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Controlling for Measurement Error in a Large Population Sample

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Abstract

We evaluate the convergent and external validity of several commonly used risk preference elicitation methods with and without controlling for measurement error using the obviously related instrumental variable (ORIV) approach (Gillen et al., 2019). Risk preferences are elicited in a large sample of the Dutch population ($N = 4,282$) and linked to field behavior in financial, occupational, and health domains based on register data and survey questions. We find that controlling for measurement error improves the correlation between methods, suggesting that not accounting for measurement error can partly explain the lack of convergent validity among risk preference elicitation methods found in previous studies. At the same time, we find clear differences between revealed and stated preference methods in terms of their external validity. Stated methods correlate well with most types of field behavior and correlations are of economic significance. In addition, controlling for measurement error increases the strength of the relationships found. Revealed methods are at best weakly related to field behavior, even when controlling for measurement error. The difference between revealed and stated methods appears not to be driven by the higher complexity of the incentivized tasks used to elicit revealed risk preferences.

Keywords: Risk Preferences · External Validity · Measurement Error

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1 Introduction

Risk plays an important role in many economic decisions, such as investing, occupational choice, and health matters. Understanding and predicting how individuals make decisions in such situations requires knowledge of their risk preferences. Consequently, both economists and psychologists have proposed numerous methods that aim to uncover people's risk preferences (e.g., Charness et al., 2013; Harrison and Rutström, 2008). A question that remains unsettled, however, is which method captures an individual's risk preference "best" (Eckel, 2019; Mata et al., 2018). In this study, we evaluate several commonly used risk preference elicitation methods concerning their correlation with each other (convergent validity) and their relationship with risk-related decisions in the field (external validity), while controlling for measurement error.

Risk preference elicitation methods can broadly be divided into the categories of revealed and stated preference methods. Revealed preference methods require people to make actual decisions under risk, usually with real (financial) incentives. Stated preference methods ask people to state their own perception of how willing they are to take risks or ask people to state the likelihood that they engage in certain risky behavior. Economists generally advocate using revealed preference methods, because real (financial) consequences should incentivize people to respond truthfully. On the other hand, stated preference methods rely on self-awareness and honesty (Eckel, 2019).

Despite the intuitive appeal of revealed preference methods, there is little evidence showing that they are superior to stated preference methods at capturing risk preferences. In fact, Mata et al. (2018) review the empirical evidence and argue that revealed preference methods generally perform worse than stated preference methods in terms of temporal stability, convergent validity, and external validity, three conceptual issues relevant to measuring personality traits.[1] They conclude that many important phenomena related to measuring risk preferences are still insufficiently understood and call for more research on (i) understanding the lack of convergent validity among revealed and between revealed and stated risk preference elicitation methods and (ii) the relative external validity of revealed and stated risk preference elicitation methods, two topics that we will address in this paper.

Friedman et al. (2014) are even more critical of revealed risk preference elicitation methods, stating: "After almost seven decades of intensive attempts to generate and validate estimates of parameters for standard decision theories, it is perhaps time to ask whether the failure to find

[1] Temporal stability refers to the degree that a trait is stable over time, which is not discussed in this paper. See Schildberg-Hörisch (2018) for a discussion of the literature.

stable results *is* the result." (p.7). Their extensive review of the literature highlights several regularities. First, different revealed preference methods often yield different patterns of risk preferences (see e.g., He et al., 2018, Holzmeister and Stefan, 2021, and Pedroni et al., 2017 for more recent work). Second, risk preferences inferred from revealed preference methods often do not correlate or correlate only weakly with field behavior or other decisions in the laboratory (see e.g., Bokern et al., 2021 and Charness et al., 2020 for more recent work). Finally, revealed risk preference methods are often sensitive to contextual factors that should not matter theoretically, such as framing effects, stake size, and payment procedure (see also Friedman et al., 2022).

A potential explanation for the poor performance of revealed risk preference elicitation methods is provided by Gillen et al. (2019), who show that not accounting for measurement error can substantially affect the results and implications of experimental work. To correct measurement error, they propose the obviously related instrumental variable (ORIV) approach, a convenient statistical tool that can be applied when multiple measurements of the same elicitation method are available. They illustrate their method in several domains, including the measurement of risk preferences. Specifically, they elicit risk preferences using four elicitation methods in a large student sample ($N = 819$) and show that ORIV corrected correlations between the methods are substantially larger than those found by conventional correlation analysis.[2] It is an open question whether controlling for measurement error using ORIV also increases the external validity of revealed risk preference elicitation methods.[3]

Our main contribution is that we assess both the convergent and external validity of several revealed and stated risk preference elicitation methods in a large and heterogeneous population sample of more than 4,000 participants while controlling for measurement error using ORIV. We elicit risk preferences with the convex time budget method (Andreoni and Sprenger, 2012a), three types of multiple price lists (in the spirit of Holt and Laury, 2002; Cohen et al., 1987; and Drichoutis and Lusk, 2016), and the general and domain-specific risk questions introduced by Dohmen et al. (2011). External validity is assessed by linking the elicited risk preferences to naturally-occurring field behavior that reflects the risk individuals are willing to take in various domains of their everyday lives. Our field behavior measures are based on register data from

[2]Gillen et al. elicit risk preferences with the investment task (Gneezy and Potters, 1997), the gamble choice task (Eckel and Grossman, 2002), a multiple price list in the spirit of Cohen et al. (1987), and the general risk question (Dohmen et al., 2011). Correlations between risk preference measures, simply measured in the units of the elicitation method, range from .13 to .47 when not controlling for measurement error and range from .19 to .71 when applying ORIV.

[3]Beauchamp et al. (2017) examine the effect of controlling for measurement error on the external validity of risk preference elicitation methods, but only consider stated methods and hypothetical lottery questions.

Statistics Netherlands (savings, investments, debt, and self-employment) and self-collected survey data (following COVID-19 recommendations on social distancing and handwashing). The majority of our field behavior measures are thus extracted from register data, contrasting much of the literature that assesses external validity with stated field behavior only (see Bokern et al., 2021 for a recent survey).[4] An advantage of register data is that it does not rely on the recall of participants, meaning that it is less noisy and does not suffer from non-response bias.

In terms of convergent validity, we find that controlling for measurement error improves the correlation between revealed preference methods (raw correlations range from $r = .20$ to $r = .45$, whereas ORIV corrected correlations range from $r = .30$ to $r = .88$), corroborating the results of Gillen et al. (2019) in a general population sample. Correlations between stated preference methods (raw: $r = .35$ to $r = .62$, ORIV: $r = .53$ to $r = .94$) and between revealed and stated methods (raw: $r = .09$ to $r = .26$, ORIV: $r = .11$ to $r = .39$) similarly improve when controlling for measurement error.

In terms of external validity, we find clear differences between revealed and stated preference methods. Stated methods correlate strongly with risk-related field behavior both with and without controlling for measurement error. Specifically, all stated methods have a statistically significant association with at least six out of seven types of field behavior that we investigated and most of these associations are of economic significance. For example, when controlling for measurement error, we find that a one-standard-deviation increase in the willingness to take risks in financial matters is associated with an 11 percentage point increase in the probability of having investments, corresponding to a 37% increase relative to the unconditional probability. In contrast, revealed methods are at best weakly related to risk-related field behavior, even when controlling for measurement error. Specifically, revealed methods have a statistically significant association with at most three out of seven types of field behavior that we investigated and associations tend to be relatively small in terms of economic significance. Comparing estimates from specifications where we control for measurement using ORIV to those where we do not, we find that ORIV mainly affects the effect size of the estimates but not their statistical significance. Finally, we show that there is little evidence that our results are driven by the higher complexity of the experimental tasks.

The remainder of the paper is structured as follows. Section 2 discusses related literature. Section 3 describes the procedures and data. Section 4 presents the empirical strategy and

[4]The exception is Beauchamp et al. (2017) who consider one measure of field behavior extracted from register data, as discussed in Section 2.

results. Section 5 checks whether our results may be driven by the higher complexity of the experimental tasks. Section 6 provides a discussion and concludes.

2 Related Literature

There are a number of studies that examine the convergent validity and/or the external validity of risk preference elicitation methods. We briefly review recent studies that, similar to ours, investigate both the convergent and external validity of risk preference elicitation methods in a general population sample.[5]

The study closest to ours is Beauchamp et al. (2017) which investigates the effect of controlling for measurement error (using a latent-variable model) on the external validity of risk preference elicitation methods in a population of Swedish Twins ($N = 11,418$). The main difference with our study is that they elicit risk preferences only with stated methods or hypothetical questions. In particular, they use the general and financial risk questions (Dohmen et al., 2011) and hypothetical lottery questions (Barsky et al., 1997; Tversky and Kahneman, 1992). The external validity of the risk preference methods is assessed by considering five field behavior measures (one based on register data) in financial, occupational, and health domains. They find that risk preferences are strongly associated with most types of field behavior. Moreover, the estimated effect sizes increase substantially after controlling for measurement error.

A number of other studies similarly assess the convergent and external validity of multiple revealed and stated risk preference elicitation methods in a general population sample. In contrast to our study, however, they do not control for measurement error and only consider stated field behavior. Galizzi et al. (2016) elicit risk preferences using a within-subject design with two multiple price lists (Holt and Laury, 2002), a gamble choice task (Eckel and Grossman, 2002), and the general, financial, and health risk questions (Dohmen et al., 2011) in a representative sample of the UK ($N = 661$). They report Pearson correlations of .12 to .19 between different revealed preference methods and $-.02$ to .17 between revealed and stated preference methods. Pearson correlations between stated preference methods are higher, ranging from .42 to .62. Comparing the two multiple price lists with different stakes, thus in a within-method comparison, they report a Pearson correlation of .67. They assess the external validity of the risk preference elicitation methods by considering eight stated field behavior measures in the financial and health

[5]More extensive reviews are for instance provided by Mata et al. (2018) and Friedman et al. (2014) for convergent validity and Bokern et al. (2021) for external validity.

domain. The evidence is mixed, but no method has a statistically significant correlation (at the five percent level) with more than two types of field behavior.

Menkhoff and Sakha (2017) elicit risk preferences using a within-subject design with a multiple price list (Cohen et al., 1987), two gamble choice tasks (Eckel and Grossman, 2002), an investment task (Gneezy and Potters, 1997), a set of hypothetical lottery questions (Barsky et al., 1997), and the general and financial risk questions (Dohmen et al., 2011) in a sample of rural households in Thailand ($N = 760$). They report Pearson correlations of .03 to .10 between different revealed preference methods, $-.01$ to .20 between revealed and stated preference methods, and .09 to .36 between stated preference methods. Comparing the two gamble choice tasks, thus in a within-method comparison, they report a Pearson correlation of .44. The authors consider eleven types of stated field behavior in financial, occupation, and health domains to assess the external validity of the risk preference elicitation methods. They find mixed results, but no method has a statistically significant correlation (at the five percent level) with more than three types of field behavior. Moreover, they note that the economic significance of the relationships they find is relatively low.

Charness et al. (2020) elicit risk preferences using a between-subject design with a multiple price list (Holt and Laury, 2002), an investment task (Gneezy and Potters, 1997), a gamble choice task (Eckel and Grossman, 2002), a set of multiple price lists developed by Tanaka et al. (2010), and the general and financial risk questions (Dohmen et al., 2011) in a representative sample of the Netherlands ($N = 1,122$). Based on pairwise comparisons using two-sided t-tests, they conclude that there is no consistency between incentivized methods, meaning that the methods yield different risk preference parameter estimates on average. External validity is assessed by considering three types of laboratory behavior and six types of stated field behavior in the domain of financial and occupational domains. They find that most methods correlate with laboratory behavior, although simpler methods perform better than more complex ones. Strikingly, none of the risk preference methods has a statistically significant association with any of the stated field behavior measures.

3 Procedures and Data

We start by introducing our sample and data collection procedures. Then, we discuss our revealed and stated risk preference elicitation methods. Lastly, we describe our field behavior measures.

3.1 Data Collection

The data were collected in a two-wave online survey in May and June of 2020, carried out in collaboration with Statistics Netherlands and research agency Flycatcher.[6,7] A total of 18,000 Dutch employees and 18,000 self-employed were randomly selected and invited through physical letter to participate in the online study (see Appendix B.1 for a screenshot of the letter translated to English).[8] In total, 4,282 Dutch residents completed both waves. Data from the survey are enriched with demographic and socioeconomic variables from register data of Statistics Netherlands. Table 1 reports basic demographics of the sample.

Table 1: Descriptive Statistics - Individual and Household Characteristics

	Mean	SD	Min	Max	N
Individual Characteristics					
Sex (1=female)	0.43	0.50	0	1	4,282
Age	47.55	12.20	20	87	4,282
Breadwinner (1=yes)	0.61	0.49	0	1	4,282
Migration Background (1=native)	0.87	0.34	0	1	4,282
Marital Status (1=married)	0.59	0.49	0	1	4,282
Children (1=yes)	0.67	0.47	0	1	4,282
Household Characteristics					
Income	44,350	80,122	-23,839	4,844,076	4,276
Wealth Savings	57,746	104,128	0	1,956,581	4,276
Wealth Investments	25,685	179,765	0	8,453,932	4,276
Wealth Other	483,300	795,237	-382,597	18,517,955	4,276

Notes: Data refers to January 1, 2020 (for the variables breadwinner, children, wealth, and income) or to the date the participant filled in the second wave of the survey (for the variables age and marital status). Breadwinner is defined as the member of the household with the highest personal income. Migration background indicates whether both parents were born in the Netherlands or not. Marital status is either married (incl. registered partnership) or single (incl. divorced and widowed). Household income refers to spendable income adjusted for size and composition of the household, it may be negative for self-employed individuals who incurred losses with their business. Wealth other is total wealth minus savings and investments, and includes for instance, housing wealth and wealth from own business.

Risk preferences were elicited with four incentivized revealed preference methods and four stated preference methods, discussed below (see Appendix B.2 for more details). All participants completed the same set of measures in the same order. The median completion time was 46 and

[6]Statistics Netherlands drew the sample, which allowed us to link the survey and experimental data with register data. Flycatcher programmed the online survey and experiments and collected the data.

[7]The data collection took place during the first COVID-19 lockdown in the Netherlands. We provide evidence in Bokern et al. (2023) that this did not have a large impact on participants' behavior in the incentivized experiments.

[8]The survey was part of a larger project "Understanding and Improving Pension Savings", which focused explicitly on the self-employed and hence self-employed individuals were over-sampled. The study also collected a wide range of other incentivized experiments and survey measures, not reported here. A complete overview of the material is available at `http://bit.ly/pbbs`.

51 minutes respectively in waves 1 and 2. One in five participants, among those who completed both waves, was randomly selected for payment based on their decisions in one randomly selected incentivized task. Possible earnings ranged from €0 up to €186 depending on the task. The average earning among the participants selected for payment was €77.10 ($SD = 41.33$).[9] In addition, one iPad was raffled off among the participants who completed both waves. Participants were fully informed about the procedures in advance.

3.2 Risk Preference Measures

We elicited revealed risk preferences with the convex time budget (CTB) method in wave 1 and three types of multiple price lists (MPLs) in wave 2. To infer risk preferences from participants' decisions in these methods, we rely on simple count measures because they do not require any assumptions about the model of decision-making under risk and the functional form.[10] Stated preferences were elicited in both waves with the general risk question (GRQ) and domain-specific risk questions on health (HRQ), finances (FRQ), and career (CRQ).

Next, we discuss the methods and how risk preferences are inferred from decisions. Finally, we discuss participants' understanding of the revealed preference methods based on their own subjective assessment and built-in understanding checks.

CTB. This elicitation method was introduced by Andreoni and Sprenger (2012a), designed to jointly elicit risk and time preferences. In our implementation, adapted from Potters et al. (2016), participants received two sets of 12 decision tasks sequentially (see Table 2).[11] In each

[9]The average earnings over all participants are therefore €15.42, which is approximately 50% above the net hourly minimum wage in the Netherlands at the time (the minimum wage in 2020 was €9.70 per hour for a 40-hour workweek, see https://www.rijksoverheid.nl/onderwerpen/minimumloon/bedragen-minimumloon/bedragen-minimumloon-2020, last retrieved May 2023). Our decision to pay one random choice to only 1 out of 5 participants was motivated by the aim to have a large sample size as well as sizeable absolute stakes given our budget constraint. Empirical evidence suggests that paying only a subset of participants has only a minimal effect on motivation (Charness et al., 2016). Moreover, it is recommended to pay one random decision in the type of experiments we ran (Azrieli et al., 2020; Charness et al., 2016).

[10]Another approach is to assume some model and functional form, often expected utility theory (EUT) with constant relative risk aversion (CRRA), when inferring risk preferences from MPLs (e.g., Holt and Laury, 2002; Harrison and Rutström, 2008) and CTBs (Andreoni and Sprenger, 2012a). In that case, however, findings depend on the specific model and functional form that are assumed. Drichoutis and Lusk (2016) argue, for example, that this is relevant for multiple price lists in the spirit of Holt and Laury (2002), because risk preferences measured with this method may confound the curvature of the utility function with the curvature of the probability weighting function under prospect theory. For CTB this is relevant because under EUT/CRRA it is assumed that an individual's attitude towards risk and intertemporal substitution are captured by the same parameter (Andreoni and Sprenger, 2012b; Miao and Zhong, 2015). For these reasons, we decide to avoid making assumptions about the model and functional form and use simple count measures (similar to e.g., Loomes and Pogrebna, 2014; Menkhoff and Sakha, 2017).

[11]Participants received one additional practice task at the start, which is excluded from the analysis.

decision task, participants were asked how they would like to divide a budget of €75 between an earlier date (t), 8 weeks from the day of participation, and a later date (k), either 16 weeks (Set 1) or 24 weeks (Set 2) from the day of participation. Money allocated to the early date was always paid out with certainty, whereas money allocated to later dates was paid with a 100%, 90%, 70%, or 50% chance (p_{t+k}) while keeping the expected value of the payment constant. In addition, money allocated to the later date paid an interest rate ($1 + r'$) of 0%, 4%, or 16% over the delay period. To simplify the decisions, each choice set was discretized into 13 predefined allocations. Two of the predefined allocations constituted dominated choices, which serve as a comprehension and attention check.[12]

To evaluate how individuals responded to the introduction of risk, we compare allocations in decision tasks with risk to allocations in their risk-less counterpart (i.e., the task that is identical, except that it is without risk). For example, task #4 and #1 in Table 2 are identical, except that money allocated to the late date is uncertain in #4 and certain in #1 (and the late payment is higher in #4 to ensure that they are the same in expected value). If an individual allocates more (less) money to the later date in the task with risk, compared to its risk-less counterpart, then we categorize the allocation as risk-seeking (averse). If the individual allocates the same in both, then we categorize the allocation as risk neutral.[13] As a measure of risk preference, we simply count the number of decisions in tasks #4-#12 that are classified as risk averse (RA) with weight=-1, risk-neutral (RN) with weight=0, and risk-seeking (RS) with weight=1 for both sets (denoted as CTB1 and CTB2 hereafter). A higher score on these measures, therefore, implies a higher willingness to take risks in the task. The measures are standardized (z-score) for comparison with other risk preference measures.

MPLs. We elicit three different types of MPLs in the spirit of Holt and Laury (2002), Cohen et al. (1987), and Drichoutis and Lusk (2016). In our implementation, each MPL consists of ten ordered binary decisions between two lotteries, denoted as Option A and Option B (see Table 3 for an example). The types of MPLs differ from each other in terms of which outcomes and probabilities are used. In the first type, we present paired gambles with fixed outcomes and vary the probabilities between 0.1 and 1 when moving down the list (hereafter MPL-PGp). The last

[12]For example, in decision #1 participants could choose between the following allocations: [70,0]; [75,0]; [67.50,7.50]; [60,15]; [52.50,22.50]; [45,30]; [37.50,37.50]; [30,45]; [22.50,52.50]; [15,60]; [7.50,67.50]; [0,75]; [0,70]. The first and the last allocations are dominated as they always yield less money than the second and second-to-last allocations, respectively.

[13]If an individual makes a corner choice in both the decision with risk and their risk-less counterpart, then we categorize the pairs of corner choices at the early (late) date as risk averse (seeking).

Table 2: CTB Parameters Set 1

Task	t	k	a_t	a_{t+k}	p_{t+k}	EV(a_{t+k})	1+r	1+r'
#1	8	16	€75	€75.00	1	€75.00	1.00	1.00
#2	8	16	€75	€79.50	1	€79.50	1.06	1.06
#3	8	16	€75	€93.00	1	€93.00	1.24	1.24
#4	8	16	€75	€83.40	0.9	€75.00	1.11	1.00
#5	8	16	€75	€88.35	0.9	€79.50	1.18	1.06
#6	8	16	€75	€103.35	0.9	€93.00	1.38	1.24
#7	8	16	€75	€107.10	0.7	€75.00	1.43	1.00
#8	8	16	€75	€113.55	0.7	€79.50	1.51	1.06
#9	8	16	€75	€132.75	0.7	€93.00	1.77	1.24
#10	8	16	€75	€150.00	0.5	€75.00	2.00	1.00
#11	8	16	€75	€159.00	0.5	€79.50	2.12	1.06
#12	8	16	€75	€186.00	0.5	€93.00	2.48	1.24

Notes: t=delay period early date in weeks, k=delay period late date in weeks, a_t=amount available at the early date, a_{t+k}= amount available at the late date, p_{t+k}=probability that the payment at the late date is actually paid out, EV(a_{t+k})=expected value of the amount available at the late date, 1+r=interest rate over the delay period not adjusted for risk, 1+r'= interest rate over the delay period adjusted for risk. Set 2 is identical, except that k=24.

row is thus a dominated choice (i.e., one option yields a larger amount of money with certainty), which serves as a comprehension and attention check. In the second type, we present a standard gamble (i.e., Option B is a lottery with fixed probabilities of the outcomes, while Option A is a sure outcome) and increase the sure outcome when moving down the list (hereafter MPL-SGsure). In the third type, we present paired gambles with fixed probabilities and increase the highest outcome when moving down the list (hereafter MPL-PGhigh). We implement two versions of MPL-PGp that differ in the outcomes used (Tables 3 and B1 in Appendix B.2), two versions of MPL-SGsure that differ in the outcomes and probabilities used (Tables B2 and B3 in Appendix B.2), and one version of MPL-PGhigh (Table B4 in Appendix B.2).[14]

The intention of the MPL design is that an individual switches at most once to the option that is becoming more attractive when moving down the list (for example option B in Table 3) and that this "switching point" provides an indication of the individual's risk preference. We do not enforce a single switching point, meaning that participants are allowed to switch multiple times (see "Understanding" below). As a measure of risk preference, we simply count the number of risky choices an individual makes in decisions #1-#9 for MPL-PGp (excluding the dominated choice) and #1-#10 for MPL-SGsure and MPL-PGhigh (the measures are denoted as PGp1,

[14]Each participant received the MPLs in the same order, alternating between type of MPL. In particular, it was presented in the following order: MPL-PGp 1, MPL-SGsure 1, MPL-PGhigh 1, MPL-PGp 2, MPL-SGsure 2.

Table 3: MPL-PGp 1

	Option A					Option B				
	p	€	p	€	EV(A)	p	€	p	€	EV(B)
#1	0.1	80	0.9	64	€66	0.1	154	0.9	4	€19
#2	0.2	80	0.8	64	€67	0.2	154	0.8	4	€34
#3	0.3	80	0.7	64	€69	0.3	154	0.7	4	€49
#4	0.4	80	0.6	64	€70	0.4	154	0.6	4	€64
#5	0.5	80	0.5	64	€72	0.5	154	0.5	4	€79
#6	0.6	80	0.4	64	€74	0.6	154	0.4	4	€94
#7	0.7	80	0.3	64	€75	0.7	154	0.3	4	€109
#8	0.8	80	0.2	64	€77	0.8	154	0.2	4	€124
#9	0.9	80	0.1	64	€78	0.9	154	0.1	4	€139
#10	1	80	0	64	€80	1	154	0	4	€154

Notes: EV(A) and EV(B) list the expected value of the related lottery.

PGp2, SGsure1, SGsure2, and PGhigh hereafter). A higher score on these measures, therefore, implies a higher willingness to take risks in the task. The measures are standardized (z-score) for comparison with other risk preference measures.

GRQ, FRQ, CRQ, HRQ. These self-reported survey questions are based on the work by Dohmen et al. (2011). Participants self-identify as being more or less willing to take risks on an eleven-point Likert-scale from "not at all willing to take risks" (0) to "very willing to take risk" (10) either in general (GRQ), or in specific domains. The specific domains include willingness to take risks in personal finances (FRQ), occupation (CRQ), and health (HRQ). We asked these questions in both waves of the study. The measures are standardized (z-score) for comparison with other risk preference measures.

Table 4 provides summary statistics of the risk preference measures, reported in their original unit of observation.

Understanding. To facilitate understanding of the experimental tasks, we created short videos that were shown to participants prior to the experiments (one for the CTB and one for the MPLs).[15] (in Dutch). The videos explained the decision tasks step by step, successively highlighting the relevant parts of the decision screens. In addition to the videos, written instructions were available for online reading and download (see Appendix B.2). Participants were required to watch the entire video or download the written instructions before being able to proceed to the

[15]The videos are available at `http://bit.ly/pbbs`

Table 4: Descriptive Statistics - Risk Preference Measures

	Unit	Mean	SD	Mdn	Min	Max	N
Revealed Methods							
CTB1	Σ RA (-1), RN (0), RS (1) Choices	-3.38	5.00	-3	-9	9	4,282
CTB2	Σ RA (-1), RN (0), RS (1) Choices	-3.66	5.17	-5	-9	9	4,282
PGp1	# Risky Choices (0-9)	3.55	1.84	4	0	9	4,282
PGp2	# Risky Choices (0-9)	4.20	2.07	4	0	9	4,282
SGsure1	# Risky Choices (0-10)	3.36	2.55	4	0	10	4,282
SGsure2	# Risky Choices (0-10)	4.07	2.53	4	0	10	4,282
PGhigh1	# Risky Choices (0-10)	3.97	2.93	4	0	10	4,282
Stated Methods							
GRQ1	Likert Item (0-10)	5.45	2.09	6	0	10	4,282
GRQ2	Likert Item (0-10)	5.77	1.87	6	0	10	4,282
FRQ1	Likert Item (0-10)	4.29	2.45	4	0	10	4,282
FRQ2	Likert Item (0-10)	4.62	2.31	5	0	10	4,282
CRQ1	Likert Item (0-10)	5.64	2.54	6	0	10	4,282
CRQ2	Likert Item (0-10)	5.78	2.32	6	0	10	4,282
HRQ1	Likert Item (0-10)	3.28	2.45	3	0	10	4,282
HRQ2	Likert Item (0-10)	3.61	2.39	3	0	10	4,282

Notes: Variables are shown here in their original unit, but are standardized (z-score) for the analysis.

decision tasks. We implemented several measures to check for understanding. First, we included multiple-choice comprehension questions prior to the experimental tasks. Second, directly after completing the tasks in an experiment, we asked the participants to self-assess whether they deemed the instructions clear on a scale from completely unclear (0) to completely clear (10). Finally, we included dominated options in the CTB and MPL-PGp tasks and did not enforce a single switching point in the MPLs.[16]

The majority of participants show a high level of understanding in all three measures. First, 89.0% (92.8%) of participants answered all three (both) comprehension questions correctly on the first try in the CTB (MPLs). Second, participants assessed the clarity of instructions as very clear in both the CTB (Mean=9.0, SD=1.5, Mdn=10) and MPLs (Mean=9.0, SD=1.4, Mdn=9). Finally, 88.0% of participants made zero dominated choices in the CTB and 79.8% did not switch multiple times or to the option that became less attractive and made zero dominated choices in the MPLs.[17] We conduct our analysis on the entire sample, including participants who switch

[16]There is some debate about the interpretation of multiple switching in MPLs (Yu et al., 2021). Evidence by Yu et al. (2021) suggests that it is mostly due to the miscomprehension of participants. Accordingly, we treat it as an indicator of participants' understanding of the experiment.

[17]Comparing the different types of MPLs, we observe that switching multiple times, switching to the option that became less attractive, or making a dominated choice is most prevalent in MPL-PGp (approx. 9% of participants engage in such behavior). In the other lists, this behavior is observed for 4% to 6% of participants. This number is substantially smaller than on average found in the literature (Crosetto and Filippin (2016) report 15.8% for MPL-PGp in a sample of about 7000 subjects over 54 published articles), which makes us confident that our participants have a relatively high understanding of the tasks.

multiple times, switch to the option that becomes less attractive or make dominated choices. In Section 5, we discuss the effect of understanding on our main results.

3.3 Field Behavior

We consider field behavior in three domains that are expected to be associated with an individual's risk preference: financial domain (savings, investments, and debt), occupational domain (self-employment), and health domain (following COVID-19 guidelines on social distancing and handwashing). Our measures for financial and occupational field behavior are based on register data, whereas our measures for health-related behavior are self-reported.

Savings and Investments. These variables are based on the total worth of households' financial assets on January 1, 2020, measured in euros. Financial assets are categorized into savings (total amount of money in current and savings accounts) and investments (total amount of money in stocks and bonds).[18] We create three variables. First, a continuous variable capturing the total amount of savings (in log) that the household has in their current and savings accounts. We expect that a higher willingness to take risks corresponds to less (precautionary) savings, which would safeguard against short-term financial reverses. Similar measures have been used by Galizzi et al. (2016) and Charness et al. (2020). Second, a binary variable that captures whether the household has investments. Investing is riskier than keeping money in a savings account and therefore we expect a positive correlation between willingness to take risks and investing. Similar measures have been used by Ding et al. (2010) and Dohmen et al. (2011). Third, a continuous variable measuring the ratio of investments to financial assets (i.e., the sum of savings and investments), conditional on having investments. We expect that a higher willingness to take risks corresponds to a higher investment to financial assets ratio. Similar measures have been used by Beauchamp et al. (2017), Menkhoff and Sakha (2017), and Charness et al. (2020).

Debt. This variable is based on the total worth of a household's debt, excluding mortgage debt for own house and study debt, on January 1, 2020, measured in euros.[19] We create a binary variable capturing whether or not the household has debt. Acquiring debt involves some risk because the borrower commits to a future repayment without knowing their future economic

[18] Unfortunately, it is not possible to distinguish between stocks and bonds with the data provided.

[19] We exclude mortgage and study debt because we think these types of debt are less clearly associated with risk preferences. Mortgage debt is very common in the Netherlands (73% of the participants in our sample have a positive mortgage debt) due to the attractiveness of borrowing money for a house. Study debt can be considered an investment in the future and can also be obtained under relatively attractive conditions.

situation. Hence, we expect a positive relationship between the willingness to take risks and having debt. Similar measures have been used by Brown et al. (2013) and Menkhoff and Sakha (2017).

Self-Employment. This variable is based on the participants' occupational status on January 1, 2020. The variable is coded as (1) when the individual is self-employed and (0) when the individual is not self-employed.[20] Being self-employed generally involves more risks than receiving a regular paycheck as an employee. Therefore, we expect a positive relationship between willingness to take risks and being self-employed. Similar measures have been used by Barsky et al. (1997), Dohmen et al. (2011), Hardeweg et al. (2013), Beauchamp et al. (2017), and Charness et al. (2020).

COVID-19 Social Distancing and Handwashing. These variables are based on survey questions that asked participants to indicate whether they followed safety recommendations concerning social distancing and handwashing during the first lockdown of the COVID-19 pandemic.[21] The questions were asked in both waves of the survey, in both cases we take the average and standardize it. Individuals who did not respond to the question in at least one wave are excluded. Given the uncertainty around COVID-19 during the first lockdown, not following safety recommendations was risky as it increased the likelihood of contracting the disease. Therefore, we expect a negative relationship between the willingness to take risks and following social distancing or handwashing safety recommendations. Similar measures on social distancing have been used by Sheth and Wright (2020), Müller and Rau (2021), Collier et al. (2022), and Bergeot and Jusot (2022). A similar measure on handwashing has been used by Collier et al. (2022).

Table 5 summarizes the field behavior variables. We have data on each measure for nearly all our participants, with a few exceptions. First, financial field behavior is unknown in the register data for six individuals in our sample. Second, the variable measuring the ratio of investments

[20]Statistics Netherlands determines occupational status based on income. If an individual receives income both from employment and self-employment, the main source of income determines the occupation status.

[21]The questions were asked on a scale from 0 "never" – 5 "always", also including the option "prefer not to answer". The exact wording for social distancing was (translated from Dutch): "In response to the so-called coronavirus (COVID-19), it is recommended to keep distance from others (so-called social distancing) when going outside. According to your own estimate, to what extent do/did you adhere to this recommendation?". The exact wording for handwashing was (translated from Dutch): "In response to the so-called coronavirus (COVID-19), it is recommended to pay more attention to hygiene, such as regularly washing your hand with water and soap. According to your own estimate, to what extent do/did you adhere to this recommendation?".

Table 5: Descriptive Statistics - Field Behavior

	Unit	Mean	SD	Min	Max	N
Financial						
Savings	Log	9.99	1.71	0.00	14.49	4,276
Investments	Yes (1)/No (0)	0.30	0.46	0.00	1.00	4,276
Investments	Ratio	0.34	0.30	0.00	1.00	1,302
Debt	Yes (1)/No (0)	0.36	0.48	0.00	1.00	4,276
Occupation						
Self-employed	Yes (1)/No (0)	0.35	0.48	0.00	1.00	4,282
Health						
Distancing	Likert Item 0-5*	3.95	0.80	0.00	5.00	4,266
Handwashing	Likert Item 0-5*	3.79	0.95	0.00	5.00	4,270

Notes: Financial and occupation variables are based on register data and refer to January 1, 2020. Savings (log) is the log of total amount savings in current and saving accounts. Investments include stocks and bonds. Investments (y/n) captures whether the amount of investments is positive. Investments (ratio) is the ratio of investments to financial assets (i.e., sum of saving and investments). Debt (y/n) captures whether the amount of debt, excluding mortgage and study debt, is positive. Health variables are survey questions asked in wave 1 and wave 2 of the survey, the responses are averaged. Participants who indicated that they did not want to answer either of the questions are excluded. *Variables are shown here in their original unit, but are standardized (z-score) for analysis.

to financial assets contains fewer observations because it is conditional on having investments. Finally, there are a couple of missing observations for our self-reported health behavior because participants were given the option to refrain from answering these questions.

4 Results

We first introduce the ORIV approach by Gillen et al. (2019) that we implement to control for measurement error in our risk preference measures. Then, we analyze the correlation between the risk preference measures (convergent validity) and the correlation between each risk preference measure and the different types of field behavior (external validity). We report both raw and ORIV correlations and assess the added benefit of controlling for measurement error.

4.1 Empirical Strategy: ORIV

We use the ORIV approach by Gillen et al. (2019) to control for measurement error in our elicitation methods.[22] The idea behind ORIV is to use duplicates of a noisy measure to reduce

[22]Perez et al. (2021) show in simulations that ORIV requires a sufficient sample size to solve the significance issue resulting from measurement error. They report that $N = 1000$ is sufficient to overcome the significance bias almost every time, a criterion easily met with our sample.

attenuation bias and increase the significance of estimated coefficients. More concretely, suppose that we are interested in the relationship between a dependent variable, denoted by y, and an explanatory variable, denoted by x. We do not directly observe x, but we have two duplicates of a noisy measure, say x_1 and x_2, that are both proxies for x. Under the assumption that the errors in both measures are independent, we can control for measurement error in the explanatory variable by simultaneously using x_1 as an instrument for x_2 and x_2 as an instrument for x_1. In this case, we thus apply ORIV one-sided because only the explanatory variable, but not the dependent variable, is measured with error. The resulting model can be estimated by means of a stacked two-stage least squares (2SLS) regression with clustered standard errors and can be written as follows[23]:

$$\begin{pmatrix} y \\ y \end{pmatrix} = \begin{pmatrix} \alpha_1 \\ \alpha_2 \end{pmatrix} + \beta \begin{pmatrix} x_1 \\ x_2 \end{pmatrix} + \epsilon \tag{1}$$

$$\text{instrumenting } \begin{pmatrix} x_1 \\ x_2 \end{pmatrix} \text{ with } W = \begin{pmatrix} x_2 \; 0_N \\ 0_N \; x_1 \end{pmatrix}$$

Where N is the sample size and 0_N is a $N \times 1$ zero matrix. Gillen et al. (2019) show that this technique produces consistent coefficients and results in efficient use of the data. The model can easily be extended to the case where both the dependent and explanatory variables are measured with error, thus two-sided. We use this, for example, to assess the correlation between different risk preference measures. In that case, the model can be written as follows, where y_1 and y_2 are two duplicates of a noisy dependent variable:

$$\begin{pmatrix} y_1 \\ y_1 \\ y_2 \\ y_2 \end{pmatrix} = \begin{pmatrix} \alpha_1 \\ \alpha_2 \\ \alpha_1 \\ \alpha_2 \end{pmatrix} + \beta \begin{pmatrix} x_1 \\ x_2 \\ x_1 \\ x_2 \end{pmatrix} + \epsilon \tag{2}$$

$$\text{instrumenting } \begin{pmatrix} x_1 \\ x_2 \\ x_1 \\ x_2 \end{pmatrix} \text{ with } W = \begin{pmatrix} x_2 & 0_N & 0_N & 0_N \\ 0_N & x_1 & 0_N & 0_N \\ 0_N & 0_N & x_2 & 0_N \\ 0_N & 0_N & 0_N & x_1 \end{pmatrix}.$$

[23]The technique uses each individual twice (stacked dataset), thus clustered standard errors should be used to appropriately treat multiple observations as having the same source.

4.2 Convergent Validity

Table 6 reports the correlations between the risk preference measures and contrasts raw and ORIV correlations with each other. Looking at the raw correlations (printed in normal font), our results are mostly in line with previous literature (e.g., Galizzi et al., 2016; Menkhoff and Sakha, 2017). We find raw correlations of $.20 - .45$ between revealed preference methods (1)-(4) and higher correlations between stated preference methods (5)-(8) of $.35 - .62$. Correlations between revealed and stated methods are weakest, ranging from .07 to .26.

When we control for measurement error using ORIV (printed in bold font), correlations between measures increase. First, we observe a substantial increase in correlation coefficients between the different types of MPLs (raw: $.29 - .45$, ORIV: $.60 - .88$). Second, the correlation between the CTB and MPLs increases as well but only modestly (raw: $.20 - .22$, ORIV: $.30 - .39$). Third, we observe a substantial increase in correlations between stated preference methods (raw: $.35 - .62$, ORIV: $.53 - .94$). Finally, correlations between revealed and stated methods increase modestly (raw: $.07 - .26$, ORIV: $.11 - .39$).

Our results corroborate the findings from Gillen et al. (2019) in a general population sample, observing that correlations between risk preference measures increase when controlling for measurement error. Importantly, controlling for measurement is particularly relevant for comparing different types of MPLs, as the correlations increase substantially. This suggests that there may be more similarity between different types of MPLs than suggested in previous work (for instance, Csermely and Rabas, 2016; Drichoutis and Lusk, 2016). At the same time, correlations between CTB, MPLs, and GRQ remain moderate at best, indicating that measurement error alone can only partly explain differences between measures. We now turn to our analysis of the

Table 6: **ORIV**/Raw Correlation - Risk Preference Measures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) CTB	1							
(2) PGp	**0.34**/0.20	1						
(3) SGsure	**0.39**/0.22	**0.60**/0.29	1					
(4) PGhigh	**0.30**/0.20	**0.88**/0.45	**0.67**/0.31	1				
(5) GRQ	**0.38**/0.26	**0.39**/0.23	**0.39**/0.22	**0.30**/0.20	1			
(6) FRQ	**0.31**/0.21	**0.30**/0.18	**0.37**/0.21	**0.24**/0.16	**0.94**/0.62	1		
(7) CRQ	**0.19**/0.12	**0.20**/0.11	**0.23**/0.12	**0.16**/0.10	**0.77**/0.49	**0.71**/0.45	1	
(8) HRQ	**0.18**/0.12	**0.15**/0.09	**0.21**/0.12	**0.11**/0.07	**0.53**/0.35	**0.70**/0.46	**0.56**/0.35	1

Notes: We apply ORIV one-sided (Equation 1) for PGhigh because we do not have a duplicate for this elicitation method and two-sided (Equation 2) for all other measures. All correlations are statistically significant ($p < 0.01$).

relationship between risk preference measures and risk-related field behavior.

4.3 External Validity

We first discuss the relationship between the risk preference measures and field behavior when controlling for measurement error. To this end, we run stacked 2SLS regressions following the ORIV approach (equation 1), or simple OLS regressions in the case of PGhigh (because we do not have a duplicate for this measure), separately for each pair of field behavior and risk preference measure. In all models, we control for individual characteristics of the decision-maker (including variables for sex, age, migration background, marital status, parenthood, and whether or not the participant is the breadwinner) as well as household characteristics (income and wealth).

Table 7 reports our estimates concerning external validity (full regressions are reported in Appendix A.1). Specifically, the table lists the coefficients and significance levels of each risk preference measure when included as an explanatory variable in separate regression models with the respective type of field behavior as the dependent variable. Overall, the results reveal a clear difference between revealed and stated risk preference measures. Stated measures are statistically significantly associated with field behavior in most cases, whereas revealed measures are associated only with specific types of field behavior. We discuss the results in more detail separately for the financial, occupational, and health domains.

In the financial domain, we find almost no statistically significant relationships between the incentivized measures and field behavior. The only exception is SGsure, which is positively correlated with the investment ratio. On the contrary, most of the survey measures are statistically significantly correlated with financial behavior, and in the expected direction, with a higher reported willingness to take risks being associated with more risky behavior in the field. Importantly, the relationships between the survey measures and field behavior are also economically significant. For example, a one-standard-deviation increase in the willingness to take risks in financial matters is associated with an 11 percentage point increase in the probability of having investments, corresponding to a 37% increase relative to the unconditional probability.[24] Similarly, a one-standard-deviation increase in the general willingness to take risks is associated with a decrease of about 20% in savings. The relationships between the survey measures and the investment ratio and debt are smaller but remain sizeable.

[24] This result is similar to Dohmen et al. (2011) who find that a one-standard-deviation increase in the willingness to take risk in financial matters is associated with a 34% increase in investing in stocks in a large representative sample of Germans.

Table 7: Regressions - Risk Preference Measures and Field Behavior

	Financial				**Occupation**	**Health**	
	Savings log	Investments y/n	Investments ratio	Debt y/n	Self-Employed y/n	Distancing z-score	Handwashing z-score
CTB	0.02	0.01	0.00	-0.01	0.02*	-0.07**	-0.03
	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
PGp	-0.04	0.02	0.01	0.01	0.02	-0.12**	-0.05
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
SGsure	0.02	0.02	0.06*	-0.01	0.02	-0.14**	-0.12**
	(0.07)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
PGhigh	-0.03	0.01	0.01	0.01	0.01	-0.06**	0.00
	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
GRQ	-0.22***	0.05***	0.06***	0.06***	0.08***	-0.11***	-0.04
	(0.04)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
FRQ	-0.12***	0.11***	0.07***	0.04***	0.09***	-0.16***	-0.11***
	(0.04)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
CRQ	-0.20***	0.02	0.04**	0.06***	0.12***	-0.07**	-0.05*
	(0.04)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
HRQ	-0.13***	0.01	0.02*	0.03**	0.06***	-0.29***	-0.26***
	(0.04)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
N	4,276	4,276	1,302	4,276	4,282	4,266	4,270
Controls	✓	✓	✓	✓	✓	✓	✓

Notes: Each coefficient is from a separate regression, full regressions are reported in Appendix A. Coefficients are from stacked 2SLS regressions with duplicate measures as IV's, following the ORIV approach (Equation 1) with clustered standard errors in parenthesis, or OLS in the case of PGhigh (because we do not have a duplicate for this measure) with robust standard errors in parenthesis. N represents the number of participants; the number of observations is doubled for the 2SLS regression because the data is stacked. Regressions control for sex, age, migration background, marital status, child (y/n), breadwinner (y/n), income (quintiles) and wealth other (quintiles). *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

In the occupational domain, we find a statistically significant association between the CTB and being self-employed. Specifically, a one-standard-deviation increase in the willingness to take risks in the task is associated with a two percentage point increase in being self-employed, corresponding roughly to a 6% increase relative to the unconditional probability. Similar effect sizes are found for the different types of MPLs (PGp, SGsure, and PGhigh), but they are not statistically significant. The survey measures are all statistically significantly related to self-employment. As expected, the willingness to take risks in career matters (CRQ) has the largest coefficient. Specifically, a one-standard-deviation increase in the willingness to take risks in career matters is associated with a 12 percentage point increase in being self-employed, corresponding to a 34% increase relative to the unconditional probability.[25]

[25]Dohmen et al. (2011) report a similar result in Germany, finding that a one-standard-deviation increase in

In the health domain, the incentivized measures perform better as compared to the other domains: all incentivized measures are statistically significantly associated with the frequency of following social distancing recommendations and SGsure is statistically significantly associated with the reported frequency of handwashing. The effect sizes are relatively small, however. The effect size of SGsure, which has the largest coefficient among the incentivized measures, implies that a one-standard-deviation increase in the willingness to take risk is associated with a 0.14 standard-deviation decrease in the self-reported following of social distancing recommendations. The survey measures are almost all statistically significantly related to following social distancing and handwashing recommendations. As expected, the willingness to take risks in the health domain has the largest coefficient. Specifically, a one-standard-deviation increase in the willingness to take risks in health matters (HRQ) is associated with a 0.29 standard-deviation decrease in the self-reported following of social distancing recommendations. The economic significance of the other survey questions is smaller and similar to the incentivized measures.

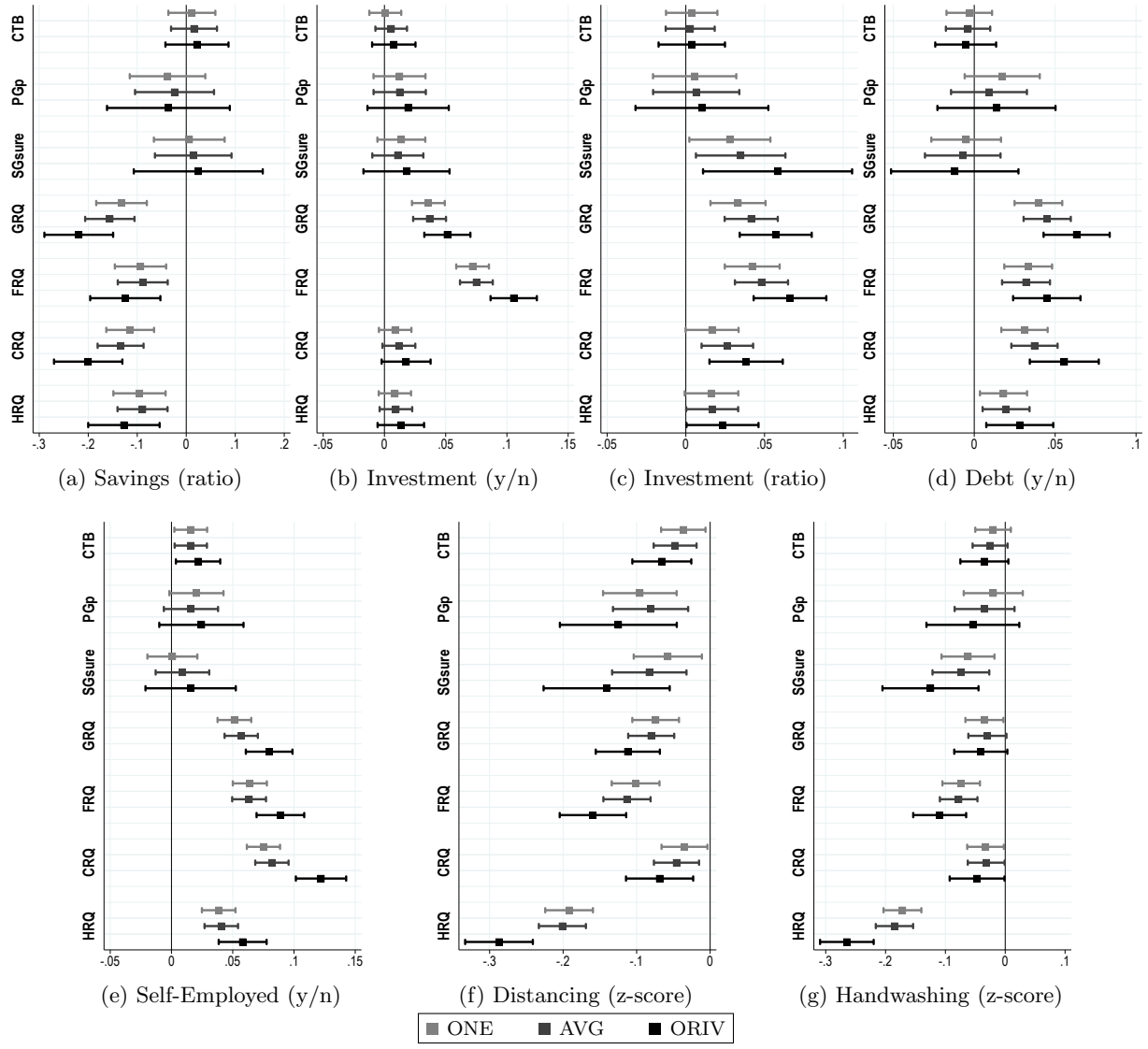
A relevant question that arises is what effect controlling for measurement error has on these analyses. Thus, how do the estimates from specifications with ORIV compare to those without ORIV? To address this question, we consider two alternatives. First, we analyze the case where there are no duplicates available of an elicitation method. Specifically, we run simple OLS regressions with only one version of a risk preference elicitation method as the main explanatory variable (hereafter "ONE").[26] Second, we analyze the case where we calculate a simple average of the duplicate measures and run OLS regression with this (uncorrected) average as the main explanatory variable (hereafter "AVG"). We contrast the estimated effects with those where we control for measurement error (ORIV).

Figure 1 shows the results of this analysis. Each panel corresponds to one measure of field behavior and displays the point estimates and corresponding 95%-confidence intervals of the main explanatory variable (i.e., the risk preference measure) from the three different specifications (ONE, AVG, ORIV).[27] The solid vertical line represents a coefficient of zero. For example, panel (a) shows the estimated effect sizes of the relationship between the risk preference measures and savings (log). For each risk preference measure, the estimates from top to bottom represent the ONE (light grey), AVG (dark grey), and ORIV (black) specifications, respectively. In panel (a),

the willingness to take risks in career matters is associated with a 43% increase in being self-employed.

[26] We consider the first task that the participant sees within a given method (CTB1, PGp1, SGsure1) for incentivized measures and the response from wave 1 (GRQ1, FRQ1, CRQ1, HRQ1) for survey questions.

[27] Note that the 95% confidence intervals increase after applying ORIV, which is a consequence of clustering standard errors when using stacked 2SLS regression.



(a) Savings (ratio) (b) Investment (y/n) (c) Investment (ratio) (d) Debt (y/n)

(e) Self-Employed (y/n) (f) Distancing (z-score) (g) Handwashing (z-score)

Figure 1: The effect of controlling for measurement error with ORIV on regression coefficients

we thus observe that none of the revealed preference measures have a statistically significant association with savings (log) for any of the specifications. In contrast, all stated preference measures have a statistically significant association with log (savings) for all specifications. Comparing the different specifications within each method, we can observe that estimates are larger when using ORIV, but the effect is most pronounced for those cases where the estimated effect is already statistically significant in the ONE and AVG specifications.

Looking at all panels in Figure 1, we can observe that it is generally the case that the estimated effect sizes tend to increase only when the estimated effect is already statistically

significant in the ONE and AVG specifications and that this is the case for both the stated and the revealed preference measures. Therefore, controlling for measurement error in our sample using ORIV seems to allow for estimating larger effect sizes in case of statistically significant relations, but does not lead to changes in the conclusions of statistical significance per se in a particular domain of field behavior.

5 Robustness Check: Understanding

Our results show that survey measures perform better in terms of their relation to field behavior than incentivized measures, irrespective of whether or not measurement error is controlled for. A possible reason why incentivized measures may perform worse than survey measures is that they are more complex. It might thus be that the incentivized measures have a higher predictive power for participants who are able to better cope with this complexity. To test this conjecture, we rerun our analyses, restricting the sample to participants who arguably have a high understanding of the experimental tasks. We categorize individuals as having "high understanding" if they did not make any dominated choices in the CTB or MPLs, did not switch multiple times or to the option that became less attractive in the MPLs, did not make mistakes in the comprehension questions in the CTB or MPLs, and rated their understanding of the experimental instructions for the CTB and MPL tasks with a score of 10 out of 10. This leaves 1,114 individuals (26% of the full sample) for the analysis.

Table 8 reproduces the external validity results for the subset of individuals who we categorize as having a high understanding (full regressions are reported in Appendix A.2). Despite reducing the sample size to a quarter, we observe more statistically significant associations between revealed preference methods and financial field behavior. Specifically, we now find an association between the CTB, PGp, and SGsure measures and the probability of having investments. This suggests that the external validity of incentivized measures somewhat improves when considering only individuals who appear to have a high understanding. At the same time, there is little improvement for the other measures of field behavior that we consider.[28] Thus, overall, and particularly compared to stated preference methods, the external validity of the incentivized methods remains low even for the group of participants who appear to have a high understanding.

[28] In fact, for both revealed and stated preference methods we find less statistically significant associations than in the regressions for the full sample. However, this appears to be a consequence of reducing the sample size in most cases, given that effect sizes largely remain of similar magnitude.

Table 8: Regressions - Risk Preference Measures and Field Behavior for High Understanding

	Financial				Occupation	Health	
	Savings log	Investments y/n	Investments ratio	Debt y/n	Self-Employed y/n	Distancing z-score	Handwashing z-score
CTB	0.08	0.05**	0.01	0.01	0.04*	-0.09**	-0.08
	(0.05)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
PGp	-0.02	0.10**	0.05	0.02	0.06	-0.18*	-0.07
	(0.13)	(0.04)	(0.04)	(0.04)	(0.04)	(0.08)	(0.09)
SGsure	0.21	0.07*	0.05	0.08	0.05	-0.12	-0.15
	(0.13)	(0.04)	(0.05)	(0.04)	(0.04)	(0.09)	(0.09)
PGhigh	0.01	0.02	0.03	-0.01	0.03	-0.10*	-0.02
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
GRQ	-0.09	0.07***	0.05*	0.06***	0.12***	-0.10*	-0.08
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
FRQ	0.03	0.13***	0.04	0.06**	0.12***	-0.12**	-0.17***
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
CRQ	-0.08	0.04*	0.03	0.05*	0.14***	-0.04	-0.09*
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
HRQ	-0.05	0.01	0.03	0.04	0.07***	-0.27***	-0.28***
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.05)
N	1,114	1,114	354	1,114	1,114	1,111	1,111
Controls	✓	✓	✓	✓	✓	✓	✓

Notes: Each coefficient is from a separate regression, full regression are reported in Appendix A. Coefficients are from stacked 2SLS regressions with duplicate measures as IV's, following the ORIV approach (Equation 1) with clustered standard errors in parenthesis, or OLS in the case of PGhigh with robust standard errors in parenthesis. N represents the number of participants; the number of observations is doubled for the 2SLS regression because the data is stacked. Regressions control for sex, age, migration background, marital status, child (y/n), household size, breadwinner (y/n). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

6 Discussion and Conclusion

We have investigated the convergent and external validity of commonly used survey and incentivized methods for risk preferences in a large and heterogeneous population sample from the Netherlands. We find that controlling for measurement error using ORIV improves the correlation within and to a lesser extent between risk preference measures in our sample. This corroborates the recommendation by Gillen et al. (2019) that measurement error should be taken into account when using risk preference elicitation methods and suggests that not accounting for measurement error can partly explain the lack of convergent validity among risk preference elicitation methods found in previous studies. At the same time, we find that the external validity of survey measures in our sample is higher relative to incentivized measures, even after controlling for measurement error. Thus, measurement error appears insufficient to explain why

the external validity of incentivized risk preference elicitation methods is generally found to be low.

It remains an open question why we find that the external validity of incentivized methods is so low. A potential explanation is that the incentivized methods that we used are relatively complex for participants to understand (e.g., Charness et al., 2013). However, this conjecture is at odds with our observation that participants exhibit relatively high levels of understanding both in their behavior (i.e., the low prevalence of dominated choices and multiple switching) as well as their own subjective assessment. Moreover, in a robustness check where we re-run our analysis concerning external validity on a quarter of the participants that we classified (under some strict criteria) as individuals with high understanding, we find that our conclusions are largely unaltered.

An alternative explanation is that the stakes that we used for the incentivized methods are too small. Consequently, it might be that people's propensity to take risks in these tasks is related to different factors than the large-stake and more long-term oriented financial and occupational choices. This could also potentially explain why the correlation between incentivized methods and lower-impact health-related behavior such as social distancing and handwashing tends to be higher. At the same time, however, there is evidence suggesting that behavior in risk elicitation tasks is not affected by low to moderate incentives compared to no incentives (Hackethal et al., 2023). Moreover, in a different setting, it was found that (very) high stakes in experiments do not necessarily improve the decision quality in participants' decisions (Enke et al., 2023). More research is needed that investigates the external validity of incentivized methods that use (very) high stakes.

We also acknowledge that the choice of the incentive structure (i.e., paying only 1 out of 5 participants) could have caused a selection effect in our sample. In particular, it may have been the case that more risk-averse individuals were less likely to accept this "gamble" and therefore influence the distribution of risk preferences in our sample. However, even if such selection effects play a role, this should not affect the general conclusions about convergent and external validity: the average level of risk tolerance should not affect the correlations between preference measures and field behavior.

Finally, it is important to note that the variety of incentivized risk preference methods that exist is large, and although we include multiple methods, the results of our study do not necessarily extend to other risk preference methods that we did not include. The scope of our study also does not allow us to systematically explore which specific factors of incentivized methods

may improve or deteriorate the external validity of specific methods. More systematic research is needed into other existing methods and determining which designs can capture risk preferences that exhibit higher correlations with risk-related field behavior.

To conclude, accurately measuring risk preferences is an important topic for researchers, policymakers, and professionals, and hence it is important that we can ensure the validity of the methods that we use. Despite the intuitive appeal of incentivized risk preference methods, the methods generally perform poorly when they are evaluated on their convergent and external validity (e.g., Friedman et al., 2014; Mata et al., 2018). As shown in this paper, accounting for measurement error partly addresses the issue for the incentivized methods that we study: it improves their convergent validity, but it does not improve their external validity. In contrast, stated preference methods appear to perform much better on convergent and external validity (Mata et al., 2018), something that we confirm in this paper as well. An important drawback of stated preference methods, however, is that they do not allow for quantitative parameter estimates and are generally harder to interpret. Moving forward, it is important to further investigate why incentivized risk preference elicitation methods generally perform poorly concerning external validity and use these insights to improve the validity of the methods.

References

Andreoni, J. and Sprenger, C. (2012a). Estimating Time Preferences from Convex Budgets. *American Economic Review*, 102(7):3333–56.

Andreoni, J. and Sprenger, C. (2012b). Risk Preferences Are Not Time Preferences. *American Economic Review*, 102(7):3357–76.

Azrieli, Y., Chambers, C. P., and Healy, P. J. (2020). Incentives in experiments with objective lotteries. *Experimental Economics*, 23(1):1–29.

Barsky, R. B., Juster, F. T., Kimball, M. S., and Shapiro, M. D. (1997). Preference Parameters and Behavioral Heterogeneity: An Experimental Approach in the Health and Retirement Study. *The Quarterly Journal of Economics*, 112(2):537–579.

Beauchamp, J. P., Cesarini, D., and Johannesson, M. (2017). The psychometric and empirical properties of measures of risk preferences. *Journal of Risk and Uncertainty*, 54(3):203–237.

Bergeot, J. and Jusot, F. (2022). *Beliefs, Risk and Time Preferences and COVID-19 Preventive Behavior: Evidence from France*. SHARE Working Paper Series 79-2022.

Bokern, P., Linde, J., Riedl, A., Schmeets, H., and Werner, P. (2021). A survey of risk preference measures and their relation to field behavior. *Netspar Survey Paper*, 58.

Bokern, P., Linde, J., Riedl, A., and Werner, P. (2023). *The Robustness of Preferences During a Crisis: The Case of COVID-19*. Available at SSRN: http://dx.doi.org/10.2139/ssrn.452442.

Brown, S., Garino, G., and Taylor, K. (2013). Household debt and attitudes toward risk. *Review of Income and Wealth*, 59(2):283–304.

Charness, G., Garcia, T., Offerman, T., and Villeval, M. C. (2020). Do measures of risk attitude in the laboratory predict behavior under risk in and outside of the laboratory? *Journal of Risk and Uncertainty*, 60(2):99–123.

Charness, G., Gneezy, U., and Halladay, B. (2016). Experimental methods: Pay one or pay all. *Journal of Economic Behavior & Organization*, 131:141–150.

Charness, G., Gneezy, U., and Imas, A. (2013). Experimental methods: Eliciting risk preferences. *Journal of Economic Behavior & Organization*, 87:43–51.

Cohen, M., Jaffray, J.-Y., and Said, T. (1987). Experimental comparison of individual behavior under risk and under uncertainty for gains and for losses. *Organizational Behavior and Human Decision Processes*, 39(1):1–22.

Collier, T., Cotten, S., and Roush, J. (2022). Using pandemic behavior to test the external validity of laboratory measurements of risk aversion and guilt. *Journal of Behavioral and*

Experimental Economics, 101:101938.

Crosetto, P. and Filippin, A. (2016). A theoretical and experimental appraisal of four risk elicitation methods. *Experimental Economics*, 19(3):613–641.

Csermely, T. and Rabas, A. (2016). How to reveal people's preferences: Comparing time consistency and predictive power of multiple price list risk elicitation methods. *Journal of Risk and Uncertainty*, 53(2):107–136.

Ding, X., Hartog, J., and Sun, Y. (2010). *Can we measure individual risk attitudes in a survey?* IZA Discussion Paper No. 4807.

Dohmen, T., Falk, A., Huffman, D., Sunde, U., Schupp, J., and Wagner, G. G. (2011). Individual Risk Attitudes: Measurement, Determinants, and Behavioral Consequences. *Journal of the European Economic Association*, 9(3):522–550.

Drichoutis, A. C. and Lusk, J. L. (2016). What can multiple price lists really tell us about risk preferences? *Journal of Risk and Uncertainty*, 53(2):89–106.

Eckel, C. C. (2019). *Measuring individual risk preferences*. IZA World of Labor.

Eckel, C. C. and Grossman, P. J. (2002). Sex differences and statistical stereotyping in attitudes toward financial risk. *Evolution and Human Behavior*, 23(4):281–295.

Enke, B., Gneezy, U., Hall, B., Martin, D., Nelidov, V., Offerman, T., and van de Ven, J. (2023). Cognitive Biases: Mistakes or Missing Stakes? *The Review of Economics and Statistics*, pages 1–15.

Friedman, D., Habib, S., James, D., and Williams, B. (2022). Varieties of risk preference elicitation. *Games and Economic Behavior*, 133:58–76.

Friedman, D., Isaac, R. M., James, D., and Sunder, S. (2014). *Risky Curves: On the Empirical Failure of Expected Utility*. London, England: Routledge.

Galizzi, M. M., Machado, S. R., and Miniaci, R. (2016). *Temporal stability, cross-validity, and external validity of risk preferences measures: Experimental evidence from a UK representative sample.* Available at SSRN: http://dx.doi.org/10.2139/ssrn.2822613.

Gillen, B., Snowberg, E., and Yariv, L. (2019). Experimenting with Measurement Error: Techniques with Applications to the Caltech Cohort Study. *Journal of Political Economy*, 127(4):1826–1863.

Gneezy, U. and Potters, J. (1997). An Experiment on Risk Taking and Evaluation Periods. *The Quarterly Journal of Economics*, 112(2):631–645.

Hackethal, A., Kirchler, M., Laudenbach, C., Razen, M., and Weber, A. (2023). On the role of monetary incentives in risk preference elicitation experiments. *Journal of Risk and Uncertainty*,

66(2):189–213.

Hardeweg, B., Menkhoff, L., and Waibel, H. (2013). Experimentally Validated Survey Evidence on Individual Risk Attitudes in Rural Thailand. *Economic Development and Cultural Change*, 61(4):859–888.

Harrison, G. W. and Rutström, E. E. (2008). Risk Aversion in the Laboratory. In *Risk aversion in experiments*, pages 41–196. Emerald Group Publishing Limited.

He, P., Veronesi, M., and Engel, S. (2018). Consistency of Risk Preference Measures: An Artefactual Field Experiment from Rural China. *The Journal of Development Studies*, 54(11):1955–1973.

Holt, C. A. and Laury, S. K. (2002). Risk Aversion and Incentive Effects. *The American Economic Review*, 92(5):1644–1655.

Holzmeister, F. and Stefan, M. (2021). The risk elicitation puzzle revisited: Across-methods (in)consistency? *Experimental Economics*, 24(2):593–616.

Loomes, G. and Pogrebna, G. (2014). Measuring Individual Risk Attitudes when Preferences are Imprecise. *The Economic Journal*, 124(576):569–593.

Mata, R., Frey, R., Richter, D., Schupp, J., and Hertwig, R. (2018). Risk Preference: A View from Psychology. *Journal of Economic Perspectives*, 32(2):155–72.

Menkhoff, L. and Sakha, S. (2017). Estimating risky behavior with multiple-item risk measures. *Journal of Economic Psychology*, 59:59–86.

Miao, B. and Zhong, S. (2015). Risk Preferences Are Not Time Preferences: Separating Risk and Time Preference: Comment. *American Economic Review*, 105(7):2272–86.

Müller, S. and Rau, H. A. (2021). Economic preferences and compliance in the social stress test of the COVID-19 crisis. *Journal of Public Economics*, 194:104322.

Pedroni, A., Frey, R., Bruhin, A., Dutilh, G., Hertwig, R., and Rieskamp, J. (2017). The risk elicitation puzzle. *Nature Human Behaviour*, 1(11):803–809.

Perez, F., Hollard, G., and Vranceanu, R. (2021). How serious is the measurement-error problem in risk-aversion tasks? *Journal of Risk and Uncertainty*, 63(3):319–342.

Potters, J., Riedl, A., and Smeets, P. (2016). Towards a practical and scientifically sound tool for measuring time and risk preferences in pension savings decisions. *Netspar Design Paper*, 59.

Schildberg-Hörisch, H. (2018). Are Risk Preferences Stable? *Journal of Economic Perspectives*, 32(2):135–54.

Sheth, K. and Wright, G. C. (2020). The usual suspects: do risk tolerance, altruism, and health

predict the response to COVID-19? *Review of Economics of the Household*, 18(4):1041–1052.

Tanaka, T., Camerer, C. F., and Nguyen, Q. (2010). Risk and Time Preferences: Linking Experimental and Household Survey Data from Vietnam. *American Economic Review*, 100(1):557–71.

Tversky, A. and Kahneman, D. (1992). Advances in prospect theory: Cumulative representation of uncertainty. *Journal of Risk and Uncertainty*, 5(4):297–323.

Yu, C. W., Zhang, Y. J., and Zuo, S. X. (2021). Multiple Switching and Data Quality in the Multiple Price List. *The Review of Economics and Statistics*, 103(1):136–150.

A Additional Results

A.1 Full Regressions - Risk Preference Measures and Field Behavior

Table A1: Full Regressions - CTB and Field Behavior

	Financial				Occupation	Health	
	Savings log	Investments y/n	Investments ratio	Debt y/n	Self-Employed y/n	Distancing z-score	Handwashing z-score
CTB	0.02	0.01	0.00	-0.01	0.02*	-0.07**	-0.03
	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
Female	0.09	-0.01	-0.02	-0.06***	-0.07***	0.21***	0.39***
	(0.05)	(0.01)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Age	0.01***	0.00***	0.00***	-0.00	0.00***	0.02***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Breadwinner (1=yes)	-0.22***	-0.03	0.02	-0.05**	-0.08***	-0.05	-0.09**
	(0.05)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Migration Background (1=native)	0.29***	0.01	-0.01	-0.09***	-0.01	-0.10*	-0.27***
	(0.08)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.04)
Marital Status (1=married)	0.10	-0.02	-0.03	-0.04*	-0.03	0.06	0.05
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Children (1=yes)	-0.07	-0.01	-0.02	0.13***	0.02	-0.07	-0.06
	(0.07)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Household Wealth Other (Quintile=2)	0.50***	0.03	0.01	-0.05*	-0.07**	-0.01	-0.03
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Wealth Other (Quintile=3)	0.78***	0.06**	0.07*	-0.05	0.03	0.08	-0.03
	(0.09)	(0.02)	(0.03)	(0.03)	(0.02)	(0.05)	(0.05)
Household Wealth Other (Quintile=4)	1.12***	0.19***	0.06*	-0.06*	0.11***	0.02	-0.12*
	(0.09)	(0.02)	(0.03)	(0.03)	(0.03)	(0.05)	(0.05)
Household Wealth Other (Quintile=5)	1.23***	0.25***	0.13***	0.11***	0.37***	-0.02	-0.10
	(0.10)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.06)
Household Income (Quintile=2)	0.32***	0.01	-0.00	-0.07**	-0.05*	0.01	0.01
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=3)	0.65***	0.05*	-0.04	-0.05*	-0.09***	-0.00	-0.02
	(0.08)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=4)	0.77***	0.07***	-0.03	-0.09***	-0.11***	0.03	-0.01
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=5)	0.95***	0.17***	-0.01	-0.05	-0.04	0.01	-0.03
	(0.09)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.06)
Constant Stack 1	8.01***	0.02	0.14**	0.53***	0.24***	-0.78***	-0.32***
	(0.15)	(0.03)	(0.05)	(0.04)	(0.04)	(0.09)	(0.08)
Constant Stack 2	8.01***	0.02	0.14**	0.53***	0.24***	-0.78***	-0.32***
	(0.15)	(0.03)	(0.05)	(0.04)	(0.04)	(0.09)	(0.08)
Observations	8552	8552	2604	8552	8552	8520	8528

Notes: Coefficients are from a stacked 2SLS regression with duplicate measures as IV's, one constant per stack, and clustered standard errors (in parenthesis), following the ORIV approach (Equation 1). *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table A2: Full Regressions - PGp and Field Behavior

	Financial				Occupation	Health	
	Savings log	Investments y/n	Investments ratio	Debt y/n	Self-Employed y/n	Distancing z-score	Handwashing z-score
PGp	-0.04	0.02	0.01	0.01	0.02	-0.12**	-0.05
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Female	0.09	-0.01	-0.02	-0.06***	-0.07***	0.21***	0.39***
	(0.05)	(0.01)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Age	0.01***	0.00***	0.00***	-0.00	0.00***	0.02***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Breadwinner (1=yes)	-0.22***	-0.03	0.02	-0.05**	-0.08***	-0.05	-0.09**
	(0.05)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Migration Background (1=native)	0.30***	0.01	-0.01	-0.09***	-0.01	-0.10*	-0.27***
	(0.08)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.04)
Marital Status (1=married)	0.10	-0.02	-0.03	-0.04*	-0.03	0.06	0.05
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Children (1=yes)	-0.07	-0.01	-0.02	0.13***	0.02	-0.07	-0.06
	(0.07)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Household Wealth Other (Quintile=2)	0.50***	0.03	0.01	-0.05*	-0.07**	-0.01	-0.03
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Wealth Other (Quintile=3)	0.79***	0.06**	0.07*	-0.05	0.03	0.07	-0.03
	(0.09)	(0.02)	(0.03)	(0.03)	(0.02)	(0.05)	(0.05)
Household Wealth Other (Quintile=4)	1.12***	0.19***	0.06*	-0.07*	0.12***	0.02	-0.12*
	(0.09)	(0.02)	(0.03)	(0.03)	(0.03)	(0.05)	(0.05)
Household Wealth Other (Quintile=5)	1.24***	0.25***	0.13***	0.11***	0.37***	-0.02	-0.10
	(0.10)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.06)
Household Income (Quintile=2)	0.32***	0.01	-0.00	-0.07**	-0.05*	0.01	0.01
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=3)	0.65***	0.05*	-0.04	-0.05*	-0.09***	-0.01	-0.02
	(0.08)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=4)	0.77***	0.07**	-0.03	-0.09***	-0.11***	0.03	-0.01
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=5)	0.95***	0.17***	-0.01	-0.05	-0.04	0.01	-0.03
	(0.09)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.06)
Constant Stack 1	7.98***	0.03	0.15**	0.54***	0.26***	-0.85***	-0.35***
	(0.15)	(0.04)	(0.05)	(0.04)	(0.04)	(0.09)	(0.09)
Constant Stack 2	7.98***	0.03	0.15**	0.54***	0.25***	-0.85***	-0.35***
	(0.15)	(0.04)	(0.05)	(0.04)	(0.04)	(0.09)	(0.09)
Observations	8552	8552	2604	8552	8552	8520	8528

Notes: Coefficients are from a stacked 2SLS regression with duplicate measures as IV's, one constant per stack, and clustered standard errors (in parenthesis), following the ORIV approach (Equation 1). *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table A3: Full Regressions - SGsure and Field Behavior

	Financial				Occupation	Health	
	Savings log	Investments y/n	Investments ratio	Debt y/n	Self-Employed y/n	Distancing z-score	Handwashing z-score
SGsure	0.02	0.02	0.06*	-0.01	0.02	-0.14**	-0.12**
	(0.07)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Female	0.09	-0.01	-0.01	-0.06***	-0.07***	0.20***	0.38***
	(0.05)	(0.01)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Age	0.01***	0.00***	0.00***	-0.00	0.00***	0.02***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Breadwinner (1=yes)	-0.22***	-0.03	0.02	-0.05**	-0.08***	-0.05	-0.08*
	(0.05)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Migration Background (1=native)	0.29***	0.01	-0.01	-0.09***	-0.01	-0.10*	-0.27***
	(0.08)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.04)
Marital Status (1=married)	0.10	-0.02	-0.03	-0.04*	-0.03	0.06	0.05
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Children (1=yes)	-0.07	-0.01	-0.02	0.13***	0.02	-0.07	-0.06
	(0.07)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Household Wealth Other (Quintile=2)	0.50***	0.04	0.02	-0.06*	-0.07**	-0.03	-0.04
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Wealth Other (Quintile=3)	0.79***	0.06**	0.07*	-0.05	0.03	0.07	-0.03
	(0.09)	(0.02)	(0.03)	(0.03)	(0.02)	(0.05)	(0.05)
Household Wealth Other (Quintile=4)	1.12***	0.19***	0.06*	-0.06*	0.12***	0.02	-0.12*
	(0.09)	(0.02)	(0.03)	(0.03)	(0.03)	(0.05)	(0.05)
Household Wealth Other (Quintile=5)	1.23***	0.25***	0.13***	0.11***	0.37***	-0.01	-0.09
	(0.10)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.06)
Household Income (Quintile=2)	0.32***	0.01	-0.00	-0.07**	-0.05*	0.01	0.01
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=3)	0.65***	0.05*	-0.05	-0.05*	-0.09***	0.00	-0.01
	(0.08)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=4)	0.77***	0.07**	-0.03	-0.09***	-0.11***	0.04	0.00
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=5)	0.95***	0.17***	-0.02	-0.05	-0.04	0.02	-0.02
	(0.09)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.06)
Constant Stack 1	8.01***	0.03	0.16**	0.52***	0.24***	-0.82***	-0.36***
	(0.15)	(0.04)	(0.05)	(0.04)	(0.04)	(0.09)	(0.09)
Constant Stack 2	8.01***	0.03	0.16**	0.52***	0.24***	-0.82***	-0.36***
	(0.15)	(0.04)	(0.05)	(0.04)	(0.04)	(0.09)	(0.09)
Observations	8552	8552	2604	8552	8552	8520	8528

Notes: Coefficients are from a stacked 2SLS regression with duplicate measures as IV's, one constant per stack, and clustered standard errors (in parenthesis), following the ORIV approach (Equation 1). *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table A4: Full Regressions - PGhigh and Field Behavior

	Financial				Occupation	Health	
	Savings log	Investments y/n	Investments ratio	Debt y/n	Self-Employed y/n	Distancing z-score	Handwashing z-score
PGhigh	-0.03	0.01	0.01	0.01	0.01	-0.06**	0.00
	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
Female	0.09	-0.01	-0.02	-0.06***	-0.07***	0.21***	0.40***
	(0.05)	(0.01)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Age	0.01***	0.00***	0.00***	-0.00	0.00***	0.02***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Breadwinner (1=yes)	-0.22***	-0.03	0.02	-0.05**	-0.08***	-0.05	-0.09**
	(0.05)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Migration Background (1=native)	0.30***	0.01	-0.01	-0.09***	-0.01	-0.10*	-0.27***
	(0.08)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.04)
Marital Status (1=married)	0.10	-0.02	-0.03	-0.04*	-0.03	0.06	0.05
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Children (1=yes)	-0.07	-0.01	-0.02	0.13***	0.02	-0.07	-0.06
	(0.07)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Household Wealth Other (Quintile=2)	0.50***	0.03	0.01	-0.06*	-0.07**	-0.01	-0.03
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Wealth Other (Quintile=3)	0.79***	0.06**	0.07*	-0.05	0.03	0.07	-0.03
	(0.09)	(0.02)	(0.03)	(0.03)	(0.02)	(0.05)	(0.05)
Household Wealth Other (Quintile=4)	1.12***	0.19***	0.06*	-0.07*	0.12***	0.02	-0.12*
	(0.09)	(0.02)	(0.03)	(0.03)	(0.03)	(0.05)	(0.05)
Household Wealth Other (Quintile=5)	1.23***	0.26***	0.13***	0.11***	0.37***	-0.02	-0.10
	(0.10)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.06)
Household Income (Quintile=2)	0.32***	0.01	-0.00	-0.07**	-0.05*	0.01	0.01
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=3)	0.65***	0.05*	-0.04	-0.05*	-0.09***	-0.00	-0.02
	(0.08)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=4)	0.77***	0.07***	-0.03	-0.09***	-0.11***	0.03	-0.01
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=5)	0.95***	0.17***	-0.01	-0.05	-0.04	0.00	-0.04
	(0.09)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.06)
Constant	7.98***	0.03	0.15**	0.53***	0.25***	-0.80***	-0.32***
	(0.15)	(0.04)	(0.05)	(0.04)	(0.04)	(0.09)	(0.09)
Observations	4276	4276	1302	4276	4276	4260	4264

Notes: Coefficients are from OLS regressions with robust standard errors in parenthesis. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table A5: Full Regressions - GRQ and Field Behavior

	Financial				Occupation	Health	
	Savings log	Investments y/n	Investments ratio	Debt y/n	Self-Employed y/n	Distancing z-score	Handwashing z-score
GRQ	-0.22***	0.05***	0.06***	0.06***	0.08***	-0.11***	-0.04
	(0.04)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
Female	0.02	0.01	0.00	-0.04*	-0.05**	0.18***	0.39***
	(0.05)	(0.01)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Age	0.01***	0.00***	0.00***	-0.00	0.00***	0.02***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Breadwinner (1=yes)	-0.21***	-0.03	0.02	-0.05**	-0.08***	-0.05	-0.09**
	(0.05)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Migration Background (1=native)	0.30***	0.01	-0.02	-0.10***	-0.02	-0.10*	-0.27***
	(0.08)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.04)
Marital Status (1=married)	0.06	-0.01	-0.02	-0.03	-0.01	0.04	0.04
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Children (1=yes)	-0.04	-0.01	-0.03	0.12***	0.01	-0.06	-0.05
	(0.07)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Household Wealth Other (Quintile=2)	0.46***	0.04*	0.02	-0.04	-0.06**	-0.03	-0.04
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Wealth Other (Quintile=3)	0.77***	0.07**	0.07*	-0.04	0.04	0.06	-0.03
	(0.09)	(0.02)	(0.03)	(0.03)	(0.02)	(0.05)	(0.05)
Household Wealth Other (Quintile=4)	1.12***	0.19***	0.07*	-0.06*	0.12***	0.01	-0.12*
	(0.09)	(0.02)	(0.03)	(0.03)	(0.03)	(0.05)	(0.05)
Household Wealth Other (Quintile=5)	1.27***	0.25***	0.12***	0.10***	0.36***	-0.00	-0.09
	(0.10)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.06)
Household Income (Quintile=2)	0.32***	0.01	-0.00	-0.07**	-0.05*	0.01	0.01
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=3)	0.65***	0.05*	-0.05	-0.05*	-0.09***	-0.00	-0.02
	(0.08)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=4)	0.79***	0.07**	-0.03	-0.10***	-0.12***	0.04	-0.01
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=5)	0.98***	0.16***	-0.02	-0.06*	-0.05	0.01	-0.03
	(0.09)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.06)
Constant Stack 1	8.07***	0.01	0.13**	0.51***	0.21***	-0.73***	-0.30***
	(0.15)	(0.03)	(0.05)	(0.04)	(0.04)	(0.09)	(0.08)
Constant Stack 2	8.08***	0.01	0.13**	0.51***	0.21***	-0.73***	-0.30***
	(0.15)	(0.03)	(0.05)	(0.04)	(0.04)	(0.09)	(0.08)
Observations	8552	8552	2604	8552	8552	8520	8528

Notes: Coefficients are from a stacked 2SLS regression with duplicate measures as IV's, one constant per stack, and clustered standard errors (in parenthesis), following the ORIV approach (Equation 1). *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table A6: Full Regressions - FRQ and Field Behavior

	Financial				Occupation	Health	
	Savings log	Investments y/n	Investments ratio	Debt y/n	Self-Employed y/n	Distancing z-score	Handwashing z-score
FRQ	-0.12***	0.11***	0.07***	0.04***	0.09***	-0.16***	-0.11***
	(0.04)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
Female	0.05	0.03	0.01	-0.04**	-0.04**	0.16***	0.36***
	(0.05)	(0.01)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Age	0.01***	0.00***	0.00***	-0.00	0.00***	0.02***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Breadwinner (1=yes)	-0.21***	-0.03*	0.01	-0.05**	-0.08***	-0.04	-0.08*
	(0.05)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Migration Background (1=native)	0.30***	0.01	-0.02	-0.09***	-0.01	-0.10*	-0.27***
	(0.08)	(0.02)	(0.02)	(0.02)	(0.02)	(0.05)	(0.04)
Marital Status (1=married)	0.08	-0.00	-0.02	-0.03	-0.01	0.03	0.03
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Children (1=yes)	-0.06	-0.02	-0.02	0.12***	0.01	-0.06	-0.05
	(0.07)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Household Wealth Other (Quintile=2)	0.48***	0.05*	0.02	-0.05*	-0.06**	-0.03	-0.04
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Wealth Other (Quintile=3)	0.79***	0.06**	0.07*	-0.05	0.03	0.07	-0.03
	(0.09)	(0.02)	(0.03)	(0.03)	(0.02)	(0.05)	(0.05)
Household Wealth Other (Quintile=4)	1.13***	0.18***	0.06*	-0.07**	0.11***	0.02	-0.12*
	(0.09)	(0.02)	(0.03)	(0.03)	(0.03)	(0.05)	(0.05)
Household Wealth Other (Quintile=5)	1.27***	0.23***	0.12***	0.10***	0.35***	0.02	-0.07
	(0.10)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.06)
Household Income (Quintile=2)	0.32***	0.00	-0.00	-0.07**	-0.06**	0.02	0.01
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=3)	0.65***	0.04*	-0.05	-0.06*	-0.10***	0.00	-0.02
	(0.08)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=4)	0.79***	0.06**	-0.03	-0.10***	-0.12***	0.05	0.00
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=5)	0.97***	0.15***	-0.02	-0.06*	-0.05*	0.02	-0.02
	(0.09)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.06)
Constant Stack 1	8.05***	-0.01	0.12*	0.51***	0.21***	-0.71***	-0.28***
	(0.15)	(0.03)	(0.05)	(0.04)	(0.04)	(0.09)	(0.08)
Constant Stack 2	8.05***	-0.02	0.12*	0.51***	0.21***	-0.71***	-0.28***
	(0.15)	(0.03)	(0.05)	(0.04)	(0.04)	(0.09)	(0.08)
Observations	8552	8552	2604	8552	8552	8520	8528

Notes: Coefficients are from a stacked 2SLS regression with duplicate measures as IV's, one constant per stack, and clustered standard errors (in parenthesis), following the ORIV approach (Equation 1). *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table A7: Full Regressions - CRQ and Field Behavior

	Financial				Occupation	Health	
	Savings log	Investments y/n	Investments ratio	Debt y/n	Self-Employed y/n	Distancing z-score	Handwashing z-score
CRQ	-0.20***	0.02	0.04**	0.06***	0.12***	-0.07**	-0.05*
	(0.04)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
Female	0.06	-0.01	-0.02	-0.05**	-0.05***	0.21***	0.39***
	(0.05)	(0.01)	(0.02)	(0.02)	(0.01)	(0.03)	(0.03)
Age	0.01***	0.00***	0.00***	-0.00	0.00***	0.02***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Breadwinner (1=yes)	-0.23***	-0.02	0.03	-0.05**	-0.07***	-0.06	-0.09**
	(0.05)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Migration Background (1=native)	0.30***	0.01	-0.01	-0.09***	-0.01	-0.10*	-0.27***
	(0.08)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.04)
Marital Status (1=married)	0.08	-0.02	-0.02	-0.03	-0.01	0.05	0.05
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Children (1=yes)	-0.07	-0.01	-0.02	0.13***	0.02	-0.07	-0.06
	(0.07)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Household Wealth Other (Quintile=2)	0.46***	0.04	0.02	-0.04	-0.05*	-0.03	-0.04
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Wealth Other (Quintile=3)	0.76***	0.07**	0.07*	-0.04	0.04	0.06	-0.04
	(0.09)	(0.02)	(0.03)	(0.03)	(0.02)	(0.05)	(0.05)
Household Wealth Other (Quintile=4)	1.12***	0.19***	0.06*	-0.06*	0.12***	0.01	-0.12*
	(0.09)	(0.02)	(0.03)	(0.03)	(0.03)	(0.05)	(0.05)
Household Wealth Other (Quintile=5)	1.26***	0.25***	0.13***	0.10***	0.36***	-0.01	-0.09
	(0.10)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.06)
Household Income (Quintile=2)	0.30***	0.01	-0.00	-0.07**	-0.04	0.00	0.00
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=3)	0.63***	0.05*	-0.05	-0.05*	-0.08***	-0.01	-0.03
	(0.08)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=4)	0.76***	0.08***	-0.03	-0.09***	-0.10***	0.02	-0.01
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=5)	0.95***	0.17***	-0.01	-0.05	-0.03	-0.00	-0.04
	(0.09)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.06)
Constant Stack 1	8.09***	0.01	0.14**	0.50***	0.19***	-0.74***	-0.30***
	(0.15)	(0.04)	(0.05)	(0.04)	(0.04)	(0.09)	(0.08)
Constant Stack 2	8.10***	0.01	0.14**	0.50***	0.18***	-0.74***	-0.30***
	(0.15)	(0.04)	(0.05)	(0.04)	(0.04)	(0.09)	(0.08)
Observations	8552	8552	2604	8552	8552	8520	8528

Notes: Coefficients are from a stacked 2SLS regression with duplicate measures as IV's, one constant per stack, and clustered standard errors (in parenthesis), following the ORIV approach (Equation 1). *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table A8: Full Regressions - HRQ and Field Behavior

	Financial				Occupation	Health	
	Savings log	Investments y/n	Investments ratio	Debt y/n	Self-Employed y/n	Distancing z-score	Handwashing z-score
HRQ	-0.13***	0.01	0.02*	0.03**	0.06***	-0.29***	-0.26***
	(0.04)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
Female	0.07	-0.01	-0.02	-0.05***	-0.06***	0.18***	0.36***
	(0.05)	(0.01)	(0.02)	(0.02)	(0.01)	(0.03)	(0.03)
Age	0.01***	0.00***	0.00***	-0.00	0.00***	0.01***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Breadwinner (1=yes)	-0.22***	-0.03	0.02	-0.05**	-0.08***	-0.04	-0.08*
	(0.05)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Migration Background (1=native)	0.31***	0.01	-0.02	-0.10***	-0.02	-0.06	-0.23***
	(0.08)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.04)
Marital Status (1=married)	0.08	-0.02	-0.03	-0.04*	-0.02	0.02	0.01
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Children (1=yes)	-0.07	-0.01	-0.02	0.13***	0.02	-0.06	-0.05
	(0.07)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Household Wealth Other (Quintile=2)	0.48***	0.04	0.02	-0.05*	-0.06**	-0.06	-0.08
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Wealth Other (Quintile=3)	0.77***	0.07**	0.07*	-0.04	0.04	0.04	-0.06
	(0.09)	(0.02)	(0.03)	(0.03)	(0.02)	(0.05)	(0.05)
Household Wealth Other (Quintile=4)	1.12***	0.19***	0.06*	-0.06*	0.12***	0.00	-0.13*
	(0.09)	(0.02)	(0.03)	(0.03)	(0.03)	(0.05)	(0.05)
Household Wealth Other (Quintile=5)	1.23***	0.26***	0.13***	0.11***	0.37***	-0.02	-0.10
	(0.10)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.06)
Household Income (Quintile=2)	0.32***	0.01	-0.00	-0.07**	-0.06*	0.02	0.02
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=3)	0.65***	0.05*	-0.05	-0.05*	-0.09***	0.00	-0.02
	(0.08)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=4)	0.77***	0.07***	-0.03	-0.09***	-0.11***	0.03	-0.01
	(0.09)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.05)
Household Income (Quintile=5)	0.96***	0.17***	-0.01	-0.05	-0.04	0.01	-0.03
	(0.09)	(0.03)	(0.03)	(0.03)	(0.03)	(0.05)	(0.05)
Constant Stack 1	8.07***	0.02	0.14**	0.51***	0.21***	-0.62***	-0.18*
	(0.14)	(0.04)	(0.05)	(0.04)	(0.04)	(0.09)	(0.08)
Constant Stack 2	8.07***	0.01	0.14**	0.51***	0.21***	-0.62***	-0.18*
	(0.14)	(0.04)	(0.05)	(0.04)	(0.04)	(0.09)	(0.08)
Observations	8552	8552	2604	8552	8552	8520	8528

Notes: Coefficients are from a stacked 2SLS regression with duplicate measures as IV's, one constant per stack, and clustered standard errors (in parenthesis), following the ORIV approach (Equation 1). *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

A.2 Full Regressions - Risk Preference Measures and Field Behavior for High Understanding

Table A9: Full Regressions - CTB and Field Behavior for High Understanding

	Financial				Occupation	Health	
	Savings log	Investments y/n	Investments ratio	Debt y/n	Self-Employed y/n	Distancing z-score	Handwashing z-score
CTB	0.08	0.05**	0.01	0.01	0.04*	-0.09**	-0.08
	(0.05)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Female	0.19	-0.02	-0.02	-0.03	-0.06	0.19**	0.34***
	(0.10)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.07)
Age	0.01*	0.00	0.00**	0.00	0.01***	0.02***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Breadwinner (1=yes)	-0.21*	-0.03	0.03	-0.03	-0.09**	-0.05	-0.08
	(0.09)	(0.03)	(0.03)	(0.03)	(0.03)	(0.07)	(0.07)
Migration Background (1=native)	0.13	0.08*	0.03	-0.09*	0.00	-0.17*	-0.22*
	(0.14)	(0.04)	(0.05)	(0.04)	(0.04)	(0.08)	(0.09)
Marital Status (1=married)	0.19*	-0.02	-0.08*	-0.08*	-0.02	0.02	-0.01
	(0.10)	(0.03)	(0.04)	(0.03)	(0.03)	(0.07)	(0.07)
Children (1=yes)	0.01	0.01	-0.01	0.11**	0.00	-0.10	-0.02
	(0.11)	(0.03)	(0.04)	(0.04)	(0.04)	(0.08)	(0.08)
Household Wealth Other (Quintile=2)	0.29	0.05	0.06	-0.03	-0.05	-0.11	-0.06
	(0.16)	(0.04)	(0.05)	(0.05)	(0.04)	(0.10)	(0.10)
Household Wealth Other (Quintile=3)	0.46**	0.06	0.15**	-0.09	0.03	0.05	-0.11
	(0.17)	(0.04)	(0.06)	(0.05)	(0.05)	(0.10)	(0.11)
Household Wealth Other (Quintile=4)	0.90***	0.22***	0.18**	-0.09	0.12*	-0.01	-0.20
	(0.16)	(0.05)	(0.06)	(0.05)	(0.05)	(0.10)	(0.11)
Household Wealth Other (Quintile=5)	1.13***	0.21***	0.15*	0.08	0.33***	-0.08	-0.10
	(0.18)	(0.05)	(0.06)	(0.06)	(0.05)	(0.12)	(0.12)
Household Income (Quintile=2)	0.16	-0.02	-0.01	-0.06	-0.04	0.06	-0.05
	(0.17)	(0.04)	(0.07)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=3)	0.78***	0.06	-0.06	-0.01	-0.09*	0.03	0.03
	(0.16)	(0.04)	(0.06)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=4)	0.86***	-0.00	-0.01	-0.09*	-0.11*	0.07	-0.03
	(0.16)	(0.04)	(0.06)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=5)	0.92***	0.20***	0.01	-0.04	-0.05	-0.18	-0.18
	(0.17)	(0.05)	(0.06)	(0.05)	(0.05)	(0.10)	(0.11)
Constant Stack 1	8.26***	0.09	0.06	0.40***	0.17*	-0.56***	-0.36*
	(0.23)	(0.06)	(0.09)	(0.07)	(0.06)	(0.16)	(0.16)
Constant Stack 2	8.26***	0.08	0.06	0.40***	0.17*	-0.55***	-0.36*
	(0.23)	(0.06)	(0.09)	(0.07)	(0.06)	(0.16)	(0.16)
Observations	2228	2228	708	2228	2228	2222	2222

Notes: Coefficients are from a stacked 2SLS regression with duplicate measures as IV's, one constant per stack, and clustered standard errors (in parenthesis), following the ORIV approach (Equation 1). *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table A10: Full Regressions - PGp and Field Behavior for High Understanding

	Financial				Occupation	Health	
	Savings log	Investments y/n	Investments ratio	Debt y/n	Self-Employed y/n	Distancing z-score	Handwashing z-score
PGp	-0.02	0.10**	0.05	0.02	0.06	-0.18*	-0.07
	(0.13)	(0.04)	(0.04)	(0.04)	(0.04)	(0.08)	(0.09)
Female	0.17	-0.02	-0.02	-0.03	-0.06	0.19**	0.35***
	(0.10)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.07)
Age	0.01	0.00	0.00**	0.00	0.01***	0.02***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Breadwinner (1=yes)	-0.20*	-0.03	0.04	-0.03	-0.09**	-0.06	-0.09
	(0.09)	(0.03)	(0.03)	(0.03)	(0.03)	(0.07)	(0.07)
Migration Background (1=native)	0.14	0.08*	0.02	-0.09*	0.01	-0.17*	-0.23**
	(0.14)	(0.04)	(0.05)	(0.04)	(0.04)	(0.08)	(0.09)
Marital Status (1=married)	0.19	-0.02	-0.08*	-0.08*	-0.03	0.03	-0.01
	(0.10)	(0.03)	(0.04)	(0.03)	(0.03)	(0.07)	(0.07)
Children (1=yes)	0.02	0.01	-0.01	0.11**	0.00	-0.10	-0.03
	(0.11)	(0.03)	(0.04)	(0.04)	(0.04)	(0.08)	(0.08)
Household Wealth Other (Quintile=2)	0.29	0.05	0.06	-0.03	-0.05	-0.11	-0.06
	(0.16)	(0.04)	(0.05)	(0.05)	(0.04)	(0.10)	(0.10)
Household Wealth Other (Quintile=3)	0.48**	0.07	0.16**	-0.08	0.04	0.03	-0.13
	(0.17)	(0.04)	(0.06)	(0.05)	(0.05)	(0.10)	(0.11)
Household Wealth Other (Quintile=4)	0.91***	0.22***	0.19**	-0.09	0.12*	-0.02	-0.22*
	(0.16)	(0.05)	(0.06)	(0.05)	(0.05)	(0.10)	(0.11)
Household Wealth Other (Quintile=5)	1.15***	0.21***	0.15*	0.08	0.33***	-0.09	-0.11
	(0.18)	(0.05)	(0.06)	(0.06)	(0.05)	(0.12)	(0.12)
Household Income (Quintile=2)	0.16	-0.02	-0.01	-0.06	-0.04	0.06	-0.05
	(0.17)	(0.04)	(0.07)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=3)	0.78***	0.06	-0.06	-0.01	-0.09*	0.02	0.03
	(0.16)	(0.04)	(0.06)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=4)	0.86***	0.00	-0.01	-0.09*	-0.11*	0.07	-0.04
	(0.16)	(0.04)	(0.06)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=5)	0.93***	0.19***	0.00	-0.04	-0.05	-0.16	-0.18
	(0.17)	(0.05)	(0.06)	(0.05)	(0.05)	(0.11)	(0.11)
Constant Stack 1	8.24***	0.15*	0.10	0.41***	0.20**	-0.68***	-0.40*
	(0.24)	(0.07)	(0.09)	(0.08)	(0.07)	(0.16)	(0.17)
Constant Stack 2	8.24***	0.14*	0.10	0.41***	0.20**	-0.65***	-0.39*
	(0.24)	(0.07)	(0.09)	(0.07)	(0.07)	(0.16)	(0.17)
Observations	2228	2228	708	2228	2228	2222	2222

Notes: Coefficients are from a stacked 2SLS regression with duplicate measures as IV's, one constant per stack, and clustered standard errors (in parenthesis), following the ORIV approach (Equation 1). *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table A11: Full Regressions - SGsure and Field Behavior for High Understanding

	Financial				Occupation	Health	
	Savings log	Investments y/n	Investments ratio	Debt y/n	Self-Employed y/n	Distancing z-score	Handwashing z-score
SGsure	0.21	0.07*	0.05	0.08	0.05	-0.12	-0.15
	(0.13)	(0.04)	(0.05)	(0.04)	(0.04)	(0.09)	(0.09)
Female	0.20*	-0.01	-0.01	-0.02	-0.05	0.18**	0.33***
	(0.10)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.07)
Age	0.01*	0.00	0.00**	0.00*	0.01***	0.02***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Breadwinner (1=yes)	-0.20*	-0.03	0.03	-0.03	-0.09**	-0.06	-0.09
	(0.09)	(0.03)	(0.03)	(0.03)	(0.03)	(0.07)	(0.07)
Migration Background (1=native)	0.13	0.08*	0.02	-0.09*	0.01	-0.18*	-0.22**
	(0.14)	(0.04)	(0.05)	(0.04)	(0.04)	(0.08)	(0.09)
Marital Status (1=married)	0.19	-0.02	-0.08*	-0.08*	-0.02	0.03	-0.01
	(0.10)	(0.03)	(0.04)	(0.03)	(0.03)	(0.07)	(0.07)
Children (1=yes)	0.01	0.01	-0.01	0.11**	0.00	-0.11	-0.03
	(0.11)	(0.03)	(0.04)	(0.04)	(0.04)	(0.08)	(0.08)
Household Wealth Other (Quintile=2)	0.29	0.06	0.05	-0.02	-0.05	-0.11	-0.06
	(0.16)	(0.04)	(0.05)	(0.05)	(0.04)	(0.10)	(0.10)
Household Wealth Other (Quintile=3)	0.48**	0.07	0.16**	-0.09	0.04	0.03	-0.13
	(0.17)	(0.04)	(0.06)	(0.05)	(0.05)	(0.10)	(0.11)
Household Wealth Other (Quintile=4)	0.91***	0.23***	0.18**	-0.09	0.13*	-0.03	-0.22*
	(0.16)	(0.05)	(0.06)	(0.05)	(0.05)	(0.10)	(0.11)
Household Wealth Other (Quintile=5)	1.13***	0.21***	0.14*	0.08	0.33***	-0.09	-0.10
	(0.18)	(0.05)	(0.06)	(0.06)	(0.05)	(0.12)	(0.12)
Household Income (Quintile=2)	0.15	-0.02	-0.01	-0.07	-0.04	0.06	-0.04
	(0.17)	(0.04)	(0.07)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=3)	0.79***	0.06	-0.06	-0.01	-0.09*	0.02	0.02
	(0.16)	(0.04)	(0.06)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=4)	0.85***	-0.01	-0.01	-0.10*	-0.12**	0.08	-0.02
	(0.16)	(0.04)	(0.06)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=5)	0.90***	0.20***	0.00	-0.05	-0.05	-0.18	-0.17
	(0.17)	(0.05)	(0.06)	(0.05)	(0.05)	(0.10)	(0.11)
Constant Stack 1	8.32***	0.10	0.08	0.42***	0.18**	-0.58***	-0.40*
	(0.23)	(0.06)	(0.09)	(0.07)	(0.07)	(0.16)	(0.16)
Constant Stack 2	8.32***	0.10	0.09	0.42***	0.18**	-0.58***	-0.40*
	(0.23)	(0.06)	(0.09)	(0.07)	(0.07)	(0.16)	(0.16)
Observations	2228	2228	708	2228	2228	2222	2222

Notes: Coefficients are from a stacked 2SLS regression with duplicate measures as IV's, one constant per stack, and clustered standard errors (in parenthesis), following the ORIV approach (Equation 1). *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table A12: Full Regressions - PGhigh and Field Behavior for High Understanding

	Financial				**Occupation**	**Health**	
	Savings log	Investments y/n	Investments ratio	Debt y/n	Self-Employed y/n	Distancing z-score	Handwashing z-score
PGhigh	0.01	0.02	0.03	-0.01	0.03	-0.10*	-0.02
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Female	0.18	-0.02	-0.01	-0.03	-0.06	0.19**	0.35***
	(0.10)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.07)
Age	0.01	0.00	0.00**	0.00	0.01***	0.02***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Breadwinner (1=yes)	-0.20*	-0.03	0.04	-0.02	-0.09**	-0.06	-0.09
	(0.09)	(0.03)	(0.03)	(0.03)	(0.03)	(0.07)	(0.07)
Migration Background (1=native)	0.14	0.08*	0.02	-0.08	0.00	-0.17*	-0.23**
	(0.14)	(0.04)	(0.05)	(0.04)	(0.04)	(0.08)	(0.09)
Marital Status (1=married)	0.19	-0.02	-0.09*	-0.08*	-0.03	0.03	-0.01
	(0.10)	(0.03)	(0.04)	(0.03)	(0.03)	(0.07)	(0.07)
Children (1=yes)	0.02	0.01	-0.01	0.12**	0.00	-0.10	-0.03
	(0.12)	(0.04)	(0.04)	(0.04)	(0.04)	(0.08)	(0.08)
Household Wealth Other (Quintile=2)	0.29	0.05	0.06	-0.03	-0.05	-0.11	-0.06
	(0.17)	(0.04)	(0.06)	(0.05)	(0.04)	(0.10)	(0.10)
Household Wealth Other (Quintile=3)	0.48**	0.07	0.15**	-0.09	0.04	0.02	-0.13
	(0.17)	(0.04)	(0.06)	(0.05)	(0.05)	(0.10)	(0.11)
Household Wealth Other (Quintile=4)	0.91***	0.23***	0.18**	-0.09	0.13*	-0.02	-0.22*
	(0.16)	(0.05)	(0.06)	(0.05)	(0.05)	(0.10)	(0.11)
Household Wealth Other (Quintile=5)	1.15***	0.22***	0.15*	0.08	0.34***	-0.10	-0.12
	(0.18)	(0.05)	(0.06)	(0.06)	(0.05)	(0.12)	(0.12)
Household Income (Quintile=2)	0.16	-0.02	-0.01	-0.06	-0.04	0.07	-0.05
	(0.17)	(0.04)	(0.07)	(0.05)	(0.04)	(0.10)	(0.10)
Household Income (Quintile=3)	0.78***	0.05	-0.07	-0.01	-0.10*	0.04	0.03
	(0.16)	(0.04)	(0.06)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=4)	0.86***	-0.00	-0.02	-0.09*	-0.12**	0.09	-0.03
	(0.16)	(0.04)	(0.06)	(0.05)	(0.05)	(0.09)	(0.10)
Household Income (Quintile=5)	0.93***	0.20***	-0.00	-0.04	-0.05	-0.17	-0.19
	(0.17)	(0.05)	(0.06)	(0.05)	(0.05)	(0.11)	(0.11)
Constant	8.26***	0.09	0.09	0.39***	0.19**	-0.61***	-0.36*
	(0.24)	(0.07)	(0.09)	(0.07)	(0.07)	(0.16)	(0.16)
Observations	1114	1114	354	1114	1114	1111	1111

Notes: Coefficients are from OLS regressions with robust standard errors in parenthesis. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table A13: Full Regressions - GRQ and Field Behavior for High Understanding

	Financial				Occupation	Health	
	Savings log	Investments y/n	Investments ratio	Debt y/n	Self-Employed y/n	Distancing z-score	Handwashing z-score
GRQ	-0.09	0.07***	0.05*	0.06***	0.12***	-0.10*	-0.08
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Female	0.15	0.00	0.00	-0.01	-0.02	0.17**	0.33***
	(0.10)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.07)
Age	0.01	0.00	0.00**	0.00*	0.01***	0.02***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Breadwinner (1=yes)	-0.20*	-0.03	0.03	-0.03	-0.09**	-0.06	-0.09
	(0.09)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.07)
Migration Background (1=native)	0.15	0.08*	0.01	-0.09*	-0.01	-0.17*	-0.22*
	(0.14)	(0.04)	(0.05)	(0.04)	(0.04)	(0.08)	(0.09)
Marital Status (1=married)	0.17	-0.00	-0.07*	-0.06	-0.00	0.01	-0.03
	(0.10)	(0.03)	(0.04)	(0.03)	(0.03)	(0.07)	(0.07)
Children (1=yes)	0.04	-0.00	-0.02	0.10**	-0.01	-0.10	-0.02
	(0.11)	(0.03)	(0.04)	(0.04)	(0.03)	(0.08)	(0.08)
Household Wealth Other (Quintile=2)	0.28	0.06	0.07	-0.02	-0.03	-0.12	-0.07
	(0.17)	(0.04)	(0.06)	(0.05)	(0.04)	(0.10)	(0.10)
Household Wealth Other (Quintile=3)	0.49**	0.07	0.15**	-0.09	0.03	0.03	-0.13
	(0.17)	(0.04)	(0.06)	(0.05)	(0.05)	(0.10)	(0.11)
Household Wealth Other (Quintile=4)	0.92***	0.22***	0.19***	-0.09	0.12*	-0.02	-0.21*
	(0.16)	(0.05)	(0.06)	(0.05)	(0.05)	(0.10)	(0.11)
Household Wealth Other (Quintile=5)	1.18***	0.20***	0.14*	0.07	0.30***	-0.07	-0.09
	(0.18)	(0.05)	(0.06)	(0.06)	(0.05)	(0.12)	(0.12)
Household Income (Quintile=2)	0.16	-0.01	-0.01	-0.06	-0.04	0.05	-0.05
	(0.17)	(0.04)	(0.07)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=3)	0.78***	0.05	-0.06	-0.02	-0.10*	0.03	0.03
	(0.16)	(0.04)	(0.06)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=4)	0.88***	-0.01	-0.01	-0.10*	-0.13**	0.09	-0.02
	(0.16)	(0.04)	(0.06)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=5)	0.94***	0.19***	0.01	-0.05	-0.06	-0.18	-0.18
	(0.17)	(0.05)	(0.06)	(0.05)	(0.05)	(0.11)	(0.11)
Constant Stack 1	8.27***	0.06	0.06	0.38***	0.14*	-0.52***	-0.33*
	(0.24)	(0.06)	(0.08)	(0.07)	(0.06)	(0.16)	(0.16)
Constant Stack 2	8.27***	0.06	0.06	0.38***	0.13*	-0.52***	-0.33*
	(0.24)	(0.06)	(0.08)	(0.07)	(0.06)	(0.16)	(0.16)
Observations	2228	2228	708	2228	2228	2222	2222

Notes: Coefficients are from a stacked 2SLS regression with duplicate measures as IV's, one constant per stack, and clustered standard errors (in parenthesis), following the ORIV approach (Equation 1). *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table A14: Full Regressions - FRQ and Field Behavior for High Understanding

	Financial				Occupation	Health	
	Savings log	Investments y/n	Investments ratio	Debt y/n	Self-Employed y/n	Distancing z-score	Handwashing z-score
FRQ	0.03	0.13***	0.04	0.06**	0.12***	-0.12**	-0.17***
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Female	0.19	0.02	-0.00	-0.01	-0.02	0.16*	0.29***
	(0.10)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.07)
Age	0.01	0.00	0.00**	0.00*	0.01***	0.02***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Breadwinner (1=yes)	-0.20*	-0.03	0.02	-0.03	-0.10**	-0.06	-0.08
	(0.09)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.07)
Migration Background (1=native)	0.13	0.07	0.02	-0.09*	-0.01	-0.17*	-0.21*
	(0.14)	(0.04)	(0.05)	(0.04)	(0.04)	(0.08)	(0.09)
Marital Status (1=married)	0.19	0.00	-0.08*	-0.07	-0.01	0.01	-0.04
	(0.10)	(0.03)	(0.04)	(0.03)	(0.03)	(0.07)	(0.07)
Children (1=yes)	0.02	-0.01	-0.01	0.11**	-0.01	-0.10	-0.01
	(0.11)	(0.03)	(0.04)	(0.04)	(0.03)	(0.08)	(0.08)
Household Wealth Other (Quintile=2)	0.29	0.07	0.06	-0.02	-0.03	-0.13	-0.08
	(0.17)	(0.04)	(0.06)	(0.05)	(0.04)	(0.10)	(0.10)
Household Wealth Other (Quintile=3)	0.48**	0.06	0.15**	-0.09	0.03	0.03	-0.12
	(0.17)	(0.04)	(0.06)	(0.05)	(0.05)	(0.10)	(0.11)
Household Wealth Other (Quintile=4)	0.91***	0.21***	0.18**	-0.10	0.11*	-0.02	-0.20
	(0.16)	(0.05)	(0.06)	(0.05)	(0.05)	(0.10)	(0.11)
Household Wealth Other (Quintile=5)	1.14***	0.17***	0.14*	0.06	0.29***	-0.06	-0.06
	(0.18)	(0.05)	(0.06)	(0.06)	(0.05)	(0.12)	(0.12)
Household Income (Quintile=2)	0.16	-0.01	-0.00	-0.06	-0.04	0.05	-0.05
	(0.17)	(0.04)	(0.07)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=3)	0.78***	0.05	-0.05	-0.01	-0.09*	0.03	0.03
	(0.16)	(0.04)	(0.06)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=4)	0.86***	-0.02	-0.01	-0.10*	-0.13**	0.09	-0.01
	(0.16)	(0.04)	(0.06)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=5)	0.92***	0.18***	0.00	-0.05	-0.06	-0.17	-0.16
	(0.18)	(0.05)	(0.06)	(0.05)	(0.05)	(0.10)	(0.11)
Constant Stack 1	8.25***	0.05	0.06	0.38***	0.13*	-0.51**	-0.31
	(0.24)	(0.06)	(0.09)	(0.07)	(0.06)	(0.16)	(0.16)
Constant Stack 2	8.25***	0.05	0.06	0.38***	0.13*	-0.52**	-0.31*
	(0.24)	(0.06)	(0.09)	(0.07)	(0.06)	(0.16)	(0.16)
Observations	2228	2228	708	2228	2228	2222	2222

Notes: Coefficients are from a stacked 2SLS regression with duplicate measures as IV's, one constant per stack, and clustered standard errors (in parenthesis), following the ORIV approach (Equation 1). *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table A15: Full Regressions - CRQ and Field Behavior for High Understanding

	Financial				Occupation	Health	
	Savings log	Investments y/n	Investments ratio	Debt y/n	Self-Employed y/n	Distancing z-score	Handwashing z-score
CRQ	-0.08	0.04*	0.03	0.05*	0.14***	-0.04	-0.09*
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
Female	0.16	-0.02	-0.01	-0.02	-0.03	0.19**	0.33***
	(0.10)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.07)
Age	0.01	0.00	0.00**	0.00	0.01***	0.02***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Breadwinner (1=yes)	-0.21*	-0.02	0.03	-0.02	-0.08**	-0.07	-0.10
	(0.09)	(0.03)	(0.03)	(0.03)	(0.03)	(0.07)	(0.07)
Migration Background (1=native)	0.14	0.08*	0.02	-0.09*	0.01	-0.18*	-0.23**
	(0.14)	(0.04)	(0.05)	(0.04)	(0.04)	(0.08)	(0.09)
Marital Status (1=married)	0.18	-0.01	-0.08*	-0.07*	-0.01	0.02	-0.02
	(0.10)	(0.03)	(0.04)	(0.03)	(0.03)	(0.07)	(0.07)
Children (1=yes)	0.02	0.01	-0.01	0.11**	0.01	-0.11	-0.03
	(0.11)	(0.03)	(0.04)	(0.04)	(0.03)	(0.08)	(0.08)
Household Wealth Other (Quintile=2)	0.28	0.06	0.05	-0.02	-0.03	-0.11	-0.07
	(0.16)	(0.04)	(0.05)	(0.05)	(0.04)	(0.10)	(0.10)
Household Wealth Other (Quintile=3)	0.48**	0.07	0.15**	-0.08	0.04	0.03	-0.13
	(0.17)	(0.04)	(0.06)	(0.05)	(0.05)	(0.10)	(0.11)
Household Wealth Other (Quintile=4)	0.92***	0.22***	0.18**	-0.09	0.11*	-0.02	-0.21
	(0.16)	(0.05)	(0.06)	(0.05)	(0.05)	(0.10)	(0.11)
Household Wealth Other (Quintile=5)	1.18***	0.20***	0.13*	0.07	0.29***	-0.09	-0.09
	(0.18)	(0.05)	(0.06)	(0.06)	(0.05)	(0.12)	(0.12)
Household Income (Quintile=2)	0.15	-0.01	-0.02	-0.06	-0.02	0.05	-0.06
	(0.17)	(0.04)	(0.07)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=3)	0.76***	0.06	-0.06	-0.00	-0.07	0.02	0.01
	(0.16)	(0.04)	(0.06)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=4)	0.85***	0.01	-0.01	-0.09	-0.10*	0.07	-0.05
	(0.16)	(0.04)	(0.06)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=5)	0.92***	0.21***	0.01	-0.04	-0.03	-0.20	-0.20
	(0.17)	(0.05)	(0.06)	(0.05)	(0.05)	(0.10)	(0.11)
Constant Stack 1	8.28***	0.07	0.07	0.38***	0.11	-0.53***	-0.32*
	(0.24)	(0.06)	(0.08)	(0.07)	(0.06)	(0.16)	(0.16)
Constant Stack 2	8.29***	0.06	0.07	0.37***	0.10	-0.53**	-0.31
	(0.24)	(0.07)	(0.08)	(0.07)	(0.06)	(0.16)	(0.16)
Observations	2228	2228	708	2228	2228	2222	2222

Notes: Coefficients are from a stacked 2SLS regression with duplicate measures as IV's, one constant per stack, and clustered standard errors (in parenthesis), following the ORIV approach (Equation 1). *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table A16: Full Regressions - HRQ and Field Behavior for High Understanding

	Financial				Occupation	Health	
	Savings log	Investments y/n	Investments ratio	Debt y/n	Self-Employed y/n	Distancing z-score	Handwashing z-score
HRQ	-0.05	0.01	0.03	0.04	0.07***	-0.27***	-0.28***
	(0.06)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.05)
Female	0.17	-0.02	-0.02	-0.02	-0.05	0.17**	0.32***
	(0.10)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.07)
Age	0.01	0.00	0.00**	0.00*	0.01***	0.01***	0.01**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Breadwinner (1=yes)	-0.19*	-0.03	0.02	-0.03	-0.10**	-0.03	-0.06
	(0.09)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.07)
Migration Background (1=native)	0.15	0.08*	0.01	-0.09*	-0.01	-0.12	-0.17
	(0.14)	(0.04)	(0.05)	(0.04)	(0.04)	(0.08)	(0.09)
Marital Status (1=married)	0.18	-0.02	-0.08*	-0.07*	-0.02	0.01	-0.03
	(0.10)	(0.03)	(0.04)	(0.03)	(0.03)	(0.07)	(0.07)
Children (1=yes)	0.02	0.01	-0.01	0.11**	0.00	-0.10	-0.01
	(0.11)	(0.03)	(0.04)	(0.04)	(0.04)	(0.08)	(0.08)
Household Wealth Other (Quintile=2)	0.28	0.06	0.06	-0.02	-0.03	-0.17	-0.12
	(0.17)	(0.04)	(0.06)	(0.05)	(0.04)	(0.10)	(0.10)
Household Wealth Other (Quintile=3)	0.48**	0.07	0.15**	-0.08	0.04	0.01	-0.14
	(0.17)	(0.04)	(0.06)	(0.05)	(0.05)	(0.10)	(0.10)
Household Wealth Other (Quintile=4)	0.91***	0.23***	0.18**	-0.09	0.13**	-0.04	-0.23*
	(0.16)	(0.05)	(0.06)	(0.05)	(0.05)	(0.10)	(0.10)
Household Wealth Other (Quintile=5)	1.15***	0.22***	0.14*	0.08	0.34***	-0.10	-0.12
	(0.18)	(0.05)	(0.06)	(0.06)	(0.05)	(0.12)	(0.12)
Household Income (Quintile=2)	0.16	-0.02	-0.02	-0.06	-0.04	0.05	-0.06
	(0.17)	(0.04)	(0.07)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=3)	0.78***	0.06	-0.06	-0.01	-0.09*	0.03	0.03
	(0.16)	(0.04)	(0.06)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=4)	0.87***	0.00	-0.02	-0.10*	-0.12**	0.08	-0.02
	(0.16)	(0.04)	(0.06)	(0.05)	(0.04)	(0.09)	(0.10)
Household Income (Quintile=5)	0.94***	0.20***	-0.00	-0.05	-0.05	-0.15	-0.15
	(0.17)	(0.05)	(0.06)	(0.05)	(0.05)	(0.10)	(0.11)
Constant Stack 1	8.27***	0.08	0.07	0.38***	0.13*	-0.43**	-0.23
	(0.24)	(0.06)	(0.09)	(0.07)	(0.07)	(0.16)	(0.15)
Constant Stack 2	8.28***	0.07	0.07	0.38***	0.13*	-0.43**	-0.23
	(0.24)	(0.07)	(0.09)	(0.07)	(0.07)	(0.16)	(0.15)
Observations	2228	2228	708	2228	2228	2222	2222

Notes: Coefficients are from a stacked 2SLS regression with duplicate measures as IV's, one constant per stack, and clustered standard errors (in parenthesis), following the ORIV approach (Equation 1). *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

B Additional Information Procedures

B.1 Invitation Letters and Welcome Screens

[LOGO CBS // LOGO UM]

Dear Sir/Madam,

We would like to invite you to participate in a survey conducted by Maastricht University (UM) and Statistics Netherlands (CBS). This survey is about your preferences and opinions that play a role in making important social and economic decisions. **By participating in this survey, you contribute to increasing knowledge about the preferences and opinions of the Dutch population.** Many people have already participated in similar research. At the end of the survey, you will find out how your preferences compare to those of others.

For your participation in the study you can receive up to €175 and you have a chance to win an iPad Pro.

CBS is selecting a number of people for this survey. You are one of them. You represent many other residents of the Netherlands. It is therefore very important that you participate in this study.

The research.
The research takes place in two rounds. This is the invitation for the first round. If you participate now, you will receive an invitation for the second round in June. It is important for the research that you participate in both rounds. In both rounds you make a number of choices and answer questions that relate to your views on a number of important social and economic issues.

How can you participate?
You can participate in the survey via the internet. We use a secure connection to protect your data. The study can be found at the following internet address:

https://XXXX
Your login code: <Username>

We recommend using a laptop, desktop computer or tablet.

Win a reward.
If you participate in both rounds of the survey, you can receive up to €175. How much you receive depends on your choices and chance. You also have a chance to win an iPad Pro.

Your data is safe.
Your data is safe in all our investigations. You can read more about this at the end of this letter.

Do you have questions?
This research is being carried out in collaboration with the independent research agency Flycatcher. Flycatcher treats all your answers confidentially and anonymously. Do you have questions? You can contact research agency Flycatcher by e-mail (XXXX) and by telephone (XXXX). Flycatcher can be reached on working days between 8:30 AM and 5:00 PM.

You make an important contribution by participating in our research. We look forward to your participation soon and thank you for your time and cooperation.

Kind regards,
Arno Riedl – Professor of Public Economics (Maastricht University)
Hans Schmeets - Professor of Social Statistics (Maastricht University and CBS)

Maastricht University is collaborating with Statistics Netherlands (CBS) in this study. Research agency Flycatcher collects the data on behalf of Statistics Netherlands and Maastricht University.
In addition to the collected data, CBS also receives many files from other institutions. This contains, for example, data on population, work and income. Statistics Netherlands aggregates this information. In this way we work as economically as possible.
In this study, this data is aggregated with your answers in the study in an anonymous manner. Personal data can never be recognized in the information that Maastricht University receives from Statistics Netherlands.

Figure B1: Invitation Letter Wave 1 (Translated from Dutch)

[LOGO CBS // LOGO UM]

Dear Sir/Madam,

You recently participated in round 1 of our survey, conducted by Maastricht University and Statistics Netherlands (CBS). You have also indicated that you want to participate in the 2nd round of our research. Thank you very much for that!

We hereby invite you to participate in the 2nd round . As in the 1st round, the research in this 2nd round is about your preferences and opinions that play a role in making important social and economic decisions. It is **very important for our research that you also participate in this 2nd round**. By participating in both rounds you can also receive up to €175 and you have a chance to win an iPad Pro. You will also receive information about how your preferences compare to those of other participants in the survey.

How can you participate?
You can participate in the survey via the internet. We use a secure connection to protect your data. The study can be found at the following internet address:

https://XXXX
Your login code: <Username>

Participating in the study is best done with a laptop, desktop computer or tablet. We therefore recommend that you use one of these devices.

Do you have questions?
This research is carried out in collaboration with the independent research agency Flycatcher . Flycatcher treats all your answers confidentially and anonymously. Do you have questions? You can contact research agency Flycatcher by e-mail (XXXX) and by telephone (XXXX). Flycatcher can be reached on working days between 8:30 AM and 5:00 PM.

With your participation you make an important contribution to increasing knowledge about the preferences and opinions of the Dutch population. We look forward to your participation soon and would like to thank you in advance for your time and cooperation.

Kind regards,
Arno Riedl – Professor of Public Economics (Maastricht University)
Hans Schmeets - Professor of Social Statistics (Maastricht University and CBS)

Maastricht University is collaborating with Statistics Netherlands (CBS) in this study. Research agency Flycatcher collects the data on behalf of Statistics Netherlands and Maastricht University.

In addition to the collected data, CBS also receives many files from other institutions. This contains, for example, data about the population, their work and income. Statistics Netherlands aggregates this information. This is how we work as efficiently as possible.
In this study, this data is aggregated with your answers in the study in an anonymous manner. Personal data can never be recognized in the information that Maastricht University receives from Statistics Netherlands. The privacy of your data is therefore safe.

Figure B2: Invitation Letter Wave 2 (Translated from Dutch)

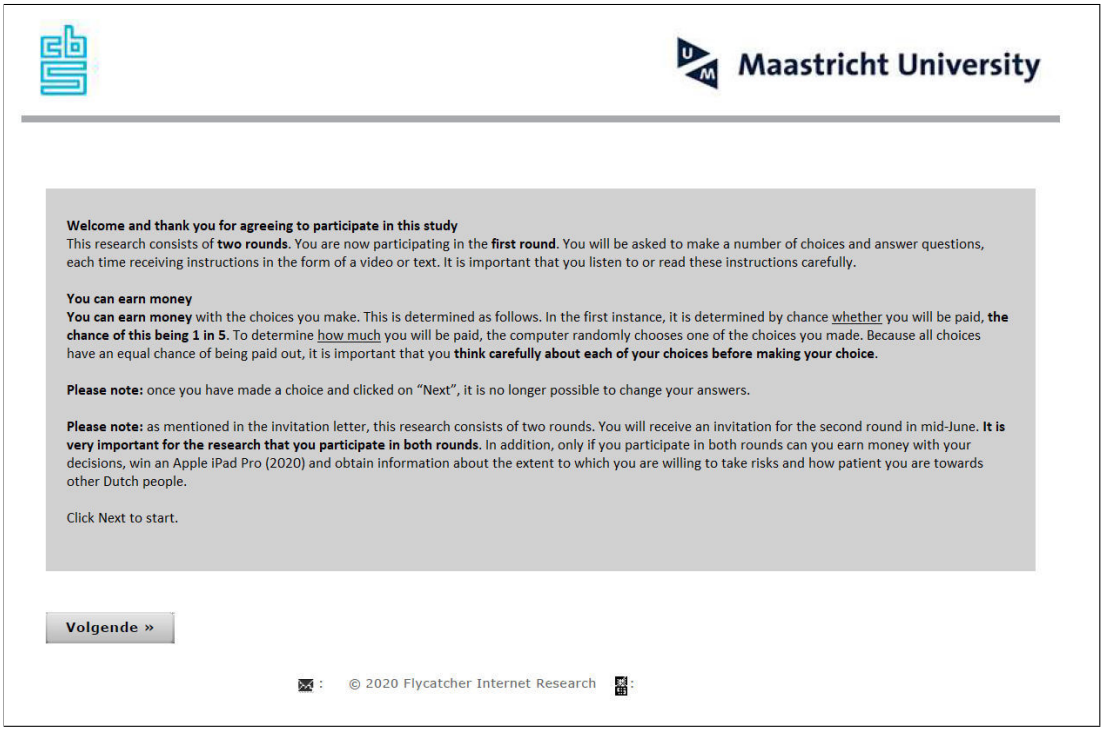


Figure B3: Welcome Screen Wave 1 (Translated from Dutch)

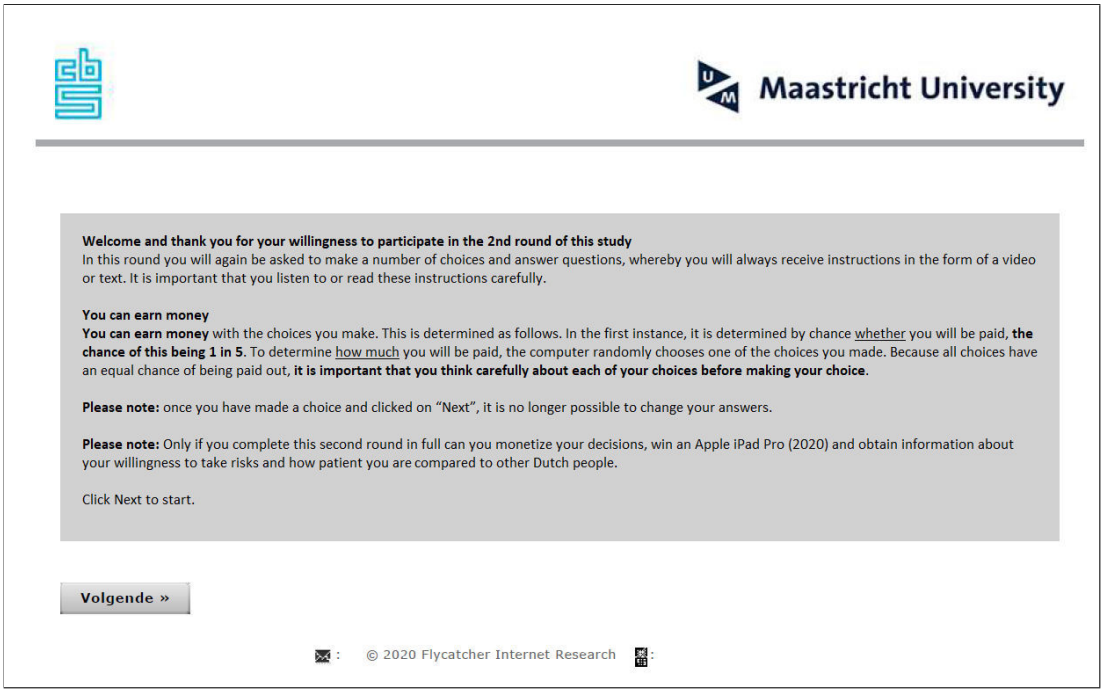


Figure B4: Welcome Screen Wave 2 (Translated from Dutch)

B.2 Experimental Design

Convex Time Budget. The decision tasks were presented with information on the dates, probabilities, and possible allocations on one screen, using colors for clarity. Figure B5 shows an example of such a decision screen. Before making decisions, participants received video instructions as well as the option to download written instructions in PDF format. Participants were required to watch the entire video or download the written instructions before being able to continue to the decision tasks. Figure B6 shows the screen with instructions and Figure B7 shows the written instructions (translated to English). The video narrated roughly the same text as the written instructions while highlighting the relevant parts of the decision screen.

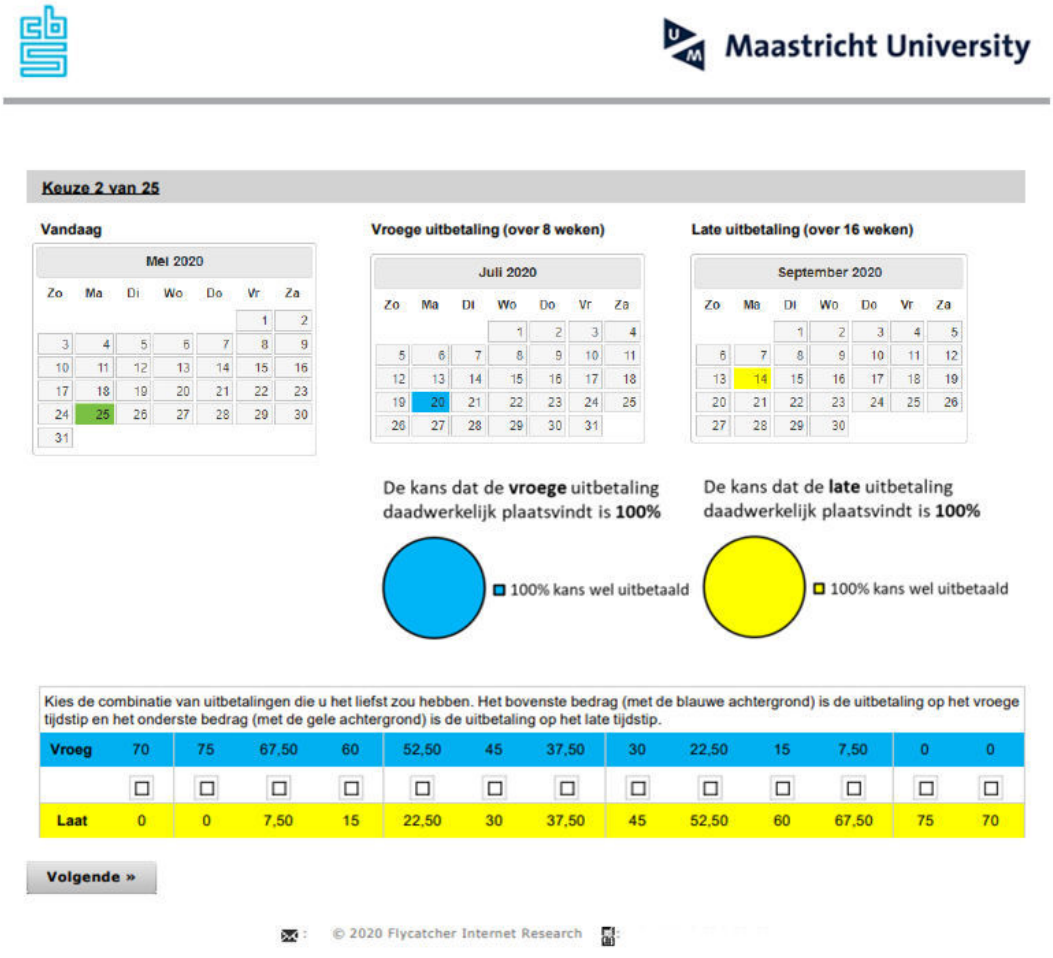


Figure B5: Example Decision Screen CTB

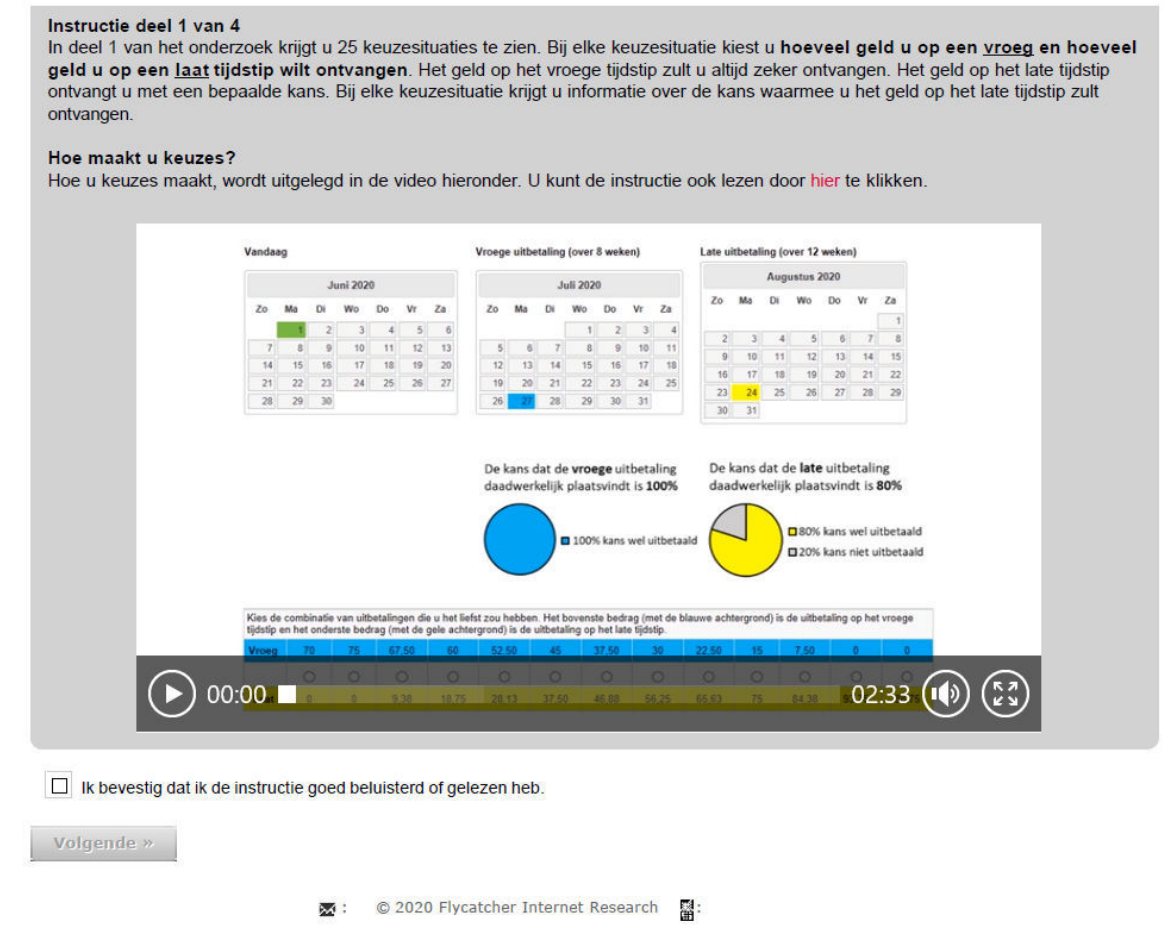


Figure B6: Instructions Screen CTB

Instructions Part [1/4]

In part 1 of the study, you will be presented with 24 decision situations. In each decision situation, you choose **how much money you want to receive at an "early" and how much money you want to receive at a "late" time**. You will always receive the money at the early time with certainty. You will receive the money at the late time with a certain probability. In each decision situation, you will get information about the probability with which you will receive the money at the late time.

How do you make choices?

How you make choices is explained using the example below. The example shows a decision situation in which you are asked to divide a sum of money between an amount of money at an early time (in this example July 27) and an amount of money at a late time (in this example August 24). The times will be different in the choices you make later.

The calendars indicate times relevant to your choice. Today (June 1 in this example) is highlighted in green. The time of the early payout in each decision situation is exactly 8 weeks from today and is marked in blue. The time of the late payout in this example is 12 weeks from today and is highlighted in yellow. **The time of the late payment may differ between decision situations.**

Below the calendars you will see the probability of actually receiving the money at the late time. In this example, this probability is 80% (i.e. a probability of 8 in 10). **This probability can differ between decision situations.**

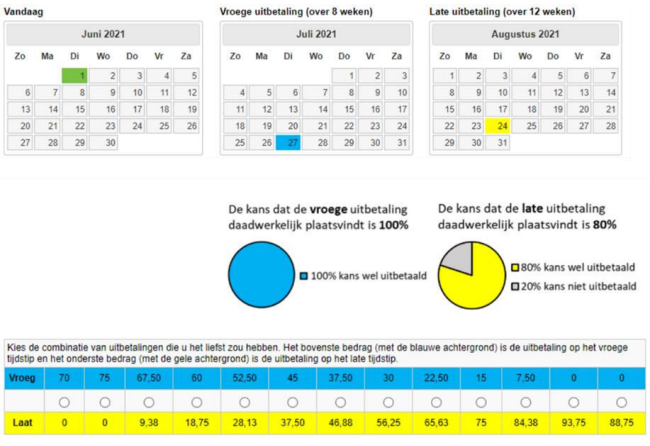
At the bottom of the page you can see the possible divisions of the amount of money in this example. The top amount (with the blue background) shows the amount of money you will receive at the early time. The bottom amount (with the yellow background) shows the amount of money you will receive at the late time with a certain probability.

Explanation of payments in this example. Do you choose:

70 ◉ 0 then you would receive **€70** at the early time (27 July) and receive **€0** at the late time (24 August)

30 ◉ 56,63 then you would receive **€30** at the early time (27 July) and receive **€56,63** at the late time (24 August) and is the probability that you receive the money at the late time 80%.

0 ◉ 93,75 then you would receive **€0** at the early time (27 July) and receive **€93,75** at the late time (24 August) and is the probability that you receive the money at the late time 80%.



Kies de combinatie van uitbetalingen die u het liefst zou hebben. Het bovenste bedrag (met de blauwe achtergrond) is de uitbetaling op het vroege tijdstip en het onderste bedrag (met de gele achtergrond) is de uitbetaling op het late tijdstip.

Vroeg	70	75	67,50	60	52,50	45	37,50	30	22,50	15	7,50	0	0
	○	○	○	○	○	○	○	○	○	○	○	○	○
Laat	0	0	9,38	18,75	28,13	37,50	46,88	56,25	65,63	75	84,38	93,75	88,75

Figure B7: Written Instructions CTB (Translated from Dutch)

Multiple Price Lists. The decision tasks were presented in lists of binary choices with information about the probabilities and outcomes. Table 3 in the main text and Tables B1 to B4 show the parameters used for the MPLs. Figure B8 shows an example of MPL-PGp 1 as presented to participants. Before making decisions, participants received video instructions as well as the option to download written instructions in PDF format. Participants were required to watch the entire video or download the written instructions before being able to continue to the decision tasks. Figure B9 shows the screen with instructions and Figures B10 and B11 show the written instructions (translated to English). The video narrated roughly the same text as the written instructions while highlighting the relevant parts of the decision screen.

Table B1: MPL-PGp 2

	Option A					Option B				
	p	€	p	€	EV(A)	p	€	p	€	EV(B)
#1	0.1	99	0.9	41	€47	0.1	134	0.9	19	€31
#2	0.2	99	0.8	41	€53	0.2	134	0.8	19	€42
#3	0.3	99	0.7	41	€58	0.3	134	0.7	19	€54
#4	0.4	99	0.6	41	€64	0.4	134	0.6	19	€65
#5	0.5	99	0.5	41	€70	0.5	134	0.5	19	€77
#6	0.6	99	0.4	41	€76	0.6	134	0.4	19	€88
#7	0.7	99	0.3	41	€82	0.7	134	0.3	19	€100
#8	0.8	99	0.2	41	€87	0.8	134	0.2	19	€111
#9	0.9	99	0.1	41	€93	0.9	134	0.1	19	€123
#10	1	99	0	41	€99	1	134	0	19	€134

Notes: EV(A) and EV(B) list the expected value of the related lottery.

Table B2: MPL-SGsure 1

	Option A			Option B				
	p	€	EV(A)	p	€	p	€	EV(B)
#1	1	52	€52	0.5	30	0.5	130	€80
#2	1	57	€57	0.5	30	0.5	130	€80
#3	1	63	€63	0.5	30	0.5	130	€80
#4	1	68	€68	0.5	30	0.5	130	€80
#5	1	73	€73	0.5	30	0.5	130	€80
#6	1	78	€78	0.5	30	0.5	130	€80
#7	1	82	€82	0.5	30	0.5	130	€80
#8	1	88	€88	0.5	30	0.5	130	€80
#9	1	94	€94	0.5	30	0.5	130	€80
#10	1	101	€101	0.5	30	0.5	130	€80

Notes: EV(A) and EV(B) list the expected value of the related lottery.

Table B3: MPL-SGsure 2

	Option A			Option B				
	p	€	EV(A)	p	€	p	€	EV(B)
#1	1	39	€39	0.33	20	0.67	110	€80
#2	1	46	€46	0.33	20	0.67	110	€80
#3	1	56	€56	0.33	20	0.67	110	€80
#4	1	64	€64	0.33	20	0.67	110	€80
#5	1	70	€70	0.33	20	0.67	110	€80
#6	1	75	€75	0.33	20	0.67	110	€80
#7	1	79	€79	0.33	20	0.67	110	€80
#8	1	84	€84	0.33	20	0.67	110	€80
#9	1	88	€88	0.33	20	0.67	110	€80
#10	1	93	€93	0.33	20	0.67	110	€80

Notes: EV(A) and EV(B) list the expected value of the related lottery.

Table B4: MPL-PGhigh

	Option A					Option B				
	p	€	p	€	EV(A)	p	€	p	€	EV(B)
#1	0.5	90	0.5	70	€80	0.5	103	0.5	35	€69
#2	0.5	90	0.5	70	€80	0.5	109	0.5	35	€72
#3	0.5	90	0.5	70	€80	0.5	115	0.5	35	€75
#4	0.5	90	0.5	70	€80	0.5	122	0.5	35	€79
#5	0.5	90	0.5	70	€80	0.5	128	0.5	35	€82
#6	0.5	90	0.5	70	€80	0.5	131	0.5	35	€83
#7	0.5	90	0.5	70	€80	0.5	138	0.5	35	€87
#8	0.5	90	0.5	70	€80	0.5	153	0.5	35	€94
#9	0.5	90	0.5	70	€80	0.5	170	0.5	35	€103
#10	0.5	90	0.5	70	€80	0.5	186	0.5	35	€111

Notes: EV(A) and EV(B) list the expected value of the related lottery.

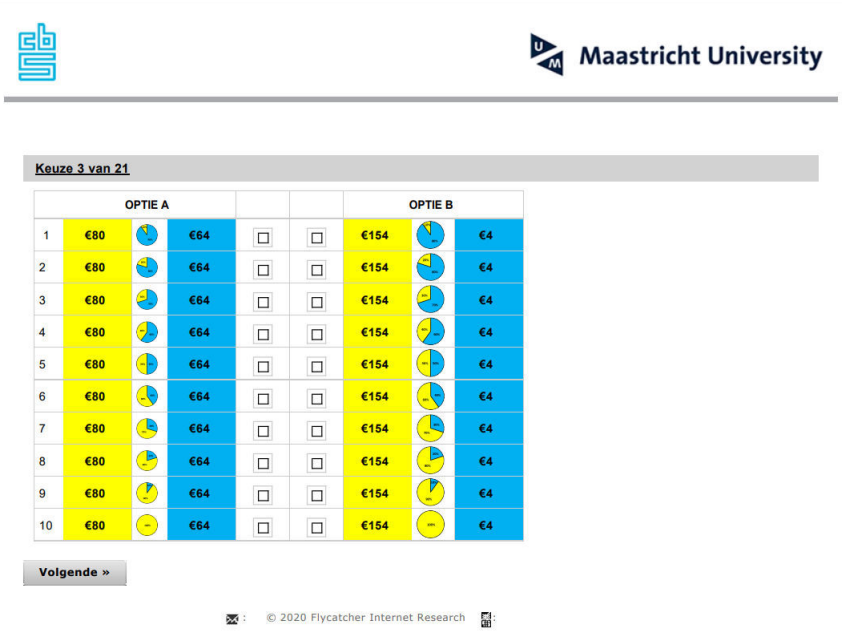


Figure B8: Example Decision Screen MPL-PGp

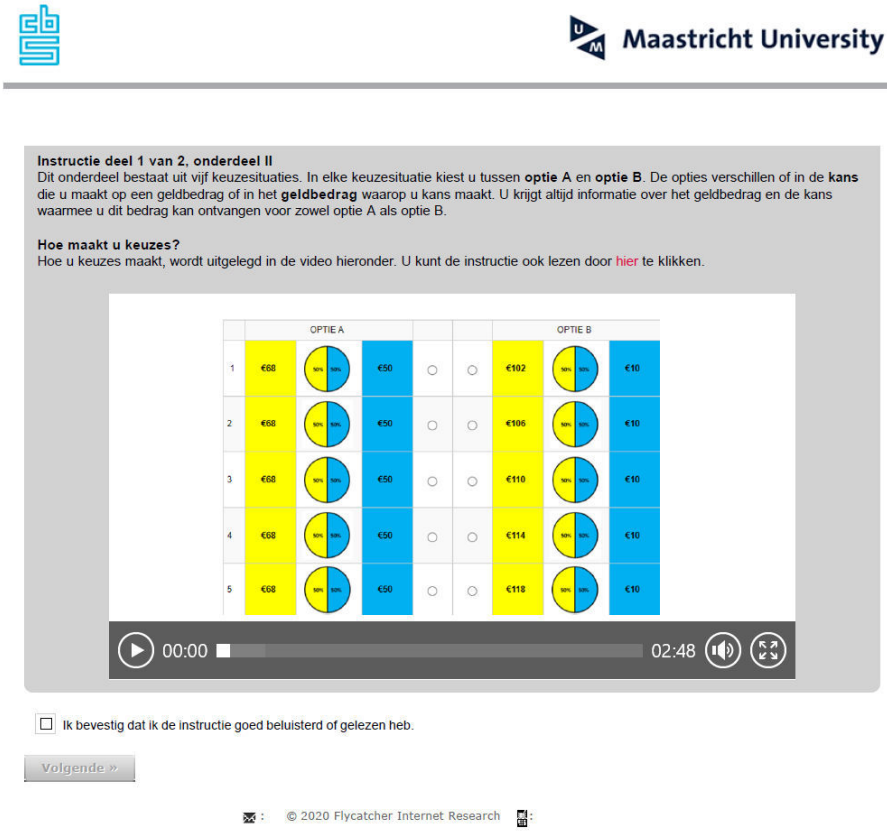


Figure B9: Instructions Screen MPL

Instructions part [1.2/2]
This part consists of five decision situations. In each decision situation you choose between **option A** and **option B**. The options differ either in the **probability** of earning a sum of money or in the **amount** of money that you can earn with a certain probability. You will always receive information about the amount of money and the chance with which you can receive this amount for both option A and option B.

How do you make choices?
How you make choices is explained using the two examples below.

Decision situation Type 1
The screen shows a decision situation in which you are asked to make a choice between **option A** and **option B** in **each row** (in this example 1 to 5).

In this example, **Option A is the same in every row**. In this option you will see two amounts, in this example **€68** (the amount with the yellow background) and **€50** (the amount with the blue background). If you choose option A, you will receive one of these amounts with a certain probability. This probability is stated in the middle of the two amounts. In this example, **the probability of receiving €68 is 50%** (i.e. a 5 in 10 chance) and **the probability of receiving €50 is 50%** (i.e. a 5 in 10 chance).

In this example, **Option B is different in each row**. In this option you will see two amounts in each row, in this example **€102 or more** (the amount with the yellow background) and **€10** (the amount with the blue background). If you choose option B, you will receive one of these amounts with a certain probability. This probability is stated in the middle of the two amounts. In this example, **the probability of receiving €102 or more is 50%** (i.e. a 5 in 10 chance) and **the probability of receiving €10 is 50%** (i.e. a 5 in 10 chance).

You make your choices by clicking on one of the radio buttons. **Note: you must make a choice in each row.**

On the next page are instructions for the example of Decision Situation Type 2.

Figure B10: Written Instructions MPL Page 1 (Translated from Dutch)

Decision situation Type 2
The screen shows a decision situation in which you are asked to make a choice between **option A** and **option B** in **each row** (in this example 1 to 5).

Option A is different in each row. In this option you will see two amounts, in this example **€68** (the amount with the yellow background) and **€50** (the amount with the blue background). If you choose option A, you will receive one of these amounts with a certain probability. This probability is stated in the middle of the two amounts and differs per row. For example, in row 1, the top row, **the probability of receiving €68 is 10%** (i.e. a 1 in 10 chance) and **the probability of receiving €50 is 90%** (i.e. a 9 in 10 chance). For example, in row 5, the bottom row, **the probability of receiving €68 is 50%** (i.e. a 5 in 10 chance) and **the probability of receiving €50 is 50%** (i.e. a 5 in 10 chance).

Option B is different in each row. In this option you see two different amounts than in option A, in this example **€106** (the amount with the yellow background) and **€10** (the amount with the blue background). If you choose option B, you will receive one of these amounts with a certain probability. This probability is stated in the middle of the two amounts and differs per row. The probability of receiving the amount with the yellow or blue background are the same in option A as in option B in each row. For example, in row 1, the top row, **the probability of receiving €106 is 10%** (i.e. a chance of 1 in 10) and **the probability of receiving €10 is 90%** (i.e. a 9 in 10 chance). For example, in row 5, the bottom row, **the probability of receiving €106 is 50%** (i.e. a 5 in 10 chance) and **the probability of receiving €10 is 50%** (i.e. a 5 in 10 chance).

You make your choices by clicking on one of the radio buttons. **Note: you must make a choice in each row.**

Figure B11: Written Instructions MPL Page 2 (Translated from Dutch)