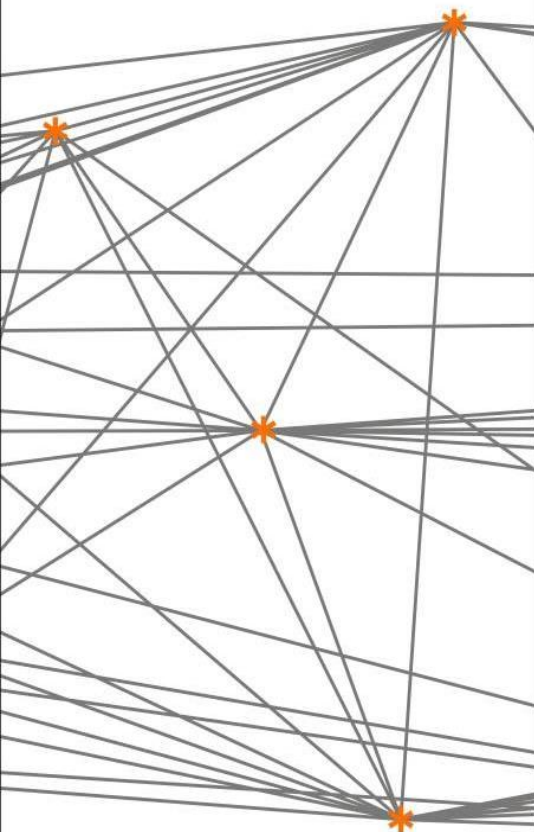


Old age poverty and transitions in health

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Motivation

- ▶ Ageing of the population
 - ▶ EU-27: population 65+ share is expected to grow from the 17.5% (2011) to 29.5% (2060) (EUROPOP2010)
- ▶ Lower pension replacement ratio
 - ▶ Trade off between financial stability and adequacy of pension systems
- ▶ Old age poverty
- ▶ Correlation of poverty with health outcomes

Motivation

- ▶ Public debate is focused on **income** based poverty
 - ▶ Pensions are lower than previous income;
 - ▶ Accumulated wealth, running down assets after retirement
- ▶ Policy relevant questions:
 - ▶ to what extent material conditions matter for transitions in health?
 - ▶ what measures of poverty reflect their relevance?
 - ▶ what measures should be monitored and targeted by policy?

Literature

- ▶ Theory: Grossman (1972)
 - ▶ health as a stock of capital which produces healthy time,
 - ▶ depreciates at increasing rate,
 - ▶ can be augmented with investments in health,
 - ▶ financial resources as a constraint.
- ▶ Empirical evidence for correlation between poverty and:
 - ▶ physical and mental health (Dahl & Birkelund 1997, Grundy & Holt 2001, Huisman et al. 2003)
 - ▶ life satisfaction and happiness (Adena and Myck 2013)
 - ▶ heart attack and diabetes (Kok et al. 2008)
 - ▶ self-assessed probability of earlier death (Delavande, and Rohwedder 2008)

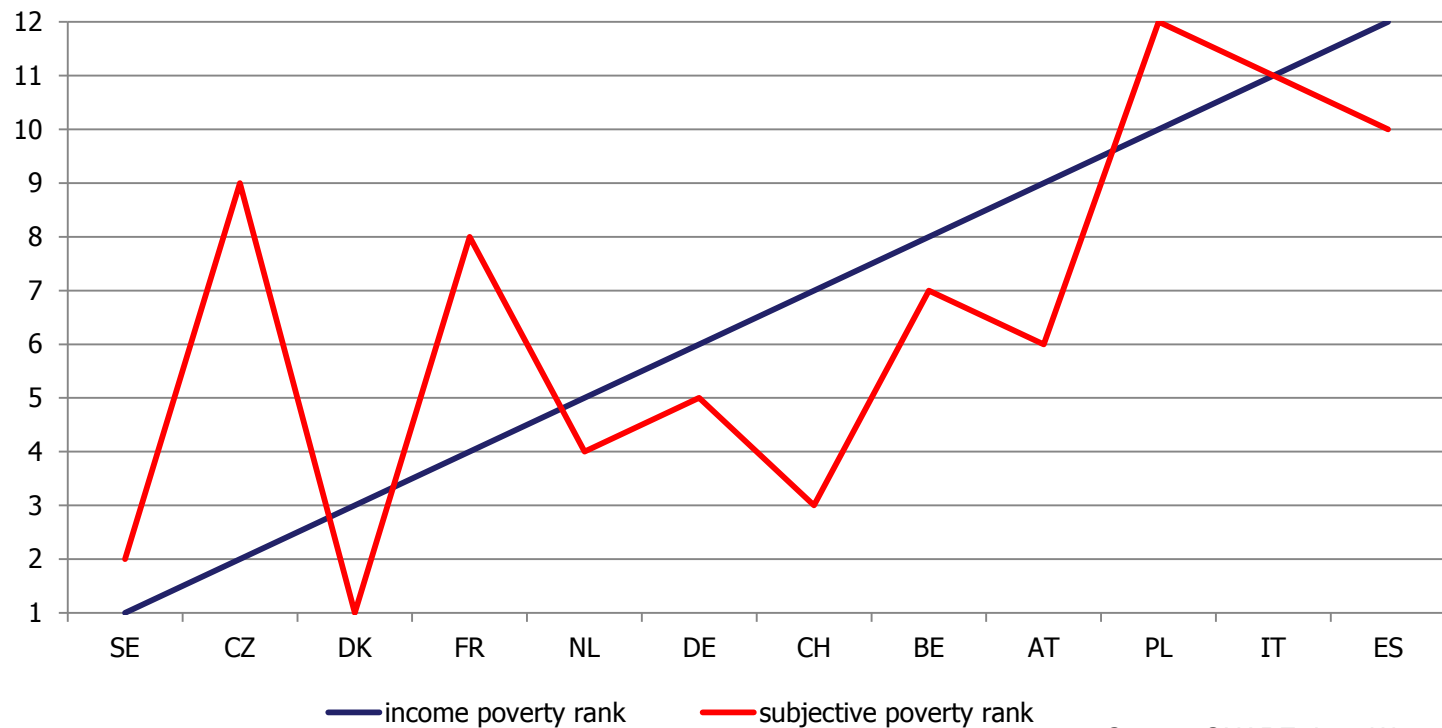
Data

- ▶ Survey of Health, Ageing and Retirement in Europe (SHARE)
 - ▶ twelve European countries
 - ▶ panel dimension (Waves 2 and 4, 2006-2012)
- ▶ Measures of health:
 - ▶ Subjective assessment of health status – **SAH**;
 - ▶ symptoms of poor health – **3+SMT**;
 - ▶ difficulties in activities of daily living – **3+ADL**;
 - ▶ Death.
- ▶ Measures of poverty:
 - ▶ difficulties in making ends meet – **SUB**;
 - ▶ income based poverty (<60% of median equivalized income) – **INC**;
 - ▶ relative wealth poverty (lowest tertile of country distribution) – **WEALTH**.

Poverty and transitions in health

Which poverty measure should we use?

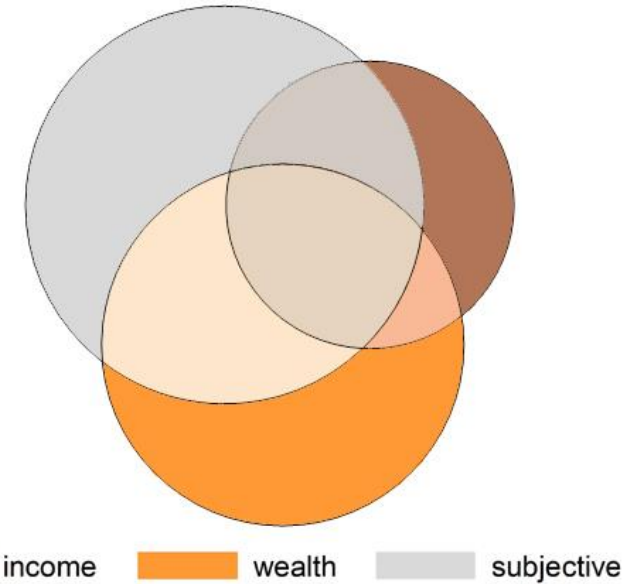
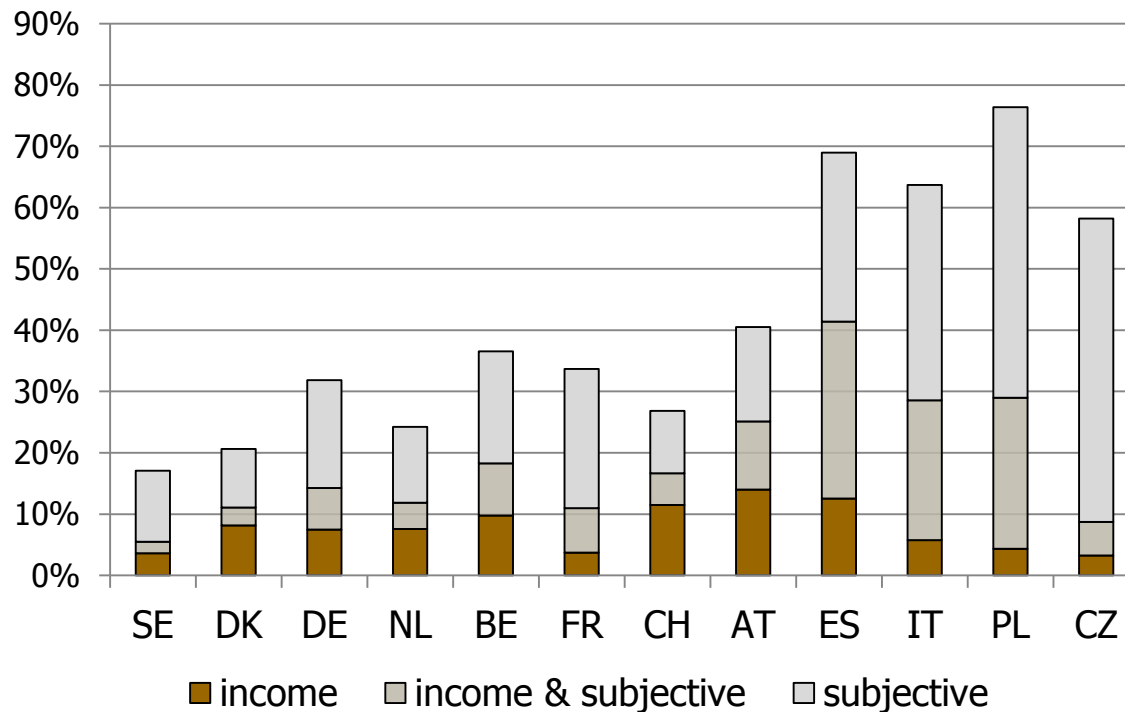
Country ranks according to income versus subjective poverty measure
(share of population 50+ below “poverty level”)



Source: SHARE data, Wave 2

Poverty and transitions in health

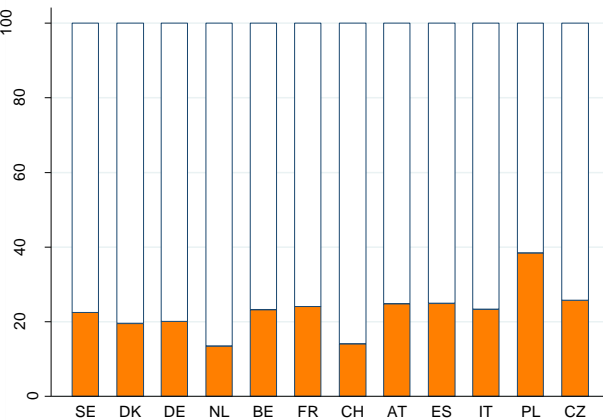
Low overlap between different poverty measures



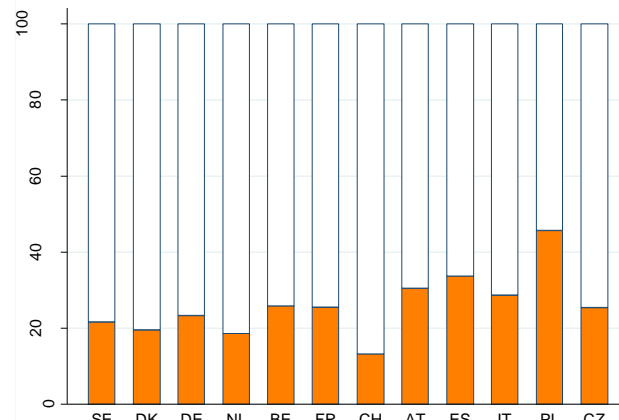
Source: SHARE data, Wave 2

Measures of health in Wave 2

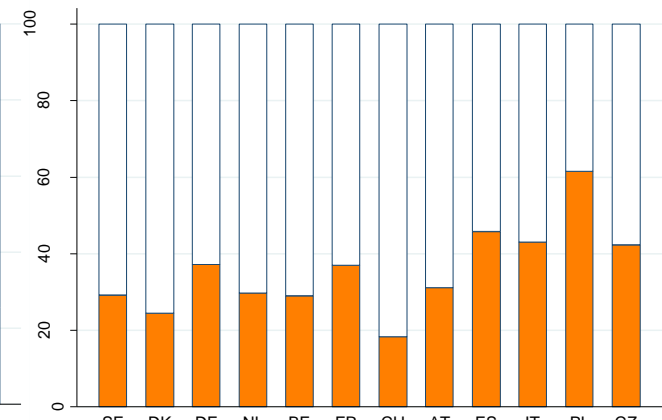
3+SMT: Three or more symptoms of poor health



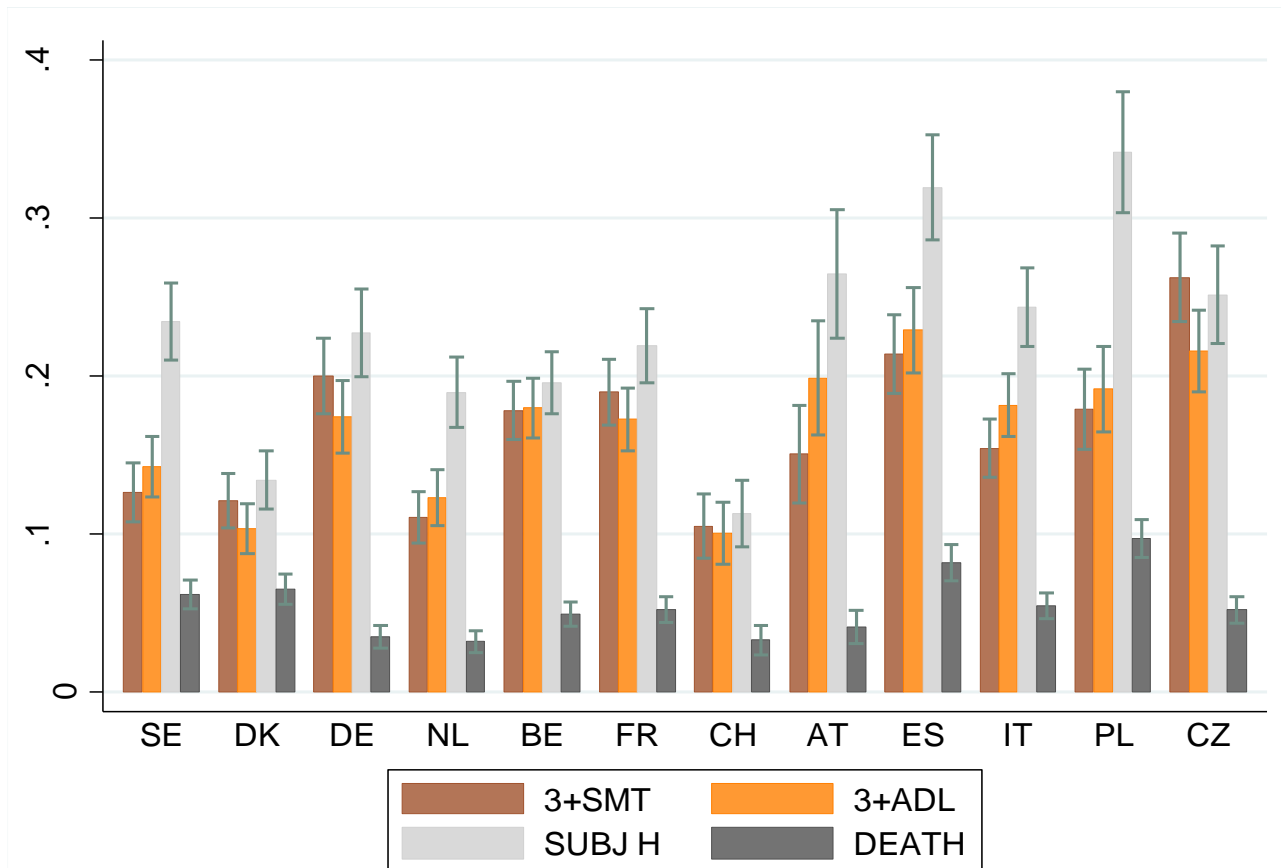
3+ADL: Three or more limitations in activities of daily living



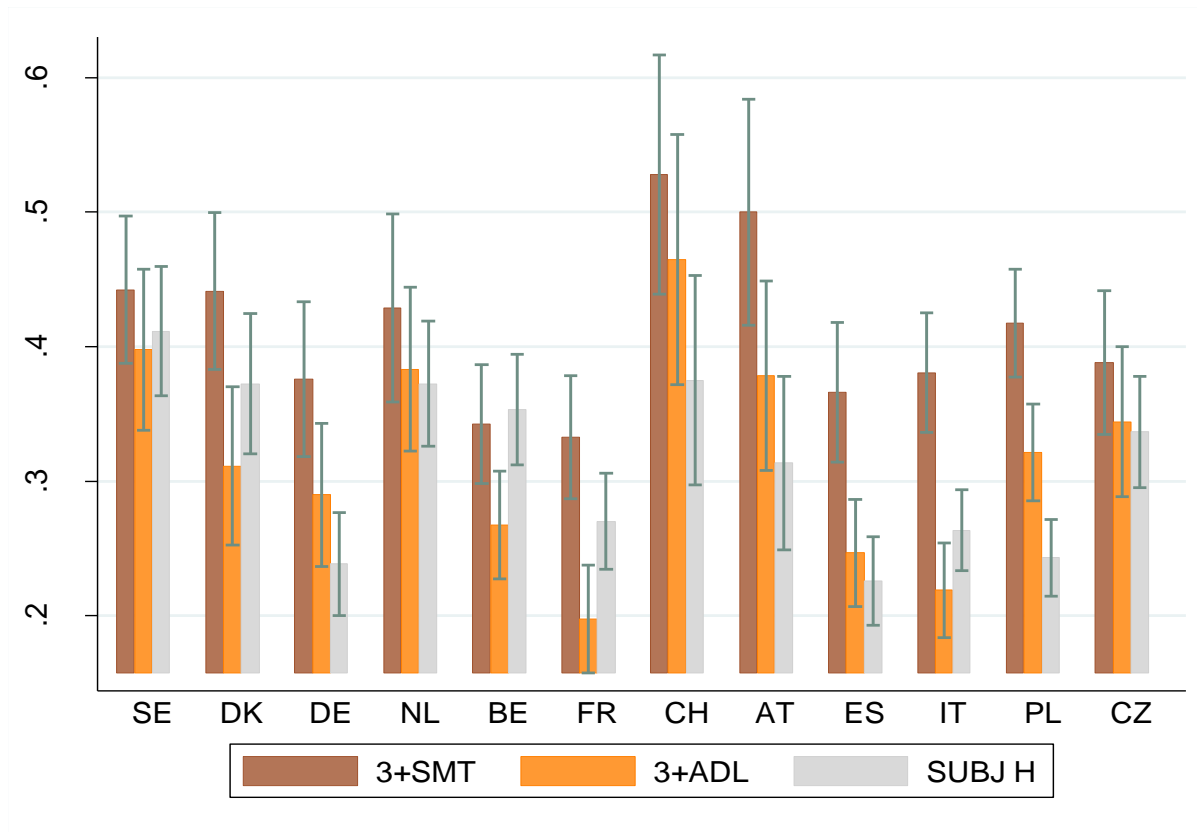
SAH: Subjective health



Raw transition rates from good to bad states



Raw transition rates from bad to good states

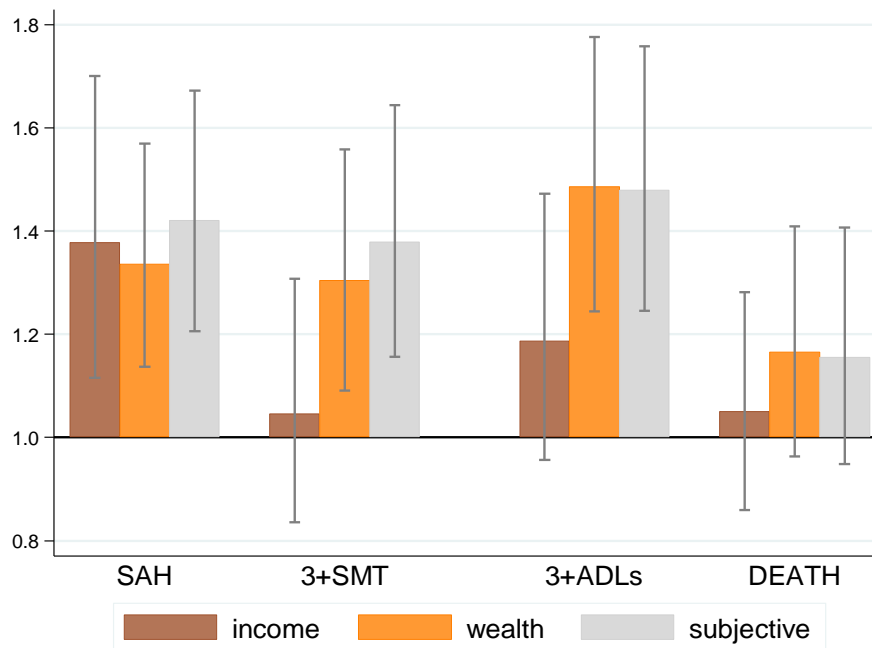


Empirical Methodology

- ▶ Analysis of the effect of poor material conditions on changes in health:
 - ▶ changes from good to bad states between waves 2 and 4 conditional on being in good state in wave 2 (and vice versa).
- ▶ $P(y_{w4} = 1 | y_{w2} = 0) = \beta' X_{w2} + \gamma \Pi_{w2} + \varepsilon$ probability of illness
- ▶ $P(y_{w4} = 0 | y_{w2} = 1) = \beta' X_{w2} + \gamma \Pi_{w2} + \vartheta$ probability of recovery

- ▶ W2 controls:
 - ▶ country dummies, time between interviews; basic demographics: age and education polynomials, gender, partnership status and town size; level of physical activity: moderate or vigorous; family networks: number of children and grandchildren; life style: current smoking and alcohol consumption
- ▶ Results presented as odds ratios:
 - ▶ logistic regression of probability of transition from good to bad state (*and vice versa*) conditional on different measures of poverty (and a number of controls).

Transitions from good to bad states

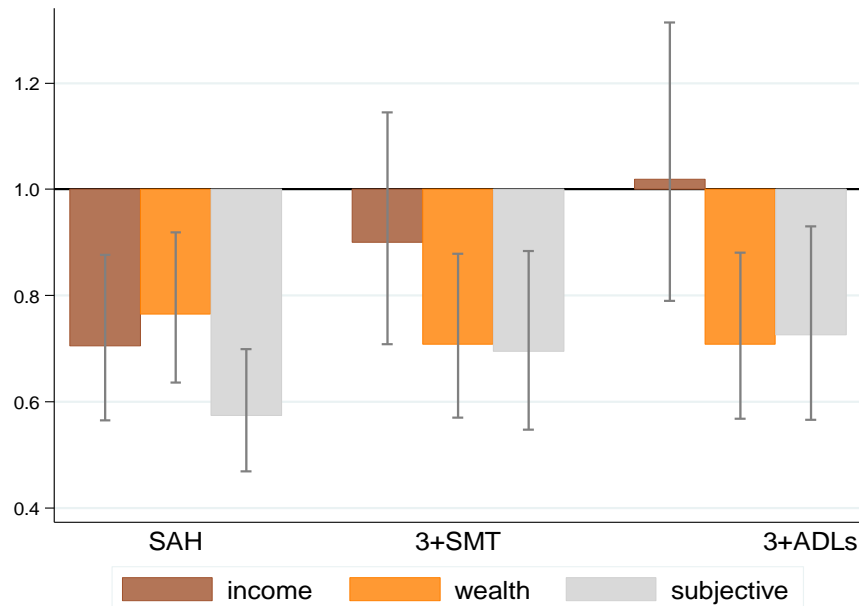


Main findings:

- Poverty defined with respect to income has no significant effect on transitions in physical health between W2 and W4;
- Significant and substantial effects of subjective and wealth poverty on transitions in subjective and physical health;
- According to the wealth and subjective definitions, poor subjects are around 40% more likely to become ill than their rich counterparts

Poverty and transitions in health

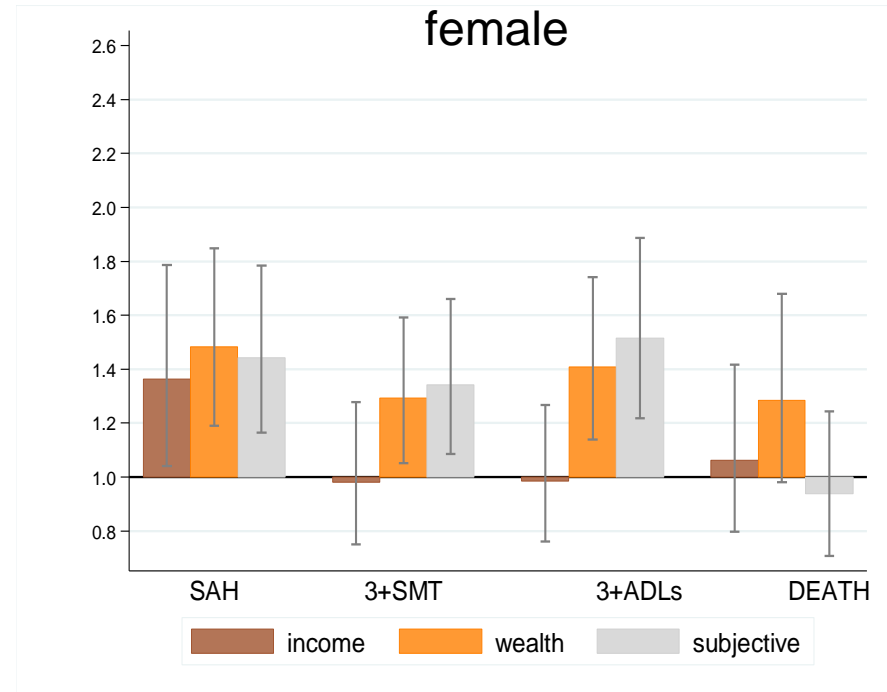
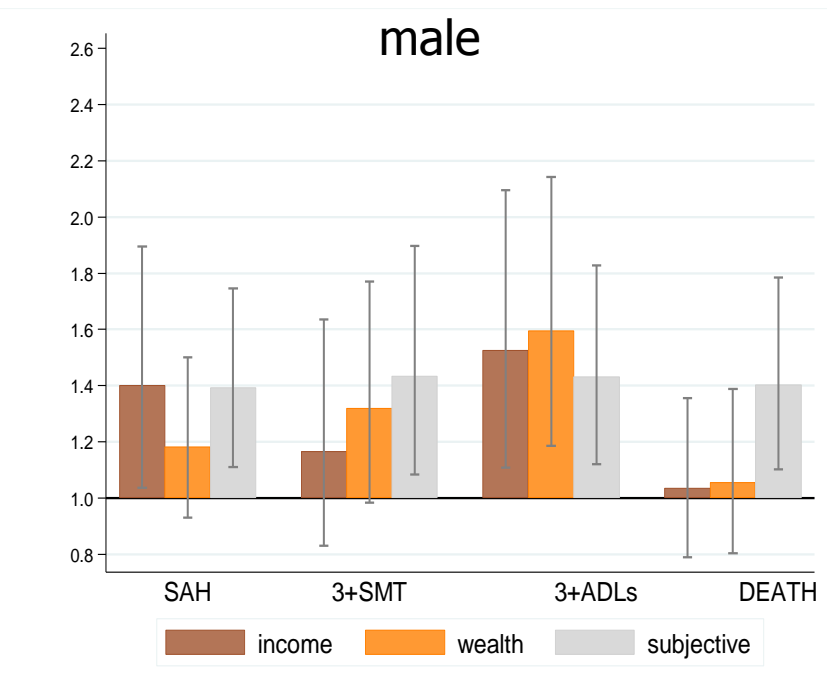
Transitions from bad to good states



Main findings:

- Similar results for the probability of recovery
- Poor individuals are less likely to recover
- Effects of income poverty on transitions in physical health are not significant

Gender differences

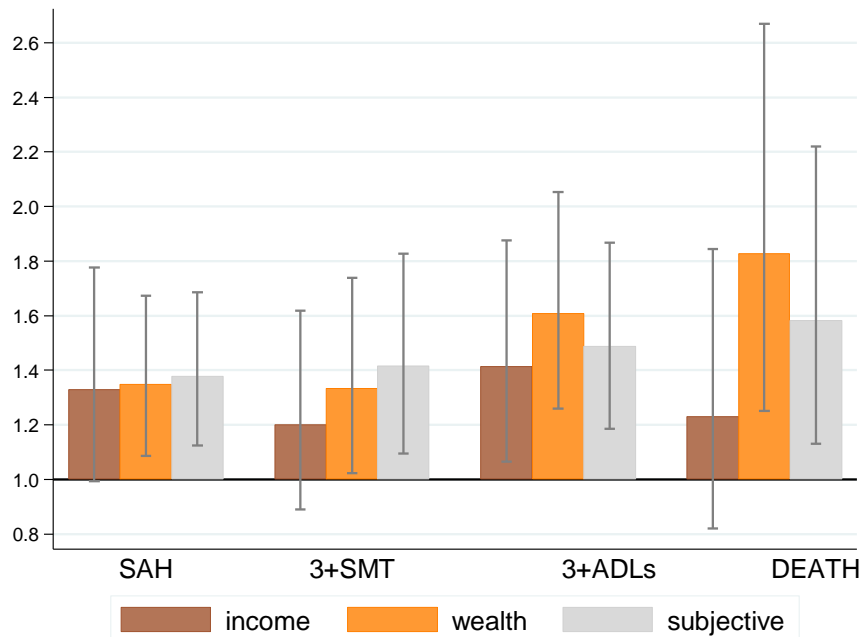


- subjective poverty influences positively and significantly the probability of death for men

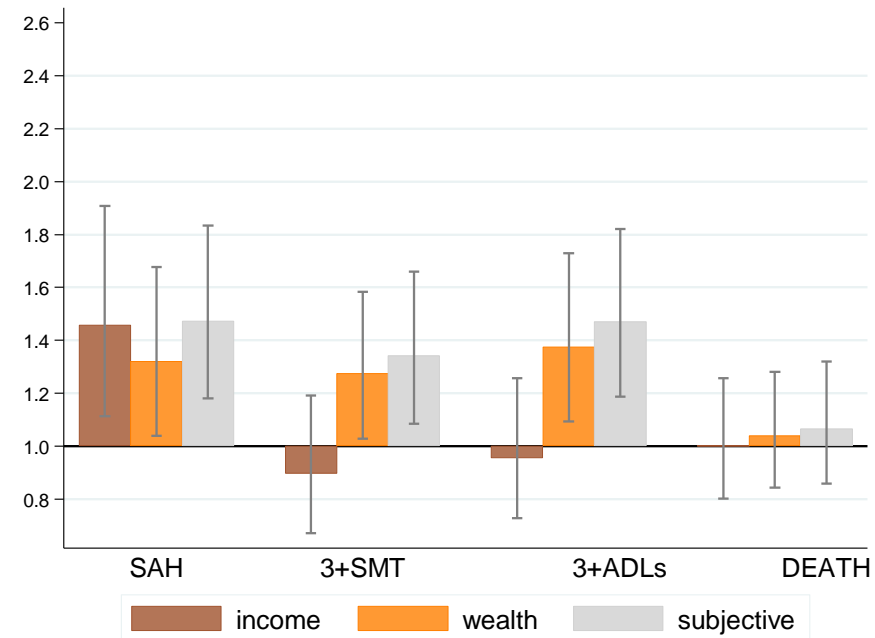
Poverty and transitions in health

Age differences

Aged 50-64 in Wave 2



Aged 65 and over in Wave 2



- Wealth and subjective poverty influences positively and significantly the probability of death for individuals aged 50-64

Robustness tests

- ▶ bad health thresholds at 3+SMT and 3+ADLs commonly used in the literature but somehow arbitrary
 - ▶ the results are similar if we change the threshold
- ▶ broader set of controls for selection into the good and bad health samples at the time of W2
 - ▶ situation at home at the age of ten: number of books at home, facilities in the household, occupation of main breadwinner;
 - ▶ parental behaviour: smoking, drinking and mental problems;
 - ▶ other major life events: hospital stays in childhood, ever having been disabled or seriously injured.

Robustness tests

- ▶ attrition
 - ▶ 62% of the total W2 sample takes part in the W4,
 - ▶ vary between 48% in Czech Republic to 71% in Switzerland,
 - ▶ due to death, refusal or unsuccessful tracking
- ▶ (1) odds ratios by poverty definition for different scenarios
 - ▶ I – death as unhealthy in W4,
 - ▶ II – death + other attrition as unhealthy in W4
 - ▶ III – death as unhealthy, other attrition as healthy in W4
- ▶ (2) Is poverty correlated with attrition?
 - ▶ income and subjective poverty are not correlated with attrition
 - ▶ Wealth poverty is weakly related to attrition, correlation vanishes after controlling for homeownership

Conclusions

- ▶ Material conditions clearly matter for health outcomes;
- ▶ Potentially important policy implications:
 - ▶ identifying poor material conditions with reference to income poverty may be inadequate – income is likely to be a poor measure of well being in old age;
 - ▶ This suggests a need for development of broader (and more “age-specific”) measures of the material situation which could form the basis of effective policy making.