Status and ability as sources of influence
Pre-analysis report

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Abstract

We investigate how status as a signal for the individuals' underlying ability, and pure apparent status with no connection with ability, determine individuals' influence on others' behaviours.

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1 Introduction

The interpersonal transmission of socially beneficial behaviours, central in the cultural evolution of human societies (Fried, 1967; Henrich and Gil-White, 2001), relies, on one hand, on status hierarchies rewarding individuals who more likely possess valuable traits and knowledge with prestige and influence. On the other, it relies on others' ability to recognise even minimal status cues (Smith, 1982; Maner et al., 2008; Shariff et al., 2012; Witkower et al., 2020) such that transmitted behaviours are more likely to originate from high-status, more successful individuals (Henrich and Gil-White, 2001).

The question arises, with the accumulation of status sources (e.g., Hill, 1984), how sensitive the influence enjoyed by high status individuals over others' behaviours (Walker, 2015) is to the underlying source of their status.

We disentangle the status-influence and ability-influence nexa from both the confounding link between status and ability (Cook, 1975; Ridgeway, 1991; Stewart and Moore Jr, 1992) and from the endogeneities of which natural data is ridden, namely other regarding concerns (e.g. Nelissen and Meijers, 2011; Martinangeli, 2021; Rockenbach et al., 2021). In doing so, we rely on a narrow monetary definition of status and on an operationalisation of influence allowing for sharp predictions and clean tests in a parsimonious experimental paradigm (Falk and Heckman, 2009).

Specifically, we observe how decision makers from a sample of the German population facing a purely individual choice without any externality, are influenced in their decisions by uninterested third-party advice. Orthogonally varying the advisors' status and its informativeness about their underlying ability, we are able to investigate the relative merit of status and ability as sources of influence, as well as to tap into their potentially far reaching consequences on everyday interactions for individuals and organizations.

Concretely, we face individuals with the choice of investing any fraction of an endowment in a lottery game yielding either zero or triple the investment with equal probabilities (Gneezy and Potters, 1997): No correct advice can be provided without knowledge of the investor's preferences. The advice originates from an advisor commonly known to having faced a similar choice, who was asked to leave advice which may or may not be passed on to future participants. Our experimental conditions are as follow: advice originates from an advisor whose endowment (status) is either high or low, and which was assigned either randomly or as the result of a cognitive ability test. We therefore obtain a 2 (advisor's status: high or low endowment) $\times$ 2 (status source: ability or randomness) design. We control for design effects by giving the advisees high or low endowments which, to sharpen the picture, are always randomly assigned.

This design allows us to test the following hypotheses. First, when status is informative about underlying ability, the influence of high status advisors on the decision maker is greater than that of low status advisors (Hypothesis 1). In this case, status and ability are confounded. This first hypothesis is therefore the benchmark against which we evaluate the influence of status once having removed the confounding link between ability and status. Our second hypothesis is therefore that when status is uninformative about the advisor's ability, we expect rational individuals to disregard the status signal, such that high status advisors have no influence premium (Hypothesis 2).

2 Experimental design

We run our experiment on a target sample size of 1000 individuals representative of the German population along the age, gender, income and geographic dimensions, detecting a minimum effect of the advisors' status on standardised outcomes (see Section 3) of MDE=0.25 (25% of a standard deviation) at power $\pi = 0.8$ and $\alpha = 0.05$.

2.1 Design

We now provide an accurate description of the tasks and of their sequence as faced by the advisees. The flow described here can be visualised on the right hand side of Figure 1. In order to be able to collect advice from the advisors in accordance with our experimental design, the sequence of tasks is slightly different for the advisors. We provide a description in Section 2.2.

Phase 1: Demographics At the very beginning of the session, we collect information about the respondents' gender, age, German state of residence and family income, which we use to ensure our sample is representative along these dimensions. We further collect, at the beginning, information about the respondents' family status, household size and household income.

Phase 2: Experimental conditions, receiving advice and lottery choice Our aim is that of identifying how the advisor's ability and apparent status co-determine the influence of their advice on the (very personal) choice of an advisee. Our design relies on each participant deciding what portion of their endowment (if any) to invest in a lottery. The lottery yields triple the amount invested or zero with equal probabilities. The participants keep for sure the fraction of the endowment that was not invested. The lottery is first fully and transparently described to the participants.

Next, the respondents receive a randomly selected piece of advice consisting of what fraction of their endowment they should invest according to an advisor. We experimentally vary which out of four types of advisor the advice originates from: One who has a high or a low endowment which was either assigned randomly or based on the result of a cognitive ability test, thus outligning a 2 (rich or poor advisor) $\times$ 2 (earned or randomly assigned endowment) design.

The respondents are made aware of which type of advisor left the advice they received. To obtain sharp predictions and tests, we select the advice to be distributed as follows: We pick two pieces of advice for relatively high or relatively low investments, from advisors in each cell of our earned/random $\times$ high/low endowment advisor type (ideally identical advice for relatively low or high investment advice). This strategy offers three advantages. First, we randomise advice which is relatively far from the focal investment of 50% of one's endowment. Second, we offer advice which can be palatable both to relatively more or less risk averse individuals. Third, we ensure that the advice used to deliver our experimental conditions is orthogonal to the advisors' (observable or unobservable) characteristics, their ability in particular.

Next, the respondents, having received the advice and knowing what type of advisor it comes from, make their investment choice of any fraction of their endowment between 0 and 100% in 1% increments. We measure the impact of advice as the absolute distance of participant i's investment choice and the advice received. The lottery is not yet realised at this stage. Notice that to avoid design effects, we assign the advisees either a low or a high endowment (same sizes as for the advisors), though they are in this case always randomly assigned and only revealed *after* the investment choice has been made. This way, we ensure the respondents don't feel unfairly treated relative to the advisors (they also have a chance at a high or low endowment), and simultaneously preserve the exogeneity of the investment choice with trespect to their own endowment. We can thus cleanly attribute treatment effects to our experimental variation.

Phase 3: Cognitive Reflection Test After the respondents chose their lottery investment but before the lottery is realised, we administer the Cognitive Reflection Test developed by Frederick (2005) to elicit their cognitive ability. The test consists of five simple mathematical questions trading off individuals' ability to provide a reasoned and thought-for *correct* answer over an intuitive though *incorrect* one. The higher the number of correct answers provided, the greater the resondent's cognitive ability. Frederick (2005) shows performance on the test to correlate strongly with other measures of individuals' cognitive ability such as SAT scores. The respondents were given 5 minutes to answer all questions and were remunerated for each correct answer. Notice that because the CRT test is administered after the lottery, participation in this task cannot influence investment decisions, nor can it be in turn affected by the lottery's outcome as it is not yet revealed to the participants.

Phase 4: Lottery, further demographics and debriefing After the respondents participated in the CRT, the lottery is visualised on their screen as a "wheel of fortune" which they can activate by clicking on a button. This implementation helps the respondents graphically visualise the lottery: The wheel is split in twelve equal fields, half of which are coloured green and read "Triple", and the other half is coloured red and say "Zero". The outcome is determined by the position in which the wheel stops, which is in turn determined by a number randomly extracted by the background software.

At the end of the survey we collect information about the respondents' education level and their employment status. At the very end of the survey, the respondents are debriefed on the outcome of their choices and on their earnings.

2.2 Collecting the advice

We collect advice from a small number of respondents at the beginning of the data collection. In order to construct the experimental conditions to which the advisees are exposed, we randomly vary whether the advisors are given a low or a high endowment, either randomly allocated or as the result of their performance on the CRT.

For this reason, different from the advisees, the advisors face the CRT before making their lottery investment decision and leaving their advice. Specifically, after having been assigned or earned their endowment but without knowing yet its value, the advisors are given a complete and detailed description of the lottery task (including the outcomes and the odds) and of their choice set. They are then asked to leave advice, in the form of what fraction of the endowment to invest, which might or might not be passed on to a respondent who will face the same investment choice at a later point in time.

Leaving the participant ignorant of the size of their endowment minimises the risk that advice might be sensitive to the advisor's endowment size. We allow the advisors to pick their advice from the set {0% (no investment), 30%, 50%, 70%, 100% (full investment)}, to obtain a manageable advice space. We moreover inform the advisor that the person who might receive their advice might have either a low or a high endowment.

After having left their advice, the advisors can choose which fraction of their endowment to invest in the lottery. Notice however that the advisors only serve the purpose of allowing us to construct the experimental manipulations to which the advisees, our population of interest, will be exposed without deception. The data generated by the advisors will hence not for part of any of our analyses.

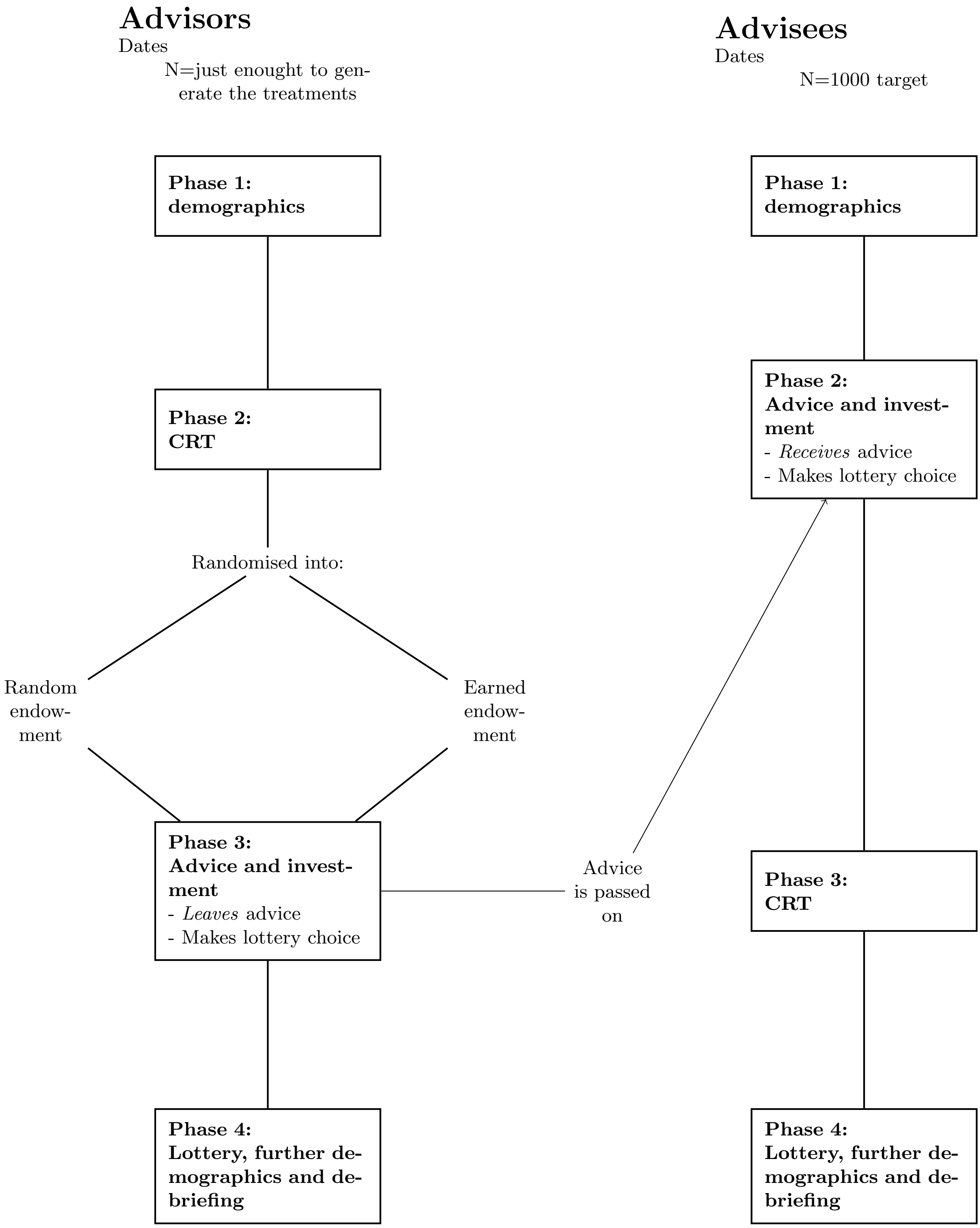

Figure 1: Flowchart of subjects' progress through the stages of the experiment

3 Empirical strategy

We investigate the impact of the advice received in terms of the average proximity of the chosen investment strategy to the one received as advice. Denote with s_i the proportion of endowment invested in the lottery by respondent i, and the proportion received as advice by respondent i with $\hat{s}_i$. Then, our variable of interest can be written as:

$$y_i = |s_i - \hat{s}_i|.$$

We then estimate the following equation:

$$y_i = \beta_0 + \beta_1 HE + \beta_2 Earned + \beta_3 Earned \times HE + \beta_4 \hat{s}_i + \beta 5 CA + \varepsilon, \quad (1)$$

where *HE*=1 indicates that the advisor's endowment was high, *Earned*=1 indicates that it was assigned based on their score, and CA denotes the respondent's cognitive ability score. Finally, X is a vector including the respondent's age, region of residence, income, education level, field of education and field of work. Estimating equation (1) allows us to test Hypotheses 1 and 2, as summarised in Table 1.

Hypothesis	**Statistical test**
Hypothesis 1	$\beta_3 < 0$
Hypothesis 2	$\beta_1 < 0$

Table 1: The hypotheses and the corresponding statistical tests

We will explore potential heterogeneities with respect to gender, education level, field of education and work, income level and cognitive ability.

References

Cook, K. S. (1975). Expectations, evaluations and equity. *American Sociological Review*, pages 372–388.

Falk, A. and Heckman, J. J. (2009). Lab Experiments Are a Major Source of Knowledge in the Social Sciences. *Science*, 326(5952):535–538.

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

Fried, M. H. (1967). *The evolution of political society: An essay in political anthropology*, volume 7. Random House.

Gneezy, U. and Potters, J. (1997). An experiment on risk taking and evaluation periods. *The Quarterly Journal of Economics*, 112(2):631–645.

Henrich, J. and Gil-White, F. J. (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.

Hill, J. (1984). Prestige and reproductive success in man. *Ethology and Sociobiology*, 5(2):77–95.

Maner, J. K., DeWall, C. N., and Gailliot, M. T. (2008). Selective Attention to Signs of Success: Social Dominance and Early Stage Interpersonal Perception. *Personality and Social Psychology Bulletin*, 34(4):488–501.

Martinangeli, A. F. M. (2021). Do What (You Think) the Rich Will Do: Inequality and Belief Heterogeneity in Public Good Provision. *Journal of Economic Psychology*, 83:102364.

Nelissen, R. M. A. and Meijers, M. H. C. (2011). Social benefits of luxury brands as costly signals of wealth and status. *Evolution and Human Behavior*, 32(5):343–355.

Ridgeway, C. (1991). The social construction of status value: Gender and other nominal characteristics. *Social Forces*, 70(2):367–386.

Rockenbach, B., Tonke, S., and Weiss, A. R. (2021). Self-serving behavior of the rich causes contagion effects among the poor. *Journal of Economic Behavior & Organization*, 183:289–300.

Shariff, A. F., Tracy, J. L., and Markusoff, J. L. (2012). (Implicitly) Judging a Book by Its Cover: The Power of Pride and Shame Expressions in Shaping Judgments of Social Status. *Personality and Social Psychology Bulletin*, 38(9):1178–1193.

Smith, J. M. (1982). *Evolution now: A century after Darwin*. Freeman.

Stewart, P. A. and Moore Jr, J. C. (1992). Wage disparities and performance expectations. *Social Psychology Quarterly*, pages 78–85.

Walker, L. S. (2015). Social influence. In *The Blackwell Encyclopedia of Sociology.* G. Ritzer (Ed.).

Witkower, Z., Tracy, J. L., Cheng, J. T., and Henrich, J. (2020). Two Signals of Social Rank: Prestige and Dominance Are Associated With Distinct Nonverbal Displays. *Journal of Personality and Social Psychology*, 118(1):32.