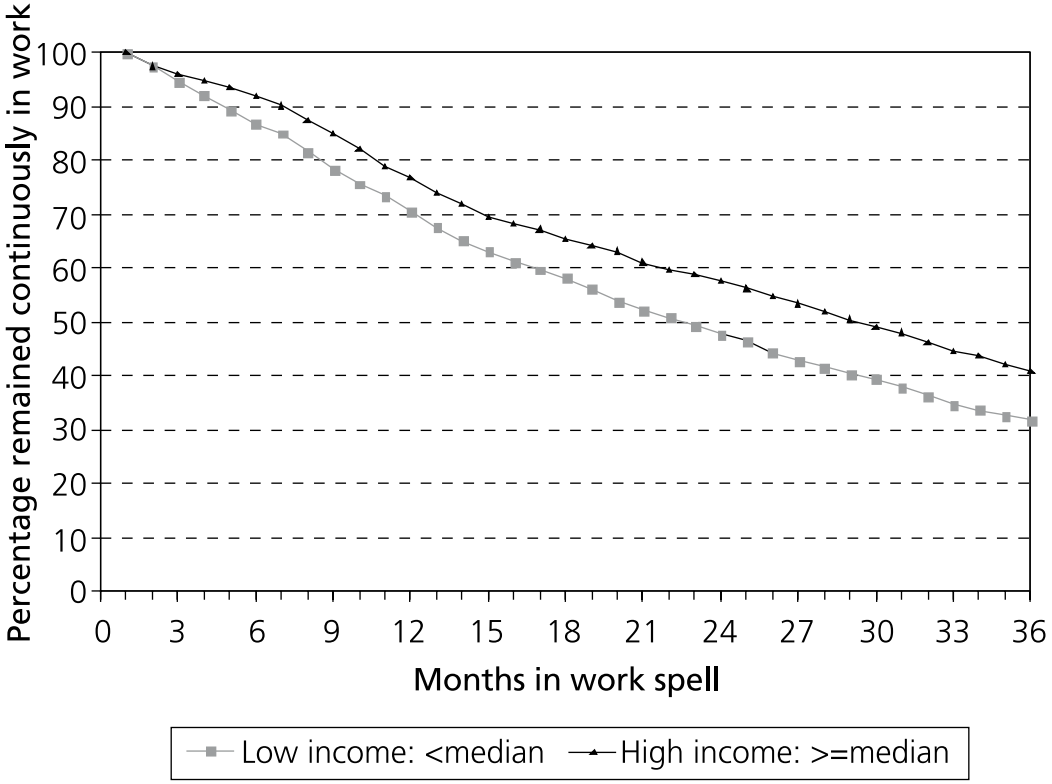
Figure 7.2 Work exit hazard rates by type of parent



Notes: The sample sizes range from 2,391 in month one to 426 in month 36 for mothers in couples, from 1,055 in month one to 134 in month 36 for lone mothers, and from 1,000 in month one to 174 in month 36 for fathers.

Figure 7.2 presents the same information as Figure 7.1 in the form of work exit hazard rates for each month, showing the percentage of those in work in the previous month who leave work in that month. The hazard rates have the advantage of showing more clearly the changes in the rate of work exit, but, as would be expected from the small proportions leaving work in any given month and the relatively limited sample sizes, the graph has many large jumps in the hazard rate as a few additional individuals leaving work can create large changes in the proportion exiting work. The hazard rates show quite clearly the higher work exit rates for lone mothers during the second half of the first year and slightly beyond. In addition, the hazard rates are distinctly lower for all parent types after the first year or so, showing a gradual decrease in the rate at which parents leave work over time.

Figure 7.3 Proportions remaining in work by income group



Notes: The sample sizes range from 2,772 in month one to 423 in month 36 for the low-income group and from 1,674 in month one to 311 in month 36 for the high-income group. Income group is defined in the first month of the work spell.

Figures 7.3 and 7.4 present the analogous pictures for the low- and high-income groups that will be used in the analysis. The proportions remaining in work are distinctly lower throughout the three-year period for those in the low-income group and the gap gradually widens over time. The hazard rates in Figure 7.4 show similar patterns for the two income groups, but the generally higher exit rate for the lower-income group confirms the lower work retention observed in Figure 7.3. Both income groups have declining hazard rates over time, again showing a marked decrease in the rate at which parents leave work after the first year.

Figure 7.4 Work exit hazard rates by income group

Notes: The sample sizes range from 2,772 in month one to 423 in month 36 for the low-income group and from 1,674 in month one to 311 in month 36 for the high-income group. Income group is defined in the first month of the work spell.

One difficulty in analysing the length of work spells is that few completed work spells are observed in the data and the sample of completed spells is very heavily biased towards shorter spells. The solution is to predict the spell length by estimating survival models for spells with a known start date. Survival models estimate the average length of time until a particular state ends (in this case, the work spell ends), using information both from completed spells (those with an observed exit from work) and from incomplete spells (those with missing work exit dates) knowing that the spell is ongoing at the point when the individual leaves the survey. The model can include explanatory characteristics that allow for the statistical significance of differences between different characteristics to be tested. Given the declining work exit hazard rates in Figures 7.2 and 7.4, a Weibull specification of the survival model is used to allow the likelihood of leaving work to decline as the work spell lengthens. It should be noted that the purpose of the estimation of the survival models is not to model the attrition dynamics in detail, but simply to compare the length of work retention for different types of parents and work characteristics. The results presented are for samples of all workers, but the models were also estimated for samples of only workers with weekly work hours of 16 or more; any differences in the results from the main model are listed in the table notes.

Table 7.1 presents the predicted median time for work spells by demographic background at the start of the work spell. The first column for each income group presents the predicted median time for individuals in that group estimated by separate survival models for the sample of individuals in each demographic category. The second column indicates which factors have a statistically significant association with the time in work estimated in a single survival model for the entire sample with controls for all the other factors.

The results from these regression models show that:

- within the low-income group, fathers remain in work longer than lone mothers, but there are no significant differences across parent type within the high-income group;
- spell length is not related to the age of the youngest child;
- spell length is not related to the number of children;
- spell length rises with parents' age for those in the low-income group, but age is not significant for the high-income group;
- for the low-income group, there is some tendency for spell length to rise with qualification level, but the relationship is not statistically significant;
- within the high-income group, those in the black ethnicity group have shorter spells than those in the other, non-white, non-black, ethnicity group;
- within the low-income group, those with a health problem have shorter spells;
- owner-occupiers have longer spells than those in rented or other types of housing within both income groups.

Table 7.1 Predicted median time in work by demographic background

	Low income: income below median in month of work entry		High income: income equal to or greater than median in month of work entry	
Demographic characteristic in month of work entry	**Predicted median time in work in months**	**Significant differences in a Weibull survival model**	**Predicted median time in work in months**	**Significant differences in a Weibull survival model**
Mothers in couples	41	Longer spells	49	Not significant
Lone mothers	30	for fathers than	40	
Fathers	50	lone mothers	67	
Youngest child's age		Not significant		Not significant
Less than 5 years	32		46	
5 to 11 years	45		57	
Over 11 years	59		56	
Number of children		Not significant		Not significant
1 child	34		48	
2 children	45		50	
3+ children	35		58	
Age		Length rises with		Not significant
Less than 30 years	23	age	35	
30 to 45 years	51		56	
Over 45 years	55		44	
Highest qualification				
None	32	Not significant	35	Not significant
NVQ 1/below GCSE	31		56	
NVQ 2/GCSE	37		51	
NVQ 3/A levels	44		39	
NVQ 4/5	46		66	
College	58		55	
White ethnic group	39	Not significant	51	Shorter spells for
Black ethnic group	36		26	black group over
Other ethnic group	41		80	other group
Owner-occupier	64	Longer spells for	57	Longer spells for
Rented/other housing	27	owner-occupiers	30	owner-occupiers
No health problem	39	Shorter spells for	51	Not significant
Health problem	36	health problems	44	

Table 7.1 Continued

Notes: Factors are defined as significant at the five per cent level in a Weibull survival model for the length of work spell including all the factors as explanatory variables. The model for low income contained 2,705 observations and the model for high income contained 1,643 observations. Youngest child's age, the number of children, age and highest qualification were included as continuous variables. The only differences in the significance of the factors in the low-income model estimated for the sample with weekly work hours of 16 or more (sample size 1,861) are that there is no difference between fathers and lone mothers and that the spell length rises with education level. The only differences in the significance of the factors in the high-income model estimated for the sample with weekly work hours of 16 or more (sample size 1,170) are that there is no difference across ethnic groups and that spells are shorter for those with a health problem.

Table 7.2 presents the predicted median time for work spells by work characteristics at the start of the work spell.[54] As in Table 7.1, the first column for each income group presents the predicted median spell length while the second column indicates which factors have a statistically significant association with the time in work in a Weibull survival model controlling for all the other factors.[55]

Table 7.2 Predicted median time in work by work characteristics

	Low income: income below median in month of work entry		High income: income equal to or greater than median in month of work entry	
Work characteristic in month of work entry	**Predicted median time in work in months**	**Significant differences in a Weibull survival model**	**Predicted median time in work in months**	**Significant differences in a Weibull survival model**
Time spent out of work		Not significant		Not significant
Less than 6 months	45		61	
6 to 48 months	36		47	
More than 48 months	38		46	
Hourly earnings		Length rises		Not significant
Less than £4	33	with hourly	27	
£4 to £6	34	earnings	45	
Greater than £6	52		59	

Continued

54 This is usually the characteristic recorded at the first interview within the work spell, with the exception of hourly earnings and hours which may have been recorded retrospectively for work spells falling between interviews.

55 Exclusion of either the time-out-of-work variable or the hourly earnings variable did not alter the significance of any of the factors in the model.

Table 7.2 Continued

Work characteristic in month of work entry	Low income: income below median in month of work entry		High income: income equal to or greater than median in month of work entry	
	Predicted median time in work in months	Significant differences in a Weibull survival model	Predicted median time in work in months	Significant differences in a Weibull survival model
Weekly hours		Spells shorter		Spells shorter for
Mini-job (1–15 hours)	34	for mini-job	36	mini-job than
Part-time (16–29 hours)	40	than part-time	50	part-time or
Full-time (30+ hours)	44	or full-time	71	full-time
Employed	37	Self-employed	51	Not significant
Self-employed	56	have longer spells	47	
Non-permanent work	40	Not significant	43	Not significant
Permanent work	38		52	
Non-supervisory role	38	Not significant	48	Not significant
Supervisory role	48		56	
Firm size		Length rises		Not significant
1–9 employees	34	with firm size	43	[Length rises
10–24 employees	41		54	with firm size in
25–499 employees	48		57	models without
500+ employees	36		63	weekly hours]

Notes: Factors are defined as significant at the five per cent level in a Weibull survival model for the length of work spell including all the factors as explanatory variables. The model for low income contained 2,334 observations and the model for high income contained 1,437 observations. Time spent out of work, hourly earnings and firm size were included in the model as continuous variables. Supervisory role and the permanency of position are not recorded for the self-employed in the survey and these variables were assumed to be non-supervisory and permanent for the self-employed. The only difference in the significance of the factors in the low-income model estimated for the sample with weekly work hours of 16 or more (sample size 1,606) is that the length rises with time out of work but does not rise with firm size. There were no differences in the significance of the factors in the high-income model estimated for the sample with weekly work hours of 16 or more (sample size 1,021). There were no differences in the significance of the factors in the model without the time-out-of-work variable and in the model without the hourly earnings variable for either income group. The only difference in the significance of the factors in the model without weekly hours and in the model without hourly earnings and weekly hours was that the length rose with firm size for the high-income group.

The results from these regression models show that:

- the time spent out of work prior to work entry is not significantly related to the spell length. This may reflect that the impacts of the length of absence are captured in other work characteristics or that the sample contains a substantial proportion of mothers who may have been absent from work for long periods for reasons unrelated to their employability;
- spell length rises with hourly earnings for the low-income group;
- spell length is shorter for those in mini-jobs than for those in part-time work or full-time work;
- for those within the low-income group, the self-employed have longer work spells than the employed;
- somewhat surprisingly, there are no significant differences between permanent and non-permanent work within either income group. Indeed, for the low-income group, the predicted median spell length is actually very slightly longer for those in non-permanent work;[56]
- although those in supervisory roles have a longer predicted median spell length than those in non-supervisory roles within both income groups, the differences are not statistically significant;
- spell length rises with firm size for the low-income group, but firm size is not significant for the high-income group.

In considering the relationship between work progression and spell length, it is essential to note that the direction of causation is ambiguous. Those who expect to remain in work for longer (or employers who have employees whom they expect to remain in work for longer) have greater incentives to invest in changing their work characteristics or in undertaking training. Hence, while any positive associations between work progression and spell length are consistent with the hypothesis that work progression leads to higher work retention, it cannot be interpreted as direct evidence of a causal relationship.

As described and explained in Section 6.3.3, work progression is measured as changes in work characteristics and training undertaken between (roughly annual) interviews within the work spell. Hence, there is one observation for each pair of interviews within the first 36 months of a work spell and the income group is

[56] It should be recalled that this counter-intuitive finding is for a sample that is not typical of all workers, including mothers who have recently entered work with childcare responsibilities and fathers who have recently been out of work. One explanation could be that these types of workers may prefer the flexibility of shorter-term working contracts even if planning to remain in work for longer periods.

defined at the initial interview in each pair.[57] When analysing the impact of work progression on poverty status in Chapter 6, the change in poverty status across the change in work characteristics or training could be used to estimate the impact of work progression. This approach cannot be used for spell length because the data set contains only a single final spell length after the work progression; the spell length prior to (or without) progression is not observed. As an alternative, work characteristics at the initial interview in each pair of interviews are included as controls in the work progression regression models to act as a proxy for the spell length prior to the work progression.[58]

[57] As described in Section 6.3.3, a considerable drawback of using these annual changes is the smaller sample sizes. As the training variables do not require a previous interview to identify them, the sample for the analysis of the training variables is boosted by additional observations between the month of work entry and the first interview if the first interview is seven months or more after entry. Because of the smaller sample sizes, the reported statistically significant results are extended to include those that are significant at the ten per cent level for the work progression variables.

[58] For example, consider a hypothetical scenario where those in shorter weekly hours have shorter work spells, where rising weekly hours are associated with a rise in spell length, and where the only people who experience a rise in their hours are those initially with shorter hours. Without controls for initial weekly hours, the relationship between change in hours and spell length may suggest that those with rising hours have shorter spells than those with constant hours because they are being compared with the entire sample including those at constant long hours with longer spells. Including the initial weekly hours as a control means that the group with rising hours is compared with those who remain in short hours and correctly reveals that rising hours lengthen work spells relative to the spell length in the absence of the change in hours.

Table 7.3 Predicted median time in work by changes in work characteristics

	Low income: income below median in month of work entry		High income: income equal to or greater than median in month of work entry	
Changes between (roughly annual) interviews	**Predicted median time in work in months**	**Significant differences in a Weibull survival model**	**Predicted median time in work in months**	**Significant differences in a Weibull survival model**
Hourly earnings		Not significant		Not significant
Fall by more than 5%	95		78	
Unchanged within 5%	84		89	
Rise by more than 5%	86		86	
Weekly hours		Not significant		Length rises (falls) with greater increase (decrease) in weekly hours
Fall by 5-plus hours	78		68	
Unchanged within 5 hours	89		90	
Rise by 5-plus hours	89		83	
Remain non-permanent	103	Not significant	61	Not significant
Move to permanent	87		95	
Remain permanent	87	Spells shorter for those moving to non-permanent	85	Not significant
Move to non-permanent	60		76	
Remain non-supervisory	83	Not significant	87	Not significant
Move to supervisory	86		73	
Remain supervisory	96	Not significant	80	Not significant
Move to non-supervisory	114		75	
Firm size		Not significant		Not significant
Falls	90		86	
Unchanged	86		84	
Rises	81		80	
Do not change job	89	Not significant	89	Spells shorter for those who change jobs
Change job	80		69	
Do not change occupation	86	Not significant	87	Not significant
Change occupation	89		76	

Continued

Table 7.3 Continued

Changes between (roughly annual) interviews	Low income: income below median in month of work entry		High income: income equal to or greater than median in month of work entry	
	Predicted median time in work in months	Significant differences in a Weibull survival model	Predicted median time in work in months	Significant differences in a Weibull survival model
Do not change industry	88	Not significant	87	Spells shorter
Change industry	85		72	for those who change industry

Notes: Factors are defined as significant at the ten per cent level in a Weibull survival models for the length of work spell including all the factors as explanatory variables and controls for initial work conditions including hourly earnings, weekly hours, self-employment, permanency, supervisory position and firm size. The model for low income contained 1,550 observations and the model for high income contained 1,169 observations. Change in hourly earnings and change in weekly hours were included as continuous variables. The only difference in the significance of the factors in the low-income model estimated for the sample with weekly work hours of 16 or more (sample size 1,058) is that moving to non-permanent work is not different from remaining in permanent work. The only difference in the significance of the factors in the high-income model estimated for the sample with weekly work hours of 16 or more (sample size 881) is that the change in weekly hours is not significant. There were no differences in the significance of the factors in the model without the change-in-hourly-earnings variable and in the model without the change-in-weekly-hours variable for either income group. The only difference in the significance of the factors in the model without both variables is that the change-in-industry variable is not significant for the high-income group.

Table 7.3 presents the predicted median time for work spells by changes in work characteristics between interviews within the first three years following work entry. As Tables 7.1 and 7.2, the first column for each income group presents the predicted median spell length while the second column indicates which factors have a statistically significant association with the spell length in a Weibull survival model controlling for all the other factors.

The results from these regression models show that:

- spell length is not related to changes in hourly earnings;
- spell length rises with a greater increase or smaller decrease in weekly hours for those in the high-income group, but there is no significant association for the low-income group;
- spells are shorter for those moving from permanent to non-permanent work than for those remaining in permanent work within the low-income group, but there is no significant association for the high-income group;
- a change in job or industry is associated with shorter spell lengths for those in the high-income group, but there is no significant association for those in the low-income group.

- changes in supervisory role, firm size and occupation are not associated with any differences in spell length for either income group.

Table 7.4 Predicted median time in work by training

	Low income: income below median in month of work entry		High income: income equal to or greater than median in month of work entry	
Training between (roughly annual) interviews	**Predicted median time in work in months**	**Significant differences in a Weibull survival model**	**Predicted median time in work in months**	**Significant differences in a Weibull survival model**
No job-related training	83	Spells longer	86	Spells longer
Job-related training	89	for those with	96	for those with
		training		training
Type of job-related training		Spells shorter		Not significant
Only on the job	80	for only away	85	
Only away from the job	96	from the job	125	
Both	97	than only on	85	
		the job or both		
Time in job-related training		Length falls		Length rises
Half a day	81	with time in	50	with time in
One day	100	training	101	training
Two to three days	92		81	
Four to five days	146		99	
Less than two weeks	102		97	
Two weeks or more	72		100	
Educational or training courses		Spells longer for two or more		Not significant
None	86	courses than no	87	
One course	69	courses or one	87	
Two or more courses	117	course	90	

Notes: Factors are defined as significant at the ten per cent level in a Weibull survival model for the length of work spell including all the factors as explanatory variables and controls for initial work conditions including hourly earnings, weekly hours, self-employment, permanency, supervisory position and firm size. The model for low income contained 2,250 observations and the model for high income contained 1,605 observations. Time in job-related training was included as a continuous variable. The only difference in the significance of the factors in the low-income model estimated for the sample with weekly work hours of 16 or more (sample size 1,504) is that job-related training is not significant. The only differences in the significance of the factors in the high-income model estimated for the sample with weekly work hours of 16 or more (sample size 1,150) are that job-related training and time in training are not significant.

The estimated median spell lengths and significant associations for the training variables are presented in Table 7.4. As in the case of the changes in work characteristics, the regression models include controls for initial work conditions. The results from these regression models show that:

- spells are longer for those undertaking job-related training for both the low-income and high-income groups;
- for those with job-related training in the low-income group, spells are shorter for those only training away from the job rather than spending some time training on the job;
- counter-intuitively, for those in training in the low-income group, spell length falls with the amount of time in training, although the relationship is not straightforward, as shown by the median spell lengths for each time category. But in line with expectations, spell length rises with the time spent in training for those in job-related training in the high-income group;
- spells are longer for those undertaking two or more educational or training courses in the low-income group, but a similar relationship for the high-income group is not statistically significant.

The main findings from this chapter on work retention can be summarised:

- The proportion of parents remaining in work for three years or more is greater for high-income parents (defined as those with family income at or above the median in the month of work entry) than for low-income parents (defined as those with family income below the median in the month of work entry).
- Within the low-income group, work retention is significantly longer for fathers than for lone mothers, but there are no significant differences between parent types within the high-income group. Within the low-income group, work retention is also related to parents' age, health and whether they are owner-occupiers, while ethnicity and homeownership are significant factors within the high-income group.
- Within the low-income group, work retention is longer for those with higher hourly earnings, those in part-time or full-time work rather than in mini-jobs, the self-employed and those working in larger firms. The same association with weekly hours group is the only significant factor for the high-income group.
- Very few of the work progression measures captured by the changes in work characteristics have significant relationships with work retention. Within the low-income group, work retention is lower for those moving to non-permanent work than for those remaining in permanent work. Within the high-income group, work retention is lower for those with smaller rises or greater declines in weekly hours and for those changing job or industry.

- Within the low-income group, work retention is significantly higher for those with job-related training, particularly if it involves some time training on the job and is of shorter duration, and for those undertaking two or more educational or training courses. Within the high-income group, job-related training, especially that of longer duration, is associated with higher work retention. However, given that expected longer work retention may lead to training, it is only possible to conclude that there is a positive association between the two, not that there is a causal relationship by which training leads to longer work retention.

8 Conclusions

Moving into work is an important factor in lifting families out of poverty. Some 65 per cent of families who were in poverty in the month prior to work entry move out of poverty when a parent enters work and the proportion of parents with income below the poverty threshold falls from 48 per cent to 20 per cent with work entry. Unsurprisingly, hourly earnings and weekly work hours are key factors in the likelihood that a family leaves poverty when a parent enters work, with work hours particularly important for mothers.

In some respects, work retention is important for families to escape poverty. A substantial proportion of parents are in poverty even after work entry, offering a large group who could potentially be helped to escape poverty by remaining in work for a significant period. For lone mothers, work retention over three years does indeed bring about a significant reduction in the poverty rate: the poverty rate among lone mothers who remain in work for at least three years declines from 31 per cent at the start of the work spell to 18 per cent by the end of three years. But there is very little overall decline in the likelihood of poverty for mothers in couples and fathers who remain in work: while there is a steady decline in poverty rates among those working full-time, poverty rates tend to increase among those working less than 30 hours per week after two years in work. In addition, substantial proportions of parents move into poverty or cycle in and out of poverty within the work spell, with almost one-fifth of mothers in couples, more than half of lone mothers and a third of fathers experiencing poverty at some time during the first three years in a work spell. Nevertheless, work retention plays a critical role in reducing poverty, not by allowing time for parents to escape poverty within work, but by protecting them against the high risk of falling into poverty that is associated with work exit.

Progression within work is far from essential for families to make a transition out of poverty. Just over one-third of poverty exits and entries can be attributed to a change in the parent's earnings, but the remainder may be better explained by changes in other family income or changes in the number of children in the family. Both poverty exit and poverty entry are associated with changes in the two key determinants of total earnings – hourly earnings and weekly hours – but no other

changes in work characteristics are significantly and substantially associated with poverty transitions. There is no evidence that training is beneficial to escaping poverty, although the data do suggest that job-related training may reduce the risk of poverty entry.

There is little evidence that work progression in the form of changes in work characteristics following work entry is associated with longer work retention for parents. Job-related training and undertaking multiple other training or educational courses are associated with longer work retention, particularly for lower-income parents. However, given that expected longer work retention may lead to training, it is possible only to conclude that there is a positive association between the two, not that there is a causal relationship by which training raises work retention.

In conclusion, the evidence presented here suggests that while work entry is an important factor in reducing child poverty for all types of parents, work retention and progression only reduce the poverty risk for lone mothers, with little benefit to mothers in couples or fathers. Indeed, although longer work retention guards against the high risk of poverty entry associated with work exit, it is no guarantee against the danger of falling into poverty within work for all groups of parents. All in all, the small role currently played by work retention and work progression in reducing the likelihood of poverty for families with children leaves considerable scope for improvements in advancement within work to help lift working parents and their children out of poverty.

Appendix A Construction of a monthly poverty series from the FACs

A.1 Measuring poverty in the FACS

The poverty measure used in this report is based on that used by the Households Below Average Income (HBAI) publication, which is estimated from the Family Resources Survey (FRS). The HBAI series uses weekly net disposable household income, comprising of total income from all sources of income of all household members. Income is equivalised for household size and composition using the modified OECD equivalence scale. This equivalisation adjusts the household income to reflect the extent to which households of different sizes and children of different ages require a different level of income to achieve the same standard of living so that the equivalised measure is directly comparable across all households regardless of size and composition. An individual is defined as living in poverty if they live in a household with equivalised net income below 60 per cent of the median for all households.[59] Two measures of income and poverty are presented in the HBAI: before housing costs (BHC) and after housing costs (AHC). In line with previous work, this report considers only the BHC measure throughout.

A similar income measure is constructed for the Families and Children Study (FACS) which differs from the HBAI measure in three main respects.[60] First, the precise sources of income and deductions to calculate net income differ in some minor respects from the HBAI. Table A.1 presents a summary of the measurement

[59] Because the poverty definition is based on equivalised income, the threshold is the same for all households within each fiscal year regardless of household size and composition.

[60] Imputations within the original FACS data were not used other than for the Council Tax amount. Household grid variables and proxy information were used where available for partners who did not provide interviews.

of the components of HBAI income in the FACS. Several items included in the HBAI poverty calculation were not recorded in the FACS survey and have not been imputed. These include the cash value of school milk and the free TV licence, maintenance and child support payments, and payments to students living away from home, but it is unlikely that these omissions would have a substantial impact on the final poverty measure. However, an important point to note is that the FACS income measure, as in the HBAI, includes earnings both for the employed and for the self-employed. Second, the FACS measure of income is for the family rather than for the household because income is only collected for the respondent and partner in FACS and not for any other adults in the household.[61] Consequently, the income is equivalised for family size and composition rather than for household size and composition. Although it is not possible to know the precise impact on the poverty measure of using the family measure in households where there are non-family individuals present,[62] the similarity in the poverty rate with the HBAI statistics indicates that, on average, this does not have a substantive impact on the poverty measure and there is no reason to believe that this introduces any bias into the analysis. Third, the FACS is a survey only for Great Britain, while the published HBAI statistics are for the United Kingdom.

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61 Throughout, the term family is used to refer to the benefit unit. This includes the respondent's partner as the second 'parent' regardless of whether the respondent and partner are married or are cohabiting and regardless of whether the dependent children are the partner's own biological children. Biological parents not living in the same household are not included in this definition of family

62 Just over ten per cent of the families in the FACS have an older (non-dependent) child living in the household, while four per cent have at least one other adult and two per cent have at least one other child living in the household. If it were assumed that working adults raise equivalised income, while non-working adults and children reduce equivalised income, a household measure of income in the FACS could potentially have a lower poverty rate by two percentage points through poor families living in non-poor households and could potentially have a higher poverty rate by four percentage points through non-poor families living in poor households.

Table A.1 Measurement of HBAI income in the FACS

Income items	
Usual net earnings from employment	Usual net earnings in main job *'after all deductions for tax, national insurance, pension contributions, union dues and so on, but including overtime, bonuses, commission, tips, etc.'* plus any usual additional earnings for additional work undertaken at least once every four weeks. Tax credit payments were deducted (see benefits section below).
Profit or loss from self-employment	For those in business less than six months: response to the question 'What do you think your income from the business will be?'. For those in business six months or more: response to the question *'On average, how much money do you take out of your business each week for your own and your family's use?'*. For those in business six months or more and reporting additional profit to the previous question: response to the question *'So what do you estimate is the total income from the business after all expenses, taxes, etc. and including additional profit?*'.
Social security benefits and tax credits (including Housing Benefit)	Most benefits are reported in the benefit table which records the receipt and amount received for most benefits individually and for a residual 'other' category. The exceptions are: (1) Child Benefit was not recorded in wave C. For this wave, this benefit is imputed from the number of the respondent's dependent children and the benefit rates, assuming 100 per cent take-up. (2) Council Tax Benefit was included in the benefit table in wave C, but contained a substantial proportion of missing values apparently due to some reporting of the amount of council tax rather than the benefit. From wave D, the benefit was recorded separately in the housing section of the survey. (3) Housing Benefit is reported separately in the housing section of the survey. Tax credits are also recorded in the benefit table, including Working Families' Tax Credit in waves C–D and the Working Tax Credit and Child Tax Credit in waves E–H. In addition, the amount of tax credit payments included in earnings for employees was recorded in waves C–G in the work section of the survey. Further questions in waves E–G recorded whether the tax credits were received through earnings and sought to reconcile the credit amount if different amounts were reported in the benefit table and in the work section of the survey. These sources were used to remove, where possible, any tax credit payments from earnings in waves C–G and to include tax credit amounts as benefit income. In cases where the tax credit payment were included in earnings but the amount could not be identified, the earnings amount was flagged as including a tax credit payment and the payment was not included in the benefits total.
Income from occupational and private pensions	Presumed to be included in other income: response to the question *'So far we have talked about jobs, benefits, maintenance, savings and so on. Do you have any other regular income, that is, money you can rely on coming in most weeks or months?'*.
Investment income	Imputed from the total amount of savings assuming a return of three per cent per annum. Savings include amounts in current and savings accounts and *'any other money invested in things like PEPs, unit trusts, shares, bonds or securities'*.

Continued

Maintenance payments if received directly	Includes total voluntary and court order payments (as one amount) and Child Support Agency (CSA) payments (as a separate amount) for all dependent children. In waves C–G, the entitlement amount for each type is reported together with whether payment is received in full or in part or not at all. In wave H, the entitlement and actual amounts received for each type are reported (the actual amount either directly or as a proportion of the entitlement). In cases of partial payment in waves C–G, the actual amount is imputed from the entitlement using the proportion received by that individual in wave H or, if there is no partial payment for that individual in wave H, using the median proportion paid for all recipients of partial payments in wave H.
Income from educational grants and scholarships	Presumed to be included in other income: response to the question *'So far we have talked about jobs, benefits, maintenance, savings and so on. Do you have any other regular income, that is, money you can rely on coming in most weeks or months?'*.
Cash value of certain forms of income in kind (free school meals, free welfare/school milk, free TV licence for those aged 75 and over)	Receipt of free school meals and free/subsidised welfare milk for Income Support recipients was recorded in all waves. Receipt of free/subsidised milk for eligible tax credit recipients is recorded in all waves, but receipt of free school meals for qualifying child tax credit recipients was recorded only in waves F–G (omitting those eligible in wave E). The monetary value of these benefits in kind was imputed using the number of eligible children. Receipt of benefits in kind is not recorded for recipients of income-based Jobseeker's Allowance. Receipt of free school milk and receipt of free TV licence are not recorded.
Deductions from income	
Income tax payments	Deducted from the reported net earnings for the employed and self-employed.
National Insurance contributions	Deducted from the reported net earnings for the employed and self-employed.
Council tax	Council tax bands are reported in all waves and there is a FACS imputed amount based on the tax bands and externally sourced local authority tax rates. In wave C, this imputed amount is constant within band, suggesting that the external source of local rates was not used. The imputed amount was also missing for the self-employed in wave C and was imputed using the reported tax bands and FACS rates. The actual tax payment was recorded directly in questions in the housing section in waves D–H. The imputed value is used in wave C and the actual reported amount in waves D–H (unless it is missing, when the imputed value is used instead).
Contributions to occupational pension schemes	Deducted from the reported net earnings for the employed.
Maintenance and child support payments	Payments not recorded.
Contributions to students living away from home	Payments not recorded.

As FACS is a survey only of families with dependent children and median income for all households cannot be derived from it, the poverty threshold of 60 per cent of median income from the HBAI statistics was applied to derive poverty status in the FACS. This poverty threshold is for households in Great Britain using the revised figures for all years from the 2006–07 HBAI calculations.[63]

A.2 Methodology used to construct a monthly poverty panel

In order to study changes in poverty around the time of work entries and exits and during the 36 months following a work entry, a monthly history of poverty state was constructed for each family during the months they were in the FACS survey between April 2001 and April 2007.[64] There are three main reasons for using the data in this format.

First, by constructing a monthly history of poverty status, the direct impact of one parent entering or exiting work can be observed precisely as the change in poverty between the month immediately preceding work entry or exit and the initial month of the new work spell or spell out of work. The alternative of comparing poverty states at the interview immediately prior to the work entry and at the interview following work entry is less precise because it will also include the effects of other changes in family circumstances over the annual gap between interviews, such as changes in the partner's work or earnings or in the number of children in the family.

Second, using a monthly history addresses two main drawbacks of simply using the poverty status for each family in the month of an interview to map out the changes in poverty during the 36 months following a work entry. The first drawback of using only interview-month data is that the poverty picture would exhibit a high degree of randomness because the sample size for any given month

63 Median income for the United Kingdom is available in the HBAI publications and the corresponding figures for Great Britain were supplied directly from the HBAI data by colleagues at the Institute for Fiscal Studies. The weekly median equivalised income for households in Great Britain was £297.42, £316.25, £328.77, £336.81, £350.40, £363.29 and £378.01 for fiscal years 2000–01 to 2006–07 respectively.

64 As most wave 8 interviews took place before December 2006, the number of families in the period December 2006 to April 2007 is small. The sample period began in April 2001 (six months prior to the first interview for most families) as interpolation prior to this month generated a child poverty rate that was not in line with subsequent trends and was not similar to HBAI statistics.

would be small and because the sample would be changing every month.[65] The second drawback is that it would not be possible to trace the particular experience for a given family and draw conclusions about the degree to which families move into and out of poverty within the period. Using monthly data makes full use of the survey information about families' work behaviour between interviews both by providing a dynamic picture of changes in poverty status for individual families and by generating a larger number of observations for each month which allows a more precise measurement of monthly changes in the aggregate poverty rate.

Third, although the work status at the time of interview is reported for all respondents and their partners, FACS has an unusually high proportion of missing earnings data at the time of interview: seven per cent of respondents and 16 per cent of partners currently in work do not record an earnings amount. The proportion is higher for partners because a substantial proportion of partners are not interviewed and no proxy value for their earnings is reported by the respondent.[66] If the missing earnings amounts are ignored or observations with missing earnings are dropped from the analysis, poverty rates in the FACS are much higher than the HBAI statistics. The interpolation used to construct the monthly poverty histories estimates these missing values using earnings reported at a different wave for the individual in the same job spell.[67]

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65 For example, the sample for the first month after work entry would contain only those individuals who were interviewed in the month following work entry which would be approximately one-twelfth of the number who had entered work during the year. These individuals would then appear again in the sample at approximately 13 months and 25 months after work entry when they were interviewed in the subsequent years. The second month after work entry would only contain those individuals who were interviewed in the second month following work entry and they would appear again when reinterviewed at approximately 14 and 26 months after work entry, and so on. Hence, the sample would be approximately one-twelfth of the sizes here with roughly 12 different sets of individuals circulating through the year.

66 In waves 3 to 8, 32,873 respondents reported a partner living in the household, but 12,464 (38 per cent) of these cases did not have interviews with the partner. Of those missing partner interviews, the respondent reported that the partner was currently in work in 11,625 cases and not working in 839 cases.

67 An alternative approach would be to impute these missing earnings values based on the individual's demographic characteristics, but this would only provide an average value for the individual's demographic group. For dynamic analysis, using the interpolation generates a value that is directly related to the individual and provides a more consistent longitudinal picture for the individual than imputation.

This report is novel, as far as the authors are aware, in using such a data set constructed from longitudinal data. The approach is appropriate for considering changes in family poverty status at work entry and work exit and is facilitated by the availability in the FACS of individual work histories and partnership histories between the waves. As highlighted below, the method would not be appropriate for other types of research considering different variables of interest (such as the dynamics of hourly wages or the take-up of benefits) or at other key dynamic points (such as the introduction of a new policy in a specific calendar month). This limited applicability (and possibly the amount of computational work required) means that, as far as the authors are aware, this method has not been utilised previously.

In constructing the monthly poverty histories for each family, three (or four for couples) initial base histories are constructed directly from the survey information:

- A monthly history of family structure consisting of a partner identifier (allowing changes in partner to be identified) and the number of dependent children present in the family. The age of each child in each month was also calculated from their date of birth in order to calculate the equivalence scale in each month.
- A monthly work activity history for each parent where work activity spells include job spells defined as continuous employment with a given employer or a continuous period of self-employment and non-work spells defined as a continuous period out of work.
- A monthly history of home address, which identifies when the family changed address.

The first two elements are assumed key to determining the family's poverty status: the number and age of children through the impact on the family's equivalence scale; the partnership status through the impact of an additional adult on the equivalence scale and on the extra income brought by an additional adult; and both parents' work through the difference in income between working and not working. The third element is not essential and is only required for the interpolation of Council Tax payments.

From these 'base' histories, the income observed at the time of interview is interpolated across all months:

- Within a job spell for each parent, any changes in work-related earnings between interviews within the spell were assumed to occur at a constant monthly rate while earnings are assumed to be constant in the months leading up to the first interview and in the months following the final interview. Technically, this can be described as 'linear interpolation' (the constant rate of change) with 'flat tails' (there is no change at each end of the spell).[68]

[68] It should be noted that the direction of change in earnings can alter at any interview within a job spell. Hence, earnings do not necessarily always move in the same direction or at the same rate within a job spell and a number of poverty transitions can occur within the work spell. In addition, poverty transitions may occur within the work spell due to changes in other family income or structure.

- Non-earnings income, such as benefits, that is dependent on work hours and earnings (earnings-related income) was interpolated in a similar manner within periods of constant family structure and the same work activity spells for all parents.[69] This included separate interpolations for Child Benefit, Income Support, Working Families' Tax Credit (WFTC), Working Tax Credit (WTC),[70] Child Tax Credit (CTC), Council Tax Benefit and Housing Benefit. All other benefits were combined into a single amount at the time of interview and interpolated as a single amount.
- Non-earnings income that is not directly related to work hours or earnings was interpolated in a similar manner within periods of constant family structure. This included separate interpolations for savings income, child support receipts and income recorded in the survey as 'other income'.
- Council Tax payments and rent payments[71] were interpolated in a similar manner within continuous periods at the same home address.

This incorporates some important assumptions:

- Because earnings are interpolated within an individual parent's job spell, the interpolated changes in earnings are unaffected by other changes within the family, including changes in family structure or another parent's earnings that occur within that job spell. In contrast, because earnings-related income, such as benefits, is interpolated within periods of constant work activity for both parents and stable family structure, the interpolated changes in earnings-related income are affected by changes in family structure and changes in another parent's employment. Within periods of stable jobs for both parents and stable family structure, earnings-related income will change in line with earnings. For example, if earnings rise by £120 between interviews 12 months apart and tax credits fall by £60, earnings would be interpolated to rise by £10 each month and tax credits to fall by £5 each month.
- Earnings from work are assumed to change at a constant rate between interviews within a job spell, but, in reality, earnings do not grow steadily each month and, for most types of research, should never be modelled in this manner. For the purpose of considering when changes in earnings might mean that family income moves across the poverty threshold within a particular work activity spell, the constant rate of growth simply locates a single month when the family

69 This implicitly assumes benefit and tax credit take-up rates as reported at the interviews.

70 The switch from WFTC to the WTC is detailed in point (f) in the following section.

71 Council Tax payments are a direct deduction from income to calculate net income. Rent is used to impute missing Housing Benefit amounts as described in point (e) in the following section.

made the poverty transition.[72] In addition, it is important to note that because the constant growth in the earnings interpolation applies only within job spells, it only has a very limited impact on poverty changes at the time of a work entry or exit for one parent or at the time of partnership changes through changes in the original parent's earnings (for new partnerships) or the remaining parent's earnings (for partnership break-ups) in an ongoing job spell.

- Other sources of income are also assumed to change at a constant rate within periods of stable work activity spells for both parents and stable family structure, but, again, most income sources do not grow in this manner and it would not be appropriate to model in this manner for most types of research.[73] But, as with earnings, for the purpose of considering when changes in these income sources might mean that family income moves across the poverty threshold, the constant rate of growth simply locates a single month when the family made the poverty transition. In addition, it is important to note that because the constant growth in the interpolation for other sources of income occurs only within periods of constant work activity spells and family structure, it cannot impact on poverty transitions at work entries or exits or at changes in family structure.
- The 'flat tails' are used at the end of spells to ensure that interpolated earnings and other income remain within the range of actual observed values for each family. The drawback of this is that the earnings level at the start of a work spell may be overestimated if there is growth prior to the first interview within the spell. However, the first interview should occur, on average, within six months of work entry (and, in most cases, within 12 months), so only earnings increments early within the new job will be missed. If it is the case that there is relatively little earnings growth within the first year, the alternative of assuming that growth in the initial period of the spell is the same as that between the first and second interviews has a greater risk of understating the earnings at the time of work entry. The 'flat tails' assumption also implicitly assumes that any change in earnings and earnings-related income occurs as soon as individuals enter or leave work, which may not always happen in reality.

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72 The advantage of the linear interpolation is that it ensures that the number of poverty transitions in the final data matches the number actually observed in the original data and simply sets a month when the transition occurred between the two observed points when the poverty state differed. An alternative method of interpolation would be to assume that any changes occur at the midpoint between observations, but this could lead to additional poverty transitions being added to the data because the poverty line is increasing smoothly and the discrete jump could cut across it. More generally, several more complicated interpolation methods could be applied but have not been tested here.

73 For example, benefit levels are uprated in April of each year rather than growing constantly across the year. However, benefit receipts differ between interviews for many reasons other than the April uprating and it would introduce a substantial bias to assume that all changes occur in April.

- As a consequence of the assumptions of constant growth and 'flat tails' for earnings and other income, some variation in the direction of change in earnings and other income and consequent poverty transitions between interviews will be omitted. For example, earnings may be higher at the second interview than the first, but any intervening dip below the initial level will not be captured. However, it is important to note that any consequent omissions in poverty transitions include only those that occur within periods of stable family structure and job and work activity spells for all parents and are due to sufficiently temporary low or high income that it is not covered by an interview.

The interpolated monthly income was combined with the monthly family structure history to derive a measure of equivalised family income in each month. The annual poverty threshold for households in Great Britain from the HBAI was interpolated across months (by applying the annual threshold to September within each financial year and assuming constant growth in this threshold)[74] and used to derive a poverty status for each family in each month in the FACS data.

It should be noted that as equivalised net median income and the poverty threshold are steadily rising over time, some families may enter poverty when their income does not rise or does not rise as quickly as the poverty threshold. But this is not unique to the use of the monthly series as it also occurs with annual changes. However, the continuously rising poverty threshold does not mean that families can only make one journey over the poverty line. The level of family income can rise or fall suddenly in any month with a change in family structure or a change in job or work activity for either parent, potentially leading to an immediate entry into or exit from poverty, while income can also switch from rising or falling (or have a change in the rate of growth or decline) in these months and in any month with an interview, potentially leading to a subsequent entry into or exit from poverty. Indeed, the use of the monthly data set captures all poverty transitions that occur annually between interviews[75] as well as additional transitions that arise between interviews due to fluctuations in family structure or work behaviour between the interviews.[76]

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74 The monthly poverty threshold ranged from £801.85 in April 2001 to £1,004.00 in April 2007. The corresponding weekly poverty threshold ranged from £185.04 in April 2001 to £231.69 in April 2007.

75 The impact of measurement error in income on poverty transitions occurring between the annual interviews remains in the monthly data set and has not been explicitly addressed, partly to maintain consistency in the aggregate poverty rates with the HBAI statistics. For example, using a definition of poverty based on observing families in poverty at two successive interviews would substantially reduce the poverty rate and remove all spells of poverty lasting less than two years from the analysis.

76 The capturing of all additional transitions between interviews is subject to the caveats about the data in the following section.

A.3 Construction details and complications

The basic methodology for constructing the monthly poverty panel described in the previous section was modified in the following ways to address a number of complications that arose in the data.

(a) In constructing the family structure histories, the precise dates when children entered or left the family are not recorded in the survey (other than for births, when the month of birth can be used). It was assumed that children entered the family in the same month as the partner arrived if they were step children or at the midpoint between interviews. It was assumed that children left the family (either through leaving dependency or through leaving the household) in the same month as the partner left if they were step children, in the month they became 19 years old (if leaving dependency by turning 19) or at the midpoint between interviews.[77] A substantial proportion of the dates when partners entered or left the household were missing from the partnership histories and these were also assumed to be at the midpoint between interviews.[78] As family structure, the partner's earnings and other income are interpolated separately for the periods before and after these midpoints, the only potential source of error for the analysis in assuming that the changes in family structure occur at the midpoint is if it results in an incorrect sequencing with any work entries or exits for the respondent.

(b) A substantial proportion (30 per cent) of interviews with partners present had no work history recorded for the partner, mainly because the partner had not been interviewed.[79] In 85 per cent of these cases, the partner was in the same

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77 There were 75,601 consecutive pairs of interviews for children who were present in at least one of the interviews. The child was present at both interviews in 90 per cent of these cases, was only present in the second interview (had arrived in the family) in four per cent of cases and was only present at the first interview (had left the household or was no longer dependent through age or through leaving full-time education) in six per cent of cases. For the arrivals, 81 per cent were births, four per cent were step children and 15 per cent were neither. For those leaving, only one per cent were step children aged under 16 at the time of the second interview, while 11 per cent were aged under 16, 61 per cent were aged 16 to 18 and 28 per cent were aged 19 or over at the time of the second interview.

78 No intervening partnership history was recorded in 1,053 of the 1,138 cases where a partner had left the household between interviews, in 189 of the 247 cases where a respondent changed partners between interviews and in 199 of the 1,294 cases where a partner had joined the household between interviews.

79 The work histories were only missing for respondents at six interviews. As for partners, it was assumed that the individual was in the same work spell if the work state was the same at both interviews and that any change in state had taken place at the midpoint between the interviews.

work state at both interviews (defined by whether working; by whether working 16+ weekly hours or less than 16 weekly hours; and by whether employed or self-employed) and was assumed to be in the same job spell at both interviews. If the partner had changed work state, it was assumed that the change had occurred at the midpoint between interviews. The missing work histories mean that some work transitions may have been missed, although given that almost all the partners are male and that most fathers are continuously in work, it is unlikely that this represents a substantial number of missing work entries and exits.

(c) For work spells that end between interviews, an average earnings amount for the spell is reported at the subsequent interview. This information is incorporated as the earnings amount at the end of the spell and used in the interpolation in the same way as the earnings reported at the time of interview. For work spells that lie completely between interviews, this amount is applied at a constant rate throughout the spell.[80]

(d) In work spells without any earnings observation but with reported weekly hours, an hourly earnings amount for that individual was interpolated from adjacent work spells and total earnings calculated as the product of the reported hours and interpolated hourly earnings. In a small number of cases where the individual had no earnings observation throughout the panel, the hourly earnings were imputed using the sample median for groups defined by gender, five categories of age group, six categories of education level and financial year. For respondents, 97 per cent of months in work had an earnings value derived by interpolation within the job spell, two per cent by interpolation in the hourly earnings across job spells, one per cent by imputation and less than one per cent remained missing due to missing demographic information. For partners, the corresponding proportions are 92 per cent, three per cent, four per cent and one per cent.

(e) In periods of constant family structure and work activity spells with no interviews and thereby no report of non-earnings income, other sources of income were interpolated for the family from adjacent spells of identical family structure and work participation by the parents. In a small number of cases where no other similar periods were available, some amounts of benefits and tax credits were imputed on the basis of family structure, income and work hours, assuming 100 per cent take-up. Missing values for Child Benefit were imputed using the number of dependent children. Missing values for Income Support and tax credits were imputed using family structure, earnings, other income and hours of work. Missing values for Housing Benefit and Council Tax Benefit were imputed using Income Support receipt, rent and Council Tax payments. Missing values for Council Tax payments were imputed in a few cases where there was a known amount for Council Tax Benefit. For Child Benefit, the proportion of months with amounts interpolated from adjacent spells was four

[80] If there are multiple spells between interviews, the respondent is asked about all spells.

per cent, the proportion of months with imputed amounts was three per cent and the proportion of months with remaining missing values after interpolation and imputation was less than one per cent. The proportions are four per cent, three per cent and less than one per cent for Income Support; four per cent, four per cent and four per cent for WFTC; four per cent, three per cent and four per cent for WTC; five per cent, three per cent and five per cent for CTC; four per cent, two per cent and one per cent for Housing Benefit; four per cent, one per cent and two per cent for Council Tax Benefit; and four per cent, less than one per cent and three per cent for all other benefits combined.

(f) In April 2003, the Working Families' Tax Credit was replaced with the Working Tax Credit and the Child Tax Credit. It was assumed that all families receiving WFTC in the autumn of 2002 continued to receive the same amount until the end of March 2003 if they remained in the same family structure and work spells. It was assumed that all families receiving WTC and CTC in the autumn of 2003 had been receiving the same amount from April 2003 if they had been in the same family structure and work spell since that time. In reality, the changeover and the take-up of the new tax credits were more gradual, but it was not possible to incorporate this in the absence of information on tax credit receipt between interviews. However, the method applied here means that any problems with the receipt of the new tax credits within the initial six months generally will not have been recorded in the monthly data.

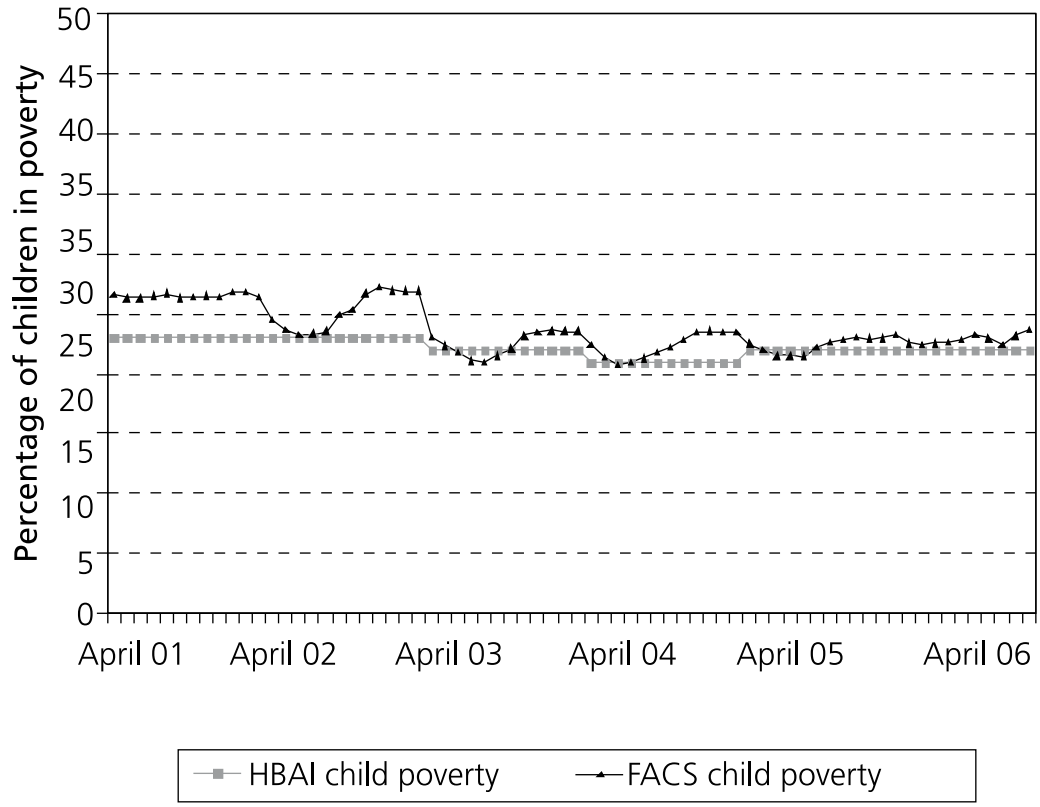
The final sample used in the analysis contained monthly observations for families with dependent children present in that month. It consisted of 505,250 monthly observations (362,554 monthly observations for couples and 142,696 monthly observations for lone parents), covering 12,362 different respondents and 10,058 different partners. These sample sizes are smaller in some of the analyses where information for particular variables is missing.

A.4 Monthly child poverty rates in the FACS

Figure A.1 presents the monthly child poverty rates calculated using the FACS data and the annual official HBAI statistics for the period of the analysis.[81] The official HBAI statistics are average rates for the financial year and hence are represented by a flat line across each year. It should be noted that the FACS poverty rate is for families in Great Britain, while the official HBAI statistic is for households in the United Kingdom.

[81] The annual official HBAI statistics are from Table 4.1 in Department for Work and Pensions (2007) *Households Below Average Income (HBAI) 1994/95-2006/07*.

Figure A.1 Percentage of children in poverty by calendar year



Notes: The poverty rate is the BHC measure using contemporary median income and OECD modified equivalence scales. The FACS rate is for families in Great Britain, while the HBAI rate is for households in the United Kingdom.

The FACS child poverty measure is broadly similar to the HBAI statistic. There are two main differences of note. First, while the HBAI measure is an annual average and is therefore constant within the fiscal year, the monthly FACS measure has a cycle over the fiscal year, dropping at the beginning of each year and then rising gradually through the year. This may be accounted for by the annual uprating of benefits and tax credits in April, while median income and the poverty threshold grow steadily through the year. Second, the FACS measure is initially slightly higher than the HBAI statistic and exhibits a distinct shift down in the poverty rate around April 2003. The initial difference may reflect the fact that the FACS is a family measure of poverty for Great Britain rather than a household measure for the United Kingdom. The shift down in the FACS poverty rate follows the introduction of the new Working Tax Credit and Child Tax Credit in April 2003,

but it is not clear why the same pattern is not apparent in the HBAI statistic.[82] The introduction of the new tax credits in April 2003 is unlikely to have had any impact on poverty transitions at the time of work entry and exit due to the small number of transitions coinciding with that particular month. The introduction of the new tax credits may slightly raise poverty exit rates within the first 36 months following work entry for some spells beginning prior to April 2003, but any effect would be distributed across the 36-month period.

82 The fact that the new tax credits did not have a marked impact on the child poverty rate in the official HBAI statistic is raised in Brewer *et al.*, (2005). At the time, this was put down to administrative problems during the first year in which the new tax credits were in operation. However, since then, Brewer *et al.*, (2008) have shown that the proportion of administrative expenditure on tax credits recorded by the FRS (the source of official HBAI statistics) fell when the new tax credits were introduced and has not subsequently risen again.

Appendix B
In Work Credit for lone parents

The In Work Credit (IWC) is payable to lone parents who enter work of 16 or more weekly hours after 12 months of continuous receipt of Income Support or Jobseeker's Allowance. It pays £40 per week (£60 in London) for the first 12 months in work of 16 or more weekly hours. In order to consider the potential impact of the IWC for lone mothers on in-work poverty, the credit was simulated for lone mothers in the Families and Children Study (FACS) data and added to the income of eligible mothers.[83]

In the FACS sample, 39 per cent of lone mothers were estimated to be eligible for the credit when they moved into work. Under the assumptions of complete take-up and that the credit did not alter the work choices of lone mothers, the addition of IWC means that the percentage of lone mothers remaining in poverty through work entry falls from 31 per cent to 26 per cent and the percentage leaving poverty rises from 45 per cent to 50 per cent, generating a poverty exit rate of 66 per cent with IWC rather than 59 per cent without the credit (Table B.1). Overall, the poverty rate for lone mothers in the first month of work falls from 37 per cent without IWC to 30 per cent with the credit.

The IWC reduces the poverty rate by six to seven percentage points throughout the first 12 months of the work spell (Figure B.1). Interestingly, the gap between the poverty line without IWC and with IWC barely narrows over the 12 months, indicating that mothers lifted out of poverty by the IWC would otherwise be unlikely to move out of poverty during the first 12 months.

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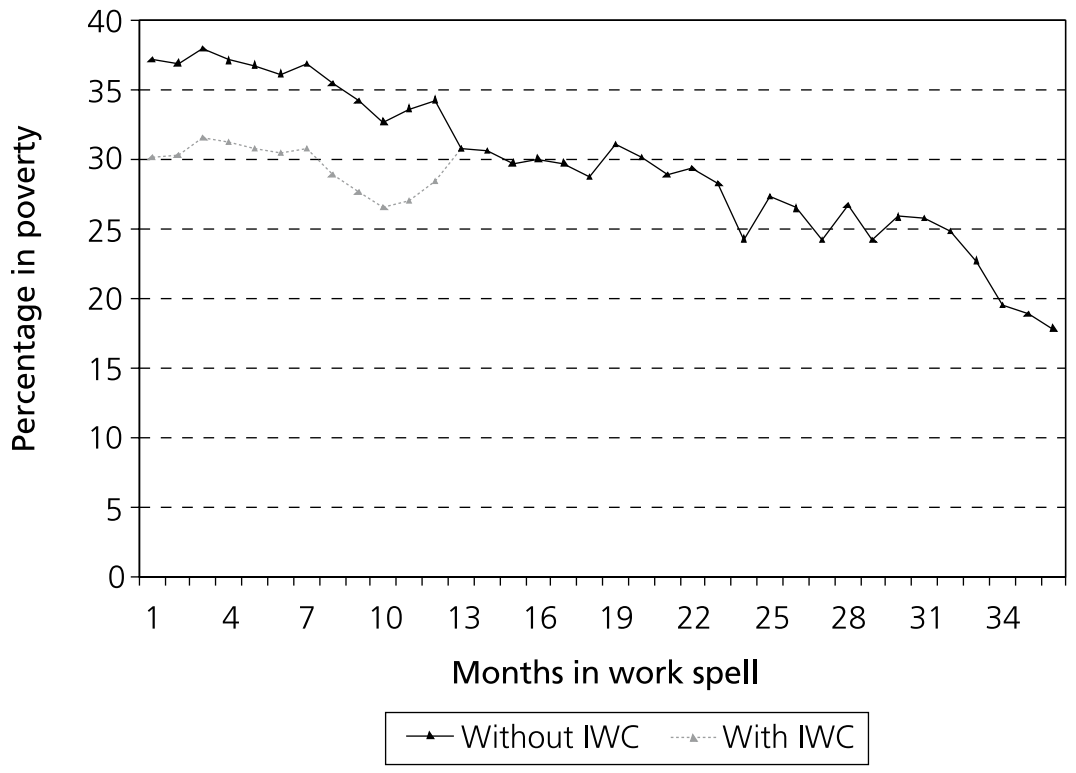
83 The sample of 1,055 work entries for lone mothers used in Chapter 5 is reduced to 976 due to insufficient information to simulate IWC in 79 cases. The simulation was not performed for lone fathers due to insufficient sample size.

Table B.1 Poverty transitions with work entry for lone mothers with IWC

	Without IWC	With IWC
Percentage remaining in poverty	31	26
Percentage leaving poverty	45	50
Percentage entering poverty	6	4
Percentage remaining out of poverty	18	20
Total	**100**	**100**
Percentage poverty exit rate (% of those initially in poverty who are not in poverty after work entry)	59	66
Number of observations	976	976

Note: The poverty exit rate is calculated as the proportion of those initially in poverty (sum of the first two rows in each column) who are not in poverty after work entry (the second row in each column).

Figure B.1 Percentage of lone mothers in poverty over the work spell with IWC



Note: The sample size ranges between 976 in month one and 134 in month 36.

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