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Richter, David; Mata, Rui

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Age differences in intertemporal choice: U-shaped associations in a probability sample of German households

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German Socio-Economic Panel (SOEP)
DIW Berlin
Mohrenstrasse 58
10117 Berlin, Germany

Contact: soeppapers@diw.de

Age differences in intertemporal choice: U-shaped associations in a probability sample of German households

David Richter[1], Rui Mata[2]

[1] German Institute for Economic Research

[2] University of Basel

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Author Note: David Richter, German Socio-Eonomic Panel Study, German Institute for Economic Research, Berlin, Germany; Rui Mata, Department of Psychology, University of Basel, Basel, Switzerland. Correspondence concerning this article should be addressed to David Richter, German Socio-Eonomic Panel Study, German Institute for Economic Research, Mohrenstr. 58, 10117 Berlin, Germany. E-mail: drichter@diw.de

Abstract

To describe adult age differences in intertemporal choice, we analyzed data from 1,491 participants who completed an incentivized monetary intertemporal discounting choice task involving different conditions (e.g., time delay of 12 months vs. 1 month). Respondents completed a number of other survey measures, including behavioral measures of cognitive ability, and self-reports concerning health, financial security, and demographic characteristics. We found significant quadratic (U-shaped) effects of age in task conditions involving 12-month (but not 1-month) delays, with middle-aged adults proving most patient relative to younger and older adults. The age effects found were robust to the inclusion of covariates, including cognitive ability, that have been suggested to underlie individual and age differences in time preferences. The results favor theories that propose non-linear effects of age-related processes or multiple mechanisms underlying the development of intertemporal choice across the life span and suggest that it is important to consider long time delays and wide age ranges when trying to understand age differences in time preferences.

Keywords: Decision-Making; Cognition; Life Course and Developmental Change; Time Preferences

Introduction

Intertemporal tradeoffs—that is, trading off some amount of effort or resources today so as to potentially reap some benefits in the future—are central to many life domains (Frederick, Lowenstein, & O'Donoghue, 2002). Significantly, the ability to deal with such tradeoffs seems to have important implications for real-world outcomes across the life span (e.g., Li, Gao, Enkavi, Zaval, Weber, & Johnson, 2014). But do time preferences change with age?

There are a number of theoretical models that make predictions about the relation between age and time preference (cf. Read & Read, 2004). Some theories echo the belief of Alexander von Humboldt, who, shortly before reaching 60 years of age, wrote that "at my age, nothing should be postponed" (cited in Wulf, 2016, p. 207): The rationale for *decreased* patience with aging is that that aging is associated with reductions in the expected value of future consumption, for example, due to death or declining health and physical ability (Trostel & Taylor, 2001). Others have proposed that aging should be associated with *increased* patience because aging leads to a more selective use of capital and passing of resources to offspring (Rogers, 1994). Yet others suggest that patience should be *maximized in middle age* because of opposing effects that occur early versus later in life, such as decreasing uncertainty about the future and the ability to extract resources from the environment (Sozou & Seymour, 2003).

Empirically, age differences in intertemporal choice have been investigated by examining individuals' preference for sooner–smaller rewards relative to larger–later rewards, such as the choice of 200 USD now versus 300 USD in one year. A narrative review of such studies concluded that, "there is insufficient evidence to accurately determine whether older adults make (…) intertemporal choices differently from younger adults" (Lim & Yu, 2015, p. 8). To briefly summarize this literature, many past studies involve extreme group designs comparing small groups of younger and older adults, and these are not always consistent, with

some showing that younger adults are more impatient (Green, Fry, & Myerson, 1994; Halfmann, Hedgcock, & Denburg, 2013; Li, Baldassi, Johnson & Weber,, 2013; Whelan & McHugh, 2010) and others finding no overall difference between age groups (Green, Myerson, Lichtman, Rosen, & Fry, 1996; Roalf, Mitchell, Harbaugh, & Janowsky, 2012; Samanez-Larkin et al., 2011) or even that older adults are more impatient (Albert & Duffy, 2012). Another set of studies used life span samples but most of these found no linear age effects on intertemporal choices or showed mixed findings across conditions (Chao, Szrek, Pereira, & Pauly, 2009; Dohmen et al., 2011; Harrison, Lau, & Williams, 2002; Löckenhoff, O'Donoghue, & Dunning, 2011; Reimers, Maylor, Stewart, & Chater, 2009; Rieger & Mata, 2013); however, at least one found a curvilinear relationship, with middle-aged people being most patient relative to younger and older individuals (Read & Read, 2004).

Importantly, many of the extant studies did not systematically consider different age trajectories (linear, quadratic), or simultaneously investigate or control for the role of several variables that have been suggested to underlie individual and age differences in temporal preferences, such as cognitive ability (Dohmen, Falk, Huffman, & Sunde, 2010; Shamosh & Gray, 2008), education (Reimers et al., 2009), mental/physical health (Löckenhoff et al., 2011), or financial security (Green et al., 1996). Further, only a few used choice-contingent payment, considered several monetary amounts and time delays, or manipulated the immediacy of the smaller–sooner payment, all of which are known to play a role in choice (Camerer & Hogarth, 1999; Frederick et al., 2002). For example, age differences in time horizons have been proposed as important determinants of choice in different contexts (Carstensen, 2006) and these could have an impact on how aging individuals deal with short (1-month) versus longer (12- month) time delays.

In the following, we contribute to further describing age differences in intertemporal choices using data from the German Socio-Economic Panel that involved an incentivized time discounting task with different monetary amounts and time delays. Importantly, we describe

age effects with and without controlling for the possible contribution of confounding variables—such as cognitive function, education, health, or financial security—that may account for at least part of any age differences identified in intertemporal choices. In particular, cognitive ability has been proposed as a determinant of individual differences in intertemporal choices (e.g., Dohmen et al., 2010) and other economic choices (Frey, Mata, & Hertwig, 2015) and so it may be informative to assess its role in accounting for age differences in time preferences.

Method

Participants

We used data from the German Socio-Economic Panel Study (SOEP; Version 32.1), an ongoing, nationally representative longitudinal study of private households in Germany (for details see Wagner, Frick, & Schupp, 2007). All members of selected households were asked to participate in the yearly interviews conducted by a professional fieldwork organization (Infratest Social Research, Munich). Ethical permission is provided by the Scientific Advisory Board of DIW Berlin.

In 2006, a random subsample (*N* = 1,548, 53.3% female, *M* = 52.38 years, *SD* = 17.49 years, *range* = 18 to 96 years) of the SOEP (*N* = 22,326, 52.4% female, *M* = 48.64 years, *SD* = 17.42 years, *range* = 18 to 97 years) was asked to participate in a temporal discounting task administered after the interview. A total of 1,503 respondents (97.1% of the subsample; 53.0% female, *M* = 52.14 years, *SD* = 17.36 years, *range* = 18 to 96 years) was willing to participate. As the sample decreased in very old age, we followed the approach of Specht, Egloff, and Schmukle (2011) and conducted the analyses restricted to participants not older than 86 years (Ns > 5 per year; *N* = 1,491 respondents; 96.3% of the subsample; 53.0% female, *M* = 51.84 years, *SD* = 17.09 years, *range* = 18 to 86 years).

Measures

The temporal discounting task asked respondents to decide between two options involving monetary rewards: specifically, respondents were asked if they would want to receive a smaller amount sooner, say 200 EUR (approx. 245 USD) today, or if they would want to wait and receive a larger amount later; that is, with interest, say 311.7 EUR (approx. 382 USD) in 12 months. Specifically, respondents were asked to make choices involving different larger–later amounts of money presented in different rows of a list (see Figure 1 for an example). As can be seen in Figure 1, delayed amounts increased from row to row with a maximum representing a specific interest rate per year, and participants could choose which row best captured the smallest monetary amount they would be willing to wait for given some time horizon (e.g., 12 months).

The temporal discounting task was introduced in the SOEP to investigate anomalous choice patterns (sub-additivity) according to normative models of temporal choice (e.g., that decision makers are more impatient when asked about a sub-interval—today vs. 1 month—than about the full interval—today vs. 12 months; Dohmen, Falk, Huffman, & Sunde, 2017). As a function of this goal, the sample was randomly split into three subsamples, with subsamples differing in the choice problems presented. Table 1 provides an overview of all 6 lists used (2 lists per subsample) and their characteristics. We provide the original figures for all lists used in the supplemental information file (Figures S1-S3). As can be seen in Table 1, lists differed in a number of respects, most noteworthy in the time horizon used (12, 6, 1 month), as well as in the interest rate implied (52% vs. 105%). Crucially, the list characteristics were not fully crossed within participants and order was not counterbalanced across subsamples thus this study design is limited in its ability to disentangle the different contributions of list characteristics, their interactions, or order effects. As a consequence, we restrict our main analyses and interpretation to the between-subject conditions that contrast age differences in time preferences involving 1- vs. 12-month delays (lists Z1, Z3, and Z5;

Table 1). For completeness, we present a full account of all lists/conditions in the supplementary materials but address these only briefly. We introduce our analytic strategy in more detail below.

Participants were informed beforehand that at the end of the temporal discounting task a random device would determine whether they were actually paid and that the payment would be based on their decisions in the temporal discounting task. After the task, participants were asked to state their personal lucky number between 1 and 9 and asked to touch one of 9 cells on the screen, each concealing a randomly ordered number between 1 and 9. After the respondent made the selection, the number was displayed on the screen. The respondent was designated to receive prize money when the lucky number was the same as the random number, with the prize money determined based on the respondent's decisions in the temporal discounting task. One hundred and sixty-four (10.9%) respondents had matching numbers.

Education of respondents was scored using the International Standard Classification of Education (ISCED-1997; OECD, 1999). Prior to the analyses respondents' ISCED-Scores were collapsed into three categories (low education [1]: ISCED-Scores 0, 1, and 2; medium education [2]: ISCED-Score 3; and high education [3]: ISCED-Scores 4, 5, and 6). Missing information on education (n = 35, 2.4%) was scored as the lowest category.

Cognitive competencies were measured with two ultra-short performance tasks of perceptual speed (Symbol-Digit Test) and word fluency (Animal Naming Test). These two tasks allow for reliable assessment of intellectual ability and together capture both fluid and crystallized components of intellectual functioning (e.g., Lindenberger & Baltes, 1997; Shao, Janse, Visser, & Meyer, 2014). Each test took 90 seconds and was completed on a laptop. The respondent completed the Symbol-Digit Test him/herself, whereas the interviewer documented the answers to the Animal Naming Task. Further information can be found in Lang, Weiss, Stocker, and von Rosenbladt (2007).

Self-reported health was measured with the item “How would you describe your current health?”. Responses were made on a five-point scale ranging from 1 (bad) to 5 (very good). Validity of the assessment of global self-rated physical health with one item has been described by Idler and Benyamini (1997).

To measure financial security, participants were asked whether they could get about 1,000 EUR (approx. 1,100 USD) within two weeks.

Descriptive statistics of all variables are depicted in Table 2, separately for respondents who chose immediate payment and respondents who preferred to wait and receive a larger amount later. Descriptive statistics for lists Z1–Z6, separately, and correlations of all study variables are depicted in the supplemental information file (Tables S1 and S2).

Analytical Strategy

There are two aspects that deserve attention concerning the analysis of the temporal discounting task. First, there is the issue of potential alternative outcomes that may be considered given the nature and distribution of respondents’ choices: A visual inspection of the distribution of responses in each list suggests that the choices are not normally distributed, which is to be expected given that a frequent response in the temporal discounting task is to choose the immediate payment (see supplemental information file, Figure S4, for the choice distributions for each list). We conducted two main types of analyses so as to account for these data distributions. The first analysis type (logistic regression) aimed to distinguish between those decision makers who chose smaller–sooner from those decision-makers who chose larger–later choices. The second analysis type (linear regression) zoomed in on participants who made larger–later choices in order to investigate individual differences in the monetary amounts needed to wait some period of time. In principle, the latter measure could represent a finer-grained indicator of individual differences in temporal preferences.

Second, there is the issue of considering list characteristics, such as time delay (e.g., 12- vs. 1-month delay). Please note that any statistical analysis is not able to fully disentangle the role of list characteristics across all six lists and possible order effects because respondents always experienced the same list orders and list characteristics were not counterbalanced across multiple subsamples (e.g., time delay, interest rate; see Table 1). Consequently, we dealt with this issue by focusing on a simple between-subject comparison for the three lists that each of the subsamples of participants experienced first, lists Z1, Z3, Z5. We further conducted separate independent regressions for each list type, as well as omnibus regression analyses that considered all lists simultaneously and modeled list characteristics as dummy-coded variables. However, because we cannot directly assess the role of order effects versus list characteristics in the additional analyses, in this manuscript we discuss only the results concerning the between-subject comparisons for the lists that cannot be subject to order effects (Z1, Z3, Z5). The results of the analyses including the remaining lists (Z2, Z4, Z6) are presented in the supplemental information file, Tables S4-S9.

In the following, we describe in more detail our analytic strategy for the logistic and linear regressions that consider lists Z1, Z3, and Z5 simultaneously. First, logistic regressions were computed to assess the role of various predictors in the probability of choosing the smaller–sooner reward (0) versus any larger–later amount (1). In Model 1, we considered only a dummy for delay (e.g., 12- vs. 1-month). In the subsequent models, we further introduced sex and age (Model 2), age^2 (Model 3), as well as possible interactions with time horizon (Model 4). In an additional step, we included the potential effects of covariates (Model 5), such as cognitive competencies, self-reported health, and the measure of financial security. Finally, we plotted model predictions on top of aggregate proportions to visually check how models fared in capturing the data from the different lists.

Second, for those respondents who wanted to wait and receive a larger amount later, we conducted linear regressions to calculate the switching point from early to delayed

payment. In Model 1, again, time delay was included as a predictor using dummy coding. In the following models (Models 2–5), respondents' sex, age, age², and cognitive competencies, self-reported health, and the measure of financial security were further included. In addition, we conducted follow-up analyses for each list type. Finally, we plotted model predictions on top of average switching rates to visually check how models fared in capturing the data from the different lists.

Age was centered before age² was calculated. Values for age are given in 10-year units. All analyses were conducted with stata 13 and data visualization was conducted with R (R Core Team, 2017). Data are made publically available by the German Institute for Economic Research (https://www.diw.de/en/soep) and our analyses scripts are available on OSF (https://osf.io/uctnz/).

Results

Logistic Regressions: Associations of Age and Choosing Immediate Payment

The logistic regression analyses revealed effects of list characteristics on respondents' willingness to choose the immediate payment (that is, not to wait; Table 3, Model 1, odds ratios are provided in the supplemental information file, Table S3): Respondents were more likely to choose immediate payment when confronted with 1-month delays relative to a 12-month delay. More importantly for the purpose at hand, the effects of age and age² were significant and showed interactions with time delay (see Table 3, Models 2–4). As can be seen in Figure 2A, the patterns for lists Z1 and Z3 suggest a U-shaped relation between age and the probability of choosing the immediate payment: Both younger and older respondents seem less willing to wait for the payment relative to middle-aged adults. This pattern was not observed for the other list, Z5; rather, there was a trend for larger probability to choose immediate payment with age. Follow-up regressions per list type suggest that the U-shaped curvilinear effects of age were significant for lists Z1/Z3, but no effects of age emerged for Z5 (see supplemental information Tables S4 and S5).

The regression involving additional covariates suggested similar age patterns (Table 3, Model 5). Nevertheless, respondents' financial security and education were significantly related to choosing the immediate payment. Respondents who reported difficulties accessing €1,000 within two weeks showed a higher probability of choosing the immediate payment. In turn, respondents with higher levels of education were less likely to choose the immediate payment compared to respondents with a medium level of education. Respondents' cognitive competencies and self-reported health were not related to choosing the immediate payment.

Linear Regressions: Associations of Age and Switching Point

The analyses of the switching point from early to delayed payment revealed no effects of time delay but significant quadratic age effects similar to those reported above (Table 4, Models 1–3). The age effects did not interact significantly with time delay (Table 4, Model 4). However, as can be seen in Figure 2B, a non-linear relation between age and the average switching point from early to delayed payment is most evident for lists Z1/Z3; in particular, older respondents demanded a higher payment relative to middle-aged adults for delays of 12 months. Follow-up regressions conducted per list type suggest that the non-linear relation was only significant for lists with 12-month delays (Z1/Z3) but not a 1-month delay (Z5).

The regression including additional covariates showed a similar pattern of age effects (Table 4, Model 5). Nevertheless, it indicated that respondents' financial security was a significant predictor of the switching point: Respondents who reported difficulties in accessing this amount of money chose to switch the list at a later point; that is, they needed a higher interest rate to be willing to wait for the payment. Respondents' cognitive competencies, self-reported health, and education were not related to switching point from early to delayed payment.

Results of additional regression analyses for all six lists separately (Tables S4-S7) or in omnibus analyses including all six lists (Tables S8-S9) and the respective visual depictions (Figure S5) are provided in the supplemental information file. The pattern of results from

these additional analyses matches well those described above for the selected between-subject comparisons for lists Z1, Z3, and Z5. Further, the supplemental analyses concerning all six lists indicate a U-shape pattern for the 6-month delay list (Z2) and a mixed pattern for the remaining 1-month delay lists, with one showing a similar U-shape pattern (Z4) and another a linear increase in preference for immediate payment with age (Z6). Overall, this pattern of results may indicate that lists that were completed second (Z2, Z4, Z6) mimic the patterns of the first presented lists (Z1, Z3, Z5) perhaps indicating an order effect. Unfortunately, we cannot provide a definite answer concerning this issue because lists were not counterbalanced. Nevertheless, all in all, the patterns across all six lists suggest that a U-shape pattern can be observed for longer delay intervals (6 and 12-month delays) while lists involving 1-month delays present more mixed results.

Discussion

We analyzed data from 1,491 respondents from the German Socio-Economic Panel who completed different versions of an incentivized intertemporal choice task. The results involving a choice of a smaller–sooner amount today (i.e., 200 EUR) and larger monetary reward in 12 months suggest that middle-aged adults were more patient than either younger or older adults. In turn, we found no evidence for significant effects of age for a condition involving similar amounts and interest rates but with a 1-month delay. Controlling for variables such as cognitive ability, education, health, or financial security did not change this pattern of results. Nevertheless, in all lists, age effects accounted for small portions of variance and did so less consistently than other predictors, in particular, financial security.

Our results from the 12-month delay conditions are consistent with theories suggesting that multiple processes are at play in determining intertemporal choice across the life span (Read & Read, 2004; Sozou & Seymour, 2003). In other words, our results are compatible with the possibility that relevant factors in early adulthood, such as perceived uncertainty about the future state of the world (Sozou & Seymour, 2003), are distinct from those most

relevant during adulthood and old age, such as proximity to death and associated limited time perspective factors (Löckenhoff et al., 2011). Consequently, future work may want to consider different predictors that can contribute differentially to time preferences across the life span. Unfortunately, we cannot provide a strong conclusion regarding which proximal mechanisms underlie the age patterns found. Nevertheless, our results contradict expectations that cognitive ability may be a major determinant of the age differences identified. Some past work suggested that both fluid and crystallized intelligence are associated with individual differences in temporal discounting (Dohmen et al., 2010; Halfmann et al., 2013; Shamosh & Gray, 2008), which implies that reduced cognitive abilities could lead to increased impatience in old age. Our results, however, match others (Li et al., 2013; Löckenhoff et al., 2011) that find no strong link between cognitive ability measures and age differences in temporal discounting. All in all, the links between cognitive ability and age differences in temporal discounting remain mixed at best.

Our work has some limitations that merit discussion. In particular, we considered only one trial per respondent and very limited variation in time delays (12 vs. 1 month), which likely reduces the reliability of the time preferences measure and prevented us from calculating a comparable discount rate for all participants or capturing participants' temporal preferences using more advanced modeling (Wulff & van den Bos, 2017). Future work could profit from recent methodological developments using adaptive testing to provide short-form but reliable versions of intertemporal choice that can be deployed in household panels of the sort we analyzed here (Toubia, Johnson, Evgeniou, & Delquié, 2013). Further, the study did not permutate all list characteristics (delay, interest rate, immediacy) across subsamples and in different orders, making it impossible to disentangle order effects from effects of list characteristics which, ultimately, limited the number of lists we considered in our analyses.

Finally, we would like to point out a few implications of our work for future efforts to study age differences in time preference. First, our results suggest it may be necessary to

consider the role of time delays and time horizons more closely. Some studies, including some of our past work, considered relatively short time delays of days or weeks (e.g., Samanez-Larkin et al., 2011) but, according to our findings, these may not lead to strong age differences, perhaps, one may speculate, because expectations of future consumption (or survival; Trostel & Taylor, 2001) do not differ significantly between age groups across short time horizons. Second, the U-shaped patterns we identified in the delay conditions of 12 months suggest that middle-aged adults differ from both younger *and* older adults and, therefore, it is important to move away from extreme-group designs that have been widely used in the past and employ life span samples in future efforts to understand age differences in intertemporal choice.

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Table 1. *Overview of list characteristics used in the temporal discounting task.*

List	Subsample	SS Delay (months)	LL Delay (months)	SS Amount (EUR)	Maximum LL Amount (EUR)	Interest Rate (% SS per year)
Z1	1	0	12	200	311.7	52.5
Z2	1	0	6	200	249.7	52.5
Z3	2	0	12	200	311.7	52.5
Z4	2	0	1	200	207.5	52.5
Z5	3	0	1	200	213.9	105
Z6	3	12	13	200	213.9	105

Note.

SS = smaller sooner; LL= larger later. Because we cannot directly assess the role of order effects versus list characteristics, we focused our analyses on between-subject comparisons for the three lists that each of the subsamples of participants experienced first, that is lists Z1, Z3, Z5. The analyses of the remaining lists (Z2, Z4, Z6) are presented in the supplemental information file.

Table 2. *Descriptive statistics.*

	Receive immediate payment		Receive larger amount later	
	Mean	SD	Mean	SD
Age in years	54.86	17.73	51.84	17.09
Sex (*1 = female*)	0.57	0.50	0.53	0.50
Line of Switch	-	-	7.95	5.91
Education *(ref.: medium)*				
Low	0.29	0.45	0.21	0.41
High	0.17	0.38	0.27	0.45
Perceptual speed	18.72	13.79	21.15	14.06
Word fluency	17.26	13.06	19.50	13.64
Health	3.22	1.08	3.34	0.99
1,000 EUR in 2 weeks (*1 = no*)	0.30	0.46	0.21	0.41
Observations	352		1491	

Table 3. *Logit regression estimates predicting not-changing (1 = do not wait, take money today).*

	Model 1	Model 2	Model 3	Model 4	Model 5
Delay to payment: 1 month (*1 = yes*)	0.771***	0.799***	0.818***	1.192***	1.318***
	(0.125)	(0.126)	(0.127)	(0.177)	(0.183)
Sex (*1 = female*)		0.191	0.181	0.175	0.128
		(0.125)	(0.126)	(0.126)	(0.131)
Age		0.151***	0.150***	0.190***	0.238***
		(0.037)	(0.036)	(0.046)	(0.054)
Age2			0.051*	0.098***	0.070*
			(0.020)	(0.026)	(0.027)
Age*Delay to payment: 1 month				-0.117	-0.150*
				(0.074)	(0.076)
Age2*Delay to payment: 1 month				-0.120**	-0.130**
				(0.041)	(0.042)
Education *(ref.: medium)*					
Low					0.230
					(0.165)
High					-0.480**
					(0.170)
Perceptual speed					-0.005
					(0.007)
Word fluency					-0.006
					(0.007)
Health					0.047
					(0.072)
1000 Euros in 2 weeks (*1 = no*)					0.727***
					(0.160)
Constant	-1.479***	-1.610***	-1.763***	-1.934***	-1.932***
	(0.083)	(0.108)	(0.126)	(0.141)	(0.312)
Observations	1491	1491	1491	1491	1485
Pseudo R^2	0.023	0.035	0.039	0.046	0.081

Note. Standard errors in parentheses. Age was centered before age² was calculated. Values for age are given in 10-year units.* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 4. *Unstandardized regression estimates predicting line of switching to wait.*

	Model 1	Model 2	Model 3	Model 4	Model 5
Delay to payment: 1 month (*1 = yes*)	-0.186	-0.181	-0.179	0.460	0.486
	(0.380)	(0.381)	(0.380)	(0.517)	(0.516)
Sex (*1 = female*)		-0.185	-0.201	-0.183	-0.234
		(0.351)	(0.350)	(0.350)	(0.353)
Age		-0.067	-0.047	-0.155	-0.020
		(0.104)	(0.105)	(0.125)	(0.142)
Age2			0.144*	0.215**	0.159*
			(0.058)	(0.070)	(0.073)
Age*Delay to payment: 1 month				0.339	0.245
				(0.227)	(0.227)
Age2*Delay to payment: 1 month				-0.222	-0.223
				(0.125)	(0.125)
Education *(ref.: medium)*					
Low					0.650
					(0.513)
High					-0.396
					(0.408)
Perceptual speed					0.012
					(0.018)
Word fluency					-0.010
					(0.018)
Health					-0.013
					(0.202)
1000 Euros in 2 weeks (*1 = no*)					1.595**
					(0.488)
Constant	8.005***	8.099***	7.702***	7.495***	7.350***
	(0.210)	(0.274)	(0.316)	(0.335)	(0.840)
Observations	1139	1139	1139	1139	1135
R^2	0.000	0.001	0.006	0.011	0.028

Note. Standard errors in parentheses. Age was centered before age² was calculated. Values for age are given in 10-year units.* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Figure 1. *Example of List (Z1) from the Temporal Discounting Task.*

	You receive…		You receive…
	today		in 12 months
	The check is redeemable immediately		*The check is redeemable in 12 months*
	A	**or**	**B**
1	200 €		205,00 €
2	200 €		210,10 €
3	200 €		215,20 €
4	200 €		220,40 €
5	200 €		225,60 €
6	200 €		230,90 €
7	200 €		236,30 €
8	200 €		241,70 €
9	200 €		247,20 €
10	200 €		252,80 €
11	200 €		258,40 €
12	200 €		264,10 €
13	200 €		269,80 €
14	200 €		275,60 €
15	200 €		281,50 €
16	200 €		287,40 €
17	200 €		293,40 €
18	200 €		299,40 €
19	200 €		305,60 €
20	200 €		311,70 €

Figure 2. *Probability to choose immediate payment (A) and switching point from early to delayed payment (B) by age for each list and respective predictions from logistic and linear regression models (Models 4).*

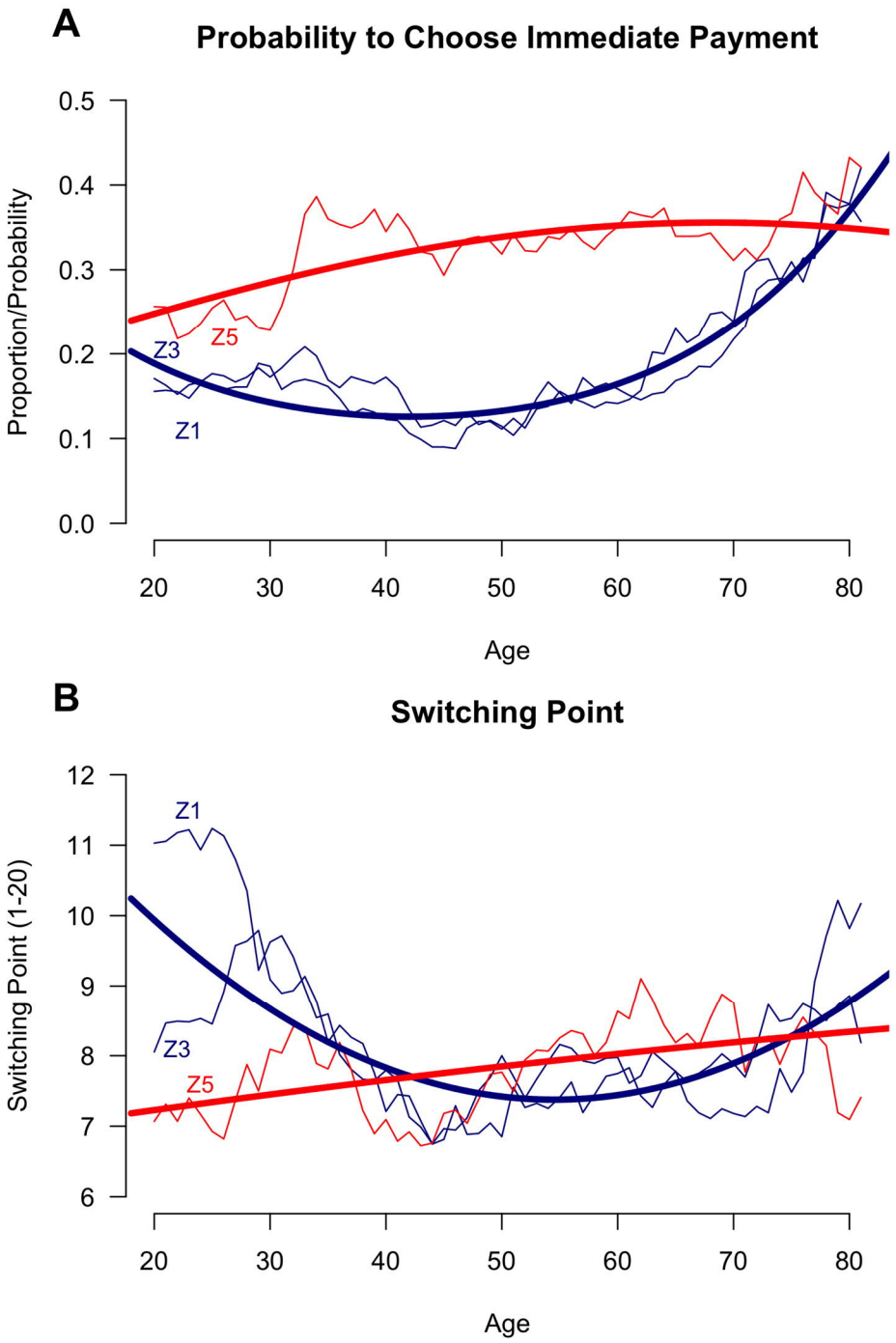

Table S1. *Descriptive statistics for lists Z1–Z6, separately.*

	Lists Z1/Z3		List Z2		List Z4		List Z5		List Z6	
Delay to payment in months	12		6		1		1		1	
Interest rate per year	52.5%		52.5%		52.5%		105%		105%	
Immediate payment delayed	no		no		no		no		yes	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Receive immediate payment										
Age in years	57.34	18.80	51.83	18.77	54.55	18.43	52.25	16.18	52.98	16.34
Sex (*1 = female*)	0.59	0.49	0.53	0.50	0.52	0.50	0.56	0.50	0.55	0.50
Education *(ref.: medium)*										
Low	0.34	0.48	0.26	0.44	0.28	0.45	0.23	0.42	0.25	0.44
High	0.14	0.35	0.20	0.40	0.18	0.38	0.21	0.41	0.21	0.41
Perceptual speed	16.49	14.22	18.22	15.08	18.50	14.02	21.05	12.97	20.19	13.60
Word fluency	15.01	12.79	16.12	13.07	16.63	13.56	19.63	12.96	18.93	13.13
Health	3.10	1.11	3.28	1.07	3.17	1.06	3.34	1.05	3.29	1.08
1,000 EUR in 2 weeks (*1 = no*)	0.37	0.48	0.36	0.48	0.29	0.45	0.24	0.43	0.26	0.44
Observations	180		140		243		172		174	
Receive larger amount later										
Age in years	51.23	16.79	52.17	16.32	50.76	16.61	50.15	16.80	49.78	16.67
Sex (*1 = female*)	0.50	0.50	0.47	0.50	0.57	0.50	0.56	0.50	0.56	0.50
Switching point from early to delayed payment (*range 1–20*)	8.01	5.95	8.12	5.67	8.17	6.20	7.82	5.83	7.72	6.01
Education *(ref.: medium)*										
Low	0.19	0.39	0.19	0.39	0.17	0.38	0.19	0.39	0.18	0.39
High	0.30	0.46	0.33	0.47	0.32	0.47	0.31	0.46	0.31	0.46
Perceptual speed	21.37	13.99	21.52	14.00	22.24	13.62	23.09	14.18	23.54	13.80
Word fluency	19.87	13.80	20.14	14.16	21.31	13.11	20.93	13.63	21.29	13.50
Health	3.38	0.95	3.37	0.94	3.46	0.92	3.39	0.98	3.41	0.96
1,000 EUR in 2 weeks (*1 = no*)	0.20	0.40	0.19	0.39	0.15	0.36	0.15	0.36	0.14	0.35
Observations	790		345		242		349		347	

Note. Data of list Z1 and Z3 were merged and analyzed together because time horizon and implied interest rate were identical in both lists.

Table S2. *Correlations of study variables.*

		1	2	3	4	5	6	7	8	9	10
1	Switching point list Z1	-									
2	Switching point list Z2	0.791***	-								
3	Sex (*1 = female)*	-0.030	0.125*	-							
4	Age	-0.051	-0.003	0.038	-						
5	Education (*1 = low*)	0.108**	0.103	0.118***	-0.101***	-					
6	Education (*1 = high*)	-0.109**	-0.120*	-0.056*	0.002	-0.320***	-				
7	Perceptual speed	-0.006	0.022	0.028	-0.351***	-0.074**	0.070**	-			
8	Word fluency	-0.020	-0.024	0.066*	-0.216***	-0.114***	0.114***	0.708***	-		
9	Health	-0.018	0.007	-0.063*	-0.425***	-0.050	0.117***	0.217***	0.152***	-	
10	1,000 EUR in 2 weeks (*1 = no*)	0.144***	0.146**	0.025	-0.183***	0.274***	-0.229***	-0.054*	-0.095***	-0.062*	-
1	Switching point list Z3	-									
2	Switching point list Z4	0.537***	-								
3	Sex (*1 = female)*	-0.030	-0.002	-							
4	Age	-0.051	-0.034	0.038	-						
5	Education (*1 = low*)	0.108**	0.030	0.118***	-0.101***	-					
6	Education (*1 = high*)	-0.109**	-0.096	-0.056*	0.002	-0.320***	-				
7	Perceptual speed	-0.006	-0.029	0.028	-0.351***	-0.074**	0.070**	-			
8	Word fluency	-0.020	-0.096	0.066*	-0.216***	-0.114***	0.114***	0.708***	-		
9	Health	-0.018	-0.078	-0.063*	-0.425***	-0.050	0.117***	0.217***	0.152***	-	
10	1,000 EUR in 2 weeks (*1 = no*)	0.144***	0.116	0.025	-0.183***	0.274***	-0.229***	-0.054*	-0.095***	-0.062*	-
1	Switching point list Z5	-									
2	Switching point list Z6	0.607***	-								
3	Sex (*1 = female)*	0.019	0.002	-							
4	Age	0.054	0.055	0.038	-						
5	Education (*1 = low*)	0.058	0.080	0.118***	-0.101***	-					
6	Education (*1 = high*)	-0.001	-0.100	-0.056*	0.002	-0.320***	-				
7	Perceptual speed	-0.004	-0.046	0.028	-0.351***	-0.074**	0.070**	-			
8	Word fluency	-0.035	-0.051	0.066*	-0.216***	-0.114***	0.114***	0.708***	-		
9	Health	-0.017	-0.021	-0.063*	-0.425***	-0.050	0.117***	0.217***	0.152***	-	
10	1,000 EUR in 2 weeks (*1 = no*)	0.084	0.035	0.025	-0.183***	0.274***	-0.229***	-0.054*	-0.095***	-0.062*	-

Table S3. *Logit regression estimates (odds ratios) predicting not-changing (1 = immediate payment, do not wait).*

	Model 1	Model 2	Model 3	Model 4	Model 5
Delay to payment: 1 month (*1 = yes*)	2.163***	2.224***	2.265***	3.294***	3.735***
	(0.269)	(0.280)	(0.287)	(0.582)	(0.684)
Sex (*1 = female*)		1.210	1.198	1.192	1.137
		(0.152)	(0.151)	(0.150)	(0.149)
Age		1.163***	1.162***	1.209***	1.268***
		(0.043)	(0.042)	(0.056)	(0.069)
Age^2			1.052*	1.103***	1.072*
			(0.021)	(0.028)	(0.029)
Age*Delay to payment: 1 month				0.890	0.861*
				(0.066)	(0.065)
Age^2*Delay to payment: 1 month				0.887**	0.879**
				(0.036)	(0.037)
Education *(ref.: medium)*					
Low					1.259
					(0.208)
High					0.619**
					(0.105)
Perceptual speed					0.995
					(0.007)
Word fluency					0.994
					(0.007)
Health					1.048
					(0.076)
1,000 EUR in 2 weeks (*1 = no*)					2.069***
					(0.331)
Observations	1491	1491	1491	1491	1485
Pseudo R^2	0.023	0.035	0.039	0.046	0.081

Note. Exponentiated coefficients. Standard errors in parentheses. Age was centered before age² was calculated. Values for age are given in 10-year units. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table S4. *Logit regression estimates predicting not-changing (1 = immediate payment; do not wait, take money today) for lists Z1-Z3.*

	Lists Z1/Z3			List Z2		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Sex (*1 = female*)	0.329	0.315	0.224	0.255	0.230	0.279
	(0.169)	(0.171)	(0.180)	(0.202)	(0.204)	(0.213)
Age	0.206***	0.187***	0.233***	-0.020	-0.007	-0.013
	(0.050)	(0.046)	(0.060)	(0.059)	(0.057)	(0.073)
Age^2		0.097***	0.062*		0.081**	0.066
		(0.026)	(0.028)		(0.031)	(0.035)
Education *(ref.: medium)*						
Low			0.320			-0.340
			(0.214)			(0.290)
High			-0.541*			-0.404
			(0.249)			(0.264)
Perceptual speed			-0.000			-0.004
			(0.009)			(0.011)
Word fluency			-0.017			-0.014
			(0.010)			(0.012)
Health			0.010			-0.039
			(0.099)			(0.122)
1,000 EUR in 2 weeks (*1 = no*)			0.848***			0.802**
			(0.203)			(0.247)
Constant	-1.709***	-2.010***	-1.797***	-1.029***	-1.265***	-0.806
	(0.129)	(0.156)	(0.405)	(0.144)	(0.173)	(0.492)
Observations	970	970	967	485	485	482
Pseudo R^2	0.024	0.039	0.091	0.003	0.014	0.053

Note.
Standard errors in parentheses. Age was centered before age² was calculated. Values for age are given in 10-year units. Data of lists 1 and 3 were merged and analyzed together because time horizon and implied interest rate were identical in both lists.* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table S5. *Logit regression estimates predicting not-changing (1 = immediate payment; do not wait, take money today) for lists 4-6.*

	List Z4			List Z5			List Z6		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Sex (*1 = female*)	-0.221	-0.220	-0.338	-0.000	0.004	-0.025	-0.074	-0.072	-0.116
	(0.184)	(0.185)	(0.198)	(0.188)	(0.188)	(0.195)	(0.188)	(0.188)	(0.196)
Age	0.125*	0.139**	0.142*	0.076	0.072	0.104	0.117*	0.116*	0.133
	(0.052)	(0.053)	(0.066)	(0.056)	(0.057)	(0.070)	(0.057)	(0.057)	(0.070)
Age^2		0.081**	0.047		-0.021	-0.043		-0.008	-0.036
		(0.030)	(0.033)		(0.032)	(0.034)		(0.031)	(0.034)
Education *(ref.: medium)*									
Low			0.373			0.078			0.233
			(0.260)			(0.261)			(0.260)
High			-0.510*			-0.450			-0.313
			(0.240)			(0.237)			(0.238)
Perceptual speed			0.009			-0.009			-0.015
			(0.010)			(0.010)			(0.011)
Word fluency			-0.026**			0.006			0.007
			(0.010)			(0.011)			(0.011)
Health			-0.144			0.087			0.040
			(0.108)			(0.106)			(0.106)
1,000 EUR in 2 weeks (*1 = no*)			0.768**			0.585*			0.778**
			(0.255)			(0.261)			(0.262)
Constant	0.114	-0.137	0.707	-0.703***	-0.647***	-0.804	-0.644***	-0.623***	-0.596
	(0.136)	(0.165)	(0.436)	(0.140)	(0.162)	(0.438)	(0.139)	(0.161)	(0.438)
Observations	485	485	485	521	521	518	521	521	518
Pseudo R^2	0.011	0.021	0.078	0.003	0.003	0.024	0.007	0.007	0.038

Note.
Standard errors in parentheses. Age was centered before age² was calculated. Values for age are given in 10-year units. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table S6. *Unstandardized regression estimates predicting switching point from early to delayed payment (range 1-20) for lists 1-3.*

	Lists Z1/Z3			List Z2		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Sex (*1 = female*)	-0.354	-0.376	-0.471	1.422*	1.225*	1.348*
	(0.423)	(0.421)	(0.427)	(0.609)	(0.609)	(0.625)
Age	-0.179	-0.114	-0.024	-0.021	0.019	0.175
	(0.126)	(0.127)	(0.150)	(0.186)	(0.186)	(0.219)
Age^2		0.216**	0.148*		0.264*	0.239*
		(0.070)	(0.075)		(0.104)	(0.114)
Education *(ref.: medium)*						
Low			0.621			-0.314
			(0.621)			(0.921)
High			-0.737			-0.770
			(0.494)			(0.702)
Perceptual speed			0.005			0.029
			(0.022)			(0.031)
Word fluency			-0.005			-0.015
			(0.021)			(0.030)
Health			-0.112			0.193
			(0.243)			(0.366)
1,000 EUR in 2 weeks (*1 = no*)			1.618**			2.070*
			(0.571)			(0.813)
Constant	8.170***	7.577***	8.004***	7.462***	6.851***	5.821***
	(0.298)	(0.354)	(0.983)	(0.416)	(0.478)	(1.439)
Observations	790	790	788	345	345	343
R^2	0.003	0.015	0.037	0.016	0.034	0.062

Note.
Standard errors in parentheses. Age was centered before age² was calculated. Values for age are given in 10-year units. Data of lists 1 and 3 were merged and analyzed together because time horizon and implied interest rate were identical in both lists.* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table S7. *Unstandardized regression estimates predicting switching point from early to delayed payment (range 1-20) for lists 4-6.*

	List Z4			List Z5			List Z6		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Sex (*1 = female*)	-0.042	0.002	-0.244	0.260	0.261	0.330	0.029	0.022	0.025
	(0.809)	(0.814)	(0.829)	(0.630)	(0.631)	(0.640)	(0.652)	(0.654)	(0.670)
Age	-0.128	-0.094	-0.227	0.193	0.190	0.313	0.197	0.212	0.200
	(0.242)	(0.249)	(0.301)	(0.186)	(0.191)	(0.231)	(0.194)	(0.201)	(0.244)
Age^2		0.085	0.045		-0.008	-0.067		0.032	-0.058
		(0.143)	(0.153)		(0.103)	(0.111)		(0.109)	(0.120)
Education *(ref.: medium)*									
Low			-0.451			0.953			1.051
			(1.222)			(0.928)			(0.999)
High			-0.994			0.353			-1.114
			(0.919)			(0.732)			(0.757)
Perceptual speed			0.031			0.033			-0.001
			(0.042)			(0.034)			(0.034)
Word fluency			-0.072			-0.026			-0.007
			(0.041)			(0.034)			(0.035)
Health			-0.627			0.197			0.205
			(0.476)			(0.368)			(0.391)
1,000 EUR in 2 weeks (*1 = no*)			1.647			1.347			0.173
			(1.205)			(0.958)			(1.043)
Constant	8.180^{***}	7.925^{***}	11.321^{***}	7.707^{***}	7.729^{***}	6.467^{***}	7.745^{***}	7.662^{***}	7.504^{***}
	(0.610)	(0.748)	(2.042)	(0.470)	(0.547)	(1.484)	(0.491)	(0.567)	(1.580)
Observations	242	242	242	349	349	347	347	347	345
R^2	0.001	0.003	0.040	0.003	0.003	0.018	0.003	0.003	0.018

Note.
Standard errors in parentheses. Age was centered before age² was calculated. Values for age are given in 10-year units. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table S8. *Logit regression estimates predicting not-changing (1 = immediate payment; do not wait, take money today).*

	Model 1	Model 2	Model 3	Model 4	Model 5
Delay to payment: 1 month (*1 = yes*)	1.483***	1.490***	1.494***	1.585***	1.654***
	(0.123)	(0.123)	(0.124)	(0.180)	(0.185)
Delay to payment: 6 months (*1 = yes*)	0.577***	0.586***	0.595***	0.691***	0.748***
	(0.130)	(0.130)	(0.131)	(0.189)	(0.194)
Interest rate per year (*0 = 52.5%, 1 = 105%*)	-0.712***	-0.698***	-0.683***	-0.389*	-0.334
	(0.130)	(0.131)	(0.131)	(0.181)	(0.186)
Immediate payment delayed (*1 = yes*)	0.017	0.017	0.018	-0.017	-0.018
	(0.132)	(0.132)	(0.132)	(0.178)	(0.182)
Sex (*1 = female*)		0.061	0.052	0.056	0.019
		(0.082)	(0.083)	(0.083)	(0.087)
Age		0.111***	0.116***	0.192***	0.222***
		(0.024)	(0.024)	(0.046)	(0.050)
Age^2			0.052***	0.098***	0.072**
			(0.013)	(0.026)	(0.027)
Age*Delay to payment: 1 month				-0.055	-0.065
				(0.070)	(0.072)
Age^2*Delay to payment: 1 month				-0.017	-0.015
				(0.040)	(0.041)
Age*Delay to payment: 6 months				-0.193**	-0.200**
				(0.073)	(0.075)
Age^2*Delay to payment: 6 months				-0.016	-0.024
				(0.040)	(0.041)
Age*Interest rate per year				-0.064	-0.085
				(0.078)	(0.080)
Age^2*Interest rate per year				-0.103*	-0.113*
				(0.044)	(0.045)
Age*Immediate payment delayed				0.043	0.046
				(0.081)	(0.083)
Age^2*Immediate payment delayed				0.013	0.014
				(0.044)	(0.045)
Education *(ref.: medium)*					
Low					0.160
					(0.112)
High					-0.431***
					(0.109)
Perceptual speed					-0.004
					(0.005)
Word fluency					-0.009
					(0.005)
Health					-0.004
					(0.048)
1,000 EUR in 2 weeks (*1 = no*)					0.730***
					(0.107)

Constant	-1.479***	-1.529***	-1.687***	-1.872***	-1.663***
	(0.083)	(0.094)	(0.103)	(0.131)	(0.225)
Observations	2982	2982	2982	2982	2970
Pseudo R^2	0.043	0.049	0.053	0.059	0.093

Note.
Standard errors in parentheses. Age was centered before age² was calculated. Values for age are given in 10-year units.* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table S9. *Unstandardized regression estimates predicting line of switching to wait.*

	Model 1	Model 2	Model 3	Model 4	Model 5
Delay to payment: 1 month (*1 = yes*)	0.164	0.153	0.166	0.517	0.618
	(0.435)	(0.436)	(0.435)	(0.604)	(0.601)
Delay to payment: 6 months (*1 = yes*)	0.120	0.126	0.143	-0.045	0.003
	(0.382)	(0.383)	(0.382)	(0.519)	(0.518)
Interest rate per year	-0.350	-0.350	-0.359	-0.074	-0.151
(*0 = 52.5%, 1 = 105%*)	(0.495)	(0.496)	(0.495)	(0.683)	(0.680)
Immediate payment delayed (*1 = yes*)	-0.099	-0.101	-0.094	-0.200	-0.124
	(0.449)	(0.449)	(0.448)	(0.610)	(0.608)
Sex (*1 = female*)		0.137	0.113	0.105	0.071
		(0.261)	(0.261)	(0.261)	(0.264)
Age		-0.021	-0.000	-0.155	-0.029
		(0.078)	(0.078)	(0.126)	(0.135)
Age^2			0.140^{**}	0.215^{**}	0.162^{*}
			(0.044)	(0.070)	(0.072)
Age*Delay to payment: 1 month				0.048	0.028
				(0.263)	(0.262)
Age^2*Delay to payment: 1 month				-0.128	-0.132
				(0.152)	(0.151)
Age*Delay to payment: 6 months				0.131	0.074
				(0.232)	(0.232)
Age^2*Delay to payment: 6 months				0.074	0.065
				(0.130)	(0.130)
Age*Interest rate per year				0.296	0.223
				(0.299)	(0.298)
Age^2*Interest rate per year				-0.094	-0.091
				(0.170)	(0.170)
Age*Immediate payment delayed				0.017	0.025
				(0.271)	(0.270)
Age^2*Immediate payment delayed				0.039	0.028
				(0.149)	(0.148)
Education *(ref.: medium)*					
Low					0.416
					(0.387)
High					-0.636^{*}
					(0.302)
Perceptual speed					0.015
					(0.013)
Word fluency					-0.016
					(0.013)
Health					0.005
					(0.152)
1,000 EUR in 2 weeks (*1 = no*)					1.468^{***}
					(0.369)
Constant	8.005^{***}	7.938^{***}	7.555^{***}	7.354^{***}	7.339^{***}
	(0.211)	(0.248)	(0.274)	(0.315)	(0.660)
Observations	2073	2073	2073	2073	2065
R^2	0.001	0.001	0.006	0.011	0.027

Note. Standard errors in parentheses. Age was centered before age² was calculated. Values for age are given in 10-year units. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Figure S1. *Lists Z1 and Z2.*

	Sie erhalten ... heute (Der Scheck ist sofort einlosbar) A	oder	Sie erhalten ... in 12 Monaten (Der Scheck ist in 12 Monaten einlosbar) B
1	200 €		205,00 €
2	200 €		210,10 €
3	200 €		215,20 €
4	200 €		220,40 €
5	200 €		225,60 €
6	200 €		230,90 €
7	200 €		236,30 €
8	200 €		241,70 €
9	200 €		247,20 €
10	200 €		252,80 €
11	200 €		258,40 €
12	200 €		264,10 €
13	200 €		269,80 €
14	200 €		275,60 €
15	200 €		281,50 €
16	200 €		287,40 €
17	200 €		293,40 €
18	200 €		299,40 €
19	200 €		305,60 €
20	200 €		311,70 €

Liste **Z1**

	Sie erhalten ... heute (Der Scheck ist sofort einlosbar) A	oder	Sie erhalten ... in 6 Monaten (Der Scheck ist in 6 Monaten einlosbar) B
1	200 €		202,50 €
2	200 €		205,00 €
3	200 €		207,50 €
4	200 €		209,90 €
5	200 €		212,40 €
6	200 €		214,90 €
7	200 €		217,40 €
8	200 €		219,90 €
9	200 €		222,40 €
10	200 €		224,80 €
11	200 €		227,30 €
12	200 €		229,80 €
13	200 €		232,30 €
14	200 €		234,80 €
15	200 €		237,30 €
16	200 €		239,80 €
17	200 €		242,20 €
18	200 €		244,70 €
19	200 €		247,20 €
20	200 €		249,70 €

Liste **Z2**

Figure S2. *Lists Z3 and Z4.*

	Sie erhalten ... heute *Der Scheck ist sofort einlösbar* A	oder	Sie erhalten ... in 12 Monaten *Der Scheck ist in 12 Monaten einlösbar* B
1	200 €		205,00 €
2	200 €		210,10 €
3	200 €		215,20 €
4	200 €		220,40 €
5	200 €		225,60 €
6	200 €		230,90 €
7	200 €		236,30 €
8	200 €		241,70 €
9	200 €		247,20 €
10	200 €		252,80 €
11	200 €		258,40 €
12	200 €		264,10 €
13	200 €		269,80 €
14	200 €		275,60 €
15	200 €		281,50 €
16	200 €		287,40 €
17	200 €		293,40 €
18	200 €		299,40 €
19	200 €		305,60 €
20	200 €		311,70 €

Liste **Z3**

	Sie erhalten ... heute *Der Scheck ist sofort einlösbar* A	oder	Sie erhalten ... in 1 Monat *Der Scheck ist in 1 Monat einlösbar* B
1	200 €		200,40 €
2	200 €		200,80 €
3	200 €		201,20 €
4	200 €		201,60 €
5	200 €		202,00 €
6	200 €		202,40 €
7	200 €		202,80 €
8	200 €		203,20 €
9	200 €		203,60 €
10	200 €		203,90 €
11	200 €		204,30 €
12	200 €		204,70 €
13	200 €		205,10 €
14	200 €		205,40 €
15	200 €		205,80 €
16	200 €		206,10 €
17	200 €		206,50 €
18	200 €		206,80 €
19	200 €		207,20 €
20	200 €		207,50 €

Liste **Z4**

Figure S3. *Lists Z5 and Z6.*

	Sie erhalten ... heute (Der Scheck ist sofort einlösbar) A	oder	Sie erhalten ... in 1 Monat (Der Scheck ist in 1 Monat einlösbar) B
1	200 €		200,80 €
2	200 €		201,60 €
3	200 €		202,40 €
4	200 €		203,20 €
5	200 €		203,90 €
6	200 €		204,70 €
7	200 €		205,40 €
8	200 €		206,10 €
9	200 €		206,80 €
10	200 €		207,50 €
11	200 €		208,20 €
12	200 €		208,90 €
13	200 €		209,60 €
14	200 €		210,20 €
15	200 €		210,80 €
16	200 €		211,50 €
17	200 €		212,10 €
18	200 €		212,70 €
19	200 €		213,30 €
20	200 €		213,90 €

Liste **Z5**

	Sie erhalten ... in 12 Monaten (Der Scheck ist in 12 Monaten einlösbar) A	oder	Sie erhalten ... in 13 Monaten (Der Scheck ist in 13 Monaten einlösbar) B
1	200 €		200,80 €
2	200 €		201,60 €
3	200 €		202,40 €
4	200 €		203,20 €
5	200 €		203,90 €
6	200 €		204,70 €
7	200 €		205,40 €
8	200 €		206,10 €
9	200 €		206,80 €
10	200 €		207,50 €
11	200 €		208,20 €
12	200 €		208,90 €
13	200 €		209,60 €
14	200 €		210,20 €
15	200 €		210,80 €
16	200 €		211,50 €
17	200 €		212,10 €
18	200 €		212,70 €
19	200 €		213,30 €
20	200 €		213,90 €

Liste **Z6**

Figure S4. *Frequency of each response by list (0 = immediate payment, 1 to 20 = later payments).*

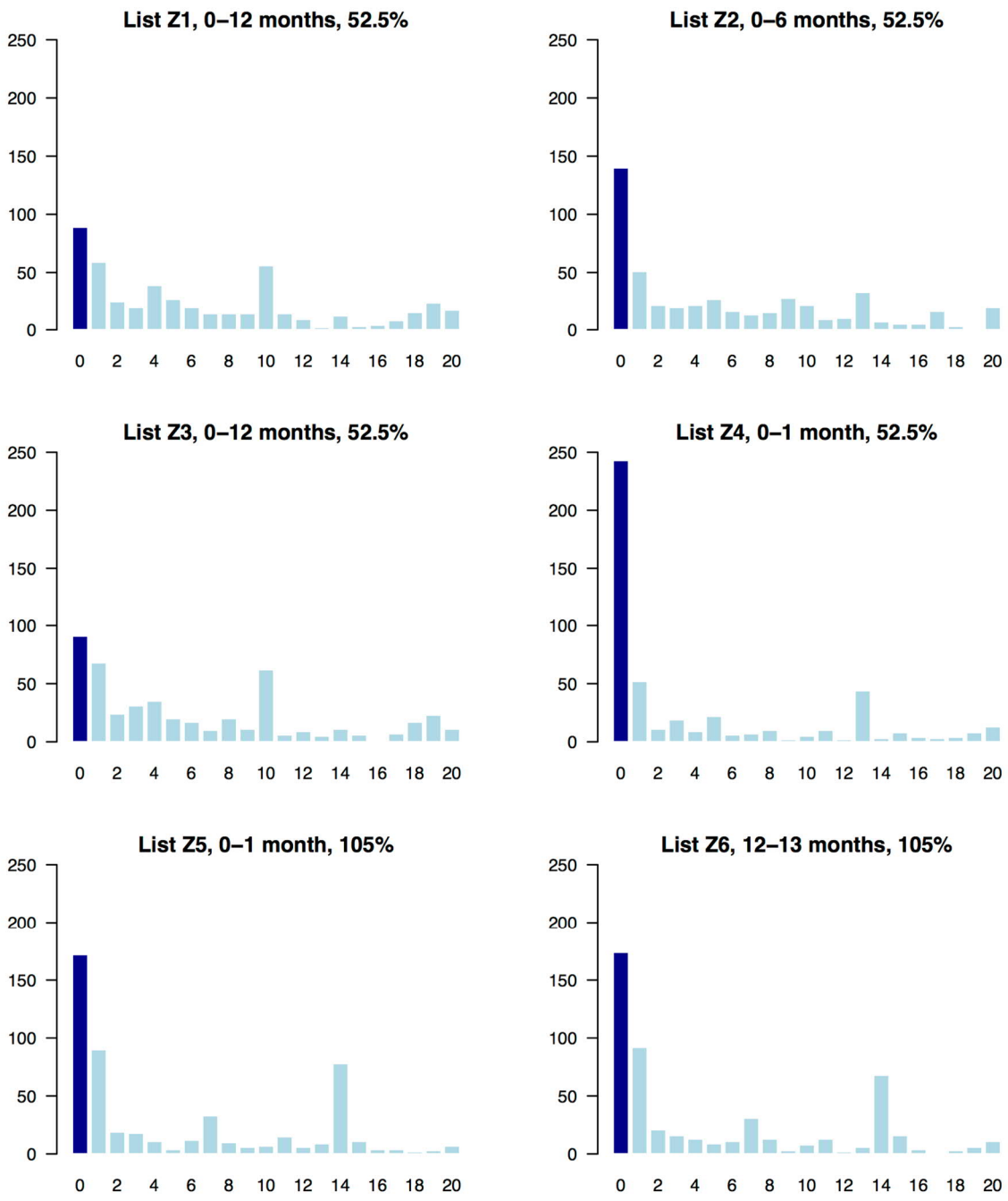
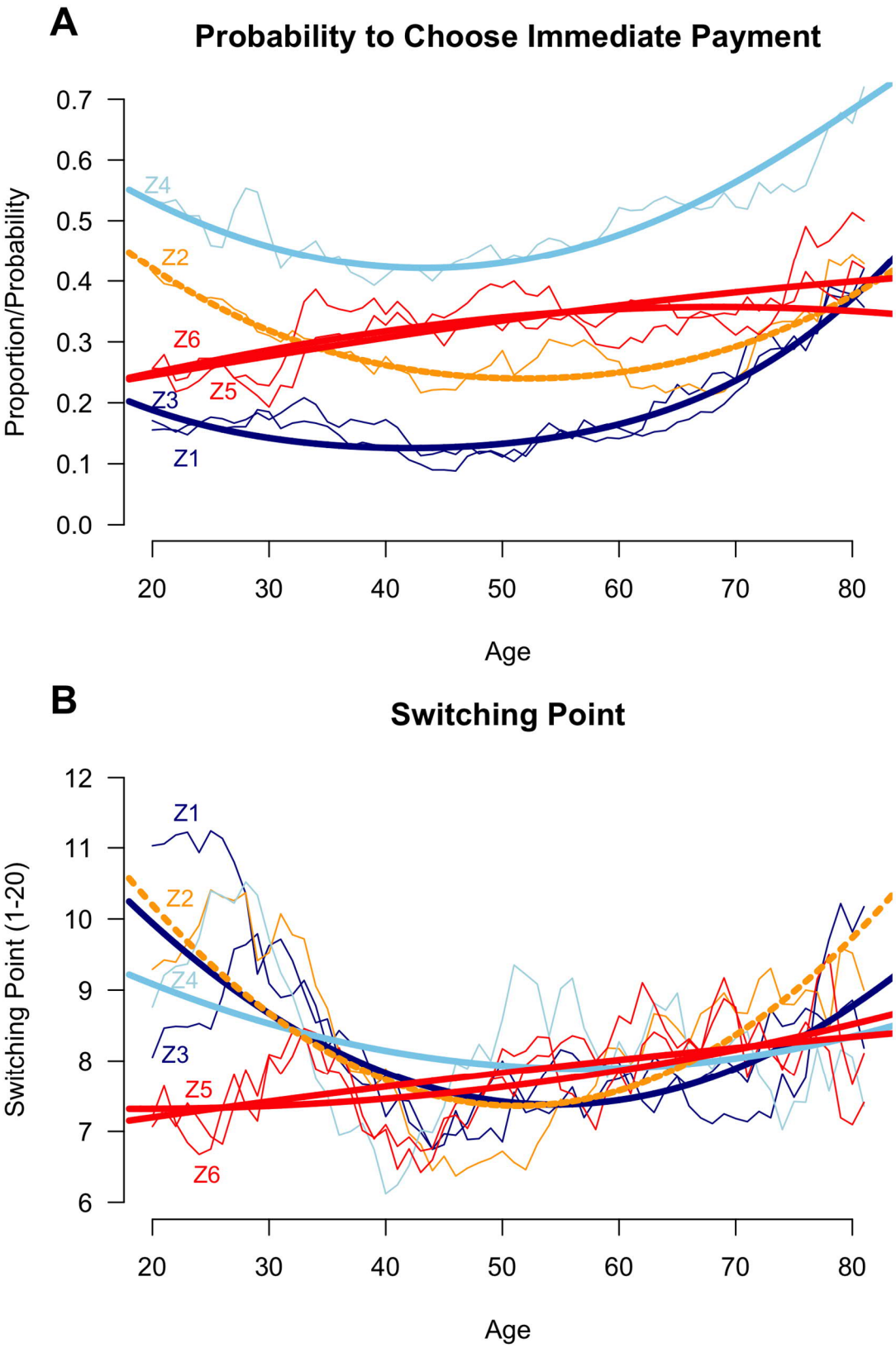
Figure S5. *Probability to choose immediate payment (A) and switching point from early to delayed payment (B) by age for each list and respective predictions from omnibus logistic and linear regression models (Models 4).*