

Low-Income Dynamics 1991-2001

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Introduction

The extent to which individuals living in low-income households at a point in time are simply experiencing transitory fluctuations in income, or are persistently experiencing low income, is clearly an important issue and one that can only be addressed using longitudinal data. The issues of income mobility and the extent of persistence of low incomes experienced by different groups are therefore addressed in this paper using data from the longitudinal British Household Panel Survey (BHPS).

Last year's Low Income Dynamics paper was the first standalone release. Previously the analysis was first published as a chapter of the Households Below Average Income (HBAI) annual report. Due to improvements in the timeliness of the availability of Family Resources Survey (FRS) data, the analysis of which forms the bulk of the HBAI report, it is no longer possible to include the analysis of the latest wave of BHPS in the HBAI report. Therefore, in line with National Statistics good practice to make statistics available at the earliest opportunity, we have taken the decision to release this analysis in the form of an analytical paper, the contents of which will be repeated in a separate chapter in the next edition of HBAI.

The information presented in this paper is based on analysis of eleven waves of the British Household Panel Survey (BHPS), from 1991 up to and including 2001. This publication concentrates on low-income dynamics, particularly in regard to the characteristics and trends of those individuals who are persistently observed as living in low-income households.

Changes from last year

Some of the BHPS figures presented in this paper are subject to revisions because changes are taken on board by the data providers which is made

possible by the fact the respondents do not change from year to year.

What are we trying to measure?

Information presented here, as in the Households Below Average Income (HBAI) report, uses household disposable incomes, adjusted for household size and composition, as a proxy for material living standards. More precisely it measures the level of consumption of goods and services that people could attain given the disposable income of the household in which they live.

In order to allow comparisons of the living standards of different types of households, income is adjusted to take into account variations in the size and composition of the households in a process known as equivalisation, which is explained in more detail below.

A key assumption made in HBAI is that all individuals in the household benefit equally from the combined income of the household. This enables the total equivalised income of the household to be used as a proxy for the standard of living of each household member.

Average 'household' income referred to in this paper is thus in actual fact the average 'living standard' for individuals as determined by their net disposable equivalised household income.

See Appendix 1 for a detailed definition of net disposable household income and Appendix 2 for a more 'in depth' presentation of the methodology underpinning the analysis presented in this paper.

Equivalisation

As explained above, income is adjusted, or equivalised, to take into account variations in both the size and

composition of the household. This process reflects the common sense notion that a family of several people needs a higher income than a single person in order for both households to enjoy a comparable standard of living.

Equivalence scales conventionally take a couple with no children as a reference point. The incomes of larger households are adjusted downwards and the incomes of smaller households adjusted upwards relative to this benchmark. The income values quoted relate to the 'cash' income for a couple with no children, and the equivalisation process must be reversed in order for them to be converted to cash incomes for other family types.

The adjustment also incorporates assumptions about the extent to which sharing allows individuals to attain a higher standard of living than they would if living independently with the same cash income. Appendix 2 gives more detail.

Definition of income

The measure of income used in the BHPS analysis presented in this paper is net disposable household income. That is to say the sum, across all household members, of income (after the deduction of Income Tax and National Insurance Contributions) from employment and self-employment, investments and savings, private and occupational pensions, Social Security benefits and Tax Credits (see Appendix 2 for a more comprehensive list).

Traditionally, HBAI presents analyses of disposable income on two bases: Before Housing Costs (BHC) and After Housing Costs (AHC). This is principally to take into account variations in housing costs that may not correspond to comparable variations in the quality of housing. The income measure used in the analysis presented here is on a Before Housing Costs (BHC) basis only. This is because there is insufficient information on

housing costs on the BHPS to allow the construction of an After Housing Costs measure.

As a form of general taxation, Council Tax is also conceptually excluded (and therefore deducted) from the definition of net disposable income used in FRS-based HBAI analysis. However, as with housing costs, there was insufficient information on Council Tax collected on the BHPS in earlier years to allow the construction of an income measure excluding Council Tax. The impact of not deducting Council Tax on the FRS income has been assessed and is addressed in table 2. In general, not deducting Council Tax leads to a slight reduction in snapshot estimates of the risk of low income, although this is more marked for pensioners reducing the risk by up to 3 percentage points.

Low income

Low income is defined in this paper in terms of thresholds of median income, specifically 60 per cent and 70 per cent of median income. This is in line with the indicators of persistent low income as presented in the Government's annual report on poverty and social exclusion, Opportunity For All and also the agreement reached at the Statistical Program Committee of the European Union in 1998. Analysis of results based on the bottom 20 and 30 per cent of the income distribution have also been included. This is both for comparison, and to validate results based on thresholds of median as, given that this part of the distribution is particularly densely populated, the latter are vulnerable to measurement error.

Data Source

The British Household Panel Survey is a longitudinal survey designed to capture information on a nationally representative sample of the population of Great Britain,

including England, Wales and Scotland. It has been developed and run by The University of Essex, Institute for Social and Economic Research (further information and details of their database can be found on their web-site at <http://www.iser.essex.ac.uk/>).

The initial selection of around 5,500 households (approximately 10,000 individual interviews) was sampled from the Postcode Address File, with the same households/individuals re-interviewed, where possible, in each subsequent survey year. Measures are in place to compensate for the inevitable attrition rate, whereby the original respondents were no longer available. Additional samples for Scotland and Wales were introduced in 1999 to boost representation for these areas.

Reliability of Results

The BHPS is a sample survey and as such the figures presented here are subject to variation as a result of both sampling error and bias due to non-sampling error (in particular non-response and attrition of the original panel - see Appendix 2 for a fuller explanation). In particular, caution should be exercised with regard to year-on-year changes in results, as these are likely to

be small in relation to sampling variation and other sources of measurement error.

The FRS remains the official source for cross sectional low-income analysis as it has a much larger sample size, is designed as a cross sectional survey first and foremost and collects more detailed information on incomes. Equivalent BHPS estimates have been included in table 2 for validation purposes only.

Acknowledgements

The British Household Panel Survey data was made available through the UK Data Archive. The data is released under the auspices of the ESRC UK Longitudinal Studies Centre (ULSC) at the University of Essex. Neither the ULSC nor the Archive bears any responsibility for the analysis or interpretation of the BHPS data presented here.

Contact Points

We welcome feedback on all our publications. If you have any comments or questions in relation to the information presented in this paper, please contact the DWP statistician responsible, Simon Lunn, by telephone on 020 7962 8232, or by e-mail at team.hbai@dwp.gsi.gov.uk.

Summary of key findings

Income mobility

- Over the period 1991-2001, there was considerable movement around the income distribution. For example, just over five per cent of the population remained in the same quintile (fifth) of the income distribution for the whole of the period. People who started in the top quintile were more likely to stay there throughout than those in the bottom quintile were to stay in that bottom quintile.
- Over half of individuals who were in the bottom quintile in 1991 spent six or more years in that particular quintile from 1991 to 2001; similarly for those in the top quintile in 1991. Individuals in any of the middle three quintiles were less likely to have spent the majority of their time in their original 1991 quintile.
- In 2001, individuals who were no longer in the same quintile as they had been in 1991 were more likely than not to be in an adjacent quintile. Those who had finished in a higher quintile had spent the majority of their time above their original quintile and vice versa for those finishing in a lower quintile.

Persistence of low income

- Over each of the four-year periods 1991-1994, 1995-1998, and 1998-2001, around a third of individuals spent at least one year in households with below 60 per cent of median household income, compared with around 1 in 10 for three or more years and around 1 in 20 for all four years.
- Over the eleven year period 1991-2001, around half of all individuals spent at least one year in households with below 60 per cent of median household income. This compares with ten per cent for at least seven years, and one per cent who spent all eleven years below 60 per cent of median household income.
- There was little change in persistent low-income for the whole population over the period 1991-2001, as defined by spending three or more years out of any four year period in a household with below 60 per cent of median income. There was little change for people of working-age, whilst there was a slight rise for pensioners and a fall for children over the period as a whole. There has been little or no change in persistent low income using this measure for either group since the four year period 1994-97.
- Single pensioners, those living in single parent families, workless households, the social rented sector or with no qualifications were more likely to experience persistent low income, as defined above, than other groups (people have been allocated to a group according to their status in the first year of each four-year period). There is some evidence that, during the 1990's, the incidence of persistent low income fell for single parent families and workless households.

Detailed analysis

Income in real terms between 1991 and 2001

Table 1 is based on all eleven waves of BHPS data and shows income levels for the mean, median and various percentiles over time, in January 2002 prices. It shows income growth in real terms that is broadly consistent with FRS based results Before Housing Costs. This table has been presented in order to allow users to assess the robustness of BHPS income data presented in this paper.

With eleven waves of data it is possible to look at how the characteristics of those with persistently low incomes have changed over time.

The eleven waves have been divided into eight overlapping subsets of four waves, covering each four-year period from 1991-2001. To be considered for inclusion in a particular period, individuals must have responded in the first year, and lived in fully responding households in all waves up to and including the final wave of the four-year period, or be a child born to a permanent panel member who satisfies the above conditions¹.

Given the relatively small sample size of the BHPS (around 6,000 individuals in the longitudinal data by the end of the eleven-year period), changes over time must be interpreted with caution, as they are likely to be small in relation to measurement error.

¹ The text has been revised since release in September 2003.

Comparison of Family Expenditure (FES) and Family Resources Survey (FRS) based low-income estimates with their BHPS equivalents

Table 2 compares FRS/FES estimates of the percentage of individuals below 60 per cent of median household income, at a particular point in time, to the BHPS longitudinal and cross sectional equivalents.

It should be noted that the FRS/FES based series remains the official source for cross sectional low-income analysis as it has a much larger sample size, is designed as a cross sectional survey first and foremost and collects more detailed information on incomes. Equivalent BHPS estimates have been included in table 2 for validation purposes only.

A variant of FRS results that does not, unlike official published estimates, deduct Council Tax has also been produced. This is in order to facilitate closer comparison between results from the two surveys, as the BHPS definition of income does not deduct Council Tax, as the necessary information to do this was not available in earlier years.

The BHPS estimates of low income are presented using both:

- the cross-sectional sample, which is topped up every year to counter attrition as respondents drop out;
- the longitudinal sample, which will become increasingly smaller and more vulnerable to attrition bias as respondents drop out over the years.

The presentation of BHPS results on both bases will allow us to gain an insight into the likely effect of attrition bias on the low-income estimates presented in this paper.

Estimates derived from the longitudinal BHPS are, in later years, around a percentage point lower for all groups, with the exception of children, where the difference is slightly more pronounced, at around two percentage points below BHPS cross sectional estimates. As explained above, this difference is indicative of the extent of the attrition bias of the longitudinal low-income analysis presented in this chapter.

Comparison of FRS figures, both before and after the deduction of Council Tax from income, suggests that not deducting Council Tax serves to lower rates of low income for working-age adults and the population as a whole by around a percentage point, and has little or no effect on rates for children. It has a larger impact on pensioner figures, where the difference is around three percentage points.

Comparison of FRS and BHPS figures for the different groups indicates the following for:-

- i) The population as a whole – BHPS cross sectional estimates compare favourably with the official FRS/FES series. However, they overstate the (conceptually more comparable) adjusted FRS series by around a percentage point.
- ii) Children – the BHPS series shows a larger degree of variation than the FES/FRS published series. This is understandable given both the smaller sample size of the former, and the fact that the

incomes for families with children are quite heavily clustered around the 60 per cent median mark making them sensitive to year on year sampling variation around the median. Consequently there are some differences in the depiction of short-term trends, but trends over the longer term are not dissimilar.

- iii) Working-age adults – BHPS cross sectional estimates are around two percentage points lower than the FRS/FES published series. The BHPS series is more consistent compared with the (conceptually more similar) FRS adjusted series. The difference is consistently either one or zero percentage points.
- iv) Pensioners – there are large differences between BHPS estimates and the FRS/FES published series:-
 - In earlier years, the FES series produced higher estimates of pensioner low-income rates, by up to six percentage points.
 - However, the position reversed and for most years since 1995 the BHPS series was higher than the FRS series.
 - The difference is larger when compared with the (conceptually closer) FRS adjusted series. Whilst the levels shown by the two series are quite different, changes over time are more consistent.

This means that whilst BHPS estimates of the incidence of low incomes in any period are not directly comparable with the FRS, they are likely to provide a reasonably consistent guide to changes over longer periods.

Short-term trends in FRS cross-sectional income-poverty rates may take a few years to feed through into BHPS estimates of persistent income-poverty.

Income mobility

Table 3 shows where individuals spent the majority of the eleven-year period, 1991-2001, in relation to their original quintile in 1991. From this we can conclude that relative to their position in 1991:

- Over half of all individuals who originated in the top or bottom quintiles spent six or more years in that same quintile over the period.
- People who started in the top quintile were more likely to stay there throughout than those in the bottom quintile were to stay in that bottom quintile.

Table 4 outlines the position of individuals at the beginning and end of the eleven-year period 1991-2001, and also looks at where these individuals spent the majority of their time. It shows that:

- Those individuals who finished the period in a different quintile to the one in which they started were more likely than not to finish in an adjacent quintile.
- Just under one in ten of those in the top quintile in 1991 were in the bottom quintile in 2001; a similar number moved from the bottom quintile to the top.
- Of those individuals who started and finished the period in the same quintile, the majority spent six or

more years in that quintile, more so for individuals in the top and bottom as opposed to the middle three quintiles.

- Those individuals who finished in a higher quintile in 2001 were more likely than not to have spent the majority of the period in a higher quintile.
- Those individuals who finished in a lower quintile in 2001 were more likely than not to have spent the majority of their time below their original quintile.

In summary, whilst it would appear that the picture painted of income mobility is a complicated one, for the majority of individuals, their position in 2001 in relation to 1991 was generally indicative of where they had spent the majority of the eleven-year period.

Persistent low income

Table 5 shows the number of years that people spent below various low-income thresholds over the eleven-year period, and several four-year periods between 1991 and 2001.

For any four-year period:

- Around a third of all individuals spent one or more years below the 60 per cent of median threshold.
- Just over one in ten spent at least three years out of any four living in households with below 60 per cent of median income. This figure falls only very slightly if the definition is tightened to include only those individuals who spent the remaining year living in a household in the bottom 40 per cent of the income distribution.

- Around one in twenty spent all four years living in households with below 60 per cent of median income.
- There were no significant changes in these proportions over the four year periods presented in Table 5.
- The figures obtained using 60 and 70 per cent of median as low-income thresholds are broadly consistent with those obtained using the bottom 20 and 30 per cent of the distribution respectively.

For the full eleven year period:

- Around half spent one or more years below the 60 per cent of median threshold.

One possible measure of 'persistence' of low incomes would be to consider only those individuals whose income was 'low' in each year of the period in question. However, this would exclude people who experienced very short periods with a slightly higher income and whose long-term living standards were not actually very different from those captured by the above definition of persistence.

This issue is relevant because the income distribution is particularly dense around the second and third deciles and the 60 and 70 per cent of median income markers. In addition, some short periods of recorded high income may be due to measurement error and not reflect any real improvement in living standards.

Therefore other definitions of persistence are also considered which involve experiencing a low income for the majority of the period:

- i) Regardless of how high their income was in the remaining year(s). This approach is adopted in the Government's report on Poverty and Social Exclusion, 'Opportunity For All' (OFA) which defines persistence as spending three or more years out of any four year period below low-income thresholds.
- ii) With an income just above these thresholds but in the bottom 40 per cent of the income distribution for the remaining year(s). This excludes from the definition of 'persistence' those with relatively high incomes for any period of time.

- One in six individuals spent at least five years living in households with below 60 per cent of median income. This falls to around one in ten if the definition is constrained to include only those individuals who spent all, or all but one, of the remaining years in the bottom 40 per cent of the income distribution.
- Only one per cent of individuals spent all eleven years living below the 60 per cent of median threshold.
- Again, figures obtained using 60 and 70 per cent of median, as low-income thresholds, are broadly consistent with those obtained using the bottom 20 and 30 per cent of the distribution respectively.

In conclusion, as we consider more restrictive definitions of 'persistence', we see falls in the proportion of the population who might be described as persistently poor.

Opportunity for All persistent low-income indicators

Table 6 presents the persistent low-income indicators for pensioners, children and working-age adults that are included in the Government's annual report on tackling poverty and social exclusion 'Opportunity for All' (OFA), with additional figures presented here for all individuals for comparative purposes.

For the period 1998 to 2001 the table shows that:

- 11 per cent of individuals lived in households with below 60 per cent of median income for at least three years. This figure has shown little change since 1991.
- 16 per cent of children lived in households with below 60 per cent of median income for at least three years. Whilst this figure has fallen since 1991-94, it has shown little change since 1994-97.
- Seven per cent of working-age adults lived in households with below 60 per cent of median income for at least three years. This figure has remained broadly constant over the period 1991-2001.
- 18 per cent of pensioners lived in households with below 60 per cent of median income for at least three years. This figure would appear to have risen slightly over the period 1991-2001.

The definition of persistence used in OFA is 'at least three years out of four below thresholds of 60 or 70 percent of median income'. An alternative definition that does not appear in OFA, using the bottom 20 or 30 per cent of the income distribution as opposed to thresholds of median income, is also included for validation purposes. This is useful as OFA results may be subject to variation due to the density of the income distribution around the 60 and 70 per cent of median markers.

Composition of persistent low-income groups

In Tables 7 and 8, individuals are defined by their characteristics in the first year of the period covered. Although some will experience changes in the composition of their household over the period, this is not considered here. For example, not all those individuals recorded as living in a lone-parent family in 1991 will still be living in a lone-parent family in 1994.

Table 7 outlines the family and household characteristics of those individuals who experienced 'persistent' low income, where persistence is expressed as three years out of any four below low-income thresholds. For 1998-2001, for those individuals living in households with below 60 per cent of median income in at least three years out of four, it shows that:

- Around half lived in families with children.
- Just over one third were pensioners, around half of which were single and half couples.

- Around one third lived in workless households.
- More than half lived in families where no adults had any educational qualifications.
- Around two-fifths lived in social housing.

The above conclusions are supported when validated against figures for the bottom 20 per cent of the income distribution.

Whilst, due to small sample sizes and risk of measurement error, changes over time should be interpreted with caution, there is evidence to suggest that, since 1991 for those individuals persistently below 60 per cent of median income:

- Among people in low income households, there has been a fall in the proportion in families with children, although this has levelled off in recent years; while there has been an increase in the proportion living in pensioner families. For both of these groups, this partly reflects changes in the proportion of the whole population (as captured in this data) accounted for by the group.
- There has been a fall in the proportion who live in workless families or in social rented accommodation and families where the adults have no qualifications; although this last finding is entirely accounted for by a fall in the proportion of adults with no qualifications in the whole population.

Risk of falling into persistent low-income groups

Table 8 shows the risk for individuals of experiencing ‘persistent low incomes’ according to the characteristics of their family or household. This table varies from table 7 in that it is not showing the composition of low-income groups by household or characteristics, but rather the risk of persistent low income. For those individuals living in households with below 60 per cent of median income in at least three years out of any four, the table shows that:

- Those living in lone-parent or pensioner families were more at risk of persistent low income than other family types. In contrast there was a very small risk for childless non-pensioner families.
- Those living in workless households also had a relatively high risk of persistent low income.
- Individuals without qualifications and those living in the social rented housing sector also had a high risk of persistent low income.
- Again, whilst, due to small sample sizes and risk of measurement error, changes over time should be interpreted with caution, there is evidence to suggest that, since 1991 there has been a reduction in the risk of persistent low income for individuals who were – at least in the first year of each four year period - in lone parent and workless families; and that this fall occurred between 1991-94 and 1995-98.

Table 1: Equivalised weekly income levels (in January 2002 prices)¹

£pw equivalised								Source: BHPS
Year	10th percentile	20th percentile	30th percentile	40th percentile	60% of median	70% of median	Median	Mean
1991	137	172	204	243	165	193	275	318
1992	132	163	196	230	161	187	268	307
1993	140	176	206	242	168	196	280	315
1994	145	176	210	244	166	194	277	321
1995	146	183	216	251	171	199	284	335
1996	153	188	221	258	178	208	297	340
1997	147	184	215	253	175	204	291	335
1998	155	195	231	266	184	215	307	355
1999	154	200	234	270	186	217	310	362
2000	162	205	242	281	192	225	321	368
2001	171	215	250	289	198	231	330	381
Percentage increase 1991 to 2001 ²	24%	25%	22%	19%	20%	20%	20%	20%

Notes:

1. The table shows summary statistics of the equivalised income distribution for each BHPS year in constant (January 2002) prices.
2. These percentage increase figures have been revised since release in September 2003 due to an error.

Table 2: Comparison of FES/FRS based estimates of the percentage of individuals below 60% median household income and their BHPS longitudinal and cross-sectional equivalents¹

BHPS year	BHPS		FRS/FES		FES/FRS year
	longitudinal weights	cross-sectional weights	Adjusted ²	HBAI official series ³	
All individuals					
1991	18	18	..	20	90/91*
1992	19	20	..	21	91/92*
1993	18	19	..	20	92/93*
1994	18	18	17	18	94/95
1995	16	17	16	17	95/96
1996	17	18	17	18	96/97
1997	17	17	17	18	97/98
1998	17	18	17	18	98/99
1999	17	18	17	18	99/00
2000	18	18	16	17	00/01
2001	16	16	16	17	01/02
Children					
1991	26	26	..	26	90/91*
1992	28	28	..	27	91/92*
1993	26	27	..	27	92/93*
1994	26	26	22	23	94/95
1995	21	22	21	21	95/96
1996	23	25	24	25	96/97
1997	22	24	24	25	97/98
1998	24	27	24	24	98/99
1999	22	24	23	23	99/00
2000	23	24	21	21	00/01
2001	19	21	20	21	01/02
Working-Age adults					
1991	13	13	..	15	90/91*
1992	15	15	..	16	91/92*
1993	14	14	..	16	92/93*
1994	13	13	14	14	94/95
1995	12	12	13	13	95/96
1996	12	13	14	15	96/97
1997	12	13	14	15	97/98
1998	12	13	14	14	98/99
1999	12	14	14	14	99/00
2000	13	13	13	14	00/01
2001	11	12	13	14	01/02
Pensioners					
1991	26	26	..	32	90/91*
1992	22	23	..	28	91/92*
1993	23	23	..	24	92/93*
1994	23	23	19	21	94/95
1995	23	24	19	22	95/96
1996	23	25	18	21	96/97
1997	24	25	19	22	97/98
1998	25	26	20	23	98/99
1999	23	24	19	22	99/00
2000	25	26	19	21	00/01
2001	22	21	19	22	01/02

Notes:

1. Some of the BHPS figures presented in the table above have seen small revisions since their publication in the last (2001/02) HBAI report. This is due to changes to the base data set made by the data providers.

2. An adjusted FRS series has been presented in this table. This differs from the published series in that Council Tax has not been deducted from income. This is in an attempt to present FRS-based figures on as close a basis to the BHPS definition of income (which does not deduct council tax, as this information is not available on the BHPS) as possible.

3. HBAI data is taken from the FRS and represents a financial year unless denoted by a **, in which case it is taken from the FES and represents two calendar years combined.

Table 3: Where in the income distribution individuals spent the majority of their time relative to 1991

Source: BHPS

	Original position in 1991					All individuals
	Bottom Quintile	Second Quintile	Third Quintile	Fourth Quintile	Top Quintile	
All years in the same quintile as 1991	8	2	1	1	17	6
Majority of years in same quintile as 1991	46	32	27	33	43	36
Majority of years above 1991 quintile	46	34	28	14	...	24
Majority of years below 1991 quintile	...	14	27	34	40	23
None of the above	...	18	18	17	...	11
All individuals	100	100	100	100	100	100

Notes:

1. The "Majority of years in same quintile as 1991" row means six or more years out of eleven in the same quintile as 1991 but does not include those in the "All years in original/final quintile" row.

2. 'None of the above' implies that the individual has neither remained in the same quintile as the original, nor been in a higher or lower quintile for six of the eleven BHPS years. Possible combinations matching this criteria for respondents over the eleven years are (5, 4, 2), (5, 3, 3), (4, 4, 3) and (5, 5, 1) in any order for (lower quintile, original quintile, higher quintile). When there are an odd number of BHPS years, 'none of the above' is impossible for the top and bottom quintiles.

Table 4: Position of individuals in the income distribution by quintile in 2001 in relation to 1991, by where they spent the majority of their time

Percentage of individuals		Source: BHPS				
	Position in 1991					
	Bottom Quintile	Second Quintile	Third Quintile	Fourth Quintile	Top Quintile	
Position in 2001						
Bottom quintile	41	24	15	12	9	
Second quintile	26	30	22	13	8	
Third quintile	16	22	25	22	16	
Fourth quintile	10	16	22	29	23	
Fifth quintile	7	8	16	24	45	
Total	100	100	100	100	100	
Of those individuals who were in the same quintile in 1991 and 2001						
All years in original/final quintile	19	5	2	5	37	
Majority of years in same quintile as original ¹	65	64	55	65	51	
Majority of time above original/final quintile	16	11	17	9	...	
Majority of time below original/final quintile	...	7	15	8	12	
None of the above	...	13	11	13	...	
All	100	100	100	100	100	
Of those individuals who were in a higher quintile in 2001 relative to 1991						
Majority of yrs spent above original quintile	67	63	55	46	...	
Majority of years in same quintile as original	33	16	15	21	...	
Majority of yrs spent below original quintile	...	3	6	8	...	
None of the above	...	19	23	25	...	
All	100	100	100	100	...	
Of those individuals who were in a lower quintile in 2001 relative to 1991						
Majority of yrs spent above original quintile	...	7	7	1	...	
Majority of years in same quintile as original	...	25	19	20	37	
Majority of yrs spent below original quintile	...	44	58	64	63	
None of the above	...	24	16	15	...	
All	...	100	100	100	100	

Notes:

1. For the second block of results, the "Majority of years in same quintile as original" row means six or more years out of eleven in the same quintile as 1991 but does not include those in the "All years in original/final quintile" row.
2. 'None of the above' implies no observation has remained in the same quintile as the original, or a higher or lower quintile for six of the eleven BHPS years. Possible combinations matching this criteria for respondents over the eleven years are (5, 4, 2), (5, 3, 3), (4, 4, 3) and (5, 5, 1) in any order for (lower quintile, original quintile, higher quintile). When there are an odd number of BHPS years, 'none of the above' is impossible for the top and bottom quintiles.

Table 5: Number of years spent in the bottom of the income distribution, measured by percentiles and thresholds of median, over four and eleven year periods

Percentage of individuals	Source: BHPS			
Number of years below median thresholds	Below 60% median	Below 70% median	In bottom 20%	In bottom 30%
1991 to 1994				
No years	66	55	63	51
At least 1 year	34	45	37	49
At least 2 years	20	30	23	35
At least 3 years	12	20	14	24
At least 3 years, remainder in bottom 40%	10	16	12	18
All 4 years	5	10	7	13
1995 to 1998				
No years	68	58	64	52
At least 1 year	32	42	36	48
At least 2 years	19	29	22	33
At least 3 years	11	20	14	24
At least 3 years, remainder in bottom 40%	10	17	13	19
All 4 years	6	12	8	15
1998 to 2001				
No years	68	59	64	53
At least 1 year	32	41	36	47
At least 2 years	18	28	23	34
At least 3 years	11	19	14	24
At least 3 years, remainder in bottom 40%	10	17	12	20
All 4 years	5	11	8	15
1991 to 2001				
At least one year	50	60	53	63
At least 5 years	16	27	20	30
At least 5 years, with no more than 1 year outside bottom 40%	11	16	13	17
At least 7 years	10	18	12	21
At least 7 years, with no more than 1 year outside bottom 40%	8	14	10	16
At least 9 years	5	11	7	13
At least 9 years, with no more than 1 year outside bottom 40%	5	10	7	13
At least 10 years, other year in bottom 40%	2	6	4	8
All 11 years	1	4	2	4

Notes:

1. Table 5 contains revisions for 1991-1994 and 1995-1998. A printing error in last year's publication resulted in duplicated results for these periods.

Table 6: Opportunity for All indicators

	Percentage of group below threshold in at least 3 out of 4 years			
	OFA definition		Alternative definition ¹	
	Below 60% of median	Below 70% of median	In bottom 20 per cent	In bottom 30 per cent
All individuals				
1991 to 1994	12	20	14	24
1992 to 1995	11	20	14	24
1993 to 1996	11	20	14	24
1994 to 1997	11	19	14	24
1995 to 1998	11	20	14	24
1996 to 1999	11	20	14	24
1997 to 2000	11	20	14	24
1998 to 2001	11	19	14	24
Children				
1991 to 1994	20	30	22	33
1992 to 1995	17	29	21	33
1993 to 1996	17	28	21	32
1994 to 1997	16	26	21	32
1995 to 1998	16	26	20	32
1996 to 1999	16	26	20	31
1997 to 2000	17	26	20	31
1998 to 2001	16	25	20	30
Working-age adults				
1991 to 1994	8	13	9	15
1992 to 1995	7	13	9	16
1993 to 1996	7	13	9	16
1994 to 1997	7	12	9	16
1995 to 1998	7	12	9	15
1996 to 1999	7	12	9	15
1997 to 2000	7	12	9	15
1998 to 2001	7	12	8	15
Pensioners				
1991 to 1994	16	33	19	40
1992 to 1995	16	31	20	39
1993 to 1996	16	32	21	40
1994 to 1997	17	33	23	41
1995 to 1998	17	33	22	41
1996 to 1999	18	34	22	41
1997 to 2000	17	34	23	41
1998 to 2001	18	33	23	40

Notes:

1. There is a higher density of individuals around 60% and 70% median income. The alternative definition is presented for validation purposes as it may present estimates less sensitive to sampling and measurement error.

Table 7: Composition of persistent low-income groups by characteristics of family or household

Percentage of individuals	Source: BHPS														
	3 years out of 4 years below threshold						3 years out of 4 located in the:						Whole population		
	Below 60% median			Below 70% median			Bottom 20 per cent			Bottom 30 per cent			1991-4	1995-8	1998-01
	1991-4	1995-8	1998-01	1991-4	1995-8	1998-01	1991-4	1995-8	1998-01	1991-4	1995-8	1998-01	1991-4	1995-8	1998-01
GENDER AND ADULTHOOD															
Children	37	33	32	33	30	30	36	32	32	31	29	29	22	22	23
Men	23	25	26	25	26	27	23	26	26	25	26	28	37	37	37
Women	40	42	43	42	44	44	41	42	42	43	44	44	41	41	40
FAMILY TYPE															
Pensioner Couple	10	14	18	12	15	18	10	15	19	12	15	18	9	10	12
Single Pensioner	14	18	18	17	19	19	14	17	17	18	19	19	8	10	10
Couple with children	42	34	32	40	34	33	41	34	35	39	34	33	39	36	36
Couple without children	5	5	7	5	6	7	5	5	6	6	7	7	21	21	20
Single with children	23	18	18	18	16	15	22	18	16	17	15	15	7	7	7
Single without children	6	10	7	8	9	7	7	10	7	9	9	8	15	16	15
EDUCATIONAL QUALIFICATIONS(adults)³															
Above A-level	7	10	10	8	11	12	8	10	12	8	11	13	25	30	34
A-level or below	33	36	35	34	35	36	35	36	36	34	36	35	41	40	38
No qualification	60	54	54	59	54	52	58	54	52	58	53	52	34	30	28
TYPE OF TENURE															
Owner-occupied	41	45	53	42	43	49	41	43	52	43	44	48	70	70	71
Social rented	51	45	40	50	47	42	50	47	42	49	46	43	23	22	21
Private rented	8	9	8	7	10	8	8	10	7	8	9	9	7	8	8
ECONOMIC STATUS OF HOUSEHOLD															
All adults in employment	7	6	7	10	7	9	9	6	9	11	9	10	32	29	31
Couple, one employed, one workless	13	11	14	15	16	16	13	14	16	15	17	17	25	25	24
Workless (of working age)	46	46	35	36	38	29	43	43	31	34	35	28	13	14	12
Pensioner	21	30	33	26	31	35	22	30	34	27	32	34	14	17	19
Self-employed	14	8	10	13	8	10	14	8	11	14	8	10	16	15	14
Whole population	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Notes

1. The 'whole population' columns are included to aid comparisons as changes in population composition over time are likely to affect the composition of those in low-income.
2. People are classified according to their circumstances in the first year of the relevant four year period.
3. Educational qualification is determined by the highest qualification held by anyone in the household.

Table 8: Risk of population groups experiencing persistent low income

Percentage of individuals	Source: BHPS											
	3 years out of 4 years below threshold						3 years out of 4 located in the:					
	Below 60% median			Below 70% median			Bottom 20 per cent			Bottom 30 per cent		
	1991-4	1995-8	1998-01	1991-4	1995-8	1998-01	1991-4	1995-8	1998-01	1991-4	1995-8	1998-01
GENDER AND ADULTHOOD												
Children	20	16	16	30	26	25	22	20	20	33	32	30
Men	7	7	8	14	14	14	9	10	10	16	17	18
Women	12	11	12	21	21	21	14	14	15	25	26	26
FAMILY TYPE												
Pensioner Couple	13	15	18	26	29	31	15	20	24	31	35	36
Single Pensioner	19	20	19	40	38	35	23	24	23	50	48	45
Couple with children	12	10	10	20	18	17	14	13	14	23	23	22
Couple without children	3	3	4	5	6	7	3	4	5	7	8	9
Single with children	41	29	30	55	47	45	45	37	34	62	55	53
Single without children	5	7	5	11	11	9	6	9	6	13	14	13
EDUCATIONAL QUALIFICATIONS(adults)												
Above A-level	3	3	3	5	6	6	4	4	4	6	8	9
A-level or below	8	9	9	14	16	17	9	11	12	17	20	21
No qualification	17	17	19	30	33	33	19	22	24	36	40	41
TYPE OF TENURE												
Owner-occupied	7	7	8	12	12	13	8	9	10	15	15	16
Social rented	26	22	21	44	41	39	30	29	28	51	50	48
Private rented	14	13	11	20	24	21	16	17	12	26	28	28
ECONOMIC STATUS OF HOUSEHOLD												
Fully employed	2	2	3	6	5	6	4	3	4	8	7	8
Partially employed	6	5	7	13	12	13	7	8	10	15	16	17
Workless (of working age)	41	34	33	56	52	47	45	41	36	61	59	56
Pensioner	18	19	20	37	37	36	22	25	25	45	46	44
Self-employed	10	6	8	16	11	15	12	7	11	20	13	18
Whole population	12	11	11	20	20	19	14	14	14	24	24	24

Notes:

1. Comparisons of subgroups with the 'whole population' row indicates whether the subgroup has a similar, lesser or greater risk the population as a whole.
2. People are classified according to their circumstances in the first year of the relevant four year period.
3. Educational qualification is determined by the highest qualification held by anyone in the household.

Appendix 1

Technical Terms, Definitions and Concepts

Technical Terms

Equivalisation

The process by which household income is adjusted to take into account variations in household size and composition. Income is divided by scales, which vary according to the number of adults and the number and age of dependants in the household. For more information see Appendix 2.

Equivalised income

Income which has undergone **equivalisation**.

Median

The median is the income value that divides a population, when ranked by income, into two equal sized groups. The median of the whole population is the same as the 50th **percentile**. The term is also used for the mid-point of subsets of the income distribution.

Percentiles

These are income values that divide the population, when ranked by income, into 100 equal sized groups. 10 per cent of the population have incomes below the 10th percentile, 20 per cent have incomes below the 20th percentile and so on.

Quintiles

Quintiles are income values which divide the population, when ranked by income, into five equal sized groups. The lowest quintile is the same as the 20th **percentile**. Quintile is also often used as a shorthand term for **quintile group**; for example 'the bottom quintile' to describe the bottom 20 per cent of the income distribution.

Quintile groups

These are groups of the population defined by the **quintiles**. The lowest quintile group is the 20 per cent of the population with the lowest incomes. The second quintile group is the population with incomes above the lowest quintile but below the second quintile.

Risk

This is the chance of individuals in a group falling below a given threshold (e.g. the risk of the unemployed being below the bottom decile median). It is calculated as the number in the group below the given threshold divided by the total number in the group.

Definitions used in BHPS

A number of definitions are employed in assembling the BHPS results. The main ones are described below.

Net disposable household income

Income is the sum across all household members of income from:

- Earnings from employment
- Profit/loss from self-employment
- Investments and savings
- All Social Security benefits and tax credits
- Private and occupational pensions
- Miscellaneous sources including educational grants, trade union/friendly society payments, maintenance, foster allowances and sickness/accident insurance.

minus income tax, National Insurance and other deductions.

Adult

An adult is:

- a married or cohabiting person, or
- an individual aged 19 or over, or
- a 16 to 18 year old not in non-advanced full-time education, or
- a 16 to 18 year old on a course above A-level standard (or above 'Highers' in Scotland).

Benefit unit

This is a single adult or a couple, together with any dependent children. An adult living in the same household as his or her parents, for example, is a separate benefit unit from the parents.

Child

A child is:

- an individual aged under 16, or
- an unmarried 16 to 18 year old in school or non-advanced further education and living with parents

Household

The BHPS use the harmonised Government Statistical Service definition of household:

One person living alone, or a group of people who either share living accommodation, or share one meal a day and who have the address as their only, or main residence

Classifications

For some analyses individuals are classified into family type or economic status groups. Individuals are classified according to the status of the benefit unit in which they live. The classifications are defined below.

Family type

Single pensioner	-a single adult of state pension age or over.
Pensioner couple	-a couple, where the male in the benefit unit is of state - pension age or over.
Couple with children	-a non-pensioner couple with dependent children (a "dependent child is one defined as "Child" in the Definitions section above.
Couple without children	-a non-pensioner couple with no dependent children.
Single with children	-a non-pensioner single adult with dependent children.
Single without children	-a non-pensioner single adult with no dependent children.

Economic status classification

Individuals are allocated to the first category which applies in the following order; so, for example, a couple both of whom were over state pension age but one was employed would be allocated to the "Couple, one employed, one workless" group. It should be noted that this classification is not ILO consistent.

All adults in employment	– all adults in the benefit unit in full or part-time employment.
Couple, one employed, one workless	– couple, one workless adult, the other in full or part-time employment.
Workless	– all adults in the benefit unit are workless, with one or more of working-age.
Pensioner	– all adults in the benefit unit are workless and above state pension age.

Self-employed

– benefit unit contains one or more adults who are full-time self-employed.

Qualifications

Above A-level

-higher degree, first degree, teaching qualifications, other higher qualifications and nursing qualifications.

A-level or below

-A-levels, GCSE or O-levels, commercial qualifications, CSE Grade 2-5, Scottish highers, Scottish standard 1-3, Apprenticeship and Youth training certificates.

No qualifications

-None of the qualifications listed above.

Tenure

Owner-occupied

-owned outright or owned with mortgage.

Social rented

-local authority rent or housing association rent.

Private rented

-rented from employer, rented privately or other renting.

Appendix 2

Methodology

Income mobility and persistence of low income

Estimates of income mobility and persistence of low incomes are based on data from the British Household Panel Survey (BHPS), a longitudinal data set developed at the University of Essex, Institute for Social and Economic Research, with core funding from the UK Economic and Social Research Council. The main objective of the survey is gain an understanding of social and economic change at the individual and household level in Britain, to identify, model and forecast such changes, their causes and consequences in relation to a range of socio-economic variables.

British Household Panel Survey sample

The BHPS was designed as an annual survey of each adult (16+) member of a nationally representative sample of more than 5,000 households, making a total of approximately 10,000 individual interviews. The same individuals will be re-interviewed in successive waves and, if they split-off from original households, all adult members of their new households will also be interviewed. Children are interviewed once they reach the age of 16; there is also a special survey of 11-15 year old household members from Wave Four onwards. Thus the sample should remain broadly representative of the population of Britain as it changes through the 1990s.

The sample consisted of 8167 issued addresses drawn from the Postcode

Address File. Interviews were attempted at all private households found at these addresses (subject to selection where multiple households were found). All individuals enumerated in respondent households became part of the longitudinal sample. All these sample members are known as Original Sample Members (OSMs).

The sample for the subsequent waves consists of all adults in all households containing at least one member who was resident in a household interviewed at Wave One, regardless of whether that individual had been interviewed in Wave One. Thus, with a few exceptions, an attempt was made to interview all those individuals in responding households who had refused to participate at Wave One, or for any reason had been unable to take part. In addition, a number of households where no contact had been made in Wave One were approached for interview in Wave Two after confirmation that no household moves between waves had taken place.

The following rules, applied in subsequent waves, differed from the sampling rules in Wave One in only one respect. In both sets of rules, eligibility depended on domestic residence in England, Wales, or Scotland south of the Caledonian Canal. In waves subsequent to Wave One, however, OSMs were followed into institutions (unless in prison or in circumstances where the respondent was not available for interview e.g. too frail, mentally impaired etc.) or into Scotland north of the Caledonian Canal.

New eligibility for sample inclusion could occur between waves in the following ways:

1. A baby born to an OSM.
2. An OSM move into a household with one or more new people.
3. One or more new people move in with an OSM.

Additional sub-samples were added to the BHPS in 1997 and 1999.

- From Wave Seven the BHPS starting providing data for the United Kingdom European Community Household Panel (UKECHP). The BHPS consequently incorporated a sub-sample of the original UKECHP, including all households still responding in Northern Ireland, and a 'low-income' sample of the Great Britain panel. This meant that the BHPS incorporated a new sample into the survey whose first wave is wave seven.
- In Wave Nine additional samples were taken in Scotland and Wales to boost the relatively small Scottish and Welsh sample sizes, so that country level analysis could be undertaken. The target sample size in each country was 1500 households. The Scottish sample includes the population living north and west of the Caledonian Canal.

Interviewing started in September 1991 for the first wave and the September of each subsequent year. In the text wave one will be referred to as 1991, wave two as 1992 etc.

Data collection

The mode of data collection between Wave One and Wave Eight was pen-

and-paper (PAPI) but moved to Computer Assisted Personal Interview (CAPI) in Wave Nine. This is the most significant methodological change the BHPS has undergone with potentially wide ranging implications in terms of data quality. CAPI is designed to offer data improvements through minimising missing data and reducing the level of data cleaning and editing. This is because the complex routing used within the questionnaire is enforced consistently and correctly each time.

Income definition

The measure of income used here is the sum, across all household members, of income from employment and self-employment, investments and savings, private and occupational pensions, Social Security benefits and miscellaneous income, less income tax and National Insurance for those in employment. The components refer to receipts and payments made in the month prior to the interview or the most recent relevant period.

Income here, unlike the main HBAI estimates, does not deduct local taxation (including Council Tax). This is something that needs to be borne in mind given the variation in Council Tax rates between local councils and the deduction that operates for single householders.

In the BHPS, some self-employment incomes and income from second jobs are reported gross rather than net. Income tax and National Insurance contributions have been imputed for these cases to ensure consistency.

Equivalisation

The income measures used in the BHPS takes into account variations in the size and composition of the

households in which individuals live. This reflects the common sense notion that, in order to enjoy a comparable standard of living, a household of five adults will need a higher income than a person living alone. The process of adjusting income in this way is known as equivalisation and is needed in order to make sensible income comparisons between households.

Equivalence scales conventionally take a couple as the reference point, with an equivalence value of one. The process then increases relatively the cash income of single person households (since their incomes are divided by a value of less than one) and reduces relatively the incomes of households with three or more persons, which have an equivalence value of greater than one.

Consider a single person, a couple, and a couple with two children, all having unadjusted household incomes of £100 Before Housing Costs. The process of equivalisation might give an equivalised income of around £160 to the single person, £100 to the couple but only around £70 to the couple with children.

Estimates are equivalised using the McClements scale Before Housing Costs, the components of which can be found in the adjacent table. The construction of household equivalence values from these scales is straightforward. For example, the BHC equivalence value for a household containing a couple with a four year old and a fourteen year old child together with one other adult would be 1.87 from the sum of the scale values:

$$0.61 + 0.39 + 0.42 + 0.18 + 0.27 = 1.87$$

The total income for the household would then be divided by 1.87 in order to arrive at the measure of equivalised household income used in HBAI analysis.

McClements Equivalence Scale (Before Housing Costs)	
Head	0.61
Spouse	0.39
Other second adult	0.46
Third adult	0.42
Subsequent adults	0.36
Each dependent child aged:	
0-1	0.09
2-4	0.18
5-7	0.21
8-10	0.23
11-12	0.25
13-15	0.27
16 or over	0.36

Housing Costs

Traditionally, HBAI presents analyses of disposable income on two bases: Before Housing Costs (BHC) and After Housing Costs (AHC). This is principally to take into account variations in housing costs that themselves do not correspond to comparable variations in the quality of housing. The income measure used in the analysis presented here is on a Before Housing Costs (BHC) basis only. This is because, in earlier years, there was insufficient information on housing costs on the BHPS to allow the construction of an After Housing Costs measure.

Longitudinal analysis

Whilst some analysis is based on the full eleven years of data (i.e. individuals present in all 11 waves), analysis of different 'rolling' four year periods is presented as a variation on this. The period 1991 to 1994 uses individuals present in all of the first four waves. The periods 1995 to 1998 and 1998 to 2001 use individuals present in all

eight/eleven waves together with all children born to permanent panel members in the first four/seven years of the survey.

Account is also taken of the inevitable changes of address/location that some interviewees experience; the survey follows members of the original household if they move to a new household. All these methods are employed to ensure that the household/family history is not lost, and that there is no significant fall off in interview numbers.

Attrition

The BHPS carry out a number of procedures to maintain contact with respondents between waves. Thank you letters are sent to respondents after each interview, including a gift voucher and a change of address card. Summary findings are sent to respondents prior to each round of fieldwork along with an address confirmation card.

After the first wave of a Panel Study the main focus of interest is response at the individual level and the calculation of response rates. Such response rates are very complex and a wave-on-wave response rate (how many people of the people interviewed in the last wave are re-interviewed in the current wave) and a longitudinal response rate (how many of the people interviewed at Wave One are interviewed in the latest wave) can be calculated. Most of the analysis we have produced is based upon longitudinal data and consequently longitudinal response rates are shown below.

WAVE	Full respondent interviews	Longitudinal Response Rates (%)
1	9912	-

2	8568	86.4
3	7839	79.1
4	7577	76.4
5	7183	72.5
6	7132	72.0
7	6903	69.6
8	6651	67.1
9	6396	64.5
10	6143	62.0
11	5914	59.7

Grossing

Grossing up is the term usually given to the process of applying factors to sample data so that they yield estimates for the overall population. The simplest grossing system would be a single factor, the uniform grossing factor, which could be calculated as the number of households in the population divided by the number in the achieved sample. However, surveys are normally grossed by a more complex set of grossing factors, which attempt to correct for differential non-response at the same time as they scale up sample estimates.

Estimates have been weighted using the longitudinal weights constructed by the University of Essex. Although the weights attempt to correct for biases arising from sample attrition that are related to factors observed within the data, such as non-respondents, unequal selection and accommodation type, it is possible that some biases, related to factors for which we have not controlled, may persist.

Population

The analyses are based upon the British Household Panel Survey, which in Wave One relates to Great Britain only (excluding the area North of the Caledonian Canal). In Wave One the

survey covers the private household sector i.e. excludes people living in institutions, e.g. nursing homes, barracks or jails; and homeless people living rough or in bed and breakfast accommodation. After Wave One, the sample members were followed into institutions or into Scotland north of the Caledonian Canal. From Wave Seven additional households from Northern Ireland were introduced into the sample and can consequently be used for cross sectional analysis.

Reliability of results

All of the BHPS analyses are based upon a sample and are therefore subject to sampling error and non-sampling errors.

Sampling Error

Sampling error is the uncertainty in the estimates which arises because the results are derived from a random sample of the household population. No two randomly chosen samples would give exactly the same picture of the income distribution and the particular sample chosen in any year could yield results that, by chance, are either high or low. However, the likely size of such variation can be identified, at least approximately, by taking account of the size and design of the samples.

Sampling error is thus quite distinct from any systematic errors or biases that may be present in the survey and analysis processes, such as a tendency to under report a particular item of income. An estimate of sampling error is a measure of only one particular type of uncertainty in the estimate, and therefore cannot be taken as a guarantee that the figure is 'accurate' within certain limits.

For further information on the standard errors associated with different BHPS variables please see:

<http://www.iser.essex.ac.uk/bhps/doc/vola/wgimp.html>

Non-response

As with any survey the BHPS results are at risk from a systematic bias due to non-response when households that had been selected for interview do not respond to the survey. Individuals within households may also be non-responders even if the rest of the household does respond. In an attempt to correct for these biases the results are weighted to adjust for non-response at the household and individual level.

Item non-response

Item non-response occurs where a respondent has given a full interview, but has refused or given a 'don't know' answer to a particular question, which consequently leads to a missing value for that item. ISER have used imputation in the BHPS to correct for this item non-response, whereby a valid value is imputed in to replace the missing value. BHPS data contains imputation for important money amount variables, with the aim of reducing potential bias caused by the missing values as opposed to increasing the precision of estimates by increasing the effective sample size.

For more information on the background to the survey, and the methods used, please see the ISER web site:

<http://www.iser.essex.ac.uk/bhps/doc>