Social Status and Social Learning

Alexei Zakharov* Oxana Bondarenko†

Abstract

We studied the effect of social status on social learning in an experimental game where individuals in a dyad made repeated attempts to guess the underlying state of the world. Several sets of survey questions were deployed to control for socioeconomic status, the subjective perception of social status, and leadership traits, as well as quality and quantity of social interactions, and cognitive reflection. Risk aversion was measured using an incentivized task. We also induced social status in each pair of subjects using a dictator game. We found that people with high subjective social status relied less on observed choices of other subjects and put more weight on private information. Subjects who were less risk-averse and showed more leadership traits, were also less likely to learn from the actions of others. Some effects were gender-specific. Our finding that social learning is stronger in low-status individuals can imply higher likelihood of information cascades in hierarchical networks.

Keywords: Social status; Social learning; Economic experiments

1 Introduction

Much of human interaction takes place between people of different social status — a property that has been defined as "the prominence, respect, and influence individuals enjoy in the eyes of other group members" (Anderson et al., 2006), admiration from other members of the group (Magee and Galinsky, 2008) or influence exerted on other people (Ridgeway and Correll, 2006). In the workplace, there are bosses and rank-and-file employees, in the military — subordinates and commanding officers, while in more traditional societies women have lower status than men. Other sources of social status may include wealth, education, or occupation prestige

*Corresponding author, Higher School of Economics, Moscow, Russia, al.v.zakharov@gmail.com. The authors thank Anastasia Antsygina, Alexei Belianin, Lubomír Cingl, Heike Hennig-Schmidt, Ole Jann, Andrea Mattozzi, Tatiana Mayskaya, David Myatt, Roman Zakharenko, and seminar participants at HSE and Nuffield College for their very helpful feedback on this project. We also like to thank Stepan Aleksenko and Roman Solntsev for their excellent research assistance. Declaralion of interest: none. All supplementary and replication material can be found at https://github.com/morhellis/Status-information. We wish to acknowledge the support of NES Center for the Study of Diversity and Social Interactions which received state support according to the Government Decree of April 9, 2010 No 220 and the Contract providing the grant No 14.U04.31.002 of June 26, 2013

†The Center for the Study of Customs Tariff and Non-Tariff Regulation, oxana.bondarenk@gmail.com

(Diemer et al., 2013), social popularity (Glaeser et al., 2000), and even one's ranking in an online computer game (Evers, de Ven and Weeda, 2015). Social status hierarchies are also ubiquitous in the animal kingdom (Chiao, 2010) and are central to social behavior of many species.

A key question in many economic contexts is the degree to which one's social status affects social learning, or how different sources of information (such as friends and contacts, role models, mass media, or the Internet) are consulted to updates belief and arrive at a decision. Social learning and peer effects shape personal decisions in such areas as public good provision (d'Adda, 2012), financial planning (Bursztyn et al., 2014), physician prescriptions (Nair, Manchanda and Bhatia, 2010), political behavior and persuasion (Weeks, Ardèvol-Abreu and Gil de Zúñiga, 2017), or academic achievement (Van Ewijk and Sleegers, 2010).

We study how social status affects social learning in a laboratory experiment where subjects were divided into pairs. Each pair of subjects played 10 rounds of a social learning game. In every round of the game, each subject received a noisy signal about the underlying state of the world, and was given two attempts to guess that state. On the first attempt, only the private signals were observed. Before the second attempt, the subjects observed the first attempts of their peers. We then analyzed the extent to which these two sources of information contributed to the second attempted guesses of the subjects. By design, the signals received by both subjects in a pair had identical distributions, so both subjects in a pair were equally well informed about the underlying state of the world.

Prior to the social learning game, social status in each pair was induced by having the same pair of subjects play five rounds of the dictator game with fixed roles, similarly to Bondarenko and Zakharov (2018) where after the dictator game, the subjective social status of dictators was higher than of recipients. We also inferred social status using several sets of survey questions, designed to capture both *subjective* or one's self-perceived social status and confidence, and *objective* measures related to how one's status is perceived by other people. Other questions were used to infer the frequency with which one assumes leadership roles, and the frequency/quality of his or her social interactions.

We did not find that social learning was significantly affected by the assignment of subjects into dictator or recipient roles. However, we find that survey-based measures of social status predicted the degree to which private signals and the actions of others are used during the second guess attempt. Higher self-perceived social status leads to less weight put on the peer's decision, and greater weight on one's private signal. Reporting having taken leadership roles (such as organizing events, being an entrepreneur, speaking publicly, or persuading others to change opinion) during the past year also leads to less weight on the peer's decision. These results persist when controlling for risk preferences and cognitive reflection, which are also correlated with social learning in our experiment.

Empirical and laboratory research in psychology, sociology and economics provides behavioral foundation for our results. In the course of natural selection people learned that it is more effective both from informational and psychological perspective to copy high-rank group members (Henrich and Gil-White, 2001). Low-status subjects show more empathy and interdependency, and are more attuned to others than their high-status counterparts (see Stellar et al. (2012); Varnum et al. (2015); Kraus, Côté and Keltner (2010)). A possible explanation proposed by Kraus et al. (2012) is that the life circumstances of low-status individuals are more likely to be

influenced, or be perceived to be influenced, by forces outside their immediate control. This gives rise to the culturally ingrained *contextualist social cognitive tendencies* or "an external orientation to the environment motivated by managing external constraints, outside threats, and other individuals". High status entails relative material and social freedom, leading to a different cognitive mindset — one characterized by greater perception of control, tendency to explain behavior as caused primarily by personal influence, and greater attendance to own (vs.others) mental state (Piff, Kraus and Keltner, 2018).

Although social status and learning are correlated, establishing a causal link between social status and social learning is complicated for several reasons. First, people differ in the size of their reference groups. Some may value the opinion, or react to the actions of only a few people (such as friends or role models), while others consult much larger reference groups when forming an opinion. Hence, individual A is more likely to learn from individual B, than vice versa, if the reference group of A is smaller. At the same time, the size of one's reference group may be linked to social status. For example, those who are more extroverted and open to contact with other people are also more likely to be perceived as leaders (Judge and Bono, 2000).

Second, social contacts can be asymmetric, and this asymmetry is likely to be correlated with social status. A high-status individual A is more likely to belong to the reference group of a low-status individual B, than vice versa. Politicians, public intellectuals, or celebrities can be listened to or serve as a role model for thousands of people, without even personally knowing most of them.

Finally, people tend to have different levels of knowledge. When making a decision, individual B is more likely to learn from prior words or actions of individual A if the latter is more knowledgeable in that specific area. At the same time, either actual or perceived knowledge is likely to be correlated with social status (Paulhus and Morgan, 1997), so correlation between status and learning can arise even if people are fully Bayesian rational.

The specific contribution of our research is that we were able to isolate the effects of social status from those of asymmetry in knowledge and the number/direction of social contacts. Our study is the first to identify the effect of either social status or risk aversion on social learning in an incentivized experiment. Previously, several other factors were reported to have an effect on social learning in experimental settings, such as age and cognitive ability (Duffy, Hopkins and Kornienko, 2017) or shared identity (Berger, Feldhaus and Ockenfels, 2018). The interaction of social status, peer effects, and social learning was also studied in several field experiments. Bursztyn et al. (2014) found that investment decisions were subject to peer effects, with the utility arising both from using the information provided by the peers, and from imitating their decisions, with the utility from imitating the peer being stronger if the peer's decision is considered to be more informed. The approach we take is different — everybody has information of the same quality, and we instead look at the individual-level characteristics that affect social learning.

A related strand of literature focuses on persuasion bias and the overweighting of information received from multiple sources or multiple times. It is generally assumed that agents observe the network structure and hence know how well-connected their neighbors are, but the experimental design is often anonymous and does not allow the social status of subjects to differ (Chandrasekhar, Larreguy and Xandri, 2015; Grimm and Mengel, 2014), or, when the design is non-anonymous, social status is not measured (Mobius, Phan and Szeidl, 2015)[1].

Our results show that higher-status agents underweight social information to a greater degree than low-status agents, and place more weight on private information.

Our findings are relevant to a growing literature studying the dynamics of information dissemination among Bayesian or non-Bayesian agents. Non-Bayesian models (DeGroot, 1974; DeMarzo, Vayanos and Zwiebel, 2003; Golub and Jackson, 2010; Acemoglu, Ozdaglar and ParandehGheibi, 2010) typically assume a large set of agents embedded in a network and some fixed rule according to which neighboring agents exchange information about some underlying variable[2]. Some agents may be more influential, and have a greater effect on their neighbors than vice versa. This asymmetry may cause or exacerbate the mis-aggregation of information, leading to inefficient outcomes (Acemoglu, Ozdaglar and ParandehGheibi, 2010). Our analysis implies that the heterogeneity of the social status can serve as a behavioral foundation for this asymmetry.

Our work is related to the literature on coordination games. In fact, the design of our experiment was similar to Cornand and Heinemann (2014) and Shapiro, Shi and Zillante (2014), with two important exceptions. First, in these works each subject observed his or her own signal and a common public signal, while in our case each subject in a pair acted on a private signal, observed the action of the other player, and acted again. Thus, we were able to focus on the asymmetry in the dissemination of information, while keeping fixed the number of social contacts (the subjects were arranged in pairs) and the knowledge of the subjects (it was common knowledge that everyone received signals of the same precision). Second, in our experiment the subject was not explicitly rewarded for conforming to the action of his or her peer; instead, we were looking for individual-level correlates of the weights put on private signals and actions of peers[3].

Our work is also related to the literature on conformism in social networks (e.g. Liu, Patacchini and Zenou (2014)). Low-status individuals may have a preference for conforming to their high-status peers. Thus the low-status player takes the choices of the high-status player as a social norm, and deviating from that norm is costly for him or her. At the same time, the high-status player has no such concern for the choices made by the low-status player. Our results imply that the social norm that determines the strength of strategic complementarity is not necessarily uniform.

At a further distance from our work is the experimental literature looking at the effect of merit-based status on the willingness to share resources (Schurter and Wilson, 2009; Ball and Eckel, 1996; Bracha, Heffetz and Vesterlund, 2009), or the effect of status on unethical behavior (Schurr and Ritov, 2016; Gill, Prowse and Vlassopoulos, 2013). Our work is also related to the literature investigating the effect of power on advice taking where individuals primed with high power discount advice from others (Tost, Gino and Larrick, 2012).

The rest of this paper will be structured as follows. In Section 2 we describe the design of the experiment. Section 3 provides the results of the experiment. Section 4 concludes.

[1]Interestingly, in Grimm and Mengel (2014) the payoff of the subjects increases with emotional intelligence, although the authors do not report whether it affected the decision weights of the subjects.

[2]Some of this literature is surveyed in Molavi, Tahbaz-Salehi and Jadbabaie (2017).

[3]Social influence was also studied in a sequential dictator game (Cason and Mui, 1998).

2 Experiment design

We implemented 14 experimental sessions with a total of 184 participants at the Laboratory for Experimental and Behavioral Economics of the Higher School of Economics in Moscow, Russia. The experiment was computer-based, using the Z-tree program (Fischbacher, 2007). The median age was 21 years, while 38% of the subjects were men. Almost all subjects were students of Higher School of Economics, recruited via online announcement The total list of sessions is given in Table B1.

Each experimental session lasted approximately 1 hour and 30 minutes, including decisions and payment. The subjects were paid in private, with the total earnings of each subject written on a sheet of paper that was shown to each subject. The payoff at the end of the experiment was equal to the show-up fee of 200 Russian Rubles (RUR), plus the payoff from three stages of the experiment: the dictator game, the social learning game, and the risk elicitation task. The mean payoff was 799 RUR or $10, the minimum payoff was 340 RUR or $4.3, and the maximum payoff was 1215 RUR or $15.2.

2.1 Inducement of social status

In the first stage of the experiment the subjects played 5 rounds of dictator game in fixed pairs and in fixed roles, with roles in each pair allocated at random in the beginning of the experiment. We preferred to induce social status using random allocation of roles, because a merit-based allocation — either based on performance in an experimental task (Ball and Eckel, 1996; Ball et al., 2001; Eckel and Wilson, 2007; Charness, Masclet and Villeval, 2011), or on some real-life characteristic (such as subjects' grades (Schurter and Wilson, 2009), high/low-profile school/caste (Liebe and Tutic, 2010; Brooks, Hoff and Pandey, 2015), social popularity (Glaeser et al., 2000), or morality and respect (d'Adda, 2012)) — will produce an allocation of status that is correlated with competence and better access to information. That, in turn, will bias the results, as in a social learning game it could be optimal to imitate the behavior of the referent if his or her status is linked to perceived competency. In the dictator game, the dictator and the recipient are in the asymmetrical positions of power: the dictator is entitled with the budget and has control over both his or her and recipient's payoff while the recipient has nothing and cannot control the outcome. Previously, Bondarenko and Zakharov (2018) found that, in the dictator game, dictators scored higher than recipients on several measures of subjective social status, while in two other types of games there was no difference between participants of different roles. These results are briefly reported in Appendix C.

At the beginning of each round of the dictator game, the dictator in each pair was given a budget of 100 ECU that he or she could share with the recipient (the exchange rate was equal to 2.5 Rubles per 1 ECU at the time of the experiment), while the recipient took no action. At the end of each round, subjects were informed of their earnings for that round. The earnings from that part of the experiment were equal to the earnings from a randomly selected round of the dictator game. At the instruction stage and during the game, the dictators were referred to as "allocators" and the recipients as "receivers".

In some experimental sessions, dictators belonged to one of the two types. Dictators of the first type could give the recipient any amount between 0 and 50 ECU, with the recipient receiving twice the amount that was

given by the dictator. Dictators of the second type could give any amount from 0 to 100 ECU, with the amount received equal to the amount given. There was a 50% change that a dictator would be of any of the two types, the types of the dictators remained fixed throughout the five rounds of the dictator game, and the recipients did not know the type of the dictator they were paired with[4].

2.2 The social learning game

After the dictator game, the subjects, in pairs, were assigned to a task where each subject observed an imperfect signal about the unobserved state of the world, and made two guesses about the state, relying on two inputs: the private signal, and (for the second attempt) on the observed guess of his or her peer. There were 10 rounds of the social learning game; the pairing of the subjects was retained from the dictator game, and did not change between rounds. Our goal was to see what determined the importance of the two inputs to the subject's decision.

Prior to the first round of this stage of the experiment, the subjects completed a small quiz to test their understanding of the rules and how the payoffs were calculated.

In the beginning of each round and for each pair, the computer generated a number X, drawn from a discrete uniform distribution on $\{-7, -6, \ldots, 7\}$. The goal of subjects in each round was to guess the value of X. For each subject $i = 1, 2$ in the pair, the computer generated an integer Y_i, which was also drawn from a discrete uniform distribution on $\{-7, -6, \ldots, 7\}$. Initially, each subject observed the private signal $Z_i = X + Y_i$ (which could be an integer between -14 to 14). In the instructions, the subjects were informed that X and all the numbers Y_i are statistically independent.

After observing $X + Y_i$, the subject was given the first attempt to guess the value of X. After the first attempt, the subject was informed about the attempted guess of the subject that he or she was paired with, and was given the second attempt to guess X. The payoff of the subject in each round was 120 ECUs, minus any deductions made for not guessing the value of X correctly. For each of the two guess attempts, the subject was deducted the amount of ECUs equal to the minimum of 50, and 10 times the absolute difference between X and the subject's guess. During every guess attempt, the subjects were reminded about their roles in the dictator game. At the bottom of the screen, the subject read either "You are an allocator" of "You are a receiver", depending on his or her role in the dictator game.

If we assume that there are no intrinsic costs or benefits (e.g. preference for conformity), the Bayesian equilibrium in this game is straightforward to calculate. The second-period payoffs are not affected by his or her first-period decision. Thus, the first-period decision should minimize the expected first-period penalty, and is given by Table B2. As the penalty function is linear, there are multiple optimal responses to some values of signals, and the second-period actions depend on how one randomizes over first-period best responses; Table B3 gives the on-equilibrium-path second-period responses for the case where that randomization is uniform.

Using weighted OLS, we can then calculate the expected value of coefficients if we were to regress the

[4]In sessions 1-5 the dictator belonged to only one type. The recipient received the amount given to him by the dictator and the dictator's payoff was 100 – the amount donated. In sessions 6-14 the dictator belonged to the first or the second type described above. Two types of dictators were used to obtain larger variation in donations so that we could check whether larger donation received by the recipient affected her subjective social status (see section 3).

second-period decision on the subject's private information and on the first-period decision of his or her peer, assuming that everyone plays strategies given in Tables B2 and B3. We estimated the first coefficient to be equal to $\hat{a}^1 = 0.3266$, and the second coefficient to be equal to $\hat{b}^1 = 0.6513$. Our goal is to determine whether such coefficients estimated from the actual data depend on the status of the individual, and how they compare to the benchmark values given above.

2.3 Risk preference elicitation

The social learning game was followed by a risk lottery task, where each subject had to make 10 decisions (this design has been first used in Holt and Laury (2002)). Each decision was a choice between a safe lottery that offered 50 RUR with some probability p and 40 RUR with probability $1 - p$, and a risky lottery that offered 96.25 RUR with probability p, and 2.5 RUR with probability $1 - p$. The values of p varied from 0.1 to 1 in 0.1 increments. The subjects were informed that, at the end of the experiment, one pair of lotteries (corresponding to some p) would be selected at random, and the lottery chosen by the subject would be used to determine his or her payoff in that part of the experiment. Higher willingness to take risks should correspond to a higher proportion of risky lotteries.

2.4 Measuring social status and other personal characteristics

Subjects completed a survey that contained socio-demographic questions, such as gender, age, parental education, siblings, and income. Other questions were designed to elicit the subject's social status, sociability, cognitive ability, and a number of other characteristics.

First, we measured the individual's *subjective social status* or the perception of one's relative standing in the society. We asked "Which of the following best describes you?" and presented the subject with 7 scales related to status, power, and confidence (a similar set of scales to measure subjective social status was used by Ridgeway et al. (1998)). The eighth question, known as the McArthur 10-step ladder (Adler et al., 2000), was of the following form: "In our society, there are people who stand at high positions and people who stand at lower positions. Please state where you are on the 10-step ladder, where 1 is the lowest step, and 10 is the highest step". By taking the first principal component of the first eight questions, we construct the subjective status index (the Cronbach's α for the eight questions was 0.8263, while the eigenvalue for the first component was equal to 3.8172; see Table B7). The same eight questions were then asked to measure the subjective perception of the peer's social status. The *peer's subjective status* index was constructed from similar eight questions where the subject was asked to evaluate his or her peer (Cronbach's $\alpha = 0.8200$, eigenvalue for the first component was 3.6857; see Table B8).

The second set of questions measured *socioeconomic status* or more objective characteristics related to power, prestige, and access to resources: family income, past and anticipated future change in family income, parental education, and whether the individual had younger or older siblings.[5]

[5]There are several reasons why the number of siblings can be relevant to one's status: parents having to share a limited amount of cognitive or material resources between the children, greater parental attachment to firstborn or only children, and the dilution of intellectual resources in a large family (Chen and Liu, 2014).

Third, we looked at the non-cognitive skills that are correlates of socioeconomic status and labor market outcomes (Weinberger, 2014; Deming, 2017). A set of questions measured *leadership skills*: we asked how often (on a 1-10 scale) during the past year the subject took part in activities associated with responsibility, initiative, or not yielding to group pressure and authority. In particular, we asked whether the subject organized meetings/events, led a voluntary association, was an entrepreneur, moderated a group in social networks, managed a large sum of money, spoke publicly, convinced someone to change one's opinion, expressed an opinion different from that of the majority, and was ranked in the top 5% of her class. Taking the normalized first principal component of these questions, we construct the index of leadership skills (the Cronbach's α for the nine questions was 0.7290, while the eigenvalue for the first component was equal to 3.0586; see Table B4). Separately, we asked questions about participation sports and in political/professional organizations or clubs. A measure of *sociability* was constructed with questions about how many friends the subject has, how often he or she meets with friends and is invited to parties, how often he or she meets new people, how often people turn to the person for advice, how active he or she is in social networks, and whether the subject is dating someone. Taking the normalized first principal component of these questions we construct the sociability index (Cronbach's $\alpha = 0.5835$, eigenvalue for the first component was 2.0637; see Table B5)[6].

Other questions were used to produce control variables that are potential correlates of subjective and socioeconomic status. *Cognitive reflection* was measured with three non-incentivized questions, using wording from Frederick (2005); cognitive ability was found to be related to risk (Dohmen et al., 2010) and to predict some forms of strategic behavior in experiments (Hoppe and Kusterer, 2011; Brañas-Garza, Kujal and Lenkei, 2015). *Subjective health* (which, together with income, is correlated with higher status (Adler et al., 2000; Diemer et al., 2013)) was measured on a 1–10 scale. A measure of *civicness* — a concept related to social capital, see Algan, Cahuc and Sangnier (2016) — was calculated as the normalized first principle component based on five survey questions regarding the justifiability of certain types of unethical behaviors, such as not paying for public transport (Cronbach's $\alpha = 0.7281$, eigenvalue for the first component was 2.4110; Table B6 has specific question wording). The survey also included the binary measure of interpersonal *trust* and a question on whether the subject is *employed*.

Finally, we measured subjects' emotional state. We calculated the *positive* and *negative affect* using the PANAS questionnaire (Watson, Clark and Tellegen, 1988). These two scales are used to measure the positive and negative emotions experienced by the person. Positive and negative affect has been linked to extroversion (Smillie, DeYoung and Hall, 2015) which in turn, is correlated with higher status (Bucciol, Cavasso and Zarri, 2015). Negative affect is related to neuroticism (Watson et al., 1999) which, in turn, can be correlated with risk aversion and uncertainty (Rustichini et al., 2012).

The survey consisted of two parts. For a random subset of subjects, Part I (comprising questions on subjective health, income, interpersonal trust, and the civicness measure) was asked at the beginning of the experiment, while Part II followed the risk aversion task. For other subjects, both parts of the survey followed the risk aversion task. Each subject had a 50% probability of being included in the first group; the effect of this

[6]We treat "decline to answer/don't know" answers as missing, and use a multiple imputation algorithm to fill these observations.

treatment is reported in Appendix D[7]. Summary statistics for all variables are given in Table 1[8]. Correlations for the main explanatory variables are given in Table B9.

Table 1: Summary statistics

	mean	sd	obs
Male	0.38	0.48	1800
Age	20.68	2.46	1800
Both parents have higher ed.	0.67	0.47	1800
Has older sibling(s)	0.27	0.45	1800
Has younger sibling(s)	0.33	0.47	1800
Only child	0.45	0.50	1800
Risk aversion	0.54	0.20	1800
Cognitive reflection	0.47	0.41	1800
Positive affect	0.00	1.00	1800
Negative affect	0.00	1.00	1800
Subjective status	0.00	1.00	1800
Subjective status, partner	0.00	1.00	1800
Leadership index	0.00	1.00	1580
Civicness index	0.00	1.00	1720
Socialization index	0.00	1.00	1570
Participates in organisations	0.23	0.42	1800
Has sports category	0.15	0.36	1800
Works part or full time	0.49	0.50	1800
Subjective health (1-10)	7.61	2.11	1800
Family income (1-5)	4.04	1.10	1720
Change in well-being (1-5)	2.99	0.84	1800
Change in expected well-being (1-5)	2.41	0.73	1800
People can be trusted	0.28	0.45	1800

3 Results

Our goal was to analyze how subjects weight their private signals and the observed actions of other subjects when trying to guess the state of the world, and to see whether the social status of the individual (and one's perception of the peer's status) affected these weights.

3.1 First-period actions

We begin by looking at how the first-period actions of subjects depend on their signals. After observing private signal z_i, individual i can be certain that the true state of the world lies in the set $S_1(z_i) = \{-7, \ldots, 7\} \cap \{z_i - 7, \ldots, z_i + 7\}$. In 98.9% of observations, the first-period decisions lie within these intervals. In 76.4% of observations, the first-period decisions were of the same sign as and less extreme than the signals, belonging to the sets $S_2(z_i) = S_1(z_i) \cap \{\min\{z_i, 0\}, \ldots, \max\{z_i, 0\}\}$. In a smaller fraction of observations, 38.5%, the

[7]The survey was divided into two parts to test for the priming of questions order on social learning, see Appendix D.

[8]The number of observations was calculated as the number of subjects multiplied by the number of rounds in the social learning game. Four subjects were excluded from the dataset due to a Z-tree failure. Questions used for constructing the leadership index and the socialization index were not included in the first two sessions.

individuals chose a guess that was equal to one half of their signals, rounded upward or downward: $x_{1i} \in \{\lfloor \frac{z_i}{2} \rfloor, \lceil \frac{z_i}{2} \rceil\}$. Finally, in as much as 56.8% of cases the subjects chose a value that minimized the expected first-period penalty, given by Table B2[9].

To investigate the effect of private signals on their first-period actions, we estimated the following reduced-form model:

$$X_{1it} = \alpha^1 Z_{it} + \alpha^2 W_i Z_{it} + \beta^1 + \beta^2 W_i + \epsilon_{1it}, \tag{1}$$

where X_{1it} is the first guess of individual i in round t, Z_{it} is the signal received by individual i in round t, and W_i are controls that may include variables related to one's social status.

Estimating model (1) while setting $\alpha^2 = \beta^2 = 0$ yields the coefficient $\alpha^{1*} = 0.477(0.007)$, with standard error clustered by subjects. This was slightly less than $\hat{\alpha}^1 = 0.500$ that was predicted for Bayesian rational individuals with no preferences for conformity.

We do not find that status in the dictator game, socioeconomic status, or subjective social status were associated with the weight of the private signal in the first-period decision. Other covariates were not significant as well. In Table B10 we estimated Model (1) assuming that the effect of private signal on the first-period action is moderated by social status. In Column 1 we checked whether the weight of the private signal was different for dictators and confederates. In Columns 2 and 3, we used the own and peer's subjective social status indices. In Columns 4-9, we used various personal characteristics that may be associated with objective social status: income, expected and past changes in income, parental higher education, and whether the subject had older or younger siblings. None of the coefficients that we reported in the table are significant. In Table B11 we used additional covariates: risk preferences, leadership skills index, whether one is active in civic or political organizations, socialization index, subjective health, interpersonal trust, civicness, gender, and whether the person is employed. Of all these variables, only trust and civicness were found to have an effect — people who believe that others can be trusted and people with less tolerance for rule-breaking put somewhat less weight on their private signals. These effects were not very large: the weight decreased by 0.0167 for each standard deviation increase in civicness, and were smaller by 0.0381 for those who believed that others could be trusted.

3.2 Second-period actions

We proceeded to analyze second-period decisions. As much as 98.2% of second-period choices were consistent with private information and lay in the $S_1(z_i)$ sets. The majority of the choices, 72%, were also located in the sets $S_4(z_i, x_{1-i}) = \{\min\{z_i, x_{1-i}\}, \ldots, \max\{z_i, x_{1-i}\}\}$, between private signals and peer first-period action.

For the second-period action, the following reduced-form model was estimated:

$$X_{2it} = a_1 Z_{it} + a_2 W_i Z_{it} + b_1 X_{1-it} + b_2 W_i X_{1-it} + c_1 + c_2 W_i + \epsilon_{2it} \tag{2}$$

Here, X_{2it} is the second guess of individual i in round t.

Figure 1 shows the coefficients for the private signal and the peer action when Model (2) was estimated for different groups of subjects, while setting $a^2 = b^2 = c^2 = 0$. In the left graph, we show the coefficients of the

[9]When guesses are chosen at random, on average, the expected first-period penalty is minimized in 21.8% of cases.

models estimated separately for dictators and recipients. In the middle graph, the subjects are divided into four groups based on their subjective status index quartile. Finally, in the right graph, the subjects are divided into groups based on their risk preferences (the first group contains 94 subjects who made 5 or fewer safe choices in the lottery task[10]; the second group — 86 subjects who made more than 5 safe choices).

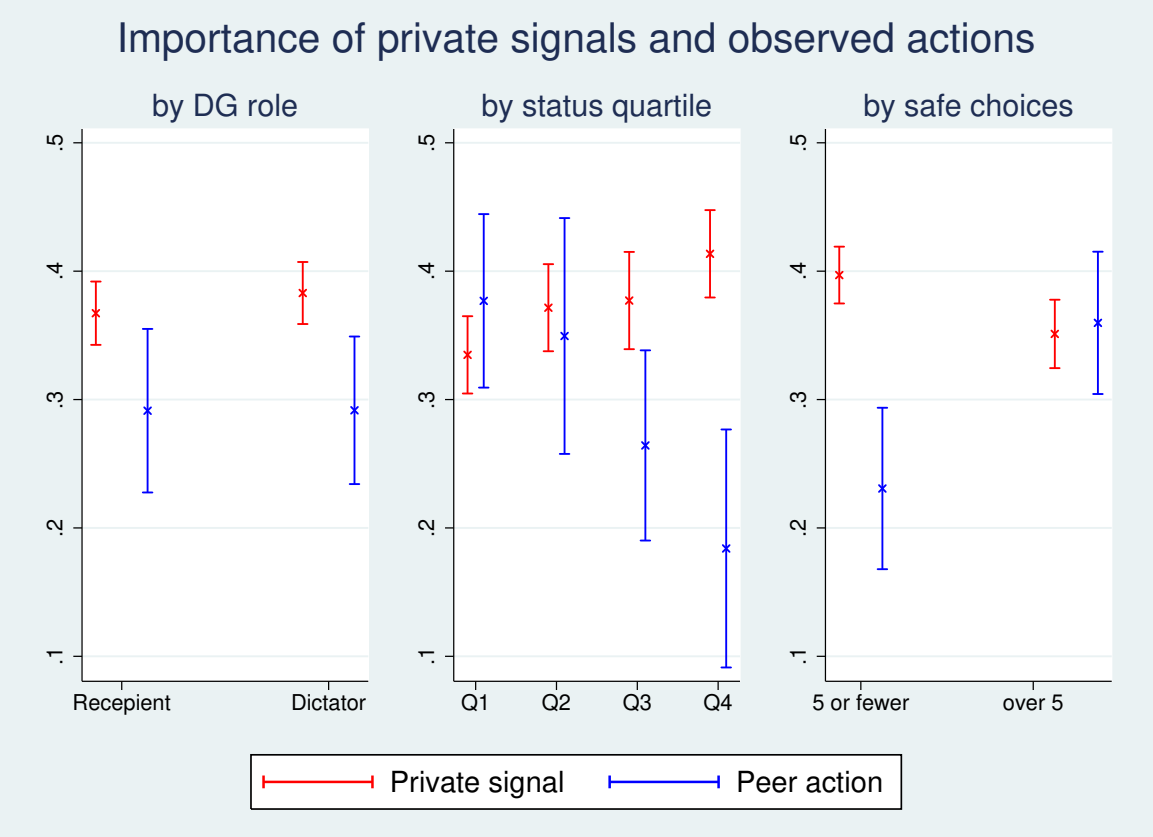

Figure 1: The weights of private signal and observed peer action for the second-period decision.

The weight of private information was higher for dictators than for recipients, while the weight of peer action was slightly lower; however, the differences were not statistically significant. At the same time, these weights were linked to subjective social status. The weights of the private signal and peer actions differed between first and fourth ($p = 0.0010$ and $p = 0.0013$, respectively), second and fourth ($p = 0.0886$ and $p = 0.0143$) status quartiles, and first and third quartiles ($p = 0.0885$ and $p = 0.0295$). Risk preferences also mattered: subjects who made over 5 safe choices in the risk aversion task put less weight on the private signal, and more weight on the peer action ($p = 0.0101$ and $p = 0.0029$).

In Table 2 we estimated Model (2) assuming that the effect of private signal and peer action on the second-period action is moderated by the individual's role in the dictator game, subjective social status, or objective social status. We reported only coefficients a^2 and b^2. In Table B12 we repeated the estimation for the first round only.

We found that subjective social status is highly correlated with how an individual uses information to

[10] A safe choice is one where the lottery offering 40 or 50 RUR is chosen.

Table 2: The effects of treatment, subjective status, and objective status on second-period action.

	Dictator	Subj-own	Subj-other	Income	Inc. (exp)	Inc (retr)	Parental ed.	Yo. sib.	Old. sib.	Only child
Priv. sig.× [Var.]	0.0157	0.0267***	0.00450	-0.00369	-0.0107	0.00606	-0.0196	0.0230	0.00647	-0.00975
	(0.0176)	(0.00731)	(0.0117)	(0.00869)	(0.0117)	(0.0119)	(0.0205)	(0.0182)	(0.0202)	(0.0175)
Part. act.× [Var.]	0.000310	-0.0802***	-0.000207	0.00447	0.0390	0.00547	0.0434	-0.0308	-0.0596	0.0322
	(0.0437)	(0.0180)	(0.0258)	(0.0209)	(0.0274)	(0.0277)	(0.0501)	(0.0466)	(0.0492)	(0.0430)
r2	0.675	0.681	0.675	0.672	0.675	0.676	0.675	0.675	0.676	0.675
N	1800	1800	1800	1720	1800	1800	1800	1800	1800	1800

OLS regressions. Dependent variable is individual's second-period action. Standard errors clustered by subject. Other covariates not shown. [Var.] is as follows. Column 1: Dictator (0 or 1); Column 2: Subjective status index; Column3: Peer's subjective status index; Column 4: Income category (1-6); Column 5: Expected change in well-being (1-5); Column 6: Retrospective change in well-being (1-5); Column 7: Both parents have higher education (0 or 1); Column 8: has an older sibling (0 or 1); Column 9: Has a younger sibling (0 or 1); Column 10: In only child (0 or 1)

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: The effects of other covariates on second-period action.

	Risk	Lead	Active	Social	Health	Trust	Civic	Male	Employed	Sports
Priv. sig.× [Var.]	-0.0999**	0.00447	0.0108	0.0108	0.00351	0.0403**	0.00562	-0.0171	-0.0235	0.00210
	(0.0454)	(0.00894)	(0.0201)	(0.0101)	(0.00495)	(0.0201)	(0.00850)	(0.0190)	(0.0174)	(0.0287)
Part. act.× [Var.]	0.346***	-0.0553**	-0.0907*	-0.0304	-0.00753	-0.112**	-0.0307	0.00394	0.0143	-0.0531
	(0.104)	(0.0230)	(0.0479)	(0.0215)	(0.0123)	(0.0512)	(0.0236)	(0.0449)	(0.0429)	(0.0782)
r2	0.679	0.683	0.677	0.680	0.675	0.678	0.675	0.675	0.675	0.675
N	1800	1580	1800	1570	1800	1800	1720	1800	1800	1800

OLS regressions. Dependent variable is individual's second-period action. Standard errors clustered by subject. Other covariates not shown. [Var.] is as follows. Column 1: Fraction of safe choices on the risk task; Column 2: Leadership skills; Column 3: Active in a sports/environmental/professional organization, labor union, or political party (0 or 1); Column 3: Sociablity index; Column 5: Subjective health (1-10); Column 6: Interpersonal Trust (0 or 1); Column 7: Civicness index; Column 8: Male (0 or 1); Column 9: Employed part-time or full-time (0 or 1); Column 10: Has a sports degree (0 or 1)

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

arrive at the second-period decision. An individual with a higher subjective status puts more weight on private information, and less weight on the first-period action of his or her peer; this association was observed over all 10 rounds, as well as during the first round (Column 2, Tables 2 and B12). The second effect is particularly large: a one standard deviation increase in subjective status will result in a 0.08–0.115 decrease in the coefficient. At the same time, social learning was not affected by the roles in the dictator game[11]. It was not associated with most indicators of objective social status as well, and was not related to how the individual perceived the social status of his or her peer. The only significant effect was that of being the only child in the family — in the first round, the onlyborn put greater weight on private information (Column 10, Table B12).

The association between other covariates and social learning is reported in Table 3, and in Table B13 for the first round only.

We found that risk aversion was associated with more learning from the actions of peers, and less learning

[11]The mean amount donated in the dictator game was 22.7 (sd of 5-round mean 17.9). Subjective social status of dictators was slightly higher than that of recipients, but the difference was not significant ($p = 0.5837$, two-tailed t-test). For the recipients, the weights put on private and public information also did not depend on the average donation received in the dictator game.

from private information in rounds 1-10 (Column 1, Table 3), but not in the first round[12]. Leadership skills (which were defined as the frequency with which the individual took on various leadership roles, such as organizing events or speaking in public), or membership in civic or political organizations are associated with less learning from the actions of peers in rounds 1–10 (Columns 2 and 3, Table 3), but, once again, this association was not significant in the first round.

If anything, we found that various components of social capital are negatively associated with social learning. In rounds 1–10, interpersonal trust was positively correlated with learning from private information, and negatively correlated with learning from publicly observed actions of others (Column 6, Table 3), while lower tolerance for rule-breaking behavior was found to be negatively associated with the weight put on social information in the first round (Column 7, Table B13). It may seem counter-intuitive that more trusting people are less reliant on social information and are more likely to learn from the actions of others. However, it is consistent with the hypothesis that social learning is driven by subjective status, as trust implies willingness to accept vulnerability (Hong and Bohnet, 2007), and trusting behavior has been found to be positively correlated with both income and social status (Delhey and Newton, 2003; Brehm and Rahn, 1997; Subramanian, Lochner and Kawachi, 2003). In the first round (but not in all 10 rounds) individuals who were more outgoing, spent more time socializing, and had more social contacts, put greater weight on private signals and less weight on social information (Column 4, Table B13). Subjects with better self-reported health put more weight on private information in the first round (Column 5, Table B13).

In Columns 1 and 2 of Table 4 we combined the significant variables from Tables 2 and 3. We found that the coefficients produced using subjective status, risk aversion, and interpersonal trust all retained their significance. At the same time, neither the leadership skills nor membership in civic/political groups were any longer associated with learning from private information or from peer action. All coefficients retained their significance when in Columns 3 and 4 we estimated the same models while controlling for cognitive reflection. We also found that greater cognitive reflection was associated with more learning from the actions of peers. This is not surprising, as the individuals (even ones with low subjective social status and high risk aversion) put much less weight on the actions of their peers than would Bayesian individuals.

In Column 5 we looked at the correlation between the person's emotional state and social learning. We found that the subjects who reported experiencing more negative emotions also put greater weight on social information, and less weight on private information. This relationship was robust when controlling for cognitive reflection (Column 6), but disappears if we also account for subjective social status (Column 7). Negative mood can signal new or challenging situations that call for less reliance on preexisting knowledge and greater attendance to social cues, and result in more accurate social judgements (Forgas, 2013). At the same time, negative affect is positively correlated with neuroticism and negatively — with extroversion (Watson et al., 1999), while both of the latter two traits are related to leadership (Judge et al., 2002) and social status.

We proceeded to test whether the associations that we found between status, other covariates, and social

[12]Interaction coefficients for the weights of private and public information did not change much (to -.082 (.045) and .298 (.105), respectively) if we only considered the 158 subjects (or 85.6% of the total amount) who did not switch to a less risky lottery on the risk aversion task.

Table 4: Determinants of second-period action.

	1	2	3	4	5	6	7
Private signal× Status	0.0303***	0.0269***	0.0297***	0.0273***			0.0266***
	(0.00819)	(0.00817)	(0.00837)	(0.00835)			(0.00779)
Partner's guess× Status	-0.0669***	-0.0732***	-0.0611***	-0.0712***			-0.0750***
	(0.0204)	(0.0179)	(0.0199)	(0.0177)			(0.0186)
Private signal× Leadership	-0.0118		-0.0113				
	(0.00934)		(0.00936)				
Partner's guess× Leadership	-0.0152		-0.0152				
	(0.0249)		(0.0237)				
Private signal× Active		-0.0116		-0.0194			
		(0.0191)		(0.0200)			
Partner's guess× Active		-0.0229		0.000933			
		(0.0483)		(0.0498)			
Private signal× Risk	-0.120**	-0.105**	-0.111**	-0.0965**			
	(0.0465)	(0.0454)	(0.0465)	(0.0453)			
Partner's guess× Risk	0.341***	0.345***	0.309***	0.320***			
	(0.0969)	(0.0984)	(0.0954)	(0.0968)			
Private signal× Trust	0.0318	0.0349*	0.0310	0.0329*			
	(0.0211)	(0.0199)	(0.0210)	(0.0196)			
Partner's guess× Trust	-0.0924*	-0.0962*	-0.0890*	-0.0917**			
	(0.0532)	(0.0489)	(0.0498)	(0.0456)			
Private signal× Pos. affect					-0.00178	-0.00314	-0.0102
					(0.00880)	(0.00831)	(0.00786)
Partner's action× Pos. affect					0.00147	0.00450	0.0241
					(0.0228)	(0.0217)	(0.0210)
Private signal× Neg. affect					-0.0165*	-0.0176**	-0.0113
					(0.00900)	(0.00860)	(0.00811)
Partner's action× Neg. affect					0.0412*	0.0430*	0.0260
					(0.0233)	(0.0222)	(0.0214)
Private signal× Cognitive			-0.0179	-0.0313		-0.0399**	-0.0381**
			(0.0190)	(0.0190)		(0.0193)	(0.0186)
Partner's guess× Cognitive			0.123**	0.124**		0.164***	0.151***
			(0.0520)	(0.0492)		(0.0492)	(0.0479)
r2	0.694	0.689	0.696	0.691	0.676	0.681	0.685
N	1580	1800	1580	1800	1800	1800	1800

OLS regressions. Dependent variable is individual's second-period action. Standard errors clustered by subject. Other covariates not shown.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

learning, are gender-specific. In Tables B14 and B15 we repeat the regressions in Tables 2 and 3, introducing the full set of interaction terms with gender. We report only the triple interaction terms between gender, private signal/observed action, and the variable of interest. The negative association between the reliance on private signal and risk aversion that we reported previously was manifested in males to a greater degree than in females — in fact, it was present in males only (this followed from estimating the model separately for males and females, which is not reported in this table). Parental education was one variable related to objective social status where the association with social learning was gender-specific. While there was no effect for males, in females, having both parents with higher education was associated with more learning from the observed action of the peer, and less weight put on the private signal.

4 Discussion

In this paper we investigated whether an individual's social status correlates with how likely is he or she to use social or private information to arrive at a decision. We found that high subjective social status is associated with less weight placed on the observed actions of peers and more weight on private information, although the roles in dictator game did not affect social learning. On the other hand, the components of one's socioeconomic status — in particular, income and parental education — were not correlated with the use of private/social information. A possible factor that can mediate between objective and subjective social status is relative deprivation that is known to correlate with both low status and less prosocial orientation (Callan et al., 2017). The relevance of different aspects of social status can also depend on country and cultural context (Park et al., 2013); replicating our results in different countries is a matter of future research.

We found that several other individual characteristics were associated with more weight put on private information, and less weight on social information: greater tolerance for risk taking, leadership skills, interpersonal trust, and sociability. All of these findings are consistent with the theory that low-status individuals are likely to be more vigilant to threats, have lower personal sense of control, and be more attuned to others (Kraus et al., 2012). These results were robust when controlling for cognitive reflection; the latter was associated with a greater weight on social information, putting it closer to the equilibrium value. The effect of risk aversion on social learning was greater in men (previously, women were found to be more risk-averse than men (Eckel and Grossman, 2008)).

Different theoretical frameworks can be used to interpret our results. Individuals may not hold their peers to be fully rational, leading them to underweight social information (Cornand and Heinemann, 2014; Shapiro, Shi and Zillante, 2014; Weizsäcker, 2010). Social status can then be related to the level of reasoning in the sense of the level-k model (Stahl and Wilson, 1995). Individuals of high subjective social status may give less consideration to their peers, considering them to be less rational, and underweight their actions as a result. Low-status subjects may have preferences for conformity, e.g. their guesses being closer to the guesses of their peers. Another explanation can be provided by the theory developed by Keltner, Gruenfeld and Anderson (2003). They showed that high-power individuals exhibit approach-related motivation and positive affect while low-power ones show inhibition-related tendencies and negative effect. Each of these processes was associated with

certain brain activity (Boksem, Smolders and Cremer, 2012). In either case, finding the underlying rationale for our results is the matter for future research.

Our results have implications for dissemination/aggregation of information in networks. Individuals with high social status are also likely to be the ones who have many followers. The fact that high-status individuals are less likely to react to the signals of others can make information cascades and herding more likely, possibly decreasing social welfare.

References

Acemoglu, Daron, Asuman Ozdaglar and Ali ParandehGheibi. 2010. "Spread of (mis) Information in Social Networks." *Games and Economic Behavior* 70(2):194–227.

Adler, Nancy E, Elissa S Epel, Grace Castellazzo and Jeannette R Ickovics. 2000. "Relationship of Subjective and Objective Social Status with Psychological and Physiological Functioning: Preliminary Data in Healthy, White women." *Health psychology* 19(6):586.

Algan, Yann, Pierre Cahuc and Marc Sangnier. 2016. "Trust and the Welfare State: The Twin Peaks Curve." *The Economic Journal* 126(593):861–883.

Anderson, Cameron, Sanjay Srivastava, Jennifer S Beer, Sandra E Spataro and Jennifer A Chatman. 2006. "Knowing your Place: Self-perceptions of Status in Face-to-face Groups." *Journal of personality and social psychology* 91(6):1094.

Ball, Sheryl B and Catherine C Eckel. 1996. "Buying status: Experimental Evidence on Status in Negotiation." *Psychology & Marketing* 13(4):381–405.

Ball, Sheryl, Catherine Eckel, Philip J Grossman and William Zame. 2001. "Status in Markets." *The Quarterly Journal of Economics* 116(1):161–188.

Berger, Sebastian, Christoph Feldhaus and Axel Ockenfels. 2018. "A Shared Identity Promotes Herding in an Information Cascade Game." *Journal of the Economic Science Association* pp. 1–10.

Bleidorn, Wiebke, Ruben C Arslan, Jaap JA Denissen, Peter J Rentfrow, Jochen E Gebauer, Jeff Potter and Samuel D Gosling. 2016. "Age and Gender Differences in Self-esteem—A Cross-cultural Window." *Journal of personality and social psychology* 111(3):396.

Boksem, Maarten AS, Ruud Smolders and David De Cremer. 2012. "Social power and approach-related neural activity." *Social Cognitive and Affective Neuroscience* 7(5):516–520.

Bondarenko, O and A Zakharov. 2018. "Measurement of Social Status in Experimental Games." *Journal of the New Economic Association* 38(2):12–47.

Bracha, Anat, Ori Heffetz and Lise Vesterlund. 2009. "Charitable Giving: the Effects of Exogenous and Endogenous Status." *Unpublished manuscript* .

Brañas-Garza, Pablo, Praveen Kujal and Balint Lenkei. 2015. "Cognitive Reflection Test: Whom, How, When.".

Brehm, John and Wendy Rahn. 1997. "Individual-level Evidence for the Causes and Consequences of Social Capital." *American journal of political science* pp. 999–1023.

Brooks, Benjamin, Karla Hoff and Pryanka Pandey. 2015. "Culture and the Efficiency of Coordination: Experiments with High-and Low-Caste Men in Rural India." *University of Chicago, manuscript* .

Bucciol, Alessandro, Barbara Cavasso and Luca Zarri. 2015. "Social Status and Personality Traits." *Journal of Economic Psychology* 51:245–260.

Bursztyn, Leonardo, Florian Ederer, Bruno Ferman and Noam Yuchtman. 2014. "Understanding Mechanisms Underlying Peer Effects: Evidence from a Field Experiment on Financial Decisions." *Econometrica* 82(4):1273–1301.

Callan, Mitchell J, Hyunji Kim, Ana I Gheorghiu and William J Matthews. 2017. "The Interrelations between Social Class, Personal Relative Deprivation, and Prosociality." *Social Psychological and Personality Science* 8(6):660–669.

Cason, Timothy N and Vai-Lam Mui. 1998. "Social influence in the sequential dictator game." *Journal of mathematical psychology* 42(2-3):248–265.

Chandrasekhar, Arun G, Horacio Larreguy and Juan Pablo Xandri. 2015. Testing Models of Social Learning on Networks: Evidence from a Lab Experiment in the Field. Technical report National Bureau of Economic Research.

Charness, Gary, David Masclet and Marie Claire Villeval. 2011. "Competitive Preferences and Status as an Incentive: Experimental Evidence.".

Chen, Zeng-yin and Ruth X Liu. 2014. "Comparing Adolescent Only Children with Those Who Have Siblings on Academic Related Outcomes and Psychosocial Adjustment." *Child Development Research* 2014.

Chiao, Joan Y. 2010. "Neural Basis of Social Status Hierarchy across Species." *Current opinion in neurobiology* 20(6):803–809.

Cornand, Camille and Frank Heinemann. 2014. "Measuring Agents' Reaction to Private and Public Information in Games with Strategic Complementarities." *Experimental Economics* 17(1):61–77.

d'Adda, Giovanna. 2012. "Leadership and Influence: Evidence from an Artefactual Field Experiment on Local Public Good Provision.".

DeGroot, Morris H. 1974. "Reaching a Consensus." *Journal of the American Statistical Association* 69(345):118–121.

Delhey, Jan and Kenneth Newton. 2003. "Who Trusts?: The Origins of Social Trust in Seven Societies." *European Societies* 5(2):93–137.

DeMarzo, Peter M, Dimitri Vayanos and Jeffrey Zwiebel. 2003. "Persuasion Bias, Social Influence, and Unidimensional Opinions." *The Quarterly Journal of Economics* 118(3):909–968.

Deming, David J. 2017. "The Growing Importance of Social Skills in the Labor Market." *The Quarterly Journal of Economics* 132(4):1593–1640.

Diemer, Matthew A, Rashmita S Mistry, Martha E Wadsworth, Irene López and Faye Reimers. 2013. "Best Practices in Conceptualizing and Measuring Social Class in Psychological Research." *Analyses of Social Issues and Public Policy* 13(1):77–113.

Dohmen, Thomas, Armin Falk, David Huffman and Uwe Sunde. 2010. "Are Risk Aversion and Impatience Related to Cognitive Ability?" *American Economic Review* 100(3):1238–60.

Duffy, John, Ed Hopkins and Tatiana Kornienko. 2017. "Lone Wolf or Herd Animal? Information Choice and Social Learning.".

Eckel, Catherine C and Philip J Grossman. 2008. "Men, women and risk aversion: Experimental evidence." *Handbook of experimental economics results* 1:1061–1073.

Eckel, Catherine C and Rick K Wilson. 2007. "Social Learning in Coordination Games: Does Status Matter?" *Experimental Economics* 10(3):317–329.

Evers, Ellen RK, Niels van de Ven and Dorus Weeda. 2015. "The Hidden Cost of Microtransactions: Buying In-Game Advantages in Online Games Decreases a Player's Status." *International Journal of Internet Science* 10(1).

Fischbacher, U. 2007. "z-Tree: Zurich Toolbox for Ready-made Economic Experiments." *Experimental Economics* 10:171–78.

Forgas, Joseph P. 2013. "Don't Worry, Be Sad! On the Cognitive, Motivational, and Interpersonal Benefits of Negative Mood." *Current Directions in Psychological Science* 22(3):225–232.

Frederick, Shane. 2005. "Cognitive Reflection and Decision Making." *Journal of Economic perspectives* 19(4):25–42.

Gill, David, Victoria Prowse and Michael Vlassopoulos. 2013. "Cheating in the Workplace: An Experimental Study of the Impact of Bonuses and Productivity." *Journal of Economic Behavior & Organization* 96:120–134.

Glaeser, Edward L, David I Laibson, Jose A Scheinkman and Christine L Soutter. 2000. "Measuring Trust." *The quarterly journal of economics* 115(3):811–846.

Golub, Benjamin and Matthew O Jackson. 2010. "Naive Learning in Social Networks and the Wisdom of Crowds." *American Economic Journal: Microeconomics* 2(1):112–49.

Grimm, Veronika and Friederike Mengel. 2014. "An Experiment on Belief Formation in Networks.".

Henrich, Joseph and Francisco J Gil-White. 2001. "The evolution of prestige: Freely conferred deference as a mechanism for enhancing the benefits of cultural transmission." *Evolution and human behavior* 22(3):165–196.

Holt, Charles A and Susan K Laury. 2002. "Risk Aversion and Incentive Effects." *American economic review* 92(5):1644–1655.

Hong, Kessely and Iris Bohnet. 2007. "Status and Distrust: The Relevance of Inequality and Betrayal Aversion." *Journal of Economic Psychology* 28(2):197–213.

Hoppe, Eva I and David J Kusterer. 2011. "Behavioral Biases and Cognitive Reflection." *Economics Letters* 110(2):97–100.

Judge, Timothy A and Joyce E Bono. 2000. "Five-factor Model of Personality and Transformational Leadership." *Journal of applied psychology* 85(5):751.

Judge, Timothy A, Joyce E Bono, Remus Ilies and Megan W Gerhardt. 2002. "Personality and Leadership: a Qualitative and Quantitative Review." *Journal of applied psychology* 87(4):765.

Keister, Lisa A. 2003. "Religion and Wealth: The Role of Religious Affiliation and Participation in Early Adult Asset Accumulation." *Social Forces* 82(1):175–207.

Keltner, Dacher, Deborah H Gruenfeld and Cameron Anderson. 2003. "Power, approach, and inhibition." *Psychological review* 110(2):265.

Kraus, Michael W, Paul K Piff, Rodolfo Mendoza-Denton, Michelle L Rheinschmidt and Dacher Keltner. 2012. "Social Class, Solipsism, and Contextualism: How the Rich Are Different from the Poor." *Psychological review* 119(3):546.

Kraus, Michael W, Stéphane Côté and Dacher Keltner. 2010. "Social Class, Contextualism, and Empathic Accuracy." *Psychological science* 21(11):1716–1723.

Liebe, Ulf and Andreas Tutic. 2010. "Status Groups and Altruistic Behaviour in Dictator Games." *Rationality and Society* 22(3):353–380.

Liu, Xiaodong, Eleonora Patacchini and Yves Zenou. 2014. "Endogenous Peer Effects: Local Aggregate or Local Average?" *Journal of Economic Behavior & Organization* 103:39–59.

Magee, Joe C and Adam D Galinsky. 2008. "8 Social Hierarchy: The Self-reinforcing Nature of Power and Status." *Academy of Management annals* 2(1):351–398.

Mobius, Markus, Tuan Phan and Adam Szeidl. 2015. Treasure hunt: Social Learning in the Field. Technical report National Bureau of Economic Research.

Molavi, Pooya, Alireza Tahbaz-Salehi and Ali Jadbabaie. 2017. "Foundations of Non-bayesian Social Learning.".

Nair, Harikesh S, Puneet Manchanda and Tulikaa Bhatia. 2010. "Asymmetric Social Interactions in Physician Prescription Behavior: The Role of Opinion Leaders." *Journal of Marketing Research* 47(5):883–895.

Park, Jiyoung, Shinobu Kitayama, Hazel R Markus, Christopher L Coe, Yuri Miyamoto, Mayumi Karasawa, Katherine B Curhan, Gayle D Love, Norito Kawakami, Jennifer Morozink Boylan et al. 2013. "Social Status and Anger Expression: The Cultural Moderation Hypothesis." *Emotion* 13(6):1122.

Paulhus, Delroy L and Kathy L Morgan. 1997. "Perceptions of Intelligence in Leaderless Groups: The Dynamic Effects of Shyness and Acquaintance." *Journal of personality and social psychology* 72(3):581.

Piff, Paul K, Michael W Kraus and Dacher Keltner. 2018. Unpacking the inequality paradox: The psychological roots of inequality and social class. In *Advances in experimental social psychology*. Vol. 57 Elsevier pp. 53–124.

Ridgeway, Cecilia L, Elizabeth Heger Boyle, Kathy J Kuipers and Dawn T Robinson. 1998. "How Do Status Beliefs Develop? The Role of Resources and Interactional Experience." *American Sociological Review* pp. 331–350.

Ridgeway, Cecilia L and Shelley J Correll. 2006. "Consensus and the Creation of Status Beliefs." *Social Forces* 85(1):431–453.

Rustichini, Aldo, Colin G DeYoung, Jon C Anderson and Stephen V Burks. 2012. "Toward the Integration of Personality Theory and Decision Theory in the Explanation of Economic and Health Behavior.".

Schurr, Amos and Ilana Ritov. 2016. "Winning a competition predicts dishonest behavior." *Proceedings of the National Academy of Sciences* 113(7):1754–1759.

Schurter, Karl and Bart J Wilson. 2009. "Justice and Fairness in the Dictator Game." *Southern Economic Journal* 76(1):130–145.

Shapiro, Dmitry, Xianwen Shi and Artie Zillante. 2014. "Level-k Reasoning in a Generalized Beauty Contest." *Games and Economic Behavior* 86:308–329.

Smillie, Luke D, Colin G DeYoung and Phillip J Hall. 2015. "Clarifying the Relation between Extraversion and Positive Affect." *Journal of Personality* 83(5):564–574.

Stahl, Dale O and Paul W Wilson. 1995. "On Players Models of Other Players: Theory and Experimental Evidence." *Games and Economic Behavior* 10(1):218–254.

Stellar, Jennifer E, Vida M Manzo, Michael W Kraus and Dacher Keltner. 2012. "Class and Compassion: Socioeconomic Factors Predict Responses to Suffering." *Emotion* 12(3):449.

Subramanian, SV, Kimberly A Lochner and Ichiro Kawachi. 2003. "Neighborhood Differences in Social Capital: a Compositional Artifact or a Contextual construct?" *Health & place* 9(1):33–44.

Tost, Leigh Plunkett, Francesca Gino and Richard P Larrick. 2012. "Power, competitiveness, and advice taking: Why the powerful don't listen." *Organizational behavior and human decision processes* 117(1):53–65.

Van Ewijk, Reyn and Peter Sleegers. 2010. "The Effect of Peer Socioeconomic Status on Student Achievement: A Meta-analysis." *Educational Research Review* 5(2):134–150.

Varnum, Michael EW, Chris Blais, Ryan S Hampton and Gene A Brewer. 2015. "Social Class Affects Neural Empathic Responses." *Culture and Brain* 3(2):122–130.

Watson, David, David Wiese, Jatin Vaidya and Auke Tellegen. 1999. "The Two General Activation Systems of Affect: Structural Findings, Evolutionary Considerations, and Psychobiological Evidence." *Journal of personality and social psychology* 76(5):820.

Watson, David, Lee Anna Clark and Auke Tellegen. 1988. "Development and Validation of Brief Measures of Positive and Negative Affect: the PANAS Scales." *Journal of personality and social psychology* 54(6):1063.

Weeks, Brian E, Alberto Ardèvol-Abreu and Homero Gil de Zúñiga. 2017. "Online Influence? Social Media Use, Opinion Leadership, and Political Persuasion." *International Journal of Public Opinion Research* 29(2):214–239.

Weinberger, Catherine J. 2014. "The Increasing Complementarity between Cognitive and Social Skills." *Review of Economics and Statistics* 96(4):849–861.

Weizsäcker, Georg. 2010. "Do we Follow Others when We Should? A Simple Test of Rational Expectations." *American Economic Review* 100(5):2340–60.

Appendix A Experiment design and procedures

Figure A2: Dictator game, Allocator's decision

Dictator game, Receiver's screen. You are the Receiver. Please wait while the Allocator decides which sum to pass to you. You are the Receiver. (Figure A3).

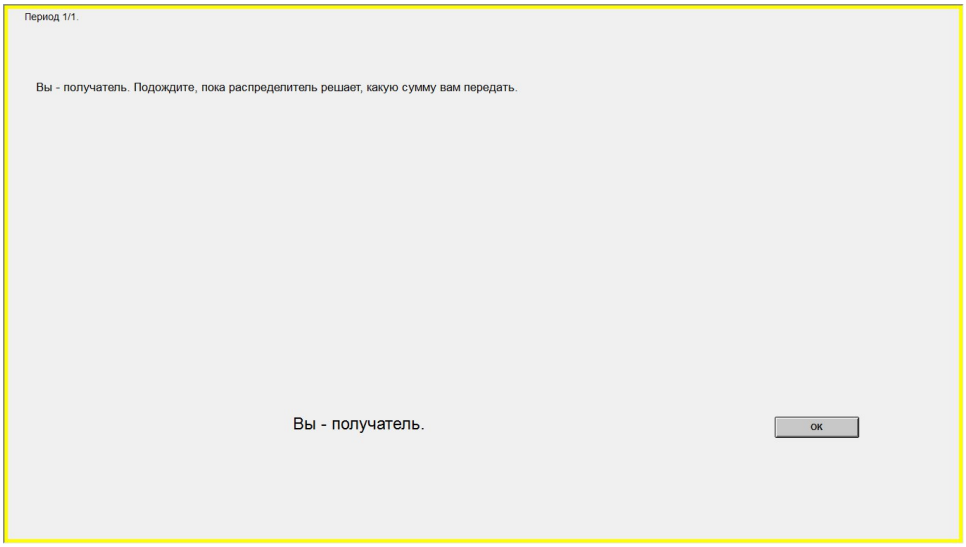

Figure A3: Dictator game, Receiver's screen

Dictator game, end of round. You are the Allocator. Your payoff is 90 ECU. You are the Allocator. (Figure A4).

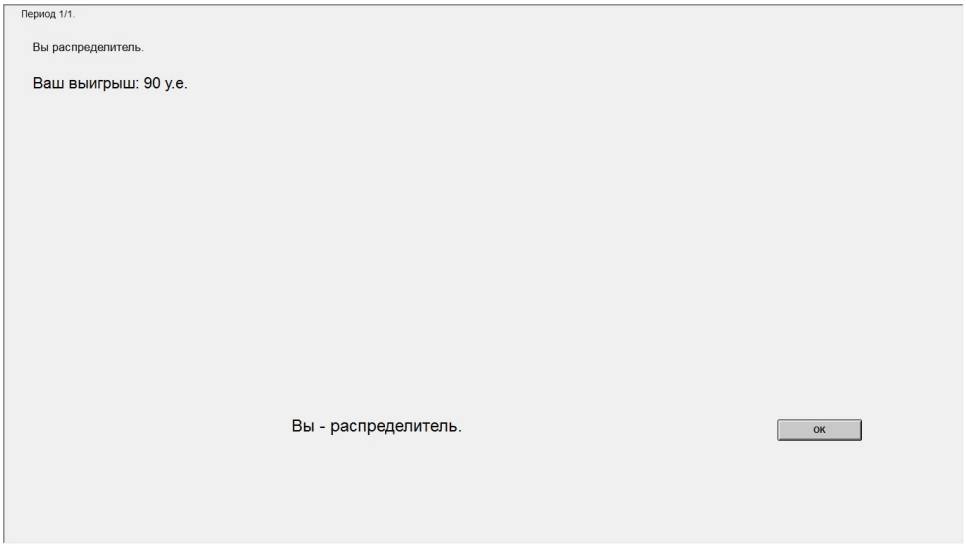

Figure A4: Dictator game, end of round

Main part: first guess attempt. Computer randomly assigned numbers X, Y1 and Y2. You know that the sum of X and Y1 equals 2. You've got the first attempt to guess the value of X. Choose one of the options below, please. You are the Receiver (Figure A5).

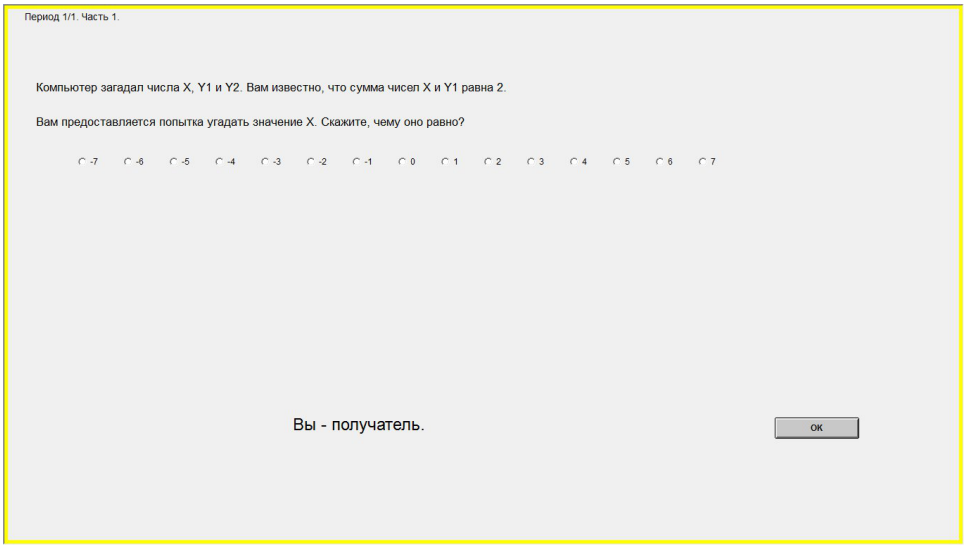

Figure A5: Main part, first guess attempt

Main part: second guess attempt The second player knew the sum of X and Y2. He tried to guess X and assumed that it was 0. We remind you that the sum of X and Y1 equals 2. You've got the second attempt to guess the value of X. Choose one of the options below, please. You are the Receiver (Figure A6).

Figure A6: Main part, second guess attempt

Main part: end of round The true value of X equals -3. At first attempt you assumed that X equals 1. At the second attempt you assumed that X equals 4. At the second attempt the other player named number -4. Your payoff: 30.0 ECU. You are the Receiver (Figure A7).

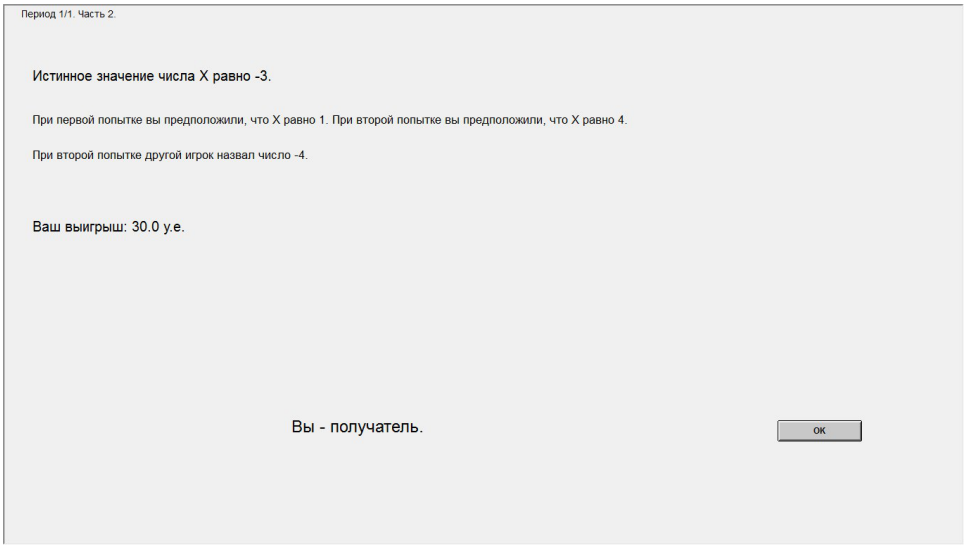

Figure A7: Main part, end of round

Status questionnaire Please fill in a short questionnaire. Which of the following best describes [you/the person you interacted with in the previous game]?

Dominant — Subordinate

Unconfident — Confident

High status — Low status

Leader — Follower

Controls resources — Does not control resources

Dependent — Independent

Passive — Active

In our society there are people who occupy higher social positions and people who occupy lower social positions. Please state where [you/the person you interacted with in the previous game] stand on the ladder of 10 steps where 1 is the lowest step and 10 is the highest step.

Figure A8: Subjective status questionnaire, own

Risk aversion task: intro screen Please make ten decisions that you will see on the screen. One of them will affect your payoff at this stage of the experiment. Press OK as soon as you are ready.

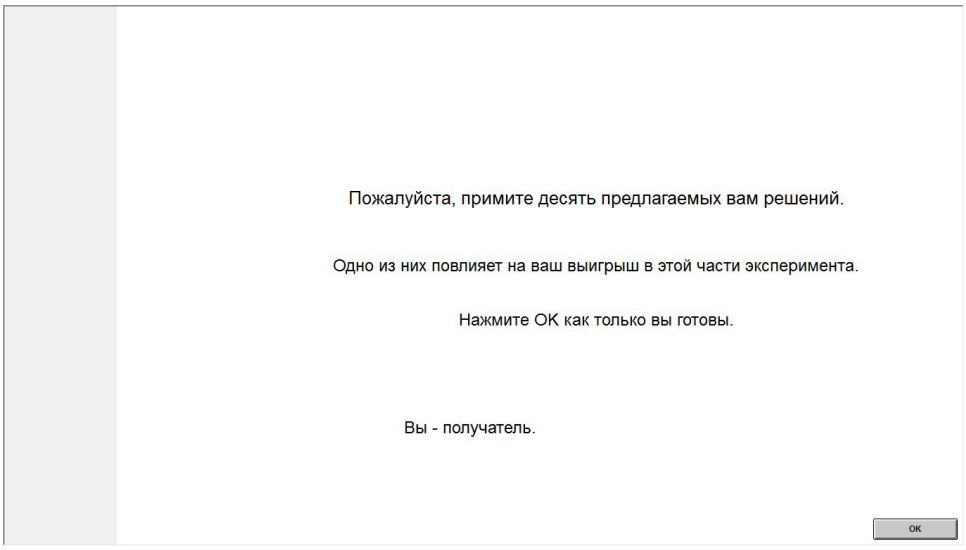

Figure A9: Risk aversion task, intro screen

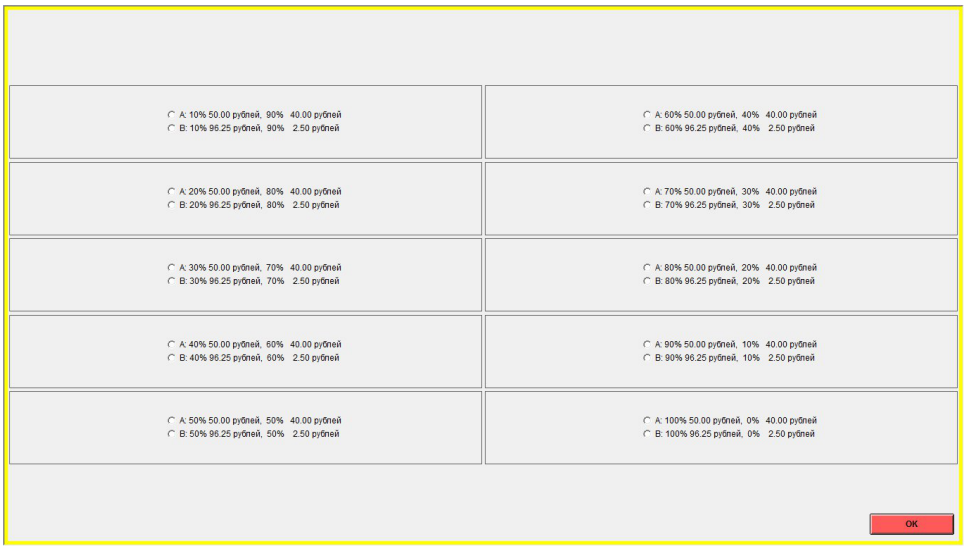

Figure A10: Risk aversion task, main screen

Cognitive reflection test

1. A bat and a ball cost $ 1.10 in total. The bat costs $ 1.00 more than the ball. How much does the ball cost?
2. If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?
3. In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake?

Survey: part 1

1. Please describe your health (1-I am often ill, 10-I am usually healthy)
2. How can you describe the economic conditions of your household? (we do not have enough money even to buy food/we can afford food, but buying clothing is problematic/we can afford food and clothing, but buying a TV/refrigerator, or a washing machine is problematic/we can afford to buy household appliances, but cannot afford to buy a car/our income is sufficient for everything except large purchases such as real estate/we have no financial difficulties, and can afford real estate if necessary/hard to answer)
3. Can you say how the economic conditions of you and your family changed over past 12 months? (Became much better/became somewhat better/stayed the same/became somewhat worse/became much worse)
4. Can you say how the economic conditions of you and your family will change over the next 12 months? (Will become much better/will become somewhat better/will stay the same/will become somewhat worse/will become much worse)
5. Do you think that most people can be trusted, or that you need to be very careful in dealing with people (most people can be trusted/need to be very careful)
   For questions 6-10, please indicate whether the following action can be justified, on the scale 1 (can never be justified) to 10 (is always justified)
6. Claiming state benefits which you are not entitled to
7. Avoiding a fare on a public transport
8. Stealing property
9. Cheating on taxes
10. Accepting a bribe

Survey: part 2

1. What is your full age in years?
2. Please note your gender (male/female)
3. Are you a HSE student (yes/no)
4. What is your year of study?
5. What is your academic program?
6. What is your father's education (secondary/specialized secondary/unfinished higher/higher/graduate degree)/hard to answer
7. What is your mother's education (secondary/specialized secondary/unfinished higher/higher/graduate degree)/hard to answer

8. Do you have full brothers or sisters? (yes: I am the oldest child/yes, I am a middle child/yes, I am the youngest child/no)

9. Are you currently employed? (Yes - employed full time/yes - employed part time/yes - informal employment/no/hard to answer)

10. Indicate the extent to what you have felt this way during the day (very slightly or not at all/a little/moderately/quite a bit/extremely)

    1. Interested; 2. Distressed; 3. Excited; 4. Upset; 5. Strong; 6. Guilty; 7. Scared; 8. Hostile; 9. Enthusiastic; 10. Proud; 11. Irritable; 12. Alert; 13. Ashamed; 14. Inspired; 15. Nervous; 16. Determined; 17. Attentive; 18. Jittery; 19. Active; 20. Afraid

11. Please indicate which of the following you did during the past year (1-definitely did not do, 10 - definitely did)

    1. Organized events/conferences/rallies/flash mobs; 2. Led a club/nongovernmental organization; 3. Was an entrepreneur; 4. Created or moderated a group in an online social network; 5. Convinced my friend/acquaintance over an issue that was important for me/him(her); 6. Publicly defended an opinion that was different from that of majority; 7. Spoke before more than 50 people; 8. Was in the top 5% of rating; 9. Managed a large sum of money

12. Are you an active participant of sports/environmental/professional organization, labor union, or political party? (yes/no/hard to answer)

13. Do you have a sports category? (No/category 2-3/category 1 or higher)

14. How many people can you call friends over the past year? (I have no friends/1 person/2-3 persons/4-5 persons/over 5 persons/hard to answer)

15. How often do you meet your friends? (Practically every day/several times a week/once a week/1-3 times a month/several times a year/approximately once a year/less often than once a year/hard to answer)

16. How often during the past year were you invited to parties/dates/birthdays? (Approximately once a week/1-2 times a month/several times a year/once a year/less often than once a year/never/hard to answer)

17. Over the past year, how much time per day did you spend communicating with other people using online social networks? (I do not use social networks for communication/less than half hour every day/0.5-1 hours/1-3 hours/over 3 hours/hard to answer)

18. Are you currently dating someone? (Yes/no/hard to answer)

19. How often do people approach you for an advice or to help solve a problem? (Approximately once a week/1-2 times a month/several times a year/once a year/less often than once a year/hard to answer)

20. How often do you meet new people? (Approximately once a week/1-2 times a month/several times a year/once a year/less often than once a year/hard to answer)

Instructions: Introduction

At the beginning of the experiment all participants will be randomly divided into two groups: Allocators and Receivers. Each participant from the group of Allocators will be paired with a participant from the group of Allocators. You won't know who you will be paired with; the other participant will not know it either. Partners will not change throughout the experiment and will remain anonymous even after the experiment.

Instructions: Dictator game (sessions 1—5)

- This part of the experiment consists of 5 rounds. If you are the Allocator, at the beginning of each round you will have the budget of 100 ECU. You can decide, which part of your capital should be given to the receiver who is paired with you. If you are the Receiver, you will not have the budget.
- Your income from each round will be calculated in the following way.
  - If you are the Allocator: *Income=100 – (sum given to the Receiver)*
  - If you are the Receiver: *Income = sum given by the Allocator.*
- At the end of this part of the experiment one round of 5 will be randomly chosen. Your income from this part of the experiment will be your income from this round. The exchange rate is 1 ECU=2.5 roubles.

Instructions: Dictator game (sessions 6—14)

- This part of the experiment consists of 5 rounds. If you are the Allocator, at the beginning of each round you will have the budget of 100 ECU. You can decide, which part of your capital should be given to the receiver who is paired with you. If you are the Receiver, you will not have the budget.
- Your income from each round will be calculated in two ways. For all 5 rounds the calculation method will be the same and will not change.
  - If you are the Allocator: Your income can be calculated in one of two methods. The method is randomly chosen. On the screen you will see which method is chosen. The receiver will know nothing about it.
    First method: Income=100 – (sum given to the Receiver)/2
    Example: you decided to give the receiver 40 ECU, your income is 100-40/2=80. The Receiver got 40 ECU.
    Second method: Income=100 – sum given to the Receiver
    Example: you decided to give the receiver 40 ECU, your income is 100-40=60. The Receiver got 40 ECU.
  - If you are the Receiver: Income = sum given by the Allocator. You will not know which method will be used to calculate Allocator's income.

- At the end of this part of the experiment one round of 5 will be randomly chosen. Your income from this part of the experiment will be your income from this round. The exchange rate is 1 ECU=2.5 roubles.

Instructions: Main part

- This part of the experiment consists of 10 rounds. We remind you that the second player you will be paired with in all 10 rounds is the same as in the previous part of the experiment.
- Your task is to guess the number X assigned by the computer. At the beginning of each round it is randomly chosen by the computer. It can take any value from -7, -6 and so on till 7 with the equal probability. The value of this number in each round does not depend on its value in the previous rounds.
- Computer randomly selects numbers Y1 and Y2. They can take any values from -7, -6 and so on till 7 with the equal probability. These two variables are statistically independent, e.g. knowing X+Y1 does not give additional information on value of Y2 and vice versa. These numbers are also independent of X. You learn X+Y1 but you do not observe X, Y1 or Y2.

Example: Computer chose values X=2, Y1=4, Y2=3. You observe X+Y1=6. The second player observes X+Y2=5.

1. You've got the first attempt to guess X. At the same time, the second player is trying to guess X.
2. You observe the first attempt of the second player and you've got the second attempt to guess X.
3. You learn your income from each round at the end of the round. It is calculated as follows:

Income=120 – penalty for mistake at first attempt - penalty for mistake at second attempt, where the penalty for each attempt is calculated according to the following table:

Mistake	0	1	2	3	4	5 and more
Penalty	0	10	20	30	40	50

The payoff of the second player is calculated the same way. Example: The value of X is 1. At the first attempt you type 4, at the second attempt you type 0. Your income for the round will be 120-30-10=80 CU.

At the end of this part of the experiment one round from ten will be randomly chosen. Your income from this part of the experiment will equal your income from this round. The exchange rate is 1CU=4 roubles.

Instructions: Risk lottery task

- In this part of the experiment you will have to make 10 decisions, but only one decision will affect your income this part of the experiment. Each decision is a choice between two options – "A" and "B". After you have made all the decisions, the computer will randomly select one of them. Then the computer will calculate your payoff according to the decision. Other decisions will not affect your income but you will not know which decision was chosen by the computer.

- Here is the example of the decision that you will have to make. Decision 1. Option A: get 50 roubles with a probability 10% and get 40 roubles with a probability 90%. Option B: Get 96,25 roubles with probability 10% and get 2,5 roubles with a probability 90%. Other decisions are similar, but probabilities of receiving higher sums will be higher. For decision 10 the second option will not be considered because it will be the choice between guaranteed income of 50 and 96,25 roubles.
- Your income will be added to the income from other parts of the experiment. Total income from all parts will be paid at the end of the experiment

Appendix B Tables and Figures

Table B1: List of experimental sessions

#	Participants	Men	Date
1	14	5	December, 2016
2	8	4	December, 2016
3	12	5	December, 2016
4	14	5	December, 2016
5	14	2	December, 2016
6	8	6	April, 2018
7	8	5	April, 2018
8	8	5	April, 2018
9	8	4	April, 2018
10	14	8	October, 2018
11	14	2	October, 2018
12	14	8	October, 2018
13	14	5	October, 2018
14	14	7	October, 2018
Total	**184**	70	

Table B2: Equilibrium first guess, depending on the observed signal.

Z_{it}	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
X_{1it}	$\{-3,\dots,3\}$	$\{-2,\dots,3\}$	$\{-1,\dots,3\}$	$\{0,\dots,3\}$	$\{1,2,3\}$	$\{2,3\}$	3	$\{3,4\}$	4	$\{4,5\}$	5	$\{5,6\}$	6	$\{6,7\}$	7

The first-period choices minimize the expected first-period penalty given the posterior distribution of X_t after $Z_{it} = X_t + Y_{it}$ is observed; the posterior is discrete uniform on $\{\max\{7, Z_{it}7\},\dots,\min\{7, Z_{it}+7\}\}$. For $Z_{it} \in \{14,\dots,1\}$ the equilibrium first guess is calculated symmetrically.

Table B3: Mean equilibrium second guess, depending on observed signal and partner's first guess.

		X'_{1it}														
		-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7
	-14	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7				
	-13	-7	- 6.5	- 6.5	- 6.5	- 6.5	- 6.5	- 6.5	- 6.5	-6	-6	-6				
	-12	-7	-6	-6	-6	-6	-6	-6	-6	-6	-5.5	-5				
	-11	-7	-6	-5.5	-5.5	-5.5	-5.5	-5	-5	-5	-5	-5				
	-10	-7	-6	-5	-5	-5	-5	-5	- 4.5	-4	-4	-4				
	-9	-7	-6	-5	- 4.5	- 4.5	- 4.5	-4	-4	-4	-3	-3				
Z_{it}	-8	-7	-6	-5	-4	-4	-4	-4	- 3.5	-3	- 2.5	-2				
	-7	-7	-6	-5	-4	- 3.5	- 3.5	-3	-3	-3	-2	-1	0			
	-6	-7	-6	-5	-4	-3	-3	- 2.5	- 2.5	-2	- 1.5	- 0.5	1			
	-5	-7	-6	-5	-4	-3	- 2.5	-2	-2	- 1.5	-1	0	1.5	2		
	-4	-7	-6	-5	-4	-3	-2	-1	-1	- 0.5	- 0.5	0.5	2	3		
	-3	-7	-6	-5	-4	-3	-2	- 1.5	0	0	0.5	1	2.5	3.5	4	
	-2	-7	-6	-5	-4	-3	- 2.5	-1	0	0	1	1.5	3	4	5	
	-1	-7	-6	-5	-4	- 2.5	-2	- 1.5	0	1	2	2.5	3.5	4.5	5.5	6
	0	-7	-6	-5	-4	- 2.5	-2	-1	0	1	2	2.5	4	5	6	7

For $Z_{it} \in \{1, \ldots, 14\}$ the optimal second guess is calculated symmetrically. Values corresponding to (Z_{it}, X'_{1it}) that do not appear on the equilibrium path are left blank.

Table B4: Factor loadings for the leadership index

Variable	First component
Organize event	.4131
Lead a club	.4236
Be an entrepreneur	.3415
Be moderator of a group	.3217
Persuade s/o to change opinion	.3460
Stand up to own opinion	.3140
Speak in front of audience	.3476
Have high GPA rating	.0549
Possess large sum of money	.2859

Table B5: Factor loadings for the socialization index

Variable	First component
Number of friends	-.3195
Frequency of meeting friends (R)	.5135
Is invited to parties (R)	.4390
Time spent on communication in networks	-.4146
Has a girl/boyfriend (R)	-.0180
Is asked for advice (R)	.4051
Meets new people (R)	.3244

Table B6: Factor loadings for the civicness index

Variable	First component
Claiming government benefits	.4983
Avoiding a fare on public transport	.3923
Stealing property	.3878
Cheating on taxes	.4723
Taking a bribe	.4736

Table B7: Factor loadings for the subjective status index

Variable	First component
Dominant - Subordinate	.4127
Inconfident - Confident	.3900
High status - Low status	.3757
Leader - Follower	.4104
Controls resources - Does not control resources	.3476
Dependent - Independent	.2128
Passive - Active	.3324
10-step Ladder	.3022

Table B8: Factor loadings for the subjective status (other) index

Variable	First component
Dominant - Subordinate	.3168
Inconfident - Confident	.3717
High status - Low status	.3720
Leader - Follower	.4288
Controls resources - Does not control resources	.3814
Dependent - Independent	.2589
Passive - Active	.3707
Low-High Status Ladder	.2988

Table B9: Correlation between explanatory variables

Variables	Subj. stat.	Subj. stat.(part.)	Leader.	Civic.	Sociab.	CRT	Risk av.	Pos.af.	Neg.af	Health
Subjective status	1.000									
Subjective status, partner	0.114	1.000								
Leadership index	0.450	0.041	1.000							
Civicness index	-0.057	-0.119	0.120	1.000						
Socialization index	0.338	0.131	0.265	-0.002	1.000					
Cognitive reflection	-0.020	-0.083	0.026	0.066	-0.044	1.000				
Risk aversion	0.014	0.044	-0.084	-0.048	0.012	0.040	1.000			
Positive affect	0.358	-0.030	0.240	0.039	0.238	0.012	-0.091	1.000		
Negative affect	-0.330	-0.163	-0.095	-0.080	-0.160	0.007	0.001	-0.383	1.000	
Health	0.177	-0.006	0.151	0.046	-0.048	-0.018	0.069	0.098	-0.238	1.000

Table B10: The effects of treatment, subjective, and objective social status on first-period action.

	Dictator	Subj-own	Subj-other	Income	Inc. (exp)	Inc (retr)	Parental ed.	Yo. sib.	Old. sib.	Only child
Priv. sig.× [Var.]	-0.00627	-0.00761	-0.00250	0.00269	-0.00276	0.00628	0.00748	0.00843	0.0107	-0.0119
	(0.0144)	(0.00729)	(0.00646)	(0.00570)	(0.00972)	(0.00964)	(0.0149)	(0.0146)	(0.0175)	(0.0144)
r2	0.692	0.691	0.692	0.691	0.692	0.691	0.691	0.691	0.691	0.692
N	1800	1800	1800	1720	1800	1800	1800	1800	1800	1800

OLS regressions. Dependent variable is individual's first-period action. Standard errors clustered by subject. Other covariates not shown. [Var.] is as follows. Column 1: Dictator (0 or 1); Column 2: Subjective status index; Column 3: Peer's subjective status index; Column 4: Income category (1-6); Column 5: Expected change in well-being (1-5); Column 6: Retrospective change in well-being (1-5); Column 7: Both parents have higher education (0 or 1); Column 8: has an older sibling (0 or 1); Column 9: Has a younger sibling (0 or 1); Column 10: In only child (0 or 1)

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B11: The effects of other covariates on first-period action.

	Risk	Lead	Active	Social	Health	Trust	Civic	Male	Employed	Sports
Priv. sig.× [Var.]	-0.0170	-0.00667	-0.0166	0.00918	-0.00483	-0.0381**	-0.0167**	-0.000623	-0.0121	-0.0317
	(0.0350)	(0.00719)	(0.0200)	(0.00806)	(0.00322)	(0.0169)	(0.00743)	(0.0154)	(0.0146)	(0.0208)
r2	0.691	0.698	0.692	0.697	0.692	0.692	0.691	0.691	0.692	0.692
N	1800	1580	1800	1570	1800	1800	1720	1800	1800	1800

OLS regressions. Dependent variable is individual's first-period action. Standard errors clustered by subject. Other covariates not shown. [Var.] is as follows. Column 1: Fraction of safe choices on the risk task; Column 2: Leadership skills; Column 3: Active in a sports/environmental/professional organization, labor union, or political party (0 or 1); Column 3: Sociablity index; Column 5: Subjective health (1-10); Column 6: Interpersonal Trust (0 or 1); Column 7: Civicness index; Column 8: Male (0 or 1); Column 9: Employed part-time or full-time (0 or 1); Column 10: Has a sports degree (0 or 1)

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B12: The effects of treatment, subjective status, and objective status on second-period action, round 1

	Dictator	Subj-own	Subj-other	Income	Inc. (exp)	Inc (retr)	Parental ed.	Yo. sib.	Old. sib.	Only child
Priv. sig.× [Var.]	0.0368	0.0504*	0.00570	-0.00558	0.0160	0.00451	-0.0559	-0.0116	-0.0800	0.0967**
	(0.0533)	(0.0267)	(0.0256)	(0.0238)	(0.0315)	(0.0283)	(0.0590)	(0.0497)	(0.0598)	(0.0480)
Part. act.× [Var.]	0.00350	-0.115**	-0.0567	-0.0452	-0.0994	-0.0677	-0.0174	0.0550	-0.0570	-0.0181
	(0.125)	(0.0557)	(0.0555)	(0.0412)	(0.0664)	(0.0688)	(0.122)	(0.122)	(0.135)	(0.115)
r2	0.556	0.577	0.563	0.590	0.559	0.562	0.557	0.559	0.566	0.562
N	180	180	180	172	180	180	180	180	180	180

OLS regressions. Dependent variable is individual's second-period action. Standard errors clustered by subject. Other covariates not shown. [Var.] is as follows. Column 1: Dictator (0 or 1); Column 2: Subjective status index; Column3: Peer's subjective status index; Column 4: Income category (1-6); Column 5: Expected change in well-being (1-5); Column 6: Retrospective change in well-being (1-5); Column 7: Both parents have higher education (0 or 1); Column 8: has an older sibling (0 or 1); Column 9: Has a younger sibling (0 or 1); Column 10: In only child (0 or 1)

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B13: The effects of other covariates on second-period action, round 1

	Risk	Lead	Active	Social	Health	Trust	Civic	Male	Employed	Sports
Priv. sig.× [Var.]	0.152	-0.00537	0.0776	0.0862***	0.0227*	0.0762	0.0339	-0.0366	-0.0774	0.0528
	(0.148)	(0.0224)	(0.0571)	(0.0319)	(0.0130)	(0.0544)	(0.0220)	(0.0546)	(0.0485)	(0.0676)
Part. act.× [Var.]	0.333	-0.0188	-0.0621	-0.192***	0.00514	-0.196	-0.0968*	0.140	0.205*	-0.0964
	(0.310)	(0.0569)	(0.133)	(0.0653)	(0.0254)	(0.129)	(0.0501)	(0.120)	(0.114)	(0.137)
r2	0.567	0.548	0.579	0.571	0.579	0.563	0.564	0.559	0.568	0.558
N	180	158	180	157	180	180	172	180	180	180

OLS regressions. Dependent variable is individual's second-period action. Standard errors clustered by subject. Other covariates not shown. [Var.] is as follows. Column 1: Fraction of safe choices on the risk task; Column 2: Leadership skills; Column 3: Active in a sports/environmental/professional organization, labor union, or political party (0 or 1); Column 3: Sociablity index; Column 5: Subjective health (1-10); Column 6: Interpersonal Trust (0 or 1); Column 7: Civicness index; Column 8: Male (0 or 1); Column 9: Employed part-time or full-time (0 or 1); Column 10: Has a sports degree (0 or 1)

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B14: The gender-specific effects of treatment, subjective status, and objective status on second-period action.

	Dictator	Subj-own	Subj-other	Income	Inc. (exp)	Inc (retr)	Parental ed.	Yo. sib.	Old. sib.	Only child
Priv. sig.× [Var.]										
× Male	0.0429	0.0164	-0.0275	0.0252	-0.0297	-0.00190	0.0743*	-0.0102	-0.00667	-0.00427
	(0.0386)	(0.0150)	(0.0272)	(0.0181)	(0.0253)	(0.0263)	(0.0421)	(0.0388)	(0.0487)	(0.0375)
Part. act.× [Var.]										
× Male	-0.0599	-0.0489	0.0349	-0.0313	0.0689	-0.0103	-0.185*	0.100	-0.100	0.0661
	(0.0899)	(0.0385)	(0.0536)	(0.0421)	(0.0534)	(0.0577)	(0.0951)	(0.0959)	(0.101)	(0.0876)
r2	0.677	0.682	0.676	0.673	0.677	0.676	0.677	0.676	0.677	0.676
N	1800	1800	1800	1720	1800	1800	1800	1800	1800	1800

OLS regressions. Dependent variable is individual's second-period action. Standard errors clustered by subject. Other covariates not shown. [Var.] is as follows. Column 1: Dictator (0 or 1); Column 2: Subjective status index; Column3: Peer's subjective status index; Column 4: Income category (1-6); Column 5: Expected change in well-being (1-5); Column 6: Retrospective change in well-being (1-5); Column 7: Both parents have higher education (0 or 1); Column 8: has an older sibling (0 or 1); Column 9: Has a younger sibling (0 or 1); Column 10: In only child (0 or 1)

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B15: The gender-specific effects of other covariates on second-period action.

	Risk	Lead	Active	Social	Health	Trust	Civic	Employed	Sports
Priv. sig.× [Var.] × Male	-0.232**	-0.0104	0.0253	0.0215	-0.00609	-0.0176	0.00508	0.0357	0.00229
	(0.106)	(0.0186)	(0.0421)	(0.0281)	(0.0123)	(0.0430)	(0.0193)	(0.0377)	(0.0762)
Part. act.× [Var.] × Male	0.271	0.0699	-0.0299	-0.00658	0.00236	-0.00321	0.00248	-0.0331	-0.244
	(0.227)	(0.0461)	(0.101)	(0.0502)	(0.0280)	(0.102)	(0.0523)	(0.0885)	(0.173)
r2	0.681	0.684	0.677	0.681	0.676	0.678	0.676	0.676	0.677
N	1800	1580	1800	1570	1800	1800	1720	1800	1800

OLS regressions. Dependent variable is individual's second-period action. Standard errors clustered by subject. Other covariates not shown. [Var.] is as follows. Column 1: Fraction of safe choices on the risk task; Column 2: Leadership skills; Column 3: Active in a sports/environmental/professional organization, labor union, or political party (0 or 1); Column 3: Sociability index; Column 5: Subjective health (1-10); Column 6: Interpersonal Trust (0 or 1); Column 7: Civicness index; Column 8: Employed part-time or full-time (0 or 1); Column 9: Has a sports degree (0 or 1)

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix C Induction of social status in experiments

Here we briefly report the results of Bondarenko and Zakharov (2018)[13]. The goal of the experiment was to determine whether subjective social status can be induced experimentally, by having the subjects play two-person experimental games with asymmetric roles. In 2016, we conducted 6 sessions with 68 subjects at the Laboratory for Experimental and Behavioral Economics at Higher School of Economics. The experiment was computerized using z-tree (Fischbacher, 2007).

The experiment consisted of three stages. At the beginning of each stage, the subjects were randomly paired, and, in fixed pairs, played five rounds of either dictator game, trust game, or the labor market game. The roles of the subjects in each stage were randomly assigned at the beginning of the stage, and remained fixed throughout the five rounds. After the end of the third stage, the subjects filled the post-experiment questionnaire.

In the dictator game, one of the players, the dictator, was asked to allocate a fixed budget of 100 ECU between him- or herself and the other player (the confederate). In the trust game, the investor was asked to allocate a budget of 100 ECU between him- herself and the trustee. Amount received by the trustee was multiplied by three, and the trustee could return any part of that to the investor. Finally, in the labor market game one of the players, the manager, was allocated the budget of 100 ECU, and decided on the amount of wage to be paid to the other player, the worker. The worker then chose the effort level which involved different costs. Higher effort resulted in higher manager's revenue but lower worker's payoff.

After the end of each stage the subjects completed a questionnaire; We measured the subjective socioeconomic status of the subjects with two scales identical to the ones used in this experiment.

In Table C1 we look at how individuals evaluate their social status vis-a-vis their partners. For each game, and each measure of social status, the table reports three values: the difference between own and partner's evaluation for each type of player, and the p-value comparing the two. In the dictator game, the subjective social status of dictators was much higher relative to that of the confederates; for example, on the first scale ("Dominant-subordinate") the dictators rated themselves at 5.11 and their partners at 3.029, with the difference between the two figures reported in the second column of the table. The corresponding difference for the confederates was significantly smaller for every measure of social status. At the same time, there were no such differences between investors and trustees in the trust game, or between workers and managers in the labor market game. The effect of being a dictator in the dictator game is robust to the inclusion of various control variables. In Table C2 we regress the difference between the individual's evaluation of one's own and partner's subjective status following the game. Each observation corresponds to an individual playing one of the three games. We find that for all our measures of the subjective social status, the dictators score higher than the confederates, while the role played in the other two games has no effect.

We also find a significant gender gap in subjective social status, with males scoring higher (a similar finding has been reported in other studies such as Bleidorn et al. (2016)). Subjects who were youngest children have lower subjective status; a possible explanation for this is that in families with several children, younger children are allocated less financial and moral parents' resources than elder children (Chen and Liu, 2014; Keister, 2003).

[13]English translation of the article can be found at http://www.econorus.org/journal/pdf/NEA-38en.pdfpage=6

Table C1: The effect of game roles on subjective social status.

	Dictator game			Trust game			Labor market game		
	Confed.	Dictator	p	Investor	Trustee	p	Worker	Manager	p
Dominant (7) - Secondary (1)	-0.9118	2.0882	0.0001	0.2647	0.5294	0.6405	0.6071	0.2857	0.6145
Confident (7) - Unconfident (1)	0.0000	1.1176	0.0519	0.5000	-0.2353	0.2077	1.1071	0.2500	0.1587
High status (7) - Low status (1)	-0.7059	1.5588	0.0001	0.2353	0.2059	0.9557	-0.0357	0.5000	0.3207
Leader (7) - Follower (1)	-0.8235	1.9412	0.0001	0.3235	0.2647	0.9147	0.2500	0.8214	0.3772
Controls resources (7) - Does not control (1)	-0.8824	2.5000	0.0000	-0.2059	0.0882	0.6300	0.4286	0.3214	0.8692
Independent (7) - Dependent (1)	-0.7941	2.5294	0.0000	0.4706	0.3235	0.7669	1.1071	0.3929	0.2244
Active (7) - Passive (1)	-0.4706	1.7353	0.0012	0.4412	-0.3529	0.1827	0.6429	0.3571	0.6338

The table reports the differences in subjective evaluations of social status between different types of participants in the dictator game, trust game, and the labor market game. For each game, the first column reports the difference between own evaluations for the two types of players (dictators and confederates, investors and trustees, and managers and workers, respectively). The second column is the difference between the evaluations of one's partner, and the third column is the p-value on the two-tailed t-test for the difference between first and second columns ($n = 34$ players of each type for dictator game and trust game, and $n = 28$ players of each type for the labor market game).

Higher subjective status was also observed for subjects who worked half-time or full-time, or with higher family income; income has also been consistently linked to the perception of one's social status (Diemer et al., 2013).

Table C2: The effect of game roles on subjective social status, individual controls

	Dominant	Confident	High status	Leader	Resources	Independent	Active	10-step
DG: Confederate	-1.692**	-1.104*	-0.682	-1.181*	-1.351*	-2.131***	-1.267**	-0.932
	(0.724)	(0.578)	(0.546)	(0.704)	(0.739)	(0.713)	(0.586)	(0.635)
DG: Dictator	1.259**	-0.225	1.469***	1.450**	1.861***	1.040*	0.933*	1.483***
	(0.533)	(0.469)	(0.451)	(0.562)	(0.605)	(0.554)	(0.524)	(0.546)
TR: Investor	-0.0181	-1.288***	0.332	0.169	-0.305	-0.960**	-0.807*	-0.175
	(0.530)	(0.458)	(0.513)	(0.570)	(0.512)	(0.474)	(0.472)	(0.603)
TR: Trustee	-0.797*	-0.894*	0.0434	-0.429	-0.921*	-1.072**	-0.704	-0.716
	(0.428)	(0.534)	(0.392)	(0.455)	(0.510)	(0.417)	(0.449)	(0.602)
LM: Manager	-0.853	-1.267**	0.178	0.0323	-0.519	-1.300**	-0.728	0.285
	(0.561)	(0.583)	(0.521)	(0.564)	(0.592)	(0.571)	(0.548)	(0.580)
Male	0.688*	0.823*	0.769**	1.295***	0.266	0.740**	0.856**	0.839**
	(0.393)	(0.442)	(0.340)	(0.349)	(0.440)	(0.353)	(0.410)	(0.404)
Age	-0.0746*	-0.0146	0.0224	-0.0789*	-0.00445	0.0464	-0.164***	-0.0348
	(0.0416)	(0.0356)	(0.0320)	(0.0396)	(0.0434)	(0.0352)	(0.0432)	(0.0419)
Income	0.493**	0.694**	0.599***	0.425*	0.788***	0.217	0.396*	0.651*
	(0.239)	(0.263)	(0.206)	(0.231)	(0.283)	(0.238)	(0.223)	(0.334)
Works full/part-time	0.963**	0.745	-0.0641	0.732**	0.938**	1.126***	1.154**	0.214
	(0.391)	(0.448)	(0.398)	(0.351)	(0.396)	(0.353)	(0.453)	(0.474)
Only child in family	-0.467	-1.067**	-0.371	-0.946**	-0.935**	-0.417	-0.626	-0.651
	(0.416)	(0.471)	(0.351)	(0.362)	(0.432)	(0.346)	(0.473)	(0.476)
Youngest child in family	-2.119***	-1.460**	-1.315*	-2.204***	-1.869***	-1.108*	-2.369***	-1.597**
	(0.675)	(0.695)	(0.674)	(0.584)	(0.693)	(0.628)	(0.621)	(0.731)
Both parents w. higher ed.	-0.751*	-0.0185	-0.329	-0.549	-0.198	0.0620	-0.594	0.0629
	(0.398)	(0.432)	(0.399)	(0.347)	(0.412)	(0.370)	(0.397)	(0.486)
Constant	0.715	-1.282	-2.564**	0.626	-2.256	-0.962	2.849**	-1.567
	(1.472)	(1.477)	(1.136)	(1.450)	(1.635)	(1.461)	(1.426)	(1.633)
Observations	192	192	192	192	192	192	192	192
DG: Dictator=Confederate	0.000114	0.113	0.000244	0.0000833	0.0000910	0.0000282	0.00123	0.000991
TR: Investor=Trustee	0.178	0.484	0.588	0.287	0.292	0.822	0.848	0.426

OLS regressions. Each observation corresponds to one individual and one game. Standard errors are clustered by individuals. The baseline category is whether the game was the labor market game and the individual was a worker. The last two rows report the p-values for the Wald tests.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix D The priming effect of survey questions

Prior to the experiment, subjects were divided into two groups. For subjects from the first group, a part of survey questions were asked at the beginning of the experiment. These were the questions on subjective health, income, expected change in income, interpersonal trust, and justifiability of unethical behavior. Subjects from the other group answered these questions at the end of the experiment, together with the rest of the survey. The division into these two groups was random and independent of the subject's roles in the dictator game. In total, 97 subjects were asked a part of survey questions at the beginning, and 87 subjects were asked all survey questions at the end. Our goal was twofold. First, we wanted to know whether asking questions at the beginning can have an effect on social learning and donation in the dictator game. Second, we were interested in whether responses to these and other questions depended on when during the experiment they were asked.

Generally, we did not find that the response to the survey questions depended on when they were asked. The reported income categories were not different between the two groups of subjects ($n_{beginning} = 92$, $n_{end} = 80$, $p = 0.5172$ for Wilcoxon rank-sum test). The expected and past changes in well-being, as well as subjective health, also did not differ ($p = 0.4978$, $p = 0.7872$, and $p = 0.9047$ for Wilcoxon rank-sum test, respectively)[14].

The share of subjects who believed that other people could be trusted also did not depend on whether that question was asked at the beginning or at the end of the survey ($p = 0.5088$, two-sided Fisher's exact test). However, subjects who were surveyed at the end of the experiment had a slightly higher civicness index ($n_{beginning} = 89$, $n_{end} = 83$, $p = 0.0260$, two-tailed t-test).

The responses to other survey questions also did not largely depend on whether some questions were asked in the beginning. Reported leadership skills were not affected ($n_{beginning} = 84$, $n_{end} = 74$, $p = 0.7603$ on two-tailed t-test), as well as subjective status, perceived status of the peer, and the number of safe choices on the risk aversion task ($p = 0.2370$, $p = 0.1963$, and $p = 0.8320$ on two-tailed t-test). Similarly, there were no differences between either the shares of people who reported participation in civic/political groups, or being employed ($p = 0.4772$ and $p = 0.7675$, respectively, on Fisher's exact test), or in cognitive reflection ($p = 0.7703$, Wilcoxon rank-sum test). However, subjects who answered all questions at the end had a higher sociability index ($n_{beginning} = 83$, $n_{end} = 74$, $p = 0.0807$, two-tailed t-test), and were more likely to report participating in sports ($p = 0.0979$, two-sided Fisher's exact test).

The order of survey questions in the experiment did have some effect on social learning. Subjects who answered part of questions in the beginning of the experiment learned more from the actions of their peers than those who answered all questions in the end; this effect was significant in the first round, but not in all rounds (Table D3).

The average amounts donated by dictators were not different between the two groups ($n_{beginning} = 28$, $n_{end} = 35$, $p = 0.4946$, two-tailed t-test).

[14] We have $n_{beginning} = 94$ and $n_{end} = 86$ whenever these numbers are not reported.

Table D3: The effect of question ordering on social learning

	All rounds	Round 1
Private signal× Survey	0.0273	0.0703
	(0.0175)	(0.0476)
Partner's action× Survey	-0.0671	-0.271**
	(0.0439)	(0.113)
r2	0.676	0.577
N	1800	180

OLS regressions. Dependent variable is individual's second-period action. Standard errors clustered by subject. Other covariates not shown.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$