NBER WORKING PAPER SERIES

FEELING RICH OR LOOKING RICH?
QUANTIFYING SELF-IMAGE AND SOCIAL-IMAGE MOTIVES

Nicolas L. Bottan
Ricardo Perez-Truglia
Hitoshi Shigeoka
Katsunori Yamada

Working Paper 34094
http://www.nber.org/papers/w34094

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
August 2025

Yamada acknowledges financial support from Japan Society for the Promotion of Science (20H01479, 24KK0034). This project was reviewed and approved in advance by the Institutional Review Boards at Kindai University (#ZAI3102) and Cornell University (#IRB0010103). After the study is accepted for publication, we will share all the code and data through a public repository. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research.

NBER working papers are circulated for discussion and comment purposes. They have not been peer-reviewed or been subject to the review by the NBER Board of Directors that accompanies official NBER publications.

Feeling Rich or Looking Rich? Quantifying Self-Image and Social-Image Motives
Nicolas L. Bottan, Ricardo Perez-Truglia, Hitoshi Shigeoka, and Katsunori Yamada
NBER Working Paper No. 34094
August 2025
JEL No. C9, Z13

ABSTRACT

Preferences for status are typically attributed to two distinct channels: self-image, in which individuals derive utility from being richer than others, and social-image, in which individuals value being seen as richer by others. While both channels are believed to be at play, little is known about their relative importance. We address this gap using a hypothetical discrete choice experiment. Our findings indicate that self-image is at most 19.3% as important as social-image. Additionally, we document substantial heterogeneity in the strength of these preferences across individuals and domains.

Nicolas L. Bottan
Cornell University
nicolas.bottan@cornell.edu

Ricardo Perez-Truglia
University of California, Los Angeles
and NBER
ricardotruglia@gmail.com

Hitoshi Shigeoka
Simon Fraser University
and University of Tokyo
and IZA
and also NBER
hitoshi.shigeoka@gmail.com

Katsunori Yamada
Kindai University
kyamada@kindai.ac.jp

"I was ashamed of myself when I realized that life was a costume party, and I attended with my real face."

—Attributed to Franz Kafka

1 Introduction

There is substantial evidence that individuals care not only about their absolute income but also about how it compares to the income of others. For example, beyond the level of absolute income, an individual's well-being tends to decline as the average income of their neighbors rises (e.g., Clark and Oswald, 1996; Senik, 2004; Luttmer, 2005; Perez-Truglia, 2020). Revealed-preference evidence supports this idea as well. Individuals, for instance, are more likely to relocate to areas with lower average income (Bottan and Perez-Truglia, 2022), and they demand status goods to signal high income to their peers (Bursztyn et al., 2017).[1]

Preferences for relative income are typically attributed to two distinct channels: self-image and social-image. The self-image channel suggests that individuals derive utility from simply knowing they are richer than others, even if no one else is aware. For example, people may experience psychological satisfaction from privately reflecting on their superior economic standing. In contrast, the social-image channel holds that individuals value being richer than others only to the extent that others are aware of it. They may gain psychological utility from believing that friends or neighbors recognize their wealth, and they may also benefit for instrumental reasons—for instance, being seen as wealthy may lead others to treat them more favorably. While there is some evidence that both self-image and social-image play a role, little is known about their relative importance. Our study aims to fill this gap in the literature.

We build on a literature that uses hypothetical discrete choice experiments to study positional externalities (Solnick and Hemenway, 1998; Johansson-Stenman et al., 2002; Yamada and Sato, 2013; Clark et al., 2017; Shigeoka and Yamada, 2019). In a nutshell, individuals are typically asked to choose between two options that trade off their own absolute income and the average income of their peers. Participants are reminded that all other factors—such as prices for goods and services—remain constant. According to status preferences, individuals may be willing to sacrifice some absolute income to reduce the average income of their peers, because that would improving their relative standing.

In these standard experiments, preferences for relative income can reflect either self-image or social-image concerns. We extend the experimental design to disentangle these

[1] Social comparisons extend to many other domains. For example, in the workplace, employees are dissatisfied when they are paid less than their peers (e.g., Card et al., 2012; Cullen and Perez-Truglia, 2022).

two channels quantitatively. Specifically, we introduce an additional feature: how peers perceive the individual's income. Intuitively, the self-image channel predicts that individuals care about improving their actual relative standing. In contrast, the social-image channel predicts that, holding actual relative income constant, individuals are better off when their income is perceived as higher by their peers.

To illustrate this intuition, consider a scenario in which you must choose between two options, A and B. In both, the average peer income is held constant at \$200,000. In option A, your actual income is \$100,000, and this is accurately perceived by others. In option B, your income is \$90,000, but others believe you earn \$120,000. The cost of option B is a \$10,000 drop in actual income. On the other hand, option B offers a \$20,000 improvement in socially perceived income. Choosing option B over A would reveal that you value a 20% increase in social-image by at least \$10,000.

We designed variants of the experiment. One concern with the hypothetical nature of the discrete choice experiments is that subjects may want to conceal their true preferences (Edwards, 1957). Take for example the previous choice between \$10,000 or a 20% increase in social-image. By choosing the latter you may come off as vain. To address this social desirability bias, we apply the methodology from Krupka and Weber (2013). Rather than asking participants about their personal choices, respondents are tasked with predicting the majority's choice and are rewarded monetarily for accurate predictions. This methodology potentially mitigates social desirability bias in two significant ways. First, by not explicitly asking about their personal preferences, participants may feel more comfortable reporting choices that could be viewed as socially undesirable. Second, the incentive for accurate guessing may incentivize individuals to think more carefully about their choices.[2]

Self-image and social-image concerns can vary substantially across individuals. Some people may care most about actually being richer than others, while others may place greater importance on being perceived as rich—and some may not care about either. In our experiment, each participant makes up to five distinct choices. We leverage this within-individual variation to non-parametrically estimate heterogeneity in preferences.

In addition to varying across individuals, preferences may vary across domains. For example, an individual may not care about being perceived as rich but may care deeply about being perceived as intelligent. To explore such variation, we designed additional experiments in which participants make similar trade-offs, but involving outcomes other than income. In one variant, individuals choose between options that differ in school grades—specifically, their own absolute grade, the average peer grade, and how their grade is perceived by others.

[2] Johansson-Stenman et al. (2002) employed an alternative approach to mitigate social desirability bias by asking respondents about their grandparents' preferences instead of their own.

In another variant, we focus on car safety—namely, the car's absolute safety, the average car safety, and how safe it is perceived to be by peers.

We conducted experiments with 4,934 subjects from the United States, recruited through Dynata. The sample was drawn to be representative of the U.S. population by gender and age. Each subject made choices in up to five scenarios, for a total of 23,334 total choices.

We begin by summarizing results from our preferred specification, based on incentivized choices. Consistent with self-image and social-image channels, individuals prefer to live in a society in which the average peer income is lower. Specifically, individuals are willing to sacrifice 0.164% of their own income in order to lower average peer income by 1%. Regarding the social-image channel, individuals prefer that others perceive them as richer. Specifically, they are willing to sacrifice 0.259% of their own income to increase their socially perceived income by 1%. Moreover, embedding the estimates from the discrete-choice experiment into a simple model of self-image and social-image, we can decompose the roles of these two channels quantitatively. While the point estimate suggests that only social image matters, the corresponding 90% confidence interval indicates that self-image is at most 19.3% as important as social image.

The average preferences described above mask substantial heterogeneity—both in the self-image and social-image channels. Take the self-image channel, for example. On average, participants are willing to give up some of their own income to reduce the average income of their peers. However, once we allow for heterogeneity in preferences, a more nuanced picture emerges: while some participants are indeed willing to sacrifice income to reduce peer income, the remaining are willing to do the opposite—they are willing to give up some of their income to increase the average peer income. Our preferred interpretation is that individuals weigh competing considerations when evaluating peer income. On one hand, a lower peer income may improve one's relative standing, consistent with the idea of a stronger self-image. On the other hand, a lower peer income may be undesirable if it leads to negative externalities, such as diminished public goods or community resources (Clark et al., 2009). Individuals who are more concerned with relative status prefer a lower average peer income, whereas those more concerned with public good provision prefer a higher peer income.

Similarly, we find substantial heterogeneity in preferences related to the social-image channel. While a majority of individuals prefer a higher socially perceived income, the strength of this preference varies considerably across individuals, and a minority exhibit the opposite preference. Our preferred interpretation is that some individuals may perceive greater downsides to being seen as wealthy—for example, others might ask them for financial help, treat them poorly out of jealousy, or even target them for crime.

Another important finding is that the results depend critically on whether choices are

incentivized. The results discussed above are based on our preferred model, which uses incentivized responses. The most notable difference is that when responses are not incentivized, one of the preference parameters reverses sign: on average, participants prefer to be perceived as poorer. We interpret this behavior as evidence of social desirability bias, rooted in a taboo against being vain or pretending to be richer than one is (Bénabou and Tirole, 2006). Indeed, this interpretation aligns with evidence from Johansson-Stenman and Martinsson (2006), which shows that most respondents report their own concern for status as minor compared to the status concerns they attribute to others. Our results thus illustrate the importance of incentivizing choices when studying social comparisons.

When we look at other domains besides income, we find consistent evidence that social-image concerns are stronger than self-image concerns. We find that individuals prefer their grades to be perceived as higher by others, providing evidence of social-image concerns. However, contrary to the self-image channel, participants preferred to live in a society where peers are *actually* getting better grades. This finding suggests that, while individuals may value feeling smarter than their peers, this preference is outweighed by the positive spillovers of living in a more educated society. We find similar results in a third domain—car safety—where we observe significant social-image preferences but no evidence of self-image concerns. While the direction of preferences for social-image and self-image is consistent across domains, their magnitudes differ substantially. Specifically, social-image concerns are strongest for academic achievement, followed by income, and are weakest for car safety.

This study relates to and contributes to the literature on positional concerns and relative income preferences. The existing evidence spans a variety of methodologies and contexts, including hypothetical discrete choice experiments (e.g., Solnick and Hemenway, 1998), analyses of subjective well-being data (Luttmer, 2005; Perez-Truglia, 2020), salary comparisons in the workplace (Card et al., 2012; Cullen and Perez-Truglia, 2022), location choices (Bottan and Perez-Truglia, 2022), and the demand for status goods (Bursztyn et al., 2017). Despite the prominence of self-image and social-image in the literature, there is limited empirical evidence on their relative importance. For example, studies showing that higher peer income reduces happiness (e.g., Luttmer, 2005) are often interpreted as reflecting both channels, but identification challenges prevent a quantitative decomposition between social-image and self-image channels. Our contribution to this body of work is straightforward: we provide a quantitative comparison between the self-image and social-image channels.

Although there is no quantitative decomposition of the two channels, numerous studies have isolated either self-image or social-image in specific settings. For instance, Cullen and Perez-Truglia (2022) examine self-image in the workplace by informing individuals about the average salaries of their coworkers without disclosing their own. In contrast, Bursztyn et al.

(2017) study the demand for premium credit cards, showing that individuals are willing to pay for cards that signal exclusivity to their acquaintances.[3] A key limitation of this literature is that, by isolating a single channel within a specific setting, it does not allow for a direct comparison between self-image and social-image.

The advantage of our approach—discrete choice experiments—is that it enables a direct quantitative comparison between the self-image and social-image channels. It also allows for straightforward comparisons across domains, such as income versus academic performance. However, this approach has limitations. For instance, relying on hypothetical choices makes it susceptible to biases like social desirability bias. Indeed, we provide evidence that such biases can be substantial in practice and show that, while survey incentives may not eliminate them entirely, they can help mitigate their impact.

The remainder of the paper proceeds as follows. Section 2 describes the experimental design. Section 3 presents the results. The last section concludes.

2 Survey Experiment

In this section, we describe the design and implementation of our discrete choice experiments. We conducted a total of five experiments, which differ in two key ways: the domain of the outcome—such as income or GPA—and whether the choices were incentivized or not. To keep the exposition clear, we begin by describing one experiment that focuses on income and uses non-incentivized choices. We then turn to the remaining variations.

2.1 Non-Incentivized Choices over Income

Screenshots of the full instrument are provided in Appendix E.[4] After the consent page and an attention check question, participants are presented with instructions for the main task. We begin by describing each of the three attributes:

1. **Your Income:** *This is your annual disposable individual income. That is, how much money you have at your disposal to spend each year, after deducting taxes.*

2. **Average Country Income:** *This is the average disposable income in your country.*

3. **What others think your income is:** *For reasons outside your control, this is what others think your income is.*

[3] Beyond income perceptions, several studies also explore broader forms of social signaling, such as whether individuals signal generosity (e.g., Butera et al., 2022).

[4] To conserve space, the screenshots for the other four experiments are available at: https://osf.io/u4m7r/.

Participants are instructed that these three attributes are the only differences across options—that is, all goods and services have the same prices, they work in the same occupation, and for the same number of hours, etc. We emphasize this point to rule out alternative explanations for preferences over average peer income. For example, participants might otherwise infer that higher peer income implies higher prices or a less desirable occupation. By explicitly holding these factors constant, we aim to shut down these alternative factors.

Participants are shown an example of the choice environment. A sample scenario is shown in Figure 1.[5] Each scenario presents a simple table summarizing the values of the three attributes for each of two options. To reinforce that the only differences lie in the three attributes, we include the following reminder at the top of each scenario: "Reminder: Everything else, such as the price of goods and services, is exactly the same between the two situations."

After providing the instructions, we ask three questions to assess participants' understanding of the core aspects of the experiment.[6] Participants are then informed whether they answered each question correctly. For any incorrect responses, they receive a detailed explanation. At the end of the survey, we included a brief set of questions on basic demographics, household income and survey comprehension.

Each participant is shown a random subset of five out of 25 possible scenarios. Following Louviere et al. (2000), those scenarios are created with orthogonal design planning—this efficiently pairs multi-dimensional and multi-level attributes to create an experimental plan that maximizes informational value while minimizing the number of observations required. In our case, as we consider three attributes and five levels each, there are 125 ($= 5^3$) possible combinations. 25 out of the 125 combinations are selected by SPSS version 24.0. Appendix B presents the exact combination of attribute values. The levels of attributes were, for income variables, \$10,000, \$17,000, \$25,000, \$40,000 and \$60,000.[7] Following Shigeoka and Yamada (2019), we chose these values to roughly mirror the quintiles of the U.S. individual income distribution of the Current Population Survey 2013.

Following best practices (Arrow et al., 1993; Haaijer et al., 2001), participants were given the option to choose one of the two presented scenarios or to select "Don't know/Cannot Answer." This option was selected in only 9.59% of all choices, which are dropped from the analysis.

[5] Appendix C presents the choice scenarios from the other experiments (I, III, IV and V).

[6] For example, one of the confirmation questions ask to indicate if the following statement is true or false: "In situations where the country average of income is higher, houses are more expensive." The correct answer is False.

[7] For GPA, the five possible values were 2.0, 2.5, 3.0, 3.5, and 4.0. For car safety, we used ratings of 4.0, 4.2, 4.5, 4.8, and 5.0.

2.2 Incentivizing Choices

One potential limitation is that responses may be influenced by social desirability bias. For example, participants might feel pressure to choose the highest average peer income to appear altruistic or to conceal the extent to which they care about their self-image. Alternatively, they may wish to appear humble by misrepresenting their desire to be seen as wealthy in the eyes of others.

To mitigate social desirability bias, we implemented an incentivized version of the non-incentivized experiment described above. The structure of the survey remained identical, with the only difference being the instructions provided to participants at the start of each scenario. Following the methodology proposed by Krupka and Weber (2013), we incentivized responses by asking participants to predict the choices that others would make, rather than asking them directly to report their own preferences. By avoiding direct questions about personal preferences, we reduce the pressure to provide socially desirable answers. In addition, this method introduces a monetary reward for accurate predictions: participants receive a bonus if the option they select matches the mode of the choices made by other participants. This reward structure not only encourages truthful reporting but also motivates participants to pay closer attention to the task. The interpretation of the coefficients from the incentivized version of the experiment relies on the assumption that participants, when predicting others' choices, project their own preferences. The key difference is that in this setting, they feel less pressure to report socially desirable preferences and are therefore more likely to reveal their true inclinations.

2.3 Alternative Domains

We sought to explore whether the strength of self-image and social-image channels varies across different domains. For example, an individual might not care about being perceived as rich but may care deeply about being perceived as intelligent. To investigate this, we designed additional experiments in which participants made similar trade-offs, but with outcomes other than income.

One variant focuses on academic achievement, a domain where the competitive environment may similarly foster both self-image and social-image concerns. In this version, participants trade off between their own absolute Grade Point Average (GPA), the average GPA of their peers, and how their GPA is perceived by others. One potential difference in this domain is that social norms around desirability may shift: while expressing a desire to be richer than others might be socially frowned upon, aspiring to be smarter may not carry the same stigma. To explore that, we included two variations of this experiment, one

with incentivized and one with non-incentivized choices. The final variant of the experiment centers on car safety. Here, participants trade off between the absolute safety of their own car, the average safety of peers' cars, and how safe their car is perceived to be by others.

2.4 Conceptual Framework, Hypotheses and Econometric Model

Let i denote individuals, and let the three attributes be defined as follows: Y_i represents the individual's own absolute income, $\bar{Y}_i$ denotes the average income in i's society, and $\hat{Y}_i$ reflects how the individual i's income is perceived by others in the society. By leveraging the structure of the choice experiments described above, we estimate a simple conditional logit model based solely on the three attributes in the discrete choice framework:[8]

$$U_i = \alpha_Y \cdot log(Y_i) + \alpha_{\bar{Y}} \cdot log(\bar{Y}_i) + \alpha_{\hat{Y}} \cdot log(\hat{Y}_i), \tag{1}$$

The parameter α_Y captures how much the individual values having a higher personal income. The parameter $\alpha_{\bar{Y}}$ reflects how the individual feels about a higher average income in society. This is the attribute that was studied extensively in prior studies (Clark and Oswald, 1996; Clark et al., 2008). According to self-image and social-image models, we expect a negative value of $\alpha_{\bar{Y}}$, because a higher average income worsens their relative standing (both the actual one, and the one perceived by others). Finally, the parameter $\alpha_{\hat{Y}}$ captures whether the individual values being perceived as richer by others, which is central to the social-image channel. This last attribute, which has not been included in other studies, allows us to distinguish social-image from self-image. The social-image channel predict that $\alpha_{\hat{Y}}$ should be positive, as higher perceived income improves social-esteem. Again, one caveat to keep in mind is that there may be other channels at play, beyond social-image, that operate in the opposite direction. For example, individuals may have an incentive to lower their perceived income to reduce the likelihood of being asked for money or becoming a target of crime.

The above models assume homogeneous preferences. To account for preference heterogeneity across individuals, we then use a mixed logit (random coefficients) model, which exploits the within-subject variation arising from multiple choices per individual. This mixed logit model, together with Bayesian reverse formula, allows us to recover individual-level preference parameters (Train, 2009).

Last but not least, to decompose the roles of social-image and self-image more quantitatively, we need an explicit model of how these two channels operate. Denote i's true relative income as $\frac{Y_i}{\bar{Y}_i}$ and his or her socially perceived relative income as $\frac{\hat{Y}_i}{\bar{Y}_i}$. Individual i's utility is assumed as follows:

[8] For more details about the econometric specification a la Train (2009), see Appendix A.

$$U_i = \beta_Y \cdot log\left(Y_i\right) + \beta_{Y/\bar{Y}} \cdot log\left(\frac{Y_i}{\bar{Y}_i}\right) + \beta_{\hat{Y}/\bar{Y}} \cdot log\left(\frac{\hat{Y}_i}{\bar{Y}_i}\right) \tag{2}$$

There is a simple equivalency between the models (1) and (2). We can obtain the parameters from model (2) as linear combinations of the parameters from model (1): $\beta_Y = \alpha_Y + \alpha_{\bar{Y}} + \alpha_{\hat{Y}}$, $\beta_{Y/\bar{Y}} = -\alpha_{\bar{Y}} - \alpha_{\hat{Y}}$ and $\beta_{\hat{Y}/\bar{Y}} = \alpha_{\hat{Y}}$. Note that the parameter $\alpha_{\hat{Y}}$ uniquely identifies the social-image channel. When one lowers average peer income, this improves both the self- and social-relative income, which is the reason for the adjustment $\beta_{Y/\bar{Y}} = -\alpha_{\bar{Y}} - \alpha_{\hat{Y}}$. Finally, an increase in one's income has two effects, one is that consumption goes up but the other one is that one's true relative income goes up as well. This is the reason for the adjustment $\beta_Y = \alpha_Y + \alpha_{\bar{Y}} + \alpha_{\hat{Y}} = \alpha_Y - \beta_{Y/\bar{Y}}$.

We expect a positive β_Y, capturing the fact that individuals with higher absolute income can afford to consume more. While this coefficient is trivial on its own, it is useful for expressing other coefficients in terms of willingness to pay. According to the self-image channel, $\beta_{Y/\bar{Y}}$ should be positive. And according to the social-image channel, $\beta_{\hat{Y}/\bar{Y}}$ should be positive. Moreover, we can combine these three parameters to estimate the willingness to pay for self-image and social-image. The individual would be willing to sacrifice $\frac{\beta_{Y/\bar{Y}}}{\beta_Y}$ of *consumption* to increase their self-image by 1%. And the individual would be willing to sacrifice $\frac{\beta_{\hat{Y}/\bar{Y}}}{\beta_Y}$ of consumption to increase their social-image by 1%.

Lastly, the ratio $\frac{\beta_{Y/\bar{Y}}}{\beta_{\hat{Y}/\bar{Y}}}$ provides a direct comparison between the importance of the self-image and social-image channels. Intuitively, it represents the value of a 1% increase in self-image relative to the value of a 1% increase in social-image.

2.5 Implementation Details

The experiments were conducted between 2021 and 2022. Table 1 summarizes the five experiments, including their domain—income, GPA, or car safety—whether choices were incentivized, when responses were collected, the total number of respondents and some average respondent characteristics. We hired Dynata, Inc to recruit the subjects. We asked the company to target 1,000 participants per experiment. Invitation emails were sent by Dynata to pre-registered individuals aged 18 or older. The company used stratified sampling to recruit a U.S.-representative sample based on gender and age.

The invitation emails included a link to the online survey. Upon entering the survey, participants were informed that it was part of an academic research study. They were told that it would take approximately 8 minutes to complete and were asked for their consent

to continue.[9] Those who agreed were assured that their responses would remain anonymous and that they were free to withdraw at any time. A participation reward of approximately $2 was provided to those who completed the survey. For the incentivized surveys, an additional $2 was paid to participants who provided accurate guesses.

The experiments included 4,934 subjects from the United States, recruited through Dynata. Each subject made choices in up to five scenarios, yielding a total of 23,334 choices. All key metrics indicate strong survey comprehension: 85% of participants passed the attention check, 83% reported understanding the survey completely or almost completely, and 69% answered at least two of the three comprehension questions correctly on their first attempt. In the baseline specification, we include all subjects. However, Appendix D shows that the results are robust when excluding certain subjects, such as those who did not pass the attention check.

3 Results

3.1 Main Results

We start by describing the results for Experiment I, which focuses on income as the domain and includes incentivized choices—which is our preferred specification. The results from the conditional logit model are reported in Table 2. Column (1) presents the results for Experiment I. The coefficient α_Y reflects the preference for (log) own absolute income. As expected, this coefficient is positive and significant, providing a useful sanity check: individuals prefer to be richer.

The coefficient $\alpha_{\bar{Y}}$ captures the preferences for (log) average peer income. This coefficient is negative, meaning that, ceteris paribus, individuals prefer to live in a society where their peers earn less. This coefficient is not only statistically significant, but significant in magnitude too: the ratio $\frac{\alpha_{\bar{Y}}}{\alpha_Y} = \frac{0.097}{0.590} = 0.164$ (p-value=0.017) suggests that participants are on average willing to give up 0.164% of their own income to reduce the average peer income by 1%.[10]

The coefficient $\alpha_{\hat{Y}}$ captures the preference for the socially perceived income. As predicted by the social-image channel, this coefficient is positive and statistically significant. This coefficient is significant in magnitude too: the ratio $\frac{\alpha_{\hat{Y}}}{\alpha_Y} = \frac{0.153}{0.590} = 0.259$ (p-value<0.001) suggests that participants are on average willing to give up 0.259% of their true income to increase their socially perceived income by 1%.

[9] The average completion time was 6.15 minutes.

[10] Here and elsewhere, whenever we present results involving combinations of raw parameters from the conditional logit model, the corresponding p-values are calculated using the Delta method.

Next, we use the model from equation (2) to provide a more direct quantification of the self-image and social-image channels. The resulting parameters are $\beta_Y = 0.645$ (p-value<0.001), $\beta_{Y/\bar{Y}} = -0.055$ (p-value=0.370), and $\beta_{\hat{Y}/\bar{Y}} = 0.153$ (p-value<0.001). β_Y is positive and significant, as expected. $\beta_{\hat{Y}/\bar{Y}}$ is positive and significant too, indicating that the social-image channel is at play. The ratio $\frac{\beta_{\hat{Y}/\bar{Y}}}{\beta_Y} = \frac{0.153}{0.645} = 0.237$ (p-value<0.000) indicates that on average individuals would give up 0.237% of their own consumption in order to improve their social-image by 1%. By contrast, the coefficient $\beta_{Y/\bar{Y}}$ is close to zero and statistically insignificant, indicating that the self-image channel is insignificant.

Lastly, the ratio $\frac{\beta_{Y/\bar{Y}}}{\beta_{\hat{Y}/\bar{Y}}}$ provides a comparison between the importance of the self-image and social-image channels. This ratio is statistically insignificant (p-value = 0.283), meaning we cannot reject the null hypothesis that self-image is not at play. However, given the imprecision of the estimate, we use the 90% confidence interval to derive an upper bound on the potential importance of self-image relative to social-image. The upper bound is 0.193, implying that a 1% increase in self-image is worth at most 19.3% as much as a 1% increase in social-image. In other words, self-image is at most 19.3% as important as social-image.

3.2 Heterogeneity across Individuals

The above model is estimated under the assumption that preferences are homogeneous. To assess the scope for preference heterogeneity, we present the results from the mixed logit model.[11] The regression results are presented in Table D.6 in the Appendix, where column (1) corresponds to Experiment I. For a more intuitive interpretation of the results, Figure 2 presents histograms showing the distribution of individual-level parameters, obtained through the Bayesian reverse formula. Each panel corresponds to a different parameter. Panel A corresponds to α_Y.[12] In turn, Panel B shows that there is considerable heterogeneity in parameter $\alpha_{\bar{Y}}$. While on average this coefficient is negative, the sign goes in different direction for different individuals: it is negative for 58.6% of participants—who prefer a *lower* average peer income—and positive for the remaining 41.4%—who prefer a *higher* average peer income. Our preferred interpretation is that individuals weigh competing considerations when evaluating peer income. On one hand, a lower peer income may improve one's relative standing, consistent with the idea of a positional externality and a stronger self-image. On the other hand, a lower peer income may be undesirable if it leads to negative externalities, such as diminished public goods or community resources (Clark et al., 2009). As a result, a specific

[11] We also conducted robustness checks following the approach of Maestas et al. (2023). The results are presented in Appendix D.

[12] Given that everyone is expected to prefer higher income, the coefficients on own income are estimated assuming a truncated normal distribution. For that reason, the corresponding coefficients are positive for all respondents by construction.

individual will have a positive or a negative coefficient depending on whether the dominant channels push in one or the other direction.

Panel C shows the distribution of parameter $\alpha_{\hat{Y}}$. There is also substantial variation across individuals in this parameter. In this case, the distribution is more skewed, with a strong majority (68.9%) of coefficients being positive—individuals who prefer to be perceived as richer—and a minority (31.1%) with negative coefficients—who prefer to be perceived as less rich.

One direct implication of the heterogeneous preferences is that, while statements about average preferences can help summarize the results, they can also be misleading. For example, although individuals may care more about social-image than self-image on average, it is likely that some care more about one, while others care more about the other.

3.3 Non-Incentivized Choices

Next, we discuss the results from Experiment II, reported in column (2) of Table 2. Like Experiment I (from column (1)), Experiment II studies the domain of income, but with the difference that it does not employ the incentivized method. The coefficient α_Y is positive and significant in both columns (1) and (2). The coefficient $\alpha_{\bar{Y}}$ is close in magnitude between columns (1) and (2), -0.097 vs. -0.063, although while the first one is statistically significant the second one is not. The main difference is, however, regarding parameter $\alpha_{\hat{Y}}$, which captures the social-image channel. While in the incentivized experiment the coefficient is positive and significant (0.153, from column (1)), in the non-incentivized experiment the coefficient is negative and significant (-0.145, from column (2)).

In other words, while in the incentivized experiment individuals prefer to be socially perceived as *richer*, in the non-incentivized experiment individuals prefer to be socially perceived as *poorer*. This difference is suggestive evidence of social desirability bias, rooted in a taboo against being vain or pretending to be richer than one is (Bénabou and Tirole, 2006). When directly asked about their personal preferences, individuals may be hesitant to admit a desire to be seen as richer—on the contrary, they may want to be perceived as humble. In contrast, in the incentivized version of the experiment, participants are not being asked directly about themselves, thus removing the social desirability bias. This result illustrates the importance of incentivizing choices when studying social comparisons.

3.4 Other Domains

The results discussed above pertain to the domain of income. Next, we present the results pertaining the domain of academic achievement (Experiments III for the incentivized version

and IV for the non-incentivized version) and car safety (Experiment V, non-incentivized). Just like in the case of income, in these other domains we find consistent evidence of strong social-image concerns but no evidence of self-image concerns. More precisely, while self-image concerns may be at play, we find that they are entirely overridden by other channels operating in the opposite direction.

We begin with academic achievement. The results from Experiment III are shown in column (3) of Table 2.[13] The coefficient α_Y means that individuals prefer to have higher grades for themselves, as one would expect. The parameter $\alpha_{\hat{Y}}$ is positive and significant, meaning that social-image concerns are at play: i.e., individuals prefer to be seen as having a higher GPA. This coefficient is not only statistically significant, but also large in magnitude: individuals are willing to sacrifice 0.947 points ($= \frac{0.359}{0.379}$) in their actual GPA to increase their socially perceived GPA by 1 point. We can compare this to the income domain. According to column (1), individuals are on average willing to give up 0.259% of their true income to increase their socially perceived income by 1%. So, social-image concerns are much stronger in the academic domain than in the income domain.

Column (3) of Table 2 shows an estimate of $\alpha_{\bar{Y}}$ that is positive (0.163) and statistically significant. That is, contrary to the self-image channel, participants prefer a society where peers have higher grades. This finding suggests that, while individuals may value feeling smarter than their peers due to self-esteem, this preference is outweighed by the positive spillovers of living in a more educated society.

Columns (4) of Table 2 presents the results for Experiment IV, which is identical to column (3) except that the choices were not incentivized. The coefficients are qualitatively consistent between these two columns. In other words, the results for academic outcomes are similar regardless of whether the choices are incentivized or not. We interpret this as evidence that social desirability bias may be less pronounced in the academic domain than in the income domain. That is, while individuals may be afraid to reveal that they enjoy being seen as richer, they have no problem revealing that they enjoy being seen as smarter than others.

In Experiment V, we shifted our focus to yet another domain: car safety. The results are presented in column (5) of Table 2.[14] The coefficient α_Y is positive and significant, meaning that individuals prefer to have safer cars. As in the academic domain, individuals expressed a preference for living in a society with the average peer safety is higher. Our preferred interpretation is that the positive externalities channel (from living in a society

[13] For the two domains of GPA and Car Safety, we estimate conditional logit models with the raw attribute levels rather than the logarithms that we applied for the case of income domain. However, Table D.1 shows that the results are qualitatively similar when using a log specification instead.

[14] Due to budget constraints, we conducted only the non-incentivized version of this experiment.

where other people drive safe cars) dominates. And in line with social-image concerns, the parameter $\alpha_{\hat{Y}}$ is positive and significant, implying that individuals want others to perceive them as driving safer cars. However, in terms of magnitude, the demand for social-image is somewhat weaker in the domain of car safety—where individuals are willing to sacrifice 0.137 points of their own safety for a 1-point increase in their socially-perceived safety—than in the income domain, where they are willing to give up 0.259% of their true income for a 1% increase in their socially-perceived income.

4 Conclusions

This paper contributes to the literature on status preferences by disentangling and quantifying two key mechanisms: self-image and social-image. Using a novel extension of standard discrete choice experiments, we show that in the income domain, the self-image channel is at most 19.3% as important as the social-image channel. This greater importance of social-image holds not only for income but also in other domains, such as academic performance and car safety. We also document substantial heterogeneity in preferences: while most individuals prefer to be seen as wealthier, a significant minority prefer to be perceived as less well-off, potentially due to concerns about envy, unwanted attention, or being asked for financial help.

In addition to these substantive findings, our study offers methodological contributions. We develop an experimental design that allows for a clean separation between self-image and social-image motives. Moreover, we show that social desirability bias can significantly distort stated preferences—particularly in the income domain—and that incentivized survey designs can help mitigate this bias by eliciting more truthful responses.

References

Arrow, K., R. Solow, P. R. Portney, E. E. Leamer, R. Radner, and H. Schuman (1993). Report of the noaa panel on contingent valuation. Technical report, National Oceanic and Atmospheric Administration.

Bénabou, R. and J. Tirole (2006). Incentives and prosocial behavior. *The American Economic Review 96*(5), 1652–1678.

Bottan, N. L. and R. Perez-Truglia (2022). Choosing your pond: location choices and relative income. *Review of Economics and Statistics 104*(5), 1010–1027.

Bursztyn, L., B. Ferman, S. Fiorin, M. Kanz, and G. Rao (2017). Status goods: Experimental

evidence from platinum credit cards. *The Quarterly Journal of Economics 133*(3), 1561–1595.

Butera, L., R. Metcalfe, W. Morrison, and D. Taubinsky (2022). Measuring the welfare effects of shame and pride. *American Economic Review 112*(1), 122–68.

Card, D., A. Mas, E. Moretti, and E. Saez (2012). Inequality at work: The effect of peer salaries on job satisfaction. *American Economic Review 102*(6), 2981–3003.

Clark, A., C. Senik, and K. Yamada (2017). When experienced and decision utility concur: The case of income comparisons. *Journal of Behavioral and Experimental Economics 70*, 1 – 9.

Clark, A. E., P. Frijters, and M. A. Shields (2008). Relative Income, Happiness, and Utility: An Explanation for the Easterlin Paradox and Other Puzzles. *Journal of Economic Literature 46*(1), 95–144.

Clark, A. E., N. Kristensen, and N. Westergard-Nielsen (2009). Economic Satisfaction and Income Rank in Small Neighbourhoods. *Journal of the European Economic Association 7*(2-3), 519–527.

Clark, A. E. and A. J. Oswald (1996). Satisfaction and comparison income. *Journal of Public Economics 61*(3), 359–381.

Cullen, Z. and R. Perez-Truglia (2022). How Much Does Your Boss Make? The Effects of Salary Comparisons. *Journal of Political Economy 30*(3), 766–822.

Edwards, A. L. (1957). *The Social Desirability Variable in Personality Assessment and Research*. New York: Dryden Press.

Haaijer, R., W. Kamakura, and M. Wedel (2001). Mixed logit with repeated choices: Households' choices of appliance efficiency level. *International Journal of Market Research 43*(1), 93–106.

Johansson-Stenman, O., F. Carlsson, and D. Daruvala (2002). Measuring future grandparents' preferences for equality and relative standing. *The Economic Journal 112*(479), 362–383.

Johansson-Stenman, O. and P. Martinsson (2006). Honestly, why are you driving a bmw? *Journal of Economic Behavior & Organization 60*(2), 129–146.

Krupka, E. L. and R. A. Weber (2013). Identifying social norms using coordination games: Why does dictator game sharing vary? *Journal of the European Economic Association 11*(3), 495–524.

Louviere, J. J., D. A. Hensher, and J. D. Swait (2000). *Stated Choice Methods: Analysis and Applications*. Cambridge University Press.

Luttmer, E. F. (2005). Neighbors as negatives: relative earnings and well-being. *The Quarterly Journal of Economics 120*(3), 963–1002.

Maestas, N., K. J. Mullen, D. Powell, T. von Wachter, and J. B. Wenger (2023). The Value of Working Conditions in the United States and the Implications for the Structure of Wages. *American Economic Review 113*(7), 2007–2047.

McFadden, D. (1974). *Conditional Logit Analysis of Qualitative Choice Behavior in P. Zarembka (ed.) Frontiers in Econometrics*. Academic Press.

Perez-Truglia, R. (2020). The Effects of Income Transparency on Well-Being: Evidence from a Natural Experiment. *American Economic Review 110*, 1019–54.

Senik, C. (2004). When information dominates comparison: Learning from russian subjective panel data. *Journal of Public Economics 88*(9), 2099–2123.

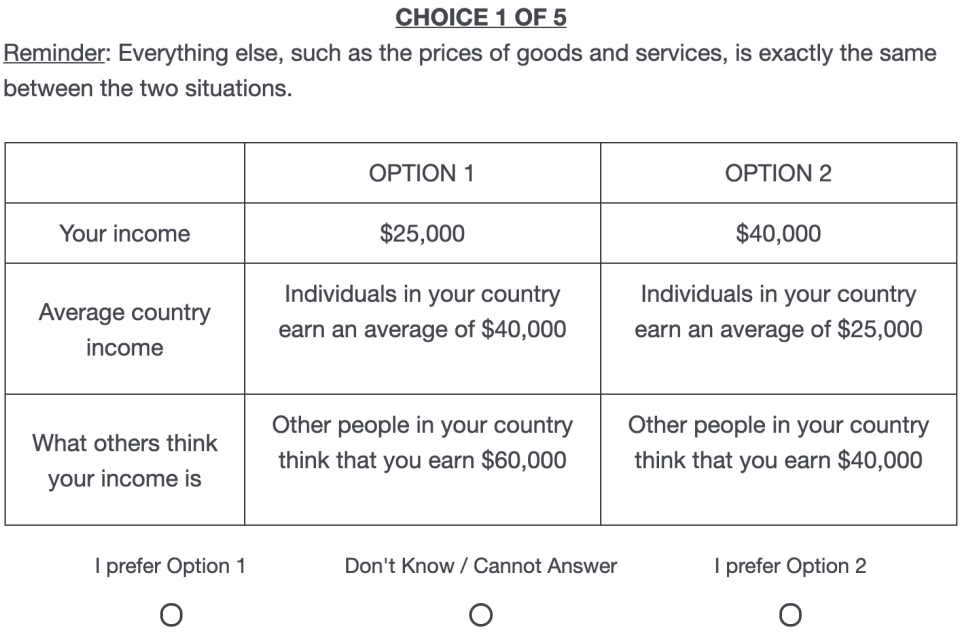
Shigeoka, H. and K. Yamada (2019). Income-comparison attitudes in the united states and the united kingdom: Evidence from discrete-choice experiments. *Journal of Economic Behavior & Organization 164*, 414–438.

Solnick, S. J. and D. Hemenway (1998). Is more always better? a survey on positional concerns. *Journal of Economic Behavior & Organization 37*(3), 373–383.

Train, K. (2009). *Discrete Choice Methods with Simulation, 2nd edition*. Cambridge University Press, Cambridge.

Yamada, K. and M. Sato (2013). Another avenue for anatomy of income comparisons: Evidence from hypothetical choice experiments. *Journal of Economic Behavior & Organization 89*, 35–57.

Figure 1: Screenshot from a Survey Instrument (Income, non-incentivized)



CHOICE 1 OF 5

Reminder: Everything else, such as the prices of goods and services, is exactly the same between the two situations.

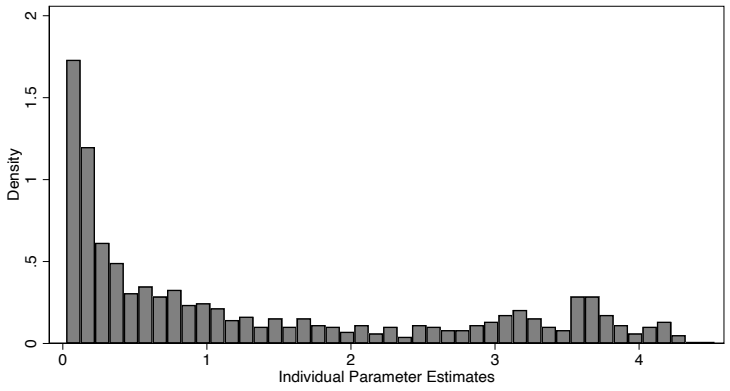
	OPTION 1	OPTION 2
Your income	$25,000	$40,000
Average country income	Individuals in your country earn an average of $40,000	Individuals in your country earn an average of $25,000
What others think your income is	Other people in your country think that you earn $60,000	Other people in your country think that you earn $40,000

I prefer Option 1 | Don't Know / Cannot Answer | I prefer Option 2

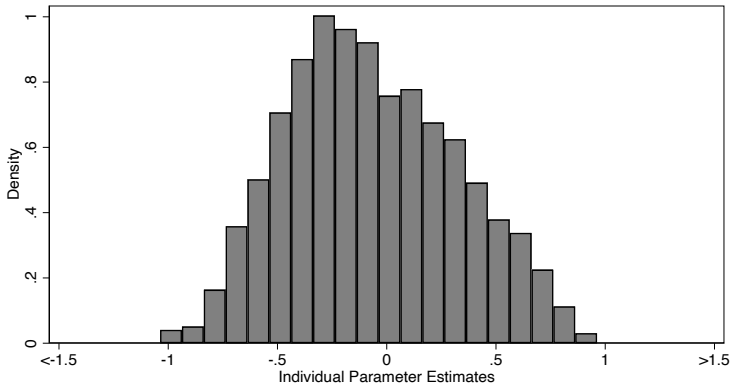
Notes: In the discrete choice experiment format, two options are presented side by side. Respondents are asked to indicate whether they prefer the situation described in Option 1 or Option 2 by clicking the corresponding button. A "don't know" option is also provided for those who are unable to answer or are uncertain.

Figure 2: Experiment I: Distributions of Individual Parameters, Estimated via Mixed Logit

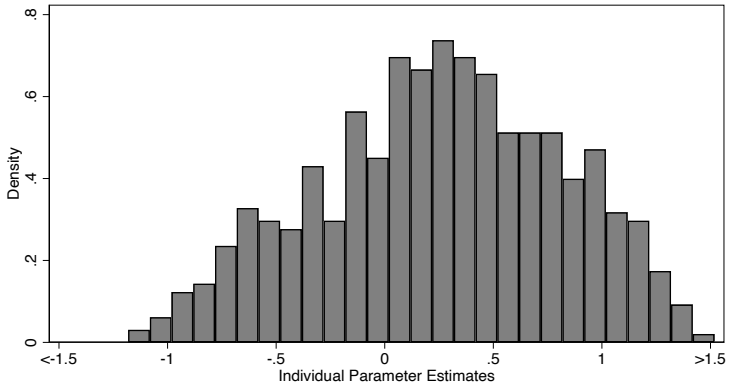
a. α_Y



b. $\alpha_{\bar{Y}}$



c. $\alpha_{\hat{Y}}$



Notes: Individual parameters are estimated with Bayesian reverse formula. For details, see Appendix A. See also Table D.6 in the Appendix for the results of mixed logit estimations.

Table 1: Experiment Variations and Descriptive Statistics

	(1)	(2)	(3)	(4)	(5)	(6)
Average Characteristics:						
Male	0.490	0.504	0.495	0.504	0.478	0.494
	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)
Age	38.822	38.796	39.336	38.624	41.267	39.412
	(11.598)	(12.677)	(11.532)	(11.800)	(12.243)	(12.016)
Pass Attention Check (=1)	0.154	0.121	0.190	0.169	0.123	0.151
	(0.361)	(0.327)	(0.392)	(0.375)	(0.329)	(0.358)
Survey Clear (=1)	0.807	0.864	0.778	0.803	0.905	0.833
	(0.395)	(0.343)	(0.416)	(0.398)	(0.293)	(0.373)
No. Correct Quiz Answers (out of 3)	1.619	1.864	1.614	1.905	2.287	1.866
	(0.706)	(0.747)	(0.680)	(0.693)	(0.802)	(0.771)
Survey Time (minutes)	5.708	7.575	5.607	4.679	7.083	6.145
	(9.564)	(19.341)	(8.242)	(7.461)	(16.682)	(13.254)
	Experiment					
	I	II	III	IV	V	Total
Domain	Income	Income	GPA	GPA	Safety	
Choices Incentivized	Yes	No	Yes	No	No	
Date	Sep/7-22/21	Feb/15-26/21	June/16-27/22	Sep/10-21/21	Feb/23-28/21	
Observations	976	947	979	959	1,073	4,934

Notes: Standard deviations are reported in parentheses. The indicator variable *Attention* equals one if a subject passes a trap question designed to check attentiveness. Similarly, *Clarity* equals one if a subject rates the clarity of our instructions as either 3 or 4 on a four-point Likert scale. The variable *Quiz* equals one if a subject correctly answers at least two out of three comprehension questions on the first attempt. Finally, *Survey Time* is reported in minutes.

Table 2: Conditional Logit Coefficients

	(1)	(2)	(3)	(4)	(5)
α_Y	0.590***	1.233***	0.379***	0.593***	2.212***
	(0.047)	(0.063)	(0.039)	(0.042)	(0.101)
$\alpha_{\bar{Y}}$	-0.097**	-0.063	0.163***	0.095***	0.502***
	(0.041)	(0.049)	(0.035)	(0.036)	(0.072)
$\alpha_{\hat{Y}}$	0.153***	-0.145***	0.359***	0.229***	0.305***
	(0.041)	(0.045)	(0.037)	(0.037)	(0.063)
	Experiment				
	I	II	III	IV	V
Domain	Income	Income	GPA	GPA	Safety
Choices Incentivized	Yes	No	Yes	No	No
Observations	4,710	4,365	4,722	4,568	4,969
Subjects	976	947	979	959	1,073

Notes: Conditional logit estimates of equation (1). α_Y captures the preference for attribute listed in domain (e.g., log own absolute income, own GPA or own car safety). $\alpha_{\bar{Y}}$ captures the preferences for average peer attribute. $\alpha_{\hat{Y}}$ captures the preference for the socially perceived attribute. Robust standard errors clustered by subject in parentheses. Significant at *10%, **5%, ***1%.

Online Appendix (For Online Publication Only)

Feeling Rich or Looking Rich? Quantifying Self-Image and Social-Image Motives

Bottan, Perez-Truglia, Shigeoka & Yamada

July 29, 2025

A Econometric Model

Here, we introduce the econometric methodology using respondents' choice data to estimate image utility. We employ a random utility model (McFadden, 1974). It is assumed that respondents choose an option within a given situation because they obtain higher utility from that option than the other available ones.

Now, we have N respondents who answer $T(\geq 1)$ repeated questions. The utility of respondent n when choosing situation i at question $t \in T$, U_{itn}, consists of observable components of the explanatory variables V_{itn} and un-observable components ϵ_{itn}, so that utility can be viewed as $U_{itn} = V_{itn} + \epsilon_{itn}$. For respondent n, utilities from observable components are assumed to be linear combinations of each variable as $V_{itn} = \sum_{k=1}^{K} \beta_{kn} X_{kit}$, where $k = 1, \cdots, K(K \geq 2)$ represents the variety of explanatory variable, X_{kit} denotes the levels of the kth explanatory variables in situation i at question t, and β_{kn} measures the marginal utility of kth variable for respondent n.

The probability P_{itn} for respondent n choosing situation i from the set of situations S_t (the choice set) in question $t \in T$ can be written as

$$P_{itn} = prob(U_{itn} > U_{jtn}, \forall j \neq i \in S_t) = prob(\epsilon_{jtn} - \epsilon_{itn} < V_{itn} - V_{jtn}, \forall j \neq i \in S_t).$$

We assume that ϵ_{itn} is distributed according to an independent and identical distribution of extreme value type 1 (IIDEV1) with variance σ^2. In this paper, we will consider a case where the independence of irrelevant alternatives (IIA) does not hold for choice questions. As such, we will address the mixed logit model, in addition to the conditional logit model, to analyze our choice data (Train 2009). By doing so, we can introduce variations in preferences among our respondents.

In the following analysis, we consider a vector of marginal utilities of N respondents $(\beta_1, \cdots, \beta_N)$. β_n is drawn from density function in the population $g(\beta|\theta)$ and independently and identically distributed.[15] θ contains characteristics of the distributions. Given the dis-

[15] β_n itself is a vector that contains distributions of marginal utilities of K attributes for respondent n.

tribution of $g(\beta|\theta)$, choice probabilities in mixed logit models can be expressed as

$$P_{itn} = \int L_{itn}(\beta) g(\beta|\theta) d\beta,$$

where L_{itn} is the logit probability evaluated at β which is given as

$$L_{itn}(\beta) = \frac{\exp(\sum_{k=1}^{K} \beta_k X_{kit})}{\sum_{j \in S_t} \exp(\sum_{k=1}^{K} \beta_k X_{kjt})}.$$

The vector of θ that maximizes the log-likelihood function of observed choice patterns by the respondents is the estimator for mixed logit model regressions. Hereafter we omit subscript t for the sake of simplicity.

In our study, we consider the case where $K = 3$. Observable utility V_n for respondent n in this case can be written as

$$V_n = \beta_{1n} X_1 + \beta_{2n} X_2 + \beta_{3n} X_3,$$

where X_1 is own true status, X_2 captures relative comparisons between own's true status and social averages, and X_3 captures one's image from outside.

Throughout our experimental conditions, we suppose that respondents value attribute X_1—own income, own GPA, and own car safety—positively. For this reason, we assume that marginal utility from own status β_{1n} s is a truncated normal distribution restricted to values greater zero. Regarding the marginal utilities from the other components such as β_{2n} and β_{3n}, we assume that their distributions are normal when we address the mixed logit models. When we address conditional logit models to capture the average effects, those distributions of marginal utility degenerate.

In our experiment, respondent n makes a sequence of choices z_n in randomly assigned $T = 5$ questions that contain choice situations x_n.

Using maximum-likelihood estimation with data from all N respondents, we first obtain *prior distribution* of β that contains β_1, β_2, and so forth. Remember that at this point, we just know that there are distributions in the marginal utilities but we have no information at the individual levels. Then we exploit information of individual choices z_n to obtain *posterior* distributions for individual preferences $h(\beta_1|z_n, x_n, \theta)$ and so forth. $h()$ is for the subpopulation of respondents who make a sequence of choices z_n when facing choice situations x_n. θ is a parameter that determines the prior distribution. Using the Bayes' rule, updating the prior distribution of marginal utilities with individual choices z_n lead to the following in

the case of β_1:

$$h(\beta_1|z_n, x_n, \theta) = \frac{P(z_n|x_n, \beta)g(\beta|\theta)}{P(z_n|x_n, \theta)}.$$

Here, $P(z_n|x_n, \beta)$ is the probability of making choices z_n given preferences β, and $P(z_n|x_n, \theta)$ is the probability of making choices z_n conditional on θ. All the quantities on the right hand side of the equation are available. Characteristics of posterior distributions, means and variances, can be obtained via simulations—see Section 11 of Train (2009) for more details about the derivation of conditional distributions.

B Orthogonal Design

With three attributes and five levels each, there are 125 ($= 5^3$) possible combinations for a single scenario. Following Louviere et al. (2000), we employed orthogonal design planning, which efficiently pairs multi-dimensional and multi-level attributes to create an experimental plan that maximizes informational value while minimizing the number of observations required. Specifically, we used SPSS Conjoint (version 24.0) to pick the values for the 25 scenarios.

C Additional Screenshots

Figure C.1 is identical to Figure 1, except that while Figure 1 displays a sample scenario from Experiment II, each panel of Figure C.1 presents the corresponding screenshots for Experiments I, III, IV, and V. Minor aesthetic differences across panels reflect variations in how the surveys were programmed in Qualtrics—some were coded by Dynata, while others were coded by the researchers.

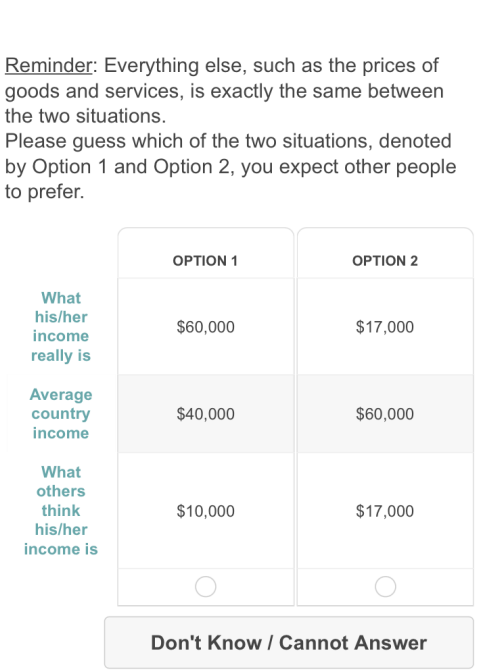
Table B.1: Orthogonal Design of Choice Questions

Qid	**Option 1**			**Option 2**		
	Own Value	Average Peer Value	Socially-Perceived	Own Value	Average Peer Value	Socially-Perceived
1	4	5	4	5	1	2
2	3	1	2	2	2	3
3	2	1	4	3	2	2
4	4	1	5	3	4	3
5	2	4	2	1	2	4
6	1	5	5	3	3	5
7	5	5	2	2	4	4
8	3	3	4	3	1	4
9	3	4	5	4	3	4
10	4	2	1	2	3	1
11	3	2	3	5	2	5
12	2	3	1	4	4	2
13	1	4	4	1	5	3
14	5	2	4	1	1	1
15	1	3	3	3	5	1
16	5	3	5	5	4	1
17	1	1	1	2	1	5
18	4	3	2	4	1	3
19	3	5	1	4	2	1
20	1	2	2	1	4	5
21	4	4	3	1	3	2
22	2	2	5	5	5	4
23	2	5	3	4	5	5
24	5	4	1	2	5	2
25	5	1	3	5	3	3

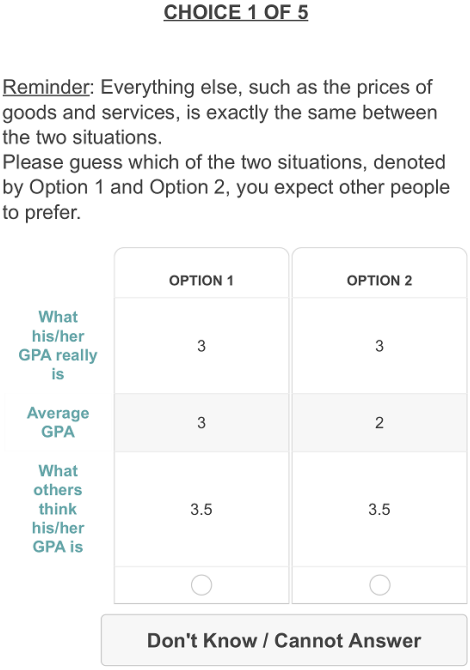
Notes: For the income-related questions, levels 1 through 5 correspond to \$10,000, \$17,000, \$25,000, \$40,000, and \$60,000, respectively. These values were determined based on the quintiles of the U.S. individual income distribution of the Current Population Survey 2013. For car safety, the five levels correspond to scores of 4, 4.2, 4.5, 4.8, and 5. These values were constructed with reference to the typical safety ratings provided by evaluation agencies such as the National Highway Traffic Safety Administration (NHTSA). Finally, for GPA, we adopted values of 2.0, 2.5, 3.0, 3.5, and 4.0 across the five levels.

Figure C.1: Additional Screenshots from the Survey Instrument

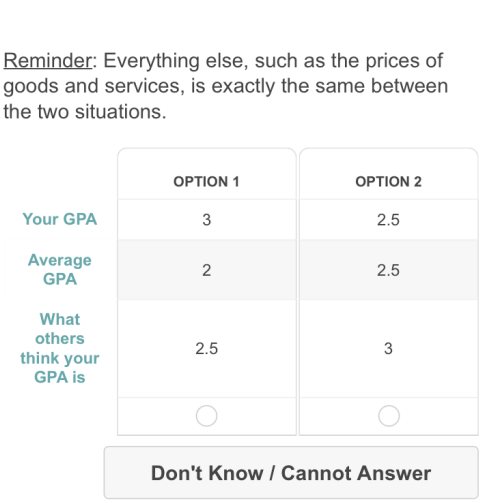
a. Income, incentivized



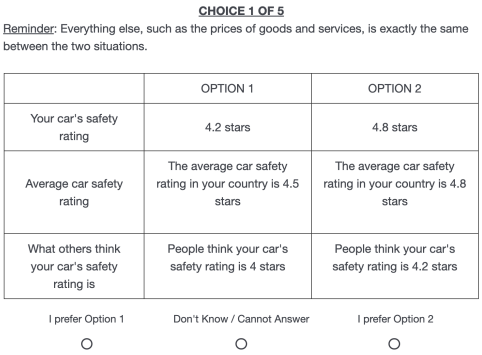
b. GPA, incentivized



c. GPA, non-incentivized



d. Car Safety, non-incentivized



Notes: Each panel of this figure shows the screenshots of one sample scenario in each of the following variations of the experiment: Experiment I (panel (a)), Experiment III (panel (b)), Experiment IV (panel (c)), and Experiment V (panel (d)).

D Robustness Checks

In this section we present numerous robustness checks for our main conditional logit specification. We replicate the analysis presented in Table 2 employing different variable transformations or sub-samples. Overall, our findings remain unaltered when using these different approaches.

Our first robustness check concerns the transformation of variables. In the main analysis, we applied a logarithmic transformation only to the income attribute, while using the attribute in levels for GPA and car safety. In this robustness check, we apply a logarithmic transformation to the GPA and car safety attributes and re-estimate the conditional logit model using these transformed variables. As shown in the Table D.1, the results remain consistent with the main findings.

We also conducted robustness checks following the approach of Maestas et al. (2023), focusing on subjects who demonstrated attentiveness to our survey questions.

Our first check addresses a common concern in survey experiments—namely, that some respondents may not read the questions carefully. To identify inattentive participants, we included a "trap" question designed to flag those who were not reading questions with sufficient attention. Specifically, we included a long question (consisting of 125 words) that simply said to please pick the choice "none of the above" from the list of options. Across the five different conditions, an average of 15.0% of respondents were dropped due to failing the trap question. As shown in Table D.2, the results among the remaining participants remained consistent with our main findings across all five conditions.

Our second robustness check concerns comprehension. Even if respondents pay close attention to the instructions, we may still fail to collect meaningful data if they do not fully understand the content of the choice questions. To address this, we included three comprehension check questions immediately following the instructions for the choice tasks. While we provided feedback to participants who answered incorrectly, we report results based only on those who answered at least two of the three questions correctly on their own. This filtering led to a loss of 31.4% of the original sample. Nonetheless, as shown in Table D.3, the main results remained unchanged.

Our third robustness check addresses the subjective responses of participants. If respondents perceive our instructions as unclear, they may be less willing or able to answer accurately. To assess this, we included a question at the end of the survey asking participants to rate the clarity of the instructions using a four-point Likert scale. We focus on those who rated the instructions as either 3 or 4. This criterion led to a loss of approximately 16.7% of the sample. As shown in Table D.4, the results remain largely consistent with our main

findings.

Our fourth robustness check concerns the time spent completing the survey. Although this criterion was ultimately a subjective decision by the authors, we dropped respondents who completed the survey in less than 3 minutes or more than 30 minutes. As a result, approximately 25% of the responses were dropped. The results, shown in Table D.5, remain largely consistent with the main findings.

Finally, Table D.6 shows results when we analyze our choice data with mixed logit estimations. We assume truncated normal distributions with supports greater than zero for the variables describing the own situations. For the rest of two variables, we assume that they follow normal distributions.

Table D.1: Robustness Check: Conditional Logit Results using log-specification in GPA and Car Safety domains

	(1)	(2)	(3)	(4)	(5)
α_Y	0.590***	1.233***	1.129***	1.741***	9.964***
	(0.047)	(0.063)	(0.114)	(0.125)	(0.450)
$\alpha_{\bar{Y}}$	-0.097**	-0.063	0.482***	0.269**	2.221***
	(0.041)	(0.049)	(0.101)	(0.105)	(0.323)
$\alpha_{\hat{Y}}$	0.153***	-0.145***	1.045***	0.664***	1.362***
	(0.041)	(0.045)	(0.109)	(0.110)	(0.285)
	Experiment				
	I	II	III	IV	V
Domain	Income	Income	GPA	GPA	Safety
Choices Incentivized	Yes	No	Yes	No	No
Observations	4,710	4,365	4,722	4,568	4,969
Subjects	976	947	979	959	1,073

Notes: Conditional logit estimates following the same specification as in Table 2, though using a log transformation for all attributes. α_Y captures the preference for (log) attribute listed in domain (e.g., log own absolute income, log own GPA or log own car safety). $\alpha_{\bar{Y}}$ captures the preferences for (log) average peer attribute. $\alpha_{\hat{Y}}$ captures the preference for the (log) socially perceived attribute. Robust standard errors clustered by subject in parentheses. Significant at *10%, **5%, ***1%.

Table D.2: Robustness Check: Conditional Logit Results Excluding Subjects Who Failed the Attention Check

	(1)	(2)	(3)	(4)	(5)
α_Y	0.703***	1.418***	0.423***	0.647***	2.542***
	(0.053)	(0.072)	(0.044)	(0.048)	(0.115)
$\alpha_{\bar{Y}}$	-0.152***	-0.057	0.183***	0.099**	0.568***
	(0.046)	(0.054)	(0.040)	(0.041)	(0.081)
$\alpha_{\hat{Y}}$	0.153***	-0.176***	0.431***	0.245***	0.368***
	(0.045)	(0.050)	(0.043)	(0.041)	(0.068)
	Experiment				
	I	II	III	IV	V
Domain	Income	Income	GPA	GPA	Safety
Choices Incentivized	Yes	No	Yes	No	No
Observations	3,989	3,842	3,832	3,778	4,378
Subjects	826	832	793	797	941

Notes: Conditional logit estimates following the same specification as in Table 2, restricting sample to respondents correctly answering attention check question. α_Y captures the preference for attribute listed in domain (e.g., log own absolute income, own GPA or own car safety). $\alpha_{\bar{Y}}$ captures the preferences for average peer attribute. $\alpha_{\hat{Y}}$ captures the preference for the socially perceived attribute. Robust standard errors clustered by subject in parentheses. Significant at *10%, **5%, ***1%.

Table D.3: Robustness Check: Conditional Logit Results Excluding Subjects based on Survey Comprehension

	(1)	(2)	(3)	(4)	(5)
α_Y	0.749***	1.398***	0.422***	0.613***	2.471***
	(0.066)	(0.082)	(0.052)	(0.050)	(0.118)
$\alpha_{\bar{Y}}$	-0.186***	-0.081	0.114**	0.127***	0.519***
	(0.058)	(0.061)	(0.047)	(0.043)	(0.082)
$\alpha_{\hat{Y}}$	0.174***	-0.138**	0.348***	0.219***	0.361***
	(0.056)	(0.055)	(0.050)	(0.043)	(0.070)
	Experiment				
	I	II	III	IV	V
Domain	Income	Income	GPA	GPA	Safety
Choices Incentivized	Yes	No	Yes	No	No
Observations	2,655	3,036	2,737	3,404	4,110
Subjects	552	654	569	719	886

Notes: Conditional logit estimates following the same specification as in Table 2, restricting sample to respondents who answered at least two of the three instruction comprehension questions correctly. α_Y captures the preference for attribute listed in domain (e.g., log own absolute income, own GPA or own car safety). $\alpha_{\bar{Y}}$ captures the preferences for average peer attribute. $\alpha_{\hat{Y}}$ captures the preference for the socially perceived attribute. Robust standard errors clustered by subject in parentheses. Significant at *10%, **5%, ***1%.

Table D.4: Robustness Check: Conditional Logit Results Excluding Subjects based on Survey Clarity Ratings

	(1)	(2)	(3)	(4)	(5)
α_Y	0.614***	1.270***	0.397***	0.577***	2.223***
	(0.053)	(0.069)	(0.045)	(0.047)	(0.107)
$\alpha_{\bar{Y}}$	-0.090**	-0.073	0.166***	0.105***	0.503***
	(0.046)	(0.053)	(0.040)	(0.041)	(0.075)
$\alpha_{\hat{Y}}$	0.140***	-0.146***	0.312***	0.199***	0.282***
	(0.046)	(0.048)	(0.041)	(0.041)	(0.066)
	Experiment				
	I	II	III	IV	V
Domain	Income	Income	GPA	GPA	Safety
Choices Incentivized	Yes	No	Yes	No	No
Observations	3,820	3,817	3,690	3,694	4,531
Subjects	788	818	762	770	971

Notes: Conditional logit estimates following the same specification as in Table 2, restricting sample to respondents who rated the clarity of instructions as either 3 or 4 (clear). α_Y captures the preference for attribute listed in domain (e.g., log own absolute income, own GPA or own car safety). $\alpha_{\bar{Y}}$ captures the preferences for average peer attribute. $\alpha_{\hat{Y}}$ captures the preference for the socially perceived attribute. Robust standard errors clustered by subject in parentheses. Significant at *10%, **5%, ***1%.

Table D.5: Robustness Check: Conditional Logit Results Excluding Subjects based on Survey Completion Time

	(1)	(2)	(3)	(4)	(5)
α_Y	0.697***	1.233***	0.397***	0.625***	2.160***
	(0.057)	(0.067)	(0.045)	(0.056)	(0.106)
$\alpha_{\bar{Y}}$	-0.103**	-0.072	0.120***	0.103**	0.529***
	(0.048)	(0.052)	(0.041)	(0.049)	(0.079)
$\alpha_{\hat{Y}}$	0.159***	-0.162***	0.381***	0.208***	0.287***
	(0.049)	(0.049)	(0.043)	(0.050)	(0.068)
	Experiment				
	I	II	III	IV	V
Domain	Income	Income	GPA	GPA	Safety
Choices Incentivized	Yes	No	Yes	No	No
Observations	3,495	3,848	3,508	2,631	4,280
Subjects	724	832	723	554	922

Notes: Conditional logit estimates following the same specification as in Table 2, restricting sample to respondents who completed the survey in more than 3 minutes and less than 30 minutes. α_Y captures the preference for attribute listed in domain (e.g., log own absolute income, own GPA or own car safety). $\alpha_{\bar{Y}}$ captures the preferences for average peer attribute. $\alpha_{\hat{Y}}$ captures the preference for the socially perceived attribute. Robust standard errors clustered by subject in parentheses. Significant at *10%, **5%, ***1%.

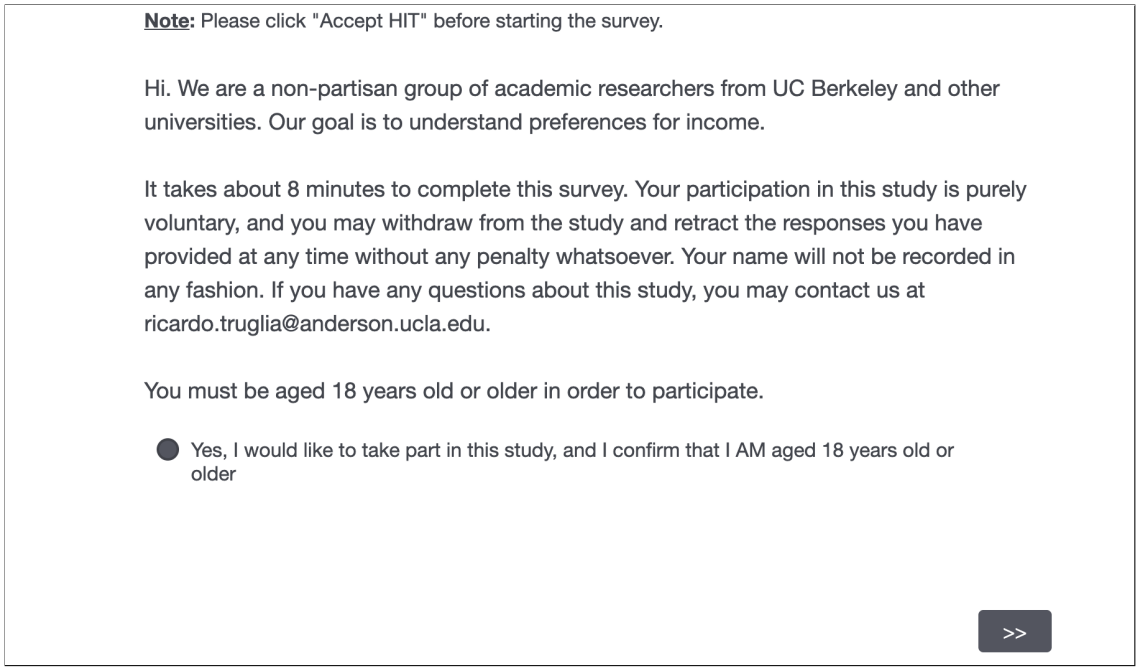
Table D.6: Mixed Logit Estimates

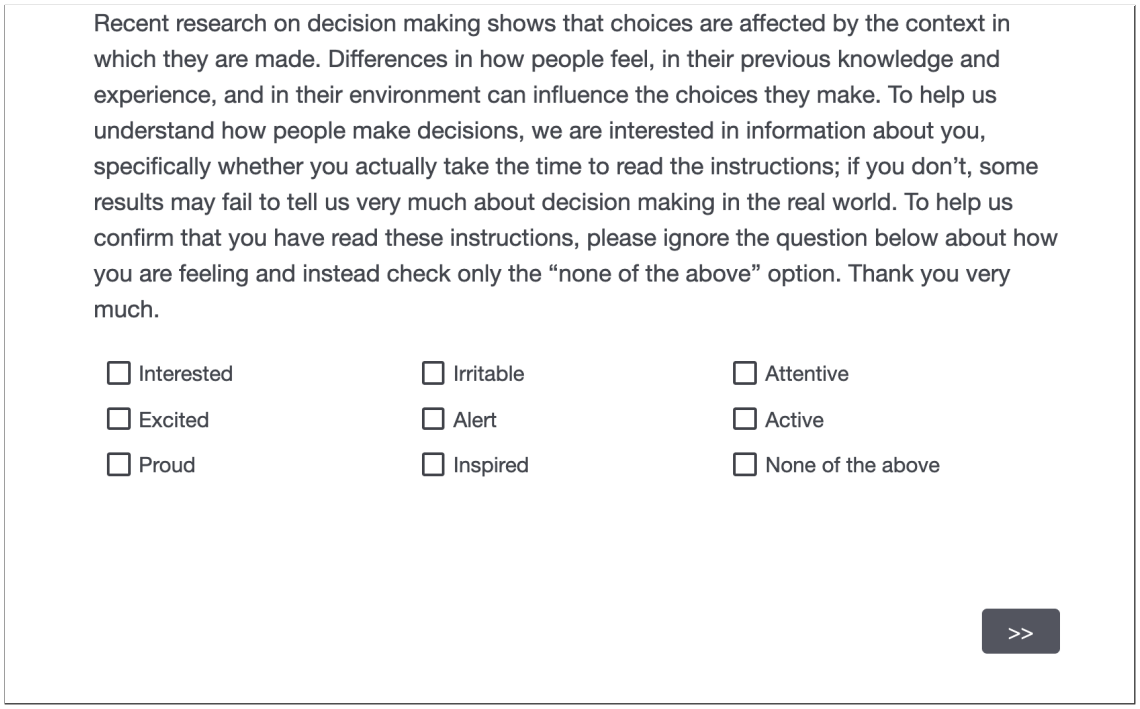
	(1)	(2)	(3)	(4)	(5)
Own value *(Truncated Normal)*					
Raw Coefficient (μ)	-0.433	2.298***	-1.171	0.342	3.815***
	(0.785)	(0.287)	(0.786)	(0.249)	(0.357)
Raw Coefficient (σ)	3.841***	6.019***	3.248***	2.241***	8.014***
	(1.124)	(0.984)	(0.936)	(0.464)	(1.047)
Mean of $\alpha_{Y,i}$	1.326	3.725	0.793	1.075	5.457
	(0.043)	(0.094)	(0.028)	(0.027)	(0.122)
Standard Deviation of $\alpha_{Y,i}$	1.342	2.718	0.984	1.034	3.897
	(0.028)	(0.051)	(0.022)	(0.016)	(0.061)
Average value in society *(Normal)*					
Mean of $\alpha_{\bar{Y},i}$	-0.065	0.073	0.266***	0.174***	1.061***
	(0.057)	(0.077)	(0.047)	(0.049)	(0.114)
Standard Deviation of $\alpha_{\bar{Y},i}$	0.820***	1.247***	0.635***	0.671***	1.665***
	(0.108)	(0.126)	(0.092)	(0.094)	(0.194)
Own value as perceived by others *(Normal)*					
Mean of $\alpha_{\hat{Y},i}$	0.253***	-0.119*	0.523***	0.353***	0.468***
	(0.061)	(0.066)	(0.055)	(0.053)	(0.085)
Standard Deviation of $\alpha_{\hat{Y},i}$	1.021***	0.823***	0.861***	0.815***	0.644**
	(0.108)	(0.138)	(0.089)	(0.093)	(0.268)

	Experiment				
	I	II	III	IV	V
Domain	Income	Income	GPA	GPA	Safety
Choices Incentivized	Yes	No	Yes	No	No
Observations	4,710	4,365	4,722	4,568	4,969
Subjects	976	947	979	959	1,073

Notes: Mixed logit estimates for equation (1) assuming own value attribute parameters distributed as a Truncated Normal at zero, and Normal distribution parameters for average peer value and socially perceived values. For the own value attribute we present both the raw coefficient (μ) and its corresponding raw standard deviation (σ) and average individual parameter values ($\alpha_{Y,i}$). $\alpha_{Y,i}$ captures the preference for attribute listed in domain (e.g., log own absolute income, own GPA or own car safety). $\alpha_{\bar{Y},i}$ captures the preferences for average peer attribute. $\alpha_{\hat{Y}}$ captures the preference for the socially perceived attribute. Robust standard errors clustered by subject in parentheses. Significant at *10%, **5%, ***1%.

E Sample Screenshots of Experiment II





In the following screens we will ask you to choose between pairs of hypothetical situations. These situations differ in three key characteristics.
The first characteristic is:

Your income	This is your annual disposable individual income. That is, how much money you have at your disposal to spend each year, after deducting taxes.

>>

The second characteristic is:

Average Country Income	This is the average disposable individual income in your country.

The third characteristic is:

What others think your income is	For reasons outside of your control, this is what others think your income is.

>>

You will be shown between pairs of situations, using a table like the following:

	OPTION 1	OPTION 2
Your income	(...)	(...)
Average country income	(...)	(...)
What others think your income is	(...)	(...)

After being shown this table, you will be asked to choose which of the two situations, denoted by Option 1 and Option 2, you would prefer.

Please imagine that the situations are identical in all other respects. For instance, in the two situations all goods and services have the same prices, you work in the same occupation and the same number of hours, etc.

>>

Next, we want to ask you a few questions to assess your understanding of the previous instructions.

Please indicate if the following statement is True or False: "You will be asked to choose one situation from a pair of situations"

- ○ True
- ○ False

>>

Your answer was correct.

Please indicate if the following statement is True or False: "In situations with higher income, your have to work longer hours"

- ○ True
- ○ False

>>

Your answer was correct.

Please indicate if the following statement is True or False: "In situations where the country average of income is higher, houses are more expensive."

- ○ True
- ○ False

>>

Your answer was incorrect. Please imagine that the situations are identical in all other respects: for example, house prices are the same, rent prices are the same, and supermarket prices are the same.

We are ready to start with the hypothetical situations. In each of the next 5 screens, will ask you to make one hypothetical choice. It is very important for us that you make careful choices. Also, we would ask you to be honest in your responses, and would like to remind you that your responses are completely anonymous.

>>

CHOICE 1 OF 5

Reminder: Everything else, such as the prices of goods and services, is exactly the same between the two situations.

	OPTION 1	OPTION 2
Your income	$25,000	$40,000
Average country income	Individuals in your country earn an average of $40,000	Individuals in your country earn an average of $25,000
What others think your income is	Other people in your country think that you earn $60,000	Other people in your country think that you earn $40,000

I prefer Option 1	Don't Know / Cannot Answer	I prefer Option 2
○	○	○

CHOICE 2 OF 5

Reminder: Everything else, such as the prices of goods and services, is exactly the same between the two situations.

	OPTION 1	OPTION 2
Your income	$40,000	$40,000
Average country income	Individuals in your country earn an average of $25,000	Individuals in your country earn an average of $10,000
What others think your income is	Other people in your country think that you earn $17,000	Other people in your country think that you earn $25,000

I prefer Option 1 ○ | Don't Know / Cannot Answer ○ | I prefer Option 2 ○

CHOICE 3 OF 5

Reminder: Everything else, such as the prices of goods and services, is exactly the same between the two situations.

	OPTION 1	OPTION 2
Your income	$17,000	$10,000
Average country income	Individuals in your country earn an average of $40,000	Individuals in your country earn an average of $17,000
What others think your income is	Other people in your country think that you earn $17,000	Other people in your country think that you earn $40,000

I prefer Option 1 ○ | Don't Know / Cannot Answer ○ | I prefer Option 2 ○

CHOICE 4 OF 5

Reminder: Everything else, such as the prices of goods and services, is exactly the same between the two situations.

	OPTION 1	OPTION 2
Your income	$60,000	$17,000
Average country income	Individuals in your country earn an average of $40,000	Individuals in your country earn an average of $60,000
What others think your income is	Other people in your country think that you earn $10,000	Other people in your country think that you earn $17,000

I prefer Option 1 ○ | Don't Know / Cannot Answer ○ | I prefer Option 2 ○

CHOICE 5 OF 5

Reminder: Everything else, such as the prices of goods and services, is exactly the same between the two situations.

	OPTION 1	OPTION 2
Your income	$60,000	$60,000
Average country income	Individuals in your country earn an average of $25,000	Individuals in your country earn an average of $40,000
What others think your income is	Other people in your country think that you earn $60,000	Other people in your country think that you earn $10,000

I prefer Option 1 ○ | Don't Know / Cannot Answer ○ | I prefer Option 2 ○

The survey is almost over. We want to finish by asking you a few things about your background. Please indicate your gender:

- ○ Female
- ○ Male

How old are you?

- ○ 18-25
- ○ 26-35
- ○ 36-45
- ○ 46-55
- ○ 56 and older

>>

Please indicate the highest level of formal education that you have completed:

- ○ Less than high school graduate
- ○ High school graduate
- ○ College graduate
- ○ Post-graduate

What is your relationship status?

- ○ Single
- ○ In a long-term relationship
- ○ Married

>>

What is the number of people living in your household, including yourself?

- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5 or more

And what is your gross annual **HOUSEHOLD** income? Please include all wages, salaries, pensions and other income such as capital gains and interest. Note that gross income corresponds to income before taxes.

- ○ Less than $10,000
- ○ $10,000 - $14,999
- ○ $15,000 - $19,999
- ○ $20,000 - $29,999
- ○ $30,000 - $39,999
- ○ $40,000 - $49,999
- ○ $50,000 - $74,999
- ○ $75,000 - $99,999
- ○ $100,000 or more

Finally, please let us know how clear and easy to understand the instructions of the survey were:

- ○ Very clear
- ○ Clear
- ○ A little clear
- ○ Not clear at all

>>