Longevity Pessimism, Misleading Information, and Pension Choice

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Abstract

To determine the value of a pension, individuals need to consider their survival risk. In this paper, I first elicit survival probabilities for a broad set of target ages, using a representative panel of the 18-70 year-old Swiss population. I document a systematic survival belief bias, which is the stylized fact that individuals underestimate their survival probabilities (compared to actuarial life tables). Then, I show that incorrect information about longevity in general is a substantial component of this bias. Next, I implement an incentivized experiment that requires subjects to make risky pension choices, in which payoffs are not affected by participants' own longevity. I find that longevity pessimism induces earlier and less risky choices about the timing of pension benefits, under annuity or lump-sum pension schemes. Finally, I show that happiness and satisfaction have an indirect effect on pension choices through the channel of longevity pessimism.

2. Survival beliefs

I ask subjects (N= 1340) about their longevity beliefs of themselves, of an average Swiss person of the subjects' same age and gender, and about the assumed beliefs of their friends and family on the subject's own longevity.

Longevity pessimism is the difference (log-ratio) between subject beliefs and actuarial life table probabilities for the relevant type based on age and sex.
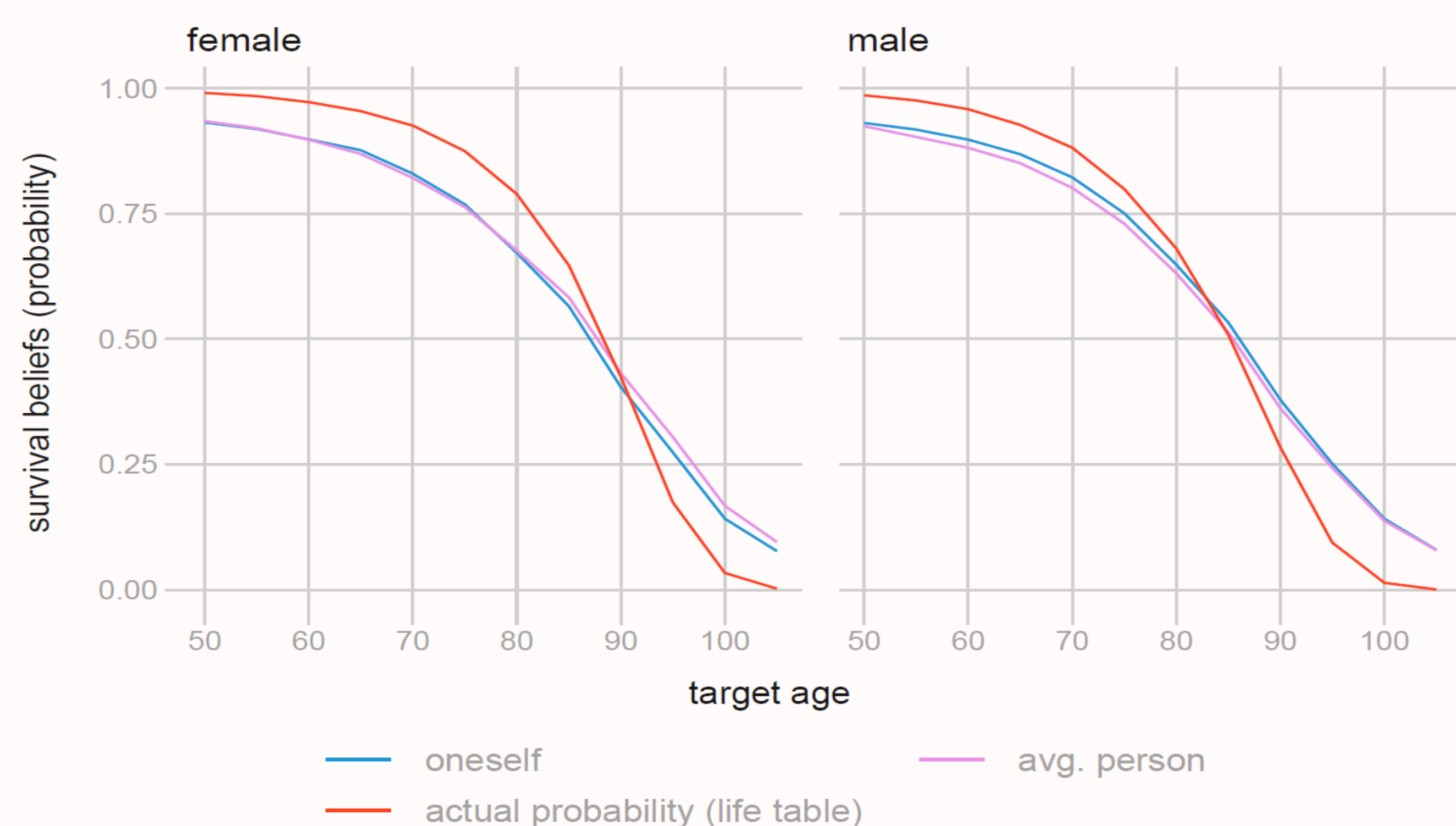
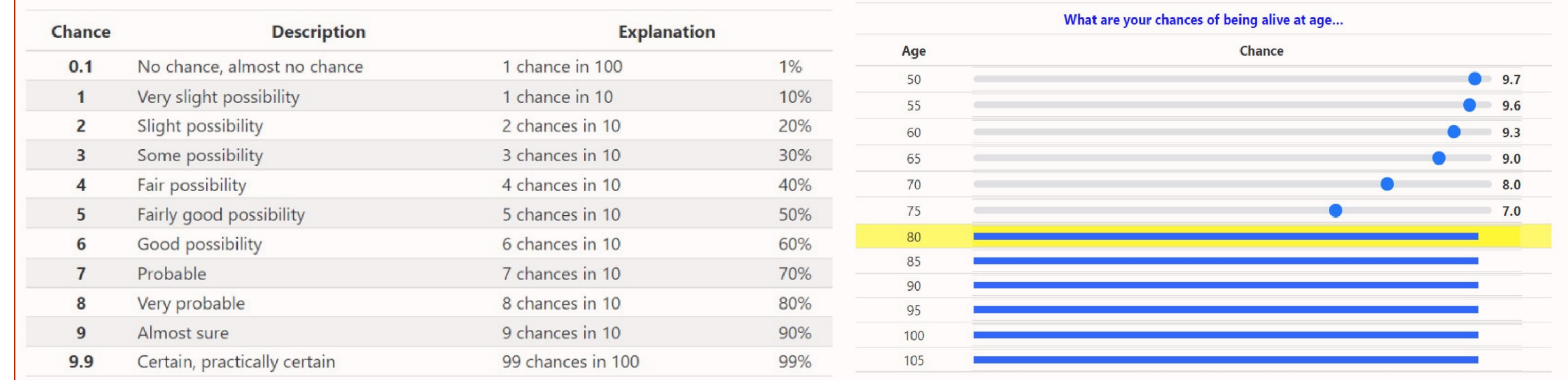## 1. Eliciting subjective survival probabilities

A subjective survival curve represents how likely one thinks the subject is to remain alive from the time of elicitation until different target ages in the future.

3. Positional longevity pessimism

Longevity pessimism might arise from wrong assumptions about longevity in general, or positional beliefs (that one will live longer and shorter than an average person). The dots in the graph below is a pair of longevity belief for oneself and for an average person of same age and sex for different target ages (upper left indexes).
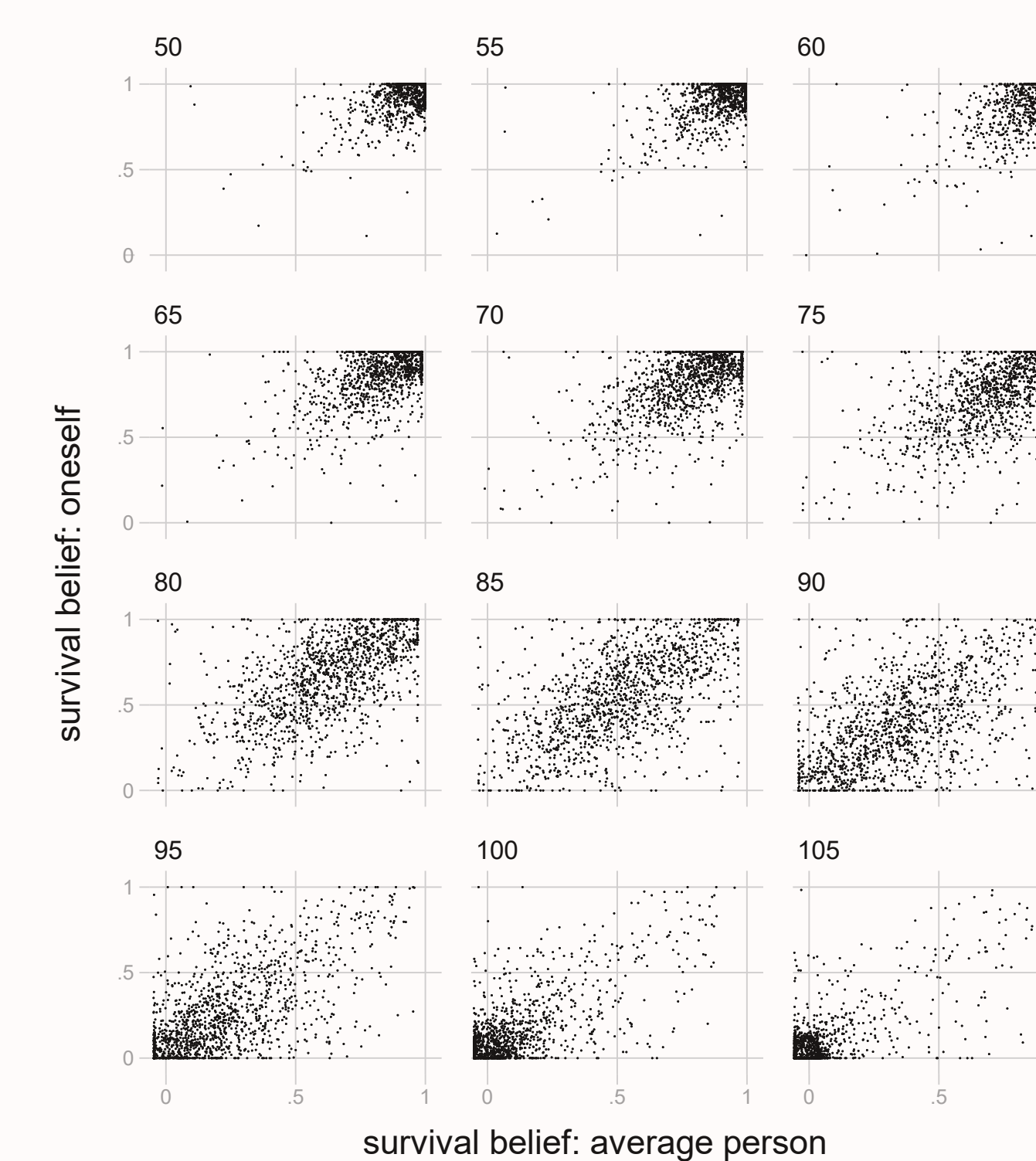
4. Experimental Pension Choice

Subjects make incentivized pension choices similar to Fatas et al (2007).

Task: choice of one period (1-20) to collect or start collecting pension benefits at the start of experiment

Risky life: length experimental life depends on random draws without replacement of stack of card that starts with 1 red card (end) and 19 green cards (survive)

Payoff: actuarially fair* payoff depending on expected survival until each of period

Treatments (payoff structure, if subject still survives)
1. *Lump-Sum*: one payment at chosen period
2. *Fair Annuity*: one payment per period started at chosen period
3. *Pessimistic**: distorted payoffs from ('1') as if subjects weighted survival probabilities as in Kahneman & Tversky (1992)
4. *Reverse*: subjects receive endowment and negative payout (similar to payoff in '2') starting at the chosen period

5. Longevity pessimism and pension choice

The main dependent variable is the payout period choice (1-20) in the experiment. Longevity pessimism about biological human survival leads to choice of a safer (earlier period) retirement option in the experiment ignoring changes in health.

dep. variable: payout period	(1)	(2)	(3)	(4)
longevity pessimism	−0.737*	−0.649*	−0.549	−0.522
	[0.383]	[0.384]	[0.381]	[0.385]
treatment: Pessimistic	−0.515*	−0.495*	−0.507*	−0.496*
	[0.299]	[0.297]	[0.297]	[0.301]
treatment: Lump-sum	1.560***	1.554***	1.497***	1.482***
	[0.291]	[0.291]	[0.289]	[0.286]
treatment: Reverse	−0.471	−0.460	−0.496	−0.497
	[0.427]	[0.429]	[0.429]	[0.434]
gender: male		0.200	0.188	0.291
		[0.223]	[0.222]	[0.223]
age		0.021***	0.023***	0.022***
		[0.008]	[0.008]	[0.008]
happiness and satisfaction			−0.024	−0.005
			[0.060]	[0.060]
change in health			0.194***	0.175***
			[0.059]	[0.059]
Additional controls	No	No	No	Yes
Adjusted R^2	0.050	0.057	0.064	0.082
N	1320	1320	1320	1276

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