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In or out? Poverty dynamics among older individuals in the UK

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Outline of the paper & the discussion

The **PAPER**:

- What does the paper do and why is it important?
- Main findings
- Data- set: UKHLS: *Understanding Society*
- The sample
- Methodology: First order Markov model
- Estimation results
- Conclusions

The **DISCUSSION**

What does this paper do? Why is it important?

- **IT** Provides estimates of low income dynamics in British pensioner HHs…
  - … accounting for potential biases due to initial conditions and non-random attrition.
- Investigates the drivers of poverty status

Why is it important?

- 17.7% of population in UK aged 65 and older!
- It shows that pensioners' income is far from stable
- Considers whether poverty transitions lead to an improvement in an individual's standard of living
  - Challenging! A pensioners standard of living (income & health) is a function of factors accumulated over the life-course + exogenous shocks (disability, age-related disease)

Main findings

- **High degree of aggregate state dependence** / initial conditions problem
- The likelihood of entering poverty, poverty persistence and poverty spells duration varies with individual and household level characteristics
- Large degree of mean reversion driven by individual investment, pension and social benefit income.
- Social benefit (disability) income are important in determining poverty transitions → a simple dichotomous measure such as being poor or non-poor may not necessarily truly reflect a pensioners actual standard of living.

The Data-base & the sample

- **Understanding Society [UKHLS] 2010-2013**
- Sample: individuals over 60 / 65 living in “pensioner households” (12,904)
- **DWP’s Definition of POVERTY: Poverty AFTER HOUSING COSTS**:
  - Σ individual incomes within the HH having taken account of any taxes and (claimed) benefits individuals are liable for or entitled to.
  - Housing costs (rent, water rates, water charges water charges, mortgage interest payments, ground rent and service charges and council tax) are deducted.
  - Poverty threshold: 60% of the real median net household income (after housing costs).
- Variables describing the HoH (health, sources of income – benefits (housing and health related, occupational pensions, income from investment, housing tenure, subjective financial) and the interviewee (age, gender, marital status)

The sample: income dynamics amongst pensioners

Table 1: Poverty status and attrition.

	T			
T-1	Non-poor	Poor	Missing	Total
Non-poor	77.99% (7,377)	8.18% (774)	13.83% (1,308)	100% (9459)
Poor	27.08% (939)	58.75% (2,024)	14.17% (482)	100% (3,445)
Total	64.40%(8310)	21.68%(2798)	13.92% (1796)	100% (12,904)

Income stability BUT regression to the mean!

Figure 2: Scatterplot of wave 2 and wave 3 income versus poverty threshold

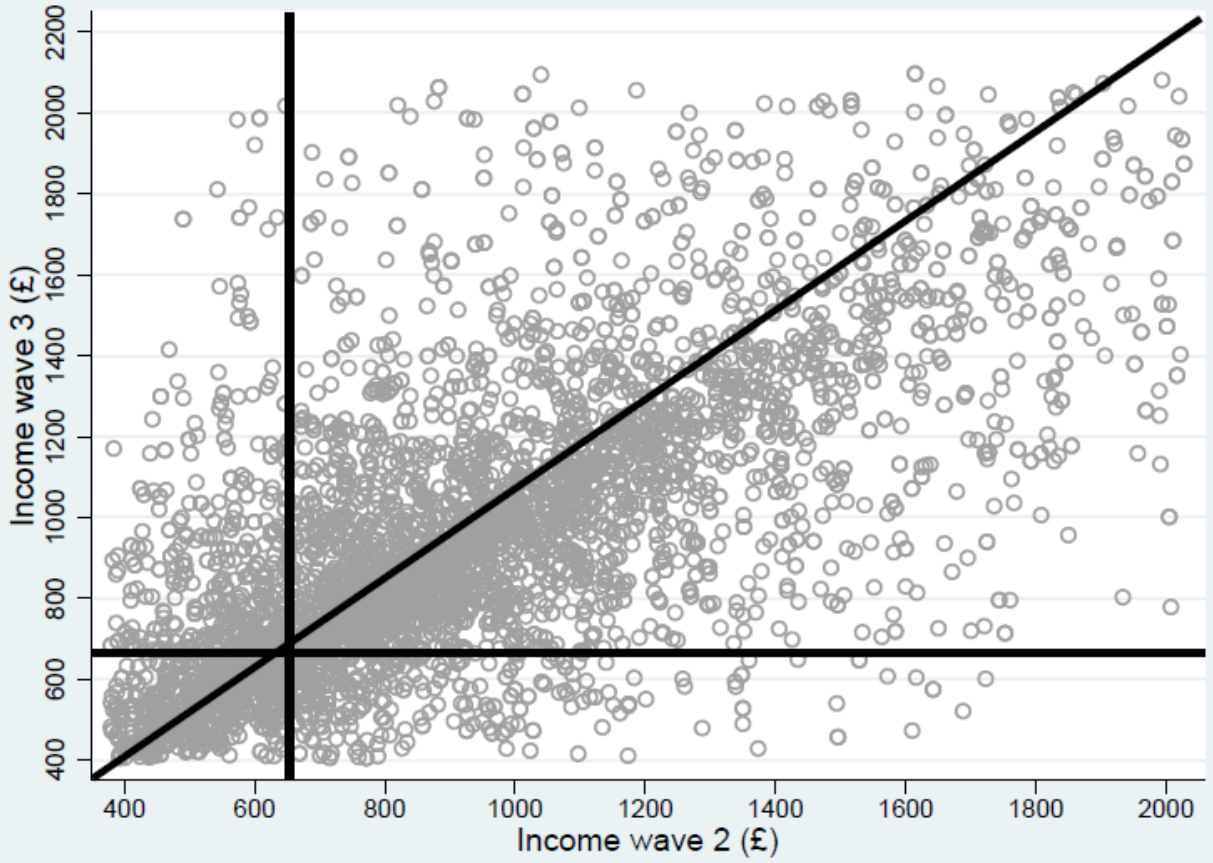
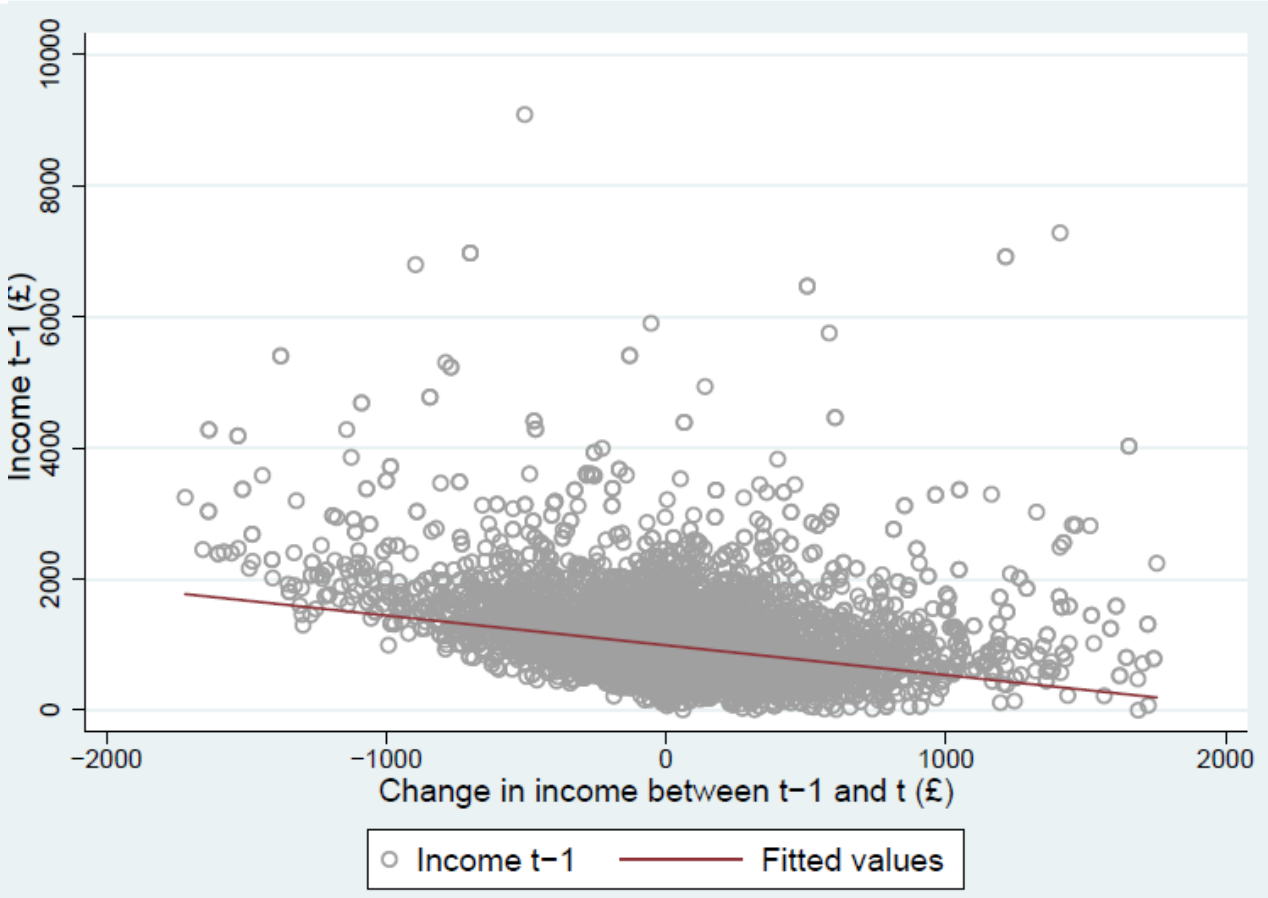


Figure 3: Level of income in $t-1$ versus change in income between $t-1$ and t.



Changes in income components

Table 8: Changes in components of income between t-1 and t.

Component of income	$Poor_{t-1}(£)$	σ_{poor}	$Non-poor_{t-1}(£)$	$\sigma_{non-poor}$
All labour income	-29.74	131.47	-87.90	150.09
Miscellaneous	-27.29	136.0	-106.89	2291.1
Private benefit	-59.39	93.31	-52.60	110.02
Investment	29.13	383.3	-18.42	2016.26
Pension	64.66	620.71	-163.55	4485.03
Social benefits	59.87	180.92	-13.09	367.11
Notes: Income components are at the individual level and quoted in January 2005 prices. Sample restricted to individuals who report being receipt of income component at $t-1$.				

- **Proposal: enlarging the reader's view of the relevance of each type of income in non-poor and por households in t-1 with the median values of each type of income and the share each if them has in overall HH income**

Methodology: First order Markov model (Cappellari & Jenkins, 2004)

A three equation system (endogenous switching) tri-variate probit:

- Initial poverty status: $p^*_{i,t-1} = \beta' x_{i,t-1} + \varepsilon_{i,t-1} \qquad \varepsilon_{i,t-1} \sim N(0,1)$
- Retention equation: $r^*_{i,t} = \gamma w_{i,t-1} + \kappa_{i,t} \qquad \kappa_{i,t} \sim N(0,1)$
- Poverty status: $p^*_{i,t} = \left[(P_{i,t-1})\theta_1' + (1 - P_{i,t-1})\theta_2'\right] s_{i,t-1} + \vartheta_{i,t} \qquad \vartheta_{i,t} \sim N(0,1)$

θ_1, θ_2 are vectors of parameters to be estimated

- If $\rho_2 > 0$ → those poor in *t-1* face higher risk of poverty in *t*. It captures The unobserved factors that determine Initial poverty & poverty transitions

$$\rho_1 \equiv corr\left(\varepsilon_{i,t-1}, \kappa_{i,t}\right) = cov(\zeta_i, \omega_i)$$

$$\rho_2 \equiv corr\left(\varepsilon_{i,t-1}, \vartheta_{i,t}\right) = cov(\zeta_i, \tau_i)$$

$$\rho_3 \equiv corr\left(\kappa_{i,t}, \vartheta_{i,t}\right) = cov(\omega_i, \tau_i)$$

Probability of being in poverty after housing costs in t-1	
Positive impact (+)	Negative impact (-)
Female (+)	Married (-)
Female HoH (+)	Education (-), parental education
	Occupational or employer pension (-)
	Income from investments (-)
	housing tenure (-) & housing benefits (-)
	Disability/ illness benefit (-)

Probability of sample retention (non-attrition):	
Positive impact (+)	Negative impact (-)
Married (+)	Age
Housing tenure	Health problems
Additional income sources (+)	Questions raised during the interview (-)

Persisting in poverty	Entering poverty
(only a few significant covariates)	
Divorce [+]	Low educated HoH [+]
Living in social housing / h. association [-]	HoH with no formal education [++]
Low education [+]	Subjective assessment of financial situation [-]
Benefit income [+]	HoH Ocupational Pensions [-]
Relying on investment income only [+]	**HoH incapacity / severe disability Pensions [-]**

Interesting: Aggregate state dependence = 0,586
BUT NO Genuine State dependence is found!

Stylised individuals: predicted state probabilities

Characteristics	Poverty persistence rate	Poverty entry rate	Poverty exit rate	Probability of being poor
Case 1: 74, **HoH good health**, owns home, GCSE, single, occupational or employer pension, NO other sources, **NO disability benefits** and "quite difficult" situation	0,53	0,13	0,46	0,22
Case 4 = Case 1 but **limiting illness** & NO disability benefit	0,81	0,06	0,18	0,24
Case 2 = Case 4 but **limiting illness & YES disability** OR incapacity **benefit**	0,33	0,09	0,66	0,12

Correlations (and implications)

Table 7: Model correlations and test statistics

1.Correlations between unobservable components	Estimate	P>| z |
2. ρ_1: Initial poverty and survey retention	.012	0.61
3. ρ_2: Initial and conditional poverty	-.44	0.00
4. ρ_3: Survey retention and conditional poverty	-.03	0.91
Test of correlations		
7. $\rho_1 = \rho_2 = 0$: No evidence of initial conditions (χ^2_2)	14.50	0.00
8. $\rho_1 = \rho_3 = 0$: No evidence of non-random attrition (χ^2_2)	0.27	0.87
9. $\rho_1 = \rho_2 = \rho_3$: Joint exogeneity (χ^2_3)	15.45	0.00

- $\rho_2 < 0$ → regression toward the mean (income is NOT) as stable as one would expect in retired people
- There is evidence on initial conditions BUT attrition is random (neither affected by initial conditions nor affecting subsequent transitions)
- A bi-variate approach would be enough BUT always accounting for unob.het

Conclusions

- Pensioner incomes do exhibit a degree of volatility - given the limited number of income sources.
- Unobserved factors which determine initial and conditional poverty status.

  → **Evidence of an initial conditions problem & regression toward the mean**

  → which components of income are driving mean reversion? social benefit, investment and pension (large variance in changes).
- Association between standard of living and benefit income: disability/incapacity benefit income and carers or attendance allowance).
  - → **Measures of deprivation other than those based solely on income may well capture pensioner living standards.**

Discussion

I've learnt a lot! Thank you!

- Well motivated and framed in the institutional set-up (pensions schemes) and in the relevant evidence on the topic
- Very good survey of the available methodologies and good discussion of pros & cons of the chosen methodology
- Clear discussion of the results and robustness tests / methodological rigour

Question on the methodology: it is not possible to control for demographic changes in the HH or in health between t-1 and t, is it? Maybe an *ex post* look at "non-attritors" would help to better know what has happened in poor and non-poor households that explains the regression toward the mean.

Discussion

- **Lines for future research:** material deprivation indicators? If so, how?
- **High individual level heterogeneity among initially 'poor pensioners' & large variation in poverty persistence rates for individuals with the same characteristics → unobserved heterogeneity is important.**
    - Maybe working histories would contribute to reduce it?
    - Poverty = HH level variable → maybe more info on the rest of the HH / composition / sources of income from other members additional to the retired person? (example: adult children at home)
- May some transitions out of (or into) poverty be driven by sheer **movements in the poverty line** along the period 2010-2013?
- Aggregate State Dependence = 0,586 BUT **NO Genuine State dependence!**

    + Regression toward the mean → *POLICY IMPLICATIONS?*