

# The value of longitudinal data

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# Outline of presentation

- Why longitudinal data are valuable
- Longitudinal survey designs
  - Placing household panel surveys in context
- Illustrative case studies of research based on data from the British Household Panel Survey (BHPS).
  - Selective choice of topics! Overview, not in-depth analysis!
- Summary and concluding remarks

# Why longitudinal data are valuable:

Longitudinal data enable us to:

- 1 describe phenomena and relationships that are intrinsically longitudinal
- 2 provide a better understanding of socioeconomic processes and behaviour and, thereby,
- 3 better inform policy.

Let us elaborate, taking each feature in turn, ...

# 1. Intrinsically longitudinal phenomena: examples

- Poverty persistence
- Labour market turnover and the ‘low pay – no pay’ cycle
- Residential mobility
- Household formation and dissolution
- ‘Surprises’ (differences between expectations & outcomes)
- Links between current events and outcomes and past history. E.g.:
  - current unemployment chances and past unemployment
  - child outcomes and family background
  - income in old age and work-life history
  - current earnings and job tenure, labour market experience

## 2. Better understanding, because ...

Longitudinal data, by contrast with cross-sectional snapshot data,

- enable observation of net change, not just gross change (changes in rate in stock related to changes in inflows and outflows);
- provide spell-based perspectives (and can observe how circumstances change with time spent in state);
- repeated observations on individuals allow for possibility of controlling for unobserved individual characteristics, or measurement error;
- ability to make causal inference enhanced by temporal ordering.

## 3. Better informing policy, ...

- Focus on constituent (dynamic) processes rather than ‘problem groups’ at point in time
  - ‘[D]ynamic analysis gets us closer to treating causes, where static analysis often leads us towards treating symptoms. ... The obvious static solution to poverty is to give the poor more money. If instead, we ask what leads people into poverty, we are drawn to events and structures, and our focus shifts to looking for ways to ensure people escape poverty.’ (Ellwood 1998). [Advisor to President Clinton]
  - ‘In the past, analysis ... has focused on static, snapshot pictures of where people are at a particular point in time. Snapshot data can lead people to focus on the symptoms of the problem rather than addressing the underlying processes which lead people to have or be denied opportunities.’ (HM Treasury 1999).
- Contribute to understanding, design and evaluation
  - Note: most longitudinal data enable provision of policy-relevant information (i.e. context), rather than evaluation of specific programmes

## Types of longitudinal survey designs

If longitudinal data are so great, how might we collect them?

**Four main ways:**

- 1 Pseudo-cohort data from time-series of cross-section surveys
- 2 Administrative data linkage
- 3 Retrospective survey
- 4 Prospective survey (including panels)

## Longitudinal survey designs: (1) pseudo-panels from pooled cross-section surveys

Combine group averages at different times (data for those aged 25–29 in survey for 1995 combined with data for those aged 30–34 in survey for 2000 ...)

Example: lifecycle consumption, savings analysis from UK FES 1970s–1980s (Blundell and colleagues, IFS)

- Large sample sizes, reducing measurement error
- No sample drop-out (attrition) problem

But

- Requires long series of repeated cross-sections
- Can't examine intrinsically dynamic processes, especially those involving demographic change

## Longitudinal survey designs: (2) administrative record linkage

Examples: UK Longitudinal Study linking decennial census records; linkage of benefit records

- Large samples, and comprehensive coverage of specific client groups

But

- Scope limited (to agency's own purposes, not analysis), and limited information collected
- Constraints on access, and confidentiality issues

Nordic linkage of multiple registers indicates the huge potential ... but a long way off in most countries

## Longitudinal survey designs: (3) retrospective

Examples: WES, FWLS in UK; many fertility surveys

- Quick (all the longitudinal data arrives at same time)
- Cheap (only a single measurement cycle)
- Noise reduction (respondents' narratives have internal consistency)

But

- Recall error (especially for long ago or unhappy events)
- Hard to measure details of past household context change or income
- Survivor bias (some, e.g. poor, sick, etc., relatively unlikely to survive long enough to be interviewed)

## Longitudinal survey designs: (4) prospective

Examples: cohort surveys, household panel surveys

- Contemporaneous measurement reducing bias and facilitating detailed measurements of household context, income, etc.
- Easily supplemented with retrospective data collection (about time between interviews, or before wave 1)
- Can innovate as go along (new questions modules; refresher samples), subject to maintaining panel consistency

But

- Slow to build up longitudinal measures
- Expensive
- Non-random attrition, and may lose representativeness of target population (e.g. if many immigrants)

## Prospective designs: special purpose and general purpose

- **Cohort surveys** – aim to represent individuals with given characteristic(s), who are followed over time
  - Birth cohorts, e.g. UK NCDS (1958 cohort), BCS70 (1970 cohort), Millennium Cohort
  - Youth cohorts, e.g. NLSY (USA)
  - Elder cohorts, e.g. HRS (USA), ELSA (GB)
  - Randomised socioeconomic policy experiments (mostly US)
- **Panel surveys** – aim to represent individuals and units within which they are found
  - *Rotating panel* has regular fixed and limited cycle of interviews, plus recruitment of new samples, e.g. LFS, SIPP
  - *Perpetual panel* has indefinitely long horizon of regular repeated measures

## Household panel surveys

- Particular case of a perpetual panel survey
- Aim to maintain representativeness of individuals and households from sampled population over time, using a ‘following rule’ (follow all individuals even if household splits; interview children when turn adult)
- Typically questions cover a wide range of lifecourse domains (income and employment, housing and demography, education and training, health, attitudes and values, ...), and so more general-purpose than most other longitudinal survey instruments
- Typically interview all adults in household
- Examples: PSID, Swedish LoLS, Dutch PS, GSOEP, PSBH, ECHP, BHiPS, Newham HPS, HILDA, SOPHIE, various LDC panels

## Choice of longitudinal survey design

- All four designs have advantages and disadvantages – there is no single best all-purpose type
  - Choice between longitudinal survey designs depends very much on the topics of interest, and the priorities and goals, of potential data users (and funders)!
  - However, many countries have seen the value of a general purpose household panel survey (often supplemented later on with more specialist panel studies)
- ... what sort of findings and lessons have emerged from the British Household Panel Survey (BHPS)?

## Case studies based on the BHPS

- A** Income and poverty dynamics, and their correlates
- B** The labour market: scarring effects of unemployment?  
Three vulnerable groups:
- C** Children: outcomes reflect childhood family structure, poverty?
- D** Elderly: low-income rates, employment history and early retirement, and differences between men and women
- E** Disabled people: disadvantage reflects selection or onset effects?
- F** Household demographic change: prevalence; effects of ...

## Why the BHPS?

- Representative example of a household panel survey following in the footsteps of predecessors
  - BHPS is run by ISER, where I work
    - the survey, and research on it by my colleagues, I know best
    - shameless advertising!
  - The BHPS experience shows that even relatively short panels yield much information of widespread interest (I joined ISER when only 2 waves of data were available)
- ... and also show that the same longitudinal facts may be interpreted very differently! ...

# Different spin put on the same initial findings from the BHPS:

Daily Mail, Wednesday, February 28, 1996

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## Poverty trap sprung

THE poverty trap has caught far fewer people than lobbyists and Left-wing politicians would have us believe, according to a new report.

It explodes the myth that up to 25 per cent of the population can find no way out of poverty. Only one in ten is poor long-term and millions manage to haul themselves back on their feet, say researchers.

They challenge claims that the worst-off have been getting poorer since the Tories came to power in 1979. In the early 1990s, at the height of the recession, the poorest actually became better off, claims the Research Centre on Micro-Social Change in a survey compiled for the Department of Social Security.

It says Britons are now moving up and down the income scale faster even than in the U.S. — traditionally the land of opportunity.

Just over 10 per cent of the population is likely to stay poor for more than a few months. Most are single parents, families where no one works or single pensioners.

Around 17 per cent of people are expected at any one time to meet the definition of poverty promoted by lobby groups — in 1991 a net income of £109 a week, under half the average.

During 1991 and 1992, when researchers examined the lives of

Myth of the  
25pc poor  
has been  
exploded,  
says report

By **STEVE DOUGHTY**  
Social Affairs Correspondent

nearly 9,000 people, more than 7 per cent escaped the poverty trap. Their income increased on average from £88 a week to £136 a week. Most improved their position by finding jobs.

During the research period, 6.4 per cent plunged into poverty, their incomes falling on average from £145 a week to £90 a week.



Single parent families are likely to stay poor longer, say researchers

The report says the one in ten who were likely to stay poor saw their incomes rise on average from £85 to £87 a week. 'There appears to be no strong evidence that the poor became poorer between 1991 and 1992,' it adds. 'There is preliminary evidence that the degree of mobility is greater in Britain than the U.S.'

Last week a survey by the think-tank Luxembourg Income Study group found that Britain's poor are the third best-off in Europe.

It pointed out that they have more computers, televisions and washing machines than their counterparts on the Continent or in North America.

Poverty pressure groups said yesterday that the British study showed that more people than ever were becoming poor — if only temporarily.

Chris Pond, Director of the Low Pay Unit, said: 'If you take housing costs into account, the number of those in poverty at

any one time is near to 25 per cent.

This report shows that more people are experiencing poverty.'

Lobby groups say the income of the poorest 10 per cent has dropped 17 per cent since 1979.

Last year Labour seized on a Joseph Rowntree Foundation report which claimed income inequality had grown faster in Britain than in any comparable industrial country.

From the  
right:

... to the centre-left ...

Study finds that pensioners and lone parents head list of perennially poor, while many who escape soon slip back to the breadline

## Persistence of poverty trap belies Tory boasts

Richard Thomas  
Economics Correspondent

**C**ONSERVATIVE boasts about Britain's upwardly mobile, classless society were challenged yesterday by research showing that families which escape poverty soon go back on the breadline.

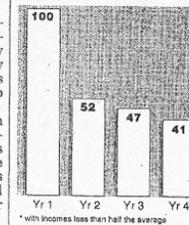
According to figures from the University of Essex, almost half those defined as poor in a given year are above the poverty line 12 months later — but at least a third slip down the income ladder again the following year.

Stephen Jenkins, one of the report's authors, said: "There is no one-way escalator out of the poverty basement — those who do make it have a good chance of taking the down escalator soon afterwards."

Professor Jenkins said 41 per cent of poor people — defined as those with incomes less than half the average — were in poverty four years later. A quarter were trapped in poverty for each of the years between 1991 and 1994.

### Poverty traps

Percentage of poor people\* who are in poverty in subsequent years.



"The picture which emerges is a churning of incomes rather than a one-way ticket out of poverty," he said.

Drawing on a panel of 8,000 households, the research shows that the bulk of the "persistent" poor are pensioners and unemployed parents, including lone parents.

Families moving in and out of poverty tend to be victims of redundancy, divorce or the

death of a breadwinning partner. The arrival of a baby also pushed some households below the breadline, the researchers found.

Prof Jenkins said almost a third of the population had been touched by poverty in the four years studied, and "this may help to explain the continuing climate of personal economic insecurity."

Even those who do move permanently out of the poverty bracket are unlikely to make it far up the income scale, he said — with fewer than one in 10 people seeing their incomes rise or fall by more than 10 per cent each year.

"The Richard Branson rags-to-riches story is very rare, a wart on the mountainside of the general income distribution."

Labour seized on the figures to attack the Government's lack of commitment to anti-poverty measures.

Harriet Harman, shadow social security secretary, said: "This report exposes the Government's record. Poverty in Britain is a direct

result of the policies of low wages and unemployment.

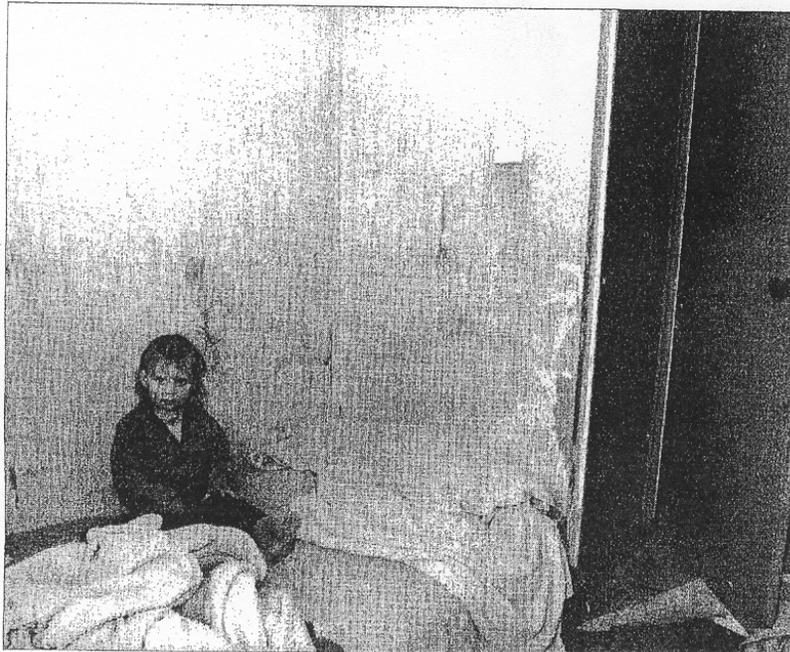
"They blame the people at the bottom who are receiving the benefits. We are committed to getting people off welfare and into work, and using a minimum wage to provide a floor for those in employment."

Ahead of next month's publication of the Government's household income statistics, Households Below Average Incomes, Department of Social Security officials insisted the report backed their version of a highly mobile society.

A spokesman said: "We welcome the fact that the research has found considerable change in incomes. The importance of 'churning' is overstated in the analysis."

But Prof Jenkins said the DSS's statistics were an unreliable guide to income trends, because a different set of people is sampled every year.

Changing Places: Income mobility and poverty dynamics in Britain; ESRC Centre for Micro-Social Change, University of Essex, Colchester CO4 3SQ



No way out . . . Research found 41pc of the poor in our 'classless society' still poor four years later PHOTOGRAPH MARK POWER

... to the far left.

# Socialist Worker

For workers' power and international socialism

50p

No 1518 2 November 1996

**inside**  
Halifax school row: special report  
*centre pages*

**SUEZ 1956**  
The end of the empire  
*page 10*

**WHAT LIES BEHIND THE HORROR IN ZAIRE?**  
*page 7*

**Bill to boost crime**  
*page 5*

Solidarity price £1

- *Two in five fear for jobs*
- *One in three kids in poverty*

# Politicians ignore the real evils

**ONE IN three people in Britain have fallen below the official poverty line in the last four years.** That shocking figure came in a report on poverty and insecurity from the University of Essex last week.

Yet none of the politicians and media pundits who have been lecturing us about a "moral crisis" in Britain mentioned it.

The Essex report paints a picture of people desperately struggling to escape from poverty and to keep their heads above water.

Some make it for a while if they are lucky enough to get a half decent job, but many then slip back down again.

Losing your job, having a baby, or divorce—as often as not caused by stress from either overwork or lack of money—throws people back into poverty.

Those who escape from poverty for a period "have a good chance of slipping down soon afterwards", concluded report author Professor Stephen Jenkins.

Tackling this kind of poverty and insecurity would be the biggest single step towards creating any kind of decent society in Britain.

When people are poor, unemployed, without hope for the future, and stressed from the battle to maintain a decent life, is it any wonder so many social problems get worse?

But instead of talking about these issues, politicians from John Major to Tony Blair treat us to patronising moral sermons.

They lecture us from the comfort of their well heeled neighbourhoods while refusing to spend a penny on tackling the real problems in society.

■ *The real issues ripping Britain apart: see page 2*

# The BHPS

- Representative sample of GB private household population
- First wave of interviews in Autumn 1991  $\Rightarrow$  c. 5,500 households with c. 10,000 adult respondents, plus children
- Re-interviewed annually ever since (sample drop-out c. 11% after first wave; only c. 4–5% year-on-year now)
- Core question components annually (some semi-annually) – e.g. earnings and income, paid and unpaid work, education and training, health and caring, attitudes and values, housing and household context
- Variable components have included:
  - lifetime employment history and job histories at w2, w3
  - lifetime partnership histories at w2
  - wealth and assets modules at w5, w10
- Youth self-completion questionnaire (11–15 year olds), w4–
- Booster samples for Scotland, Wales, Northern Ireland, w9–

## A. Income and poverty dynamics

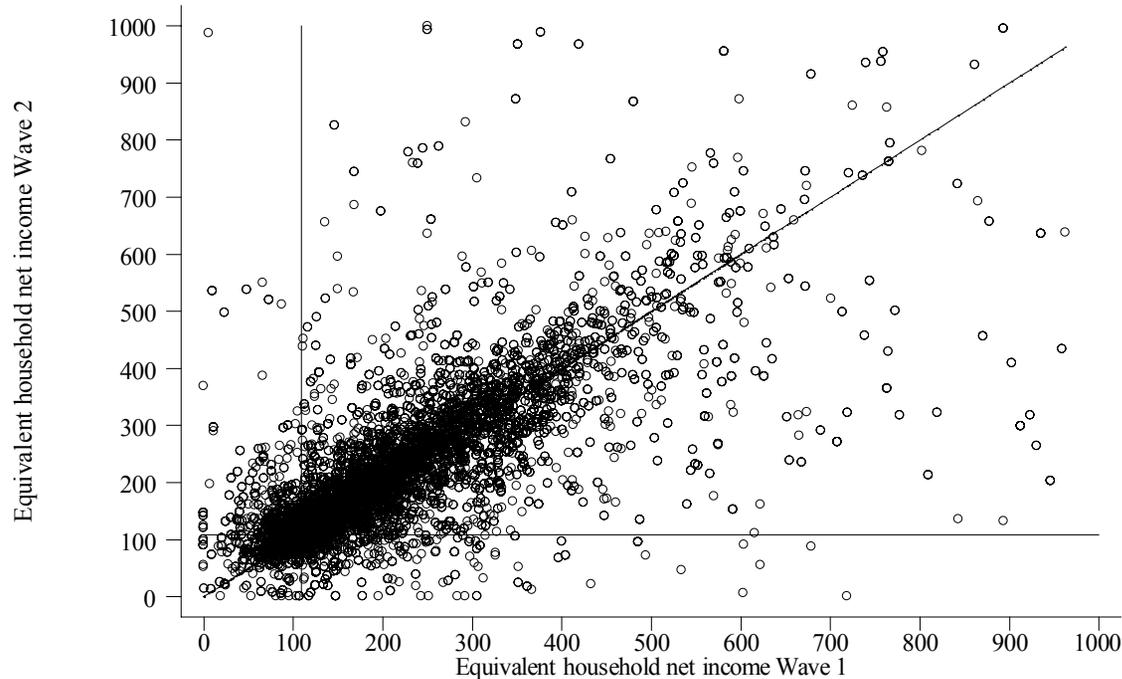
### GB income distribution, 1991–1996

	1991	1992	1993	1994	1995	1996
Mean (£ p.w.)	259	269	272	274	288	290
Gini coefficient	0.31	0.31	0.31	0.31	0.32	0.32
Percentage below half contemporary mean	17.8	16.6	17.3	16.6	17.1	16.4
Percentage below half 1991 mean	17.8	15.3	15.1	14.1	12.4	12.0

Source: BHPS waves 1-6, weighted. Income is needs-adjusted household net income per person (Jan 1997 prices) Source: Jenkins (2000).

Cross-sectional  
stability ...

# Cross-sectional stability hides longitudinal flux



- Most individuals cluster round 45° line; few ‘dot.com’ rises/falls
- There is turnover in the low income population – there are inflows and outflows; more are ‘touched’ by low income over time (and therefore helped by social security system) than a cross-section reveals
- ... Or is it just measurement error or transitory variation?

# Income mobility (2-year averaged incomes)

## Transition matrix (row percentages)

w1-w2 income relative to w1 mean	w3-w4 income relative to w1 mean						All	(col %)
	< 0.5	0.5– 0.75	0.75 –1.0	1.0– 1.25	1.25 –1.5	≥ 1.5		
< 0.5	50	41	7	1	1	1	100	(15)
0.5–0.75	14	55	23	6	1	2	100	(25)
0.75–1.0	5	22	46	19	5	3	100	(21)
1.0–1.25	3	6	19	45	17	10	100	(15)
1.25–1.5	2	4	6	28	32	29	100	(10)
≥ 1.5	1	1	4	7	16	71	100	(14)
All	13	26	20	16	9	16	100	(100)

- 50% of those with income below half 1991 average moved out;
- 25% of those with income above half 1991 average moved in;
- 51% of sample remained in same income group; 92% remained in same or adjoining income group;
- **Lots of short-distance mobility; little long-distance mobility**

## Income mobility over a longer period

- Inequality of six-year-average income is about 88% of inequality in a cross-section ( $\approx$  difference between inequalities of gross and disposable income).
- With low-income cutoff = half 1991 mean, 32% fall into low income at least once *over 6 year period* (cf. cross-section average  $\approx$  18%); 19% at least twice; ... but only 2% all six years, c. 66% never.
- With low-income cut-off = 60% contemporary median, 53% never below line *over 9 year period*, 13% once, 8% 7–9 times.
- *Rubber band model of income?* Income movements fluctuating round a fairly fixed tether ... but large shocks can break the band  $\Rightarrow$  large income changes.

## Trigger events and poverty exits/entries

Main event associated with poverty transition	Poverty Exits (%)	Poverty Entries (%)
Household head's labour earnings rose/fell	33	26
Spouse's or other labour earnings rose/fell	29	18
Non-labour income rose/fell	20	17
Demographic event	19	39
All	100	100

Source: Jenkins and Rigg (2001). BHPS waves 1–9.

Poverty line = 60% contemporary median

- Income events *and* demographic events are important triggers
- Importance of each type differs for poverty entries and exits
  - demographic events more important for entries
- Earnings changes very important – not only the head's, but also those of others in household
- Earnings changes roughly equally from job gain/loss versus 'pure' earnings change
- Importance varies by household type! (Not shown here)

# Poverty spells and time poor over a period

Accounting for poverty spell repetition is important when looking at individuals' experience of poverty over a period of time.

(Remember the Rubber Band Model of income dynamics!)

## Number of years poor out of the next eight for a cohort entering poverty

Number of years	Predicted		Actual (%)
	Single spell (%)	Repeated spell (%)	
1	53.7	19.0	25.0
2	30.6	17.7	17.4
3	15.6	15.1	12.0
4	7.5	13.5	13.5
5	3.9	11.3	6.6
6	2.7	8.7	10.5
7	2.7	6.9	9.8
8	7.8	7.8	5.2
Total	100.0	100.0	100.0
Mean (# years poor)	2.4	3.7	3.6

Predictions based on lifetable estimators of exit rate (col. 2) and exit and re-entry rates (col. 3).

Jenkins and Rigg (2001), BHPS waves 1–9.

Poverty line = 60% contemporary median.

# Mean number of years poor out of eight for a cohort of poverty entrants, by household type

Substantial heterogeneity in experience of poverty over time

More time spent poor:

- more kids
- no work
- lone parent
- elderly

Household type of individual (characteristics measured at start of spell)	Mean
<i>Two adult household</i>	
1. Both working, no children	1.3
2. Both working, 1 child aged under 6	1.6
3. Both working, 2 children, 1 aged under 6	1.9
4. Head working but no others, no children	1.6
5. Head working but no others, 2 children, 1 aged under 6	2.8
6. No one working, no children	2.3
7. No one working, 2 children, 1 aged under 6	3.8
<i>Lone parent household</i>	
8. Not working, 1 child aged under six	3.6
9. Not working, 2 children, 1 child aged under six	4.2
10. Not working, 2 children, 1 child aged under six, no A-levels	4.8
11. Working, 2 children, 1 aged under six	3.3
<i>Elderly household</i>	
12. Head aged 60–64, head working	3.0
13. Head aged 60–64, no one working	3.5
14. Head aged 80+ years, no one working	4.6

Predictions based on mixture hazard regression models of poverty exit and entry rates. Jenkins and Rigg (2001), BHPS waves 1–9. Poverty line = 60% contemporary median.

## Policy implications

- Importance of labour market as a route out of poverty for those of working age
- Policy based around labour market insufficient for all vulnerable groups (e.g. elderly, sick, disabled, carers)
- Important to see individuals in terms of their household context (affects number of income-bringers, and needs)
- Spell repetition (and decline in re-entry rates with time non-poor) remind us of the importance of measures preventing entries into poverty (not just helping exits) – ‘real’ jobs and job retention, not just promoting moves into employment
- Exit rates fall with time poor  $\Rightarrow$  identify potential long stayers early and target them

## B. Unemployment persistence: scarring effects of unemployment or heterogeneity?

Men's unemployment transitions (row %)

Year $t-1$	Year $t$		
	Unemployed	Employed	All
Unemployed	54	46	100
Employed	3	97	100
<i>All</i>	<i>0.06</i>	<i>0.92</i>	<i>100</i>

Arulampalam, Booth & Taylor (2000). BHPS waves 1–5, pooled. Men aged 16–59.

- Whether unemployed this year depends on whether unemployed last year: 54% versus 3%
- Does this state dependence evaporate if one controls for differences in men's characteristics?
- Or is there genuine state dependence (scarring), in which case there are long run pay-offs to policies reducing unemployment itself?

## Modelling unemployment persistence

A person's unemployment propensity at this year's interview

=  $f(\text{whether unemployed at last year's, characteristics})$

Issues for modelling:

- Heterogeneity specification: observed *and* unobserved
  - age, kids, education, local unemployment rate, etc.
- Initial conditions: start of panel  $\neq$  start of work history
  - over-representation in 1991 of those prone to unemployment?
  - need good instruments to model this!
- Unemployment spells lasting more than a year
- (Non-random attrition? Not examined in this paper)

## Evidence of unemployment scarring

Probability of unemployment at wave 2				
State at wave 1	Aged < 25		Aged 25+	
	Raw	Predicted	Raw	Predicted
Unemployed	0.53	0.17	0.53	0.27
Employed	0.03	0.05	0.04	0.04
<i>Difference</i>	<i>0.50</i>	<i>0.12</i>	<i>0.49</i>	<i>0.23</i>
		(23%)		(46%)

Predicted holding characteristics fixed. Similar results for waves 3–5. Arulampalam, Booth & Taylor (2000), Table 5.

- Evidence of genuine state dependence (scarring)
  - human capital depreciation, history used as signal by employers?
- Greater for older workers than younger workers
- Scarring effects have also been found by others for Germany (1980s), but not US (1960s, 1970s)

## C. Child outcomes

- Child poverty recognised as a Big Problem by UK Labour government:
  - Child poverty as ‘a scar on Britain’s soul’ (Brown, 1999)
  - ‘Our historic aim will be for ours to be the first generation to end child poverty’ (Blair, 1999)
  - Pledge to halve the number of poor children within 10 years and to eliminate child poverty altogether within 20 years!
- Research issues have shifted from documenting problem to investigating intergenerational aspects – especially how child outcomes relate to experiences in childhood, and family background generally:
  - poverty
  - family structure (especially living in a lone parent family)
  - timing issues (impacts in early *versus* late childhood)

## Modelling child outcomes

- Cohort surveys follow kids from birth
  - much information collected (prospectively), but relatively little economic data about parents
  - e.g. NCDS (1958 cohort) respondents now in their 40s
- BHPS: smaller samples, but more contemporaneous
  - kids interviewed annually as full respondents in their own right once they turn 16 (also youth questionnaire when 11–15)
  - link data about these young adults with data about their parents (original sample members)
  - parental data includes life histories of employment and partnerships (which cover kid's childhood)
  - includes data on siblings (can be used to control for family fixed effects)

# Effect of living in a lone parent family on young adults' outcomes

## Theory:

Family structure effect identified by sibling diffs if family structure did not respond to kid's idiosyncratic endowment. Level estimates require stronger identification assumptions.

## Results:

Outcome	Individual (1)		Sample (2)		Sibling Sample	
	M.E.	t	M.E.	t	Coeff	t
Education (A-level +)	-0.14	2.9	-0.08	1.7	-0.146	1.9
Economic inactivity	0.06	3.9	0.04	2.6	0.018	0.9
Birth before 21 ( )	0.02	2.3	0.01	1.5	0.024	1.7
Distress (GHQ > 2)	0.06	2.5	0.06	2.5	0.036	1.4
Smoking 10+ a day	0.07	2.8	0.06	2.3	0.068	2.7

Regression (1) also includes age, sex, birth year, mother's education. (2) as (1) plus % time mother worked, mother's age at kid's birth, family income when kid aged 16, home ownership, ... (3) Within-mother FE regression. Ermisch and Francesconi (2000).

- Experience of life in lone parent family usually associated with disadvantageous outcome
- Most of unfavourable effect linked to when kid aged 0–5
- For most outcomes, adverse effect persists when control for economic conditions of family (model 2)

# Effect of childhood poverty on young adults’ outcomes

- No effects for some outcomes (blanks), but
- Some large effects

Variation of effects by:

- outcome
- sex of young adult
- childhood stage when poverty experienced

Outcome	All ages	Stage when ‘poverty’ was measured		
		0–5	6–10	11–15
Leave parental home	+++ +			+++
Education	---	-	---	
Economic inactivity	+++ +++	+++		+++ +++
Early childbearing	+++			+++
Smoking	+			+
Psychological distress				

+((+))/-((-)): (large) positive/negative effect of poverty on the probability of the outcome. (Large/moderate refer both to the magnitude and to statistical significance of the effect.) Digest of results from various models. ‘Poverty’: both parents have 1+ months of unemployment in same childhood year. Ermisch, Francesconi, and Pevalin (2001).35

## Policy implications

- Both family structure and poverty in childhood have effects
- Why they have these effects not yet clear (need better data); e.g. is it what money buys or is money a proxy for other things
- Need to be careful about drawing conclusions.  
Example: Ermisch and Francesconi (JRF, 2000) found that kids with mothers who worked full-time during childhood were later disadvantaged in some respects. Different readers drew different conclusions from same ‘fact’ !
  - ‘mothers should stay at home’?
  - ‘what about more input from fathers’?
  - ‘increase availability of quality child care facilities’?

## D. Low income among the elderly

- Poverty rates relatively high among elderly, especially older women compared to older men
- To what extent is low income in old age related to differences in employment history or other factors?
  - Work  $\Rightarrow$  accumulation of financial assets, notably pensions, with differences likely by occupation and career stability.
  - Partnership history, kids, and so on.
- In particular, what is the impact of early retirement?

### **BHPS analysis:**

- panel data re outcomes (being in poorest third of distribution of smoothed income among those aged 60+), and personal characteristics, and ...
- work histories (occupation-specific) and ‘early exit’

## Low-income rates and work history, by sex

- Among those aged 60+:
- Low income rates higher for women than men, but, for both sexes, ...
  - Working more years associated with smaller low income rate,
  - Except for those working 38–40 years (selection effect?)
  - Early exit associated with higher low income rate.

		Percentage with low income*	
		Men aged 60+	Women aged 60+
All		27	39
<i>Number of years in work, ages 20–60</i>			
	Zero		45
	1–19	} 34	42
	20–34		37
	35–37	21	35
	38–40	25	39
<i>Number of years in work, ages 50–60</i>			
	< 5 ('early exit')	36	42
	5+	26	36

\*: in poorest third of smoothed (3-year averaged) income distribution of all aged 60+. Mean number of years worked between ages 20–60 is 36.0 (men), 22.2 (women). Bardasi & Jenkins (2002).

## Probabilities of low income, men aged 60+

Man's characteristics	No. of years in work, ages 20–60					
	15	20	25	30	35	40
<i>Personal and protective services occupation, vocational education</i>						
No early exit:			12.0	8.9	6.5	4.6
Early exit:	52.6	57.6	62.5	67.2		
<i>Clerical occupation, higher education</i>						
No early exit:			5.3	4.4	3.5	2.9
Early exit:	12.2	12.1	11.9	11.8		
<i>Managerial occupation, higher education, self- employed</i>						
No early exit:			12.1	12.0	11.9	11.8
Early exit:	23.8	28.4	33.5	38.9		
<i>Craft occupation, vocational education</i>						
No early exit:			40.2	40.7	41.2	41.7
Early exit:	51.8	56.6	61.3	65.8		

Man aged 65, with partner not in employment and not disabled, never unemployed. Italicised estimates not statistically significant. Bardasi and Jenkins (2002).

Multivariate analysis shows:

- Some occupations have smaller low-income rates regardless of # work years
- Time-in-occupation effects only for some of the 10 occupations (shown)
- Big adverse early-exit effect, but only for some occupations

## Probabilities of low income, women aged 60+

- More time in managerial, professional, technical and clerical occupations associated with smaller low-income rate (as for men)
- No statistically significant early-exit results (intermittent labour market attachment common throughout women's lives, not just during their 50s)
- Marital status and living arrangements much more important for predicting differences in low-income rates than for men
- 'Gomulka-Stern' decomposition of difference between the sexes in proportions with low income:
  - mostly accounted for by differences in characteristics (3/4) rather than differences in returns to characteristics (1/4)

## E. Disability and disadvantage

- Disabled Britons of working age have incomes c. 20% lower, and employment rates c. 50% lower than non-disabled people.
  - Cross-section snapshots may provide a misleading picture of the impact of disability on disadvantage:
    - differences in outcomes may reflect factors already existing pre-onset. (Problem for policies targeted on disability.)
    - cannot learn how relationship develops over time from onset and afterwards (and thence time frame for best interventions)
    - cross-section contains relatively high fraction of long-term disabled people (‘stock sampling’) so, if disadvantage increases with time disabled, then can get over-estimate of impact of onset
- ⇒ Need to distinguish between selection, onset, and duration effects of disability ...

## The selection effect (who becomes disabled)

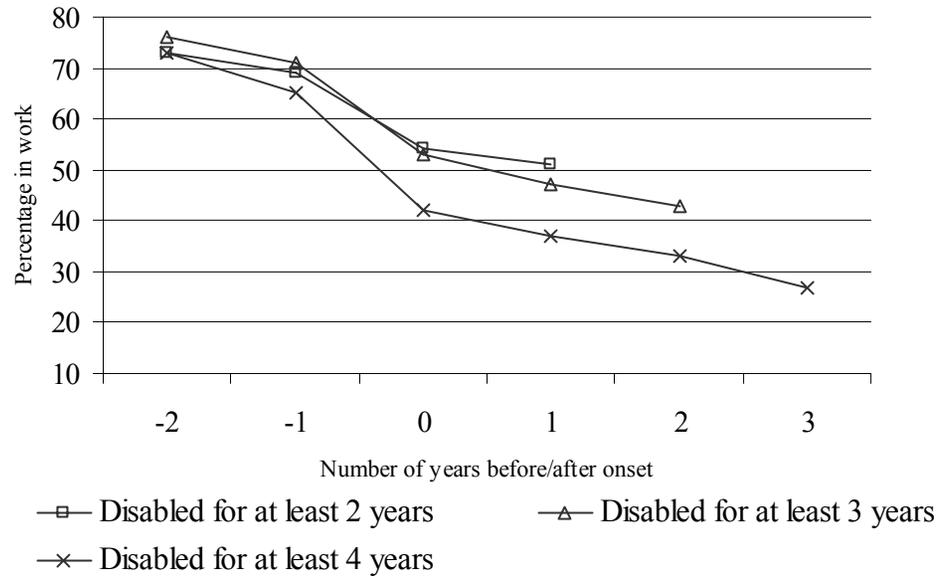
- Conventional cross-section perspective (samples a, b) vs longitudinal samples c, d
- Selection effect: among all those at risk of onset, those with onset were already relatively disadvantaged
- Multivariate analysis underscores this: there are characteristics that both increase onset chances and decrease income & Pr(work), e.g. having less education

	Cross-section sample		Sample at risk of disability onset	
	Disabled (a)	Not disabled (b)	Became disabled (c)	Did not (d)
Median income (as % of median among not disabled)	79	100	85	97
% in poorest fifth of working-age population	32	18	21	17
% in poorest half of working-age population	65	48	58	48
% in paid work	42	79	73	80

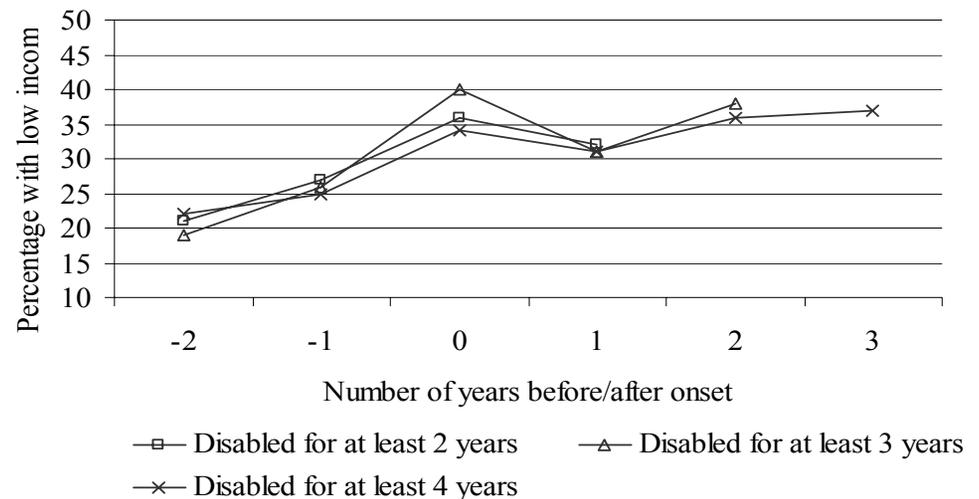
Disabled: has a work-limiting health condition. BHPS waves 1–8. Jenkins and Rigg (2003).

# Disability onset and duration effects

Percentage in work falls sharply in year of onset, and then keeps on falling



Percentage in poorest fifth of working-age population rises noticeably in onset year, with some recovery later (benefits), but still at higher level than pre-onset



## Disability policy implications

- Results accord with current policy emphasis on (re)connecting disabled people with employment and keeping them in jobs if they have them
  - New Deal for Disabled People, introduced 1998
  - Disabled Persons Tax Credit for low-income disabled workers
- But success also contingent on jobs being available, and recognition that workplace adaptations required
  - Disability Discrimination Act 1995, Disability Rights Commission from 2000, but individualised approach. Unlikely to make substantial difference?
- Some disability effects reflect pre-onset disadvantage
  - So raise skills, say? But still doesn't fix demand-side.

## E. Demographic change is common

### Implications:

- There is no such thing as a longitudinal household – follow individuals!
- Demographic risks should be considered alongside earnings and job risks (prec. savings lit.; poverty transitions)
- Restricting samples to stable households leads to a selection bias

Wave	Cumulative experience of demographic change (%)							
	All	Head aged 60+	Head aged < 60					
	Sing	MC	Sing	MC, no kids	MC with kid(s)	Lone Parent	Other	
	<i>Change in household head</i>							
2	10	0	8	4	13	11	4	19
3	16	0	15	7	20	17	9	29
4	19	0	16	9	24	20	12	36
5	21	0	19	11	25	23	18	35
6	23	1	21	13	27	24	20	38
	<i>Any household demographic change</i>							
2	19	1	11	15	26	20	21	34
3	30	1	20	20	41	32	32	48
4	38	3	23	25	50	41	49	58
5	44	3	27	30	55	48	57	56
6	47	4	40	34	59	52	63	62

Individuals classified by wave 1 (1991) household type.  
BHPS waves 1–6. Jenkins (2000).

# Marital splits and income change

- Policy relevance
  - secular increase in divorce rates
  - marital splits are still the principal way that lone parent families form (and LPFs are 90% female-headed, relatively poor, have high reliance on benefits, and so on)
  - mandatory child support obligations for non-custodial parents, Child Support Agency – are these policies working?
  - recent legislation for pension-splitting on divorce
- Analytical relevance
  - behavioural modelling – decisions about whether to split may depend on what happens to people's incomes if do split
  - methodological issues – differential attrition, small samples, potential sensitivity to treatment of household composition when measuring 'income'

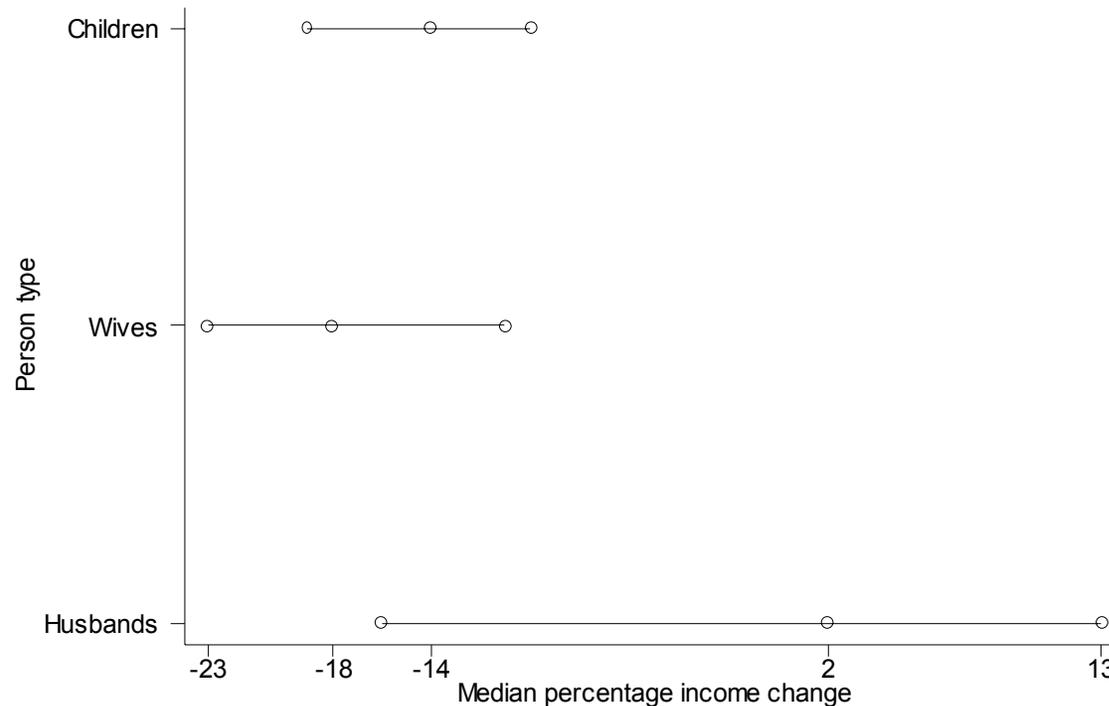
## Sample numbers in four-wave panel

- Small numbers in absolute terms
- Substantial attrition, especially by men
- Non-response on income
- But, since a panel, can use past waves' data to check if analysis samples unrepresentative.
- Checks suggest OK!
- Also weight data.

	<b>Numbers of persons experiencing a marital split</b>		
	Husbands	Wives	Kids
1. Original Sample Members at wave $t$ eligible to be interviewed at wave $t+1$	216	220	242
2. As (1) and with an interview at wave $t+1$ of any kind (full, proxy or telephone interview)	145	198	197
3. As (2) and has valid original and gross income data at waves $t$ and $t+1$	135	194	189
4. As (2) and has valid net income data at waves $t$ and $t+1$	105	148	151
5. <i>Row 4 as % of row 1</i>	49%	76%	62%

Partnerships include cohabiting unions. Kids column refers to the children of couples experiencing a marital split. Row 1 excludes cases where neither partner of the splitting partnership provided an interview at  $t+1$ . BHPS waves 1–4. Jarvis and Jenkins (1999)

# Median one-year income change, with 95% CI



- Women and kids do much worse than men, on average (even accounting for the large s.e.s)
- Differentials persist with full range of equivalence scales
- Some recovery in next year, but not back to previous level
- Importance of benefits for women, kids (little child support)
- Important to update using more waves' data!

## Summary: the value of longitudinal data

Longitudinal data, including household panels, enable us to

- 1 describe phenomena and relationships that are intrinsically longitudinal
- 2 better understanding of socioeconomic processes and behaviour and, thereby,
- 3 better inform policy.

Longitudinal data, by contrast with cross-sectional snapshot data,

- enable observation of net change, not just gross change;
- provide spell-based perspectives;
- allow for possibility of controlling for unobserved individual characteristics, or measurement error;
- ability to make causal inference enhanced by temporal ordering.

## Panels are not panaceas, but ...

- they're certainly very useful, and
  - reveal a fascinating picture of micro-social change, showing, in particular, that
  - longitudinal flux is definitely very prevalent, in many lifecourse domains
- ... as, I hope, the BHPS case studies have demonstrated.
- Case studies based on other panel surveys could have been used to make the same points (and many more!), and ...
  - Your new panel will do so as well.
  - Welcome to the club, and good luck!