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An Investigation of the Potential for Wales-Level Analysis of the British Household Panel Survey and Understanding Society:

An illustrative analysis of poverty dynamics in Wales



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1. Introduction

The primary purpose of this report is to investigate the potential for undertaking 'Wales-level analyses using the British Household Panel Survey (BHPS) and Understanding Society (USoc). Although a long established panel survey, it remains the case that little

Wales-specific analysis has been undertaken using the BHPS (see Jones and Sloane, 2004¹). Despite the presence of a Wales 'boost' to the BHPS since 1999, it remains the case that the Wales sample is relatively small and therefore its ability to provide a long term view of the circumstances of respondents living in Wales (such as issues surrounding inter-generational transmission) is relatively limited. However, there are a variety of ways in which longitudinal data can be used and therefore the analytical values of the BHPS and Understanding Society should not be discounted.

One possible application of the dataset could lie in the analysis of transitions that take place over a relatively short duration of time, such as those that can be identified as taking place between successive Waves of the survey. The use of the data in this way could be of particular relevance to policy makers who are often interested in examining how the implementation of policies that influence the behaviour of individuals over the relatively short term. This emphasis upon transitions raises the possibility of pooling data over time such that a single BHPS respondent may provide multiple years' worth of observations, enhancing the effective sample size available for analysis.

This Report investigates the statistical properties of the BHPS and Understanding Society in Wales, with particular emphasis being given to understanding the incidence and nature of transitions experienced by respondents. The statistical properties of the Wales BHPS sample are examined via an illustrative investigation into the dynamics of poverty in Wales. The BHPS will be used to examine the types of demographic and economic transitions that are made by respondents and then to consider how these transitions affect the likelihood with which a household enters or exits poverty. At the outset it is acknowledged that this report does not aim to provide a definitive analysis of poverty dynamics in Wales. This Report primarily aims to provide an illustrative example of the types of analysis of BHPS and USoc that are feasible to conduct within the context of Wales.

Nonetheless, the study of poverty is of particular importance for Wales. As a nation, Wales is characterised by a 'low pay – low skill equilibrium'. Following de-industrialisation, Wales's industrial and business structure has resulted in a relatively weak demand for

¹ Jones R. and Sloane P. (2004) Regional Differences in Job Satisfaction: Why are Welsh workers so happy at work? WELMERC Discussion Paper 2004-05, Department of Economics, Swansea University.

knowledge and technical-based skills and the employment structure in Wales over-represents relatively low paid and low skilled jobs. Wales demonstrates a productivity gap relative to the UK as a whole, and this gap has widened throughout the period of de-industrialisation. As a consequence, individuals' earnings in Wales are, on average, lower than the UK average resulting in a higher level of in-work poverty (see *Monitoring Poverty and Social Exclusion in Wales*, Parekh and Kenway 2011²). Furthermore, Blaenau Gwent, Merthyr and Neath Port Talbot each appear in the top 20 districts across Great Britain in terms of their levels of 'real' unemployment (see Beatty, Fothergill and Gore, 2012³).

The remainder of this Report is structured as follows. Section 2 provides an overview of the BHPS and its successor Understanding Society. The sample sizes available for Wales are documented, including a summary of the duration for which and incidence at which respondents appear in the studies. The implications of moving from the BHPS to Understanding Society in terms of the continuity of the sample are also discussed. Section 3 develops typologies of economic and demographic transition that can be implemented when analysing the BHPS and Understanding Society and describes the sample sizes available for such transitions. Section 4 introduces the derivation of household income that has been developed by researchers for the study of poverty dynamics. Utilising this measure, both trends in poverty and variations in the incidence of poverty between different population sub-groups is considered. Section 5 presents a descriptive analysis of the dynamics of poverty in Wales derived from the BHPS. Particular attention is given to how specific demographic and economic transitions contribute to changes in the incidence of poverty. Issues surrounding the persistence and dynamics of poverty are also explored. Section 6 presents results derived from a variety of multivariate techniques by means of providing an illustration as to the types of analysis that are feasible at the Wales level. Concluding comments are provided in Section 7.

² Parekh A. and Kenway P. (2011). *Monitoring Poverty and Social Exclusion in Wales*. Joseph Rowntree Foundation.

³ Beatty, C., Fothergill, S. and Gore, T. (2012) [*The real level of unemployment 2012*](#). Sheffield: CRESR, Sheffield Hallam University.

2. An Overview of the BHPS and Understanding Society Samples

Summary

- The BHPS was a panel survey that tracked individuals and households over time. At its inception in 1991, the BHPS covered approximately 5,500 households and interviewed 10,300 adults in Great Britain.
- A major development at Wave 9 (1999) of the BHPS was the recruitment of two additional samples in Scotland and Wales. Within Wales, this had the effect of increasing the number of respondents from approximately 570 in 1998 to more than 3,000 in 1999. By the time of the final Wave of BHPS data (2008), the Wales sample still stood at more than 2,500 adult respondents.
- The BHPS has now been incorporated in to Understanding Society, the new UK Household Longitudinal Study. The BHPS sample was integrated into Understanding Society during Wave 2 of the new study (2010), resulting in a combined sample size of more than 4,100 respondents in Wales.

The BHPS was a panel survey that tracked individuals and households over time. Respondents were re-interviewed each successive year. Those who left the originally sampled household to form new households were followed up. Where contact was established, all adult members in the new household were interviewed. New members joining sample households also became eligible for interview. Children aged 11-15 years completed a short interview (since 1994) and progressed to a full interview as they reached the age of 16 years. Table 2.1 presents information on the number of households that were interviewed under the BHPS. At its inception in 1991, the BHPS contained information on approximately 5,500 households and interviewed 10,300 adults in Great Britain. A major development at Wave 9 (1999) was the recruitment of two additional samples to the BHPS in Scotland and Wales. The sample boosts aimed to facilitate independent country-level analysis and comparisons with England post-devolution. Within Wales, this had the effect of increasing the size of the Wales sample from 572 respondents in 1998 to more than 3,000 in 1999. During 2008, despite attrition, the Welsh sample size remained in excess of 2,500 individuals.

The BHPS has now been incorporated in to Understanding Society (USoc), the new UK Household Longitudinal Study. USoc is the world's largest household panel survey, following a sample of around 40,000 UK households and has been in the field since January 2009. The effect of the introduction of USoc upon achieved sample sizes is shown

in the bottom two rows of Table 2.1. The first wave of USoc, taking place over a period of two years, achieved responses from 31,000 households and interviews with approximately 50,000 respondents. Within Wales, interviews were achieved with 2,378 respondents during Wave 1. The BHPS sample was retained in USoc, although these members of the BHPS only joined the study during Wave 2 (2010/2011). The transition from the BHPS towards USoc has therefore resulted in an interruption in the availability of annually updated panel data. The inclusion of the BHPS sample within Wave 2 of USoc is particularly important among the devolved nations where significant boosts to the BHPS sample size were already in place. Within Wales, the sample size of individuals included within USoc increased from 2,378 in 2009 (Wave 1) to 4,126 in 2010 (Wave 2) following the integration of the BHPS sample.

Whilst the inclusion of the BHPS sample within USoc is important in the context of Wales, levels of response among the original BHPS sample who joined USoc in Wave 2 are described as ‘extremely disappointing’ in the Understanding Society Technical Report⁴. Response rates for households at Wave 18 of the BHPS were 92%. Response rates among the most recent wave of BHPS respondents i.e. the first Wave after joining USoc fell to 81%. Reasons given for the lower levels of response included the change of survey providing a catalyst for people to drop out of the study and the possible loss of rapport with interviewers resulting from the change in survey contractor.

⁴ Boreham R,(2012) Understanding Society Wave 2 Technical Report: NatCen Social Research: Available at:
https://www.understandingsociety.ac.uk/system/uploads/assets/000/000/011/original/Wave_2_Technical_Report.pdf?1354035554

Table 2.1: Number of Households/Individuals in BHPS/Understanding Society (BHPS, 1991-2008; USoc, 2009-2010)

Coverage	Households						Individuals				
	Year	England	Wales	Scotland	Northern Ireland	Total	England	Wales	Scotland	Northern Ireland	Total
BHPS	1991	4,693	281	531	0	5,505	8,774	533	957	0	10,264
	1992	4,455	260	508	0	5,225	8,406	510	927	0	9,845
	1993	4,466	264	498	0	5,228	8,215	491	894	0	9,600
	1994	4,362	273	487	0	5,122	8,099	509	873	0	9,481
	1995	4,286	270	475	0	5,031	7,915	491	843	0	9,249
	1996	4,341	269	452	0	5,063	8,134	480	823	0	9,438
	1997	5,035	330	568	135	6,089	9,303	573	1,024	256	11,193
	1998	4,983	326	543	118	6,003	9,128	572	928	222	10,906
	1999	4,919	1,753	2,004	113	8,795	8,977	3,043	3,383	210	15,623
	2000	4,874	1,713	2,038	94	8,761	8,883	2,993	3,474	179	15,603
	2001	4,833	1,663	1,987	2,062	10,628	8,790	2,941	3,366	3,623	18,867
	2002	4,145	1,560	1,784	1,736	9,346	7,563	2,802	3,037	2,978	16,597
	2003	4,051	1,527	1,712	1,599	9,038	7,430	2,783	2,929	2,836	16,238
	2004	4,039	1,506	1,660	1,494	8,888	7,366	2,705	2,767	2,623	15,791
	2005	4,105	1,500	1,632	1,451	8,703	7,517	2,696	2,755	2,636	15,627
	2006	4,086	1,503	1,595	1,392	8,595	7,467	2,710	2,679	2,509	15,392
	2007	4,015	1,458	1,518	1,304	8,343	7,301	2,621	2,566	2,344	14,910
	2008	3,963	1,420	1,495	1,244	8,122	7,137	2,571	2,473	2,238	14,419
Understanding Society	2009	25,099	1,392	2,259	1,285	30,035	42,972	2,378	3,556	2,088	50,994
BHPS sample joins Understanding Society	2010	23,002	2,306	2,886	2,210	30,476	41,535	4,126	4,955	3,873	54,597
Total		127,752	21,574	26,632	16,237	192,996	230,912	38,528	45,209	28,615	344,634

The patterns (i.e. frequency and duration) with which respondents appeared in the successive waves of the BHPS and more recently in USoc, are complex. Combining these two panel databases together, individuals can appear in these studies for between one and 20 years. The patterns with which respondents from Wales appear in these studies are summarised in Table 2.2. The table distinguishes between the duration over which individuals appear in these studies (i.e. the time elapsed between their first and most recent appearance in the data set) and the number of years in which they are present in the study. The number of years for which respondents are present in these studies will be less than their duration if, for example, a household could not be contacted for interview during a particular year. A 'Wales respondent' is defined as someone who is domiciled in Wales when they first appear in either study. It is noted that some Wales respondents may subsequently move (or possibly return) to other parts of the UK following their first appearance in these studies, whilst others may move to Wales from other parts of the UK. It should be noted, however, that the overall incidence of regional mobility within the BHPS is relatively low (approximately 10% of individuals move, although 85% of these remain within a region). A large majority of the total sample in Wales (approximately 98%) will therefore comprise of Wales respondents who have remained in Wales over the entire period during which they appear in the study.

Table 2.2 reveals that, in total, 4,770 respondents who were initially domiciled in Wales upon entry to the BHPS have appeared in the study since its inception in 1991. The bottom row of Table 2.2 however reveals that only 178 people have remained in the combined BHPS/USoc sample for the maximum duration of 20 years. Therefore, approximately one-third of the original sample of 533 Welsh respondents who were recruited to the BHPS in 1991 (see Table 2.1) also appeared in Wave 2 of Understanding Society in 2010. These individuals will, however, not necessarily have complete profiles of data that cover each intervening year. Only 146 people who were recruited to the BHPS at Wave 1 are ever-present in the studies thereafter; i.e. were present in the BHPS for 18 Waves and also appear in Wave 2 of USoc. Nobody can appear in the combined BHPS/USoc sample on 20 occasions due to the BHPS sample not appearing within Wave 1 of USoc. The single largest group of BHPS respondents are those who first appeared in the BHPS sample following the introduction of a Wales boost in 1999 and who have continued to appear in Understanding Society. This group appear in the studies for a duration of 12 years; accounting for 25% of all those who have appeared in the BHPS sample (1,189). Individuals recruited for the main USoc sample can, at the time of writing,

only appear within the panel dataset for a maximum of two consecutive years. Of the 2,378 Wales respondents appearing in Wave 1 of Understanding Society, 1,843 provide a subsequent year's worth of data in Wave 2. This attrition rate of 24% is comparable to overall enumeration outcomes within USoc⁵.

Table 2.2: Duration and Years Present of Welsh Sample Members in the BHPS and Understanding Society (BHPS, 1991-2008, USoc 2009-2010)

Years	Duration in Studies ¹		Years Present ²	
	BHPS	USoc	BHPS	USoc
1	710	829	710	829
2	320	1,843	426	1,843
3	297	0	313	0
4	248	0	277	0
5	312	0	322	0
6	227	0	242	0
7	204	0	185	0
8	177	0	209	0
9	217	0	236	0
10	361	0	467	0
11	149	0	1,021	0
12	1,189	0	19	0
13	16	0	17	0
14	25	0	22	0
15	11	0	16	0
16	23	0	26	0
17	16	0	28	0
18	81	0	88	0
19	9	0	146	0
20	178	0	0	0
Total	4,770	2,672	4,770	2,672

¹ Duration is the time elapsed between the first and last appearance in the combined samples.

² Years present is the number of times individuals appear in the combined samples.

⁵ Lynn P., Burton J., Kaminska O., Knies G. and Nandi A. (2012) An Initial Look at Non-Response in Understanding Society, Understanding Society Working Paper Series, 2012-02: ISER, University of Essex.

3. Deriving Transitions from the BHPS Sample

Summary

- Due to the consistency of survey questions and coding frames, the BHPS can be used to study a wide variety of transitions experienced by individuals and the households in which they live.
- As many individuals appear in the BHPS over a number of years, respondents contribute multiple years' worth of such transition data, thereby increasing the sample sizes available for analysis beyond that implied by the number of individuals included in the survey.
- Transitions include changes in economic activity status (e.g. movements from employment in to unemployment or inactivity) and changes in household composition arising from demographic events such as births, deaths, partnership and family formation or dissolution.
- Given the content of the BHPS, the level of detail that can be included in the derivation of such transitions is potentially vast. However, despite the pooling of data, the sample sizes associated with particular types of economic and demographic transition remain small.
- Measured broadly, the majority of respondents do not experience changes in their circumstances from one year to the next. Transitions measured over longer periods of time can increase the sample sizes which is particularly useful when analysing transitions that are relatively infrequent.

There are a number of ways in which panel data such as the BHPS can be used for the purposes of research. For example, previous research has demonstrated that the BHPS can be used to study issues surrounding inter-generational transmission, such as trade union membership (Blanden and Machin, 2003⁶). Such analyses however place significant requirements on the data (i.e. the ability to observe people living within their parental home) and so may prove difficult to implement at a devolved administration or regional level. A more feasible application of the data is more likely to lie in the analysis of transitions that take place among individuals that can be identified as taking place between successive Waves of the survey, such as changes that occur in economic activity between

⁶ Blanden J, and Machin S. (2003) 'Cross-Generation Correlations of Union Status for Young People in Britain.' *British Journal of Industrial Relations*, Vol. 41, No. 3, pp. 391-415

one time period and the next. As described in Table 2.2, many individuals appear in the BHPS and USoc for multiple years. This emphasis upon transitions raises the possibility of pooling data over time such that a single BHPS respondent may provide multiple years' worth of observations, enhancing the effective sample size available for analysis. By definition, the study of transitions requires individuals to be present in the data set on at least two occasions. This section considers some examples of the number and nature of transitions that can be derived from the BHPS and USoc data sets. The analysis is restricted to those individuals who completed a full as opposed to a proxy interview (approximately 97% of completed interviews). Individuals can exhibit a wide variety of changes in their personal circumstances from one year to the next. For the purposes of this report, attention is given to the number and nature of demographic and economic transitions that occur among respondents.

Economic Transitions

In examining economic transitions, attention is focused upon broadly defined changes in economic activity status (i.e. employment, unemployed, economically inactive or retired) that occur from one period to the next. Whilst these categories serve as a useful summary of economic transition, the typology has been selected primarily for illustrative purposes. It would be possible to distinguish additional groups, such as different subgroups within the unemployed (e.g. short term versus long term unemployed) or within those in employment (e.g. self-employed versus employees). Transitions can also occur among those observed to be in employment between one survey Wave and the next, such as changes in occupation (e.g. distinguishing between upward or downward occupational mobility) or hours worked (e.g. full time versus part time employment). However, as will become apparent, the sample sizes associated with such transitions are likely to be small in the context of the Welsh sample. More detailed definitions of economic activity would also increase the complexity with which different types of economic transition can be represented.

It is therefore acknowledged at the outset that this four-fold classification of economic activity has been chosen for illustrative purposes only.

The economic transitions experienced by Welsh domiciled respondents to the BHPS and Understanding Society (BHPS sample only) are shown in Table 3.1. The upper panel of Table 3.1 describes the nature of these transitions whilst the lower panel shows the years

during which these transitions occurred. Transitions in economic activity status that relate to different periods of time elapsed are derived, including one-year transitions (e.g. transitions that occur between consecutive time periods; i.e. period t and period $t+1$), two-year transitions ($t, t+2$) and five-year transitions ($t, t+5$). A number of themes emerge from Table 3.1. Firstly, taking the example of one-year transitions, it can be seen that it is possible to compare economic activity status over successive time periods for approximately 27,800 pairs of observations among respondents in Wales. However, no change in status was observed among approximately 24,700 of these pairs of observations (89% of the one-year transition sample). Relatively few respondents to the BHPS therefore experience a transition in their economic activity from one year to the next, with almost half (46%) being observed to be in employment during both time periods. The lower panel of Table 3.1 demonstrates that a majority of transition data naturally relates to the period following the boost to the BHPS sample that took place for Wales in 1999.

Examples of two-year (i.e. comparing activity status at t with $t+2$) and five-year (i.e. comparing activity status at t with $t+5$) transitions are also provided. The derivation of transitions over a longer period of time naturally requires respondents to be present in the study over longer durations, although not necessarily to be ‘ever present’ in the study over the relevant period (data for intervening years would be required to develop measures of persistence). As such, the sample sizes associated with transitions that can be observed over longer periods are reduced. The main factor underpinning these reduced sample sizes is the censoring of transition data. For example, five-year transitions simply cannot be derived for those respondents appearing in the BHPS in 2004 and 2006 onwards at the time of writing. It is noted that five-year transitions can be derived for respondents in 2005 as this group include those respondents who reappear in the second wave of Understanding Society in 2010. This issue also accounts for the availability of two-year transitions for BHPS respondents in 2008 but not 2007. Whilst examining transitions over longer time periods reduces the sample sizes of transition data available, the longer time period does provide more opportunity for individuals to experience a change in their economic activity status. For example, in the case of two-year transitions, sample sizes associated with changes in economic activity tend to be maintained and, in some cases, actually increase (e.g. inactive to employed) compared with the sample sizes associated with one-year transitions.

Table 3.1: Transitions in Economic Activity Status Among Wales Respondents (BHPS, 1991-2008; USoc BHPS sub-sample, 2009-2010)

	1 Year Transition		2 Year Transition		5 Year Transition	
	n.	%	n.	%	n.	%
Economic Transitions						
Employed both years (EE)	12,787	46.0	10,877	45.1	6,383	42.9
In employment then unemployed (EU)	291	1.1	253	1.1	133	0.9
In employment then inactive (EN)	671	2.4	759	3.2	659	4.4
Unemployed then employed (UE)	350	1.3	312	1.3	247	1.7
Unemployed both years (UU)	402	1.5	284	1.2	112	0.8
Unemployed then inactive (UN)	279	1.0	245	1.0	151	1.0
Inactive then employed (NE)	809	2.9	971	4.0	885	6.0
Inactive then unemployed (NU)	279	1.0	240	1.0	126	0.9
Inactive both (NN)	4,379	15.7	3,333	13.8	1,506	10.1
Reached retirement age	432	1.6	741	3.1	1,186	8.0
Continuously in retirement	7,104	25.5	6,042	25.1	3,449	23.2
Total	27,783	100	24,057	100	14,837	100
Transitions: by Year						
1991	466	1.7	431	1.8	389	2.6
1992	450	1.6	436	1.8	382	2.6
1993	451	1.6	420	1.7	383	2.6
1994	454	1.6	436	1.8	393	2.6
1995	449	1.6	431	1.8	380	2.6
1996	446	1.6	430	1.8	379	2.6
1997	536	1.9	518	2.2	389	2.6
1998	535	1.9	500	2.1	382	2.6
1999	2,593	9.3	2,445	10.2	2,095	14.1
2000	2,657	9.6	2,437	10.1	2,105	14.2
2001	2,561	9.2	2,444	10.2	2,001	13.5
2002	2,539	9.1	2,400	10.0	1,942	13.1
2003	2,492	9.0	2,349	9.8	1,902	12.8
2004	2,449	8.8	2,226	9.3		0.0
2005	2,360	8.5	2,178	9.1	1,715	11.6
2006	2,297	8.3	2,158	9.0		0.0
2007	2,221	8.0		0.0		0.0
2008		6.6	1,818	7.6		0.0
2009	1,827					
Total	27,783	100	24,057	100	14,837	100

The analysis in Table 3.1, above, covers all adult respondents to the BHPS sample who completed a full interview, irrespective of their position in the household; e.g. heads of households, their partners/spouses or their children. Later in this report we present an examination of how transitions in the economic and demographic circumstances of individuals contribute to changes in their poverty status. While poverty is measured at a household level and all members of a household contribute to household income, it is arguably the transitions experienced by the 'senior members' of a household (i.e. the household head or their spouse/partner) that are likely to have the greatest impact upon the economic well-being of that household moving forwards. Table 3.2 shows the number of transitions in activity status that can be derived for individuals in the BHPS who enter the study as either a head of a household or as a spouse/partner of a household head. It can be seen that this restriction only has a marginal effect on sample sizes associated with transition data, reflecting both the relatively small sample sizes associated with non-dependent children in the BHPS living at the parental home and the higher rates of attrition associated with this group, where an economic transition may well correspond to leaving the family home.

Table 3.2: Transitions in Economic Activity Status among Wales Respondents: Household Heads, Spouses and Partners (BHPS, 1991-2008; USoc BHPS sub-sample, 2009-2010)

	1 Year Transition		2 Year Transition		5 Year Transition	
	n	%	n	%	n	%
Employed both years (EE)	12,554	45.8	10,654	44.9	6,174	42.5
In employment then unemployed (EU)	278	1.0	244	1.0	131	0.9
In employment then inactive (EN)	661	2.4	748	3.2	648	4.5
Unemployed then employed (UE)	333	1.2	298	1.3	229	1.6
Unemployed both years (UU)	384	1.4	271	1.1	104	0.7
Unemployed then inactive (UN)	274	1.0	239	1.0	144	1.0
Inactive then employed (NE)	790	2.9	943	4.0	851	5.9
Inactive then unemployed (NU)	272	1.0	234	1.0	123	0.9
Inactive both (NN)	4,309	15.7	3,277	13.8	1,471	10.1
Reached retirement age	432	1.6	740	3.1	1,182	8.1
Continuously in retirement	7,069	25.8	6,010	25.4	3,424	23.6
Total	27,356	100	23,658	100	14,481	100

Demographic Transitions

As with economic transitions, households can experience a variety of changes in their demographic composition. Such transitions will reflect 'vital' events such as births and deaths of household members. However, changes in household structure can also arise from a variety of events including partnership formation/dissolution and children leaving (or returning to) the family home. We subsequently refer to these changes in household structure as 'demographic transitions'. Within the BHPS, the classification of household structure relates to the size of the household, the presence of a married or cohabiting couple and the presence of dependent and/or non-dependent children (dependent children include those up to the age of 18 years if they are unmarried, living with their parents and still in non-advanced full time education). The elderly are defined as those over pensionable age (60 years for women and 65 years for men). For the purpose of studying demographic transitions, we exclude households where either the head or the spouse is aged 60 years or over or will reach the age of 60 years during the period over which demographic transitions are being examined. To further simplify the analysis, we also exclude households containing unrelated adults. Due to the sample sizes available for Wales, we are not able to undertake analysis that distinguishes between households with dependent and non-dependent children. Four 'basic' types of household structure are therefore distinguished: single people, couples without children, couples with children and lone parents.

Demographic transitions are defined in terms of the incidence with which individuals move between these different groups of household composition. Once again it is acknowledged that this four-fold classification of demographic transition is simplistic and chosen for illustrative purposes only. The context in which such transitions are made is important to understanding the consequences of such transitions to a household. For example, a household may change from being classified as a couple without to a couple with children, either as a result of a) the birth or adoption of a child or b) the return to the household of a non-dependent child. Furthermore, we only take in to account the absence or presence of children in a household and not the number of children. However, as will become apparent, the incidence of changes in household composition are much smaller than the incidence of changes in economic activity and it is therefore not possible to derive

demographic transitions using a more detailed classification of household composition at the Wales level.

Derived demographic transitions are presented in Table 3.3, below. It can be seen that, as would be expected, sample sizes associated with particular types of transition do tend to increase when transitions are measured over a longer time period. It can be seen that only 8% of individuals exhibit a demographic transition during a period of 12 months. This figure increases to 15% for a two-year transition and 27% for a five-year transition. The sample sizes that accompany certain types of demographic transition are particularly small and cannot be presented separately for Wales (e.g. couple with no children to lone parent). Among those demographic transitions that can be feasibly analysed, the most commonly occurring relate to arrival or departure of children from a household.

Table 3.3: Transitions in Household Composition among Wales Respondents: Household Heads, Spouses and Partners (BHPS, 1991-2008; USoc BHPS sub-sample, 2009-2010)

	1 Year Transition		2 Year Transition		5 Year Transition	
	n	%	n	%	n	%
Single both years (SS)	1,281	7.3	960	6.4	439	5.1
Single to couple (SCN)	74	0.4	95	0.6	88	1.0
Single to couple+kids (SCK)	66	0.4	93	0.6	88	1.0
Single to lone parent (SLP)	38	0.2	48	0.3	42	0.5
Couple to single (CS)	66	0.4	91	0.6	75	0.9
Couple both years (CC)	3,107	17.7	2,285	15.3	956	11.1
Couple to couple+kids(CCK)	325	1.9	410	2.8	413	4.8
Couple+kids to single (CKS)	134	0.8	197	1.3	183	2.1
Couple+kids to couple (CKC)	299	1.7	566	3.8	656	7.6
Couple+kids both years (CKCK)	9,807	55.9	8,071	54.1	4,326	50.0
Couple+kids to lone parent*(CKLP)	206	1.2	311	2.1	353	4.1
Lone parent to single (LPS)	73	0.4	106	0.7	104	1.2
Lone parent to couple+kids** (LPCK)	189	1.1	252	1.7	299	3.5
Lone parent both years (NN)	1,877	10.7	1,439	9.6	633	7.3
Total	17,542	100.0	14,924	100.0	8,655	100.0

*Includes small number of respondents who moved from being a couple to being a lone parent

**Includes small number of respondents who moved from being a lone parent to being a couple with no children

4. Analysing Poverty using the BHPS

Summary

- The Households Below Average Income (HBAI) data series derived from the Family Resources Survey is the main source of data for the analysis of poverty within the UK.
- The principal marker of poverty is living in households with less than 60% of median income. The most recent estimates published by DWP report that 16% of individuals in the UK live in low income households as measured on a Before Housing Cost basis.
- To complement the cross-sectional picture of the income distribution provided by the HBAI data series, data sets have also been produced from the BHPS to provide a longitudinal perspective on poverty. DWP estimates indicate that approximately 9% of individuals are persistently living in low income households.
- Researchers using the measure of net equivalised income available from the BHPS need to be aware of three key issues: a) these measures have been derived separately and are not included in the 'official' releases of these data sets; b) these measures can only be derived for approximately 80% of households where all individuals respond to a full interview and therefore provide the information necessary for their construction; and c) adjustments to income to take account of housing costs that can be made with the BHPS are not consistent with those made in the HBAI data series.

The Households Below Average Income (HBAI) data series are derived from the Family Resources Survey (FRS) and are regarded as the key dataset for analyses of poverty within the UK. The FRS completes full interviews with approximately 25,000 households in Great Britain and Northern Ireland per year. The HBAI uses household disposable incomes, after adjusting for the household size and composition, as a proxy for material living standards. Measures of household income include measures related to 'equivalised' income, i.e. household income that is adjusted according to the size and composition of the household in order to take into account economies of scale associated with cohabitation, thereby making it easier to compare household incomes in relation to household needs. A key assumption made in HBAI is that all individuals in the household benefit equally from the combined income of the household. All individuals within a household are therefore allocated the same equivalised household income. This enables the total equivalised net weekly income of the household to be used as a proxy for the standard of living of each household member.

There is no agreed scientific definition of poverty, but rather an admission that there exists '...a series of contested definitions and complex arguments which overlap and at times

contradict each other' (Alcock, 2008, p4⁷). Calculating poverty usually requires some recourse to an arbitrarily defined poverty threshold or line that is relative to a specific time or space. Those with incomes at or below this line are said to be experiencing some sort of poverty. Estimates of poverty produced by DWP refer to the percentage of people living in both relative and absolute low income. For the purposes of this report, our attention focuses upon those living in relative low income. Figures for relative low income produced by DWP are presented for the number of people living in households below thresholds of contemporaneous UK median income, with results being typically presented for <50%, <60% and <70% of median income. Of these measures, the principal marker of living in relative low income is the number of people living in households with less than 60% of median income. The most recent estimates published by DWP report that 16% of individuals in the UK live in low relative income as measured on a Before Housing Cost basis (see below). This figure is historically low, with the incidence of individuals living in low income having been in the order of 19-20% during the 1990s.

To complement the cross-sectional picture of the income distribution published by DWP in the HBAI series, net income data sets have also been derived from the BHPS in order to provide a longitudinal perspective on poverty. For example, data from the BHPS forms the basis of a chapter on low income dynamics included in recent HBAI reports⁸. These chapters present information on the persistence with which individuals live in low income households (the definition of persistence used is 'at least three years out of four below thresholds of 60% or 70% of median income'). Recent estimates published by DWP indicate that, measured on a Before Housing Cost basis, approximately 9% of individuals are persistently living in low income households, as defined by the 60% threshold. As with the cross-sectional estimates, this figure is historically low with persistent low income being estimated to be between 11-12% during the 1990s.

The methodology used to derive the net income variables from the BHPS is described in Bardasi, Jenkins and Rigg (1999)⁹. The derived variable provides a measure of 'current net equivalised income' based upon the preceding month's income for each household

⁷ [Alcock, P \(2008\) *Social Policy in Britain 3rd Ed.* Palgrave.](#)

⁸ See Chapter 7 of Households Below Average Income: 2011/12, available at: <https://www.gov.uk/government/publications/households-below-average-income-hbai-199495-to-201112>

⁹ Bardasi, E., Jenkins, S.P., and Rigg, J.A. (1999), 'Documentation for derived current and annual net household income variables, BHPS Waves 1-7', Working Paper 99-25, Institute for Social and Economic Research, University of Essex.

minus income tax, national insurance and pension contributions. The availability of the equivalised income derived variable within the BHPS provides a unique opportunity within the UK to conduct longitudinal analyses of poverty. There are however some practical and methodological issues associated with the measure of equivalised income derived from the BHPS.

- Firstly, the measure of derived income is not an 'official variable' included within the standard release of the BHPS. The most recent release of the derived income variables covers the 18 Waves of the BHPS covering the period 1991 to 2008¹⁰. Derived income variables are not yet available for Understanding Society and no specific commitment to update this work in the future is implied by the authors. However, the most recently published HBAI report does indicate that DWP will undertake analysis of low income dynamics using Understanding Society, with results being published during late 2013.
- Secondly, imputed income variables are not constructed within households where one or more adult members refused to be interviewed or where information was sought via a proxy respondent who complete a shortened version of the interview. Proxy respondents are generally used where the intended interviewee is too busy to be interviewed during the fieldwork period (e.g. working long or irregular hours) or is too ill to be interviewed themselves. Derived income variables can therefore only be constructed for approximately 80% of households.
- Thirdly, the HBAI data series presents estimates of household income both before and after housing costs are taken into account. This is to take into account variations in housing costs that themselves do not correspond to comparable variations in the quality of housing. Whilst the BHPS does collect information on housing costs, this data is less detailed than that collected by the FRS¹¹. The adjustments that can be made to measures of household income derived from the BHPS are therefore not consistent with those used in the derivation of the HBAI data series.

¹⁰ Levy H. and Jenkins, S.P. (2012), 'Documentation for derived current and annual net household income variables, BHPS Waves 1–18', Institute for Social and Economic Research, University of Essex.

¹¹ The BHPS records an overall figure for gross weekly housing costs and does not separately identify service and water charges for renters, the interest element of a repayment mortgage or council tax payments. These costs are deducted from housing costs in the HBAI analysis.

For the convenience of users, the BHPS household income data files provide a measure of net equivalised household income on a before housing costs basis derived by the authors. This measure is used for the purposes of the present analysis. Figure 4.1, below presents estimates of the household incidence of poverty derived from the BHPS. As typically used within official estimates of poverty derived from the HBAI data set, households are defined as being in poverty if the household has an income below 60% of the contemporary UK median. Figures for Wales, Scotland and Northern Ireland are only presented for those years following the introduction of boosts to the BHPS. The results derived from the BHPS appear to be intuitive. Across all countries of the UK, the incidence of poverty derived from the BHPS shows a downward trend reflecting the effects of improvements in real standards of living that accompanied what was a sustained period of economic growth. The incidence of poverty within England is lower than that observed among the devolved nations. As noted above, the measure of income used in this study is estimated on a Before Housing Cost (BHC) basis. Any income measure which does not deduct housing costs will overstate the living standards of individuals whose housing costs are high relative to the quality of their accommodation. The lower levels of poverty in England will partly reflect the increased earnings of those living in the South East of the country which, in part, will compensate workers for the increased costs associated with living in that part of the country.

Table 4.1 presents information on the average incidence of poverty derived from the BHPS presented for different sub-groups of the population covering the period 1991 to 2008 (i.e. 18 Waves of the BHPS). Analysis reveals that within Wales,

households that are headed by women (36%) are more than twice as likely to be classified as being in poverty compared to households that are headed by men (17%). In terms of age, the incidence of poverty is particularly prevalent among those households where the head of household is aged 16-24 years (39%). In terms of household type, single elderly households (44%) and lone parent households with dependent children (40%) are the two groups of household that are most susceptible to being classified as poor. Lone parent households with non-dependent children exhibit among the lowest levels of poverty (10%). Levels of poverty steadily decline among those with higher levels of educational attainment. The unemployed (68%) and students (63%) are most likely to be classified as poor. Levels of poverty among the economically inactive are relatively low (40%) by comparison, possibly reflecting the relatively diverse characteristics of this group (ranging from those who would like to work but who are unable to do so to those who simply do not need to work). These patterns are generally replicated across all countries of the United Kingdom.

Figure 4.1: Household Incidence of Poverty Derived from the BHPS: 1991-2008

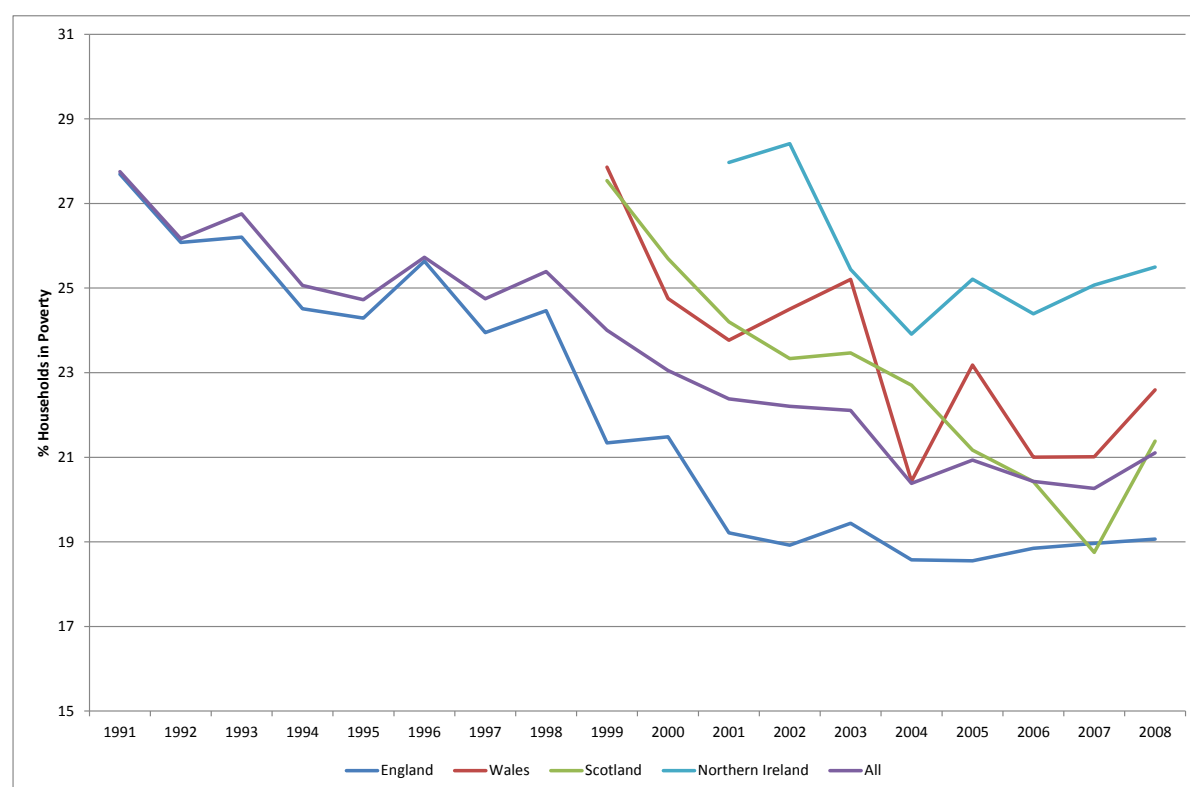


Table 4.1: Household Incidence of Poverty by Characteristics of Household Head (BHPS, 1991-2008)

	England	Wales	Scotland	Northern Ireland	Total
Gender					
Male	16.1	17.9	16.8	20.2	16.8
Female	35.4	35.6	37.2	35.8	35.7
Age					
16-24 years	37.7	40.2	38.6	48.6	38.7
25-34 years	17.6	22.1	17.7	22.1	18.4
35-44 years	14.1	18.1	18.2	24.8	16.3
45-54 years	11.7	18.1	16.6	19.1	13.9
55-64 years	19.4	19.9	21.5	23.3	20.3
65+ years	36.9	31.6	37.8	31.5	35.7
Household Type					
Single non-elderly	25.0	28.8	28.6	33.8	27.0
Single elderly	45.5	39.9	44.2	37.7	43.7
Couple no children	13.0	14.2	13.5	14.1	13.3
Couple: dependent children	13.9	14.6	12.4	14.8	13.8
Couple: non-dependent children	3.2	5.5	3.6	3.2	3.6
Lone par: dependent children	39.9	39.9	39.4	42.1	40.1
Lone par: non-dependent children	9.9	13.1	11.2	7.5	10.3
2+ unrelated adults	11.1	10.4	18.3	18.1	12.7
Other households	9.0	13.0	18.3	17.1	11.8
Educational Attainment					
Higher degree	5.7	3.2	8.5	3.0	5.8
First degree	6.5	6.1	7.9	8.0	6.8
HND, HNC, Teaching	9.4	10.6	13.5	10.0	10.4
A level	15.2	18.7	17.0	17.0	16.1
O level/GCSEs	18.5	20.7	24.5	24.9	20.2
CSE	25.0	25.3	30.2	27.3	25.5
None of these	35.5	34.9	37.5	35.4	35.7
Economic Activity					
In employment	7.9	9.3	8.6	10.4	8.3
Unemployed	64.7	70.3	72.1	78.2	68.0
Full time student	60.7	67.6	63.9	65.7	62.8
Economically inactive	39.9	36.5	41.8	38.6	39.5
Retirement age	36.5	31.2	37.0	31.1	35.3
All Households	22.3	23.9	24.5	25.8	23.1
All Respondents	19.8	20.5	21.3	22.2	20.3

5. Dynamics of Poverty

Summary

- Examining transitions in poverty measured over 2 consecutive years, approximately 40% of those who were in poverty during the first year are no longer in poverty by the second year. The dynamic properties of poverty are therefore important, with people flowing in to and out of poverty from one year to the next.
- Analysis reveals the importance of gaining or losing employment in determining whether or not an individual is classified as living in poverty. Among those who lose their job and become unemployed within Wales, the incidence of poverty increases from 16% to 53%.
- Demographic transitions are also important in determining the poverty status of households. The largest increase in the incidence of poverty is observed among those who moved from being part of a couple with children to becoming a lone parent (from 24% to 40% in Wales).
- For a majority of people, the experience of poverty is a relatively transient, short term phenomenon. However, this should not detract from the importance of particular difficulties faced by those in persistent poverty. The chances of exiting poverty diminish with poverty duration.

Due to its size and content, the Family Resources Survey and the derived HBAI data set is the definitive source of data in terms of providing overall estimates of the incidence of poverty in Wales and how poverty varies across different population sub-groups.

However, as a cross-sectional data set, HBAI data is not able to take into account the importance of transitions into and out of poverty, the duration of poverty or its persistence.

Poverty is an on-going process rather than a static position. The development of longitudinal data sets like the BHPS has facilitated the growth of a body of research on poverty persistence and poverty transitions. The consensus within the research literature on poverty is that the majority of people entering poverty will exit poverty after a short period of time but that many of them will experience recurrent episodes of poverty and that only a small proportion of individuals will experience persistent poverty (Devicienti, 2001¹²; Fouarge and Layte, 2005¹³). These are important distinctions to make because a body of research has developed to demonstrate the adverse consequences of poverty persistence. This research has particularly focused on the effects on children in terms of a

¹² Devicienti F (2001) .Poverty Persistence In Britain: A Multivariate Analysis Using The BHPS, 1991-1997., In P. Moyes, C. Seidl And A.F. Shorrocks (Eds), *Inequalities: Theory, Measurement And Applications*, *Journal Of Economics*, Suppl. 9, 1-34.

¹³ Fouarge, D. and R. Layte (2005). 'Welfare regimes and poverty dynamics: the duration and recurrence of poverty spells in Europe'. *Journal of Social Policy* 34 (3): 407–426.

wide range of outcomes, including physical, behavioural and educational (e.g. Dickerson and Popli, 2012¹⁴).

The important contribution of the BHPS data to the analysis of poverty in the UK is therefore to provide an understanding of the dynamics of poverty. Table 5.1, below, presents information on poverty transitions among Welsh households. The analysis is again based upon 18 Waves of BHPS data covering the period 1991 to 2008. The analysis is restricted to those individuals who are defined as heads or spouses of households during the baseline period. The inclusion of both heads and spouses of households reflects our interest in understanding how demographic events such as partnership formation and dissolution can influence the poverty status of all individuals affected by such transitions. These individuals can contribute multiple occurrences of transition data. The number of transition occurrences contributed by any one individual in the BHPS sample will depend upon their duration in the BHPS and the number of years that they were present in the data during this period (see Table 2.2). The analysis is also restricted to those households where all members are of working age during the period over which transitions are being measured. We therefore exclude households where either the head or the spouse is aged 60 or over or will reach the age of 60 during the period over which poverty transitions are being examined.

Among this group of Welsh respondents, 12,683 one-year transitions (derived from 2,468 respondents), 10,452 two-year transitions (derived from 2,172 respondents) and 5,654 five-year transitions (derived from 1,440 respondents) can be identified. Among the sample of one-year transitions, the overall incidence of poverty is similar during the baseline (18%) and end period (17%). Around 60% (n=1,300) of those who were in poverty during the baseline period (Period 0) remain in poverty during the end period (Period 1). The 40% (n=946) of those who were in poverty during the baseline period and who had left poverty during the following year were therefore replaced by a similar number of respondents (n=877) who enter poverty during the second year. Among the sample of two-year transitions, 9% of individuals are observed to be in poverty at both baseline and

¹⁴ Dickerson, A. and Popli, G. (2012) *Persistent poverty and children's cognitive development: Evidence from the Millennium Cohort Study* Centre for Longitudinal Studies: CLS Working Paper 2012/2

two years later. Among the sample of five-year transitions, 8% of individuals who are observed to be in poverty at both baseline and five years later.

Table 5.1: Summaries of One, Two and Five Period Poverty Transitions (BHPS, 1991-2008)

Poverty Status at Beginning of Transition Period	Poverty Status at End of Transition Period		
	Not in poverty	In poverty	Total
One Period Transitions			
(t, t+1)			
Not in poverty	9,560	877	10,437
	75.4	6.9	82.3
In poverty	946	1,300	2,246
	7.5	10.3	17.7
Total	10,506	2,177	12,683
	82.8	17.2	100.0
Two Period Transitions			
(t, t+2)			
Not in poverty	7,756	854	8,610
	74.2	8.2	82.4
In poverty	897	945	1,842
	8.6	9.0	17.6
Total	8,653	1,799	10,452
	82.8	17.2	100.0
Five-Year Transitions			
(t, t+5)			
Not in poverty	4,119	478	4,597
	72.9	8.5	81.3
In poverty	614	443	1,057
	10.9	7.8	18.7
Total	4,733	921	5,654
	83.7	16.3	100.0

It is noted that over longer transition periods, the incidence of poverty at baseline is higher than the incidence of poverty at the end period. This could reflect both life-cycle effects (i.e. the incidence of poverty declines with age, see Table 4.1) and/or the general downward trend in the incidence of poverty observed over the period of analysis (see Figure 4.1). In the cases of the two-year and five-year transitions, it should be noted that those who are observed to be in poverty at both points in time may not necessarily have been in poverty during the intervening year(s). These transitions provide an insight in to the dynamics and recurrence of poverty. However, they do not provide a direct measure

of the persistence of poverty¹⁵. It is also important to note that the measure of persistence used by DWP (income below thresholds of 60% or 70% of median income during at least three years out of four) imposes stricter criteria in terms of the information requirements necessary for respondents to be included within the analysis (i.e. non-missing data for equivalised household income over four successive years) compared to the analysis of poverty transitions presented here. The results of analyses of low income dynamics due to be published by DWP based upon USoc data should hopefully provide an insight as to whether or not such analyses can be produced for Wales only.

Figure 5.1, below, demonstrates how various changes in economic activity status and changes in household composition are associated with changes in the incidence of poverty among individuals experiencing these changes in their circumstances. The analysis presented in Figure 5.1 relates to 2-period transitions ($t, t+2$) as this derivation is generally associated with the largest sample sizes across a range of demographic transitions. However, it remains the case that some types of demographic transition are associated with particularly small sample sizes among the Welsh sample, including Single to Lone Parents ($n=38$), Single to Couples ($n=53$) and Singles to Couples with Child(ren) ($n=59$). The sample sizes underpinning the analysis, as well as full results of the analyses based upon one, two and five period transitions are presented in Annex 1. The upper panel of Figure 5.1 reveals the importance of gaining or losing employment in determining whether or not an individual is classified as living in poverty. This is particularly the case for transitions involving a movement from employment to unemployment (or vice versa). By definition, those who are unemployed are out of work and looking for work which in itself may demonstrate the imperative among this group to find work and the financial consequences associated with being out of work. Moving from employment in to economic inactivity (or vice versa) is associated with smaller changes in the incidence of poverty among those groups who experience such transitions.

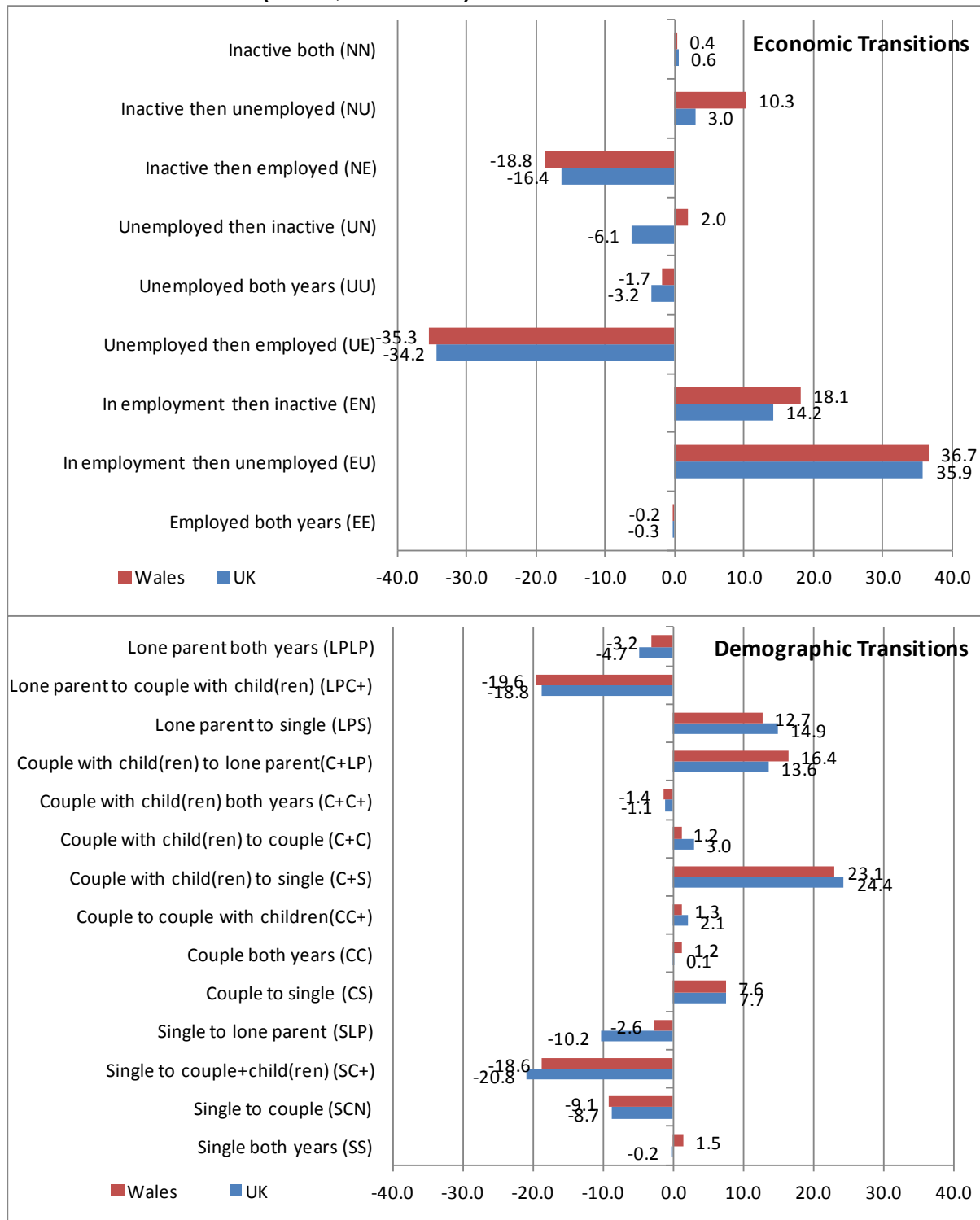
The lower panel of Figure 5.1 demonstrates the importance of demographic transitions. The relatively small samples that underpin the analysis for Wales may contribute to some of the differences in results between Wales and the UK. Overall, however, demographic transitions are demonstrated to be associated with smaller changes in the incidence of

¹⁵ See New Policy Institute (2013), The Dynamics of Low Income, Welsh Government: Research Report.

poverty compared to whether an individual is in employment. Nonetheless, it can be seen that demographic transitions that result in single households becoming part of couple households lead to a reduction in the level of poverty among these groups. This effect is particularly evident among lone parents. Across the UK, for lone parents who become part of couples with children, a 19 percentage point decrease is seen in the incidence of poverty (from 39% to 20%, see Table A1.2). The largest increase in the incidence of poverty is observed among those who moved from being part of a couple with children to becoming a lone parent. This group exhibit a 14 percentage point increase in their incidence of poverty (from 23% to 37%). The incidence of poverty is also shown to have increased among those who moved from being part of a couple without children to becoming single households (from 10% to 17%). Finally, it is observed that whilst lone parenthood was associated with high levels of poverty in the UK (e.g. 37% among those who are lone parents during both periods), the incidence of poverty actually is observed to fall by approximately 10 percentage points among single people who subsequently become lone parents (from 32% to 22%).

In interpreting these results, it is important to remember that underpinning these results is a statistical definition of poverty that is designed, in part, to take account of the economies of scale that are provided by co-habitation. By construction, moving from a couple household to a single (or lone parent) household will, all other things being equal, be associated with a decline in net equivalised household income which may be sufficient to place that person beneath the poverty threshold. However, these changes in poverty status will also reflect other difficulties associated with such transitions, such as the unequal distribution of earnings between men and women in couple households and the implications that this may have, particularly for women and their dependent children, following the breakdown of a relationship.

Figure 5.1: Economic Transitions, Demographic Transitions and the Incidence of Poverty: Two Year Transitions: (BHPS, 1991-2008)



The Continuity of Economic Activity Status and Household Composition following a Change in Circumstances

Given the importance of economic and demographic transitions in contributing to the likelihood that a household will be living in poverty, the extent to which people remain in the new state following such a transition is also of interest. For example, if moving from

paid employment to unemployment is associated with a reduction in the incidence of poverty of 35 percentage points (from 52% to 17%), then it is important to know what proportion of those who make such a transition remain in employment in the years that follow. These issues are considered in Table 5.2, below, which examines the continuity of economic and demographic circumstances over a period of four years for different groups of respondents according to the changes (or absence of change) in economic activity and demographic circumstances following an initial one period transition ($t, t+1$). The sample for this analysis therefore includes those individuals who are able to provide six years' worth of non-missing data in relation to their economic and demographic circumstances. Given these requirements, the analysis is conducted for the UK as a whole. As previously, individuals are able to contribute multiple sets of observations to the analysis, subject to the requirements regarding the completeness of data over a six-year period.

Among those who were in employment in both Period 0 and Period 1 (accounting for almost three-quarters of individuals in our sample), 92% are also observed to be in employment in Period 5. However, among those who moved into employment in Period 1 having been unemployed or economically inactive at Period 0, the proportion that are in employment at Period 5 is lower (80% and 78% respectively). Other changes in economic activity status are relatively transient by comparison. For example, of those who move out of employment and become unemployed during Period 1, only approximately one in four remain unemployed during Period 2; one in ten are unemployed at Period 5. A majority of the increase in poverty associated with job loss by household heads would therefore be expected to be relatively short term in nature. However, Table 5.2, below, does allude to problems associated with persistent unemployment. Of those who are unemployed during both Period 0 and Period 1 (some of whom will have been unemployed before Period 0), almost one-third (31%) are also unemployed at Period 5.

Table 5.2: The Continuity of Economic and Demographic Transitions: UK (BHPS, 1991-2008)

Period 0/1 Transition	% of transitions	Percentage remaining in same status as observed in period 1			
		Period 2	Period 3	Period 4	Period 5
Economic Transition					
Employed both years (EE)	72.4	95.5	94.1	93.0	92.0
In employment then unemployed (EU)	1.3	25.4	16.5	13.9	9.8
In employment then inactive (EN)	3.1	51.8	47.1	42.7	40.7
Unemployed then employed (UE)	1.5	84.8	83.4	83.4	80.1
Unemployed both years (UU)	1.5	54.5	43.0	35.2	31.6
Unemployed then inactive (UN)	0.9	61.8	58.0	57.4	56.2
Inactive then employed (NE)	3.9	79.4	77.0	77.9	77.8
Inactive then unemployed (NU)	0.8	25.5	19.4	18.2	15.6
Inactive both (NN)	14.7	81.9	74.0	68.8	63.6
All	100.0 (n=61926)	89.0	86.2	84.3	82.6
Demographic Transition					
Single both years (SS)	7.4	88.2	81.1	76.2	73.0
Single to couple (SCN)	0.7	78.2	65.9	59.4	56.1
Single to couple+child(ren) (SC+)	0.4	82.4	75.9	65.3	56.9
Single to lone parent (SLP)	0.2	68.0	56.6	52.5	44.3
Couple to single (CS)	0.4	73.3	55.3	44.7	44.3
Couple both years (CC)	18.8	88.5	80.3	74.1	69.3
Couple to couple with children(CC+)	2.5	91.8	86.1	83.0	80.5
Couple with child(ren) to single (C+S)	0.5	74.8	62.3	45.1	42.4
Couple with child(ren) to couple (C+C)	1.5	81.6	78.4	76.4	75.2
Couple with child(ren) both years (C+C+)	58.0	95.1	91.3	88.0	85.1
Couple with child(ren) to lone parent(C+LP)	1.1	77.9	68.6	59.2	53.3
Lone parent to single (LPS)	0.3	79.2	70.0	65.0	56.3
Lone parent to couple+kids (LPC+)	0.9	85.8	80.0	73.8	75.2
Lone parent both years (LPLP)	7.3	87.9	79.5	72.8	67.7
All	100.0 (n=61926)	91.8	86.3	81.8	78.4

The lower panel of Table 5.2 demonstrates the persistence of demographic transitions. It is observed that persistence of demographic status is highest among those groups for whom the incidence of poverty is lowest; namely couples with children during both Period

0 and Period 1. It is also noted that whilst moving from employment to unemployment is associated with the largest increase in the incidence of poverty, for a large majority of people this is a temporary phenomenon. In contrast, the increases in poverty that are associated with transitions in demographic status tend to represent more permanent changes to personal circumstances. For example, among those who become lone parents having previously been part of a couple with children, over half (53%) are also observed to be lone parents some four years later. Whilst job loss is more likely to result in a household moving into poverty, entry into lone parenthood appears less likely to be followed by a further demographic transition that could potentially alleviate the effects of poverty.

Table 5.3 below, examines the persistence of poverty status within the BHPS, presenting the incidence of poverty over a period of four years following different types of poverty transition. Here the sample is restricted to those individuals where a poverty transition measured between Period 0 and Period 1 can also be followed by complete poverty data over the next four years. Once again, individuals can contribute multiple and overlapping sets of transition data if they have complete poverty data over a period of longer than six years. As no more detailed breakdowns of data are provided, this information can be presented separately for Wales. It should be noted that the sample sizes that underpin this analysis are smaller than those used in Table 5.2. As discussed in the previous chapter, net equivalised household incomes can only be derived for approximately 80% of households participating in the BHPS. It can be seen that in Wales, among those individuals who enter poverty between Period 0 and Period 1, 41% remain in poverty in Period 2. Among those heads of individuals who exit poverty between Period 0 and Period 1, 28% re-enter poverty during Period 2. By the end of the follow-up period, the proportion of individuals from the 'enter poverty' group who are in poverty (36%) is similar to the proportion of individuals from the 'exit poverty' group who are in poverty (31%). Due to the often transient nature of poverty, those who enter poverty and those who leave poverty do not differ greatly in terms of their subsequent experiences of poverty over the next four years.

Table 5.3: Poverty Dynamics and Subsequent Incidence: (BHPS, 1991-2008)

Period 0/1 Transition	% of transitions	Percentage in poverty			
		Period 2	Period 3	Period 4	Period 5
Wales					
Not in poverty both years	76.7	5.4	6.6	7.3	7.9
Enter poverty	6.0	40.6	35.6	40.6	36.3
Exit poverty	6.9	27.9	28.2	26.6	30.7
In poverty both years	10.4	70.2	65.2	59.1	51.0
All	100.0 (n=4,669)	15.8	15.9	16.0	15.7
United Kingdom					
Not in poverty both years	81.2	4.3	5.2	5.8	6.4
Enter poverty	5.1	42.4	37.1	34.9	30.7
Exit poverty	5.5	27.2	25.4	24.3	26.8
In poverty both years	8.1	68.2	60.0	53.4	48.3
All	100.0 (n=46,903)	12.7	12.4	12.2	12.2

Further insight in to the persistence of poverty is provided in Table 5.4, below, which considers the number of further spells of poverty experienced by different groups of respondents. Once again, the figures underline the relative similarity in the subsequent experiences of poverty of those who have entered or exited poverty between Period 0 and Period 1. Focusing upon the Wales results, the proportion of individuals who exhibited no further spells of poverty over a four-year follow-up period is not that different when comparing those who recently entered poverty (32% have no further spells) with those who recently exited poverty (46% have no further spells). Almost 40% of both groups go on to subsequently experience one or two spells of poverty. Approximately one-quarter (28%) of the 'enter poverty' group go on to experience either three or four spells of poverty; although this is higher than the equivalent proportion for the 'exit poverty' group (20%), it is clear that the process of entering or exiting poverty does not lead to widely differing trajectories in terms of the subsequent experience of poverty. Among the remaining groups, 82% of the 'not in poverty' group experienced no further spells of poverty during the four-year follow-up period. Among those 'not in poverty' that subsequently experienced poverty, in the majority of cases this was a single spell. By contrast, only 12% of the 'in poverty' group experienced no further spells of poverty.

Among the 'in poverty' group that did experience additional spells, over a third remained in poverty throughout the four-year follow-up period.

Table 5.4: Poverty Dynamics and Subsequent Spells: (BHPS, 1991-2008)

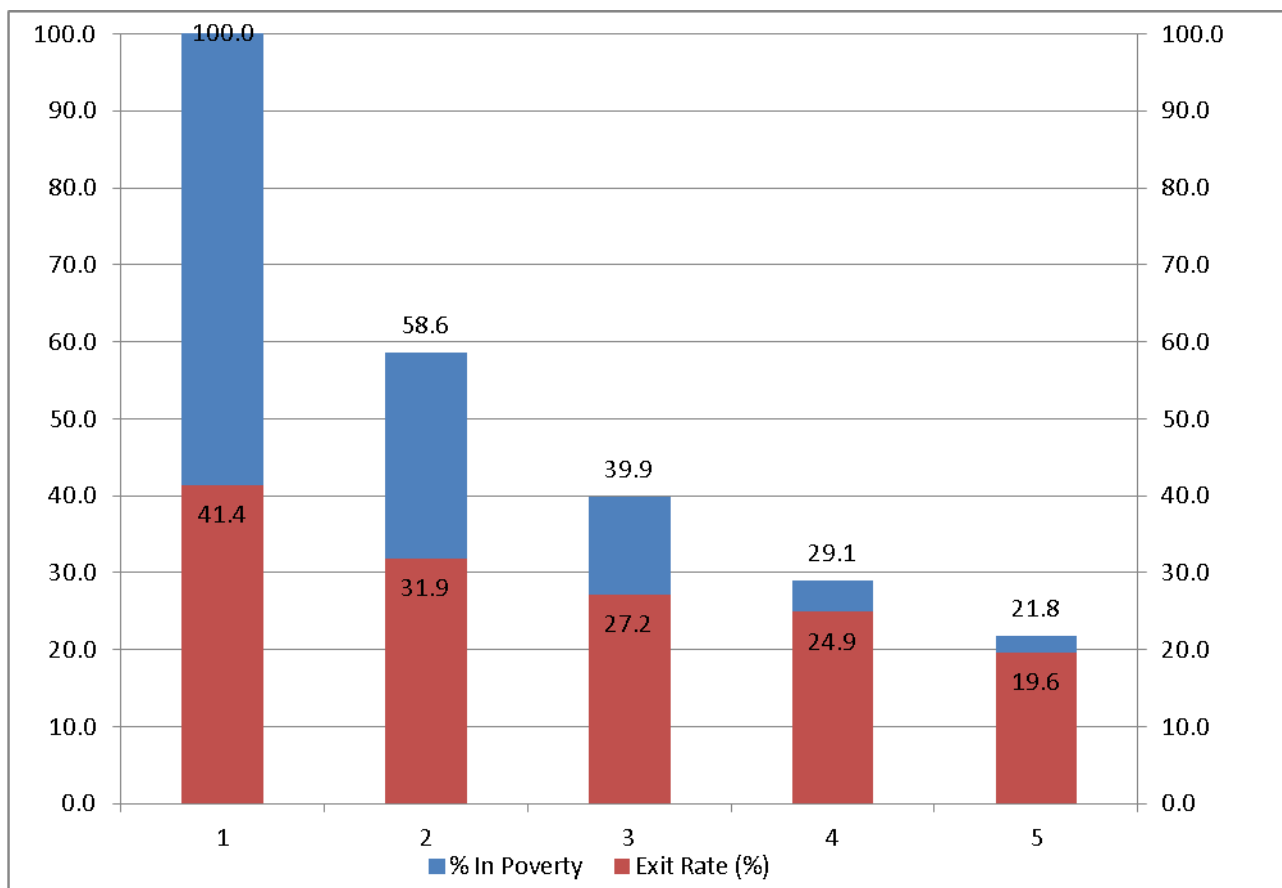
Period 0/1 Poverty Transition	Number of further spells of poverty					Total	Sample
	0	1	2	3	4		
Wales							
Not in poverty both years	82.2	11.5	4.0	1.5	0.8	100	3,582
Enter poverty	31.7	25.5	14.4	14.8	13.7	100	278
Exit poverty	46.4	20.1	13.9	12.7	6.8	100	323
In poverty both years	12.4	14.8	19.3	22.0	31.5	100	486
All	69.5	13.2	6.9	5.2	5.2	100	4,669
UK							
Not in poverty both years	86.3	8.4	3.2	1.6	0.6	100	38093
Enter poverty	34.4	22.2	18.1	14.3	10.9	100	2403
Exit poverty	47.5	22.4	14.9	9.7	5.7	100	2600
In poverty both years	14.5	17.9	19.0	20.4	28.2	100	3807
All	75.6	10.7	5.9	4.2	3.6	100	46903

The analyses presented in Tables 5.3 and 5.4, above, suggest that the classification of individuals within the BHPS to living in poverty is often a relative short term, transient phenomenon. However, it should be noted that this designation of poverty status relates only to the statistical allocation of individuals with respect to their location above or below a poverty threshold. A small fluctuation in relative incomes may be sufficient for a household to enter or exit poverty. In terms of the lived experience of poverty, these individuals may not have experienced any change in their material living conditions. Nonetheless, this should however not detract from the importance of particular difficulties faced by those in persistent poverty.

The experience of poverty can be regarded as being 'state dependent'; i.e. the chances of exiting poverty are inversely related to the length of time that an individual has been in poverty. This phenomenon is demonstrated in Figure 5.2, below. The analysis relates to the UK and examines the rate and timing with which a group of individuals who are initially observed to be in poverty, exit poverty over a period of five years. By definition, the analysis is restricted to those individuals who were initially in poverty. The analysis is

based upon the most recent six periods that an individual appears in the BHPS (note that the ability to estimate a poverty exit rate for Period 5 is dependent upon the ability to observe that individual's poverty status in Period 6) and also have complete poverty data for six consecutive years. Figure 5.2 demonstrates that the proportion of individuals who were initially in poverty and who remain in poverty declines over time. However, the rate at which households exit poverty also declines with time. For example, during Period 1, 41% of individuals in poverty exit poverty. By Period 5, among those who remain in poverty, the exit rate declines to 20%. In other words, by Period 5 a household has less than half the probability of exiting poverty it has in Period 1.

Figure 5.2: Poverty Duration and Exit from Poverty in the UK: (BHPS, 1991-2008)



6. Multivariate Analysis of Poverty in Wales

Summary

- Multivariate analysis confirms many of the patterns in the relative incidence of poverty alluded to in the previous chapter. Both in Wales and across the UK, lone parents with dependent children and single-person households are most susceptible to be living in poverty.
- Individuals who are unemployed are estimated to be most likely to be living in poverty with those in employment being least likely to be living in poverty. Variations in poverty associated with different states of economic activity are relatively large compared to those associated with different forms of household composition.
- In terms of the risks associated with entering poverty, the effects of some changes in household composition are comparable to those associated with changing economic circumstances such as job loss. Those most at risk of entering poverty include those who become single-person households or lone parent households, having previously been part of couples with children. The third group who are most at risk of entering poverty are lone parent households who become single person households.
- Moving from unemployment into employment is associated with an increased likelihood of exiting poverty. However, the scale of this effect is not as large as that associated with the effects of job loss on entering poverty. Moving from being either a single or lone parent household to part of a couple also appears to increase the likelihood of exiting poverty.

The preceding analysis has illustrated some of the variations in both the incidence and dynamics of poverty that exist between various population sub-groups. A problem underlies these variations, in that it is not possible to identify the separate and additional contribution that each factor makes to the likelihood of an individual or household being classified as poor. For example, is the higher incidence of poverty exhibited by single people simply a consequence of the fact that single people are also more likely to be younger and would therefore be expected to have lower earnings due to the lower levels of skills acquired among this group? Alternatively, is being single in itself associated with higher levels of poverty due to the inability to realise economies of scale within the household (e.g. not being able to share accommodation costs)? Might the higher rates of poverty that exist for lone parents be a consequence of other characteristics shared by this group, such as relatively low levels of educational attainment? To develop a better understanding of these issues, we employ multivariate statistical techniques that allow us

to simultaneously estimate the separate influence of these factors on the likelihood of being in poverty.

The key aim of this report is to explore the potential of the BHPS and Understanding Society for undertaking Wales-level longitudinal analysis. There are several different ways in which longitudinal data can be analysed within a multivariate framework. Most straightforwardly, longitudinal data simply allows us to increase the sample size of observations available by pooling successive waves of data about the same individuals. Results of multivariate analysis that take such an approach are presented in Figure 6.1. The results are derived from a technique referred to as logistic regression, a technique used where the dependent variable being modelled is dichotomous (0/1). The analysis models an individual's risk of being classified as 'poor' (=1) as opposed to 'not being poor' (=0). The analysis is based upon all individuals in the BHPS (from 1991 onwards) who first appeared in the study as a household head (including a single person household) or a spouse.

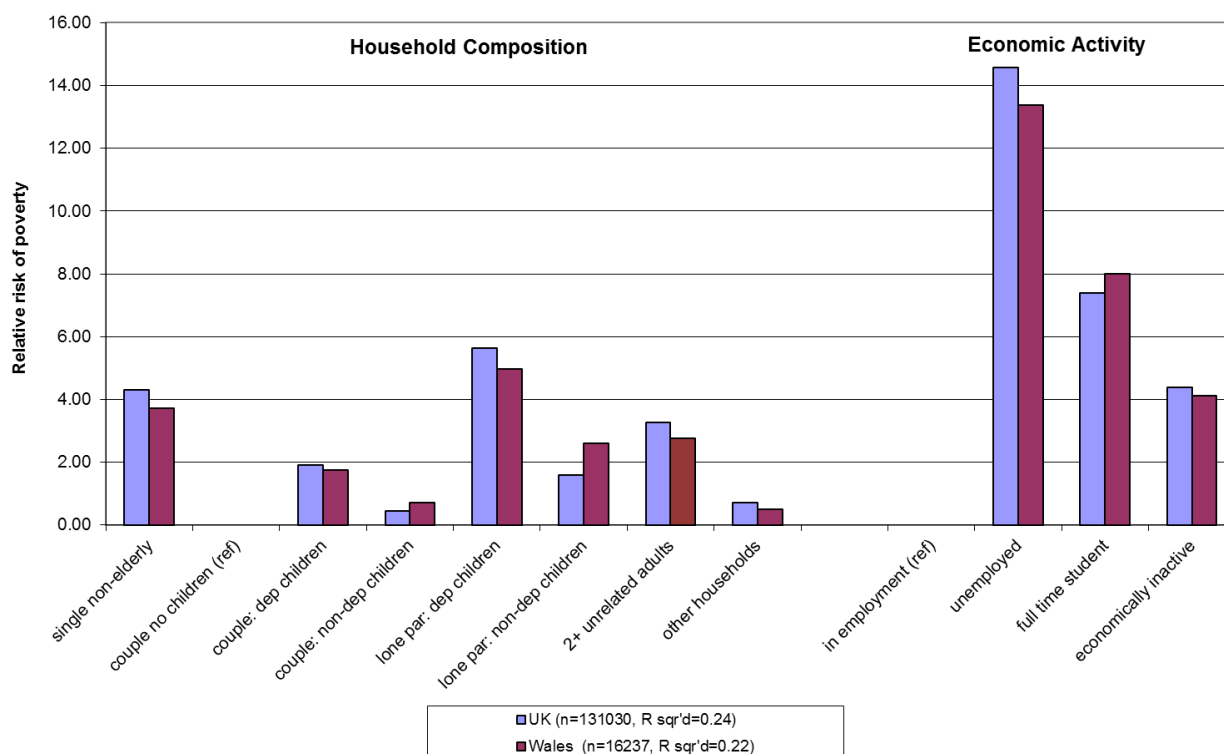
The concept of 'relative likelihood' is fundamental to the interpretation of the results presented in this section. Before presenting these results, we describe what we mean by relative likelihood. In Table 4.1, above, it was revealed that for the UK as a whole, less than 13% of couples with dependent children were living in poverty. By comparison, 40% of lone parents with dependent children were estimated to be living in poverty. We therefore observe, based upon a comparison of rates of poverty, that lone parents with dependent children exhibit a higher relative likelihood of poverty compared with couples with dependent children. An alternative way of expressing this increased risk of poverty is to say that *relative to couples with dependent children*, lone parents are three times as likely (40% divided by 13%) to be classified as being poor. This is how we present estimates of relative likelihood that are estimated from the regression analysis.

To assist with the interpretation of the analysis, these (and subsequent) results are summarized graphically. We focus on results related to the family status and economic status of individuals, although the models also contain groups of variables to account for other characteristics such as gender, age and educational attainment. The estimated effects of particular characteristics are represented as groups of bars. Within each group of variables, one category is chosen to act as a reference category against which the effects of other categories can be evaluated. This choice of reference category is

arbitrary, although it is desirable to choose categories that are in themselves well populated so that estimated differentials are relatively stable. This is particularly important in the context of Wales-level analysis, where the sample sizes associated with some groups of respondents can be small. For presentational purposes it is also useful to select a reference category that is associated with a relatively low likelihood of poverty. In doing this, other characteristics will be estimated to increase the likelihood of living in poverty relative to the reference group (as represented by bars rising above the horizontal axis). The height of the bars represents the degree of association that exists between a particular characteristic and the likelihood that an individual is living in poverty.

The results of the regression analysis are presented in Figure 6.1 below. In a large majority of cases, the results which are presented in these Figures were all estimated to be statistically significant. The full results from the statistical analysis are presented in Annex 2.1. The two pairs of bars represent results derived from models estimated separately for the UK as a whole and for Wales. The explanatory power and sample sizes upon which these models are based are shown in the series labels of the charts. The analysis largely confirms the patterns presented in the descriptive analysis presented in Table 4.1, above. Across the UK, lone parents with dependent children are estimated to be 5.6 times as likely to be in poverty than couples with no children. In Wales, this differential is estimated to be similar at four times the relative risk. It is noted that whilst the statistical model simultaneously controls for activity status, it does not control for hours worked. This differential estimated may therefore partly reflect the fewer hours worked by lone parents. It can also be seen that single households are also relatively susceptible to be living in poverty; 3.3 times and 2.7 times as likely as childless couple households in the UK and Wales respectively. Results estimated for economic status are also relatively consistent when comparing Wales with the UK as a whole. Individuals who are unemployed are estimated to be most likely to be living in poverty with those in employment being least likely to be living in poverty. The estimated differentials related to different states of economic activity are relatively large compared to those estimated for different forms of household composition.

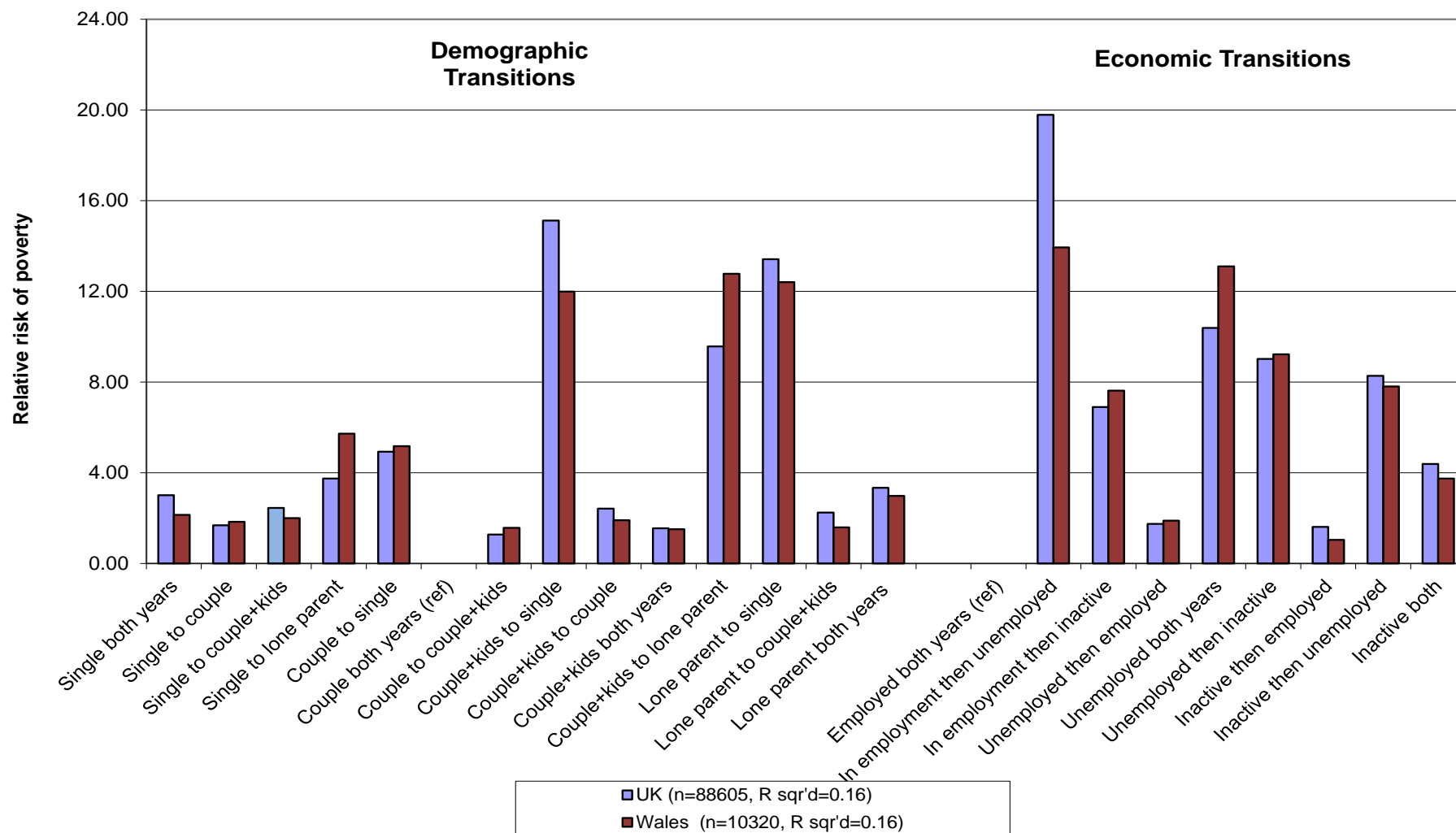
Figure 6.1: Relative Risk of Poverty: (BHPS, 1991-2008)



Whilst the analysis presented in Figure 6.1, above, shows the relative likelihood of poverty among different population sub-groups, it does not take advantage of the dynamic properties of the data. More interesting insights may therefore emerge if data related to changes in the characteristics of individuals and the households in which they live can be related to changes in poverty status of these individuals. Here, the longitudinal properties of the panel data are used to construct a richer set of explanatory variables that capture dynamic changes within the household. For example, rather than simply considering how being a lone parent affects an individual's likelihood of being classified as living in poverty, does moving into lone parenthood from having previously been single have a different impact upon the likelihood of living in poverty compared to moving in to lone parenthood from having previously been part of a couple? The analysis can also be adapted to consider dynamic changes in poverty status, such as how do transitions in economic activity and household composition affect the likelihood of individuals either entering or exiting poverty.

The results of such an analysis are presented in Figure 6.2 below. Full results are presented in Annex 2.3. The analysis is, again, based upon all individuals in the BHPS (from 1991 onwards) who first appeared in the study as a household head or a spouse. The analysis considers the relative importance of changes in household composition and economic status in affecting the relative likelihood of an individual entering poverty. The sample is therefore restricted to examining the poverty transitions of those individuals who initially are not in poverty. Within both Wales and the UK, being continuously unemployed and moving from employment into unemployment are both associated with a relatively high risk of poverty (see Annex 2.2). However, when analysing only entries into poverty, some changes in household composition also become more important. Indeed, the estimated differences in the relative likelihood of entering poverty as a result of different changes in household composition are of a scale that is comparable to the estimated effects of changes in economic activity status. Among those most at risk of entering poverty are those individuals who were previously part of couples with children and who move into being either single (predominantly men) or lone parents (predominantly women). The third group who are most at risk of entering poverty are lone parents who become single. Whilst this may seem counterintuitive, it is noted that the cross-sectional analysis presented in Figure 6.1 indicated that lone parents with older non-dependent children exhibit relatively low levels of poverty due to the contribution to household income that can be made by non-dependent children. A non-dependent child leaving home may therefore be expected to be associated with an increase in the risk of a household head entering poverty due to the accompanying loss of income. This will be compounded by the lost or reduced economies of scale associated with cohabitation. The relative risk of entering poverty in both Wales and the UK is lowest among couples who remain childless during both periods.

Figure 6.2: Changing Personal Circumstances and the Risks of Entering Poverty



The analysis of entry in to poverty was repeated to examine what factors were associated with exiting poverty. The results of this analysis are presented in Annex 2.4. The sample sizes that underpin this analysis are considerably smaller as the sample is restricted to those who are initially observed to be in poverty. As a result, fewer of the results are estimated to be statistically significant. Nonetheless, results presented for Wales-level analysis are generally consistent with those derived for the UK as a whole. Unsurprisingly, gaining employment is associated with an increased likelihood of exiting poverty. In terms of changes in household composition and the likelihood of poverty exit, some of the largest estimated effects are associated with single or lone parent households becoming part of couple households.

Panel Data Techniques

The approach outlined above uses the longitudinal nature of the BHPS data to create dynamic explanatory variables which are included within conventional 'cross-sectional' statistical models of poverty status. An alternative approach to maximising the benefits of longitudinal data is to employ methodological techniques which benefit directly from the statistical properties of longitudinal data. One of the main benefits of panel data is the ability to examine how different factors contribute to observed changes in the circumstances of individuals over time. For example, lone parenthood has been demonstrated to be associated with higher levels of poverty. However, it is not clear whether lone parenthood is a direct cause of higher levels of poverty or whether lone parents have other characteristics that pre-dispose them to being more likely to be poor. Whilst cross-sectional techniques allow us to account for observable characteristics about which information is collected by the BHPS (e.g. educational attainment), these techniques do not control for unobservable characteristics that are more difficult to capture within social surveys, such as career mindedness, motivation etc. In the absence of such controls, statistical models mistakenly attribute the effects of these unobservable characteristics to other characteristics that they are correlated with. Panel data enables statistical techniques to be used that can produce unbiased estimates of the determinants of poverty by examining the changes that occur to individuals over time (e.g. the accumulation of additional qualifications). The effects of otherwise unobservable characteristics associated with household income can then be 'netted out' by examining how *changes* in an individual's circumstances relate to *changes* in their poverty status.

Results of the fixed effects regressions are presented in Annex 2.5. It can be seen that the sample sizes that underpin such analyses are large, with the full duration of the panel data being utilised. Dynamic changes in family status and economic status are captured by ‘within individual’ changes in the time-varying explanatory variables (e.g. individuals being classified as being single in period t and then part of a couple in period $t+1$, or vice versa) as opposed to being captured by the construction of dynamic explanatory variables (e.g. partnership formation or partnership dissolution). The analysis reveals that the patterns in the relative incidence of poverty are similar to those shown in previous sections. Results estimated for Wales also appear to be relatively consistent with those estimated for the UK as a whole. The incidence of poverty among lone parents with dependent children is estimated to be approximately 15-20% higher than that observed among couples with no children, comparable to the increased risks associated with being single. This analysis also reveals that the estimated incidence of poverty among this group is higher when cross-sectional as opposed to panel data techniques are used. This reflects the ability of panel data techniques to take account of otherwise unobservable characteristics that are correlated with lone parenthood and income.

A second benefit of panel data is the ability to implement survival analysis techniques. Widely used in epidemiological research for the occurrence of events such as death, injury, onset of illness and recovery from illness, these techniques have also been implemented in the analysis of poverty. The objective of survival analysis is to estimate the relationship between ‘time to event’ and a set of explanatory variables. In the analysis of poverty dynamics, the ‘time to event’ is typically defined as the time taken to exit poverty amongst a group of people who are initially observed as being in poverty. One of the main advantages of survival analysis is that it explicitly takes into account ‘state dependence’. Taking the example of poverty, this means that the chance of exiting poverty depends upon the time spent in poverty, with those who have been in poverty longest having the lowest likelihood of exiting poverty during any given time period (see Figure 5.2). The main limitation of survival analysis is that the technique is relatively ‘hungry’ in terms of data requirements. At the outset, the analysis of exit from poverty is by definition restricted to those who are initially in poverty. The data set is then set up to contain repeated observations on individuals either for the full duration of the follow-up period or until the individual exits poverty. Once an individual has exited poverty, that study member contributes no further observations to the data set. It is helpful to contrast these data

requirements to those described above for fixed effects models. The fixed effects analysis did not restrict the sample to those individuals who were initially in poverty. Furthermore, if an individual had exited poverty they were not removed from the sample. Respondents could therefore contribute multiple observations to the sample over the entire period during which they are observed in the BHPS sample, irrespective of their initial poverty status or their movements in to or out of poverty during this period. Due to these data requirements, it has not been possible to conduct survival analysis for Wales. The results of survival analysis applied to exit from poverty at a UK level are shown in Annex 2.6. The results indicate that the likelihood of exiting poverty is lowest among those who are unemployed. In terms of family status, both lone parent and couples with non-dependent children are most likely to exit poverty. The analysis also confirms that the chance of exiting poverty is negatively related to poverty duration.

7. Concluding Comments

This report has investigated the potential for undertaking 'Wales-level analyses using the British Household Panel Survey (BHPS) and Understanding Society (USoc). The analysis undertaken for this report has demonstrated that BHPS and Understanding Society data can be used to develop detailed accounts of changes in household structure and economic circumstances of people living in Wales. However, there are clearly limitations placed on the feasibility of different types of analysis and there are some methodologies that provide greater scope for analysis than others.

This investigation has been carried out via an examination of the size of the Wales sample within the BHPS and through an analysis of poverty dynamics in Wales. The ability to conduct Wales-level analysis with these data sources is context specific. Furthermore, there are a variety of ways in which longitudinal data can be used and it is therefore not possible to be definitive regarding what types of analysis can and cannot be undertaken with the data. Statistical methods that draw upon the pooled time series cross-sectional sample, such as regression techniques developed for panel data, are able to benefit from the statistical power provided by the repeated collection of multiple years' worth of data from the same individuals. On the other hand, when using survival analysis, the sample must be restricted to those individuals reporting particular outcome so that the chances of exiting that outcome (or entering an alternative outcome) can be estimated. These characteristics are often only observed among a minority of the population, e.g. living in poverty and it may therefore not prove feasible to undertake such analyses at a Wales level.

In determining the feasibility of certain types of analysis, some of the key factors to consider are:

- the size of the target population for analysis or the incidence of the outcome variable that is of interest;
- ability to pool multiple instances from the same individual and how such pooling of data may be hampered by changes in the definitions of variables or the introduction of new classifications of key variables;

- the acceptability of sacrificing the use of the most up to date information recorded by the survey in favour of using more historical information to increase the sample size available for analysis; and
- the importance of considering whether a) there is any reason to suspect that the analytical results derived from Wales level analysis should be different to those estimated for the rest of the UK and b) why these differences could not be examined with UK level data with Wales specific parameters being included within model specifications.

The Annual Population Survey (APS) has also recently been demonstrated as being an important source of longitudinal data for Wales (see Jones et al, 2012¹⁶). However, the BHPS and Understanding Society cover a broader range of topics than the APS and so analyses for many topics, including the analysis of poverty presented here, could only be conducted using these sources. Furthermore, unlike the APS, as a dedicated panel study respondents are followed up if they change address. This is particularly important in terms of understanding how transitions in household composition contribute to issues including the likelihood of a household being poor, particularly where such changes are often accompanied by a change in address. Finally, only a maximum of four years' worth of longitudinal data are available from respondents to the APS. The BHPS and Understanding Society therefore represent an important resource for longitudinal analysis in Wales.

The development of USoc has been accompanied by an increase in the sample sizes available for Wales-level analysis. Understanding Society has also been accompanied by other important innovations, such as gaining the consent of respondents to link their survey data to other sources of data held about them (e.g. administrative education and health records). Nonetheless, the introduction of USoc has also resulted in a discontinuity in the annual availability of survey panel data for Wales. Furthermore, like any panel survey, a number of Waves of USoc data will need to be collected before the full benefits of this new study will be realised. The BHPS sub-sample included within USoc will therefore remain an important research resource for Wales moving forwards.

¹⁶ Jones M., Davies R. and Drinkwater S. (2012), *Unlocking the Potential of the Welsh Local Labour Force Survey*: Welsh Government: Economic Research Unit.

Annex 1: Economic Transitions, Demographic Transitions and the Incidence of Poverty

One Period Transition	Wales				United Kingdom			
	T start	T end	Diff	Sample	T start	T end	Diff	Sample
Economic Transitions								
Employed both years (EE)	7.8	7.5	-0.3	8,390	6.6	6.5	-0.1	73,725
In employment then unemployed (EU)	20.2	47.9	27.6	163	16.7	49.8	33.2	1,487
In employment then inactive (EN)	11.3	32.5	21.2	391	11.9	25.8	13.9	3,268
Unemployed then employed (UE)	53.7	18.9	-34.8	201	49.7	16.2	-33.5	1,650
Unemployed both years (UU)	69.3	69.7	0.4	244	68.1	66.1	-2.0	1,747
Unemployed then inactive (UN)	54.8	58.9	4.2	168	55.0	54.6	-0.5	1,109
Inactive then employed (NE)	31.4	14.1	-17.2	523	27.4	13.4	-14.0	4,116
Inactive then unemployed (NU)	57.5	58.1	0.6	167	49.7	53.5	3.8	1,036
Inactive both (NN)	36.3	35.3	-1.0	2,436	33.8	33.9	0.1	17,443
Demographic Transitions								
Single both years (SS)	27.0	26.4	-0.6	1,089	24.8	24.6	-0.1	10,074
Single to couple (SCN)	29.5	9.1	-20.5	44	20.1	10.7	-9.4	597
Single to couple with child(ren) (SC+)	26.8	14.6	-12.2	41	38.4	13.8	-24.5	318
Single to lone parent (SLP)	20.0	30.0	10.0	30	35.5	26.2	-9.3	214
Couple to single (CS)	22.0	31.7	9.8	41	11.2	20.4	9.2	411
Couple both years (CC)	8.1	8.6	0.6	2,319	6.3	6.3	0.0	22,005
Couple to couple with children(CC+)	11.5	11.5	0.0	226	7.0	9.4	2.4	2,237
Couple with child(ren) to single (C+S)	11.2	43.8	32.6	89	12.5	39.9	27.4	634
Couple with child(ren) to couple (C+C)	9.7	13.1	3.4	176	5.6	9.7	4.1	1,449
Couple with child(ren) both years (C+C+)	15.2	14.0	-1.2	7,016	13.0	12.5	-0.5	56,829
Couple with child(ren) to lone parent(C+LP)	24.6	46.8	22.2	126	23.0	39.3	16.3	949
Lone parent to single (LPS)	28.6	42.9	14.3	49	21.6	40.1	18.5	352
Lone parent to couple+kids (LPC+)	42.7	28.2	-14.6	103	38.9	21.7	-17.2	705
Lone parent both years (LPLP)	38.8	35.9	-2.9	1,334	35.6	32.9	-2.7	8,807
Total	17.7	17.2	-0.5	12,683	14.8	14.6	-0.2	105,581

Two Period Transition	Wales				United Kingdom			
	T start	T end	Diff	Sample	T start	T end	Diff	Sample
Economic Transitions								
Employed both years (EE)	7.6	7.4	-0.2	6,873	6.5	6.2	-0.3	62,242
In employment then unemployed (EU)	16.5	53.2	36.7	139	15.7	51.6	35.9	1,344
In employment then inactive (EN)	13.3	31.4	18.1	414	11.6	25.8	14.2	3,689
Unemployed then employed (UE)	54.5	19.3	-35.3	187	51.6	17.4	-34.2	1,655
Unemployed both years (UU)	69.3	67.6	-1.7	179	68.6	65.4	-3.2	1,175
Unemployed then inactive (UN)	57.1	59.2	2.0	147	56.8	50.7	-6.1	954
Inactive then employed (NE)	31.2	12.4	-18.8	596	28.4	12.0	-16.4	4,905
Inactive then unemployed (NU)	46.3	56.6	10.3	136	50.1	53.1	3.0	887
Inactive both (NN)	38.4	38.9	0.4	1,781	34.6	35.2	0.6	12,749
Demographic Transitions								
Single both years (SS)	24.6	26.1	1.5	817	24.0	23.8	-0.2	7,728
Single to couple (SCN)	25.5	16.4	-9.1	55	16.8	8.1	-8.7	862
Single to couple with child(ren) (SC+)	28.8	10.2	-18.6	59	32.6	11.8	-20.8	509
Single to lone parent (SLP)	21.1	18.4	-2.6	38	32.2	22.0	-10.2	255
Couple to single (CS)	16.7	24.2	7.6	66	9.5	17.2	7.7	600
Couple both years (CC)	7.8	9.0	1.2	1,708	6.0	6.1	0.1	16,687
Couple to couple with children(CC+)	12.0	13.4	1.3	299	6.7	8.8	2.1	3,322
Couple with child(ren) to single (C+S)	15.4	38.5	23.1	130	12.7	37.0	24.4	948
Couple with child(ren) to couple (C+C)	7.3	8.5	1.2	260	5.0	7.9	3.0	2,282
Couple with child(ren) both years (C+C+)	15.2	13.8	-1.4	5,626	13.1	12.0	-1.1	46,879
Couple with child(ren) to lone parent(C+LP)	23.7	40.1	16.4	177	23.0	36.6	13.6	1,442
Lone parent to single (LPS)	32.4	45.1	12.7	71	22.5	37.4	14.9	497
Lone parent to couple+kids (LPC+)	44.1	24.5	-19.6	143	39.2	20.4	-18.8	1,016
Lone parent both years (LPLP)	39.8	36.6	-3.2	1,003	36.7	32.0	-4.7	6,573
Total	17.6	17.2	-0.4	10,452	14.7	14.1	-0.6	89,600

Five period transition	Wales				United Kingdom			
	T start	T end	Diff	Sample	T start	T end	Diff	Sample
Economic Transitions								
Employed both years (EE)	7.8	6.8	-1.0	3,662	6.3	5.8	-0.4	37,495
In employment then unemployed (EU)	9.2	47.7	38.5	65	10.9	50.8	39.9	726
In employment then inactive (EN)	11.1	24.4	13.3	315	9.1	24.1	15.0	3,358
Unemployed then employed (UE)	61.5	20.7	-40.7	135	55.9	18.2	-37.7	1,211
Unemployed both years (UU)	73.8	78.5	4.6	65	68.0	65.3	-2.8	435
Unemployed then inactive (UN)	70.9	54.7	-16.3	86	60.1	49.0	-11.1	604
Inactive then employed (NE)	34.8	13.2	-21.6	468	30.5	10.4	-20.1	4,566
Inactive then unemployed (NU)	52.9	54.3	1.4	70	47.3	53.1	5.8	446
Inactive both (NN)	43.1	42.9	-0.3	788	38.2	36.2	-2.0	5,539
Demographic Transitions								
Single both years (SS)	23.3	26.5	3.2	347	21.6	21.3	-0.3	3,749
Single to couple (SCN)	19.3	5.3	-14.0	57	18.4	5.3	-13.0	920
Single to couple+child(ren) (SC+)	34.0	17.0	-17.0	53	22.2	15.4	-6.8	622
Single to lone parent (SLP)	25.8	22.6	-3.2	31	29.0	17.4	-11.6	207
Couple to single (CS)	21.9	32.8	10.9	64	10.2	19.6	9.4	755
Couple both years (CC)	7.1	7.2	0.1	679	5.3	5.7	0.4	7,490
Couple to couple with children(CC+)	5.4	8.7	3.2	312	4.2	7.0	2.8	4,015
Couple with child(ren) to single (C+S)	12.3	22.8	10.5	114	12.2	22.9	10.7	1,036
Couple with child(ren) to couple (C+C)	10.2	10.9	0.7	275	5.2	7.9	2.8	3,118
Couple with child(ren) both years (C+C+)	17.0	13.5	-3.5	2,863	13.7	10.8	-2.9	26,470
Couple with child(ren) to lone parent(C+LP)	22.7	36.0	13.3	211	22.4	32.1	9.7	1,605
Lone parent to single (LPS)	23.1	24.6	1.5	65	20.0	27.5	7.5	480
Lone parent to couple+kids (LPC+)	45.6	18.4	-27.2	158	41.6	17.9	-23.7	1,068
Lone parent both years (LPLP)	45.9	35.1	-10.8	425	40.4	30.2	-10.2	2,845
Total	18.7	16.3	-2.4	5,654	14.3	12.6	-1.7	54,380

Annex 2: Detailed Regression Results

Table A2.1: Relative Risk of Poverty (Figure 6.1)

	UK				Wales			
Number of obs				131030				16237
Wald chi2(24)				9491.53				1289.16
Prob > chi2				0				0
Pseudo R2				0.2362				0.2193
	Odds Ratio	Std Err	Z	P>z	Odds Ratio	Std. Err.	z	P>z
Gender								
Male	1.22	0.04	6.11	0.00	1.21	0.10	2.31	0.02
Female (reference category)								
Age								
15-24 years	1.10	0.07	1.61	0.11	0.99	0.14	-0.08	0.94
25-34 years	1.19	0.07	2.81	0.01	1.20	0.17	1.3	0.19
35-44 years	1.05	0.06	0.85	0.40	1.09	0.15	0.6	0.55
45-54 years	0.93	0.05	-1.38	0.17	0.99	0.12	-0.11	0.91
55-60 years (ref)								
Household composition								
Single non-elderly	4.31	0.21	29.32	0.00	3.72	0.49	10.05	0.00
Couple no children (ref)								
Couple: dep children	1.90	0.08	14.66	0.00	1.75	0.20	4.88	0.00
Couple: non-dep children	0.44	0.03	-12.74	0.00	0.72	0.11	-2.28	0.02
Lone par: dep children	5.62	0.30	31.89	0.00	4.96	0.71	11.27	0.00
Lone par: non-dep children	1.59	0.12	5.95	0.00	2.60	0.47	5.25	0.00
2+ unrelated adults	3.28	0.21	18.53	0.00	2.77	0.55	5.15	0.00
Other households	0.70	0.10	-2.60	0.01	0.49	0.18	-1.99	0.05
Educational attainment								
Higher degree	0.20	0.02	-13.31	0.00	0.10	0.04	-5.89	0.00
First degree	0.22	0.01	-22.43	0.00	0.21	0.03	-9.55	0.00
HND, HNC, Teaching	0.38	0.03	-12.63	0.00	0.43	0.08	-4.49	0.00
A level	0.49	0.02	-15.75	0.00	0.55	0.07	-5	0.00
O level/GCSEs	0.54	0.02	-14.69	0.00	0.57	0.06	-5.65	0.00
CSE	0.80	0.05	-3.80	0.00	0.80	0.11	-1.66	0.10
None of these (ref)								
Economic Activity								
In employment (ref)								
Unemployed	14.57	0.59	66.27	0.00	13.37	1.48	23.47	0
Full time student	7.40	0.31	48.29	0.00	8.00	0.89	18.75	0
Economically inactive	4.38	0.16	41.30	0.00	4.12	0.39	15.05	0
Country								
England (ref)					n.a.	n.a.	n.a.	n.a.
Wales	1.19	0.05	3.91	0.00	n.a.	n.a.	n.a.	n.a.
Scotland	1.23	0.05	5.12	0.00	n.a.	n.a.	n.a.	n.a.
Northern Ireland	1.14	0.05	2.78	0.01	n.a.	n.a.	n.a.	n.a.

Table A2.2: Risk of Poverty: Demographic and Economic Transitions

	UK				Wales			
Number of obs	63439				7492			
Wald chi2(35)	4515.76				681.9			
Prob > chi2	0				0			
Pseudo R2	0.252				0.2522			
	Odds Ratio	Std. Err.	z	P>z	Odds Ratio	Std. Err.	z	P>z
Gender								
Male	1.07	0.06	1.23	0.22	1.18	0.16	1.20	0.23
Female (ref)								
Age								
15-24 years	1.73	0.14	6.62	0.00	1.70	0.35	2.56	0.01
25-34 years	1.45	0.11	4.86	0.00	1.33	0.24	1.57	0.12
35-44 years	1.13	0.09	1.58	0.11	1.11	0.20	0.55	0.58
45-54 years	0.84	0.06	-2.52	0.01	1.00	0.16	0.01	1.00
55-64 years (ref)								
Demographic transition								
Single both years (SS)	3.74	0.27	18.11	0.00	3.15	0.59	6.12	0.00
Single to couple (SCN)	1.44	0.23	2.25	0.02	0.73	0.46	-0.50	0.62
Single to couple+kids (SCK)	0.86	0.17	-0.74	0.46	1.06	0.50	0.11	0.91
Single to lone parent (SLP)	2.71	0.56	4.82	0.00	3.65	2.11	2.24	0.03
Couple to single* (CS)	3.21	0.46	8.08	0.00	5.29	2.22	3.97	0.00
Couple both years (CC) (ref)								
Couple to couple+kids(CCK)	1.28	0.15	2.11	0.04	1.28	0.43	0.73	0.47
Couple+kids to single (CKS)	3.30	0.53	7.44	0.00	2.47	1.11	2.02	0.04
Couple+kids to couple (CKC)	1.44	0.21	2.53	0.01	0.81	0.30	-0.57	0.57
Couple+kids both years (CKCK)	2.18	0.15	11.65	0.00	2.02	0.34	4.19	0.00
Couple+kids to lone parent(CKLP)	5.07	0.72	11.45	0.00	8.07	3.51	4.80	0.00
Lone parent to single (LPS)	5.93	1.04	10.13	0.00	4.13	1.84	3.18	0.00
Lone parent to couple+kids* (LPCK)	1.85	0.25	4.64	0.00	2.34	0.79	2.54	0.01
Lone parent both years (NN)	4.99	0.41	19.65	0.00	5.28	1.09	8.05	0.00
Educational attainment								
Higher degree	0.25	0.04	-8.40	0.00	0.09	0.06	-3.39	0.00
First degree	0.26	0.03	-13.47	0.00	0.22	0.05	-7.18	0.00
HND, HNC, Teaching	0.44	0.05	-7.74	0.00	0.54	0.14	-2.39	0.02
A level	0.51	0.03	-10.07	0.00	0.63	0.11	-2.61	0.01
O level/GCSEs	0.66	0.04	-7.09	0.00	0.67	0.10	-2.65	0.01
CSE	0.84	0.07	-1.99	0.05	0.78	0.15	-1.31	0.19
None of these (ref)								
Economic Transition								
Employed both years (EE) (ref)								
In employment then unemployed (EU)	16.19	1.24	36.40	0.00	10.52	2.50	9.89	0.00
In employment then inactive (EN)	6.22	0.42	27.14	0.00	7.28	1.31	11.04	0.00
Unemployed then employed (UE)	2.31	0.21	9.14	0.00	2.67	0.67	3.89	0.00
Unemployed both years (UU)	21.57	2.15	30.78	0.00	29.42	8.21	12.12	0.00
Unemployed then inactive (UN)	13.87	1.27	28.75	0.00	18.24	4.47	11.85	0.00

Inactive then employed (NE)	2.26	0.17	10.64	0.00	1.97	0.43	3.15	0.00
Inactive then unemployed (NU)	13.38	1.37	25.43	0.00	15.28	4.24	9.82	0.00
Inactive both (NN)	6.93	0.37	36.17	0.00	6.89	1.04	12.76	0.00
Country								
England (ref)					n.a.	n.a.	n.a.	n.a.
Wales	1.13	0.07	1.94	0.05	n.a.	n.a.	n.a.	n.a.
Scotland	1.19	0.07	2.88	0.00	n.a.	n.a.	n.a.	n.a.
Northern Ireland	1.15	0.09	1.94	0.05	n.a.	n.a.	n.a.	n.a.

Table A2.3: Risk of Entering Poverty (Figure 6.2)

	UK				Wales			
Number of obs	52665				6026			
Wald chi2(35)	3569.35				443.87			
Prob > chi2	0				0			
Pseudo R2	0.1772				0.1713			
	Odds Ratio	Std. Err.	z	P>z	Odds Ratio	Std. Err.	z	P>z
Gender								
Male	1.10	0.06	1.80	0.07	1.09	0.16	0.58	0.56
Female (ref)								
Age								
15-24 years	1.71	0.16	5.56	0.00	1.79	0.45	2.30	0.02
25-34 years	1.34	0.11	3.58	0.00	1.07	0.23	0.31	0.76
35-44 years	1.13	0.09	1.54	0.12	0.98	0.21	-0.11	0.91
45-54 years	0.81	0.06	-2.87	0.00	0.90	0.18	-0.52	0.60
55-64 years (ref)								
Demographic transition								
Single both years (SS)	2.98	0.23	14.39	0.00	2.06	0.41	3.62	0.00
Single to couple (SCN)	1.54	0.37	1.79	0.07	1.68	1.23	0.71	0.48
Single to couple+kids (SCK)	1.83	0.54	2.05	0.04	1.77	1.29	0.78	0.44
Single to lone parent (SLP)	3.34	0.94	4.27	0.00	5.30	3.49	2.53	0.01
Couple to single* (CS)	3.71	0.67	7.23	0.00	3.94	2.85	1.89	0.06
Couple both years (CC) (ref)								
Couple to couple+kids(CCK)	1.53	0.22	2.98	0.00	1.79	0.69	1.52	0.13
Couple+kids to single (CKS)	4.50	0.84	8.09	0.00	3.93	1.72	3.12	0.00
Couple+kids to couple (CKC)	2.12	0.35	4.57	0.00	0.77	0.49	-0.41	0.68
Couple+kids both years (CKCK)	2.02	0.13	10.68	0.00	1.96	0.34	3.90	0.00
Couple+kids to lone parent(CKLP)	8.94	1.42	13.84	0.00	16.00	7.33	6.05	0.00
Lone parent to single (LPS)	8.49	1.71	10.64	0.00	7.28	3.62	3.99	0.00
Lone parent to couple+kids* (LPCK)	2.16	0.47	3.52	0.00	1.16	0.87	0.20	0.84
Lone parent both years (NN)	4.00	0.35	15.79	0.00	3.65	0.83	5.70	0.00
Educational attainment								
Higher degree	0.30	0.05	-7.78	0.00	0.17	0.13	-2.38	0.02
First degree	0.31	0.03	-12.59	0.00	0.25	0.06	-5.57	0.00
HND, HNC, Teaching	0.44	0.05	-7.79	0.00	0.62	0.16	-1.83	0.07
A level	0.58	0.04	-7.89	0.00	0.59	0.10	-3.00	0.00
O level/GCSEs	0.72	0.04	-5.42	0.00	0.58	0.10	-3.20	0.00
CSE	0.92	0.09	-0.92	0.36	1.12	0.25	0.52	0.60
None of these (ref)								
Economic Transition								
Employed both years (EE) (ref)								
In employment then unemployed (EU)	24.78	2.05	38.82	0.00	16.12	4.36	10.27	0.00
In employment then inactive (EN)	8.61	0.65	28.51	0.00	9.02	1.75	11.32	0.00
Unemployed then employed (UE)	2.03	0.38	3.75	0.00	1.91	1.16	1.06	0.29
Unemployed both years (UU)	10.55	1.52	16.37	0.00	20.37	8.85	6.94	0.00

Unemployed then inactive (UN)	9.66	1.38	15.90	0.00	12.62	4.17	7.68	0.00
Inactive then employed (NE)	1.95	0.26	4.94	0.00	1.84	0.70	1.60	0.11
Inactive then unemployed (NU)	9.45	1.43	14.82	0.00	7.90	3.57	4.57	0.00
Inactive both (NN)	5.05	0.30	27.10	0.00	4.60	0.73	9.55	0.00
Country								
England (ref)					n.a.	n.a.	n.a.	n.a.
Wales	1.20	0.08	2.76	0.01	n.a.	n.a.	n.a.	n.a.
Scotland	1.19	0.07	2.90	0.00	n.a.	n.a.	n.a.	n.a.
Northern Ireland	1.07	0.09	0.78	0.43	n.a.	n.a.	n.a.	n.a.

Table A2.4: Relative Risk of Exiting Poverty

	UK				Wales			
Number of obs				15423				2221
Wald chi2(35)				1509.24				274
Prob > chi2				0				0
Pseudo R2				0.1047				0.1132
	Odds Ratio	Std. Err.	z	P>z	Odds Ratio	Std. Err.	z	P>z
Gender								
Male	0.96	0.05	-0.74	0.46	0.93	0.13	-0.52	0.60
Female (ref)								
Age								
15-24 years	1.16	0.11	1.53	0.13	0.87	0.20	-0.60	0.55
25-34 years	0.82	0.08	-2.09	0.04	0.51	0.12	-2.90	0.00
35-44 years	0.98	0.09	-0.20	0.84	0.62	0.15	-2.01	0.04
45-54 years	1.02	0.09	0.21	0.83	0.71	0.16	-1.50	0.13
55-64 years (ref)								
Demographic transition								
Single both years (SS)	0.48	0.04	-8.51	0.00	0.52	0.13	-2.61	0.01
Single to couple (SCN)	1.87	0.42	2.77	0.01	7.98	5.64	2.94	0.00
Single to couple+kids (SCK)	5.00	1.27	6.32	0.00	3.76	2.44	2.04	0.04
Single to lone parent (SLP)	1.28	0.34	0.96	0.34	1.00	0.93	0.00	1.00
Couple to single* (CS)	0.44	0.14	-2.50	0.01	0.19	0.19	-1.67	0.09
Couple both years (CC) (ref)								
Couple to couple+kids(CCK)	1.03	0.19	0.15	0.88	3.23	1.61	2.36	0.02
Couple+kids to single (CKS)	0.71	0.17	-1.42	0.15	0.74	0.55	-0.40	0.69
Couple+kids to couple (CKC)	1.29	0.32	1.02	0.31	1.48	0.69	0.85	0.39
Couple+kids both years (CKCK)	0.81	0.07	-2.59	0.01	1.25	0.27	1.02	0.31
Couple+kids to lone parent(CKLP)	0.61	0.11	-2.83	0.01	0.67	0.32	-0.85	0.40
Lone parent to single (LPS)	0.50	0.13	-2.60	0.01	1.23	0.79	0.32	0.75
Lone parent to couple+kids* (LPCK)	2.01	0.31	4.48	0.00	1.67	0.67	1.27	0.20
Lone parent both years (NN)	0.55	0.05	-6.74	0.00	0.66	0.16	-1.76	0.08
Educational attainment								
Higher degree	2.08	0.50	3.03	0.00				
First degree	1.96	0.24	5.50	0.00	2.25	0.61	3.02	0.00
HND, HNC, Teaching	1.31	0.15	2.27	0.02	1.64	0.60	1.35	0.18
A level	1.41	0.10	5.03	0.00	0.95	0.19	-0.26	0.79
O level/GCSEs	1.18	0.07	3.05	0.00	0.99	0.13	-0.11	0.91
CSE	1.07	0.08	0.88	0.38	1.39	0.27	1.66	0.10
None of these (ref)								
Economic Transition								
Employed both years (EE) (ref)								
In employment then unemployed	0.25	0.04	-8.80	0.00	0.29	0.13	-2.84	0.00

(EU)								
In employment then inactive (EN)	0.43	0.05	-7.38	0.00	0.32	0.12	-3.04	0.00
Unemployed then employed (UE)	2.52	0.23	10.09	0.00	2.14	0.52	3.15	0.00
Unemployed both years (UU)	0.21	0.02	-17.32	0.00	0.19	0.04	-7.28	0.00
Unemployed then inactive (UN)	0.31	0.03	-11.14	0.00	0.22	0.06	-5.61	0.00
Inactive then employed (NE)	1.67	0.13	6.75	0.00	1.43	0.30	1.71	0.09
Inactive then unemployed (NU)	0.25	0.03	-11.33	0.00	0.23	0.07	-5.18	0.00
Inactive both (NN)	0.41	0.02	-17.00	0.00	0.35	0.05	-6.72	0.00
Country								
England (ref)					n.a.	n.a.	n.a.	n.a.
Wales	1.08	0.09	0.95	0.34	n.a.	n.a.	n.a.	n.a.
Scotland	0.95	0.07	-0.78	0.44	n.a.	n.a.	n.a.	n.a.
Northern Ireland	0.86	0.07	-1.88	0.06	n.a.	n.a.	n.a.	n.a.

Table A2.5: Linear Dependent Models of the Relative Incidence of Poverty

	Fixed Effects Regression								Cross-sectional Regressions							
	UK				Wales				UK				Wales			
Number of obs					131030				16237				131030			16237
Number of groups					21694				3153				1559.94			218.01
													0			0
R-sq: within					0.08				0.06				0.22			0.22
between					0.05				0.26				0.22			0.22
overall					0.05				0.19							
	Coef.	Std. Err.	t	P>t	Coef.	Std. Err.	t	P>t	Coef.	Std. Err.	t	P>t	Coef.	Std. Err.	t	P>t
Gender																
Male	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.02	0.00	11.81	0.00	0.03	0.01	4.46	0.00
Female (ref)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.								
Age																
15-24 years	0.06	0.01	8.32	0.00	0.01	0.03	0.51	0.61	0.02	0.00	3.93	0.00	0.01	0.01	0.52	0.60
25-34 years	0.03	0.01	4.82	0.00	0.04	0.02	1.90	0.06	0.02	0.00	5.29	0.00	0.03	0.01	2.35	0.02
35-44 years	0.01	0.01	2.22	0.03	0.03	0.02	1.64	0.10	0.01	0.00	1.54	0.12	0.01	0.01	0.93	0.35
45-54 years	0.00	0.00	-1.09	0.28	0.00	0.01	-0.02	0.98	0.00	0.00	-0.67	0.50	0.00	0.01	0.21	0.83
55-64 years (ref)																
Household composition																
Single non-elderly	0.14	0.01	27.09	0.00	0.13	0.02	7.10	0.00	0.15	0.00	46.26	0.00	0.16	0.01	14.56	0.00
Couple no children (ref)																
Couple: dep children	0.00	0.00	0.72	0.47	0.00	0.01	0.05	0.96	0.05	0.00	18.88	0.00	0.05	0.01	6.17	0.00
Couple: non-dep children	-0.06	0.00	12.76	0.00	-0.06	0.01	-4.06	0.00	-0.06	0.00	-17.24	0.00	-0.04	0.01	-3.61	0.00
Lone par: dep children	0.15	0.01	23.83	0.00	0.18	0.02	9.52	0.00	0.24	0.00	58.42	0.00	0.23	0.01	19.77	0.00
Lone par: non-dep children	0.03	0.01	4.26	0.00	0.09	0.03	3.61	0.00	0.03	0.01	4.67	0.00	0.11	0.02	6.42	0.00
2+ unrelated adults	0.07	0.01	6.65	0.00	0.14	0.04	3.46	0.00	0.11	0.01	18.00	0.00	0.10	0.02	4.31	0.00
Other households	-0.05	0.01	-4.81	0.00	-0.08	0.04	-2.26	0.02	-0.04	0.01	-4.32	0.00	-0.07	0.03	-2.69	0.01
Educational attainment																

Higher degree	-0.09	0.02	-4.88	0.00	-0.06	0.07	-0.81	0.42	-0.14	0.01	-25.86	0.00	-0.18	0.02	-8.33	0.00
First degree	-0.10	0.01	-7.00	0.00	-0.04	0.05	-0.82	0.41	-0.14	0.00	-41.66	0.00	-0.15	0.01	-13.90	0.00
HND, HNC, Teaching	-0.03	0.02	-1.69	0.09	0.07	0.05	1.35	0.18	-0.11	0.00	-27.30	0.00	-0.10	0.01	-8.52	0.00
A level	-0.01	0.01	-0.78	0.44	0.01	0.04	0.33	0.74	-0.09	0.00	-30.41	0.00	-0.08	0.01	-10.24	0.00
O level/GCSEs	-0.08	0.01	-6.81	0.00	0.00	0.04	0.02	0.99	-0.08	0.00	-29.99	0.00	-0.08	0.01	-10.51	0.00
CSE	-0.09	0.02	-4.36	0.00	0.01	0.07	0.21	0.83	-0.03	0.00	-8.41	0.00	-0.04	0.01	-3.41	0.00
None of these (ref)																
Economic Activity																
In employment (ref)																
Unemployed	0.32	0.00	66.43	0.00	0.31	0.01	21.08	0.00	0.44	0.00	103.05	0.00	0.45	0.01	36.65	0.00
Full time student	0.22	0.00	48.85	0.00	0.24	0.01	16.93	0.00	0.30	0.00	84.99	0.00	0.34	0.01	32.49	0.00
Economically inactive	0.16	0.00	43.04	0.00	0.17	0.01	15.54	0.00	0.19	0.00	67.74	0.00	0.19	0.01	24.38	0.00

Table A2.6: Survival Analysis

Complementary log-log regression	Number of obs			2919
	Zero outcomes			1966
	Nonzero outcomes			953
	Wald chi2(27)			838.07
Log likelihood = -1658.0832	Prob > chi2			0
	Coef.	Std. Err.	z	P>z
Gender				
Male	0.01	0.08	0.13	0.90
Female (ref)				
Age				
15-24 years	0.16	0.15	1.08	0.28
25-34 years	-0.05	0.14	-0.33	0.74
35-44 years	-0.01	0.13	-0.04	0.97
45-54 years	-0.07	0.13	-0.54	0.59
55-64 years (ref)				
Household composition				
Single non-elderly	-0.73	0.17	-4.36	0.00
Couple no children	-0.12	0.17	-0.69	0.49
Couple: dep children	-0.22	0.15	-1.44	0.15
Couple: non-dep children (ref)				
Lone par: dep children	-0.50	0.17	-2.98	0.00
Lone par: non-dep children	-0.12	0.22	-0.56	0.58
Educational attainment				
Higher degree	0.43	0.32	1.33	0.18
First degree	0.62	0.17	3.69	0.00
HND, HNC, Teaching	0.11	0.17	0.65	0.52
A level	0.27	0.10	2.65	0.01
O level/GCSEs	0.24	0.09	2.75	0.01
CSE	0.24	0.13	1.86	0.06
None of these (ref)				
Economic Activity				
In employment (ref)				
Unemployed	-1.29	0.15	-8.75	0.00
Full time student	-0.76	0.10	-7.57	0.00
Economically inactive	-0.57	0.10	-5.98	0.00
Country				
England (ref)				
Wales	0.00	0.09	0.04	0.97
Scotland	0.07	0.09	0.80	0.42
Northern Ireland	-0.19	0.11	-1.75	0.08
Hazard Function				
Year 2	-0.11	0.19	-0.60	0.55

Year 3	-0.35	0.19	-1.81	0.07
Year 4	-0.51	0.20	-2.59	0.01
Year 5	-0.58	0.20	-2.82	0.01
Year 6	-0.82	0.24	-3.39	0.00
