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Poverty Research
Methods Course

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University of Bristol

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Longitudinal Poverty Research Methods

Outline

- Time the missing dimension
 - Poverty does not last forever (for most)
 - Poverty dynamics
- Age, period and cohort effects
- Example: Moving in and out of in work poverty
- Longitudinal methods
 - Transition tables/matrix
 - Event history methods
 - Analysis of sequences and trajectories
- To consider

Narratives of poverty

Persistent

Passed through generations

Obwaavu obumu buba buzaale. Abaana babuyonka
ku bazadde baabwe, ate nabo nebabugabira ku
baana

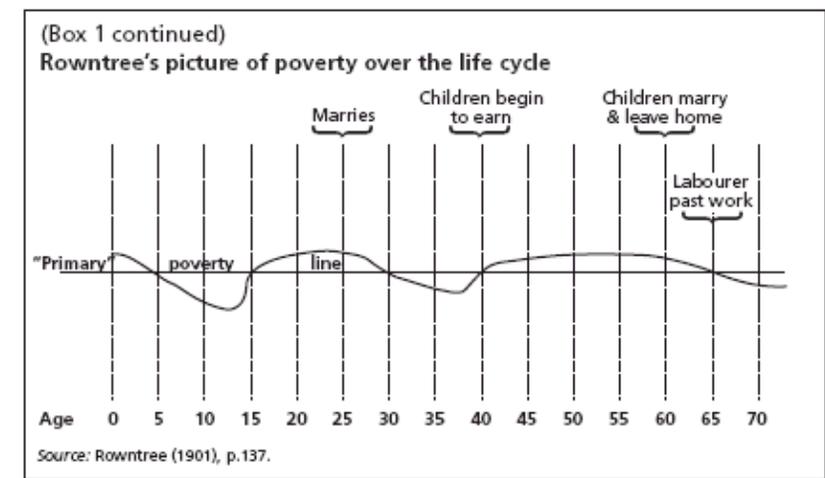
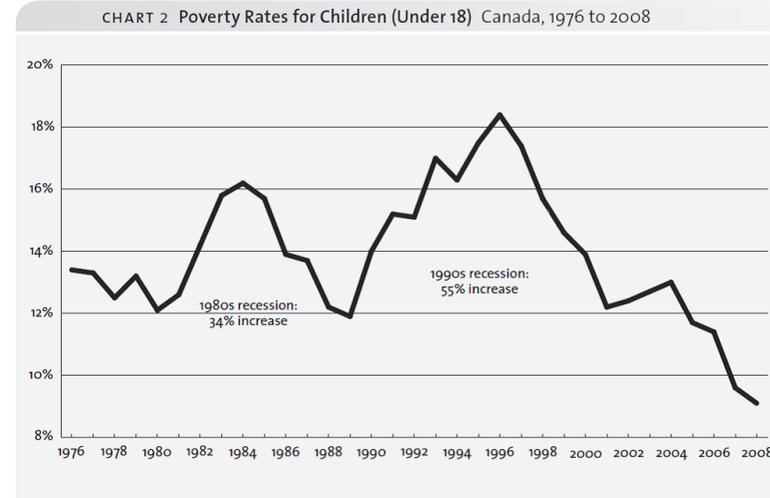
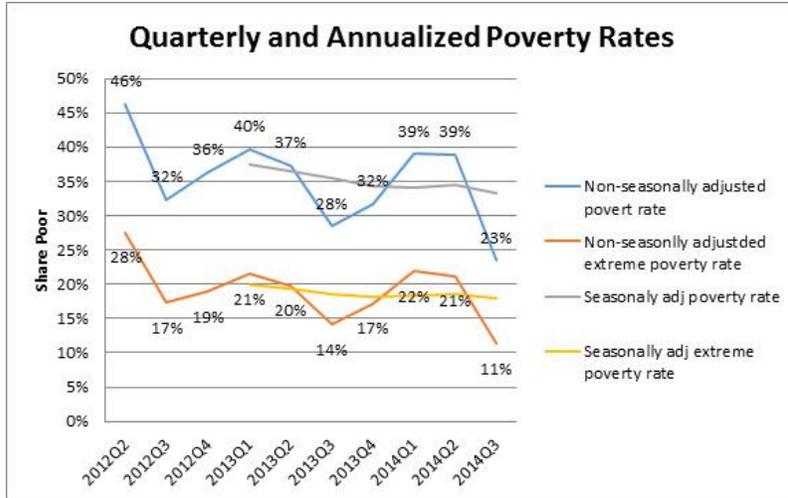
Personal failure (West)

Low education

Poor decisions

Poor ethics





Poverty does not last forever

Poverty a dynamic process the 1990s Panels

- + People leave poverty: the poor are not a static population
- More people experience poverty than previously thought
- ... The longer the observation period
 - The more people experience poverty at least once
 - The less people are persistently poor

Poverty persistence (BHPS, UK)

	1991	1992	1993	1994	1995	1996	1997
(Jarvis and Jenkins)	18	9	6	4			
(Devicienti)	13	7	5	4	3	2	2

Beyond Europe

Original Articles

Economic mobility and poverty dynamics in developing countries

Bob Baulch & John Hoddinott

Pages 1-24 | Published online: 23 Nov 2007

Download citation <https://doi.org/10.1080/00220380008422652>

References

Citations

Metrics

Reprints & Permissions

PDF

This study provides an introduction to this special issue of The Journal of Development Studies on economic mobility and poverty dynamics in developing countries. In addition to providing a conceptual framework, it outlines how the contributions fit into the extant literature. A series of regularities emerge across these studies. The poor consist of those who are always poor — poor at all dates — and those who move in and out of poverty, with the latter group tending to be strikingly large. Such movements in and out of poverty are apparent when looking at poverty in either absolute or relative terms. Changes in returns to endowments can be a potent source of increased incomes. Finally, seemingly transitory shocks can have long-term consequences. The study concludes by drawing out the policy implications of these regularities.

Editorial

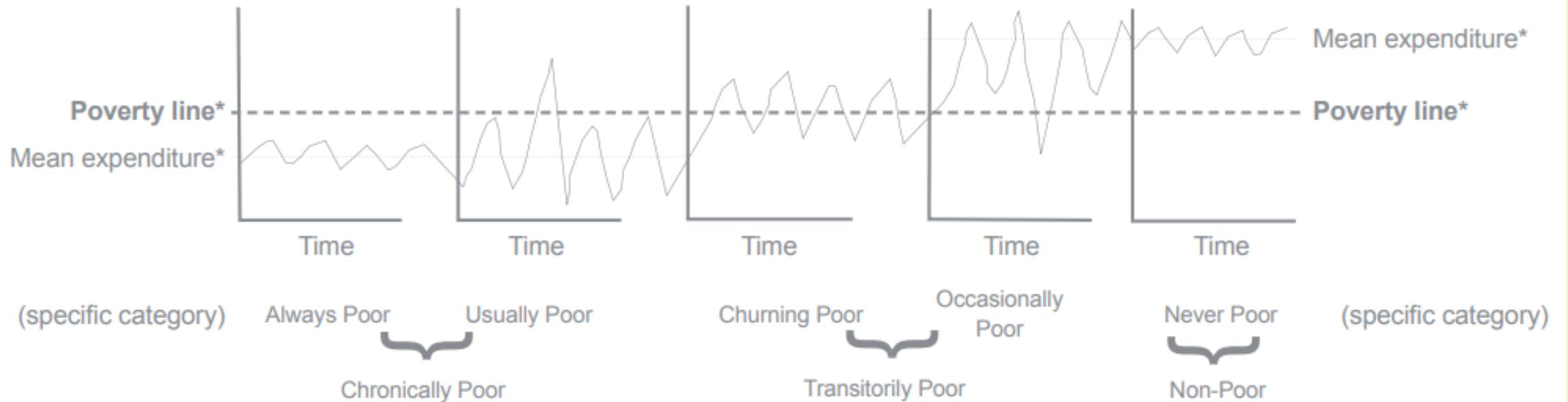
Volume 36, 2000 -
[Issue 6: Economic
Mobility and Poverty
Dynamics in
Developing Countries](#)

Longitudinal data

- Repeated observations for the same individuals/households over time
 - Panel data (full/rotational)
 - Cohort studies
 - Recall
 - Useful to understand change over time
 - Short term change (entries/exits)
 - Individual patterns and trajectories
 - Inter and intra-generational mobility
 - Age, Period and Cohort effects
- 

Dynamic or longitudinal approaches follow individuals and can record stories of change

Figure 1: The chronically poor, transient poor and non-poor - a categorisation



Source: Chronic poverty research centre 2007 <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/1768.pdf>

Income poverty and deprivation (Berthoud and Bryan)

- People in underlying poverty (low income) are in underlying hardship (high deprivation). Association holds over time.
- People's high-deprivation years over the period tended to coincide with their low-income years BUT weaker than for the averaged model
- Households' underlying income averaged over a period is what matters for their standard of living,
- Short-term fluctuations do not matter much.
- Alternatively, some other, unobserved, characteristic of low-income/high-deprivation households is dominating the underlying relationships, but is removed in the dynamic analysis.
- In the long run, the mismatch between income-poverty and deprivation-poverty is smaller, less difficult to interpret.

Age, Period and Cohort

A: I can't seem to shake off this tired feeling. Guess I'm just getting old.
[Age effect]

B: Do you think it's stress? Business is down this year, and you've let your fatigue build up. [Period effect]

A: Maybe. What about you?

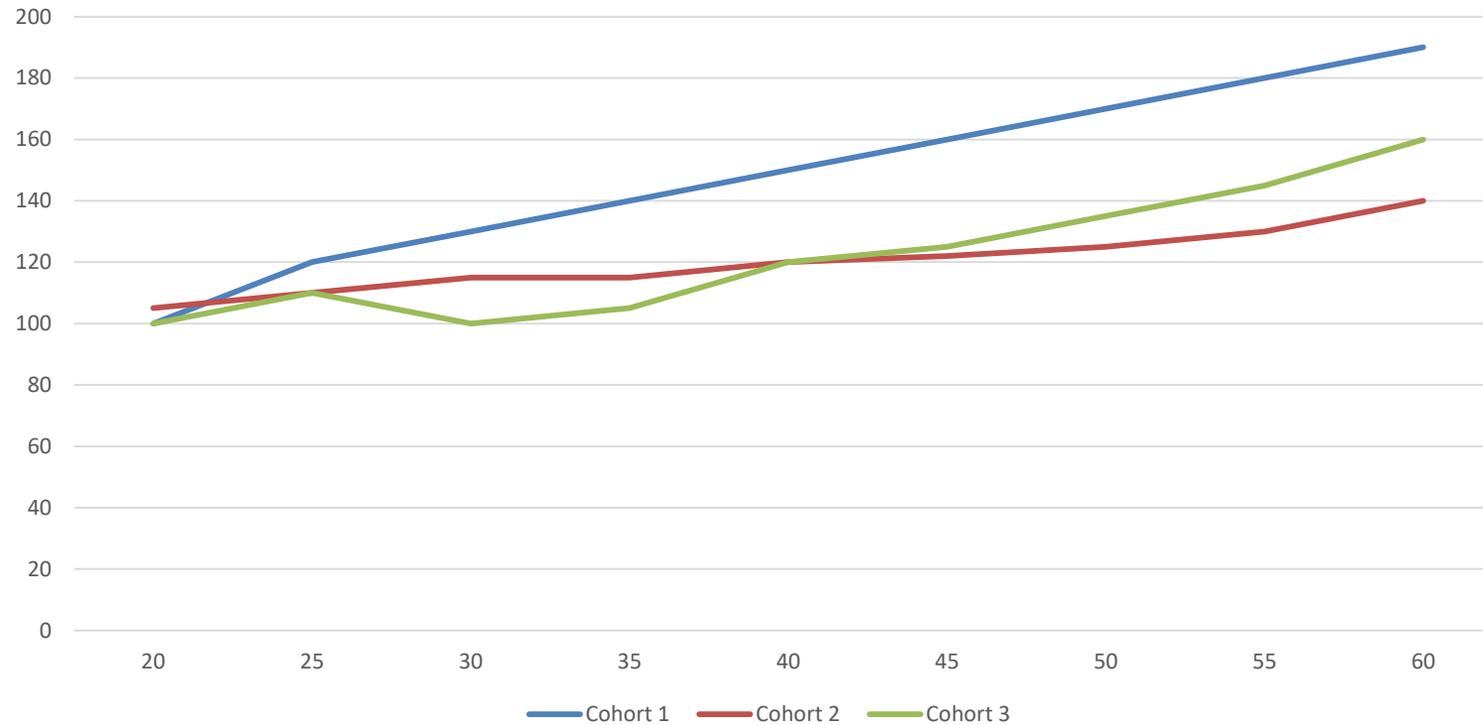
B: Actually, I'm exhausted too! My body feels really heavy.

A: You're kidding. You're still young. I could work all day long when I was your age.

B: Oh, really?

A: Yeah, young people these days are quick to whine. We were not like that. [Cohort effect]

Age, Period and Cohort



Age, period and cohort effects

- A major problem in generational social change analysis is the intersection of three social times: age, period and cohort.
- In any given period, different age groups coexist (defined by age thresholds, age statuses and roles), but they also represent different generations who have been socialized in different historical contexts
- When we compare different age groups at a given date (period), we cannot know *a priori* whether their differences result from age or from generation
 - Even if you are only interested in “age” cohort and generation are implicit in your model

APC identification problem

Age = Period – Cohort (year of birth)

Longitudinal data

- Repeated observations for the same individuals/households over time
 - Panel data (full/rotational)
 - Cohort studies
 - Recall
 - Useful to understand change over time
 - Short term change (entries/exits)
 - Individual patterns and trajectories
 - Inter and intra-generational mobility
 - Age, Period and Cohort effects
- 

Transition tables: Poverty entries and exits

- In work poverty in the UK
- Data: four waves from Understanding Society (2010-2014)
- 52,493 cases where *complete data* is available
- Pooled data

Hick, R. and Lanau, A. (2018) 'Moving in and out of in work poverty', *Journal of Social Policy*, 47(4), pp. 661-682 . DOI: 10.1017/s0047279418000028

High mobility

There is even more mobility in terms of in-work poverty than in poverty in the working-age population generally.

Table 1. Comparison of 'total' poverty and in-work poverty transitions, working-age respondents

	Total poverty	as % of ever poor	In-work poverty	as % of ever poor
Remain poor	5.87	34.1	2.41	24.5
Exiting	5.65	32.9	3.58	36.5
Entering	5.67	33.0	3.83	39.0
Non-poor in either year	82.8		90.18	

Source: USoc waves 2-5, weighted

Less mobility with deprivation but consistent results

In-work deprivation is more transient than total deprivation

Deprivation is more persistent than income poverty

Table 2. Comparison of 'total' poverty and in-work poverty transitions, working-age respondents

	Total deprivation	as % of ever deprived	In-work deprivation	as % of ever deprived
Remain deprived	8.92	43.12	5.05	32
Exiting	6.18	29.88	5.52	35
Entering	5.58	27	5.39	34
Non-poor in either year	79.32		84.04	

Source: USoc waves 2 & 4, weighted

Transition matrix: Where do they go...

Four way in-work poverty transition matrix

		t				
		neither poor nor working	poor but not working	working but not poor	working poor	
t-1	neither poor nor working	72.7	14.56	11.25	1.49	100
	poor but not working	24.66	53.71	16.06	5.56	100
	working but not poor	1.48	1.05	93.21	4.27	100
	working poor	1.59	3.04	55.13	40.23	100



- Grounds for optimism: Most exits are 'positive' ones
- However,
 - In work poverty is associated with increased risk of worklessness
 - One in four respondents living in workless households who find work remain poor
 - Lone parents and those with 3+ children are over-represented in this group

What events trigger in-work poverty?

- Analysis of poverty triggers using approach pioneered by Jenkins (2011)
 - Considers employment, demographic and non employment income events
 - Events are non-exclusive
- Three key measures for each event
 - Incidence of the event
 - Probability of entering/exiting poverty for those who experience the event
 - Share of the entries/exits explained by the event
- Strong association between incidence and share

Poverty exits: events

			Prev.
Labour market events	Change in N workers	Decrease	10.1
		Increase	22.3
	Change hours worked	Decrease	16.0
		Increase	31.5
	Change hours same N workers	Decrease	7.7
		Increase	12.2
	Increase in labour earnings		52.1
	Increase in labour earnings same N workers		29.8
Increase in labour earnings same N workers same hours		17.9	
Household events	Change in hh size	Decrease	7.2
		Increase	8.2
	Change in N adults in the hh	Decrease	7.3
		Increase	7.7
	Change in N children	Decrease	4.5
		Increase	4.8
Non labour income events	Increase in social security		36.6
Total exit rate for sub-group			



More than 50% of working poor families experience a significant increase in earnings.

Compared to one in five for non-poor families who receive equivalent increases

Poverty exits: main triggers

			Panel 1			Panel 2		Panel 3		
			Exits to working but not poor			Exits to poor but not working		All exits		
			Prev.	Rate	Share	Rate	Share	Rate	Share	
Labour market events	Change in N workers	Decrease	10.1	28.1	5.1	30.2	100.0	74.1	12.5	
		Increase	22.3	81.5	32.9	-	-	81.5	30.4	
	Change hours worked	Decrease	16.0	39.4	11.5	18.0	94.8	66.1	17.8	
		Increase	31.5	72.5	41.4	-	-	72.5	38.2	
	Change hours same N workers	Decrease	7.7	50.9	7.1	-	-	50.9	6.5	
		Increase	12.2	57.7	12.7	-	-	57.7	11.7	
	Increase in labour earnings			52.1	78.1	73.8	-	-	78.1	68.1
	Increase in labour earnings same N workers			29.8	72.8	39.3	-	-	72.8	36.2
Increase in labour earnings same N workers same hours			17.9	72.5	23.5	-	-	72.5	21.7	
Household events	Change in hh size	Decrease	7.2	58.3	7.7	6.4	15.2	67.0	8.1	
		Increase	8.2	65.9	9.8	4.1	11.0	70.4	9.7	
	Change in N adults in the hh	Decrease	7.3	60.1	8.0	7.0	16.7	69.4	8.5	
		Increase	7.7	61.2	8.5	0.5	1.2	62.9	8.1	
	Change in N children	Decrease	4.5	44.6	3.7	4.0	6.0	51.0	3.9	
		Increase	4.8	58.7	5.2	9.8	15.6	68.5	5.6	
Non labour income events	Increase in social security		36.6	62.8	41.8	5.6	67.0	72.3	44.4	
Total exit rate for sub-group				55.1		3.3	3.6	59.8		

- Seven out of ten households exiting iwp experience an increase in earnings.
- About half of the cases increase the number of workers
- The other half increases hours or earnings

Poverty entries: events



			Panel 1			
			From working but not poor			
			Prev.	Rate	Share	
Labour market events	Change in N workers	Decrease	11.7	11.9	32.6	
		Increase	9.9	2.3	5.4	
	Change hours worked	Decreased	21.3	8.7	43.4	
		Increased	19.2	2.7	12.0	
	Change hours same N workers	Decreased	10.4	5.3	12.9	
		Increased	10.8	3.4	8.5	
	Decrease in labour earnings			16.0	16.4	61.2
	Decrease in labour earnings same n workers			7.5	17.6	30.8
Decrease in labour earnings same n workers same hours			4.3	16.2	16.4	
Household events	Change in hh size	Decrease	7.7	8.0	14.3	
		Increase	7.2	7.0	11.7	
	Change in N adults in the hh	Decreased	7.5	8.3	14.4	
		Increased	6.6	8.3	12.8	
	Change in N children	Decreased	5.1	8.0	9.6	
		Increased	5.2	6.2	7.6	
Non labour	Decrease in social security		20.6	7.3	35.3	
Total entry rate for sub-group				4.3		

- The majority of poverty entries are associated with labour market events
- No demographic event affects more than 10% of the population

Poverty entries: main triggers

			Panel 1			
			From working but not poor			
			Prev.	Rate	Share	
Labour market events	Change in N workers	Decrease	11.7	11.9	32.6	
		Increase	9.9	2.3	5.4	
	Change hours worked	Decreased	21.3	8.7	43.4	
		Increased	19.2	2.7	12.0	
	Change hours same N workers	Decreased	10.4	5.3	12.9	
		Increased	10.8	3.4	8.5	
	Decrease in labour earnings			16.0	16.4	61.2
	Decrease in labour earnings same n workers			7.5	17.6	30.8
Decrease in labour earnings same n workers same hours			4.3	16.2	16.4	
Household events	Change in hh size	Decrease	7.7	8.0	14.3	
		Increase	7.2	7.0	11.7	
	Change in N adults in the hh	Decreased	7.5	8.3	14.4	
		Increased	6.6	8.3	12.8	
	Change in N children	Decreased	5.1	8.0	9.6	
		Increased	5.2	6.2	7.6	
Non labour	Decrease in social security		20.6	7.3	35.3	
Total entry rate for sub-group				4.3		

- A reduction in earnings provides for the greatest increase in the entry rate of the triggers considered, accounting for 6 in 10 entries
 - About half of these cases households lose a worker
- 35% of households who enter in work poverty experience a decrease in social security income

Who enters and exits?

- Key findings from two Markov models of the determinants of working poverty entries and exits
 - Regression model
 - Matrix based – restricts analysis to those who experienced working poverty in the previous year

Increased probability of entering in work poverty (origin: in work non-poor)	Increased probability of exiting in work poverty (destination: in work non-poor)
Young (16 to 29) or middle aged (45-59)	No significant age or education differences
Low educational qualifications	Male headed households
Renters	Renters and mortgage owners
One worker in the household	2 or more workers
Northern Ireland (also less likely to exit)	

In sum...

1. In work poverty is dynamic

- A majority of individuals people leaves in work poverty within a year

2. Triggers

- Labour market events explain the majority of poverty entries

3. Destinations

- Most exit IWP by exiting poverty (not work)

4. Who enters and exits

You want to...

- Identify the probability of an event happening at time T given a number of factors → Survival Analysis/Event History Methods
 - Does x happen? (Event or events)
 - When?
 - Why?
- Multilevel Modelling
 - Time as a level 2 category
- Prepare!

You want to...

- Study trajectories

- Duration
- Timing
- Order

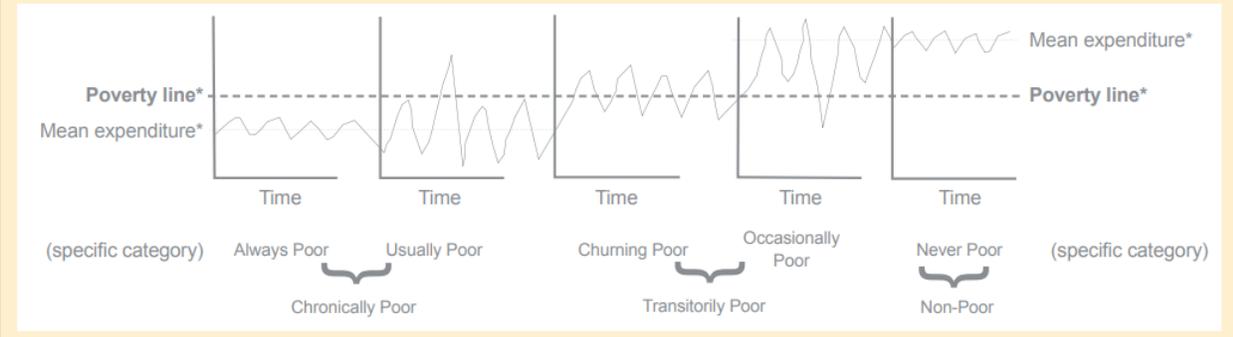
- Approaches

- Create categorical variables (Always poor / Never Poor)
- Sequence Analysis

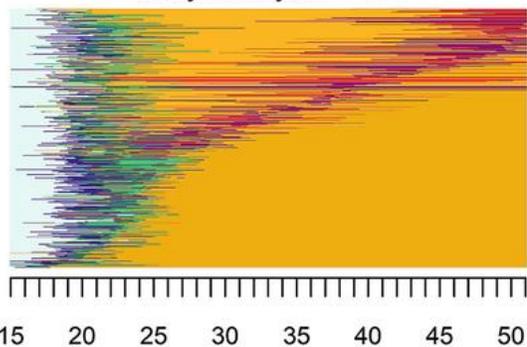
Large number of time points

Combinations of events e.g. labour market and family trajectories

Figure 1: The chronically poor, transient poor and non-poor - a categorisation

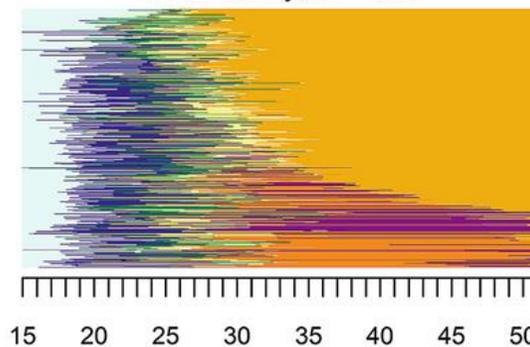


A. Short education and early family, n = 461



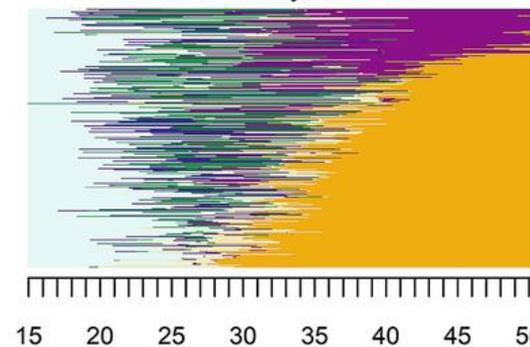
- 1. studies, single
- 2. employed, single
- 3. employed/studies, partner
- 4. employed, married, child
- 5. employed, div/cohabiting, child
- 6. not employed, married, child
- 7. employed, married, child

B. Short education and later family, n = 403



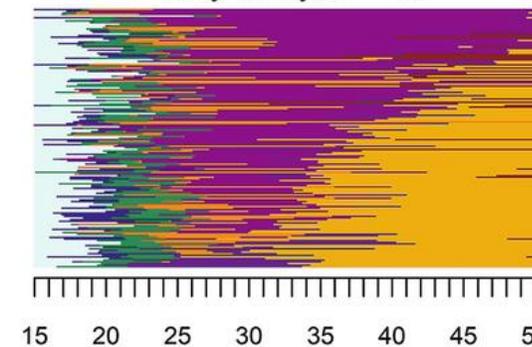
- 1. studies, single
- 2. employed, single
- 3. employed/studies, cohab/separated
- 4. employed, married
- 5. employed/out, partner(s), child
- 6. out, married, child
- 7. employed, married, child

C. Long education and later family, n = 266



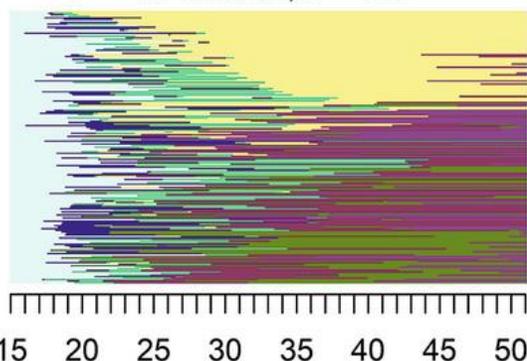
- 1. studies, single
- 2. employed, single
- 3. employed/studies, cohab/separated
- 4. employed/studies, married
- 5. not employed, married, child
- 6. employed, cohab/no partner, child
- 7. employed, married, child

D. Long career break and early family, n = 159



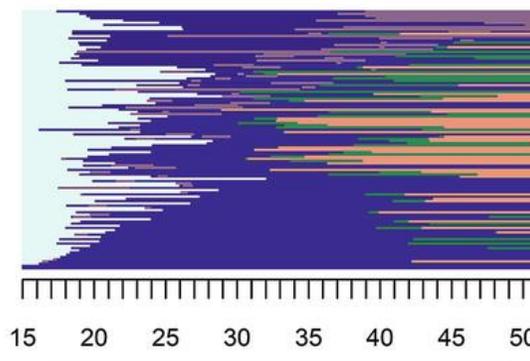
- 1. studies, single
- 2. employed, single
- 3. employed, partner
- 4. employed/out, partner, child
- 5. out, married, child
- 6. unemployed/studies, married, child
- 7. employed, married, child
- 8. employed, divorced, child

E. Partnership(s), no children, n = 177



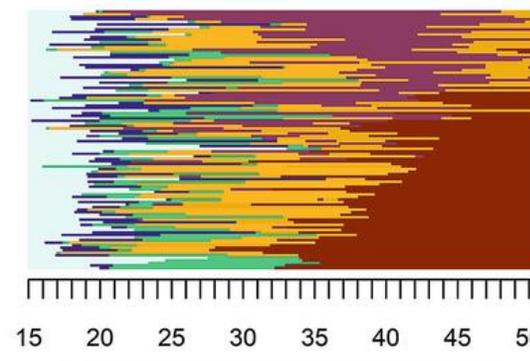
- 1. studies, single
- 2. employed, single
- 3. employed/studies, cohabiting
- 4. employed, married
- 5. employed, no partner
- 6. employed, cohabiting
- 7. out/unempl, married/no partner

F. No or late family, n = 116



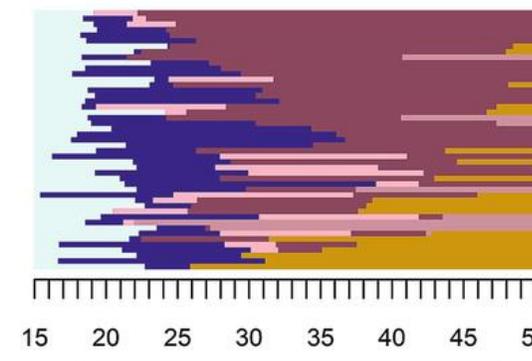
- 1. studies, single
- 2. employed, single
- 3. not employed, single
- 4. employed, single
- 5. employed, cohabiting/separated
- 6. employed, married, no child/child

G. Divorced parents, n = 102



- 1. studies, single
- 2. employed, single
- 3. employed/studies, partner(s)
- 4. employed, married, child
- 5. empl/unempl, no partner, child
- 6. employed, partner, child
- 7. employed, no partner, child

H. Single parents, n = 47



- 1. studies, single
- 2. employed, single
- 3. out/studies, single, child
- 4. employed, single, child
- 5. unemployed/out, single, child
- 6. employed, partner(s), child

Before designing a longitudinal study

- Length of observation
- Unbalanced panels (missingness)
- Regularity of data collection
- Period effects
- Static and varying factors
- Reliability over time

Thank you!!

Key references

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