MAX-PLANCK-INSTITUT FÜR DEMOGRAFISCHE FORSCHUNG

MAX PLANCK INSTITUTE FOR DEMOGRAPHIC RESEARCH

Retirement preparedness in the United States

Quantifying saving adequacy standards based on subjective economic well-being

Julian Schmied

@schmied_julian

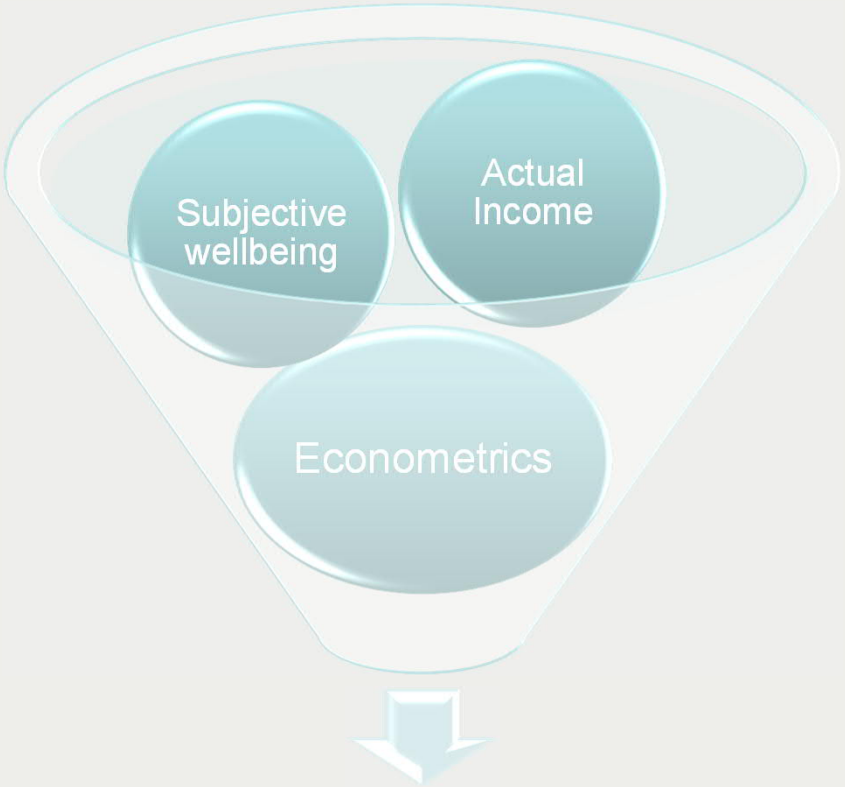
schmied@demogr.mpg.de

In a nutshell…

- What is an adequate retirement income?
- Who does not achieve an adequate retirement income?

?

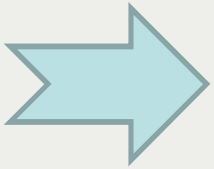
!



Adequate retirement income

Background

- Population ageing and concerns about social security benefits
- US context: saving decision are up to the individual
- Uncertainties about the optimal level of private savings
- Too much saving means loss of consumption opportunities
- Too little savings results in poverty or even bankruptcy
- Shocks harm saving plans



Any advice helps

Retirement preparedness: Concepts

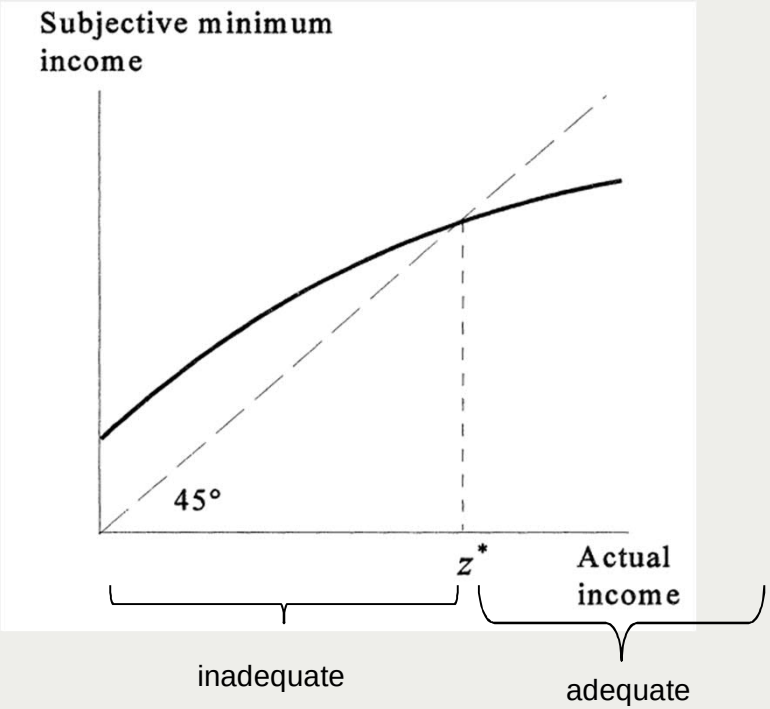
- Life-cycle models: max lifetime U(C) by optimal saving decisions (=non-consumption) (e.g., Scholz et al [2006])
- Monetary poverty thresholds (Love at al [2008])
- Subjective approaches: direct way to assess utility from income

Agenda

I. Review three concept how derive an adequate retirement income from subjective income questions. (Focus: identification strategy)

II. Apply concepts to US American Data where possible

Concept 1: Anticipatory adequacy questions



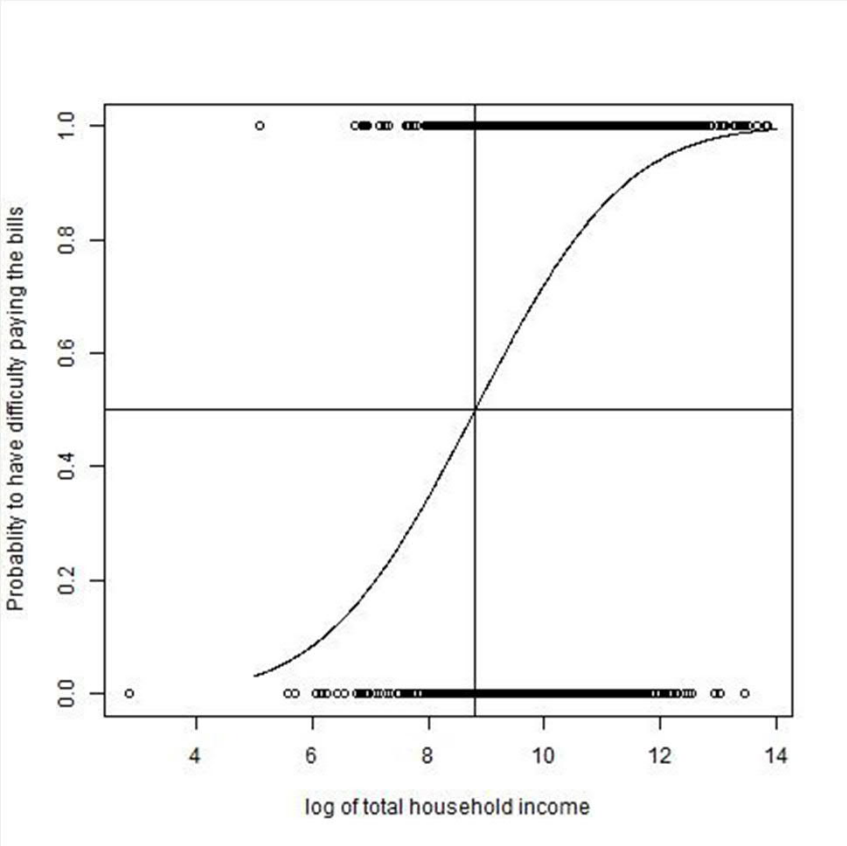
Source: Pradhan & Ravallion (2001): Review of Economics and Statistics

- Subjective poverty line (SPL), e.g., Kapetyn et al.[1988]; van Praag & Frijters [1999]
- (1) $z = \alpha + \beta \ln y + \pi x + \varepsilon$
- (2) $z := y$
- (3) $SPL = z^* = \exp\left(\frac{\hat{\alpha} + \hat{\pi} x}{\hat{\beta}}\right)$
- Special questionnaire (Binswanger and Schunk [2012])
- Observe later whether people achieve that goal.

Individual preferences

Data requirements

Concept 2: Subjective adequacy line



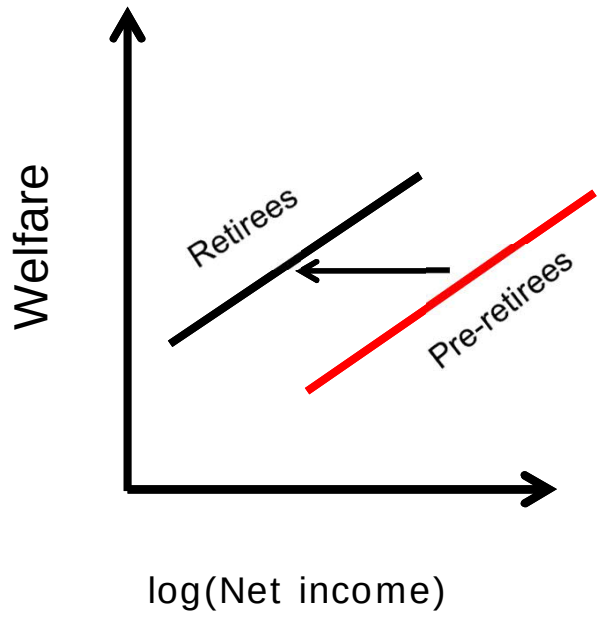
Own illustration based on the HRS Wave 11

- Likert approach to identify SPL (Pradhan & Ravallion 2001)
- Recall (1) $z = \alpha + \beta \ln y + \pi x + \varepsilon$
- z? but: $P(Z = 1|Y)$
- (4) $P(y_i > z_i) = F(\ln y - (\alpha + \beta \ln y_i + \pi x))$
- (5) $z^* = \exp\left(\frac{(\hat{\alpha}+\hat{\pi}x)}{1-\hat{\beta}}\right)$
- Use more ambitious indicator

cross-sectional data

individual situation?

Concept 3: Maintain utility from pre-retirement



Source: own adaption of Deaton & Muellbauer 1980: Economics and Consumer Behavior, Oxford

- Equivalence scales (e.g., Deaton & Muellbauer 1986)
- Applied to retirement preparedness by Dudel et al (2016)
- $U(y0) := U\ (y1)$
- 6) $z_{it} = \alpha + \beta \log y_{it} + \partial d_{it} + \pi X + \varepsilon_i$
- Plug in $d = 1;\ d = 0$ and solve for $\frac{y_0}{y_1}$ = Replacement rate
- 7) $R = \exp\left(-\frac{\beta}{\partial} + (X_1 + X_0)\frac{\pi}{\partial}\right)$

Gives a relative parameter to individual working incomes

What if income is inadequate before retirement?

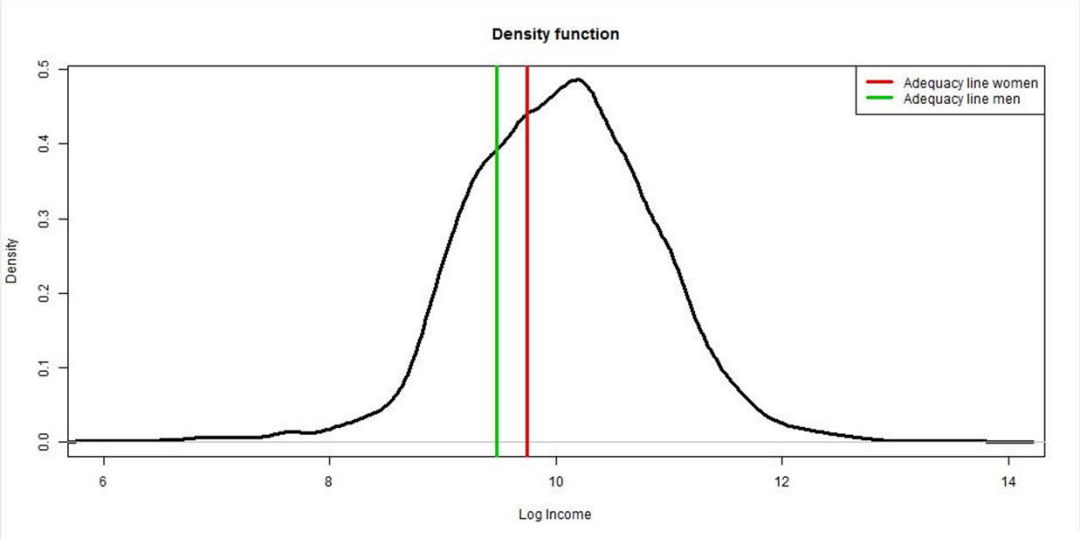
A short application: Data

- Health and Retirement survey (HRS): biennial longitudinal study, 50+
- Psychosocial and Lifestyle questionnaire aka Leave-behind questionnaire W5-W12
- Wording of key variable: How difficult is it for (you/your family) to meet monthly payments on (your/your family's) bills? 5=Not at all difficult; …; 1=completely difficult.
- How satisfied are you with your financial situation? 1=not at all, 5=very much so
- Sample selection: i) retired within the time of observation; ii) not dying before retirement iii) retired at age 60-69; n=3,500

Results concept 2

	P(satisfied w/ Financial situation)
log Income	0.506*** (0.035)
Female	-0.149*** (0.048)
Constant	-4.190*** (0.341)
Observations	3,469

- $P(y_i > z_i) = F(\ln y - (\alpha \quad + \beta \quad \ln y_i + \pi x))$
- $\log z = \frac{4.190 + D(female)\ 0.149}{-0.506}$
- Adequacy line at ~ 5000 US Dollar a year
- About 30% are not achieving that goal



Results concept 3

	Difficulties paying bills (1-5)
D(Retired)	0.013 (0.044)
log Income per capita	0.037 (0.031)
Age	0.077 (0.062)
Age squared	-0.0004 (0.0004)
N	3,516
F Statistic	5.767*** (df =4;1619)

- Individual fixed effect model
- $R = \exp(-0.013/0.037) = 0.71$
- On average, individuals need 71% of their working to maintain the subjective economic well-being
- Vulnerable groups

Discussion

Assumptions:

- well-defined income norms
- no measurement error (but mood variability).

Issues:

- Personality traits
- Estimation strategy?

Summary:

- Presented 3 money metrics with different data requirements and different interpretations
- Which one is the best? Context
- Metrics can also be used for the design of pension systems.
- Supplemental approach to the monetary methods

Questions, Concerns, Ideas?

Thanks to Christian Dudel for
valuable feedback!

@schmied_julian

schmied@demogr.mpg.de