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Leaving Money on the Table

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Leaving Money on the Table

Abstract

There is much disagreement about the extent to which financial incentives motivate study participants. We elicit preferences for being paid for completing a survey, including a one-in-twenty chance of winning a \$100 electronic gift card, a guaranteed electronic gift card with the same expected value, and an option to refuse payment. More than twice as many participants chose the lottery as chose the guaranteed payment. Given that most people are risk averse, this pattern suggests that factors beyond risk preferences—such as hassle costs—influenced their decision-making. Almost 20 percent of participants actively refused payment, demonstrating low monetary motivation. We find both systematic and unobserved heterogeneity in the characteristics of who turned down payment. The propensity to refuse payment is more than four times as large among individuals 50 and older compared to younger individuals, suggesting a tradeoff between financially motivating participants and obtaining a representative sample. Overall, our results suggest that modest electronic gift card payments violate key requirements of Vernon Smith's induced value theory.

JEL-Codes: C830, C900.

Keywords: incentives, motivation, induced value theory.

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1. Introduction

Researchers have long emphasized the importance of monetary incentives to improve survey participation (Abdelazeem et al. 2023). Offering incentives has long been regarded as a fundamental principle of sound experimental design, ensuring that participants remain engaged and motivated (e.g., Plott 1986; Smith 1976, 1982; Svorenčik and Maas 2016; Voslinsky and Azar, 2021). While a large literature has examined the role of stake sizes (e.g., Enke et al. 2023; Gneezy et al. 2024) and the impact of paying anything at all (e.g., Falk et al. 2018), less attention has been paid to *how* participants are paid. With electronic gift card payments becoming increasingly popular among researchers carrying out online incentivized studies (e.g., Alcott et al. 2020; Stancheva 2023), understanding the extent to which these adequately motivate participants is worthwhile.

We evaluate the effectiveness of electronic gift cards from the point of view of the induced value theory of Vernon Smith (1976, 1982). A key requirement for measuring subjects' preferences for monetary payoffs—to measure their risk aversion, for example—is that choices between alternatives must either be costless or that those costs must be “small” relative to the size of the monetary incentives. Additionally, induced value theory requires *dominance*, whereby monetary incentives must dominate any subjective values subjects may place on outcomes, such as other-regarding preferences.

We evaluate the extent to which this is likely to be true in the context of electronic gift card payments by giving a sample of over 1,000 survey-takers a simple choice of how they wish to be paid, including an option to refuse payment. Respondents had three options: earn \$5 guaranteed, enter a lottery for a 1 in 20 chance of receiving \$100 (i.e., an expected value of \$5), or decline payment. Those who were paid received an electronic gift card; most of them had many choices of retailers. The survey took the median respondent about 7 minutes to complete, implying that the average hourly compensation was as high or higher than what is offered in many surveys and online experimental studies (e.g., Allcott et al. 2022; Chadd, Filiz-Ozbay, and Ozbay 2024). Although our respondents are mostly PhD students and faculty and not drawn from the general population, the increasing number of studies targeting experts and scientists (e.g., Boudreau et al. 2017; Deryugina and Shurchkov 2021; Rau, Samek, and Zhurakhovska 2022; Drupp et al. 2024) makes our sample a compelling one to study.

Of the 1,116 individuals who completed the survey, 57 percent chose the lottery and less than half as many (25 percent) chose the guaranteed amount with the same expected value. Given the overwhelming experimental evidence that most individuals are risk-averse (e.g., Holt and Laury 2002, Dohmen et al. 2011), we would expect people whose choices are only based on their risk preferences to strictly prefer the guaranteed \$5. Instead, these results imply that other factors—such as hassle costs—become dominant for at least some participants when payment is in the form of an electronic gift card. This, in turn, suggests that the use of similarly-valued electronic gift cards as a form of payment violates at least one of the key assumptions of Vernon Smith's induced value theory, which requires choices to be costless and for monetary incentives to dominate other considerations (Smith 1976, 1982).

Strikingly, the remaining 18 percent of individuals actively declined payment, suggesting that a notable share of study participants was unmotivated by the offered financial remuneration and may therefore have behaved as though there were no monetary incentives. This pattern once again supports the idea that electronic gift cards violate the requirements of induced value theory, either because participants did not view accepting payment as costless or because they were motivated by other, non-monetary considerations (e.g., altruism). Furthermore, while 82 percent of our sample accepted payment, the sizable group who rejected it suggests that even among those who selected a reward, some may have been nearly indifferent. Supporting this hypothesis, we find that approximately a quarter of electronic gift card recipients had not redeemed their gift card nine months later, including a similar share of those who received \$100.

Our analysis of the characteristics of individuals who choose the lottery over the fixed payment and of those who decline payment sheds light on how systematic these preferences are and supports the external validity of our findings. The probability of choosing the lottery over the fixed payment increases with age, but not strongly. This pattern goes against previous findings that risk aversion *increases* with age (Dohmen et al. 2011, 2017; Falk et al. 2018). Furthermore, women are no less likely to choose the lottery over the fixed payment compared to men, despite extensive literature documenting that women are generally more risk averse (Charness and Gneezy 2012; Shurchkov and Eckel 2018). Both patterns support the presence and influence of non-monetary considerations. We also find that White individuals are 15 percentage points more likely to choose the lottery over the fixed payment, while respondents from the U.S. are 16 percentage points less likely to do so. Finally, a flexible machine learning algorithm correctly predicts the choice of lottery versus the fixed payment for 78 percent of cases where respondents chose the lottery and for 51 percent of cases where respondents chose the fixed payment. This means that a large share of the heterogeneity in these choices cannot be explained by observable variables.

Turning to payment refusal, the single largest predictor of not wanting any compensation is age: only 1.25 percent of participants under the age of 30 turned down compensation, while almost half of those aged 60 and older did. Women were about 6 percentage points less likely to turn down compensation than men (15.5 percent vs. 21.7 percent), although this difference disappears when other characteristics are controlled for. We also find differences by nationality: almost twice as many individuals from outside of the U.S. (mostly in the European Economic Area) do not want compensation as those from inside the U.S., with an absolute difference of 12 percentage points. White individuals were about 4 percentage points more likely to want compensation compared to non-White individuals, although the difference is only marginally significant. Applying an analogous machine learning algorithm to this choice, we correctly predict payment refusal in 52 percent of such cases, implying that about half of the heterogeneity in declining payment is unobserved.

There are several reasons why some participants may decline payment for completing a study. First, the inconvenience and transaction costs of receiving a payment may be large relative to the payment amount. Such “hassle costs” could include having to spend time redeeming an electronic gift card, supplying information required to receive the funds, having to report their earnings to tax authorities or their employer (Waltz, Davis, and Fisher 2023), and so on. Hassle costs could also explain why there was a strong preference for the lottery, which involved the same

redemption process for winners as the fixed prize but offered a higher prize amount. Another reason why participants rejected payment could simply be because they're altruistic, either in general or toward the researchers. We provide partial support for the hassle costs explanation and offer some evidence to rule out pro-social behavior.

Our finding that a significant portion of the participants prefer not to be paid has important implications for studies that attempt to draw general conclusions about behavior and/or preferences from how study participants make choices involving monetary rewards. First, the fact that nearly 20 percent of participants declined payment offers a new perspective on studies highlighting that monetary incentives do not always affect behavior (e.g., DellaVigna and Pope 2018b; Erkal et al. 2018). Typically, alignment between incentivized and unincentivized behavior is interpreted as evidence that unincentivized participants act as if they are motivated by the incentives. However, our findings suggest an equally plausible explanation: a non-trivial share of participants who are offered payment may behave as if they were unincentivized.¹

Second, our paper contributes to the extensive literature on incentivized preference elicitation, such as risk preferences (see Charness, Gneezy, and Imas 2013 for an overview of commonly used methods). For example, experimental research suggests that the use of “close-to-cash” gift cards like those we use in our study can reduce subjects’ risk-aversion compared to cash payments (Collier, Cotten, and Roush 2024). This is consistent with our observation that more than double the number of participants prefer the lottery over the guaranteed payment of equivalent monetary value. Moreover, our findings suggest that some of the observed heterogeneity in incentivized decisions may be driven, at least in part, by differences in participants’ desire for payment rather than by fundamental differences in preferences. Importantly, indifference to payment is distinct from risk neutrality due to, for example, small stakes; participants who are indifferent to compensation may fail to maximize expected value altogether. If the decision to opt out of payment varies systematically by participant characteristics, it becomes challenging to differentiate genuine preference heterogeneity from differences in monetary motivation, potentially biasing the interpretation of behavioral outcomes. For instance, observed gender differences in risk-taking (Charness and Gneezy 2012) or greater generosity among older adults compared to younger individuals in dictator games (Engel 2011) could reflect varying degrees of financial motivation rather than inherent preference differences. Existing preference elicitation schemes, however, do not typically include an option to decline payment, making it impossible to disentangle preference heterogeneity from heterogeneity in payment indifference.² Our study highlights the importance of accounting for this distinction when interpreting the results from incentivized experiments that elicit preferences. Third, our findings raise concerns about the suitability of electronic gift cards in research that aims to elicit preferences or real effort. Electronic gift cards are an increasingly common payment type for online surveys and experiments (e.g., Chetty, Saez, and Sándor 2014; Alcott et al. 2020; Deryugina, Shurchkov, and Stearns 2021;

¹ Note that there is also literature comparing hypothetical payments versus real financial incentives (e.g., List and Gallet 2001; Engel 2011). Our study shifts the focus to whether participants reject tangible financial rewards altogether.

² For example, Charness, Gneezy, and Halladay (2016) explain the pros and cons of a variety of payment methods, but assume that individuals are similarly incentivized by the same payment.

Stancheva 2023 among many others). Research indicates that participants value gift cards below their nominal worth (Gneezy, List, and Wu 2006; Offenbergh 2007; Gizatulina and Gorelkina 2017; Collier, Cotten, and Roush 2024). Building on these findings, our results suggest that electronic gift cards violate Vernon Smith's induced value theory and may not be incentive-compatible more generally, at least when the offered amounts are modest.

Fourth, our findings underscore the importance of considering variations in participants' sensitivity to monetary rewards when designing experimental incentives more generally. While Falk et al. (2013) emphasize the importance of maintaining identical decision environments and monetary incentives across all participants and treatment groups, offering equal compensation to all participants does not necessarily ensure equal motivation. Identical financial stakes may feel more significant to younger, more financially constrained, participants than to older ones, creating asymmetries in the strength of the incentives. If younger participants are more financially motivated, college students may actually be an ideal group to recruit for studies where being financially incentivized is critical. However, if older individuals are a key demographic to study given the research question, then increasing the magnitude of the incentives to better motivate this group may be essential (see Haigh and List 2005). Regardless of the incentive scheme chosen, including an explicit option for participants to opt out of payment can help researchers identify those who are less financially motivated. This, in turn, would enable researchers to investigate whether their results are robust to excluding participants with low financial motivation from the analysis.

Finally, budget constraints are a common challenge in study design, requiring researchers to make strategic decisions about the size and form of incentives (e.g., lotteries with high prizes versus smaller guaranteed payments). Our results suggest a novel way to address these constraints. While the cost savings will depend on the monetary stakes and the study population, explicitly offering participants an option to decline payment not only identifies the subjects who are not financially motivated but also provides a low-cost way to expand the participant pool within a fixed budget. Of course, one way to manage a limited budget is to cap the total prize value (e.g., offer 50 gift cards total). The challenge is that this method reduces the expected payoff for each participant as the sample size increases. The advantage of our strategy—namely, offering the participants the option to decline payment—is the ability to recruit additional participants without decreasing the incentives offered to others or increasing overall expenditure.

The rest of the paper is organized as follows. Section 2 details the study design. Section 3 describes the sample and summarizes participants' incentive choices. We present formal analysis in Section 4 and discuss the results in more detail in Section 5.

2. Study setting

In August 2023, we launched a longitudinal study on the professional use of social media, inviting academics and researchers from around the world to participate. Most of those invited were PhD students and university/college faculty from business and social science fields. The study consisted of three components: a baseline survey, an intervention encouraging a random

subset of participants to use X (formerly known as Twitter), and a follow-up survey. 2,076 eligible individuals completed our baseline survey, and 1,116 of them completed the follow-up survey.³

Participants in the follow-up survey were recruited in May 2024 from those who had completed the baseline survey. The follow-up survey included questions about participants' social media use (e.g., whether they had an X account and the frequency of use) and their work experiences (e.g., the number of new research projects started and overall job satisfaction). At the end of the survey, participants were asked to choose their preferred method of payment for completing the survey: a guaranteed \$5 electronic gift card or entry into a lottery with a 1 in 20 chance to win a \$100 electronic gift card. Both options had the same expected value of \$5. Participants were also presented with a third option: "I am not interested in or unable to accept compensation for completing this survey." Survey invitation details and a screenshot of this final screen of the survey can be found in the online appendix.

We structured payments to minimize hassle costs and provide flexible options for participants. Gift cards were delivered electronically, in the participant's local currency, via the Tango digital gift card delivery system designed for global reach, flexibility, and ease of use. Participants who opted to receive a gift card were generally provided a wide range of gift cards to choose from and could split their prize across multiple gift cards.⁴ For instance, a \$100 prize could be split between a \$50 Uber gift card, a \$20 Amazon gift card, and a \$30 Target gift card. This setup aimed to maximize convenience and minimize any barriers to using an electronic gift card (e.g., mismatch between desired and available retailers or currency incompatibility). For those who chose the lottery, any effort to redeem the gift card would only have to be incurred in the event of a win.

3. Descriptive statistics

Table 1 shows the demographics of the 1,116 individuals who completed the follow-up survey.⁵ Almost half of the sample (48 percent) were women. The average participant was 42 years old. About a third were between 30 and 39 years old and an additional 28 percent were aged 40-49. In our sample, 74 percent of the participants identified only as White; 52 percent of the individuals were university or college faculty, and 22 percent were PhD students. Finally, slightly more than half the sample resided in the U.S., and an additional 29 percent were in the European Economic Area (EEA) when they completed the baseline survey.

³ Individuals had to use X less than an hour per week or not at all and be active researchers with PhDs or PhD students who completed their coursework to be eligible for the baseline survey. The experiment on the effect of X on academic outcomes was pre-registered with the AEA RCT Registry (AEARCTR-0011807); however, the analysis shown here is not part of that pre-registration. The study website can be found at <https://sites.google.com/wellesley.edu/socmed>. The online appendix and the study website provide additional details on how the participants were identified and recruited, as well as the list of targeted fields.

⁴ Tango Card supports over 1,000 gift cards in more than 80 countries and 20 currencies. Notably, the list of gift card options in dollars and euros—by far the most common currencies in our sample—is extensive (see <https://www.tangocard.com/reward-catalog?rewardcategory=gift+card> for additional details). Some participants received a prepaid Visa or Mastercard gift card, which could be used at any vendor that accepted Visa or Mastercard, respectively. This occurred when the participant belonged to a country that Tango Card did not have many (if any) retail gift card options.

⁵ Section B of the online appendix provides additional details about the construction of these variables.

Table 1: Sample characteristics

Age	42.17
Aged under 30	0.15
Aged 30-39	0.34
Aged 40-49	0.28
Aged 50-59	0.13
Aged 60-69	0.07
Aged 70 or above	0.03
Woman	0.48
White	0.74
Junior faculty	0.13
Non-junior faculty	0.40
PhD student	0.22
In U.S.	0.52
In EEA	0.29
Chose lottery	0.57
Opted out of payment	0.18

Note: N=1,116. 26 respondents did not report their age.

The most popular payment choice was the lottery: 57 percent of our participants chose this option (Table 1). An additional 18 percent of respondents indicated that they did not want to be paid at all, and the remaining 25 percent chose the fixed payment. Given that the expected value of the lottery is equal to the fixed payment and that most individuals are risk averse (e.g., Holt and Laury 2002; Dohmen et al. 2011), the strong preference for the lottery suggests the presence of some hassle costs. Intuitively, hassle costs make receiving the gift card burdensome, and some individuals may not be willing to bear the cost for \$5 but are more willing if the prize is \$100.

The large share of participants actively refusing payment suggests that even some of the participants who selected a payment option may not have been strongly financially motivated. Supporting this hypothesis, we find that 74 of the 308 respondents (24 percent) who received either \$5 or \$100 electronic gift cards still had not redeemed them nine months after the survey (as of February 2025), despite the ease of use and extensive catalog of options available to them. Remarkably, 9 of 36 participants (25 percent) who won a \$100 gift card still had not redeemed it nine months later, suggesting that even this larger amount does not sufficiently motivate some participants. Overall, the substantial share of respondents who either refuse payment or do not redeem their gift cards suggests that electronic gift card payments do not satisfy the dominance assumption necessary for effectively inducing true preferences for monetary outcomes (Smith 1976, 1982).⁶

⁶ Alternative explanations include the possibility that the email containing the gift card information was filtered into respondents' spam folders or that their email addresses were invalid. However, the latter scenario seems unlikely, because respondents successfully completed the follow-up survey using the same email addresses, and the gift cards were issued shortly thereafter.

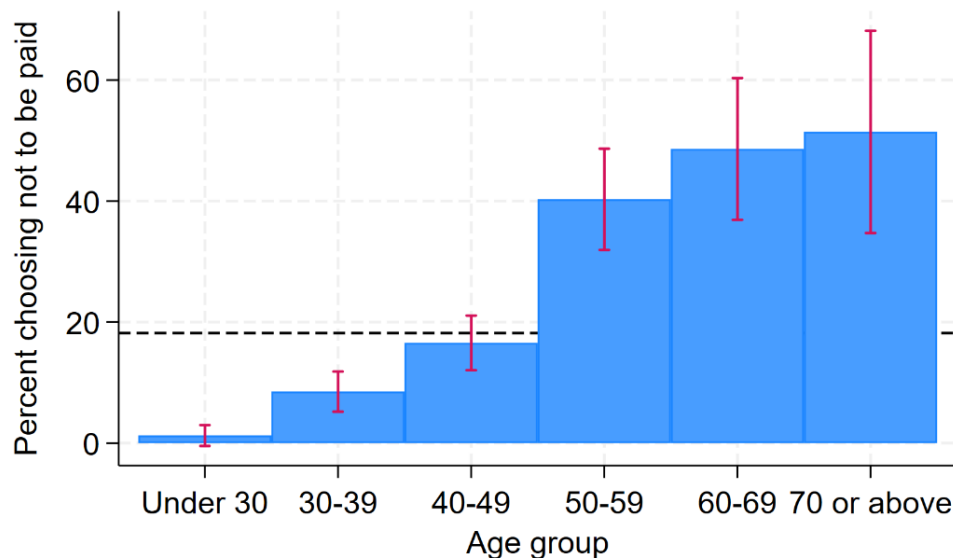
We next examine characteristics that could be correlated with a participant's choice to refuse payment. Wealth could play a significant role in this decision. When incentives are not very high, wealthier individuals may find the compensation not worth the hassle costs associated with redeeming the prize, even when the hassle costs are small. While we do not collect data on respondents' wealth or income, older respondents are, on average, likely to be wealthier than younger ones.

Age is also a compelling demographic to consider for other reasons, as previous research has documented a positive correlation between age and prosocial behavior in various economic games conducted in a laboratory setting (e.g., Matsumoto et al. 2016) and in the context of charitable donations (e.g., Hubbard et al. 2016). Additionally, studies have shown that people often participate in scientific research not only for personal benefit but also for altruistic reasons (e.g., Porst and von Briel 1995, Truong et al. 2011, Carrera et al. 2018). Consequently, if older individuals are more prosocial and view completing the survey for free as a way to help others (e.g., the researchers), then we would expect older participants to be more likely to opt out of payment compared to the younger ones.

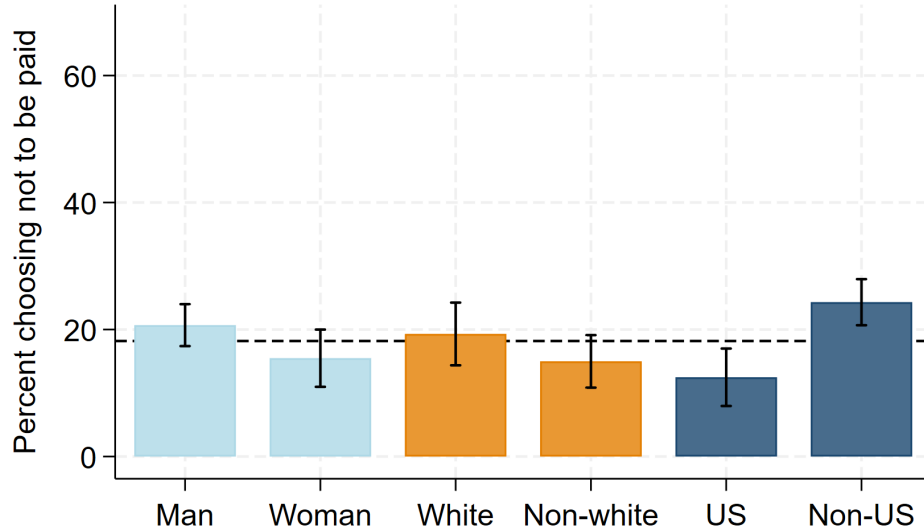
Panel (a) of Figure 1 shows the percent of respondents who refuse payment by age. There is a striking age gradient, with only 1.25 percent of under-30-year-olds turning down payment, but over 50 percent of individuals 70 and older doing so. The largest change between neighboring age groups is between those aged 40-49 and 50-59, when the share refusing payment increases from 17 percent to over 40 percent. The propensity to decline payment among the younger age groups is generally statistically different from one another. Individuals aged 50 and older are more than 4 times more likely to refuse payment than those under 50, but we cannot reject that all participant groups aged 50 and older refuse payment at the same rate.

Figure 1: Percent of individuals refusing payment, by respondent characteristics.

(a) By age



(b) By other characteristics



Notes: Figure shows group averages and 95 percent confidence intervals of an indicator equal to one if the individual refused payment and equal to zero otherwise. The horizontal dashed lines represent the in-sample mean.

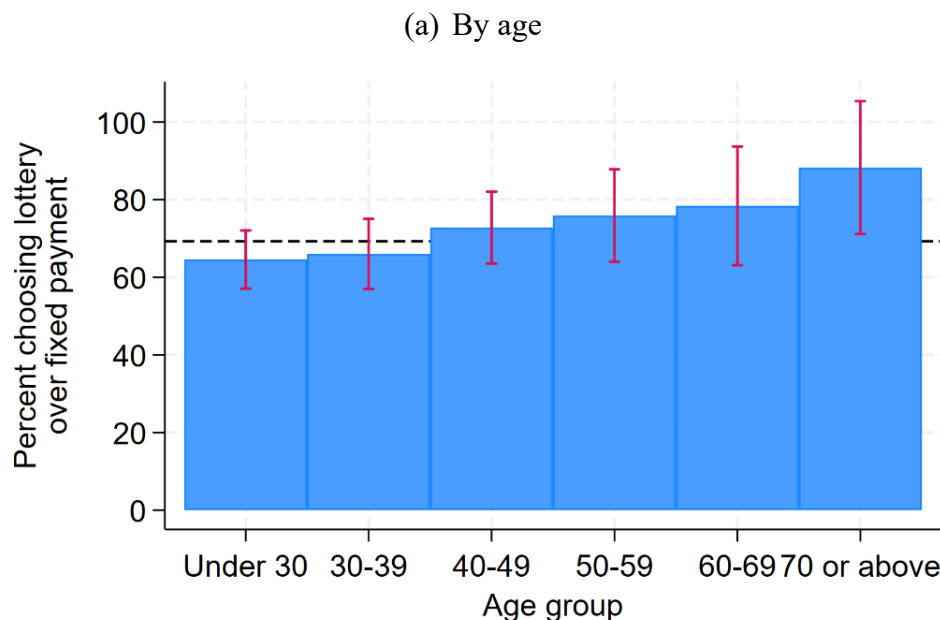
Other respondent characteristics, such as gender could also be correlated with a participants' payment choice. As discussed above, people may view the refusal of payment as an opportunity to demonstrate prosocial behavior. As such, we may expect women to refuse payment at a higher rate than men do, based on the research on gender differences in altruism (see Eckel and Grossman, 1998 and Brañas-Garza, Capraro, and Rascón-Ramírez 2018 among others). There may also exist a gradient by race, as some studies suggest a relationship between race and generosity (e.g., Andreoni et al. 2016). Similarly, there is evidence of a relationship between nationality and prosocial behavior (e.g., Henrich et al. 2001). Of course, wealth – and therefore one's sensitivity to hassle costs – could be correlated with gender (Sierminska, Frick, and Grabka 2010), race (Derenoncourt et al. 2021), and nationality (Cowell, Karagiannaki, and McKnight 2018) as well, and we conduct multivariate analyses in the next section.

Panel (b) of Figure 1 considers these three characteristics. Women are 5.2 percentage points less likely to turn down payment than men ($p = 0.024$), and White respondents are 4.3 percentage points more likely to do so than non-White respondents ($p = 0.086$). Compared to the average participant, women and non-White respondents are slightly less likely to decline payment, but these differences are not statistically significant. There is also a notable difference by location: non-U.S. respondents are 12 percentage points more likely to decline payment than U.S. respondents ($p < 0.001$). But, the variation around the mean for all these characteristics is much smaller than the variation by age.

We next examine the propensity to choose the lottery over the fixed payment among those who chose to be paid. This choice can shed further light on the properties of compensating

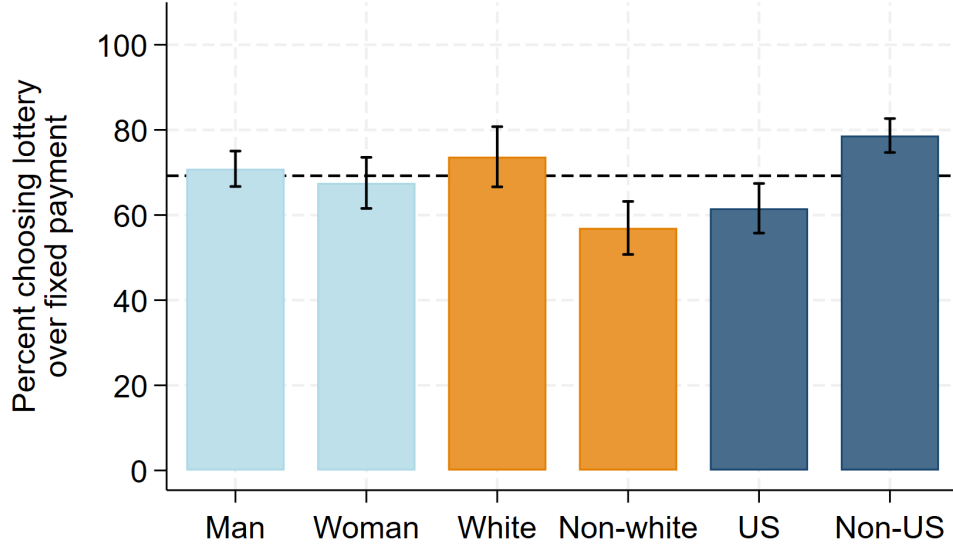
participants with electronic gift cards as well as speak to the presence of hassle costs. The lottery offers a \$100 prize for winners, a larger reward for a given hassle cost than the \$5 fixed payment. In addition, any hassle costs are only realized if a participant wins the lottery. If hassle costs contribute to refusing payment, we might expect to see an age gradient in the likelihood of choosing the lottery over the fixed payment, all else being equal, as long as the monetary equivalent of hassle costs is below \$100.⁷ Panel (a) of Figure 2 shows the age gradient with respect to this choice, conditional on not declining payment. While older individuals are indeed more likely to choose the lottery than younger individuals, the variation is less stark than with respect to declining payment: about 65 percent of individuals under 30 prefer the lottery, while 88 percent of individuals 70 or older do so ($p = 0.007$). The positive age gradient nonetheless supports the idea that hassle costs or some other nonmonetary considerations are affecting this choice, as prior analyses of stated preferences and experiments using incentivized (non-gift-card) payments have found risk aversion *increasing* with age (Dohmen et al. 2011, 2017; Falk et al. 2018).

Figure 2: Percent of individuals choosing the lottery over the fixed payment



⁷ Hassle costs might be prohibitive if respondents' employers forbid them from accepting payment. For instance, employees in the University of Illinois system are not able to accept payment for completing a survey without violating the gift ban unless they donate their reward. Some government agencies also have restrictions on how much money employees can accept from activities like these. Such restrictions could also contribute to a lack of monetary motivation among participants.

(b) By other characteristics



Notes: Figure shows group averages and 95 percent confidence intervals of an indicator equal to one if the individual chose the lottery and equal to zero if he or she chose the fixed payment. The horizontal dashed line represents the in-sample mean.

Hassle costs may also vary by gender, race, and nationality, potentially influencing the decision to choose a lottery over a fixed payment. Panel (b) of Figure 2 summarizes the choice of lottery over fixed payment across these demographic characteristics. The observed difference by gender is small and statistically insignificant. By contrast, there is heterogeneity by race—White respondents are significantly more likely to choose the lottery than non-White respondents (74 percent versus 57 percent, respectively)—and by nationality—participants from outside the U.S. choose the lottery at higher rates than participants from the U.S. (79 percent versus 62 percent, respectively). The difference by nationality is consistent with the hassle cost hypothesis, although we note that differences in choices between the lottery and the fixed payment can also reflect differences in risk preferences (e.g., Hsee and Weber 1999). However, if risk preferences were the sole driver of the patterns in Figure 1, we would have expected the probability of choosing the lottery to be larger for men than for women and for younger than for older participants because men and younger people are generally more risk-seeking (e.g., Shurchkov and Eckel 2018; Sutter, Zoller and Glätzle-Rützler 2019).

4. Regression analysis

To conduct richer analysis of payment decisions, we estimate the following equation:

$$C_i = \beta X_i + \varepsilon_i, \quad (1)$$

where C_i is a measure of participant i 's choice. Our primary outcomes of interest are the choice of lottery versus the guaranteed payment and payment refusal. The variable C_i is therefore either (1) an indicator variable that equals one if participant i chose the lottery and zero if they chose the guaranteed payment or (2) an indicator variable that equals one if participant i turned down both the lottery and the fixed payment options. We also consider whether the respondent completed the follow-up survey to provide evidence on pro-sociality. The vector X_i consists of various combinations of respondent characteristics that we describe below.

4.1 Payment refusal decision

Table 2 examines the likelihood of participants opting out of payment. Column 1 includes the demographic variables discussed in Section 3: age, gender, race (White vs. non-White), and location (U.S. vs. non-U.S.). Consistent with Figure 1, older respondents are significantly more likely to refuse payment: a one-year increase in age corresponds to a 1.2 percentage point (6.7 percent) increase in the probability of turning down payment, on average. By contrast, participants in the U.S. are 8.2 percentage points (45.6 percent) less likely to turn down payment. Gender and being White are uncorrelated with opting out of payment, once we control for age and location.

Table 2: Predictors of refusing payment

	(1)	(2)	(3)	(4)
Age (years)	0.012** (0.0010)	0.014** (0.0014)	0.013** (0.0013)	0.011** (0.0022)
Woman	0.016 (0.021)	0.038 (0.035)	0.14 (0.084)	0.021 (0.041)
White	-0.000044 (0.024)	0.0010 (0.039)	0.0035 (0.035)	-0.040 (0.10)
In U.S.	-0.082** (0.022)	0.11 (0.082)	-0.068* (0.030)	-0.072 (0.042)
Age x U.S.		-0.0040* (0.0020)		
Woman x U.S.		-0.040 (0.044)	-0.028 (0.044)	
White x U.S.		-0.000082 (0.049)		-0.013 (0.049)
Woman x age			-0.0025 (0.0021)	
Woman x White			-0.0051 (0.048)	-0.0076 (0.048)
White x age				0.0013 (0.0025)
Dep. var. mean	0.18	0.18	0.18	0.18
R-squared	0.16	0.16	0.16	0.16
N	1,090	1,090	1,090	1,090

Notes: The outcome is an indicator variable that equals one if the participant declined payment and zero otherwise.

Robust standard errors in parentheses. Significance levels:

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Columns 2-4 of Table 2 explore additional heterogeneity by introducing interaction terms, revealing remarkably little variation within subgroups. Specifically, the lack of a significant association between gender and payment refusal holds across age, race, and location. The positive relationship between turning down payment and age likewise does not vary by race or location, with one exception. Among U.S.-based respondents, each additional year of age *reduces* the likelihood of opting out by 0.4 percentage points. This moderates the relationship between age and payment refusal by about 30 percent compared to respondents outside of the U.S.

The results in Table 2 suggest a tradeoff between ensuring that participants are incentivized by the monetary incentives provided and ensuring a sample that is representative of the broader population, especially with respect to age. A common critique of using college students as subjects of convenience in lab experiments is that they are significantly younger than and differ in many ways from the broader population. Our results provide a counterpoint: While recruiting a nationally

representative sample addresses this limitation, it risks under-incentivizing older participants, potentially altering their behavior in unanticipated ways.

To further investigate the factors driving the likelihood of turning down payment and to assess the extent of *unobserved* heterogeneity in the likelihood of turning down payment, we complement the regression analysis summarized in Table 2 with a LASSO probit model. This model includes gender, race (White vs. non-White), location (U.S. vs. non-U.S.), age bins, career stage (PhD student, junior faculty, non-junior faculty, and other), and all possible interactions between these factors. There are 124 unique combinations of these characteristics in our data, motivating our use of LASSO to prevent overfitting.

We then consider the prediction errors. The root mean square error (RMSE) for the LASSO model with all these potential predictors included is 0.12, which is only slightly lower than the RMSE for a probit with just a constant term (0.15). After selecting a predicted probability cutoff such that the predicted proportion of people turning down payment matches the actual proportion (18 percent), the model correctly predicts payment refusal in 52 percent of the cases (100 out of 194). The results suggest that, while observable characteristics account for a non-trivial share of the systematic heterogeneity in payment refusal, about half of the heterogeneity in the likelihood of payment refusal is driven by unobservable (to us) factors.

Table 3 shows the complete confusion matrix corresponding to the LASSO model. The model incorrectly classifies 94 individuals who refused payment as non-refusers and 96 individuals who did not refuse payment as refusers. Unsurprisingly—because over 80 percent of participants chose not to refuse payment—the model correctly predicts non-refusal in a large share of non-refusal cases (800 out of 896 or 89 percent).

Table 3: Confusion matrix for payment refusal

		Predicted refusal	
		No	Yes
Actual refusal	No	800	96
	Yes	94	100

Note: Table shows a tabulation of the predicted and actual decisions to turn down payment. "Yes" means the respondent refused or was predicted to refuse payment. "No" means the respondent did not refuse or was predicted to not refuse payment.

Finally, we use another LASSO probit model to predict what subjects who refused payment would have chosen had the option to refuse payment not been there. Specifically, we use the same set of 124 variables capturing all possible combinations of respondents' gender, age, race, location, and professional position to estimate the relationship between these characteristics and choosing the lottery over the fixed payment in the sample of participants who did not refuse payment. We select a predicted probability cutoff such that the predicted proportion of participants choosing the

lottery among those who did not refuse payment matches its empirical counterpart (69.2 percent). The model then predicts that 82.5 percent (160 out of 194) of participants who refused payment would have chosen the lottery if the option to opt out of payment had not been available.

4.2 Choice of lottery versus guaranteed amount

Table 4 shows the correlates of the propensity to choose the lottery over the fixed payment among participants who opted to be paid. This analysis formalizes the data tabulations in Section 3 that suggest that gift cards violate important requirements of Vernon Smith's induced value theory. In particular, the theory assumes that choices between two payment options—differing only in the size of the reward—should be costless. These results also provide the most direct—albeit still imperfect—test of whether hassle costs drive the observed lack of interest in receiving payment: if hassle costs are a significant determinant, we would expect patterns similar to those observed in Table 2.

The likelihood of choosing the lottery increases with age, but the effect is only marginally significant and the magnitude—0.3 percentage points per year of age—is substantially smaller than the 1.2 percentage points per year of age observed for turning down payment (Column 1 of Table 2). Moreover, the results are at odds with previous findings that older individuals are *more* risk averse (Dohmen et al. 2011, 2017; Falk et al. 2018), suggesting that the choice between lottery and fixed payment is affected by factors other than risk preferences. Similarly, based on prior findings we would expect women to be more likely to choose the guaranteed payment, yet we see no gender difference in the propensity to choose the lottery in Table 4. Overall, the evidence from this multivariate regression analysis is consistent with the simple comparisons in Section 3 and suggests that electronic gift card payments do not provide appropriate monetary incentives to draw conclusions about subjects' preferences, at least when the amounts are similar to those we employ here.

Table 4: Predictors of choosing lottery over fixed payment

	(1)	(2)	(3)	(4)
Age (years)	0.0031* (0.0013)	0.0017 (0.0017)	0.0035* (0.0016)	0.0023 (0.0034)
Woman	-0.0041 (0.030)	0.040 (0.041)	0.14 (0.12)	0.060 (0.067)
White	0.15** (0.037)	0.16** (0.053)	0.19** (0.052)	0.15 (0.16)
In U.S.	-0.16** (0.030)	-0.22 (0.12)	-0.12** (0.041)	-0.16* (0.065)
Age x U.S.		0.0028 (0.0025)		
Woman x U.S.		-0.080 (0.060)	-0.091 (0.059)	
White x U.S.		-0.026 (0.074)		0.0017 (0.073)
Woman x age			-0.00066 (0.0026)	
Woman x White			-0.090 (0.074)	-0.086 (0.075)
White x age				0.0011 (0.0036)
Dep. var. mean	0.70	0.70	0.70	0.70
R-squared	0.061	0.065	0.065	0.063
N	896	896	896	896

Notes: The outcome is an indicator variable that equals one if the participant chose the lottery and zero if they choose the guaranteed payment. Participants who declined payment are excluded from this analysis. Robust standard errors in parentheses. Significance levels: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

A plausible explanation for the inconsistency between patterns by gender and age in our sample and prior findings on risk aversion is that claiming and/or redeeming an electronic gift card entails non-trivial hassle costs. The lottery option provides a higher prize for (presumably) the same hassle costs as the guaranteed amount, and this fact may override at least some respondents' risk preferences. High hassle costs would also explain why some participants refuse payment outright.

Further supporting the hassle cost hypothesis, respondents in the U.S. are 16 percentage points less likely to choose the lottery over a fixed payment (Columns 1 and 4 of Table 4), paralleling their reduced likelihood of turning down payment (Table 2). Conversely, while we see no significant relationship between turning down payment and identifying as White in Table 2, White respondents are 15 percentage points more likely to choose the lottery. We find no evidence

of further heterogeneity when examining interactions with race, gender, age, and location (U.S. vs. non-U.S.).

Table 5 presents a confusion matrix for the choice between the lottery and the guaranteed payment, constructed analogously to that in Table 3. For those who chose the fixed payment, the model predicts the correct choice exactly half the time (139 out of 278). For those who chose the lottery, the model predicts the correct choice for 78 percent (484 out of 618). The results indicate that observable characteristics explain a meaningful portion of the systematic variation in the lottery choice decision; however, about 30% of the heterogeneity appears to be driven by factors that are unobserved in our data (computed as the number of mispredictions divided by the number of observations).

Table 5: Confusion matrix for choosing lottery over guaranteed payment

		Predicted lottery	
		No	Yes
Actual lottery	No	139	139
	Yes	134	484

Note: Table shows a tabulation of the predicted and actual decisions to choose the lottery over the guaranteed payment. "Yes" means the respondent chose the lottery or was predicted to choose the lottery. "No" means the respondent chose the guaranteed payment or was predicted to choose the guaranteed payment.

A potential concern with this analysis of the choice of lottery versus guaranteed payment is that it excludes the participants who refused payment. Online Appendix Table A.1 considers the *unconditional* choices of lottery and fixed payment and shows that the results are similar to those in Table 4.

4.3 Evidence on pro-social behavior

Aside from hassle costs, altruism could have affected participants' decisions about whether they wanted to be paid (e.g., Charness and Haruvy 2002). Although the presence of general altruism among participants would not affect the external validity of our results, it may make it more likely that participants act as though they're financially motivated despite not actually being so. To test for general pro-sociality, we examine whether the characteristics correlated with turning down payment are also correlated with responding to the follow-up survey. This analysis relies on the implicit assumption that both actions—refusing payment and completing the survey—are perceived as similar pro-social behaviors by individuals in our sample. Table 6 illustrates how response rates vary by age and other characteristics. At face value, the results differ from those in Table 2, suggesting that altruism alone is unlikely to explain payment refusal. For example, age – a strong predictor of payment refusal – is uncorrelated with follow-up response rates. U.S. respondents, who are less likely to refuse payment (Table 2), are *more* likely to respond to the follow-up survey (Table 6). Although these patterns may also reflect motivations other than altruism, the lack of any significant estimates consistent with Table 2 is strongly suggestive that general altruism is not driving payment refusal.

Table 6: Predictors of completing the follow-up survey

	(1)	(2)	(3)	(4)
Age (years)	-0.00055 (0.00093)	-0.00021 (0.0012)	-0.00058 (0.0012)	-0.00089 (0.0019)
Woman	-0.041 (0.022)	-0.059 (0.031)	-0.044 (0.087)	-0.023 (0.043)
White	0.11** (0.025)	0.11** (0.034)	0.13** (0.035)	0.10 (0.10)
In U.S.	0.14** (0.022)	0.14 (0.090)	0.12** (0.031)	0.13** (0.041)
Age x U.S.		-0.00084 (0.0019)		
Woman x U.S.		0.039 (0.045)	0.043 (0.044)	
White x U.S.		0.015 (0.049)		0.014 (0.049)
Woman x age			0.000039 (0.0019)	
Woman x White			-0.025 (0.049)	-0.025 (0.050)
White x age				0.00047 (0.0022)
Dep. var. mean	0.54	0.54	0.54	0.54
R-squared	0.030	0.031	0.031	0.030
N	2,029	2,029	2,029	2,029

Notes: The outcome is an indicator variable that equals one if the participant completed the follow-up survey. Robust standard errors in parentheses. Significance levels: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Studies have also shown that individuals tend to display greater altruism toward others who share their identity (e.g., Ockenfels and Werner 2014; Fong and Luttmer 2019). In our study, respondents could have felt an affinity toward the researchers due to shared attributes, such as their academic status, gender, or employment in the U.S., which could have led to payment refusal as a form of solidarity. Because these motivations would be specific to our study, their presence would affect the external validity of our results. The estimates in Table 2 do not support this hypothesis with respect to gender and U.S. employment. We do find that, controlling for age, gender, and race, individuals working in business and economics fields in the U.S. are 8.3 percentage points more likely to turn down payment compared to U.S. academics working in other fields ($p = 0.066$). This result provides some support for the affinity hypothesis, as respondents may feel a stronger connection to researchers in their own field. Still, alternative explanations remain possible. For example, higher salaries among U.S. academics in business and economics may lead to a faster decline in the marginal utility of income, reducing the incentive to accept payment. Importantly,

the mean propensity to turn down payment is nearly identical when we exclude these individuals, suggesting that this subgroup does not drive the overall pattern of results.

Another possible explanation for why some people refused payment is that, by explicitly adding that option, we have changed the set of socially acceptable actions, leading respondents to interpret the presence of this option as a cue for what is considered socially acceptable. Previous research has shown that social norm cues can significantly affect pro-social behavior (Krupka and Weber 2009; Krupka and Croson 2016). However, the social cues hypothesis is an unlikely explanation for our findings, as psychology studies show that social conformity tends to peak in adolescence and decrease over the lifespan (Castrellon et al. 2024). If social cues were driving behavior, we would expect younger respondents to be more influenced by the option to refuse payment. Instead, our results show the opposite trend.

5. Discussion and conclusion

The debate on how to properly incentivize study participants is far from settled. Our study contributes to this discussion by uncovering a novel and significant finding: a substantial share of survey respondents appears to be unmotivated by financial incentives. Specifically, almost 20 percent of our study participants refused an electronic gift card payment for participation, even when redemption barriers were low, there were a wide variety of retailers to choose from, and a lottery option with a meaningful prize was available. Among participants who chose to be paid, the majority chose a lottery over a guaranteed amount with the same expected value. Taken together, our results suggest that electronic gift card payments, commonly used in surveys and online experiments, involve non-trivial hassle costs for participants and therefore do not satisfy the requirements of Vernon Smith's induced value theory (Smith 1976).

It is possible that these issues do not arise on platforms like Amazon Mechanical Turk or Prolific, where payments can be made via digital cash transfers. However, electronic gift cards are frequently the only viable payment method in contexts that target a particular population because many universities prohibit the use of services such as PayPal for issuing participant compensation. For example, studies using professionals and experts, often to elicit incentivized predictions, have become increasingly popular in recent years (see Rau et al. 2022 for professional fundraisers and Sapienza and Zingales 2013; Boudreau et al. 2017; DellaVigna and Pope 2018a,b, 2022; Drupp et al. 2018, 2024; DellaVigna et al. 2020; Stroelbel and Wirgler 2021; Andre et al. 2022; Echenique et al. 2022 for academics, similar to our own setting). Furthermore, we find substantial age-based heterogeneity in payment refusal, with the propensity to decline payment concentrated among individuals aged 50 and older. Because experts are typically significantly older than the average college-age demographic, our results raise important questions about whether the electronic gift card payments provide sufficient motivation for accurate forecasts in such settings.

Our results also suggest that systematic differences in financial motivation can make it more difficult to measure systematic differences in decision-making and preferences—such as risk aversion—across groups. For example, in a sample of participants aged 20-59, Matsumoto et al. (2016) conclude that older participants are more prosocial. But the modest size of the stakes (ranging from about \$3 to \$13) and our findings suggest that lower financial motivation among older participants could also be at play. A key implication of our results for study design, in cases

where financial motivation is important, is that researchers may consider offering higher incentives to all participants or tailoring incentives by age.

It is important to note that being unmotivated by financial incentives is not equivalent to being risk-neutral—financially unmotivated participants may make choices that differ from those made by financially motivated participants in unknowable ways. Overall, we view the inclusion of an option to turn down payment as a low-cost method for assessing participant motivation, while potentially relaxing budget constraints for researchers.

Our findings suggest a number of promising avenues for future research. About half of the heterogeneity in the propensity to turn down payment appears to stem from unobservable factors. Understanding how the propensity to decline payment varies with method of payment (e.g., electronic gift card versus electronic cash transfer, such as PayPal or Venmo), the size of the stakes, or in a nationally representative population would be valuable. Furthermore, although our results suggest that researchers paying with electronic gift cards may draw incorrect conclusions about risk preferences from the observed choices, more direct evidence on this would be welcome.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work the authors used ChatGPT in order to improve the readability and flow of the manuscript. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

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ONLINE APPENDIX

Leaving Money on the Table

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A. Sample Selection

We initially contacted potential participants to participate in our study via an email invitation, which included a link to our Qualtrics survey for the baseline survey. To recruit Ph.D. students, we first identified the top 150 departments in accounting, finance, economics, marketing, management, organizational behavior psychology, public health, sociology, and strategy based on ranking lists from www.shanghairanking.com in 2022. We then visited department websites and collected available student email addresses. Faculty email addresses were collected from the websites of academic journal published by one of four major academic publishers (Cambridge University Press, Elsevier, Oxford University Press, or Wiley) or in the journals *Science*, *PNAS*, or *PLOS ONE* in 2017-2020. We furthermore focused on journals publishing in one or more the following social science/business fields (including interdisciplinary journals): Accounting, Economics, Finance, Industrial Relations, Information Systems, International Business, Marketing, Organizational Behavior, Operations Management, Political Science, Psychology, Public Health, Public Policy, Sociology, Strategy and Entrepreneurship, Supply Chain Management, Tourism, Leisure, and Hospitality.

If someone answered our survey questions but exited before they responded to the incentive question, they are excluded from our analysis. Only two respondents answered the question before the payment questions and then exited the survey, meaning they did not make a choice about payment despite essentially completing the survey.

B. Coding of Respondent Characteristics

Age was elicited categorically, with options of “under 30,” “30-49,” “40-49,” “50-59,” “60-69,” and “70 or above.” To create a running variable, we use the midpoint of each interval. We assign an age of 25 to participants under 30 and an age of 75 to those over 70. “Woman” refers to a respondent who selected “Woman” and no other gender. Throughout the paper, we use “White” in reference to respondents who selected “White” and no other race or ethnicity.

Respondents had the option to select “prefer not to answer” when asked about their gender, age, and race/ethnicity. For variables other than age, respondents who did not wish to answer the question were coded as “0.”

In the baseline survey, we asked respondents if they are currently located in the European Economic Area (to determine what consent form they should see). The variable EEA is equal to 1 if they selected “yes”.

In the follow-up survey, we also asked participants, “In which country is your institution or organization located?” We use the answer to determine if someone is in the United States. For simplicity, we assume that participants live in the same country as their employer is located.

Appendix Figures

Figure A.1 Screenshot of Payment Option Choices

To thank you for completing the survey, we have two compensation options for you:

1. Receive an electronic gift card worth \$5 USD.
2. Enter a lottery for a 1-in-20 chance to win an electronic gift card worth \$100 USD.

Which option do you prefer? Regardless of which you choose, you will have several options for gift cards, including ones that can be used outside of the US.

☐ Gift card worth \$5 USD

☐ 1-in-20 chance of winning gift card worth \$100 USD

☐ I am not interested in or unable to accept compensation for completing this survey

Should we still send emails to the email address at which you received this survey? If not, what email address should we use?

☐ Yes, use that email address.

☐ No, please use (Please enter your preferred email address.)

We may be sending you follow-up emails. In case we have trouble reaching you, can you provide an alternative email address below?

Figure A.2 Follow-Up Survey Email Invitation

Thank you for joining our study on social media and academic careers in September of 2023. We are very grateful for your participation. Today, we are asking you to fill out a quick follow-up survey. **Your response is crucial in helping us draw meaningful conclusions from our research.** More specifically, we hope to understand how social media affects academics' professional careers.

The survey should take **5-10 minutes to complete** and is available here:

[\[Redacted Link\]](#)

This link is personal to you and should not be shared with anyone else.

By completing this survey, you can earn a monetary prize. Because it is so crucial that we have your participation, we have increased the expected prize amount and increased the number of gift card options. You can choose to either (i) receive a gift card worth \$5 U.S. dollars or (ii) enter a lottery with a 1 in 20 chance of earning a gift card worth \$100 U.S. dollars.

Recall that this follow-up is part of an ongoing study in which you consented to enroll in September of 2023. To review the consent form and other important information about the study, please visit our project website:

<https://sites.google.com/wellesley.edu/socmed>

Please do not hesitate to reach out to us if you have any questions or comments.

Appendix Table

Table A.1: Unconditional choice correlates

	Chose lottery				Chose fixed			
Age (years)	-0.0065** (0.0012)	-0.0098** (0.0016)	-0.0072** (0.0016)	-0.0044 (0.0029)	-0.0052** (0.00095)	-0.0037** (0.0012)	-0.0054** (0.0012)	-0.0062* (0.0029)
Woman	-0.016 (0.030)	0.0030 (0.043)	-0.018 (0.12)	0.034 (0.063)	-0.00033 (0.026)	-0.041 (0.033)	-0.12 (0.10)	-0.056 (0.059)
White	0.13** (0.035)	0.12* (0.050)	0.15** (0.049)	0.24 (0.15)	-0.13** (0.033)	-0.13** (0.044)	-0.16** (0.046)	-0.20 (0.14)
In U.S.	-0.073* (0.030)	-0.36** (0.12)	-0.042 (0.041)	-0.097 (0.062)	0.15** (0.025)	0.25* (0.10)	0.11** (0.035)	0.17** (0.058)
Age x U.S.		0.0072** (0.0024)				-0.0032 (0.0019)		
Woman x U.S.		-0.036 (0.060)	-0.066 (0.060)			0.077 (0.051)	0.093 (0.050)	
White x U.S.		-0.0046 (0.070)		0.032 (0.071)		0.0047 (0.065)		-0.019 (0.064)
Woman x age			0.0020 (0.0025)				0.00052 (0.0020)	
Woman x White			-0.059 (0.070)	-0.065 (0.072)			0.064 (0.065)	0.073 (0.066)
White x age				-0.0025 (0.0032)				0.0012 (0.0031)
Dep. var. mean	0.57	0.57	0.57	0.57	0.25	0.25	0.25	0.25
R-squared	0.035	0.044	0.037	0.036	0.082	0.087	0.086	0.083
N	1,090	1,090	1,090	1,090	1,090	1,090	1,090	1,090

Notes: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. "Chose lottery" is an indicator variable that equals one if participant i chose the lottery and zero otherwise. "Chose fixed" is an indicator variable that equals one if participant i chose the fixed payment and zero otherwise.

Online Appendix Table A.1 considers the *unconditional* choices of lottery and fixed payment, where everyone who did not make the choice under consideration is assigned a zero, including people who turned down payment. One can think of this coding as providing bounds on patterns of choices, where we alternatively assume that all those who refused payment would have chosen the fixed payment (columns (1)-(4) of Table A.1) or the fixed payment (columns (5)-(8) of Table A.1).

Most of the patterns mirror those in Table 4: there is no significant relationship between gender and either choice; White respondents are more likely to choose the lottery and less likely to choose the fixed payment; and U.S. respondents are less likely to choose the lottery and more likely to choose the fixed payment. The relationship between lottery choice and race is somewhat weaker than in Table 4 but still consistent. The main difference from Table 4 is the age gradient: in Table A.1, the probability of choosing the lottery is decreasing with age but so is the probability

of choosing the fixed payment. These inconsistent patterns are driven by the strong age gradient in the propensity to turn down payment and underscore how an absence of monetary motivation can potentially lead to misleading findings.