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Does good advice come cheap? - On the assessment of risk preferences in the lab and the field

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Abstract

Advice is important for decision making, especially in the financial sector. We investigate how individuals assess risk preferences of others given sociodemographic information or pictures. Both non-professionals and financial professionals participate in this artefactual field experiment. Subjects mainly rely on the other's self-assessment of risk preferences and on gender when forming the belief about someone else's risk preferences. On average, subjects consider themselves to be more risk-tolerant than the person they evaluate. Subjects use their own risk attitude as a reference point for predicting others' risk preferences. This false consensus effect is less pronounced for young professionals than for senior and non-professionals. Furthermore, financial professionals predict risk preferences more accurately compared to non-professionals.

Classification: Risk Preferences, Financial Advice, Artefactual Field Experiment, Behavioral Finance

JEL-Codes: C91, D81, G02

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1 Introduction

Every day, people have to decide among multiple risky options. An important aspect is that people make a decision not only based on their own knowledge and experience, but also based on advice. Especially in the financial sector, products are becoming more and more complex and at the same time, financial literacy is limited (van Rooij et al. 2011). Thus, individuals are increasingly relying on professionals - such as financial consultants, insurance agents, but also doctors in the health domain - when making their decisions (c.f. Allen 2001, Bhattacharya et al. 2012).

An integral determinant of individuals' decision making are their risk preferences. Behavior such as financial decisions, smoking and occupational choices can be predicted by risk preferences (e.g., Dohmen et al. 2011).

These developments give rise to the question of whether an advisor is capable of assessing the risk preferences of an advisee correctly. This is the aim of this study. We analyze whether good advice is possible if risk preferences are not obvious to the advisor. Explicitly, we abstain from any agency problems on which the theoretical literature has focused so far (c.f. Ottaviani and Soerensen 2006, Inderst and Ottaviani (forthcoming) or Bhattacharya and Pfleiderer 1985). Our objective is to start a step earlier. If the advisor's only goal is to correctly gauge the risk preferences of the advisee, is the advisor able to do so?

Advice is usually given by professional advisors. Therefore we employ an artefactual field experiment[1] in which three types of subjects participate: senior financial advisors, junior financial advisors and non-professionals. These groups allow us to explore potential behavioral differences, in particular as the counseling experience differs and sorting of employees into the financial sector could be an issue (c.f. Bonin et al. 2007, Dohmen and Falk 2011, Haigh and List 2005)

Several aspects are studied: First, we inspect how advisors form beliefs about the risk preferences of specific advisees given sociodemographic information. We also check whether advisors' beliefs are subject to false consensus (Hsee and Weber 1997, Hadar and Fischer 2008) regarding their own risk preferences. This would indicate that they overestimate the extent to which other people are similar to themselves. Furthermore, we investigate how precise the advisors'

[1] Artefactual field experiments use the tools of a standard lab experiment with a non-standard subject pool (Harrison and List, 2004).

beliefs are. Instead of analyzing whether the advisors' stated beliefs coincide with the advisees' actual decisions, we make use of the data of a German large-scale representative survey (SOEP) in order to generalize our result. Therefore, we compare the advisor's belief with the average decision of subjects in the SOEP data conditional on the sociodemographic characteristics of the observed advisees.

In the experiment, subjects in two different roles participate: advisors, or subjects who form beliefs, and subjects on whom beliefs are formed - advisees. Our experimental design incorporates these two roles as it consists of two main parts. First, we use a web-based survey to collect data on potential advisees. In the second part, we run an artefactual field experiment consisting of four treatments. In the first treatment, we elicit the advisor's own risk attitude. In the subsequent treatments, we vary the information available to the advisor when forming beliefs about the risk preferences of a specific advisee as collected in the survey of part one. In the second and the third treatment advisors are able to draw on several sociodemographic variables. In the last treatment, the advisor is provided with the advisee's picture instead of sociodemographic information. The results of the experiment show that a false consensus bias of the advisors is present. Indeed, the advisors' own risk preferences positively correlate with their beliefs on the advisees. Interestingly, this is especially pronounced for experienced financial advisors and non-professionals. Besides the advisors' own risk preferences, the advisees' gender and the self-assessment of risk are considered to be important by the advisors when forming beliefs. In general, advisees are perceived as less risk tolerant than the advisors are themselves.

In a further step we investigate whether the advisors' beliefs coincide with the advisees' actual choices. We find that information on family status and the advisee's self-assessment on risk improve predictions of risk preferences. Furthermore, the precision increases if more information is available. Professionals exhibit a significantly higher accuracy in the forecast than non-professionals.

Our paper is the first to observe the process of forming beliefs about risk preferences of others based on several sociodemographics in detail. We can explicitly control for the available information. A major advantage is the subject pool of financial advisors.

The remaining paper is structured as follows: In the next section (section 2), we discuss the literature on risk preferences and advice. Section 3 explains the experimental design, while section 4 presents the results. In section 5 we

provide several robustness checks with an alternative risk measure followed by concluding remarks in section 6.

2 Literature

When making risky decisions subjects strongly react to advice (Allen 2001, Schotter 2003). Furthermore, people prefer to have advice when making a decision. Surprisingly, this is even true when it is common knowledge that the advisor does not have any information advantage in the field of the decision (Nyarko et al. 2006, Schotter and Sopher 2007). A prominent example is that subjects even demand advice for the outcome of a fair coin-flip (Powdthavee and Riyanto 2012). One explanation why subjects are keen on advice is that during the advice process people rethink their decision problem more in-depth and are therefore able to make better decisions (Schotter 2003).

To give good advice it is essential for the advisor to know the advisee's preferences. Recent research on risk preferences has detected significant linkages between sociodemographic characteristics and risk attitudes. It is largely undisputed that women are more risk averse than men (e.g., Byrnes et al. 1999, Croson and Gneezy 2009). Furthermore, individuals are found to be more risk averse if they are older, married, or have children (Dohmen et al. 2011). Regarding the relationship of education or income with risk tolerance the findings in the literature are ambiguous (c.f. Belzil and Leonardi 2007, Barsky et al. 1997, Dohmen et al. 2011, Hartog et al. 2002).

In contrast to the above research that studies *actual* correlations, advisors form their beliefs according to their *perceived* correlation between an advisee's sociodemographics and his or her risk attitude. One strategy to figure out somebody's preferences is stereotyping. Eckel and Grossman (2008) study gender stereotypes. In their study, females tolerate less risk than males as found previously. Furthermore, the beliefs about gender are consistent since women are perceived to be less risk tolerant. If, instead of *individuals'* stereotypes, *groups'* stereotypes are elicited, subjects overestimate the risk tolerance of the male group, while the female group is correctly assessed (Siegrist et al. 2002). In terms of cultural stereotypes, people perceive Chinese to be less risk tolerant than Americans. Interestingly, the actual experimental data shows an opposite correlation (Hsee and Weber 1999).

Studying the beliefs on others' risk preferences is particularly interesting with

respect to financial decision making. Regarding financial advice, Faro and Rottenstreich (2006) inspect how subjects predict others' risky choices. Their findings show a systematic bias towards risk neutrality when estimating the risk preferences of others. In their experiment - in contrast to the setting of Eckel and Grossman (2008) - the advisors have to assess how a randomly chosen subject decided. Hsee and Weber (1997) study differences between a subject's own risk preferences and the subject's beliefs about others' risk preferences. The authors show that the differences increase with social distance. If subjects have to assess an abstract, randomly chosen subject from the session, the self-other discrepancy occurs. It is absent if the judging subject has visual contact with the judged subject. No further information is transmitted in both situations, the judging subject is unknown to the judge.

Another aspect that is raised in the literature is the false consensus bias in belief formation (Hsee and Weber 1997, Hadar and Fischer 2008). Subjects' beliefs about the risk preferences of another person are consistently biased towards their own risk attitude. A restriction of these studies is that no monetary incentives are used to elicit the advisors' risk aversion or the advisors' belief. Daruvala (2007) explores gender differences in beliefs when predicting risk preferences of others. She finds that gender stereotypes as well as the subject's own risk attitudes affect the belief. However, there is no incentive compatible mechanism applied to elicit the beliefs on others in this design. Chakravarty et al. (2011) inspect risk taking in delegated decisions by using lottery gambles. The subjects have to judge the risk preferences of other participants of the experiment. Judging and judged subject are seated in different rooms, and again, no further information on the judged subject is provided. When making the lottery decision for this anonymous advisee, advisors exhibit a significantly higher risk aversion compared to their own risk attitude. In addition, the increase in risk aversion is relative to their own risk preferences, which again supports the false consensus hypothesis.

There is evidence that financial professionals exhibit a different behavior in decision making than the average population (Haigh and List 2005, Nofsinger and Varma 2007, Slovic et al. 1999). People choose their job according to their preferences (Dohmen and Falk 2011). It is argued that individuals which are willing to take more risk sort into occupations with a higher variance in income (Bonin et al. 2007, Fuchs-Schündeln and Schündeln 2005) or even with a higher mortality risk (Deleire and Levy 2004). The premium dependent incen-

tive schemes in the financial sector could be a reason for the sorting of financial professionals.

This study contributes to the literature in several ways: First, in our experiment advisors are provided with a *set* of sociodemographic characteristics of specific and vivid advisees. In the literature so far, only a single sociodemographic information is presented and varied. Based on this information, advisors form their belief about the risk preferences of the advisees. We can study the advisors' belief formation process while explicitly controlling for the information available. Second, incentives are provided for the elicitation of the advisors' risk preferences *and* beliefs, while this is not the case in previous studies. A major advantage of our approach is our subject pool consisting of financial professionals and non-professionals. This allows us to study behavioral differences of subjects familiar and unfamiliar with giving advice.

3 Experimental Design

The experiment investigates beliefs about the risk preferences of others.[2] This involves two distinct roles: subjects who form beliefs (advisors) and subjects about whom beliefs are formed (advisees). Therefore our experimental setup consists of two main parts (c.f. Figure 1).[3] In a first part, we collect data on risk preferences of advisees in a web-based survey as described in section 3.2. From this data, we choose the advisees that are presented to advisors in the second part. We augment this information by survey data from the German Socioeconomic Panel (SOEP) to control for representativity as discussed in section 3.3.

In the second part, we run an experiment consisting of four treatments. When entering the lab the advisors are randomly assigned to a computer and then log on to the experimental software. All treatments are played one after another without interaction between the advisors. Hence, we treat each subject as an independent observation. The payoffs of the whole experiment are shown after all treatments are finished to avoid learning effects. At first treatment SELF is played, which asks for the advisors' sociodemographic information and their own risk attitude using two risk measures.[4] These two risk tasks are described

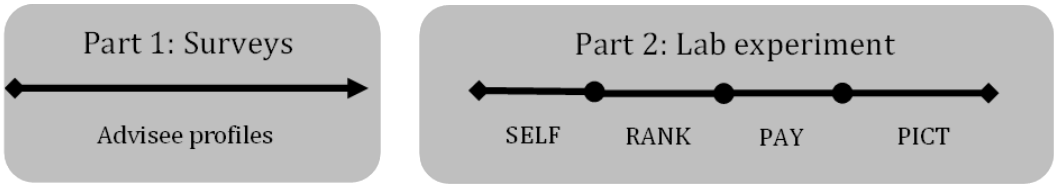
[2] In the literature 'prediction', 'forecast' and 'belief' are used interchangeably.

[3] The instructions of both parts of the experiment can be found in the appendix.

[4] SELF is followed by a further treatment that is discussed in a companion paper (Leuermann and Roth 2012). We do not expect interference for the presented results as the advisors

in section 3.1. In the second (RANK) as well as in the third treatment (PAY) advisors forecast the risk preferences of four advisees' profiles, each chosen from the web survey of part 1. For each advisee profile we present a screen with the advisee's sociodemographic information. Subsequently, the advisor is asked to predict the advisee's actual decision in the same two risk measures used in SELF. RANK and PAY differ in the way the sociodemographics are presented to the advisor. A detailed description is given in section 3.3. The last treatment (PICT) is similar to RANK and PAY. However, advisors are provided only with four pictures of advisees instead of sociodemographic information. Before we describe the experiment in detail, we introduce the used risk measures in the following section.

Figure 1: Experimental Design: Course of Action



3.1 Measures of Risk Aversion

The experiment uses a well-studied, easily understandable lottery question to measure risk preferences. The exact wording is as follows:

€100,000 question *Please consider what you would do in the following situation: Imagine that you had won €100,000 in the lottery. Almost immediately after you collect the winnings, you receive the following financial offer, the conditions of which are as follows: There is the chance to double the money. It is equally possible that you could lose half of the amount invested. You have the opportunity to invest the full amount, part of the amount or reject the offer. What share of your lottery winnings would you be prepared to invest in this financially risky, yet lucrative investment?*
Your Decision *€100,000 - €80,000 - €60,000 - €40,000 - €20,000 - Nothing, I would decline the offer.*

The elicitation mechanism is an ordered lottery selection design in which subjects can invest up to €100,000 into a lottery that doubles or halves the amount

do not receive any feedback from this further treatment.

invested with equal probabilities.[5] It is called "€100,000 question" in the following and is borrowed from the SOEP panel. This provides the opportunity to cross-check our experimental data with the large-scale data of the survey. The reliability of this measure has been validated via a lab experiment with real money at stake (Dohmen et al. 2011).
Beside this risk measure, all treatments are played with the measure of Holt and Laury (2002) (in the following: HL-lottery) in addition. The results serve as robustness checks and allow to generalize our results with respect to the risk measure employed. A detailed description of the HL-lottery and the results are presented in section 5.1.

3.2 Part 1: Surveys

Our main objective is to study how advisors assess the risk preferences of specific advisees. As we analyze how the variation of sociodemographic information is incorporated into the assessment of the advisees' risk preferences, it is crucial to achieve sufficient sociodemographic heterogeneity in the pool of advisees.
To collect the subject pool from which the advisees' profiles are then selected, we ran a web-based survey in November and December 2010.[6] This allows us to generate a heterogeneous sample in several sociodemographic characteristics. Furthermore, we ask the participants about their sociodemographics and elicit their choices in the HL-lottery and the €100,000 question.
In the course of the experiment, we make use of the fact that the €100,000 question is also part of the German Socioeconomic Panel (SOEP) survey to generalize our results.[7] This large-scale dataset surveys approximately 20,750 subjects yearly and is therefore a powerful and representative tool for our purpose. At first, we will compare the advisees selected for presentation to the advisors with subjects in the SOEP to ensure that the advisees do not differ from the population in general. Second, in section 4.4 we analyze whether the advisors' beliefs coincide with the advisees' actual choices. To assess whether

[5] In order to provide incentives to take the decision in the lab experiment thoroughly, for the actual payoff we convert the €100,000 into €2.50, €80,000 into €2 etc. Scale: To improve readability, in the analyses, we present the data in '€10,000 invested' such that the data is scaled from 0 to 10.

[6] Participants were recruited via e-mail and were asked to further distribute the survey. Among all participants who completed the web-based survey we raffled off €50.

[7] C.f. www.diw.de/soep for further information. The €100,000 question was included in the year 2009.

advisors' beliefs are correct, the mean risk preferences of a subsample of the SOEP population comparable in sociodemographics to the actual advisee is taken as a benchmark. This allows us to conclude whether advisors are able to assess average advisees.

Restrictively, while the SOEP survey is a representative sample of the German population, this does not hold for the web survey as can be observed by comparing the descriptive statistics of the sociodemographics in Table 1, column two and three. However, the heterogeneity of sociodemographic characteristics within these two pools is large compared with a sample that mainly consists of students as Table 1 (compare column 'non-professionals', which mainly consists of students) shows.

Table 1: Descriptive Statistics of the Subjects in Surveys and Lab Experiment

	Part 1: Surveys				Part 2: Lab Experiment					
	Web survey		SOEP survey		Non-prof.		Junior prof.		Senior prof.	
Variable	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd
N	84	-	20,750	-	77	-	52	-	38	-
Year born	1979	10.0	1959	17.71	1986	6.29	1989	1.06	1973	11.0
Gender (female=1)	0.57	0.56	0.52	0.50	0.56	0.50	0.46	0.50	0.18	0.39
Partner (yes=1)	0.41	0.62	0.77	0.42	0.26	0.44	0.23	0.43	0.66	0.48
Parent (yes=1)	0.20	0.40	0.62	0.49	0.05	0.22	0.02	0.14	0.47	0.51
High income* (yes=1)	0.02	0.15	0.01	0.07	0	0	0	0	0.11	0.31
Uni degree (yes=1)	0.59	0.50	0.21	0.41	0.94	0.25	1.00	0.00	0.63	0.49
Counsel. Exp. (in years)	-	-	-	-	-	-	1.02	1.07	10.97	8.27
Stated risk attitude$^{\theta}$	3.54	1.81	1.90	2.13	5.26	1.39	5.08	1.52	4.68	1.71
HL$^{\Delta}$	5.30	1.78	-	-	6.81	1.56	6.33	1.78	6.32	2.08
100,000$^{\psi}$	2.38	2.70	0.91	1.98	4.70	3.29	4.00	2.44	3.11	3.18

* refers to a monthly net income above €6,000 (approx. 8460$).
$^{\theta}$ Subjects chose on a scale from 0 (=risk averse) to 10 (=fully prepared to take risks).
$^{\Delta}$ refers to the row in which Option B was chosen for the first time in the HL-lottery.
$^{\psi}$ refers to the the amount invested into the €100,000 question in €10,000.

Selection of Advisees for RANK and PAY In total, eight profiles are used in RANK and PAY - four for each treatment. These profiles are chosen from the web-based survey and are displayed in Table 2. The sequence in which these eight profiles are shown to the advisors is random. This means a profile could appear as the second advisee to be assessed in RANK but also as the fourth in PAY, for example. Nonetheless, *every* advisor sees *all* eight profiles in random order in RANK or PAY.

Within the described experimental design it is vital to choose the set of our advisees thoughtfully. The eight advisees are chosen out of the 84 subjects of the web survey in order to achieve a balanced and diversified sample over age, education, family status, income, gender, and parenthood as presented in Table

Table 2: Profiles of Advisees Selected for Presentation in RANK and PAY

Age	Education	Family status	Net income (in €)	Gender	Child.	Risk index$^{\theta}$	100, 000$^{\psi}$	SOEP mean$^{\psi}$	HL$^{\Delta}$
64	university	married	>6,000	male	yes	1	2	2.55	5
38	training	single	1,001-3,000	female	no	2	0	0.83	6
25	econ student	partner	<1,000	male	no	5	4	1.29	6
30	training	married	1,001-3,000	male	yes	1	4	1.01	8
36	adv training	single	3,001-6,000	male	no	1	2	3.24	5
57	university	married	3,001-6,000	female	yes	0	4	0.62	7
41	university	divorced	>6,000	female	no	1	2	2.50	5
21	econ student	single	<1,000	female	no	4	0	1.59	4

$^{\theta}$ Advisees chose on a scale from 0 (=risk averse) to 10 (=fully prepared to take risks)
$^{\Delta}$ refers to the row in which Option B was chosen for the first time in the HL-lottery.
$^{\psi}$ refers to the the amount invested into the €100,000 question in €10,000.

2. The column '100,000' depicts the individual choices in the €100,000 question whereas the column 'HL' refers to the actual choices of the advisees for the HL-lottery.

Furthermore, we have to assure that our advisee sample is approximately coherent with the population. We thereby ensure that the advisee is not exceptional in his or her risk preferences and correctly assessing the advisee is a feasible task for the advisor. The large SOEP panel allows to accomplish this issue. We reduce the whole SOEP population to subjects that are similar to our specific advisees in the sociodemographic characteristics age, education, family status, income, gender, and parenthood as presented in Table 2. From this subsample we calculate the average of the answer to the €100,000 question. Consider for example the advisee in the second row of Table 2. In order to compute the risk tolerance of the 'representative counterpart' of this advisee (consider column 'SOEP mean'), we compute the mean of the answers in the €100,000 question given a subsample of all SOEP observations with that characteristics.[8] This subsample contains all females, aged between 32 and 43, who are single, have an income between €1,000 and €3,000 and as education a training. On average, people with these characteristics invest €8,300 in the lottery.

In our opinion the described procedure minimizes the advisees' deviations from the population mean as we only choose advisees who are similar to the population mean. This can be observed when comparing the column '100,000' and 'SOEP mean'. We thereby assure that the subjects to be judged are not exceptional and it is therefore impossible to assess their risk preferences. At the same time it provides the opportunity to let advisors judge real individuals.

[8]Means are weighted with a dataset-specific weighting function which considers cross-sectional personal weights of each subject.

Advisees for PICT In contrast to the preceding treatments, advisors exclusively receive visual information on the advisees in treatment PICT. Figure 2 displays an anonymized version of the advisees' pictures. Table 3 shows the advisees' characteristics and choices in both lotteries used in the PICT treatment. Again, the column '100,000' denotes the actual choice of the €100,000 question, whereas 'HL' displays the value for the HL-lottery. Again, we compute the average answer of the €100,000 question based on a subsample of the SOEP data. Therefore we assume gender and age to be observable to the advisors. In order to determine the 'SOEP mean' variable, we consider all SOEP panel participants which are born between 1976 and 1988 and have the respective gender.[9] In the experiment, advisors either have to assess four male advisees or four female advisees, which will be randomly determined per session.

Figure 2: Treatment PICT: Pictures Presented

3.3 Part 2: Lab Experiment

The experimental sessions took place between April 2011 and January 2012. In total, 167 subjects in the role of advisors participated.[10] In the subject pool we have three types of advisors: senior professional advisors, junior professional

[9]The actual advisees in PICT are born between 1978 and 1985; this information is not transmitted to the advisors.

[10]The experiment involves no interaction among the advisors, therefore each advisor is treated as an independent observation.

Table 3: Risk Attitudes of Advisees in Treatment PICT

Gender	100,000$^{\psi}$	SOEP mean$^{\psi}$	HL$^{\Delta}$
female	2	1.13	4
female	6	1.13	5
female	4	1.13	4
female	4	1.13	7
male	6	1.69	4
male	0	1.69	3
male	6	1.69	6
male	6	1.69	8

$^{\psi}$ refers to the the amount invested into the €100,000 question in €10,000.
$^{\Delta}$ refers to the row in which Option B was chosen for the first time in the HL-lottery.

advisors and non-professionals. The non-professionals are mainly students and hired via the AWI-lab at Heidelberg University where all sessions with non-professionals were run.[11] The senior professional advisors were recruited from a large German financial advisory agency and from local banks. The junior advisors were recruited from a banking specific advanced training institution.[12] After finishing high school, the junior professionals enter a study program in financial advisory at an applied university which contains practical counseling in up to 50% of time. Since these advisors are students, regarding age and education, they are comparable to the non-professional advisors. Detailed information on the advisor pool and descriptives are given in Table 1. The experiment lasted approximately 50 minutes. The average payoff was €11.92.
In the following we present the four treatments (SELF, RANK, PAY, PICT). RANK, PAY and PICT differ in the way the information is provided to the advisor. As discussed in the previous section, the information in RANK and PAY is drawn from the following categories of the advisees' sociodemographic characteristics: age, education, family status, income, gender, having children and self-assessment of risk-taking in financial matters. The possible realizations of these variables are shown in Table 4. In PICT only visual information is provided.

3.3.1 Treatments

[11]The experiment was programmed on a PHP-platform and accessible via a Web Browser.
[12]We ran seven sessions with professionals - three in the lab and four on-site. In all sessions, the conditions (no communication among participants, space between computers, the visual presentation of the experiment) were identical.

Table 4: Information/Categories Provided in RANK and PAY

Age	In years
Education	University, Master, training, in training, no formal training
Family status	single, partner, married, divorced, living separated, widowed
Net income	up to €1,000, €1,001-€3,000, €3,001-€6,000, more than €6,000
Gender	male, female
Parenthood	having children, having no children
Risk Index	Self-assessment of risk with the question: *Regarding financial matters, are you generally a person who is fully prepared to take risks or do you try to avoid taking risks?(0=risk averse to 10=fully prepared to take risks)*

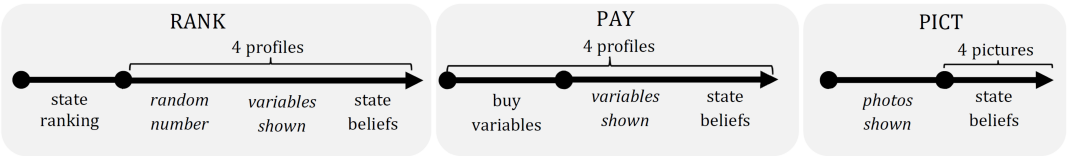
Procedure Treatment SELF In the SELF treatment, the advisors' own sociodemographics and their risk preferences are elicited. At first, advisors answer the questions on their sociodemographics. Subsequently, first they play the €100,000 question followed by the HL-lottery.

Procedure Treatment RANK The task in this treatment is to assess correctly the risk preferences of an advisee. As discussed above, for this purpose we chose eight advisee profiles providing sociodemographics as shown in Table 4. Out of the eight profiles, four are randomly selected to be presented to the advisors in RANK. However, in RANK (as well as in PAY) the advisors are able to influence with which probability the respective sociodemographic information about the advisee is provided to them. At the beginning of the RANK treatment, as depicted in Figure 3, advisors are asked to state a ranking over the seven sociodemographic characteristics (e.g., 1. age , 2. gender, 3. income, 4. risk index,...) and advisors are informed that based on the revealed sociodemographic information they have to assess certain advisees. In the following the computer draws a random number that determines how many categories are disclosed.[13] If for example, the random number is two and we are dealing with the advisee of the last row of Table 2, the computer displays the following information: age: *21 years old* and gender: *female*.
After the presentation of the advisee's characteristics, the advisor has to assess how this specific advisee has decided in the €100,000 question and the HL-lottery. For this advisee the correct answers would be *0* for the €100,000 question and *4* for the HL-lottery (see Table 2). If the answers are correct, the

[13]The random number is drawn from a uniform distribution on the interval [1,7]. Hence, the category on the first rank is observed for sure.

advisor is paid €0.50 for each risk task.
In total, this procedure is repeated for four advisee profiles. The ranking stated at the beginning is kept for all profiles. However, for each profile a new random number is drawn and, of course, a new advisee profile is presented. Hence, the advisors evaluate four profiles one after another before moving on to the PAY treatment.

Figure 3: Course of Action in Treatments RANK, PAY and PICT



Procedure Treatment PAY In the PAY treatment, advisors can freely choose which and if characteristics out of the available seven are presented to them. In contrast to RANK, the advisors have to pay for each category they want to see in each round separately (c.f. Figure 3). The characteristics are priced according to a convex pricing rule. The first characteristic costs €0.01 while buying all seven characteristics amounts to €0.99 in total.[14] When entering the PAY treatment, the advisor is asked which categories he or she wants to buy. If, for example, the advisor wants to see age and gender, the total price amounts to €0.03. On the next screen the categories are shown (e.g., age: *21 years old* and gender: *female* for the above example) and the advisor is asked to assess the risk preference of this profile. Again, the advisor earns €0.50 for each correctly assessed risk task. On the subsequent screen, the advisor is asked to buy the sociodemographic characteristics for the next profile. As in RANK, this procedure is repeated for four profiles in total. Out of the eight profiles of Table 2, the remaining four after the RANK treatment are presented to the advisors. However, the advisor is able buy different categories for different profiles.

Procedure Treatment PICT As mentioned above, in the PICT treatment solely visual information is the basis for the advisor's prediction. After finishing the PAY treatment, advisors enter the PICT treatment. First, advisors open

[14]Price for the second characteristic: €0.02, the third: €0.03, the fourth: €0.06, the fifth: €0.12, the sixth: €0.24, the seventh: €0.50. As the minimum earnings that are generated before the PAY treatment amount to €4, net losses are excluded.

an envelope containing a sheet of paper showing four pictures. The task is then the same as in the treatment before. The advisors are asked to assess the risk preferences of the depicted advisees one after another. Again for every correct prediction €0.50 are paid off.
The advisors exclusively have the information provided on the photo available. In each session either four males or four female photos are used. Which gender is presented is randomly assigned. Although we do not explicitly provide any further sociodemographic information, at least gender and possibly age can be inferred from the pictures. The photos show individuals who are of similar appearance and are dressed alike. By holding the age, gender and the style of clothing constant we force the advisors to form their beliefs given the characteristics of the face only. In Figure 2 the anonymized pictures can be found. Overall, out of the 167 advisors there are 91 advisors judging the pictures of women and 76 advisors judging the pictures of men.

4 Results

After introducing the different treatments, the following section presents the results. In this section we contribute to four questions. Section 4.1 studies differences in the belief formation in the different treatments and sheds a light on self-other discrepancies. Secondly, in section 4.2 we investigate how information on the advisee's sociodemographic characteristics affects the advisor's belief. Section 4.3 studies how differences in sociodemographic characteristics between advisor and advisee influence the advisor's deviation from his own risk preferences when forming his belief. Finally, in section 4.4 we inspect if the advisors' beliefs are correct. For this we combine representative survey data with lab data.

4.1 Self-assessment and Beliefs

In this section, we analyze how the advisors' own risk preferences relate to their beliefs. The term self-other discrepancy refers to a systematic misperception between the advisor's own risk tolerance and the *perceived* risk tolerance of the advisee. This effect is found by Hsee and Weber (1997) but also discussed by Eckel and Grossman (2008), Faro and Rottenstreich (2006) and Eriksen and Kvaløy (2009). Regarding the process of giving advice it is important to

analyze whether advisors judge themselves to be more or less risk tolerant than the advisees evaluated.

In order to investigate this effect, we present the advisor's self-assessment in the €100,000 question (SELF) compared to their beliefs separately for the three treatments RANK, PAY and PICT in Figure 4. The decisions are aggregated for all three groups of advisors. The first column 'SELF' indicates the advisor's own decision. The second column denotes the beliefs for the RANK treatment, the third represents the beliefs for the PAY treatment and the fourth and last stands for the beliefs in the PICT treatment. A Wilcoxon signed-rank test does not detect a statistical difference between the beliefs in RANK and PAY at the 1%-level. We conclude that the way we let advisors rank and select the sociodemographic information does not affect the belief formation.

However, we find statistically different distributions for the comparison of all other pairs, e.g., SELF vs. RANK and PAY as well as PICT vs. RANK and PAY vs. all other treatments at the 1%-level. The results indicate that the advisors on average take more risk in their own decisions compared to the beliefs about their advisees' risk preferences. In other words, the advisors perceive their advisees to be less risk tolerant. If analyzed individually, 80% of the beliefs in RANK and PAY exhibit either the same risk or are more risk averse than the advisors' own choice. A self-other discrepancy indeed exists.

Interestingly, the choices of PICT are not statistically different from the choices in SELF. This could be due to the fact that in PICT less information is provided. As a proxy, advisors use their own risk preferences in these cases.

4.2 How Do Advisors Form Beliefs?

In order to analyze how the advisors assess others' risk preferences based on sociodemographics, we set up three regression models which are presented in Table 5. The data of RANK and PAY is pooled in the regressions since we do not find statistically significant differences in the beliefs.[15] As the 167 advisors have to judge four randomly chosen advisees in each treatment, the pooled decisions sum up to 1,336 observations.

We run an OLS regression in which the dependent variable is the belief on the eight advisees.[16] However, how much and which information is available to

[15] Furthermore, we control for potential differences with a dummy variable.

[16] Remember that for a better readability, in the analyses, we present the belief in the €100,000 question in '€10,000 invested' such that the beliefs is scaled from 0 to 10.

Table 5: Regression Results: Belief Formation

Model		*(1)*	*(2)*	*(3)*
dependent variable		belief	belief	belief
$\mathbb{1}\{seen=1\}$	Year of birth	-19.48	-15.26	-12.2
		15.63	15.16	15.11
	No uni	0.222	0.171	0.166
		0.230	0.210	0.205
	Single	-0.00252	-0.0251	-0.0312
		0.185	0.171	0.170
	Low income	-0.00822	-0.0794	-0.0812
		0.159	0.148	0.148
	Male	0.666***	0.651***	0.654***
		0.224	0.201	0.198
	No children	0.206	0.413**	0.414**
		0.193	0.177	0.176
	Risk index	-3.365***	-3.340***	-3.387***
		0.322	0.302	0.288
$\mathbb{1}\{seen=1\} \cdot \{soc\ dem \neq 0\}$	Year of birth	0.00989	0.00776	0.00623
		0.00794	0.0077	0.00767
	Uni degree	-0.0261	-0.00661	-0.0164
		0.246	0.231	0.224
	Partner	-0.269	-0.188	-0.185
		0.216	0.207	0.208
	High income	1.409***	1.429***	1.458***
		0.240	0.237	0.231
	Female	-1.118***	-1.133***	-1.158***
		0.218	0.218	0.217
	Children	-0.654***	-0.748***	-0.766***
		0.251	0.246	0.243
	Risk index	0.885***	0.887***	0.878***
		0.113	0.104	0.101
Risk pref.	Self		0.183***	0.186***
			0.0352	0.0495
	Self · junior			-0.142**
				0.0696
	Self · senior			0.103
				0.0905
Junior		-0.667**	-0.422**	0.146
		0.189	0.176	0.295
Senior		-0.653**	-0.265	-0.587*
		0.282	0.241	0.317
Rank		-0.0709	-0.0885	-0.0886
		0.0982	0.0971	0.0970
Constant		3.781***	2.756***	2.742***
		0.351	0.333	0.341
N		1,336	1,336	1,336
R^2		0.43	0.474	0.483
Adjusted R^2		0.419	0.464	0.472
Advisee FE		yes	yes	yes

* p<0.1; ** p<0.05; *** p<0.01, robust standard errors clustered at advisors' level. Dependent variable: advisor's belief in €100,000 question. $\mathbb{1}\{seen = 1\}$ indicates a characteristic is visible. $\{soc\ dem\}$ indicates the realization of the characteristic. The left-out category is $\mathbb{1}\{seen=0\}$.

Figure 4: Advisors' own Risk Preferences and Beliefs in Treatments (€100,000 question)

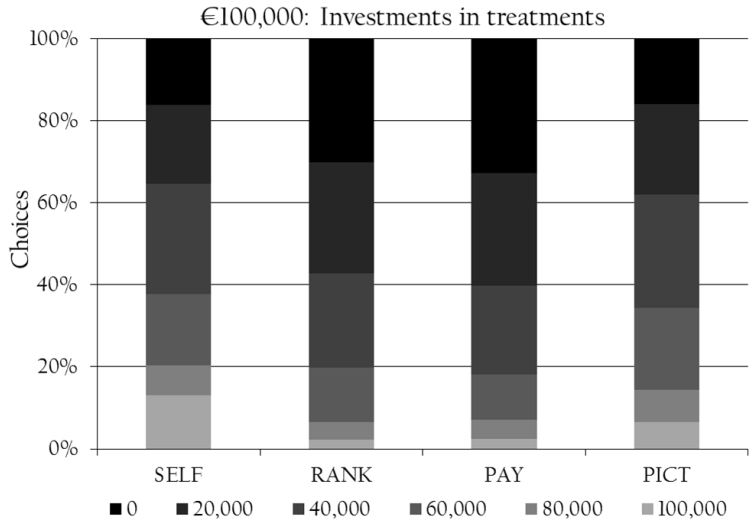


Table 6: Wald Test on Joint Significance (P-values) of Coefficients in Table 5

Model	*(1)*	*(2)*	*(3)*
$H_0 : \{socdem = 0\} + \{socdem \neq 0\}$=0			
Year of Birth	0.4207	0.3155	0.4207
Education	0.3891	0.3461	0.3891
Family status	0.2277	0.2350	0.2277
Income	0.0000	0.0000	0.0000
Gender	0.0022	0.0046	0.0022
Parenthood	0.1400	0.1692	0.1400
Risk index	0.0000	0.0000	0.0000

each advisor when forming the belief depends on the ranking and the random number (RANK) or on how many categories are bought (PAY). The empirical models have to incorporate different states of available information of the advisor when making the prediction. Therefore, we include two major sets of variables. The estimated models thereby allow to evaluate how advisors adopt their beliefs when information on different categories is available.

The dummy variables in the upper part ($\mathbb{1}\{seen{=}1\}$) bear a value of one if the corresponding characteristic is visible. The variables in the part below ($\mathbb{1}\{seen{=}1\} \cdot \{soc\ dem \neq 0\}$) are interaction terms carrying the value of the variable itself and are interacted with the upper dummy variables. Thus the value of the characteristic shows up only if it is observable.[17] The omitted cat-

[17]Note that the value of the sociodemographic information on 'income', 'education' and

egory in this specification is 'not seen' ($\mathbb{1}\{seen{=}0\}$). Hence, this allows us to interpret the results as the marginal effects of the specific characteristics if it is observed. In this specification the coefficients of the upper set of dummy variables reflect the effect if the actual value of the variable is zero (e.g., the effect on male, as the gender dummy variable has a value of 0 for male and 1 for female).

Additionally, by including dummy variables for the junior and senior professionals respectively, we disentangle deviations in the behavior of the groups being familiar with giving advice. Since the unit of observation is the advisor, the errors are clustered on the level of the advisors.

Given the econometric specification, we compute the scope of adjustment of the advisors' forecast dependent on the observable information. Generally, we expect the signs to be coherent with recent literature such as Dohmen et al. (2011) who used the same risk measure; we expect an advisor's belief to be more risk averse if an advisee is female instead of male. A companion paper (Leuermann and Roth 2012) that uses the same subjects reports that especially males, younger people, singles and non-parents are on average associated with a higher degree of risk taking. Advisors are thus expected to form their beliefs according to the known correlations. While model (1) serves as the baseline specification, model (2) and (3) include advisors' risk preferences in addition.

The regression results show that the risk index, gender and income variable are highly significant for both sets of controls in all models. By evaluating the gender variable in model (1) we find that advisors increase their forecast for the €100,000 question by €6,660 on average if a male is assessed. The investment decreases by €4,520 if a female is indicated.[18] In effect, males are expected to invest €4,520 more in the lottery than females. A Wald test on the joint significance over both sets of controls ($\{socdem = 0\} + \{socdem \neq 0\} = 0$) reveals joint significance at the 1%-level (Table 6). The correlation between gender and risk preferences as suggested by the literature is thus incorporated into the advisor's belief.

A similar statement can be made for the variable risk index. The variable 'risk

'family status' is converted into a dummy variable to ease the interpretation. 'Income' is divided into high income (value=1) and low income (value=0), 'education' into advisees with (value=1) or without (value=0) university degree and 'family status' into having a partner (value=1) and not having a partner (value=0).

[18] To calculate the total effect, we have to sum both the male and female coefficient; the total effect turns out to be negative.

index' in the upper part has the value of one if the advisee's risk index is zero and visible to the advisor. The fact that it shows up to be significant decreases the investment by approximately €33,650.[19] We find that on average the advisors increase their investment forecast by €8,850 for each point the advisee's risk index variable increases. Both coefficients are jointly significant. Regarding the income variable, we observe that advisors adjust their belief only if an advisee with high income is observed. The interaction dummy variable indicating high income reports that the amount invested in the lottery increases by €14,090.[20]
In addition to the advisee fixed effects we incorporate advisor attributes in model (2). The 'self' variable contains the advisor's own risk attitude. This variable turns out to be highly significant. This is an interesting finding since the forecast is not only made on the grounds of the provided information about the advisees but is also related to the advisor's own risk attitude. Especially the size of the coefficient shows the considerable influence of the advisor's preferences. Together with the dependent variable, this variable is located on the same domain. For every €1,000 an advisor invests into the lottery, he or she expects the advisee to invest €183 more, on average. This implicates that an advisor's own risk attitude serves as a reference point for judging others. The inclusion of further advisor's characteristics (e.g., gender, age) shows a stable influence of the advisor's risk preferences (not reported).
In model (3) we are interested in whether professional experience changes the extent to which advisors base their belief on their own risk preferences. Similarly to the 'self' variable we include two more interaction variables: 'self · junior' and 'self · senior'.[21] These variables interact the advisor's risk preferences with a dummy variable of the respective advisor's type. This specification allows to analyze systematic differences of the influence of the advisors' own risk attitude on the beliefs in the different advisor groups. The coefficient of 'self' stays largely unchanged when comparing model (2) and model (3). Hence, the non-professional advisor expects, on average and ceteris paribus, an advisee to invest €186 more into the lottery for every €1,000 the advisor invests himself. The junior professionals' advice decisions are not based on their own risk pref-

[19]The advisees' choices of risk index range from 0 to 5 (Table 2).
[20]Note: High income refers to a monthly net income of €6,000 and more. Regarding the correlation between income and risk preferences, results in the literature are ambiguous (see section 2). For the information on parenthood, we can observe that the effect is significant if the advisor observes that the advisee has children. Nevertheless, the Wald test on joint significance in Table 6 proves that this is not significant.
[21]The omitted category is 'non-professional'.

erences because the coefficients 'self · junior' and 'self' are jointly not significant as proven by a Wald test. In contrast to that, senior professionals show no significantly different behavior compared to the omitted category 'non-professionals'. The false consensus bias is thus driven by senior professionals and non-professionals, while junior professionals seem to abstain from using their own decision as reference point.
As suggested above, pooling the data of RANK and PAY is not an issue since 'Rank' is insignificant in all models. The variables controlling for the advisor's type indicate that professionals compared to the non-professional advisors generally believe that advisees invest a lower amount in the €100,000 question.
In conclusion, this analysis demonstrates that advisors adjust their beliefs according to the available information. In particular, the significant variables show the presumed signs. Furthermore we conclude that they use their own risk attitude as a reference point. Hence, this matches the findings of Chakravarty et al. (2011) and others who report a correlation between advisors' and advisees' preferences.

4.3 Does Social Distance Matter?

In this section we trace a question raised by Hsee and Weber (1997). Arguably, the self-other discrepancy described in section 4.1 could be caused by the *social distance* of advisee and advisor. The reasoning can be summarized as follows: If an advisor recognizes an advisee to be similar in observable characteristics, the advisor alleges the advisee to have similar preferences. Hence, the deviation between the advisor's preferences and the advisor's belief should depend in the sociodemographic similarities - or social distance. We interpret the social distance as the absolute difference between the advisor's and the advisee's sociodemographic characteristics. Following this argument, the belief and the advisor's own lottery choice should coincide if both, advisor and advisee, share the same gender or family status, for example.
In order to evaluate this hypothesis, we estimate a regression shown in Table 7. The dependent variable is the absolute difference between an advisor's self-assessment and the belief on the advisee. As independent variables we include the absolute differences between the advisor's and the advisee's sociodemographic characteristics, derived for each category separately. To account for the experimental design, these variables are interacted with a dummy variable

Table 7: Regression Results: Social Distance

Model		*(4)*
dependent variable		|belief-own choice|
|advisor - advisee| · $\mathbb{1}\{seen=1\}$	Year of birth	0.00992
		0.00861
	Education	0.103
		0.233
	Family status	-0.0524
		0.222
	Income	0.0821
		0.229
	Gender	0.292
		0.179
	Parenthood	0.597**
		0.250
	Risk index	0.412***
		0.0354
Junior prof.		-0.946***
		0.163
Senior prof.		-1.118***
		0.18
Rank		0.112
		0.146
Constant		3.143***
		0.208
Observations		1,336
R^2		0.131
Dummy if char. seen		yes
Advisee FE		yes

Results of Random effects model, * p<0.1; ** p<0.05; *** p<0.01, dependent variable: absolute difference between advisor's belief and advisor's own risk preferences. $\mathbb{1}\{seen=1\}$ indicates if a characteristic is seen.

which is equal to one if the specific category is visible in the experiment (c.f. section 3.3). In a similar manner as in the models (1) to (3), additionally we include a set of dummy variables that indicates if the particular variable is seen by the advisee.[22] Furthermore we control for differences between the treatments and the different advisor groups.

Considering the results of model (4) in Table 7, we find significant effects for the variables risk index and children. Hence, the absolute difference in the risk index between advisor and advisee positively correlates (ceteris paribus) with the absolute difference between the self-assessment and the belief. These results indicate that advisors perceive the risk index as a reliable measure and adjust their beliefs and their behavior according to this variable. With respect to the

[22]In contrast to the former models, these dummy variables are not displayed and interpreted.

variable children, the positive sign of the significant coefficient can be interpreted as follows: If advisors recognize that they do not share the parenthood status with the advisee, they update their belief as they deviate from their own preferences. In the analyses above, gender turned out to be a major predictor for the risk preferences of others. Interestingly, there is no significant gender effect in model (4).
Similarly to the findings in section 4.2, there is a significantly different behavior of the professionals compared to the non-professional advisors, as the respective control variables show. The self-other discrepancy is found to be smaller for professionals than for non-professionals. Junior and senior professionals deviate from their risk preferences to a smaller extent than non-professionals. This does not contradict our findings regarding the false consensus bias derived in the previous section. There, our interest is in the correlation between advisors' risk preferences and beliefs, while in this part we analyze the absolute difference.

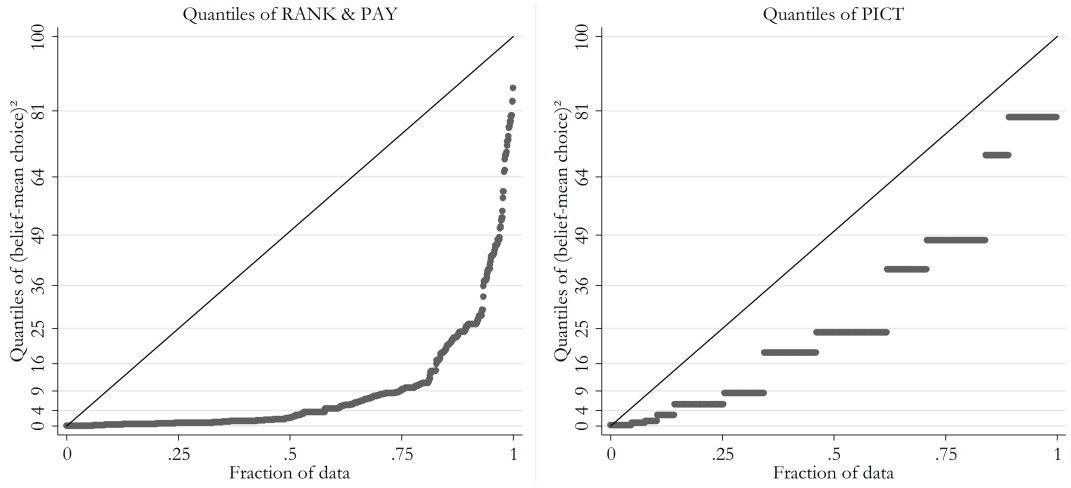
4.4 Prediction Error

One of the research questions raised in the introduction is whether the advisors' beliefs coincide with the advisees' actual risk preferences. In other words, we analyze if the advisors' beliefs are correct. Furthermore, we inspect whether and which information is a prerequisite for forming precise beliefs. In order to answer this question we combine our experimental data with the large-scale heterogeneous data from the SOEP. This allows us to generalize our results and to make statements on a representative level.

Derivation of Prediction Errors In a similar manner as described in section 3.2, we compute the risk preferences of 'representative counterparts' of the advisees in order to make use of the higher predictive power of the SOEP data. However, in contrast to section 3.2 we have to take into account that not all characteristics are visible to the advisor when making the prediction. Hence, the subsample on which the conditional average of the answer to the €100,000 question is based has to be adjusted to the available information for every single assessment. Take for example the advisee in the second row of Table 2. If the advisor sees all seven characteristics, this could be due to the fact that the

random number is seven in RANK or the advisor buys all seven categories in PAY. In this case, the conditional mean is computed as described in section 3.2 and would amount to an investment of €8,300. However, if the advisor buys only gender, or alternatively, ranked gender first and the random number is one, the subset contains all female observations. On average, panel participants of the SOEP with this characteristic invest €6,878 in the lottery. In the PICT treatment, only the gender and potentially the age is observable. By studying all males or females being 25 to 35 years old, the 'representative counterparts' are constructed for the PICT treatment. Hence, for every single observation, we have to compute this average, given the observed characteristics.[23]
By the above procedure we obtain a value for every observation which proxies the advisee's actual decision. In order to analyze if the advisor's belief is correct, we compute the advisor's prediction error. For this we take the squared difference of the advisor's belief and the computed average choice from above. This difference serves as the dependent variable for the analyses below.

Figure 5: Quantiles: Prediction Error in RANK, PAY and PICT



Results In Figure 5 we show a quantile plot of the prediction errors by treatment. The pooled prediction errors for the RANK and PAY treatment are displayed in the left figure, while the right figure shows the prediction errors for the PICT treatment. The 45°-line represents the benchmark case of a uniform distribution of the prediction errors over the quantiles. Several aspects are noteworthy: First, the quantiles derived for the PICT treatment are closer to the

[23]In order to ensure representativity we employ a dataset-specific weighting function which considers cross-sectional personal weights of each subject.

45°-line compared to the RANK and PAY treatment. While only about 20% of advisors exhibit a squared prediction error of 20 and larger in RANK and PAY, in PICT this amounts to over 50%. Hence, for the treatments RANK and PAY, the precision of the advisors' assessment is found to be higher. Second, in the RANK and PAY treatment the advisors' predictions are fairly accurate. Approximately 60% of the observations exhibit a squared prediction error below four. In other words: As the scale on the y-axis is squared, in 60% of the cases the belief deviates from the actual average choice by €20,000 or less.

Given the strong differences in RANK and PAY compared to PICT, indeed either the amount of sociodemographic information provided or which categories are revealed might enhance precision. The visual appearance turns out not to be a major source of information when predicting the risk preferences. We thus expect that if the advisor has more or particular information available this leads to lower prediction errors.[24] As the information available is varied in the treatments RANK and PAY, consequently, we analyze these treatments in detail. In Table 8 we present the results of two regression models. In these models we investigate if more and which categories help to decrease the advisor's prediction error.

As discussed above, as dependent variable the squared difference between the advisor's belief and the conditional average for the respective advisee is employed. In model (5) and model (6) we include two different types of explanatory variables. In model (5) the variable 'sum seen' measures the number of sociodemographic characteristics that is visible to the advisor when making the prediction. In model (6) the sum of visible characteristics is split up into the different categories. For each category a dummy variable is included which indicates a one if the category is uncovered. As a second set of variables in both models we include controls for the treatment and the advisor's type.[25] Furthermore, both models correct for advisee fixed effects and employ robust standard errors clustered on advisors.

In model (5) we find the variable 'sum seen' to be significant at the 1%-level. The negative sign indicates that if more categories are available, the precision of the prediction increases. The marginal effect of -0.652 is economically relevant as the mean of the squared prediction error amounts to approximately 8.7.

[24] A companion paper (Leuermann and Roth 2012) reports that advisors largely interpret the information in line with the correlations found in the data.

[25] Note: For the advisor's type the omitted category is 'non-professional'.

Hence, a finding is that indeed the amount of information plays a significant role for giving precise advice.
When considering model (6) we find a negative coefficient for the category

Table 8: Regression Results: Prediction Errors

Model		*(5)*	*(6)*
dependent variable		(belief-choice)^2	(belief-choice)^2
	sum seen	-0.652***	
		0.224	
$\mathbb{1}\{seen=1\}$	Year of birth		-0.945
			0.990
	Education		1.823
			1.173
	Family status		-2.105**
			1.037
	Income		0.970
			1.009
	Gender		0.322
			1.124
	Children		-0.101
			1.274
	Risk index		-8.943***
			1.826
	Junior prof.	-4.599***	-4.011***
		1.253	1.118
	Senior prof.	-2.197	-3.009*
		1.819	1.747
	Rank	0.433	-0.652
		0.671	0.640
	Constant	11.18***	16.92***
		1.680	2.383
N		1,336	1,336
R^2		0.163	0.222
Adjusted R^2		0.156	0.211
Advisee FE		yes	yes

Results of OLS regression, * p<0.1; ** p<0.05; *** p<0.01, robust standard errors clustered at advisors' level, dependent variable: squared difference between advisors belief and actual choice of representative advisee calculated from SOEP. $\mathbb{1}\{seen=1\}$ indicates if a characteristic is seen.

risk index, significant at the 1%-level. This indicates that if the advisee's self-assessed risk preference is visible to the advisor, the squared prediction error decreases by approximately nine units. This confirms that the risk index variable possesses a significant predictive power. This is also true for the family status variable as it decreases the squared prediction error by 2.1 units on average. The results indicate why the prediction error is found to be larger in PICT. None of the sociodemographic categories provided in PICT - age and gender - significantly reduce the prediction error in RANK and PAY.

A further considerable result of this analysis is obtained with respect to the the advisors' types. The prediction error of the junior professionals shows up to be significantly lower compared to the reference group of (omitted) non-professionals. In model (5) this coefficient has a relevant impact with a value of -4.6. When comparing the two groups of professionals we find the junior professionals to have significantly lower prediction errors compared to the senior professionals. The coefficient of the senior professionals is not significantly different from the reference category of non-professionals. Both groups of professional advisors perform significantly better in model (6) compared to the non-professionals. In addition to junior professionals, also senior professionals have a significantly lower prediction error at a significance level of 10%.
A further observation in these models is that they explain 16% to 21% of the variation in the prediction errors. Compared to other studies analyzing risk preferences and their determinants, this is remarkably high.
In summary, these models demonstrate that if more information is available the prediction quality of advice increases. The variables risk index and parenthood improve the prediction of risk preferences. A major results is that professionals outperform non-professionals in making precise predictions. Interestingly, young professionals beliefs' are even more precise than the beliefs of the senior professionals.

5 Robustness Checks

As outlined in section 3.1, the whole experiment is executed with a second risk measure which serves as robustness check. In the following paragraphs we reproduce the previous analyses to back the arguments made in the sections 4.1 to 4.3. For section 4.4 we can not provide a robustness check since the alternative risk measure is not available for the SOEP dataset. All mentioned tables and figures can be found in the appendix.[26]

5.1 Risk Measure of Holt and Laury (2002)

The alternative method we employ is the multiple price list design (MPL) of Holt and Laury (2002). In this risk task the subject has to decide in ten rows

[26]The results are robust for using a structural maximum likelihood estimation (Harrison and Rutstöm 2008) of a utility function ($U(x) = x^r$) with constant relative risk aversion (CRRA).

between two lotteries (option A and option B) as depicted in Figure 6. In each row, except for the last row, option B has a higher payoff variance than option A. The expected payoffs are increasing with the row number. Therefore, an individual with monotone preferences either chooses option B in every row or switches from A to B. The more rows a subject opts for option B, the higher is the subject's implied risk tolerance. A risk neutral individual would choose option A in row one to four and switch to option B for row 5 to 10. In order to enforce monotonicity of the risk preferences we use a switching MPL or sMPL instead of the classic design (Andersen et al. 2006). That is, a subject does not state ten separate decisions but has to announce in which row he or she chooses option B for the first time. For the subject's payoff in the lab experiment one row out of the ten is chosen randomly with equal probability. For this row, the lottery chosen by the subject (either option A or B) determines the payoff. The computer draws a lot according to the winning probabilities and determines the money won by the subject.

Although this elicitation mechanism is widely used in the literature it has its weaknesses - it is prone to framing effects and intellectually sophisticated (Harrison and Rutström 2008). Nevertheless it is well-studied in many different contexts and is extensively used in previous studies, which allows comparability to previous results. Recent research shows that risk preferences are not stable across mechanisms (e.g., Anderson and Mellor 2009), a second mechanism thus allows a broader generalizability of our results. Furthermore, it is documented that the mechanism measures risk attitudes outside the lab consistently (Harrison and List 2004, Harrison et al. 2007). Yet another drawback of the €100,000 question is that it captures only preferences on the risk averse domain.

Regarding the procedure in the lab experiment, directly after stating the belief in the €100,000 question, the advisor's belief in the HL-lottery is elicited. Advisors have to answer in which exact row the presented advisee first chose option B. Both questions of risk elicitation have to be answered directly after the sociodemographic information or the picture is presented to the advisor. The beliefs formed in both measures are comparable as they are formed on the same advisees.

5.2 Self-assessment and Beliefs

Figure 7 shows the distributions of the advisor's beliefs and the advisor's own risk preferences as in section 4.1. In contrast to the €100,000 measure, the HL-measure allows to reveal risk-loving preferences. Approximately 12.6% of the advisors switch from lottery A to lottery B before row 5 and therefore exhibit risk-loving behavior. These results are comparable in size with the results reported by Holt and Laury (2002).

In general, we find a significant relationship between the beliefs in the HL-lottery and the €100,000 question. The rank correlation coefficient of the beliefs in the two measures amounts to 0.52 and is statistically significant at 0.1%. Hence, the observed distribution of the beliefs in the HL-lottery (Figure 7) is comparable to the distribution of the beliefs in the €100,000 question (Figure 4).

In Figure 4 we find that advisors judge the advisees to be less risk tolerant compared to their own risk attitude in the RANK and PAY treatment. This result is detected in the robustness check as well since the dashed lines lie above the solid black line, as can be observed in Figure 7. A sign-test approves this result at a significance level of 1%. 72% of advisors' beliefs are less risky or equally risky compared to the advisors own risk preferences. Furthermore a Wilcoxon test does not detect any difference between SELF and PICT. Therefore the statistical findings of the robustness check are in line with the results of section 4.1.

5.3 How do Advisors Form Beliefs?

In the following section we present the robustness checks for the question of section 4.2. For this we replicate the analysis above with the HL-lottery and re-estimate the empirical models (1) to (3) and refer to them as (1a) to (3a) in Table 9 and 10. If we find coefficients to exhibit an opposite sign compared to section 4.2, our results are similar, as for the HL-lottery, a higher number indicates that the advisee is supposed to switch later and thus reveals a higher risk aversion. Aside from the sign, the dependent variables of both risk measures range on a scale from 0 to 10.

For model (1a), which analyzes the specification of (1), we find similar effects. Again the risk index, gender and income variables are significant at the 1%-level. All mentioned coefficients are jointly significant at the 1%-level as well.

In model (2a) we incorporate advisors' own risk preferences ('all advisors self')

in addition to the advisee fixed effects. In line with model (2a) the coefficient is significant and of relevant magnitude.
Model (3a) includes indicator variables for the different advisors' groups. In model (3) we find no false consensus effect for the junior advisors. In contrast to that, in model (3a) these advisors exhibit a false consensus. However it is not statistically different from the non-professionals. The same is true for the senior professionals.
These robustness checks largely confirm the results of chapter 4.2. We find differences in the magnitude of the false consensus for the junior professionals.

5.4 Social Distance

As a final validation, in Table 11 we provide the robustness check for section 4.3. In general, model (4a) shows comparable results as model (4). Especially, for the variables of interest - the interaction terms - we find the same pattern as in the baseline model as risk index and parenthood turn out to be significant and comparable in size. The same result can be identified for the dummy variables of the advisors' groups, although the signs of the coefficients of these variables differ.
Consistently, the baseline model and the robustness check show that sociodemographic differences between advisor and advisee cause a deviation of the advisors' beliefs from their own risk attitudes.

6 Conclusion

This study investigates how advisors form beliefs about the risk preferences of advisees. Advice, especially in the financial sector, is important as people increasingly make their investment decisions after consulting a professional advisor. Hence, an accurate prediction of an advisee's risk preferences is vital for good advice. The results of this study contribute to the existing literature in several ways.
We find that the risk tolerance an advisor assigns to an advisee significantly depends on the advisee's self-assessment of risk preferences. Besides, the self-assessment, gender and income have a significant impact on the advisors' assessment of the advisees' risk preferences. A salient finding is that advisors employ their own risk preferences as a reference point when giving advice.

Interestingly, the beliefs show a higher risk aversion than the advisors' own risk preferences. For the process of giving advice this indicates that - abstracting from any incentive problems arising in the advice process - advisors in general do not assess people to be more risky than they are themselves.

As a result of our analysis we find that advisors update their beliefs on the advisee's risk preferences according to their social distance to the advisee. If advisors' and avisees exhibit a different parenthood status or risk index, the advisor' beliefs deviate significantly from their own risk attitude which we interpret as an updating process. When analyzing the prediction errors we find that more available information reduces prediction errors. Especially the visibility of the risk index and family status improves the prediction. By using the large-scale data of the SOEP to construct choices of representative advisees, we provide further robustness for this result. Sociodemographic information is helpful for advice to become more precise. Good advice is thus not cheap, it needs sociodemographic information. Information about family status and the advisees' self-assessment of risk preferences, however, can be obtained easily in a counseling interview.

The fact that professional advisors are able to predict the risk preference with higher precision is good news for costumers of financial advisors. Furthermore, theoretical studies that solely focus on agency problems and incentives that arise in the counseling interview often take as given that the advisor is aware of the risk preferences of the advisee. Given our study, this assumption should be viewed with some caution.

A major asset of this study is the rich dataset. We investigate whether the financial professionals' behavior differs from non-professionals. Interestingly, junior professionals emerge as a group that stands out for two reasons. First, their advice is less dependent on their own risk preferences, and second, the prediction is more precise than in any other group. Hence, extensive counseling experience does not necessarily lead to a better outcome in terms of prediction accuracy.

The presented results are fairly robust as the additional analysis with the measure of Holt and Laury shows.

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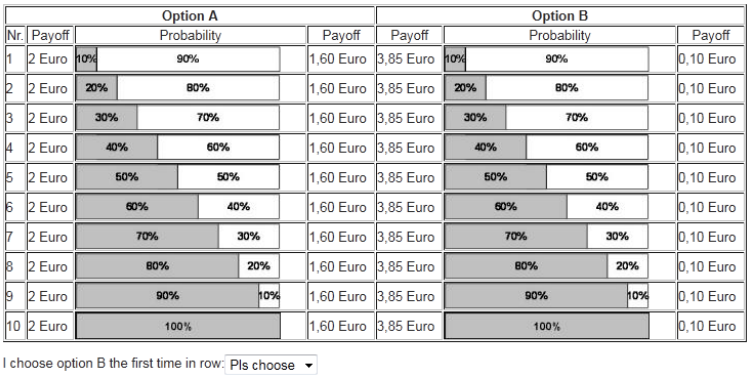
A Materials: Robustness Check

A.1 Risk measure: HL-lottery

Figure 6: sMPL Mechanism (HL-lottery)

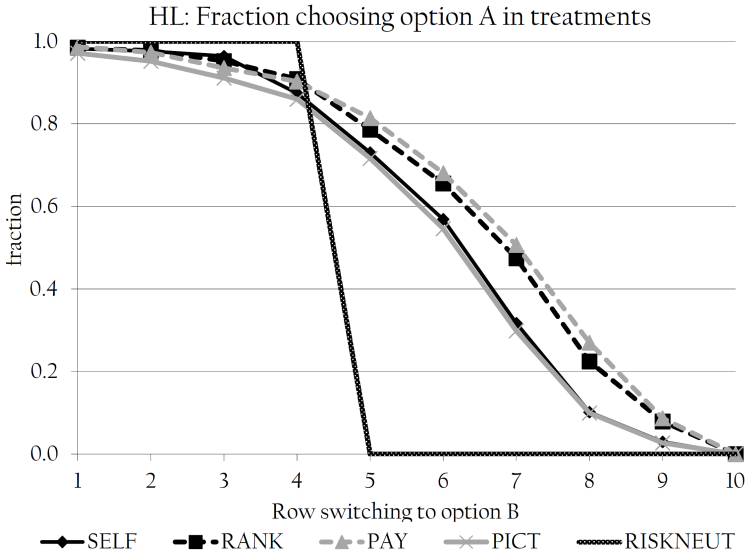


	Option A			Option B		
Nr.	Payoff	Probability	Payoff	Payoff	Probability	Payoff
1	2 Euro	10% / 90%	1,60 Euro	3,85 Euro	10% / 90%	0,10 Euro
2	2 Euro	20% / 80%	1,60 Euro	3,85 Euro	20% / 80%	0,10 Euro
3	2 Euro	30% / 70%	1,60 Euro	3,85 Euro	30% / 70%	0,10 Euro
4	2 Euro	40% / 60%	1,60 Euro	3,85 Euro	40% / 60%	0,10 Euro
5	2 Euro	50% / 50%	1,60 Euro	3,85 Euro	50% / 50%	0,10 Euro
6	2 Euro	60% / 40%	1,60 Euro	3,85 Euro	60% / 40%	0,10 Euro
7	2 Euro	70% / 30%	1,60 Euro	3,85 Euro	70% / 30%	0,10 Euro
8	2 Euro	80% / 20%	1,60 Euro	3,85 Euro	80% / 20%	0,10 Euro
9	2 Euro	90% / 10%	1,60 Euro	3,85 Euro	90% / 10%	0,10 Euro
10	2 Euro	100%	1,60 Euro	3,85 Euro	100%	0,10 Euro

I choose option B the first time in row: Pls choose

A.2 Self-assessment and Beliefs

Figure 7: Advisors' Choices in Treatments (HL-lottery)



A.3 Belief formation

Table 9: Regression Results: Belief Formation in HL-lottery

Model		*(1a)*	*(2a)*	*(3a)*
dependent variable		HL	HL	HL
$\mathbb{1}\{seen=1\}$	Year of birth$_0$	13.95	15.22	15.22
		13.79	13.35	13.09
	No uni degree	-0.12	-0.272*	-0.267*
		0.187	0.164	0.161
	Single	-0.16	-0.179	-0.197
		0.192	0.164	0.165
	Low income	0.0865	0.047	0.0399
		0.149	0.143	0.142
	Male	-0.246	-0.232	-0.203
		0.164	0.142	0.142
	No children	-0.177	-0.155	-0.12
		0.161	0.144	0.145
	Risk index$_0$	1.563***	1.666***	1.666***
		0.216	0.2	0.202
$\mathbb{1}\{seen=1\}\cdot\{soc\ dem \neq 0\}$	Year of birth	-0.00725	-0.00785	-0.00785
		-0.00697	-0.00676	-0.00662
	Uni degree	0.123	0.27	0.262
		-0.196	-0.182	-0.178
	Partner	0.24	0.253	0.275
		-0.199	-0.18	-0.176
	Female	0.706***	0.643***	0.644***
		-0.131	-0.12	-0.12
	High income	-0.636***	-0.613***	-0.636***
		-0.215	-0.212	-0.206
	Parenthood	0.291	0.297	0.286
		-0.204	-0.195	-0.197
	Risk index	-0.406***	-0.426***	-0.427***
		-0.073	-0.0654	-0.0652
Risk prefs self	Self		0.397***	0.349***
			0.0558	0.066
	Self· junior			-0.0324
				0.126
	Self· senior			0.183
				0.127
	Junior prof.	0.0235	0.198	0.384
		0.203	0.181	0.920
	Senior prof.	-0.661**	-0.467*	-1.647*
		0.324	0.267	0.947
	Rank	0.02	0.0395	0.0326
		0.0863	0.0838	0.083
	Constant	6.916***	4.082***	4.404***
		0.264	0.454	0.529
	N	1,336	1,336	1,336
	R^2	0.23	0.353	0.36
	Adjusted R^2	0.216	0.341	0.347
	Advisee FE	yes	yes	yes

* p<0.1; ** p<0.05; *** p<0.01, robust standard errors clustered at advisors' level. Dependent variable: advisor's belief in HL-lottery. $\mathbb{1}\{seen = 1\}$ indicates a characteristic is visible. $\{soc\ dem\}$ indicates the realization of the characteristic. The left-out category is $\mathbb{1}\{seen = 0\}$.

Table 10: Wald Test on Joint Significance (P-values) of Coefficients in Table 9

Model	*(1)*	*(2)*	*(3)*
$H_0 : \{socdem = 0\} + \{socdem \neq 0\}$=0			
Year of Birth	0.256	0.256	0.247
Education	0.988	0.988	0.971
Family status	0.647	0.647	0.625
Income	0.014	0.014	0.009
Gender	0.003	0.003	0.002
Parenthood	0.460	0.460	0.378
Risk index	0.000	0.000	0.000

A.4 Does Sociodemographic Distance Matter?

Table 11: Regression Results: Social Distance in HL-lottery

Model		*(4a)*
dependent variable		HL: |belief -self|
$\lvert$advisor - advisee$\rvert \cdot \mathbb{1}\{seen=1\}$	Year of birth	0.00631
		0.00484
	Education	-0.071
		0.131
	Partner	0.0772
		0.131
	High income	-0.122
		0.129
	Gender	0.0769
		0.101
	Children	0.260*
		0.140
	Risk index	0.169***
		0.0199
Junior prof.		0.221**
		0.0919
Senior prof.		0.500***
		0.101
Rank		-0.0626
		0.082
Constant		1.302***
		0.117
Observations		1,336
R^2		0.110
Seen dummy		yes
Advisee FE		yes

Results of Random effects model, * p<0.1; ** p<0.05; *** p<0.01, dependent variable: absolute difference between advisor's belief and advisor's own risk preferences.

For Online Publication only

B Instructions of Web Survey

Regarding this survey: Please try to answer all questions. If you do not know an answer or if you prefer not answer a question please skip it.

General Questions

- Please state: Year of birth, Federal state of birth, Gender, Mother tongue, Nationality, Religion
- Please state: Do you speak other languages? If so, which?
- Family status: (Please choose: single, divorced, partnership, live separated, married, widowed)
- Number of children: (Please choose: 1, 2, 3, 4, 5 or more, none)

Education

- Highest school degree: (Please choose: Abitur, Realschule, Hauptschule, Sonderschule, no school graduation)
- Please state: How many years have been in school till your highest degree?
- Education: (Please choose: University, Advanced training, Training, in training, no training)
- State the name/title of your last training:
- Job: (Please choose: Worker, Employee, Employee in public sector, Civil Servant, in education/training, self-employed, working at my own household, unemployed, disabled, other)
- Working time: (Please choose: full-time, half-time, part-time but less than half-time, not working)
- Last executed job (Please state):
- Monthly net income: (Please choose: up to €1,000, €1,001-€3,000, €3,001-€6,000, over €6,001)
- Do you own: (Please choose: Bonds, Properties, Security funds, Stocks or derivatives)

Lotteries

Lottery 1

You will have to make ten decisions in the table below. In every row of the table you can choose either Option A or Option B. Option A and Option B are two lotteries. Your job is to decide on one lottery (either Option A or Option B). Consider the first row for example: In Option A you receive a payment of €2 with a probability of 10% and a payment of €1.60 with a probability of 90%. If you imagine a ten-sided-dice this would mean that you receive €2 if you rolled a 10 and €1.60 for rolling any number between 1 and 9. If you choose Option B you will receive €3.85 with a probability of 10% and €0.10 with a probability of 90%. If you again imagine the ten-sided-dice, this would indicate that you receive €3.85 if you roll a 10 and €0.10 if you roll a number between 1 and 9. Please decide whether you would choose Option A or Option B in each of the 10 rows:

Your Choice			Option A				Option B			
A	B	Nr.	Probabiliy	Payment	Probabiliy	Probabiliy	Probabiliy	Probabiliy	Probabiliy	Probabiliy
○	○	1	10%	2 €	90%	1,60 €	10%	3,85 €	90%	0,10 €
○	○	2	20%	2 €	80%	1,60 €	20%	3,85 €	80%	0,10 €
○	○	3	30%	2 €	70%	1,60 €	30%	3,85 €	70%	0,10 €
○	○	4	40%	2 €	60%	1,60 €	40%	3,85 €	60%	0,10 €
○	○	5	50%	2 €	50%	1,60 €	50%	3,85 €	50%	0,10 €
○	○	6	60%	2 €	40%	1,60 €	60%	3,85 €	40%	0,10 €
○	○	7	70%	2 €	30%	1,60 €	70%	3,85 €	30%	0,10 €
○	○	8	80%	2 €	20%	1,60 €	80%	3,85 €	20%	0,10 €
○	○	9	90%	2 €	10%	1,60 €	90%	3,85 €	10%	0,10 €
○	○	10	100%	2 €	0%	1,60 €	100%	3,85 €	0%	0,10 €

Lottery 2

Please now consider that it is not possible for you to answer the lottery. You ask a close confidant to make the following decision for you. On your behalf, the close confidant is asked to name the preferred option in every row. Please remind yourself of the persons image and name. You are not able to communicate with your close confident, you are not able to inform him/her about your decision. What do you thing, how would this close confident take the decisions in the following lottery?

Again you find the same table as before in which we ask you for 10 decisions. As before, you can either choose Option A or Option B. You make your decision by crossing the option in the column "Your choice".

Which relationship do you have with the person (e.g., partner, friend, relative etc.)?

Your Choice			Option A				Option B			
A	B	Nr.	Probabiliy	Payment	Probabiliy	Probabiliy	Probabiliy	Probabiliy	Probabiliy	Probabiliy
○	○	1	10%	2 €	90%	1,60 €	10%	3,85 €	90%	0,10 €
○	○	2	20%	2 €	80%	1,60 €	20%	3,85 €	80%	0,10 €
○	○	3	30%	2 €	70%	1,60 €	30%	3,85 €	70%	0,10 €
○	○	4	40%	2 €	60%	1,60 €	40%	3,85 €	60%	0,10 €
○	○	5	50%	2 €	50%	1,60 €	50%	3,85 €	50%	0,10 €
○	○	6	60%	2 €	40%	1,60 €	60%	3,85 €	40%	0,10 €
○	○	7	70%	2 €	30%	1,60 €	70%	3,85 €	30%	0,10 €
○	○	8	80%	2 €	20%	1,60 €	80%	3,85 €	20%	0,10 €
○	○	9	90%	2 €	10%	1,60 €	90%	3,85 €	10%	0,10 €
○	○	10	100%	2 €	0%	1,60 €	100%	3,85 €	0%	0,10 €

Other Questions

People can behave differently in different situations.
How would you describe yourself? Are you a risk-loving person or do you try to avoid risks? People behave differently in different areas. How would you assess your own risk tolerance in the following areas? Please choose a number on a scale between 0 and 10. A 0 denotes "no willingness to take risks" and 10 indicates "very high risk-tolerance". You can gradate you assessment with the values in between. You risk tolerance?

- When driving? (Please choose: 0,1,2,3,4,5,6,7,8,9,10)
- In leisure and sports? (Please choose: 0,1,2,3,4,5,6,7,8,9,10)
- In your career? (Please choose: 0,1,2,3,4,5,6,7,8,9,10)
- concerning your health? (Please choose: 0,1,2,3,4,5,6,7,8,9,10)
- In your trust in unfamiliar people? (Please choose: 0,1,2,3,4,5,6,7,8,9,10)
- In financial investments? (Please choose: 0,1,2,3,4,5,6,7,8,9,10)

Another question regarding your risk preferences:

Please consider what you would do in the following situation:
Imagine that you had won €100,000 in the lottery. Almost immediately after you collect the winnings, you receive the following financial offer, the conditions of which are as follows: There is the chance to double the money. It is equally possible that you could lose half of the amount invested. You have the opportunity to invest the full amount, part of the amount or reject the offer.

What share of your lottery winnings would you be prepared to invest in this financially risky, yet lucrative investment?
What fraction of you winnings do you want to wager on the risky but also profit-promising lottery?
(Please choose: €100,000; €80,000; €60,000; €40,000; €20,000; nothing, I would decline the offer)

What is your opinion on the following three statements?

- On the whole one can trust people (Please choose: Totally Agree, agree slightly, slightly disagree, Disagree Totally)
- Nowadays one can't rely on anyone (Please choose: Totally Agree, agree slightly, slightly disagree, Disagree Totally)
- If one is dealing with strangers, it is better to be careful before one can trust them (Please choose: Totally Agree, agree slightly, slightly disagree, Disagree Totally)

Would you say that for most of the time, people *(Please choose on of the two possibilities)*

- attempt to be helpful?
- or only act in their own interests?

Do you believe that most people *(Please choose on of the two possibilities)*

- would exploit you if they had the opportunity
- or would attempt to be fair towards you?

What would you say: How many close friends do you have?

How often does it occur that,

- that you lend your friends your personal belongings (i.e. CDs, books, car, bicycle)? (Please choose: Very Often, Often, Sometime, Seldom, Never)
- that you lend your friends money? (Please choose: Very Often, Often, Sometime, Seldom, Never)
- that you leave the door to your apartment unlocked? (Please choose: Very Often, Often, Sometime, Seldom, Never)

C Instructions of Lab Experiment

Please note:

- Comments to the instructions are printed in italic and were not presented to the subjects.
- A horizontal line indicates whenever a new window was presented to advisors.
- To ease orientation, treatments as mentioned in the paper are identified by TREATMENT X.

Instructions of the Lab Experiment:

Goal and Process of the Experiment

The experiment consists of a total of two phases, in each of which you will have to make decisions. In the first phase we will ask you a number of questions and you will make two decisions. In the second phase of the experiment you will make the same set of decisions for other people and your payment will depend on the accuracy of your decisions.
The €2.65 that you receive for you participation can be used during the experiment - more on that later. You can make money with every decision you make. We will inform you about your compensation in every round as well as your total compensation for the entire experiment only **after the completion of the experiment**.

TREATMENT SELF

Basic Information

Please answer the following general questions. The success of the experiment depends on you answering the questions carefully.

General Information

- Year of Birth:
- Height in cm:
- Gender: (please choose: male/ female)

- Marital Status: (please choose: Single, Divorced, In a relationship, Living Separately, Married, Widowed)
- How many children do you have?: (please choose: no children, one child, two children, three children, four children, five or more children)
- Enter your highest level of education: (please choose: University, Technical College, Apprenticeship, Currently a student, Completed Economics Major, Currently an Economics Major, No vocational education)
- What is your current occupation?: (please choose: white-collar employee, white-collar civil servant, blue-collar employee, blue-collar civil servant, civil servant with tenure, student, self-employed, working at home, unable to work, unemployed, other)
- What are your current working hours?: (please choose: full-time, half-time, part-time (less than halftime), not employed)
- What is your monthly net income in Euro?: (please choose: Up to €1,000, €1,001 - €3,000, €3,001 - €6,000, over €6,000)

How would you describe yourself?

Are you a risk-loving person or do you try to avoid risks?
People behave differently in different areas. How would you assess your own risk tolerance in the following areas?
Please choose a number on a scale between 0 and 10. A 0 denotes "risk averse" and 10 indicates "fully prepared to take risks". You can gradate you assessment with the values in between.
You risk tolerance?

- In general? (Please choose: 0,1,2,3,4,5,6,7,8,9,10)
- When driving? (Please choose: 0,1,2,3,4,5,6,7,8,9,10)
- In leisure and sports? (Please choose: 0,1,2,3,4,5,6,7,8,9,10)
- In your career? (Please choose: 0,1,2,3,4,5,6,7,8,9,10)
- Concerning your health? (Please choose: 0,1,2,3,4,5,6,7,8,9,10)
- In your trust in unfamiliar people? (Please choose: 0,1,2,3,4,5,6,7,8,9,10)
- In financial investments? (Please choose: 0,1,2,3,4,5,6,7,8,9,10)

Game Decision I

We will now begin with the first game decision. Please read the instructions carefully; it is very important that you understand the question.

Game Decision I
Please consider what you would do in the following situation:
Imagine that you had won €100,000 in the lottery. Almost immediately after you collect the winnings, you receive the following financial offer, the conditions of which are as follows: There is the chance to double the money. It is equally possible that you could lose half of the amount invested. You have the opportunity to invest the full amount, part of the amount or reject the offer. What share of your lottery winnings would you be prepared to invest in this financially risky, yet lucrative investment?

Your Compensation
In terms of your actual compensation, the €100,000 are equivalent to €2.50 (€80,000 correspond to €2 , etc.). Your chosen amount will be entered into the lottery; the computer draws lots to see if you double or half your wagered amount.

Your Decision
What fraction of you winnings do you want to wager on the risky but also profit-promising lottery?
(Please choose: €100,000; €80,000; €60,000; €40,000; €20,000; nothing, I would decline the offer)

By clicking on NEXT your choices are saved. You cannot change your choices afterwards. Your compensation will be revealed at the end of the experiment.

Game Decision II

The second game decision is up next. Please read the instructions carefully. Take your time. It is very important that you thoroughly understand the question, since this question will be repeated in different variations throughout the rest of the experiment.

Game decision II
You will have to make ten decisions in the table below. In every row of the table you can choose either Option A or Option B. Option A and Option B are two lotteries. Your job is to decide on one lottery (either Option A or Option B). Consider the first row for example: In Option A you receive a payment of €2

with a probability of 10% and a payment of €1.60 with a probability of 90%. If you imagine a ten-sided-dice this would mean that you receive €2 if you rolled a 10 and €1.60 for rolling any number between 1 and 9. If you choose Option B you will receive €3.85 with a probability of 10% and €0.10 with a probability of 90%. If you again imagine the ten-sided-dice, this would indicate that you receive €3.85 if you roll a 10 and €0.10 if you roll a number between 1 and 9. There are two rational strategies in this game:

- you choose Option A at the beginning before switching to Option B for the rest of the rows
- you choose Option B for all of the rows

We are interested in finding out in which row you first choose Option B. Please specify the row in which you will first choose Option B below the table. If you only choose Option B, please enter a 1.

Your Compensation

A random row will be chosen for your actual Euro-payment. Your chosen option will be applied to this row. The realization of either the higher or the lower payment for a certain option will be chosen randomly. If the seventh row is chosen for example and you have decided on option A, you will receive €2 with a 70% probability and €1.60 with a 30% probability.

	Option A			Option B		
Nr.	Payoff	Probability	Payoff	Payoff	Probability	Payoff
1	2 Euro	10% | 90%	1,60 Euro	3,85 Euro	10% | 90%	0,10 Euro
2	2 Euro	20% | 80%	1,60 Euro	3,85 Euro	20% | 80%	0,10 Euro
3	2 Euro	30% | 70%	1,60 Euro	3,85 Euro	30% | 70%	0,10 Euro
4	2 Euro	40% | 60%	1,60 Euro	3,85 Euro	40% | 60%	0,10 Euro
5	2 Euro	50% | 50%	1,60 Euro	3,85 Euro	50% | 50%	0,10 Euro
6	2 Euro	60% | 40%	1,60 Euro	3,85 Euro	60% | 40%	0,10 Euro
7	2 Euro	70% | 30%	1,60 Euro	3,85 Euro	70% | 30%	0,10 Euro
8	2 Euro	80% | 20%	1,60 Euro	3,85 Euro	80% | 20%	0,10 Euro
9	2 Euro	90% | 10%	1,60 Euro	3,85 Euro	90% | 10%	0,10 Euro
10	2 Euro	100%	1,60 Euro	3,85 Euro	100%	0,10 Euro

I choose option B the first time in row: Pls choose

Your Decision

I choose option B the first time in row: (Please choose: 1,2,3,4,5,6,7,8,9,10)

By clicking on NEXT your choices are saved. You cannot change your choices afterwards. Your profit and your compensation will be revealed at the end of the experiment.

TREATMENT RANK

In this section you are supposed to estimate how other people decided in the Game Decisions that you have just made. The better your estimation, the higher your compensation will be. You will receive some information about the persons whose decision behavior you are trying to predict.
It is important to understand what information is subsumed in certain characteristics. Please carefully read the characteristics and the possible manifestations of these characteristics.

The following characteristics are available:

1. Age
2. Level of Education
    - University
    - Technical College
    - Apprenticeship
    - Still in Apprenticeship
    - Currently an Economics Major
    - No vocational education
3. Income (current monthly net income)
    - Up to €1,000
    - €1,001-€3,000
    - €3,001-€6,000
    - over €6,000
4. Marital Status
    - Single
    - Divorced
    - In a relationship
    - Living Separately
    - Married
    - Widowed
5. Gender
    - Male
    - Female

6. Children
    - Has children
    - Has no children
7. Risk disposition concerning financial investments
    - Answer to the question: Are you risk-loving when it comes to financial investments or do you try to avoid financial risks? Please choose a number on a scale between 0 and 10. A 0 denotes "risk averse" and a 10 indicates "fully prepared to take risks".

You will only have to assess how a single person decided in the two Game Decisions, so you will have to evaluate a specific person. You are paid according to the accuracy of your assessment. If you correctly assess how the presented person acted in both decisions, you will receive €0.50 for every correct prediction. In order to make your assessment, you will make the decisions you previously made for yourself for the specific person instead.
The information available for assessing the person will consist of a selection of the seven characteristics presented above. You will not receive all seven of the person's characteristics. Instead, we will generate a random number between 1 and 7 that corresponds with the number of revealed characteristics. If the randomly generated number is a 3, for example, you will receive the first three characteristics of the person that you are assessing.
You can now decide which characteristic you want to assign to the first position, the second position, all the way to the seventh position. Make you decisions carefully; characteristics with a higher position are revealed with a higher probability.

Your Decision
Sort the characteristics by clicking and dragging the characteristics to the positions you want them in.
The characteristic at the top of the list has the highest prioritization; the second characteristic has the second-highest characterization etc.
Note: The characteristics are presented in alphabetic order

- Level of Education
- Income category
- Marital Status
- Year of Birth
- Gender
- Has Children

- Risk disposition concerning financial investments

This window appeared 4 times with differing number of characteristics shown

How do you assess other people?

The person has the following characteristics: Since x was drawn as the random number you receive the first x of the characteristics that you had chosen for the person that you are assessing.

- ...
- ...

Game Decision I
What decision do you think the person above made in the game's first round? Remember, the wording of Game Decision I was:

DESCRIPTION GAME DECISION 1

Your Compensation
If you make exactly the same decision as the described person, you will receive €0.50. If your decision does not correspond with the described person's decision, you will not receive any money.

Your Decision
What fraction of you winnings do you want to wager on the risky but also profit-promising lottery?
(Please choose: €100,000; €80,000; €60,000; €40,000; €20,000; nothing, I would decline the offer)

Game Decision II
What decision do you think the person described above made in the game's second round? Remember, the wording of Game Decision 2 was:

DESCRIPTION GAME DECISION 2

Your Compensation
If you make exactly the same decision as the described person, you will receive €0.50. If your decision does not correspond with the described person's decision, you will not receive any money.

Your Decision
Please try to make the same decision as the person described above made. We

are interested in finding out in which row you first choose Option B. Please specify the row in which you will first choose Option B.
The person chooses Option B for the first time in row: (Please choose: 1,2,3,4,5,6,7,8,9,10)

By clicking on NEXT your choices are saved. You cannot change your choices afterwards. Your compensation will be revealed at the end of the experiment.

TREATMENT PAY

This and the following window appeared 4 times.

How do you assess other people?

In this round you will have to assess four other people again. As in the previous round, you will be given a selection of the seven characteristics shown above to help facilitate your decision-making process. This time, however, you can choose which of the characteristics of the person you are assessing you want to have revealed. You have to pay for every revealed characteristic.
As you can garner from the table below, the costs of the characteristics vary. The first characteristic costs €0.01, die second €0.02 etc. The seventh characteristic costs €0.50. The right-hand column of the table displays the total costs. If you want to see all seven characteristics of the person you are assessing, for example, you will be charged €0.99.

	Cost of Characteristic	Total cost
1. Characteristic	€0.01	€0.01
2. Characteristic	€0.02	€0.03
3. Characteristic	€0.03	€0.06
4. Characteristic	€0.06	€0.12
5. Characteristic	€0.12	€0.24
6. Characteristic	€0.25	€0.49
7. Characteristic	€0.50	€0.99

Your compensation is as follows:

Compensation for Game Decision I + Compensation for Game Decision II - Payment for Characteristics

As in the previous round you will receive €0.50 for Game Decision 1 and €0.50 for Game Decision 2 if your assessment proves to be correct.
The costs of buying certain characteristics will be subtracted from your compensation. If, for example, your assessment for Game Decision I is correct and your evaluation for Game Decision II is not and you have bought three characteristics, you will receive (€0.50 + €0 -€0.06 =€0.44).
Please note: Since you have winnings from previous rounds and the €2.65 that we put at your disposal at the beginning of the game, your total compensation cannot be negative.
Please decide on the characteristics that you want to buy now:

- Age
- Level of Education

- Income
- Marital Status
- Gender
- Children
- Risk disposition concerning financial investments

By clicking on NEXT your choices are saved. You cannot change your choices afterwards. Your compensation will be revealed at the end of the experiment.

How do you assess other people?

The person has the following characteristics:
You have bought x characteristics. The person you are supposed to assess has the following characteristics:

- ...
- ...

Game Decision I
What decision do you think the person above made in the game's first round?
Remember, the wording of Game Decision I was:

DESCRIPTION GAME DECISION 1

Your compensation
If you make exactly the same decision as the described person, you will receive €0.50. If your decision does not correspond with the described person's decision, you will not receive any money.

Your Decision
What fraction of you winnings do you want to wager on the risky but also profit-promising lottery?
(Please choose: €100,000; €80,000; €60,000; €40,000; €20,000; nothing, I would decline the offer)

Game Decision II
What decision do you think the person described above made in the game's second round?
Remember, the wording of Game Decision 2 was:

DESCRIPTION GAME DECISION 2

Your Compensation
If you make exactly the same decision as the described person, you will receive €0.50. If your decision does not correspond with the described person's decision, you will not receive any money.

Your Decision
Please try to make the same decision as the person described above made. We are interested in finding out in which row you first choose Option B. Please specify the row in which you will first choose Option B.
The person chooses Option B for the first time in row:
(Please choose: 1,2,3,4,5,6,7,8,9,10)

By clicking on NEXT your choices are saved. You cannot change your choices afterwards. Your compensation will be revealed at the end of the experiment.

TREATMENT PICT

This window appeared 4 times for picture number 1,2,3,4.

How do you assess other people?

In this round you will assess four different persons. You will receive a picture of the person you are assessing in order to help you make your decision.

We have placed a brown envelope (C4 format) on your seat. The envelope contains a sheet with four pictures. Please consider picture number X.

Game Decision I:
What decision do you think the person above made in the game's first round?
Remember, the wording of Game Decision I was:

DESCRIPTION GAME DECISION 1

Your compensation
If you make exactly the same decision as the described person, you will receive €0.50. If your decision does not correspond with the described person's decision, you will not receive any money.

Your Decision
What fraction of you winnings do you want to wager on the risky but also profit-promising lottery?
(Please choose: €100,000; €80,000; €60,000; €40,000; €20,000; nothing, I would decline the offer)

Game Decision II
What decision do you think the person above above made in the game's second round?
Remember, the wording of Game Decision 2 was:

DESCRIPTION GAME DECISION 2

Your Compensation
If you make exactly the same decision as the person above, you will receive €0.50. If your decision does not correspond with the person above decision, you will not receive any money.

Your Decision
Please try to make the same decision as the person above made. We are interested in finding out in which row you first choose Option B. Please specify the row in which you will first choose Option B.

The person chooses Option B for the first time in row:
(Please choose: 1,2,3,4,5,6,7,8,9,10)

By clicking on NEXT your choices are saved. You cannot change your choices afterwards. Your compensation will be revealed at the end of the experiment.

Questions

Please answer the following questions.
Note: The questions refer to the entire experiment.

1. Do you know one of the persons on the pictures? If yes, which one(s)?
2. Which of the people on the pictures would you trust most with you money? Please indicate a picture number.
3. Do you think that the provided information was sufficient? What additional information about the individuals you assessed would you have liked to have had?
4. Do you generally believe that it is possible to evaluate the decisions of other people?
5. Were you more confident making you assessments on the basis of the picture or of the profile (with the characteristics)?
6. Did you have a certain strategy in making your assessments? If yes, please describe briefly.
7. When you think back to your last counseling session at your bank, did you have the feeling that you counselor could assess your preferences/wishes well?

By clicking on NEXT your choices are saved. You cannot edit your answers afterwards.

Your compensation

Calculation of your compensation

You total payment comprises the compensation for every single round.

Basic amount		€x
Part 1		
Game Decision 1		€x
Game Decision 2		€x
Part 2		
Pre-survey Assessment	Game Decision I	€x
	Game Decision II	€x
Part 3		
Ordering Characteristics	Round 1:	€x
	Round 2:	€x
	Round 3:	€x
	Round 4	€x
Buying	Round 1:	€x
	Purchase Price:	€x
	Round 2:	€x
	Purchase Price:	€x
	Round 3:	€x
	Purchase Price:	€x
	Round 4	€x
	Purchase Price:	€x
Pictures	Round 1:	€x
	Round 2:	€x
	Round 3:	€x
	Round 4	€x
Total Compensation		€x

Payment Procedure
We will make the payments according to your ID (identification number)
You will find a receipt among the documents in front of you. Please enter your total compensation, your ID, and selected other information in the acknowledgment form.
Important: Do not close the browser window. Raise your hand as soon as you are finished.

Thank you for your participation