Journal of Public Economics 262 (2026) 105778

Contents lists available at ScienceDirect

Journal of Public Economics

journal homepage: www.elsevier.com/locate/pubec

Feeling rich or looking rich? Self-perceived vs socially-perceived relative income☆

Nicolas Bottan[a,*], Ricardo Perez-Truglia[b,c], Hitoshi Shigeoka[c,d,e,f], Katsunori Yamada[g]

[a] Cornell University, 2104 MVR Hall, Ithaca, NY 14853, United States
[b] University of California, Los Angeles, 110 Westwood Plaza, Los Angeles, CA 90095, United States
[c] NBER, Cambridge, MA, United States
[d] The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033, Japan
[e] Simon Fraser University, Burnaby, Canada
[f] IZA, Bonn, Germany
[g] Kindai University, 228-3, Shin-Kami-Kosaka, Higashi-Osaka City 577-0813, Japan

ARTICLE INFO

Keywords:
Self-perceptions
Social-perceptions
Discrete choice experiment

ABSTRACT

Individuals may care about status both because of how they view their own position and because of how others perceive it. We compare these two dimensions using five hypothetical discrete-choice experiments that separately vary absolute outcomes, self-perceived standing, and socially-perceived standing in the domains of income, academic performance, and car safety. The analysis sample includes 4934 U.S. respondents and two elicitation tasks: a non-incentivized own-choice task and an incentivized coordination game in which respondents are rewarded for predicting the modal choice. Across four of the five experimental conditions, socially-perceived standing enters positively, while self-perceived standing is either negative or statistically indistinguishable from zero. The exception is the income own-choice condition, where the pattern reverses—a result that warrants further research.

"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 with the income of others. For example, holding the absolute income level constant, an individual's well-being tends to decline as the average income of their neighbors rises (e.g., Clark and Oswald, 1996; Luttmer, 2005; Perez-Truglia, 2020). Revealed-preference evidence also supports this idea. Individuals demand status goods that signal their high income to their peers (Bursztyn et al., 2018). They prefer to relocate to areas where they are richer than others (Bottan and Perez-Truglia, 2022). Employees also exert less effort and are more likely to leave a company if they perceive that they are paid less than their peers (e.g., Card et al., 2012; Cullen and Perez-Truglia, 2022).

Research on status concerns draws an important distinction: people may care not only about how they view their own standing relative to others, but also about how their peers perceive that standing. On the one hand, seeing oneself as higher in the income distribution may raise well-being by improving self-image (Festinger, 1954; Akerlof and Kranton, 2000; Bénabou and Tirole, 2002; Köszegi, 2006; Bénabou and Henkel, 2025). But concern for self-perceived standing may stem from other preferences too, such as altruism or expected externalities. On the other hand, individuals may also care about how others perceive their position in the income distribution. This socially-perceived standing may reflect social-image concerns, insofar as people derive utility from being seen as rich, competent, or successful (e.g., Bernheim, 1994; Bagwell and Bernheim, 1996; Harbaugh, 1998; Bénabou and Tirole, 2006). It

☆ Yamada acknowledges financial support from Japan Society for the Promotion of Science (20H01479, 24KK0034). We are thankful to the editor (Dmitry Taubinsky), three anonymous referees, Erzo Luttmer and Roland Benabou for their excellent feedback and suggestions. Any remaining errors are the sole responsibility of the authors. This project was reviewed and approved in advance by the Institutional Review Boards at Kindai University (# ZAI3102) and Cornell University (#IRB0010103). The replication files are available at https://osf.io/u4m7r/overview.

* Corresponding author.
Email addresses: nicolas.bottan@cornell.edu (N. Bottan), ricardo.truglia@anderson.ucla.edu (R. Perez-Truglia), hitoshi.shigeoka@gmail.com (H. Shigeoka), kyamada@kindai.ac.jp (K. Yamada).

https://doi.org/10.1016/j.jpubeco.2026.105778
Received 17 December 2025; Received in revised form 3 September 2026; Accepted 4 September 2026
Available online 17 September 2026
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may also matter for instrumental reasons, because it can affect how others treat them (e.g., Fennis, 2008; Nelissen and Meijers, 2011; Dupas et al., 2024).

Although there is evidence that both self-perceived and socially-perceived standing matter to individuals, little is known about their relative importance. In this paper, we take a first step toward filling that gap in the literature using discrete choice experiments.

We build on a set of studies that use hypothetical discrete-choice experiments to measure positional externalities (Solnick and Hemenway, 1998; Johansson-Stenman et al., 2002; Yamada and Sato, 2013; Clark et al., 2017; Shigeoka and Yamada, 2019). In these experiments, individuals are typically asked to choose between two options that trade off their own absolute income against the average income of their peers. Participants are reminded that all other factors—such as the prices of goods and services—remain constant. Under status preferences, individuals may be willing to give up some absolute income to lower their peers' average income, because doing so improves their relative standing. However, this pattern could reflect any combination of preferences over self-perceived and socially-perceived standing. We extend this experimental design by introducing a novel feature: *peers' perceptions* of the individual's income. This allows us to generate exogenous variation in self-perceived and socially-perceived standing and, in turn, to compare their roles in explaining choices.

To illustrate this intuition, consider a scenario in which an individual must choose between two options, A and B. In both, the average peer income is held constant at $200,000. In option A, an individual's actual income is $100,000, and this is accurately perceived by others. In option B, an individual's income is $90,000, but others believe it to be $120,000. The cost of option B is a $10,000 drop in actual income, accompanied by a decline in the individual's actual relative standing. On the other hand, option B offers a 20% improvement in socially perceived standing. Choosing option B over A would therefore indicate that the gain from higher socially perceived standing is sufficiently valuable to compensate for the combined effects of lower absolute income and lower self-perceived standing. This example is only illustrative; the experimental variation across the three attributes allows us to separately estimate the roles of self-perceived and socially-perceived standing in choices.

We study choices using two methods. In the first, participants report their own choices directly, without incentives. One concern with this approach is social desirability bias (Edwards, 1957). For example, choosing to sacrifice income in exchange for a higher socially-perceived ranking may seem vain, leading participants to conceal their preferred choice. In the second, participants play an incentivized coordination game in which they are rewarded for choosing the modal response, following Krupka and Weber (2013) and Bašić and Verrina (2024). The coordination game is less straightforward to interpret than respondents' own choices, but may mitigate social desirability bias because participants do not report their own preferences directly.

To examine whether self-perceived and socially-perceived standing play different roles in explaining choices across domains, we conducted additional experiments in which participants made similar trade-offs over absolute and relative outcomes in domains other than income. In one variant, individuals chose between options that differed in school grades (GPA)—specifically, their own GPA, the average GPA of their peers, and how their GPA was perceived by others. In another, we focused on car safety—namely, the car's actual safety, the average level of car safety among peers, and how safe the car was perceived to be by peers. Across the five experiments, our analysis sample includes 4934 subjects. In each experiment, the sample was representative of the U.S. population in terms of age and gender. Each subject made choices in up to five scenarios, for a total of 24,670 potential choices. The five experimental conditions were: two in the income domain (incentivized and non-incentivized), two in the GPA domain (incentivized and non-incentivized), and one in the car-safety domain (non-incentivized).

We begin by summarizing the results for the income domain. These results differ markedly across elicitation methods. Under the incentivized method, higher socially-perceived income plays a positive and statistically significant role in explaining choices (p-value<0.001): the estimated coefficients imply that a 1% increase in socially-perceived standing offsets a 0.237% decrease in absolute income. By contrast, higher self-perceived standing does not play a statistically significant role in explaining choices. Under the non-incentivized method, however, respondents' own choices exhibit the opposite pattern: individuals prefer a higher self-perceived standing instead of a higher socially-perceived standing. More precisely, there is a significant (p-value = 0.015) preference for a higher self-perceived standing: the corresponding back-of-the-envelope calculation suggests that individuals are willing to sacrifice 0.203% of their own absolute income to increase their self-perceived standing by 1%. By contrast, there is a significant (p-value = 0.007) preference for a *lower*, rather than higher, socially-perceived standing. Thus, the two income conditions yield different conclusions about the roles of self-perceived and socially-perceived standing.

Next we present the results for the other two domains. In the GPA domain, the results are qualitatively consistent regardless of the elicitation method. Under both methods, higher socially-perceived standing plays a positive role in explaining choices, whereas higher self-perceived standing plays a negative role. In other words, individuals want to be perceived as smart by others, but they also want others to be smart. Our preferred interpretation is that the positive externalities associated with having smart peers outweigh any self-image preferences. The results for the third domain—car safety—are directionally similar to those in the GPA domain: we again observe a positive role for higher socially-perceived standing and a negative role for higher self-perceived standing.[1]

In summary, in four of the five experiments, higher socially-perceived standing plays a positive role in explaining choices, whereas higher self-perceived standing plays either no role or a negative role. However, this pattern reverses in one experiment—the income domain under non-incentivized elicitation—where we find the opposite result. And even when the direction of the effects is similar across experiments, the magnitudes can differ across domains. The normalized socially-perceived standing coefficient is particularly large in the GPA domain (0.393 in the incentivized coordination game and 0.248 in the non-incentivized own-choice task), compared with 0.237 in the incentivized income condition and 0.101 in the car-safety condition.

This study 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., 2018). A central theme in this literature is that relative income matters both through how individuals perceive their own position and through how they are perceived by others. Yet there is limited empirical evidence on the relative importance of these two margins. 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 across channels. Our contribution is to provide a quantitative comparison of how self-perceived relative standing and socially-perceived relative standing enter choices. Importantly, while these two objects are closely connected to the self-image and social-image channels emphasized in the literature, the former may also reflect

[1] In this domain, however, we used only the non-incentivized method, so we cannot compare results across elicitation methods.

other factors, such as externalities or direct preferences over peers' outcomes.[2]

Although the literature does not provide a quantitative decomposition of these two channels, many studies isolate the role of self-perceived or socially-perceived standing in specific settings. For example, Cullen and Perez-Truglia (2022) examine self-perceived relative salary by informing employees about the average salaries of their coworkers without disclosing their own. In contrast, Bursztyn et al. (2018) study socially-perceived relative income by offering clients of a bank premium credit cards that signal exclusivity to peers. A key limitation of this literature is that, by isolating one channel in a particular setting, it does not allow for a direct comparison between self-perceived and socially-perceived standing. The advantage of our approach—discrete-choice experiments—is that it allows us to separately estimate the roles of self-perceived and socially-perceived standing in choices within a common empirical framework. It also allows for straightforward comparisons across domains, such as income and academic performance.

2. Survey experiment

In this section, we describe the design and implementation of our discrete choice experiments.[3]

We conducted a total of five experiments, which differ in two key respects: the domain—such as income or GPA—and whether respondents report their own choices without incentives or play the incentivized coordination game. To keep the exposition concise, we begin by describing the income experiment using the non-incentivized method. We then explain how the other experiments differ from this baseline design.

2.1. Non-incentivized choices over income

Screenshots of the full instrument are provided in Appendix F. 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.*

Participants are instructed that these three attributes are the only differences across options—that is, all goods and services have the same prices, participants work in the same occupation and for the same number of hours, etc., across options. We emphasize this point to rule out alternative interpretations of the role of 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 reduce the scope for interpretations based on mechanical differences in prices, occupations, or work hours.[4]

Participants are shown an example of the choice environment. A sample scenario is shown in Fig. 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. Each participant then evaluates five scenarios randomly drawn from a 25-scenario orthogonal design, in which three attributes each vary across five discrete levels. Details on the design, attribute levels, and exact combinations are provided in Appendix B. At the end of the survey, we include a brief set of questions on basic demographics, household income and survey comprehension.

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 chosen in only 9.59% of the 25,810 decision tasks, and these responses were excluded from the analysis.[7]

2.2. Incentivized coordination game

One potential limitation with a non-incentivized method is that responses may be influenced by social desirability bias (Edwards, 1957). 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 doing better than others. Alternatively, they may wish to appear humble by misrepresenting their desire to be seen as wealthy in the eyes of others.

To address this concern, we designed an incentivized coordination game following Krupka and Weber (2013).[8] The incentivized survey was otherwise identical, with the only differences being the instructions given at the start of each scenario and the task itself. Respondents were shown the same scenarios as before, but were asked to choose the option they expected to be the modal response. Before completing the task, they were informed that they would receive a bonus payment if their choice matched the modal response. Because the task does not ask respondents

[2] Bašić and Quercia (2022) investigate the influence of self- and social-image concerns in die-rolling experiments as potential sources of lying costs. They do not, however, elicit preferences over income comparisons.

[3] This study was not pre-registered in its present form. An earlier related project on rank utility in income comparisons was registered in the AEA RCT Registry (AEARCTR-0004824), but the hypotheses, domains, and analyses reported in the present paper were not pre-specified. Accordingly, we interpret the study as exploratory in nature.

[4] The reference group in all experiments is defined broadly as the average attribute in the respondent's country. This choice provides a common reference group across respondents. At the same time, respondents may compare themselves more strongly to closer peers, such as friends, former classmates, coworkers, or neighbors (e.g., Layard et al., 2005; Clark and Senik, 2010; Clark et al., 2022). The estimated magnitudes should therefore be interpreted with respect to this broad reference group; they may be larger for more salient peer groups. Because both self-perceived and socially-perceived relative standing are defined using the same comparison group, this limitation is less likely to affect the comparison between the two components than their absolute magnitudes.

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

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

[7] An alternative way to handle "Don't know/Cannot answer" responses is to treat them as expressions of indifference (Chierichetti et al., 2025). Our approach and this alternative represent two extremes, and the choice between them is ultimately left to the researcher, since the true reasons for such responses are typically unobserved. More recently, methods that take an intermediate position between these two approaches have been developed. These include the dual-response method (Brazell et al., 2006) and approaches that incorporate participants' subjective assessments of their confidence in their choices (Lundhede et al., 2009). Because we do not have this additional information in the present study, a more refined analysis of this issue must be left for future research.

[8] Because respondents' preferred choices are privately known, bonus payments could not be conditioned on whether those choices were reported truthfully.

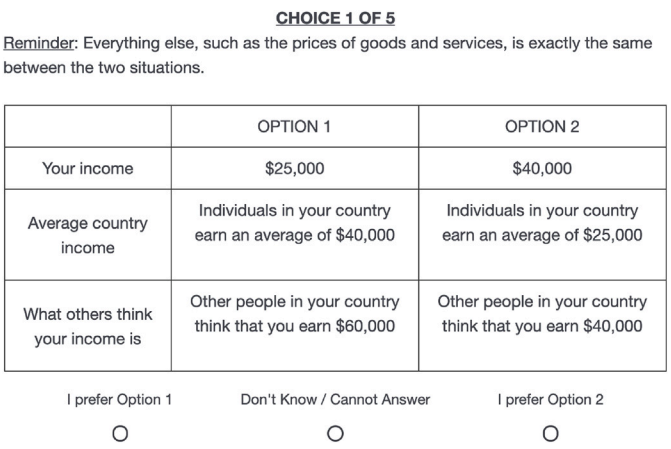

Fig. 1. Screenshot from a survey instrument (Income, non-incentivized). Notes: In the discrete choice experiment format, two options are presented side by side. Respondents are asked to indicate whether they prefer the situation described in option 1 or option 2 by clicking the corresponding button. A "don't know" option is also provided for those who are unable to answer or are uncertain.

to report their own preferred option directly, it may reduce social desirability bias. At the same time, its interpretation is less straightforward because it measures how the attributes enter coordination-game choices rather than respondents' own preferences or willingness to pay, and it does not directly elicit beliefs about others' preferences. The task is also more cognitively demanding, which could introduce additional measurement error.

2.3. Alternative domains

We sought to explore whether self-perceived and socially-perceived relative standing play different roles in explaining choices across 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-perceived and socially-perceived standing concerns. In this version, participants trade off between their own 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 this, we included two variations of this experiment: in one, respondents reported their own choices without incentives; in the other, they played the incentivized coordination game.

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. Our hypothesis was that car safety was a domain in which status-related concerns could be less salient than in income or academic performance.

2.4. Conceptual framework

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. In the other experimental domains, the same notation applies to the relevant attributes: GPA or car safety. 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[9]:

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

U_i denotes individual i's utility. The parameter α_Y is the coefficient on the individual's own income. The parameter $\alpha_{\bar{Y}}$ is the coefficient on average income in society. This is the attribute that has been studied extensively in prior studies (Clark and Oswald, 1996; Clark et al., 2008). According to status models, we expect $\alpha_{\bar{Y}}$ to be negative, because a higher average income worsens both self-perceived and socially-perceived standing. Finally, the parameter $\alpha_{\hat{Y}}$ is the coefficient on socially-perceived income. This last attribute allows us to distinguish the roles of socially-perceived and self-perceived relative standing in choices. To our knowledge, this attribute has not been incorporated into this class of positional discrete-choice experiments. The socially-perceived channel predicts that $\alpha_{\hat{Y}}$ should be positive, as higher perceived income improves socially perceived standing. Other channels may operate in the opposite direction. For example, individuals may have an incentive to lower their socially-perceived income to reduce the likelihood of being asked for money or becoming a target of crime.

To decompose the roles of socially-perceived and self-perceived standing, we reparameterize the model. Denote i's true relative income as $\frac{Y_i}{\bar{Y}_i}$ and his or her socially-perceived relative income as $\frac{\hat{Y}_i}{\bar{Y}_i}$. The choice index can be written as follows:

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

We define $\log\left(\frac{Y_i}{\bar{Y}_i}\right)$ as individual i's *self-perceived standing*: how their own outcome compares to the average outcome in the reference group. Holding absolute income fixed, a higher value of this term means that the individual is better off relative to others. Thus, $\beta_{Y/\bar{Y}}$ is the coefficient on self-perceived standing. *Socially-perceived standing* is captured by $\log\left(\frac{\hat{Y}_i}{\bar{Y}_i}\right)$, reflecting how the individual's outcome is perceived by others relative to the average outcome in the relevant reference group. Its coefficient, $\beta_{\hat{Y}/\bar{Y}}$, is the coefficient on socially-perceived standing.

There is a simple equivalence between the models (1) and (2).[10] 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 $\beta_{\hat{Y}/\bar{Y}} = \alpha_{\hat{Y}}$. The parameter $\alpha_{\hat{Y}}$ maps directly to the socially-perceived-standing component. Lowering average peer income increases both the self- and socially-perceived relative standing, which is the reason for the adjustment $\beta_{Y/\bar{Y}} = -\alpha_{\bar{Y}} - \alpha_{\hat{Y}}$. Finally, an increase in one's income raises both absolute income and true relative standing, which yields the adjustment $\beta_Y = \alpha_Y + \alpha_{\bar{Y}} + \alpha_{\hat{Y}} = \alpha_Y - \beta_{Y/\bar{Y}}$.

We expect a positive β_Y because a higher absolute outcome should make an option more attractive in either task. This coefficient is also useful for expressing the other coefficients as normalized ratios.

The parameter $\beta_{Y/\bar{Y}}$ measures the role of self-perceived standing in choices. Holding absolute income fixed, a higher value of $Y/\bar{Y}$ means that the individual ranks higher relative to others. A simple preference for higher self-perceived standing therefore predicts $\beta_{Y/\bar{Y}} > 0$: respondents should prefer to occupy a higher relative position, all else equal. However, $\beta_{Y/\bar{Y}}$ may also reflect preferences over peer outcomes themselves. For example, individuals may prefer their peers to be richer because they are altruistic, because richer peers may reduce their exposure to crime or requests for money, or because they expect to benefit

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

[10] This specification imposes additive separability between self-perceived and socially-perceived relative standing. In practice, these components may interact. For example, Bursztyn et al. (2018) provide evidence that increasing self-image reduces demand for social-image in the context of premium credit cards, consistent with substitutability between the two motives.

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)	0.846	0.879	0.810	0.831	0.877	0.849
	(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	
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	
Subjects	976	947	979	959	1073	4934

Notes: Standard deviations are reported in parentheses. Columns (1) and (3) correspond to the incentivized coordination game. Columns (2), (4), and (5) correspond to the non-incentivized own-choice task. The indicator variable *Pass Attention Check* equals one if a subject passes a trap question designed to check attentiveness. Similarly, *Survey Clear* equals one if a subject rates the clarity of our instructions as either 3 or 4 on a four-point Likert scale. The variable *No. of Correct Quiz Answers* indicates the number of comprehension questions answered correctly out of three. Finally, *Survey Time* is reported in minutes.

from positive spillovers through gifts, dating markets, social networks, or local amenities (Bottan and Perez-Truglia, 2022). Similarly, individuals may prefer higher-achieving peers because of learning spillovers, and safer peers because they reduce accident risk. These channels can offset, or even dominate, any preference for ranking higher relative to peers.

By contrast, $\beta_{\hat{Y}/\bar{Y}}$ measures the role of socially-perceived standing in choices. The social-image channel predicts that this parameter should be positive, as individuals may value being perceived as richer, smarter, or safer relative to others. However, this parameter may also reflect other considerations. For example, individuals may prefer not to be perceived as richer if doing so attracts envy, requests for help, or unwanted attention. More generally, behavior may depend on beliefs about how others will react to the signal, even when those beliefs are inaccurate or difficult for the researcher to observe (e.g., Angeli et al., 2023).

2.5. Implementation details

The experiments were conducted between 2021 and 2022. Table 1 summarizes the five experiments, including their domain (i.e., income, GPA, or car safety), whether respondents made non-incentivized own choices or played the incentivized coordination game, when responses were collected, the total number of respondents and some average respondent characteristics. Subjects were recruited by Dynata, Inc., which targeted approximately 1000 participants per experiment using stratified sampling of U.S. adults by age and gender.[11]

In total, 5162 subjects completed the five experiments, yielding 25,810 potential choices. Of these, 2476 responses (9.59%) were "Don't know/Cannot answer" and are excluded from the analysis. A total of 228 respondents selected this option in all five scenarios and therefore do not contribute to the conditional logit estimation. The estimation sample consists of 4934 subjects and 23,334 choices. The survey included measures of attention, clarity and comprehension: 85% 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. Appendix E shows that the results are robust to excluding certain subjects, such as those who did not pass the attention check.

3. Results

3.1. Main results

We begin with the income domain, where the results differ sharply across elicitation methods. Column (1) of Panel A in Table 2 reports the conditional logit estimates for the incentivized coordination game. The coefficient on own income, α_Y, is positive and statistically significant (p-value<0.001), providing a useful internal-validity check: options with higher own income are more likely to be chosen in the game. The coefficient on average peer income, $\alpha_{\bar{Y}}$, is negative and statistically significant (p-value = 0.018), while the coefficient on socially-perceived income, $\alpha_{\hat{Y}}$, is positive and statistically significant (p-value<0.001).

To interpret these coefficients in terms of self-perceived and socially-perceived standing, we use the model from Eq. (2). The implied parameters are reported in Panel B of Table 2.[12] In the incentivized coordination game, β_Y is positive (0.645) and statistically significant (p-value<0.001), showing that own income plays a positive role in explaining respondents' guesses about the modal response. More importantly, $\beta_{\hat{Y}/\bar{Y}}$ is positive (0.153) and statistically significant (p-value<0.001), indicating that socially-perceived standing also plays a positive role. The ratio $\frac{\beta_{\hat{Y}/\bar{Y}}}{\beta_Y} = \frac{0.153}{0.645} = 0.237$ (p-value<0.001) describes the trade-off between socially-perceived standing and own income in these guesses. Thus, socially-perceived standing is both statistically significant and economically meaningful in the game. By contrast, $\beta_{Y/\bar{Y}}$ is close to zero and statistically insignificant (p-value = 0.370), indicating that self-perceived standing plays little role.

The pattern changes sharply under the non-incentivized method, reported in column (2) of Table 2. While the coefficient on own income,

[11] See Appendix C for additional implementation details.

[12] These and all other results involving combinations of raw parameters from the conditional logit model use the Delta method for inference.

Table 2
Conditional logit coefficients.

	(1)	(2)	(3)	(4)	(5)
Panel A: Conditional Logit Coefficients					
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)
Panel B: Implied Self- and Socially-Perceived Standing Parameters					
β_Y	0.645***	1.025***	2.656***	2.674***	13.547***
	(0.072)	(0.092)	(0.193)	(0.205)	(0.655)
$\beta_{Y/\bar{Y}}$	-0.055	0.208***	-1.528***	-0.933***	-3.583***
	(0.062)	(0.071)	(0.154)	(0.159)	(0.440)
$\beta_{\hat{Y}/\bar{Y}}$	0.153***	-0.145***	1.045***	0.664***	1.362***
	(0.041)	(0.045)	(0.109)	(0.110)	(0.285)
Ratios of Implied Parameters					
$\beta_{Y/\bar{Y}}/\beta_Y$	-0.086	0.203**	-0.575***	-0.349***	-0.264***
	(0.089)	(0.084)	(0.035)	(0.042)	(0.025)
$\beta_{\hat{Y}/\bar{Y}}/\beta_Y$	0.237***	-0.141***	0.393***	0.248***	0.101***
	(0.052)	(0.052)	(0.032)	(0.032)	(0.019)
	Experiment				
	I	II	III	IV	V
Domain	Income	Income	GPA	GPA	Safety
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: Panel A reports conditional logit estimates of Eq. (1). α_Y is the coefficient on the attribute listed in the domain (e.g., log own absolute income, log own GPA or log own car safety). $\alpha_{\bar{Y}}$ is the coefficient on the average peer attribute. $\alpha_{\hat{Y}}$ is the coefficient on the socially-perceived attribute. Panel B reports the implied parameters from Eq. (2), computed as linear combinations of the parameters from Eq. (1): $\beta_Y = \alpha_Y + \alpha_{\bar{Y}} + \alpha_{\hat{Y}}$, $\beta_{Y/\bar{Y}} = -\alpha_{\bar{Y}} - \alpha_{\hat{Y}}$, and $\beta_{\hat{Y}/\bar{Y}} = \alpha_{\hat{Y}}$. The reported ratios divide each implied standing parameter by β_Y. Columns (1) and (3) report choices in the incentivized coordination game. Columns (2), (4), and (5) report respondents' non-incentivized own choices. Robust standard errors clustered by subject are in parentheses; standard errors for implied parameters and ratios use the delta method. Significance levels: *10%, **5%, ***1%.

α_Y, remains positive and statistically significant, $\alpha_{\hat{Y}}$ reverses sign relative to the incentivized method: it becomes negative and statistically significant. This sign reversal suggests that, when asked directly about their own choices, respondents do not report a preference for being seen as richer. One interpretation is that the non-incentivized method is more prone to social desirability concerns, especially given the stigma associated with appearing to value being seen as richer. Another possibility is that the differences reflect the different tasks: the non-incentivized method asks respondents about their own choices, whereas the incentivized game rewards them for coordinating on the modal response. We return to these interpretations in Section 4.

The implied relative-standing parameters in Panel B show the same reversal. Under the non-incentivized method, $\beta_{Y/\bar{Y}}$ is positive and statistically significant. This indicates that, holding own income fixed, respondents prefer to occupy a higher income position relative to the average peer. The normalized magnitude, $\frac{\beta_{Y/\bar{Y}}}{\beta_Y} = 0.203$ (p-value = 0.015), implies that a 1% increase in self-perceived standing offsets a 0.203% reduction in own income. By contrast, $\beta_{\hat{Y}/\bar{Y}}$ is negative and statistically significant. The ratio $\frac{\beta_{\hat{Y}/\bar{Y}}}{\beta_Y} = \frac{-0.145}{1.025} = -0.141$ (p-value = 0.007) implies that respondents would require a 0.141% increase in own income to accept a 1% increase in socially-perceived standing. Thus, in the income domain, the relative importance of self-perceived and socially-perceived standing depends sharply on the elicitation method.

The ratio of the estimated coefficients implies that a 1% increase in socially perceived standing is equivalent to a 0.237% increase in absolute income in explaining coordination-game choices.

3.2. Other domains

We next turn to the GPA domain, where the results are qualitatively consistent across elicitation methods. Columns (3) and (4) of Table 2 report the results for the incentivized coordination game and the non-incentivized method, respectively. In both tasks, higher own GPA and higher socially-perceived GPA play positive roles in explaining choices.

The implied parameters in Panel B of Table 2 show that the GPA results are qualitatively similar across elicitation methods. In both experiments, β_Y and $\beta_{\hat{Y}/\bar{Y}}$ are positive and statistically significant, whereas $\beta_{Y/\bar{Y}}$ is negative and statistically significant (all p-values <0.001). The normalized ratios in Table 2 show the same pattern: the socially-perceived component is positive, with $\beta_{\hat{Y}/\bar{Y}}/\beta_Y = 0.393$ in the incentivized coordination game and 0.248 in the non-incentivized condition, while the self-perceived component is negative, with $\beta_{Y/\bar{Y}}/\beta_Y = -0.575$ and -0.349, respectively (all p-values<0.001). Thus, higher socially-perceived standing and higher-achieving peers both play positive roles in explaining choices across the two tasks.

Finally, we consider the car-safety domain, reported in column (5) of Table 2. In this domain, we only implemented the non-incentivized method. The results are directionally similar to those in the GPA domain. Respondents prefer safer cars for themselves, prefer to be perceived as driving safer cars, and also prefer peers to drive safer cars. The implied socially-perceived standing parameter is positive, with $\beta_{\hat{Y}/\bar{Y}}/\beta_Y = 0.101$, while the implied self-perceived standing parameter is negative, with $\beta_{Y/\bar{Y}}/\beta_Y = -0.264$ (all p-values<0.001). Thus, as in the GPA domain, the benefits of higher peer outcomes appear to outweigh any preference for occupying a higher relative position.

Taken together, the implied parameters in Panel B of Table 2 point to two main patterns. First, the two income conditions yield different results. In the incentivized coordination game, socially-perceived standing plays a positive role, whereas self-perceived standing plays little role. In the non-incentivized method, respondents value higher self-perceived standing and negatively value higher socially-perceived standing. Second, the non-income domains show a more stable pattern. In both GPA experiments, and in the car-safety experiment, the socially-perceived component is positive, while the self-perceived component is negative. Thus, in four of the five experiments, socially-perceived standing plays a positive role, while the self-perceived component is either statistically indistinguishable from zero or negative.[13] The exception is the income domain under non-incentivized elicitation.

3.3. Robustness

We assess the robustness of our main conditional logit results to alternative specifications and sample restrictions. The findings are largely unchanged when we restrict the sample to respondents who passed attention, comprehension, clarity, or completion-time checks (Maestas et al., 2023), or when we use alternative transformations of the attributes. Details are presented in Appendix E.

A related concern is whether the conditional logit estimates are sensitive to the assumption that the effect of each attribute is monotonic over its range. To assess this, we test for monotonicity by replacing each continuous attribute with indicators for each attribute level used, with the lowest level as the omitted category. As shown in Appendix E.1, the estimates generally vary monotonically in the direction predicted by the baseline specification. Overall, we find little evidence of systematic departures from monotonicity that would materially affect the interpretation of the baseline estimates.

[13] While the self-perceived component is larger in absolute value than the socially-perceived component in columns (2)-(5) of Table 2, it would be misleading to interpret this as self-image dominating social-image concerns because the component is negative. As discussed in Section 2.4, the negative coefficient may also reflect the role of higher peer outcomes in choices.

To assess whether the relationship between self-perceived standing and choices differs below and above the peer average, we estimate a linear spline in log self-perceived standing with a knot at zero, while leaving the other terms in Eq. (2) unchanged. Appendix E.2 shows the results, which we summarize here. We find no significant evidence of asymmetry in the incentivized coordination game (p-value = 0.279). In the non-incentivized condition, however, we find significant evidence of asymmetry (p-value<0.001), indicating that the role of self-perceived standing is concentrated below the peer average. These results should be interpreted cautiously because they rely on strong functional-form assumptions. That said, they provide suggestive evidence that, in the non-incentivized setting, the role of self-perceived standing may be asymmetric. More precisely, individuals appear to dislike being poorer than average, with the utility penalty increasing as income falls farther below the average. However, once they surpass the average income, they seem not to care about whether they are slightly or substantially richer than average. Additional details and the corresponding table are provided in Appendix E.2.

4. Conclusions

This paper contributes to the literature on status preferences by quantifying how two components of relative standing, self-perceived and socially-perceived standing, enter into choices. We do so by extending standard discrete-choice experiments to vary three objects separately: the respondent's own outcome, the average outcome of peers, and how others perceive the respondent's outcome. We implement this design across several domains and two elicitation methods: respondents either report their own choices or participate in an incentivized coordination game. Across these experiments, we find that both components help explain choices.

The results show that self- and socially-perceived standing do not play the same role in explaining choices. In four of the five experimental conditions, higher socially-perceived standing plays a positive role in explaining choices. At the same time, the self-perceived component is either statistically indistinguishable from zero or negative in those conditions, suggesting that factors favoring higher peer outcomes may offset or dominate conventional self-image considerations. The main exception is the income domain under non-incentivized elicitation, where respondents value higher self-perceived standing and lower socially-perceived standing.

The divergence between the two income conditions can be interpreted in more than one way. One possibility is that the incentivized game mitigates social-desirability concerns because respondents are rewarded for coordinating on the modal response rather than report their own choices directly. The negative coefficient on socially-perceived income in the non-incentivized condition could then reflect respondents' reluctance to admit that they value being perceived as richer. Such reluctance is especially plausible in the income domain, where a desire to appear wealthy may carry negative social connotations associated with materialism and impression management (Van Boven et al., 2010). The absence of a comparable divergence across tasks in the GPA domain, where a desire to be perceived as higher-achieving may carry less stigma, is consistent with this possibility.

A second possibility is that the differences reflect the different tasks. The non-incentivized method asks respondents about their own choices, whereas the incentivized game rewards them for coordinating on the modal response. Choices in the game may depend on beliefs about which response will be modal, on focal points, perceived norms, or strategic reasoning, making them less straightforward to interpret. Respondents may also genuinely prefer not to be perceived as richer than they are because of an aversion to misrepresenting themselves, discomfort with appearing to claim a higher status, or concerns about envy, requests for financial help, or unwanted attention. Under this interpretation, the divergence reflects a meaningful difference between own-choice reports and coordination-game choices.

Future work could distinguish between these interpretations by separately eliciting respondents' own preferences, their beliefs about others' preferences, and their beliefs about the social acceptability of expressing status concerns. It could also vary the cognitive demands of the task to distinguish between differences in the object being elicited and additional measurement error.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data for this article can be found online at doi:10.1016/j.jpubeco.2026.105778.

Data availability

The code and data to replicate all the analysis are available at https://osf.io/u4m7r/overview

References

Akerlof, G.A., Kranton, R.E., 2000. Economics and identity. Q. J. Econ. 115 (3), 715–753.
Angeli, D., Matavelli, I., Secco, F., 2023. Expected discrimination and job search. mimeo.
Arrow, K., Solow, R., Portney, P.R., Leamer, E.E., Radner, R., Schuman, H., 1993. Report of the NOAA Panel on Contingent Valuation. Technical report, National Oceanic and Atmospheric Administration.
Bagwell, L.S., Bernheim, B.D., 1996. Veblen effects in a theory of conspicuous consumption. Am. Econ. Rev. 349–373.
Bašić, Z., Quercia, S., 2022. The influence of self and social image concerns on lying. Games Econ. Behav. 133, 162–169.
Bašić, Z., Verrina, E., 2024. Personal norms — and not only social norms — shape economic behavior. J. Public Econ. 239, 105255.
Bénabou, R., Henkel, L., Sep 2025. Identity as Self-Image. NBER Working Papers 34297, National Bureau of Economic Research, Inc.
Bénabou, R., Tirole, J., 2002. Self-confidence and personal motivation. Q. J. Econ. 117 (3), 871–915.
Bénabou, R., Tirole, J., 2006. Incentives and prosocial behavior. Am. Econ. Rev. 96 (5), 1652–1678.
Bernheim, B.D., 1994. A theory of conformity. J. Polit. Econ. 102 (5), 841–877.
Bottan, N.L., Perez-Truglia, R., 2022. Choosing your pond: location choices and relative income. Rev. Econ. Stat. 104 (5), 1010–1027.
Brazell, J.D., Diener, C.G., Karniouchina, E., Moore, W.L., Séverin, V., Uldry, P.-F., 2006. The no-choice option and dual response choice designs. Mark. Lett. 17, 255–268.
Bursztyn, L., Ferman, B., Fiorin, S., Kanz, M., Rao, G., 2018. Status goods: experimental evidence from platinum credit cards. Q. J. Econ. 133 (3), 1561–1595.
Card, D., Mas, A., Moretti, E., Saez, E., 2012. Inequality at work: the effect of peer salaries on job satisfaction. Am. Econ. Rev. 102 (6), 2981–3003.
Chierichetti, F., Kumar, R., Re, G., Tomkins, A., 2025. RUMs with ties: a discrete choice model allowing multiple winners. In: Social Networks Analysis and Mining, vol. 15211. Springer, pp. 188–206 Lecture Notes in Computer Science.
Clark, A.E., Oswald, A.J., 1996. Satisfaction and comparison income. J. Public Econ. 61 (3), 359–381.
Clark, A.E., Senik, C., 2010. Who compares to whom? The anatomy of income comparisons in Europe. Econ. J. 120 (544), 573–594.
Clark, A.E., Frijters, P., Shields, M.A., 2008. Relative income, happiness, and utility: an explanation for the easterlin paradox and other puzzles. J. Econ. Lit. 46 (1), 95–144.
Clark, A., Senik, C., Yamada, K., 2017. When experienced and decision utility concur: the case of income comparisons. J. Behav. Exp. Econ. 70, 1–9.
Clark, A.E., Senik, C., Yamada, K., 2022. The joneses in Japan: income comparisons and financial satisfaction. Jpn. Econ. Rev. 73 (2), 351–372.
Cullen, Z., Perez-Truglia, R., 2022. How much does your boss make? The effects of salary comparisons. J. Polit. Econ. 130 (3), 766–822.
Dupas, P., Fafchamps, M., Hernandez-Nunez, L., 2024. Keeping up Appearances: An Experimental Investigation of Socioeconomic Status Signaling to Avoid Discrimination. Working Paper 32491, National Bureau of Economic Research.
Edwards, A.L., 1957. The Social Desirability Variable in Personality Assessment and Research. Dryden Press, New York.
Fennis, B.M., 2008. Branded into submission: brand attributes and hierarchization behavior in same-sex and mixed-sex dyads. J. Appl. Soc. Psychol. 38 (8), 1993–2009.
Festinger, L., 1954. A theory of social comparison processes. Hum. Relat. 7 (2), 117–140.
Haaijer, R., Kamakura, W., Wedel, M., 2001. Mixed logit with repeated choices: households' choices of appliance efficiency level. Int. J. Mark. Res. 43 (1), 93–106.
Harbaugh, W.T., 1998. The prestige motive for making charitable transfers. Am. Econ. Rev. 88 (2), 277–282.
Johansson-Stenman, O., Carlsson, F., Daruvala, D., 2002. Measuring future grandparents' preferences for equality and relative standing. Econ. J. 112 (479), 362–383.
Köszegi, B., 2006. Ego utility, overconfidence, and task choice. J. Eur. Econ. Assoc. 4 (4), 673–707.

Krupka, E.L., Weber, R.A., 2013. Identifying social norms using coordination games: why does dictator game sharing vary? J. Eur. Econ. Assoc. 11 (3), 495–524.
Layard, R., Dec 2005. Rethinking public economics: the implications of rivalry and habit. In: Bruni, L., Porta, P.L. (Eds.), Economics and Happiness: Framing the Analysis. Oxford University Press.
Lundhede, T.H., Olsen, S.B., Jacobsen, J.B., Thorsen, B.J., 2009. Handling respondent uncertainty in choice experiments: evaluating recoding approaches against explicit modelling of uncertainty. J. Choice Model. 2 (2), 118–147.
Luttmer, E.F., 2005. Neighbors as negatives: relative earnings and well-being. Q. J. Econ. 120 (3), 963–1002.
Maestas, N., Mullen, K.J., Powell, D., von Wachter, T., Wenger, J.B., 2023. The value of working conditions in the United States and the implications for the structure of wages. Am. Econ. Rev. 113 (7), 2007–2047.
Nelissen, R.M., Meijers, M.H., 2011. Social benefits of luxury brands as costly signals of wealth and status. Evol. Hum. Behav. 32 (5), 343–355.
Perez-Truglia, R., 2020. The effects of income transparency on well-being: evidence from a natural experiment. Am. Econ. Rev. 110, 1019–1054.
Shigeoka, H., Yamada, K., 2019. Income-comparison attitudes in the United States and the United Kingdom: evidence from discrete-choice experiments. J. Econ. Behav. Organ. 164, 414–438.
Solnick, S.J., Hemenway, D., 1998. Is more always better? A survey on positional concerns. J. Econ. Behav. Organ. 37 (3), 373–383.
Train, K., 2009. Discrete Choice Methods with Simulation, second ed. Cambridge University Press, Cambridge.
Van Boven, L., Campbell, M.C., Gilovich, T., 2010. Stigmatizing materialism: on stereotypes and impressions of materialistic and experiential pursuits. Personal. Soc. Psychol. Bull. 36 (4), 551–563.
Yamada, K., Sato, M., 2013. Another avenue for anatomy of income comparisons: evidence from hypothetical choice experiments. J. Econ. Behav. Organ. 89, 35–57.