Age and response consistency in factorial surveys revisited

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(joint work with Andrea Teti [2]*)*

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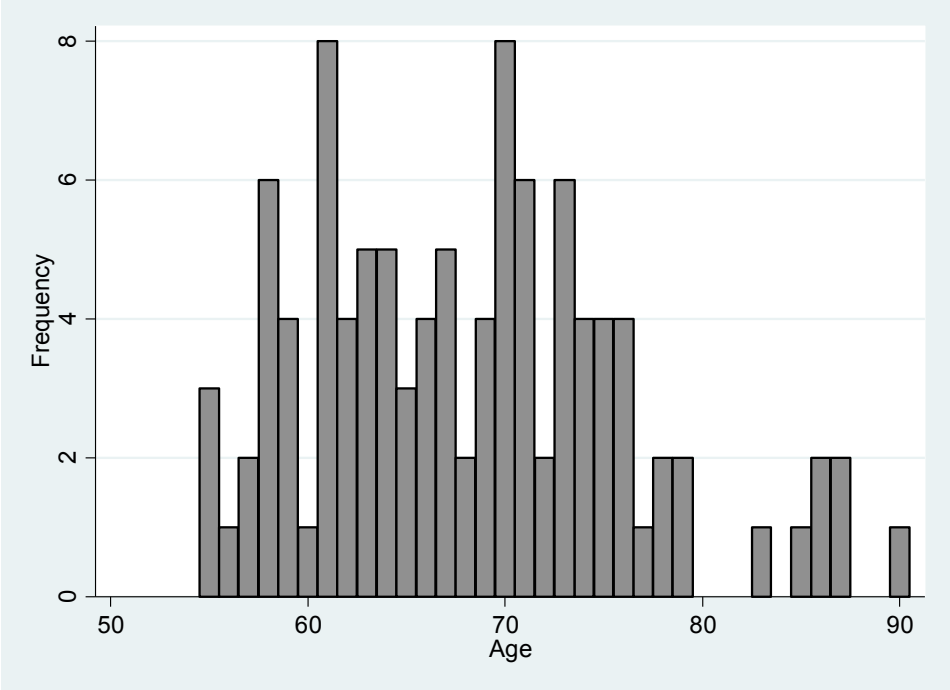
Motivation

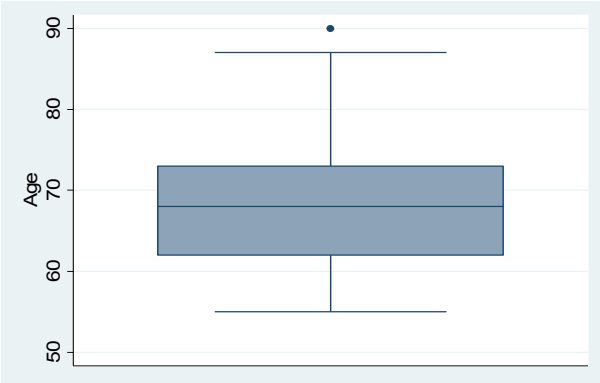
- Individual ability to process information depends on the respondent's age-related **decline in cognitive ability** (Andernach & Schunck 2014)
- No significant effect of respondents' **age** on consistency even in the condition of 30 vignettes or 12 dimensions (Sauer, Auspurg, Hinz & Liebig 2011)
- "… with higher levels of complexity, respondents who are older, have lower educational levels, or are less familiar with the FS topic are more likely to produce inconsistent responses" (Auspurg & Hinz 2015: 61)
- **First question: Does response consistency in vignette judgements decrease with age?**

Data from HOME study

- HOME: Housing Opportunities & Mobility in the Elderly
- Conducted by Institute of Medical Sociology in 2011/12 (Teti et al. 2014)
- Random sample from Berlin's public register in Wedding (60%) and Charlottenburg (40%)
- Population: aged >50 years with German language skills
- Exclusion criteria: no private home, partner loss during the last 6 months, care level 1–3
- Response rate of 14,6 %
- 104 face-to-face interviews (PAPI)

Respondent sample – age distribution





Variable	Categories	n	%
Age	55–59	16	15.5
	60–69	41	39.8
	70–79	39	37.9
	80–90	7	6.8
N=99 (Mean Age 68,2/ Median 68/ SD 7,90/ Min 55/ Max 90) *N=1,100 (Mean Age 69,0/ Median 68/ SD 9,15/ Min 54/ Max 99)*			

Vignettes

Vignette choices between moving to age-appropriate housing versus staying in the old apartment/house

Figure 1: Sample vignette

3

Imagine that …

*… the apartment offered is **in your current district.***
*It is located very **centrally, 2 min. walk** from the nearest bus / train station and **far away** from the home of your daughter / your son.*
*The apartment is in the 3rd floor, **has no elevator** and has a **large bathtub** (no shower) and a **balcony without steps**.*

How likely is it that you will choose this apartment?

0	1	2	3	4	5	6	7	8	9	10

likely ***unlikely***

Setting up the vignettes

Levels/dimensions		Category 1	Category 2
1	Place attachment (District)	current	new
2	Public transportation (walking time)	2 min	12 min
3	Social network (proximity of family)	near	far away
4	Household amenities 1 (lift)	yes	no
5	Household amenities 2 (bathroom)	roll-in shower	bathtub
6	Household amenities 3 (balcony)	no steps	sunny

Vignette universe

Cartesian product

2x2x2x2x2x2 = 64

60 = 6 decks à 10 vignettes

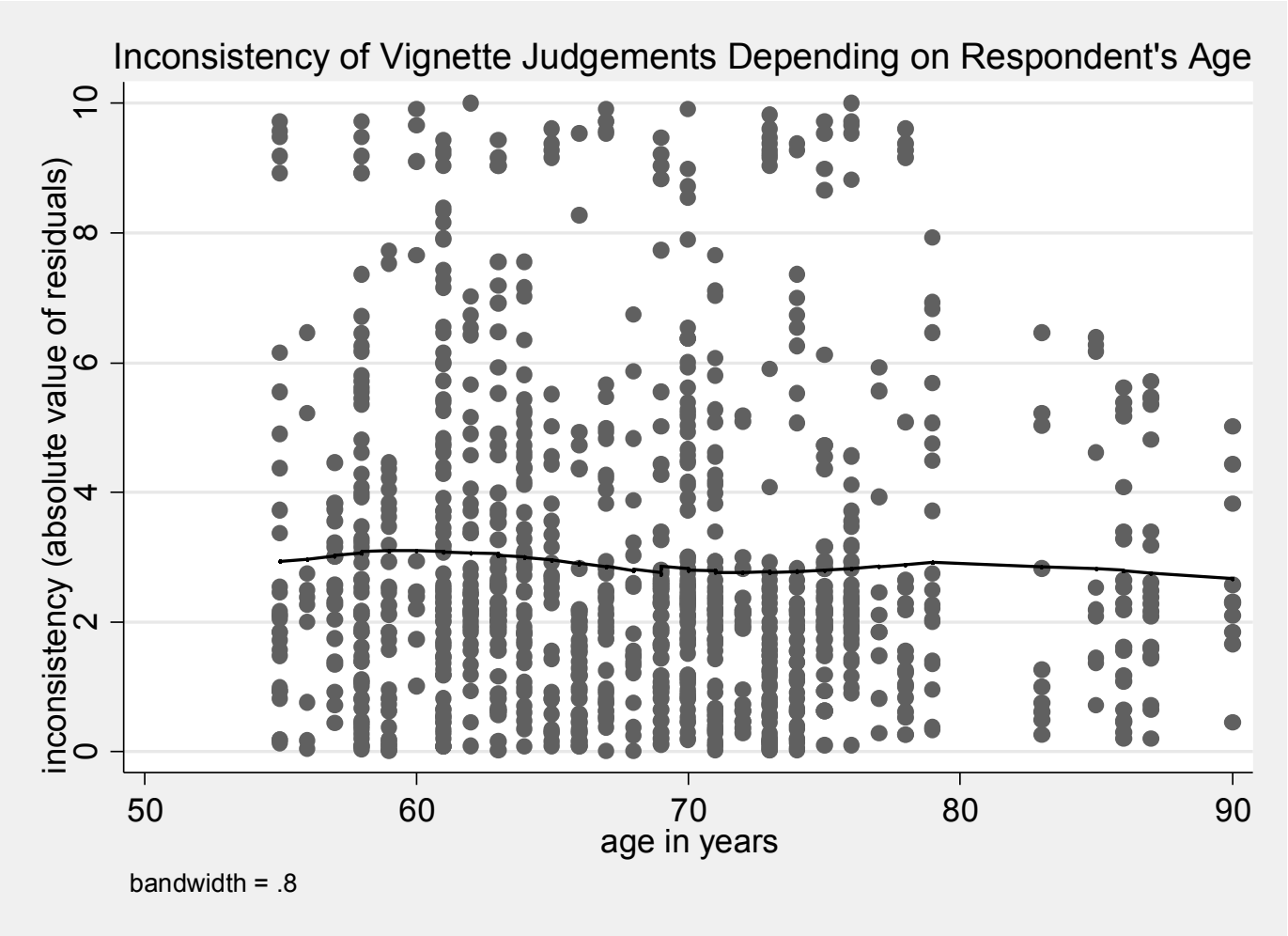
randomized vignette selection

How we measure inconsistency

1) OLS-Regression for each respondent
   - dependent variable: probability of moving
   - covariates: vignette characteristics
   - → inconsistency: absolute value of residuals per respondent (respondent specific error term)
2) Random-intercept model
   - dependent variable: absolute value of residuals per respondent
   - covariates on level 2: respondent characteristics

- Largely we follow Sauer et al. (2011) with **two exceptions:**
  - absolute values of residuals (not squared residuals)
  - regression for each respondent (not fixed-slope models)

Results (first question)



Source: Teti, Gross, Knoll, Blüher 2016: 729

Results (first question)

GLS regressions on absolute value of residuals (inconsistency) by size of household

	Model 1: Full sample		Model 2: One-person household		Model 3: Multiperson household	
	β	SE	β	SE	β	SE
Age (continuous)	0.015	0.056	0.010	0.099	−0.036	0.074
Low educational level (ref.)	—	—	—	—	—	—
Intermediate educational level	−0.028	0.057	−0.048	0.093	−0.057	0.076
High educational level	−0.021	0.062	−0.054	0.120	−0.012	0.072
Household net equivalent income <€1,250 (ref.)	—	—	—	—	—	—
€1,250–3,000	−0.228***	0.065	−0.261**	0.092	−0.073	0.134
>€3,000	−0.277***	0.069	−0.277	0.170	−0.144	0.139
Employed (1 = *yes*)	0.116*	0.056	0.057	0.114	0.127*	0.062
Migration background (1 = *yes*)	−0.048	0.048	−0.093	0.104	0.006	0.056
Intention to move (1 = *yes*)	−0.029	0.048	0.060	0.085	−0.135*	0.067
Gender (1 = *female*)	0.043	0.048	0.021	0.090	0.058	0.055

Source: Teti, Gross, Knoll, Blüher 2016: 730

Results (so far)

Inconsistency of vignette judgments increases with ...

... higher **age** of respondents (Hypothesis 1). (no effect)

... decreasing **educational level** (Hypothesis 2). (no effect)

... decreasing **income** (Hypothesis 3). (one-person hh)

... with status **unemployed** (Hypothesis 4). (pos. effect)

... **migration background** (Hypothesis 5). (no effect)

... no **intention to move** (Hypothesis 6). (multi-person hh)

Teti A, Gross C, Knoll N, Blüher S (2016) Feasibility of the Factorial Survey Method in Ageing Research: Consistency Effects Among Older Respondents. *Research on Aging* 38: 715–741.

Further question (same data, same approach)

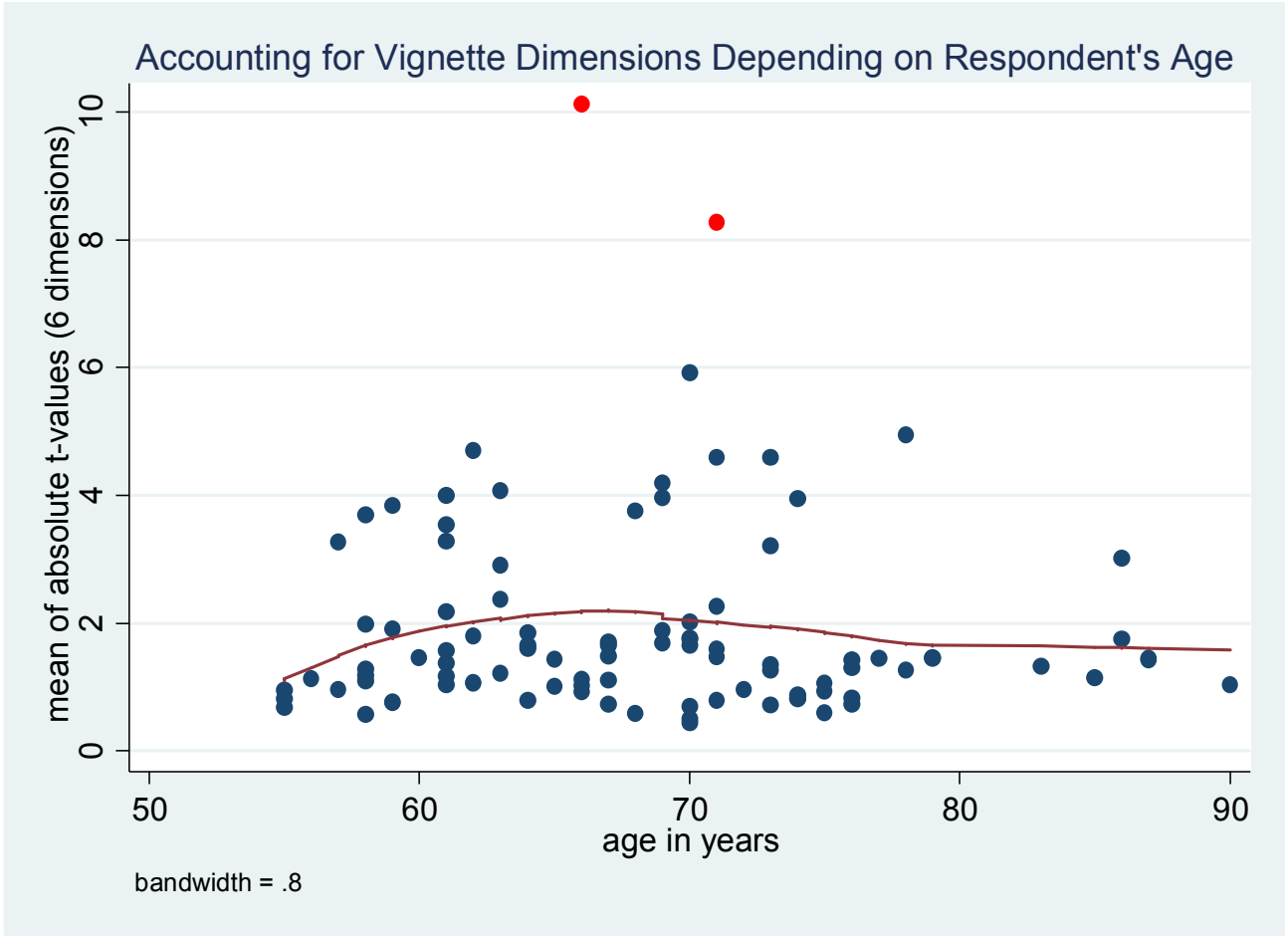
Motivation

- „with large numbers of vignettes and dimensions, respondents tend toward simplifying heuristics that ignore some dimensions“ (Auspurg & Hinz 2015)
- Vignette judgements may be perfectly consistent within a respondent, but only e.g. one (out of six) dimension may be accounted for
- **Second question: Do respondents simplify heuristics in older age?**

How we measure „accounting for dimensions"

1) OLS-Regression for each respondent
   - dependent variable: probability of moving
   - covariates: vignette characteristics
   - → "accounting for dimensions": respondent specific absolute t-value (avg.)
2) Bivariate Association of age and respondent specific absolute t-value (avg.)

Further question (same data, same approach)



Conclusions

- We find no association of **age** and consistency of vignette judgements in sample of people aged 50+
- **Educational background** may be no good determinant for cognitive abilities in older cohorts (better take individual income)
- Respondents' **lack of time** may increase inconsistency of answers (indicated by employment effect)
- Determinants of inconsistency may vary due to **size of household** (one-person vs multi-person hh) when examining relocation decisions
- We find no association of **age** and number of vignettes that have been accounted for

Limitations and future research

- No (experimental) **variation** of …
  - number of vignettes (10)
  - dimensions (6)
  - modes (PAPI)
- All vignette characteristics were **binary**
- No record of **respond time**
- **First (and only) consistency analysis of FS with elderly respondents**

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Thank you for your attention!