Social-Benefits Stigma and Subsequent Competitiveness*

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January 31, 2024

JEL Classifications: C91, I38, D91

*We thank the members of the Human Behavior Lab and Eric Gonzalez who assisted with data collection. We would like to thank Rodrigo Velez, Ragan Petrie, Yu Zhang, and Brit Grosskopf for their helpful comments to develop this work. We thank attendees of the Southern Agricultural Economics Association 2020, Economic Science Association North America 2021, and Agricultural and Applied Economics Association 2022 for their feedback. This work was funded by the International Foundation for Research in Experimental Economics.

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Abstract

We conduct a laboratory experiment to explore how benefit-eligibility stigma drives subsequent decisions to enter competition. We induce a stigma associated with a low-status benefit and then introduce "plausible deniability" to reduce this stigma by expanding benefit eligibility to a middle-status group. When newly-eligible individuals qualify for the benefit, their rate of entry into a subsequent and unrelated tournament is reduced by 17-20 percentage points compared to the treatment in which they do not qualify. A potential interpretation of our results would suggest expansion of eligibility of certain government assistance programs may produce unintended consequences for the newly eligible.

1 Introduction

It is well known that people are driven to showcase a desirable status in different market contexts through consumption of prestigious goods and services (Veblen, 1899; Bursztyn & Jensen, 2017; Clingingsmith & Sheremeta, 2018). On the other hand, people also experience stigma from being associated with a low status (Schram et al., 2019). Low-status stigma may also apply when qualifying for special assistance programs, particularly when this status is visible to others (Friedrichsen et al., 2018; Moffitt, 1983; He & Noussair, 2023). The extent and effects of this latter stigma is a crucial question for policy as government and nonprofit assistance programs are widespread in most developed nations; these programs are designed to help individuals meet basic housing and food needs, special education, or remedial training (Andrade, 2002; Daponte et al., 1999; Currie et al., 2001; Friedrichsen et al., 2018).[1] While social welfare programs are conceived to alleviate specific problems and benefit recipients, the stigma they carry may work in the opposite direction. Many explanations are behind why people choose to not accept government benefits (Andrade, 2002; Daponte et al., 1999; Currie et al., 2001), but we focus on stigma to expand on the work that explores stigma as a driver of benefit take up and other relevant decisions (Moffitt, 1983; Friedrichsen et al., 2018). Furthermore, individuals in need may not access relevant programs out of stigma aversion.

This paper studies how eligibility for a special social benefit based on low status influences take-up and later preferences for competitiveness. Since it is difficult if not impossible to imagine a field setting where variables such as welfare participation, stigma, and labor competition could be exogenously varied to test relevant questions, the experimental laboratory provides an ideal environment to study these relationships. The experiment consists of two main stages. In the first stage, subjects are randomly assigned to groups of three

[1] For example, in the United States, people in the lowest income bracket are eligible to receive benefits from social welfare programs to assist them in procuring food and healthcare. As of 2019, 59 million Americans were eligible for one of the safety net programs, which accounts for about one fifth of the population (Minton & Giannarelli, 2019).

and are evaluated under a general knowledge quiz. Based on their performance, they are assigned a low, middle, or high status with higher earnings for higher performance. The low-status individuals are able to claim a welfare benefit which they claim by coming to the front of the room. This process also induces feelings of stigma as claiming the benefit reveals them as low performers. In a separate Plausible Deniability Treatment, we exogenously expand the benefit eligibility criteria to the middle performing individuals, thereby reducing the stigma associated with take-up since those eligible for the benefit are no longer solely low-performers. In both treatments, over 85% of eligible individuals claimed the benefit, suggesting that the stigma had a slight effect on overall benefit take-up. Nonetheless, benefits claims are correlated with self-reported measures of shyness (Cheek & Buss, 1981), suggesting some degree of social pressure was salient to our subjects.

The second stage of both treatments are identical, featuring an elicitation of preferences for competitiveness based off Niederle & Vesterlund (2007). Subjects are paid to add up five two-digit numbers. Across treatments, subjects show no differences in performance when they are paid a piece-rate for this task. However, subjects in the expanded-benefits, Plausible Deniability Treatment exhibit greater hesitancy to enter the tournament when eligible for additional benefits. The differentially treated, middle-status group drives the result. There are no differences in the propensity to compete for the high- or low-status groups across treatments. However, among the middle-status group roughly one-third as many subjects wish to compete in the Plausible Deniability Treatment relative to the control. No differences in performance, risk preferences, or confidence about their relative performance can explain the differences in competitiveness among the middle-status group.

Extensive literature has investigated the effects of social status on economic behavior, especially for high status in markets (Ball et al., 2001; Clingingsmith & Sheremeta, 2018; Bursztyn & Jensen, 2017). A high status is typically perceived as something desirable, and individuals seek to showcase or signal a high status through conspicuous consumption or consumption of prestigious goods visible to others (Veblen, 1899; Clingingsmith & Sheremeta,

2018; Bursztyn & Jensen, 2017; Palma et al., 2017). Clingingsmith & Sheremeta (2018) provided subjects the opportunity to make chocolate truffle purchases, a luxury good, in a laboratory-controlled setting and found that they purchased more to signal a high status when their consumption behavior was visible to others, indicating the presence of conspicuous consumption. Bursztyn et al. (2017) conducted a field experiment that exogenously altered the qualifications for eligibility of different credit card tiers; they find evidence of pecuniary emulation in that individuals sought the highest status level of credit cards they could attain. Butera et al. (2022) suggest that individuals are willing to pay to showcase their high status when status is related to gym attendance; they fit the behavior from their study to a structural model and find that high performers experience significant utility gains while low performers experience significant utility losses. Previous work documents that individuals experience stigma from participating in government benefit programs (Andrade, 2002; Daponte et al., 1999; Currie et al., 2001) or educational programs (Bursztyn & Jensen, 2015; Bursztyn et al., 2019). Some literature documents benefit-eligibility stigma driving the decision to not take welfare benefits (Moffitt, 1983; Major & O'brien, 2005; Andrade, 2002). Schram et al. (2019) finds that status based on relative performance affects performance with gendered effects. He & Noussair (2023) also find gendered stigma effects, resulting in individuals foregoing additional earnings to hide their relative status. Friedrichsen et al. (2018) find that eligible (low-status) individuals are less likely to accept the benefit when their decision is visible to others compared to private environments. Our research induces three different statuses, which gives us the opportunity to observe behavior for three distinct status groups. We observe benefit take-up behavior when it is visible to others, yet we focus on the preferences for competitiveness and how benefit-eligibility stigma may affect the decision to enter a tournament competition.

Preferences for competition have been extensively studied in previous literature. In general, the literature focuses on gender, finding robust results that women choose to compete at lower rates than men (Niederle & Vesterlund, 2007). Overall, identity seems to be a

driver for competitive behavior (Shih et al., 1999; Ibarra et al., 2010; Zhang et al., 2024). Recent expansions in the competition literature also cover how identity more broadly affects preferences for competition. Social norms associated with a specific identity may be drivers for how individuals choose to compete (Benjamin et al., 2010). When exploring how being associated with low economic status affects competition, Banker et al. (2020) find that poverty salience is associated with lower rates of competition. Given that in our experiment the stigma arises from having low cognitive ability and lower earnings and as a result, a low status, our environment aligns with previous literature investigating the role of socioeconomic status, financial scarcity, and performance in cognitive ability for different status levels (Mani et al., 2013; Hoff & Walsh, 2018). The research exploring socioeconomic status and markets has focused mainly on the high- and the low-status groups, but the middle-status group may provide an interesting group to study benefit eligibility through plausible deniability since many policy discussions relate to defining the limits of eligibility. Plausible deniability occurs when an agent uses the context or environment to deny responsibility or intent for their own actions (Bolton et al., 2021; Gillies et al., 2019).

Friedrichsen et al. (2018) explored stigma featuring treatments similar to our Control condition. Specifically, their treatments also have eligibility criteria that are the same as our Control, in which only subjects in the low-status group were eligible for an additional benefit. They further explore how this additional benefit is allocated, that is, whether it is subsidized from the experimenter or if it is redistributed from other players payoffs. Also, they manipulate whether eligibility is determined through random assignment or earned in a quiz. There are two key differences in our design. First, while our experiment determines eligibility through a quiz in a first stage and the benefit is subsidized from the experimenter as in one of their treatments, we further expand the eligibility rules to also include the medium performance group in the plausible deniability treatment; there is no corresponding medium performance group in their study. Second, we add a second stage that explores preferences for competition as a result of the status assigned from the quiz. Importantly,

the performance in the second stage is uncorrelated with performance on the first eligibility assignment stage. We add to the literature on social status by exploring whether plausible deniability reduces the stigma for the low-status group. We also study whether plausible deniability affects the rates of competition of the middle-status group.

We find that the social benefit eligibility reduces the competitiveness of the middle-performing group. The social benefit is tied to a low-performing perception that seems to affect subsequent competitive decisions for the middle-status group. The literature demonstrates that performance feedback can affect entry into competition and in some cases, individuals will sort into competition based on their perceived productivity (Anderson & Stafford, 2003; Shastry et al., 2020; Eriksson, Poulsen, & Villeval, 2009; Eriksson, Teyssier, & Villeval, 2009; Dohmen & Falk, 2011; Ludwig & Lünser, 2012; Gill & Prowse, 2014). Our design adds to this literature by examining tournament entry in an unrelated task, uncorrelated with previous performance. Thus our initial task and benefit eligibility provides no feedback about the expected performance in the future tournament (as implemented in previous work.)

The low-status group did not increase competitiveness after the benefit is expanded to the middle-status group in the Plausible Deniability Treatment. The tasks in each of the two stages of our study are different by design and the performance in the first task did not affect the performance in the competitive environment task. The performance of the three status groups is the same during the second stage piece-rate and tournament tasks. Therefore, choosing to avoid competition was costly for the middle-status group. Those who were the top performers in the middle-income group could have increased their earnings by 60% if they chose to compete. While it is inappropriate to directly generalize stylized laboratory results like these into policy settings, a possible contextualization of these results is that expansion of government assistance programs may have an unintended negative effect on the newly eligible population. Of course, this effect would need to be weighed against the actual benefits of the policy. We return to this interpretation in our concluding section.

The rest of the paper is structured as follows. Section 2 presents the experimental design and procedures. Section 3 presents hypotheses. Section 4 provides results. Section 5 provides discussion of the findings and implications for future work in this area.

2 Experimental Design and Procedures

This experiment featured two between-subject treatments, Control and Plausible Deniability, randomly assigned at the session level. The difference between the two groups was the eligibility criteria for the additional benefit in Stage 1. Specifically, in the Control group, only subjects in the low-status group were eligible for an additional benefit. In the Plausible Deniability Treatment, low- and middle-status subjects were eligible for the additional benefit. Thus those with the lowest performance could "plausibly deny" they were low status (i.e., insist that they were middle status) in this particular treatment, reducing their stigma/visibility as low status individuals. Similarly, placing those in the middle-status with the low-status group increases the stigma for middle-status individuals. We also explore how the eligibility for this additional benefit affects willingness to compete in a second stage.

Each experimental session had three stages that proceeded as follows.

2.1 Stage 1: Status assignment and benefit allocation

In the first part of the experiment, subjects were randomly and anonymously divided into groups of three. Under a 10-minute time limit, they were required to answer a 15-question quiz. The questions were selected from a bank of general knowledge questions (Kassas & Palma, 2019), covered several topics, and required no specific training to answer. Subjects were informed that their performance on the quiz relative to the other players in their group would determine their status and payment (see Table 1).

After completing the quiz, but before knowing their own status, subjects were informed of the additional $1 benefit and the eligibility conditions of their respective treatment. The

Table 1: Payment scheme used in first stage of experiment. Subjects' relative performance (out of a group of 3) on a general knowledge quiz determines their status and payment.

Rank	Status	Payment
1	High	$6
2	Middle	$4
3	Low	$2

strategy method was employed to ask all subjects whether they would accept a $1 benefit if they were eligible. Employing the strategy method for the benefit take up allowed us to observe the potential response from all types of subjects rather than focusing solely on those who were eligible. Subjects' beliefs about the proportion of eligible people in the room that would claim the benefit were also elicited. Only after a subject had completed these tasks would they learn their status based on their relative performance. For those who were eligible and requested the benefit, the session monitor called out their experiment ID publicly. Benefit claimers had to come up to the front of the room to receive a sheet of paper with an additional $1 benefit to be added to their final compensation, following a similar procedure to Friedrichsen et al. (2018) and He & Noussair (2023).[2]

2.2 Stage 2: Competition

In the second stage of the experiment, the subjects engaged in a competitive tournament entry task following Niederle & Vesterlund (2007). First, they were asked to complete as many five two-digit summations as they could within five minutes under a piece-rate payment scheme. They were informed that they would receive $0.50 per correct answer. They were provided with scratch paper but were not allowed to use calculators. After completing the first exercise, subjects were assigned to do the same exercise again. In this instance, they had the option to choose between an identical, paid, piece-rate scheme or to participate in a tournament against the other two people within their group. Subject groups remained

[2]In Friedrichsen et al. (2018), an additional benefit that was subsidized from the experiment still reflected an effect from stigma between the random and earned treatments. While introducing a negative externality to the other participants resulted in a stronger effect, we elected to subsidize the additional benefit from the experiment money.

unchanged from Stage 1. Subjects who chose this payment scheme would receive $1.50 per correctly calculated answer if they were the top performer and $0 otherwise, regardless of the other competition entry decisions in the group. They were not informed of their performance in this task. After subjects completed these tasks, they were asked to predict their performance relative to the other two people within their group (top performer, middle performer, or lowest performer).

2.3 Stage 3: Additional tasks

Subjects finished the experiment by completing a multiple-price-list, risk elicitation (Holt & Laury, 2002), a social preferences task (Bartling et al., 2009), a shyness scale (Cheek & Buss, 1981), and basic demographic questions. Upon completion, subjects learned their earnings and privately received their payments in sealed envelopes.

2.4 Experimental Procedures

Thirty-one experimental sessions were conducted in the Fall of 2019. A total of 276 subjects participated in sessions of 6 to 12 people. The sample was drawn from the student body of a large university. All subjects were invited through a university's bulk e-mail service. The subjects signed consent forms, were seated at a computer station, and were assigned a unique identification number. The session monitor gave some basic instructions and the experiment started. Subjects earned a $10 show up payment plus $20, on average, in additional earnings. The experiment lasted approximately an hour.

Sample size was determined from a two-proportions power test, using the effect sizes from Friedrichsen et al. (2018).[3] In that study, subjects in the "earned subsidy" treatment take benefits at a rate of 0.768 (N=69) and those in the "random subsidy" treatments take benefits at a rate of 0.896 (N=48). With a similar effect size observed across our Plausible

[3]Because of concerns of session-level effects, our analysis does not include this particular individual-level subject test. Results are similar to the session-level tests shown in Result 1.

Deniability and Control Treatments, a power of 0.8 would require 266 subjects split evenly, 133 across each group.

3 Hypotheses

Akerlof & Kranton (2000) introduced identity and self-image into a utility framework where one's own actions and the actions of others are directly parameterized in the utility function. Benjamin et al. (2010) add that inducing a particular social category has a marginal effect for increasing the strength of affiliation with an identity category. The utility function is then characterized by considering the strength of affiliation an individual has with a certain social category. The strength of affiliation to a social category drives an individual's decision to either engage with an activity as it aligns to a specific social category or engage in an activity that is opposite of a chosen activity within a social category.

In our study, we induce three statuses based on the performance of a quiz during stage 1. We assume that the individuals will attain some utility from the earnings in the task. They also gain utility from the offered benefit minus any social stigma associated with that benefit, yet stigma prevents individuals from accepting the benefit (He & Noussair, 2023). We hypothesize that this social stigma is greater when there is no plausible deniability, that is, only individuals in the low-status group may receive the benefit.

Hypothesis 1. *Take-up of benefits is greater for low-status individuals in the Plausible Deniability Treatment where they may plausibly claim they are middle status.*

In the second stage of the experiment, subjects will gain utility from either choosing the piece-rate payment scheme or entering competition and winning it. However, as previous theoretical literature predicts, individuals also gain or lose utility from entering the competition based on the prescribed notions of their assigned status or social category and its

implications for competitive decisions. More specifically, the unrelated assignment for the high-status groups gives reason to engage in competitive behavior while it does the opposite for the low-status individuals through the parameter associated with group behavior.

Between treatments, the middle-status group's behavior remains an interesting question. Previous literature suggests that individuals seek to mimic high-status individuals to generate a sense of belonging to a higher status (pecuniary emulation); however, when those who already attained a status see that the status is becoming more widely available, they will seek to distinguish themselves to a higher status (i.e., invidious comparison, see Bursztyn & Jensen, 2017). Generally, we expect that the middle-status group will compete at a level between the rate of the high-status group and the low-status group. Our framework predicts that individuals are susceptible to the status assignment, and they will choose to compete according to the induced status during stage 1. Based on this simple framework, we present Hypothesis 2.

Hypothesis 2. *Competitive behavior is positively correlated with status. High-status groups enter competition most often, then middle-status groups, then low-status groups.*

Importantly, the performance in the piece rate and tournament is uncorrelated with performance and status assignment during the first stage quiz task. Following the second hypothesis, we might expect those in the low-status group to enter competition at a low rate. However, we expect the middle-status group to mimic the low-status entry into competition when they become benefit-eligible. In the control, only the low-status group is eligible for the benefit transfer. However, in the Plausible Deniability Treatment, when the middle-status group is eligible for the benefit, they also experience the stigma associated with the benefit. We expect that the competitive rates of the middle-status group will decrease with the benefit eligibility in the Plausible Deniability Treatment. The high-status individuals are unaffected by the benefit eligibility in the control and treatment conditions and

hence we expect that their rates of competition will remain the same across these conditions.

HYPOTHESIS 3. *Benefit eligibility is negatively associated with tournament entry.*

4 Results

Table 2 provides summary statistics of the main variables of our experiment both overall and separated by treatment.

Table 2: Summary statistics of main explanatory variables overall and separated by treatment.

	Overall	Control	Plausible Deniability	p_{MW}-value
will take benefit (1=yes)	0.899 (0.302)	0.870 (0.338)	0.928 (0.260)	0.111
enters tournament (1=yes)	0.500 (.0.501)	0.529 (0.501)	0.471 (0.501)	0.336
benefit eligible (1=yes)	0.500 (0.501)	0.333 (0.473)	0.667 (0.473)	0.000***
female (1=yes)	0.569 (0.496)	0.594 (0.493)	0.543 (0.500)	0.396
stage 1 score (questions correct)	7.572 (2.014)	7.572 (2.007)	7.572 (2.029)	0.716
stage 2 score (questions correct)	8.514 (3.533)	8.993 (3.308)	8.036 (3.695)	0.018**
tournament belief (3=top performer)	2.402 (0.560)	2.420 (0.577)	2.384 (0.545)	0.505
expectation of group take-up (0-1 range)	0.794 (0.265)	0.792 (0.263)	0.796 (0.267)	0.828
shyness score (1-5 range)	2.838 (0.782)	2.903 (0.809)	2.773 (0.752)	0.139
behindness aversion (0-1 range)	0.370 (0.484)	0.377 (0.486)	0.362 (0.482)	0.803
aheadness aversion (0-1 range)	0.409 (0.493)	0.420 (0.495)	0.399 (0.491)	0.714
risk aversion (safe choices on Holt-Laury)	5.138 (2.062)	5.138 (2.001)	5.138 (2.128)	0.972
year of study (1-5 range)	2.467 (1.500)	2.428 (1.489)	2.507 (1.515)	0.650
observations	276	138	138	
subjects	276	138	138	
groups	92	46	46	
sessions	31	14	17	

A key dependent variable is the indicator of whether subjects take benefits. In Stage 1 of the experiment—after subjects had completed their general knowledge quiz, but before they learned their score or standing in the group—subjects were asked, using the strategy method, whether they would take an additional $1 if they were eligible. In the control treatment the $1 is only available to the lowest (of three) performers in the group, but in the Plausible Deniability Treatment it is available to the lowest two. At first glance, it appears the Plausible Deniability Treatment is effective. More subjects indicate they would take the benefit (93.5%) under the treatment than under the control (86.3%). Both session level t-tests and rank sum tests (N=31), indicate some degree of statistical significance for this result ($p < 0.05$, $p < 0.1$, respectively).

However, the plausible deniability hypothesis (Hypothesis 1) predicted a specific channel on how this take-up would occur. Low-performing subjects, now feeling they could hide their low status, would be more inclined to take benefits. As Figure 1 indicates, this is not the case. If anything, the lowest-performing subjects (based on decile of quiz performance) are *less likely* to take up benefits under plausible deniability. The increase in benefits appears to flip around the third decile, the exact point where subjects (in expectation) would no longer be the lowest of three performers.

Table 3 provides three regressions that examine these relationships under more detail. Specification (1) which only includes the treatment variable, confirms our earlier result, indicating the Plausible Deniability Treatment increases overall take-up by 6 percentage points ($p < 0.10$). Specification (2) provides similar results, controlling for the overall effect of quiz performance using percentile rank of subjects' score. Specification (3) includes a "kitchen-sink" of variables, including surveyed levels of risk-aversion (Holt & Laury, 2002), aheadness and behnindness aversion (Bartling et al., 2009), gender identification as female, and year of study at the university (1-5). None of these variables are predictive of take-up. However, scores from a scale of "shyness" (Cheek & Buss, 1981) are negatively correlated with take-up, the direction one would expect. Additionally, one's expectation about the

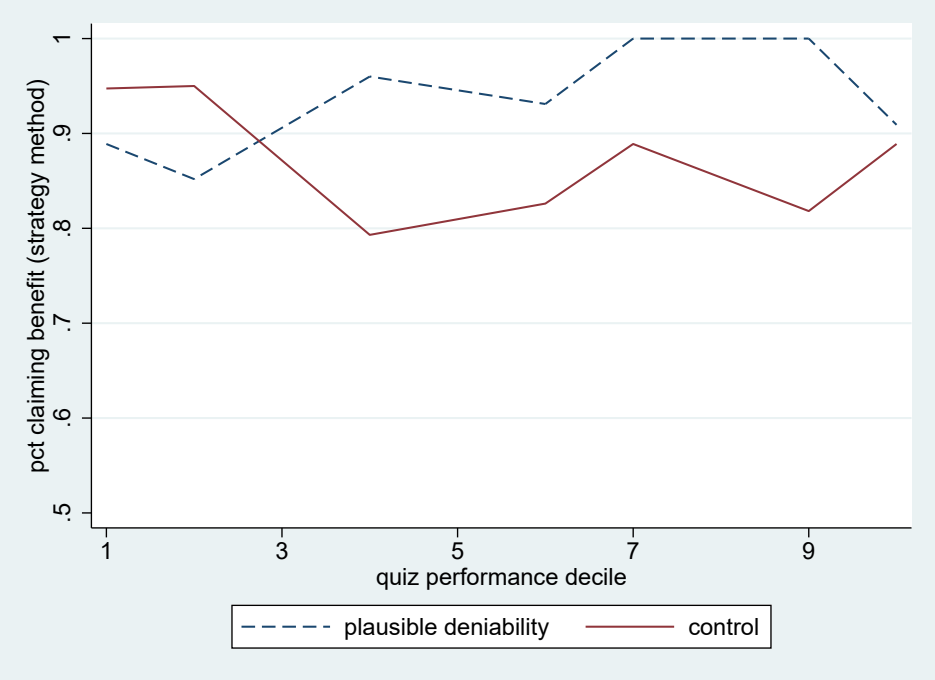

Figure 1: Percent of subjects opting to receive additional $1 benefit if eligible strategy method in Control and Plausible Deniability Treatments by quiz performance decile. In the Control, only the lowest performer of three subjects will receive the benefit. The lowest two performers will receive the benefit in Plausible Deniability Treatment.

take-up behavior of others (i.e., a subject's prediction of how many of the low performing subjects would take the benefit) is also predictive of take-up decision, consistent with norm-compliance behavior.

Appendix Table A.4 shows similar regressions to Table 3 with subject status from the quiz interacted with the treatment variable. The regressions show that the increase in take up due to the Plausible Deniability Treatment is driven by subjects that will be classified as middle-status. Interestingly, these subjects would receive a $1 benefit under Plausible Deniability but not in the Control. Thus, even though subjects cannot know their status precisely, they appear to be more willing to opt-in to (potentially) receiving benefits when the (actual) realization of those benefits is more likely.

Appendix Table A.5 repeats the analysis of Table 3, but restricted to low-status subjects. Across all three specifications, it appears the effect of plausible deniability on low-status subjects is statistically (as well as numerically) zero. There appears to be no plausible

Table 3: Regression analysis of indicated willingness to take benefit (strategy method) on treatment, stage 1 quiz performance, elicited preferences, and demographics.

	(1) will take benefit	(2) will take benefit	(3) will take benefit
plausible deniability	0.058*	0.058**	0.046*
	(0.030)	(0.029)	(0.027)
percentile of quiz score		0.000	0.001
		(0.001)	(0.001)
shyness scale			-0.085***
			(0.023)
expectation of group take-up			0.484***
			(0.085)
risk aversion			-0.007
			(0.007)
aheadness aversion			-0.014
			(0.035)
behindness aversion			-0.028
			(0.039)
female			0.009
			(0.033)
year of study			-0.005
			(0.010)
constant	0.870***	0.861***	0.768***
	(0.025)	(0.032)	(0.108)
observations	276	276	276
number of groups	92	92	92
number of sessions	31	31	31
r^2	0.010	0.010	0.253

*** p<0.01, ** p<0.05, * p<0.1.

Notes: All three regressions use random effects terms for subject group, and use cluster-robust standard errors at the session level.

deniability effect as predicted by Hypothesis 1.

Result 1. *The Plausible Deniability Treatment increases overall rates of take up, but not in the way hypothesized. Subjects with better quiz performance are more likely to increase take-up under the Plausible Deniability Treatment. There is no evidence of increased take-up among the low-status group.*

To test the other hypotheses in this paper, it is crucial that performance in stage 1 on a general knowledge quiz is not predictive of performance in stage 2's summation task. Otherwise subjects' response to status on task 1 may reflect a rational expectation of stage

Table 4: Two-way contingency table of general knowledge quiz status (stage 1) and summation math task tercile (stage 2). Binning does not appear to differ from random ($\chi^2 = 2.858$, $p \approx 0.582$).

	stage 2 group performance			
stage 1 assigned status	1st tercile	2nd tercile	3rd tercile	total
low	42	25	25	92
medium	32	31	29	92
high	34	32	26	92
total	108	88	80	276

2 performance. Luckily, performance on either task does not appear to be correlated. Table 4 provides a two-way counts table of subject tercile in the stage 2 summation (math) task and status in the stage 1 (general knowledge quiz) task. A chi-square test does not reject the null hypothesis that distribution is random ($p \approx 0.582$).

Figures 2(a) and (b) show general knowledge quiz scores (stage 1) with performance on summation tasks in the paid round and tournament round (stage 2), respectively. Neither figure appears to show any correlation between quiz scores and summation performance. Furthermore, Figures 3 (a) and (b) display the distributions of the quiz scores by status assigned and the math scores in the baseline stage. We observe that while the quiz scores allocated statuses accordingly, the status assigned in stage 1 has no bearing on the performance in the math task. Table 5 provides four regression specifications, two with dependent variable being rank in group on the math task (i.e., 1st=3, 2nd=2, 3rd=1), two with the dependent variable of being in the top rank in the math task (i.e., 1st=1, 2nd=0, 3rd=0). Using status in the general knowledge quiz as well as actual number of answers correct in the stage 1 general knowledge quiz, we see no significant correlations with stage 2 performance. Despite the lack of correlation between stage 1 and stage 2 performances, we do find that there is a positive relationship between status assigned in stage 1 and entry into competition in stage 2, as seen in Figure 4.

Result 2. *There is a positive correlation between stage 1 status and stage 2's competitive*

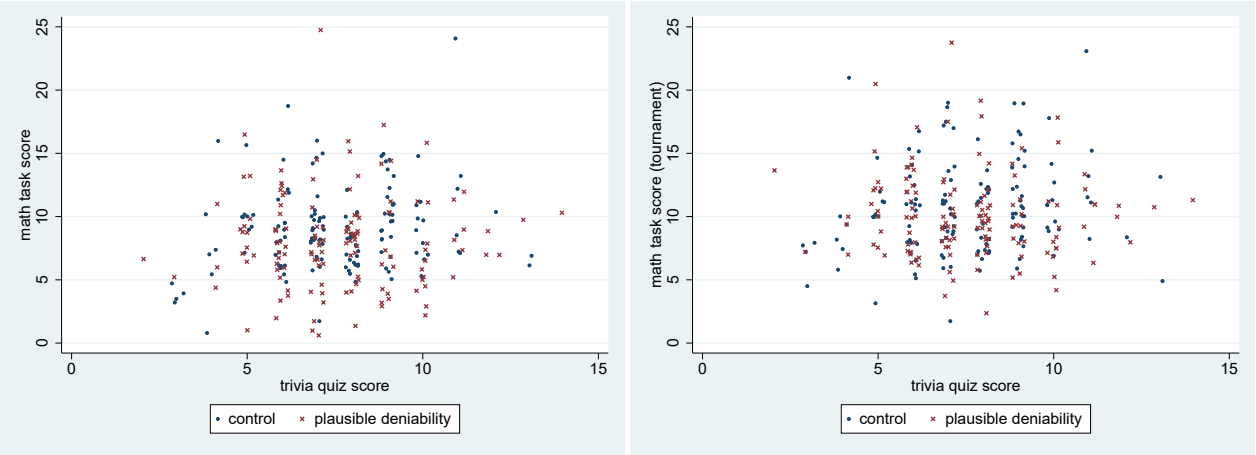

Figure 2: Scatterplot of trivia quiz score on math task score (left) ($\rho \approx 0.079$, $p \approx 0.191$) and the second math task score used for tournaments (right) ($\rho \approx 0.046$, $p \approx 0.447$).

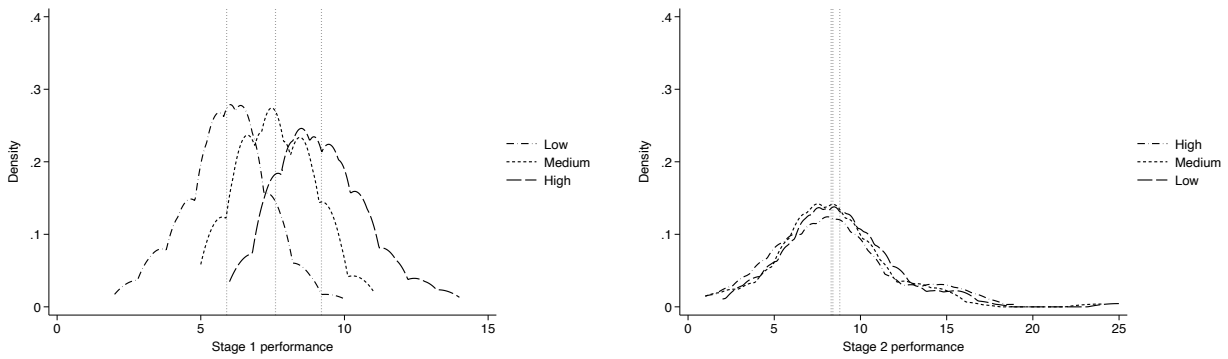

Figure 3: Distribution of quiz scores (left) and math scores, baseline stage (right).

Table 5: Regression of stage 2 rank (specifications (1), (3)) and top rank (specifications (2), (4)) on assigned stage 1 status (specifications (1), (2)) and number of quiz questions correct, stage 1, (specifications (1), (2)). There is little evidence of correlation between stage 1 and 2 variables.

	(1) stage 2 group rank[a] (tercile)	(2) top rank (tercile)	(3) stage 2 group rank (tercile)	(4) top rank (tercile)
low status	-0.152	-0.043		
	(0.143)	(0.075)		
high status	-0.054	-0.033		
	(0.119)	(0.078)		
stage 1 score			0.019	-0.001
			(0.024)	(0.014)
constant	1.967***	0.315***	1.756***	0.295***
	(0.079)	(0.050)	(0.179)	(0.109)
observations	276	276	276	276
number of groups	92	92	92	92
number of sessions	31	31	31	31
r^2	0.006	0.002	0.002	0.000

*** p<0.01, ** p<0.05, * p<0.1.

Notes: All three regressions use random effects terms for subject group, and use cluster-robust standard errors at the session level.

[a] To preserve sign, higher performance is associated with a higher number in rank. That is, within a group, 3 is top rank and 1 is bottom rank.

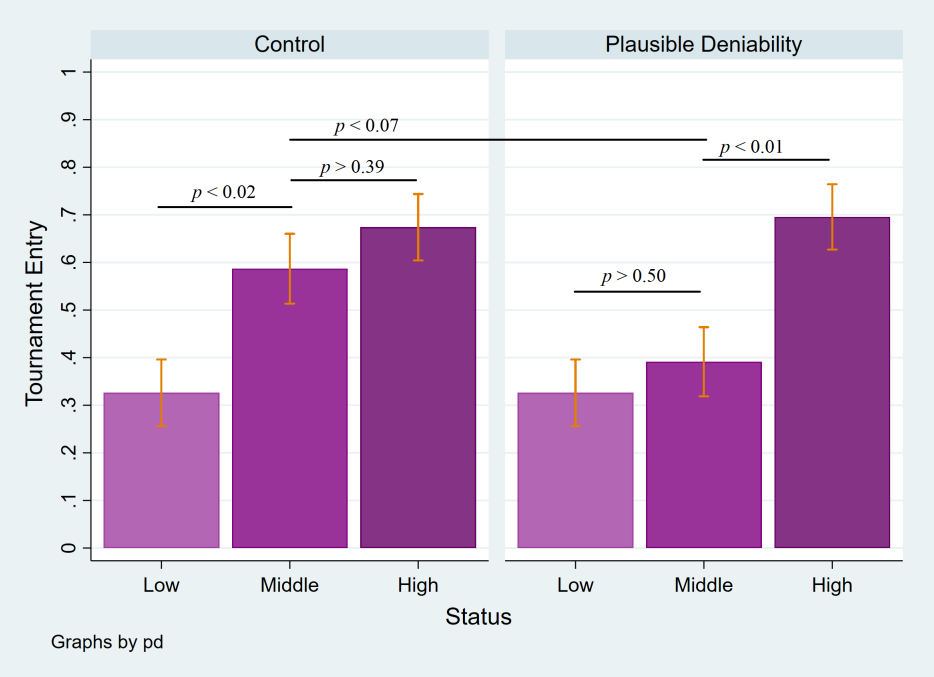

Figure 4: Tournament entry in stage 2 by treatment and status assigned in stage 1

entry decision.

The main research question in this paper is whether a stigma induced by benefits for low performance in one task can carryover to reducing competitiveness on a second, unrelated, task. At first glance, the answer appears to be definitively positive. Of the subjects that are eligible for benefits in the first stage of the treatment (i.e., all low status, and only middle status under the Plausible Deniability Treatment) only 34.8% (48 of 138) of subjects compete in the second round tournament compared to 65.2% (90 of 138) in the other groups. The difference is statistically significant under both session-level rank sum and t-tests ($N = 31$, $p < 0.01$, both tests). Of course, this comparison does not differentiate between whether the stigma of low status vs. the stigma of benefits is ultimately responsible for the reduced competitiveness. To isolate the effects of eligibility for benefits on competitive behavior, we must examine the middle group across the two treatments. Among those in the middle group, 27 of 46 (58.7%) in the control and 18 of 46 (39.1%) in the Plausible Deniability Treatment compete in the subsequent task. The result is marginally significant under a t-test ($p < 0.1$) but not under a non-parametric rank sum ($p \approx 0.129$), both run at the session level ($N = 31$).

To control for the explanatory power of other variables, Table 6 provides regressions of the binary decision to compete in the tournament in stage 2 on status from the stage 1 task. As expected, earning low status on the first task reduces competitiveness on the second task by 19–26 percentage points ($p < 0.01$) relative to a middle-status subject in the control treatment (who is not eligible for benefits). Low-status subjects, regardless of treatment, are always eligible for additional benefits in stage 1. Interestingly, this effect is somewhat mitigated, but not eliminated, in regressions that control for beliefs on tournament performance. This relation suggests the status effect works in more ways than just through subjects' expectations about future performance. In contrast, high status does not significantly differ from middle status under the control and its sign is nearly reduced to zero when controlling for other variables. Neither high nor low status significantly differs across

treatments. However, middle-status subjects are 17–20 percentage points less likely to enter the tournament in the subsequent stage 2 task under the Plausible Deniability Treatment ($p < 0.1$). Among the control variables, notably female gender, as expected, reduces competitiveness ($p < 0.01$). For each successively higher rank expected in the tournament (of 3), subjects are 23-26 percentage points more likely to enter the tournament ($p < 0.01$). Unsurprisingly, better performance on the same task under a piece-rate structure also increases competitiveness. For each additional year of student study, subjects are 4 percentage points more likely to enter the competition ($p < 0.1$).

Taken together, a useful simplification of these result may be that middle-status subjects under the control compete like high-status subjects. In contrast, middle-status subjects under the Plausible Deniability Treatment behave like low-status subjects. Of course this categorization is identical to the grouping of eligibility of benefits after stage 1. Those in the middle status group may alter their competitiveness due to income effects from the additional benefit or because of the stigma it carries. While most standard models of utility would predict an increase in competitiveness due to increased risk tolerance with higher income (e.g., CRRA), stigma would decrease the rate of tournament entry, which is the main finding for the middle group with the expanded benefit eligibility. Additionally, if income effects were driving the results, they would produce a response from the low-status groups that experiences a larger income effect compared to the middle-status group. We observe no such effect on the low-status group. In general, the results are highly supportive of Hypothesis 2 as tournament entry is positively correlated with stage 1 status. Further as low-status subjects do not act differently under the treatments, but middle-status subjects do, we confirm Hypothesis 3.

To further examine the way stage 1 benefits may have affected subjects' tournament entry decision in stage 2, we take a closer look at tournament beliefs. Each subject provided their belief about their relative performance in the 3-person group after completing stage 2 but before they knew their performance in the Niederle & Vesterlund (2007) task. Their

Table 6: Regression analysis of tournament entry (stage 2) on treatment, stage 1 and 2 performance, elicited preferences, and demographics.

	(1) entry into tournament	(2) entry into tournament	(3) entry into tournament
low status	-0.261***	-0.212***	-0.188***
	(0.091)	(0.067)	(0.066)
high status	0.087	0.043	0.013
	(0.115)	(0.093)	(0.105)
plausible deniability ×	0.022	0.009	0.026
low status	(0.096)	(0.096)	(0.103)
plausible deniability ×	0.000	0.003	0.009
high status	(0.105)	(0.096)	(0.096)
plausible deniability ×	-0.196	-0.179*	-0.174*
middle status	(0.119)	(0.101)	(0.100)
female		-0.142***	-0.129***
		(0.045)	(0.046)
stage 1 quiz			0.015
questions correct			(0.020)
stage 2 non-			0.015**
tournament performance			(0.007)
believed tournament		0.266***	0.232***
tercile		(0.044)	(0.053)
shyness			-0.014
			(0.038)
expectation of group			0.070
take-up			(0.098)
risk aversion			0.008
			(0.015)
aheadness aversion			0.009
			(0.059)
behindness aversion			0.016
			(0.069)
year of study			0.038*
			(0.022)
constant	0.587***	0.025	-0.310
	(0.094)	(0.152)	(0.215)
observations	276	276	276
number of groups	92	92	92
number of sessions	31	31	31
r^2	0.099	0.217	0.247

*** p<0.01, ** p<0.05, * p<0.1.

Notes: All three regressions use random effects terms for subject group, and use cluster-robust standard errors at the session level.

Table 7: Two-way contingency table of general knowledge quiz status (stage 1) and expected performance in 3-person tournament (stage 2). Binning significantly differs from random ($\chi^2 = 16.819$, $p < 0.01$ in the overall sample; $\chi^2 = 8.831$, $p < 0.1$ in the control treatment; $\chi^2 = 9.112$, $p < 0.1$ in the plausible deniability treatment).

	stage 2 tournament belief			
stage 1 assigned status	1st tercile	2nd tercile	3rd tercile	total
Panel A: overall sample				
low	5	59	28	92
middle	3	51	38	92
high	2	35	55	92
total	10	145	121	92
Panel B: control treatment only				
low	3	29	14	46
middle	2	22	22	46
high	1	17	28	46
total	6	68	64	138
Panel C: plausible deniability treatment only				
low	2	30	14	46
middle	1	29	16	46
high	1	18	27	46
total	4	77	57	138

beliefs represent a measure of confidence. Table 7 shows the distribution of overall beliefs and split across treatments. Status appears to have an effect on subsequent confidence. Only a few subjects believe they will finish last in the tournament. Most high-status subjects believe they will finish first. In contrast, most low-status subjects believe they will finish 2nd. Middle-status subjects fall somewhere in between. Panels B and C of Table 7 show the sample separated by treatment. The panels are mostly similar though there appears to be a small effect of less confidence of middle-status subjects in the Plausible Deniability Treatment.

Table 8 shows regressions of expected rank in tournament (i.e., 1st=3, 2nd=2, 3rd=1) and expectation of top rank on status and the treatment variable. Consistent with other results, subjects assigned low status in stage 1 expect to finish 0.2 ranks lower than subjects assigned middle status in the control treatment ($p < 0.1$). They are also 17.5 percentage points less likely to expect to finish first ($p < 0.05$). Though the sign is positive with an economically significant magnitude, high-status subjects do not differ significantly in expectations from

Table 8: Regression analysis of belief in expected rank in tournament (specification (1)) and top rank expectation (specification (2)) on treatment interacted with status.[a]

	(1) expected rank in tournament (tercile)	(2) expected top rank
low status	-0.196*	-0.174**
	(0.117)	(0.088)
high status	0.152	0.130
	(0.133)	(0.117)
plausible deniability ×	-0.022	-0.022
high status	(0.100)	(0.097)
plausible deniability ×	0.022	-0.000
low status	(0.122)	(0.101)
plausible deniability ×	-0.109	-0.130
middle status	(0.131)	(0.120)
constant	2.435***	0.478***
	(0.105)	(0.089)
observations	276	276
number of groups	92	92
number of sessions	31	31
r^2	0.061	0.066

*** p<0.01, ** p<0.05, * p<0.1.

Notes: All three regressions use random effects terms for subject group, and use cluster-robust standard errors at the session level.

[a] To preserve sign, higher performance is associated with a higher number in rank. That is, within a group, 3 is top rank and 1 is bottom rank.

middle-status subjects in the control. Middle-status subjects under the Plausible Deniability Treatment have significantly lower expectations than the high-status subjects ($p < 0.01$, both specifications), but do not significantly differ from the low-status subjects ($p \approx 0.5, 0.7$). Performance beliefs do not differ across treatments for the middle-status group ($p \approx 0.3$). It appears expectations of tournament performance may be one driver of our main results. However, the results in specifications (2) and (3) in the regressions of Table 6 show they are not the sole drivers of our observed effects.

Result 3. *Eligibility for benefits—assigned based on stage 1 performance—affects subsequent, stage 2, competitive behavior. While benefits eligibility may be entangled with status assignment for the low-status group, among the middle-status group, both competitive expectations and decisions resemble the high-status group in the Control Treatment and low-status group in the Plausible Deniability Treatment.*

5 Discussion

We implement a laboratory experiment where we can control for factors that are normally correlated in observational data, specifically the provision and stigma of social welfare benefits and subsequent labor entry decisions. We create an environment where the lowest-performing third of subjects can supplement their earnings with an additional benefit, however, that choice is directly observed. In one treatment, we allow this group to have "plausible deniability" by expanding the benefits eligibility to include the middle-status group. Surprisingly, we find no effect on benefit take-up of the lowest-status group unlike in other work such as Friedrichsen et al. (2018). However, in eliciting competitiveness in a subsequent and unrelated task we find competitiveness of the middle-status group decreases in the Plausible Deniability Treatment. Other related measures such as performance ability, confidence, and risk do not explain the difference in the rates of competitiveness. This result implies that being exposed to an induced social identity status significantly affects the later competitive

preferences of subjects.

Eligibility for the social benefit is tied to a low-status perception that seems to affect subsequent competitive decisions. Choosing to compete at a lower rate due to being in a low status is consistent with findings in the literature (Schram et al., 2019). Specifically, being eligible for an additional government benefit is associated with experiencing poverty or financial scarcity. Inducing poverty or financial constraints has been found to be detrimental for the cognitive performance of the poor, but not the rich (Mani et al., 2013; Hoff & Walsh, 2018). Furthermore, recent evidence points to lower propensity to choose a challenging task with higher payoffs or experience financial avoidance when facing financial scarcity (Banker et al., 2020; Hilbert et al., 2022). While we may see evidence of pecuniary emulation in the middle-status group in the Control Treatment, the introduction of plausible deniability reduces their rate of competition entry. The findings from our study add to this literature focusing on expanding eligibility to the middle group and discovering that being eligible for an additional benefit is tied to lower entry into competition even when controlling for ability on the same task across status levels. Further, our study also adds to this discussion by recording mood of subjects. Interestingly, if anything, benefits eligibility appears to increase the positive emotional state of subjects. There is no evidence that subjects' reduced propensity to enter competitions is correlated with negative emotions. This may imply that emotions like complacency rather than those like discouragement are responsible for any subsequent reduced competitiveness of persons that receive social benefits.

The findings from this controlled setting may be considered for a broader context. Much of the literature focuses on the behavior of those who are high status or are low status, but literature on the group in the middle is sparse. However, this group is the most susceptible when considering policy changes that can affect eligibility into government assistance programs. Recent economic shocks such as recessions and pandemics affect eligibility rules, which generally lowers the barriers to partake in government benefits and expands eligibility (Ganong & Liebman, 2013; Center on Budget and Policy Priorities, 2022). Frequently,

individuals who are eligible for government assistance programs are faced with requirements for job training or providing evidence of a job search to continue qualifying for these programs (Center on Budget and Policy Priorities, 2022). However, with the findings from this study, we note the importance of considering how the response of being low-income-status may impact the nature of a job search, particularly how the stigma of being benefit-eligible may impede individuals from seeking more competitive opportunities that can improve their own outcomes. Previous literature highlights that individuals experience stigma simply from having to acknowledge that they are eligible for an additional benefit when tied to a low performance even in the absence of negative externalities, that is, where their benefit comes from others incomes (Friedrichsen et al., 2018).

Further research into this area would explore the underlying mechanisms and motivations for entering competition, particularly when a social status is induced. A field study that captures the essence of the findings in this paper could further support our findings and inform policy for individuals who are benefit eligible. Understanding the underlying behavioral responses stemming from benefit-eligibility stigma may enlighten approaches to alleviate poverty.

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A Emotions Data Analysis

We collected data on our subjects emotional responses using Affectiva through the iMotions software. Affectiva is an AI software based on a large data set and algorithms trained to recognize facial expressions through webcam recordings (Senechal et al., 2015). The emotions data captures seven different emotions on a scale from 0 to 100, which represents the likelihood that it is the emotion expressed in the facial reading. There is also a valence measure, which indicates an overall positive, negative, and neutral emotion. The number for valence ranges from -100 (negative) to 100 (positive), where 0 represents neutral. Data were collected at points stages during the experiment (see Table A.1). Appendix Table A.6 provides summary statistics for each of the variables over the 11 stages of the experiment.

Table A.1: Description of each stage of emotions observation during the experiment.

period	description	number of subject observations
0	Introduction	248
1	Group Assignment	248
2	Eligibility	246
3	Results	242
4	Belief Elicitation	247
5	Token Claim	248
6	Compensation Screen	243
7	Performance Beliefs	232
8	Stage 2 Task	239
9	Shyness Scale	238
10	Earnings Disclosure	227

It is impractical to observe treatment effects individually across each one of our biometric variables. For one, the variables may be highly correlated and, absent any ex-ante hypotheses, it is difficult to explain a significant difference of one biometric variable and not the other. Additionally, the comparison of over ten variables may yield false significance simply due to the number of multiple comparisons. Since we do not have hypotheses tied to each of these variables, we use factor analysis to generate a single factor to express the changes in

Table A.2: Emotions structure from principal factor analysis.

variable	f1 ("positive emotion")	uniqueness
valence	0.712	0.493
joy	0.450	0.798
surprise	-0.129	0.983
contempt	-0.178	0.968
anger	-0.316	0.900
sadness	-0.407	0.835
disgust	-0.189	0.964
fear	-0.031	0.999
pupil dilation	0.092	0.992

the ten variables between experiments and across stages of the experiment (Table A.2). The factor we identify is highly correlated with positive valence and joy, but negatively correlated with contempt, anger, sadness, and disgust. We name this factor "positive emotion;" it is positively (negatively) correlated with positive (negative) emotional reactions.

As we look at the time series of this positive emotion factor across the stages of the experiment, we note a few things. First, compared to middle-status, emotion factor does not differ as much across treatments for low and high status subjects. Low-status subjects appear to have a higher factor than high status subjects during the first half of the experiment (i.e. before benefits claim, period 5) and then express emotions at similar levels. A similar separation can be observed for middle-status subjects in the Plausible Deniability Treatment vs. the control. Overall, it appears that subjects that are eligible for benefits express more positive emotion during the first half of the experiment. Interestingly this emotion peaks around period 3 when subjects learn the results of the stage 1 competition and benefits eligibility. We can infer that eligible subjects initially experienced positive emotions at the prospect of additional income. However, we note that we were unable to capture emotional data the moment in which they had to collect their benefit eligibility sheet, since this required participants to step away from the computer terminal with the facial reading device.

Table A.3 provides regressions to identify these differences across treatments. Subjects that are eligible to receive benefits have 0.15-point higher positive emotion factor over the

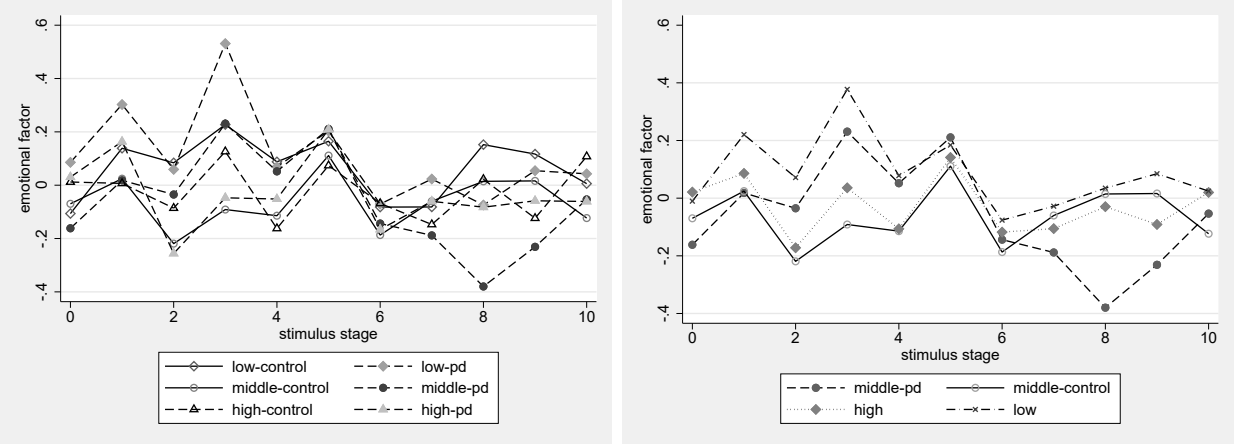

Figure A.1: Time-series of mean positive emotion factor over the 11 stages of stimulus (see Table A.1) by subject status and treatment. (a, left) Positive emotion factor by every status and treatment. (b, right) Positive emotion factor with high and low statuses merged across treatments.

first half of the experiment (before receiving benefits in stage 5). This disparity is effectively zero in the second half of the experiment, indicating no observable emotional difference between the eligible subjects (that are less likely to compete in the tournament, see Result 3) and the subjects without eligibility.

Result 4. *In the first stage of the experiment, subjects that are eligible to receive benefits based on their low performance exhibit more positive emotions than those who do not qualify for benefits. There is no difference in emotions expressed over the second stage of the experiment.*

Table A.3: Regression analysis of positive emotion factor on eligibility for benefits.

	(1) positive emotional factor
eligible for	0.161**
benefits	(0.074)
post benefit	-0.008
take-up (stage 5)	(0.049)
eligible × post	-0.168**
benefit take-up	(0.079)
constant	-0.056
	(0.058)
observations	2,410
number of subjects	249
number of sessions	31
r^2	0.008

*** p<0.01, ** p<0.05, * p<0.1.

Notes: All three regressions use random effects terms for subject, and use cluster-robust standard errors at the session level.

B Additional Tables

	(1) will take benefit	(2) will take benefit
low status	-0.022	-0.042
	(0.059)	(0.057)
high status	-0.043	-0.049
	(0.070)	(0.050)
plausible deniability ×	-0.000	0.011
low status	(0.059)	(0.063)
plausible deniability ×	0.087	0.083
high status	(0.064)	(0.056)
plausible deniability ×	0.087**	0.042
medium status	(0.044)	(0.040)
shyness scale		-0.080***
		(0.022)
expectation of group take-up		0.483***
		(0.087)
risk aversion		-0.007
		(0.007)
aheadness aversion		-0.019
		(0.037)
behindness aversion		-0.032
		(0.039)
female		0.007
		(0.033)
year of study		-0.004
		(0.010)
constant	0.891***	0.812***
	(0.038)	(0.118)
observations	276	276
number of groups	92	92
number of sessions	31	31
r^2	0.038	0.259

*** p<0.01, ** p<0.05, * p<0.1.

Notes: All three regressions use random effects terms for subject group and cluster-robust standard errors at the session level.

Table A.4: Regression analysis of indicated willingness to take benefit (strategy method) on treatment interacted with status, stage 1 quiz performance, elicited preferences, and demographics.

	(1) will take benefit	(2) will take benefit	(3) will take benefit
plausible deniability	0.000	0.004	0.011
	(0.059)	(0.059)	(0.065)
percentile of quiz score		-0.002	-0.001
		(0.002)	(0.002)
shyness scale			-0.136**
			(0.053)
expectation of group take-up			0.393**
			(0.182)
risk aversion			-0.009
			(0.017)
aheadness aversion			0.057
			(0.057)
behindness aversion			-0.118**
			(0.059)
female			0.008
			(0.060)
year of study			0.028
			(0.022)
constant	0.870***	0.905***	0.951***
	(0.043)	(0.049)	(0.306)
observations	92	92	92
number of groups	92	92	92
number of sessions	31	31	31
r^2	0.000	0.010	0.258

*** p<0.01, ** p<0.05, * p<0.1.

Notes: All three regressions use random effects terms for session, and use cluster-robust standard errors at the session level.

Table A.5: Regression analysis of indicated willingness to take benefit (strategy method) on treatment, stage 1 quiz performance, elicited preferences, and demographics. The analysis is restricted to low-status subjects only.

	Overall	Control	Plausible Deniability
positive emotion factor	0.000	-0.007	0.007
	(0.777)	(0.687)	(0.857)
valence	-6.783	-7.147	-6.424
	(13.552)	(12.606)	(14.422)
joy	1.506	1.253	1.755
	(6.552)	(5.735)	(7.263)
surprise	3.647	3.831	3.464
	(6.738)	(6.695)	(6.777)
contempt	2.747	2.747	3.077
	(7.886)	(7.886)	(8.471)
anger	0.526	0.413	0.637
	(2.599)	(1.561)	(3.317)
sadness	1.047	0.858	1.234
	(4.214)	(3.444)	(4.851)
disgust	1.051	1.142	0.960
	(2.099)	(2.387)	(1.765)
fear	3.752	3.780	3.724
	(8.122)	(8.082)	(8.166)
pupil	2.950	2.966	2.934
	(0.409)	(0.378)	(0.438)
observations	2,691	1,338	1,353
subjects	249	124	125
groups	92	46	46
sessions	31	14	17

Table A.6: Summary statistics of recorded emotion variables overall and separated by treatment. Variables were recorded at up to 11 distinct points of the experiment for each subject (see table A.1).

C Instructions

Welcome, and thank you for participating in today's study.

You will receive a compensation of $10 for your participation today. You may also receive additional payments depending on your decisions, the decisions of others, and luck.

You were assigned an ID number when you signed in. This serves to protect confidentiality. As a reminder, your participation today is completely voluntary. You may choose to end your participation at any time. However, in order to receive payment, you must complete the entire session. All information collected today will be confidential and will not be used for any reason other than this research.

Before we begin, please ensure your cellphone is turned off and all your belongings are placed by you on the floor. Please remain quiet and keep your eyes on your own screen for the duration of this session. We expect and appreciate your cooperation.

All instructions will be given to you as needed on your screen. If you have any questions, please raise your hand and a session monitor will come assist you.

Part 1

You have been randomly assigned in a group with two other people. The identities of these individuals are unknown. You will be in this group for the remainder of this session.

In this stage, you will have 10 minutes to answer 15 general knowledge questions. Your goal is to correctly answer as many questions as you can. After completing the task, you will be assigned a ranking status based on your performance within your group. Payment will be administered as listed in the table below at the end of the experiment. You may not use any external sources, nor consult with others to answer these questions.

Rankng	1	2	3
Status	High	Middle	Low
Payment	$6	$4	$2

1. Grand Central Terminal, Park Avenue, New York is the world's largest

    - Largest railway station
    - Highest railway station
    - Longest railway station
    - None of the above

2. Entomology is the science that studies

    - Behavior of human beings
    - Insects
    - The origin and history of technical and scientific terms
    - The formation of rocks

3. Eritrea, which became the 182nd member of the UN in 1993, is the contintent of

    - Asia
    - Africa
    - Europe
    - Australia

4. Exposure to sunlight helps a person improve their health because

    - The infrared light kills bacteria in the body
    - Resistance power increases
    - The pigment cells in the skin get stimulated and produce a healthy tan
    - The ultraviolet rays convert skin oil to Vitamin D

5. Each year World Red Cross and Red Crescent Day is celebrated on

- May 8
- May 18
- June 8
- June 18

6. Federation Cup, World Cup, Allywyn International Trophy, and Challenge Cup are awarded to the winners of
    - Tennis
    - Volleyball
    - Basketball
    - Cricket
7. Germany signed the Armistice Treaty on (blank), and World War I ended
    - January 19, 1918
    - May 30, 1918
    - November 11, 1918
    - February 15, 1918
8. The Ozone layer restricts
    - Visible light
    - Infrared radiation
    - X-rays and gamma rays
    - Ultraviolet radiation
9. The UN Headquarters is located in
    - New York, USA

- Hague, Netherlands
- Geneva, Switzerland
- Paris, France

10. During the first crusade, crusaders reached Jerusalem and captured it in
    - 1000 AD
    - 1200 AD
    - 1099 AD
    - 1515 AD
11. (Blank) is the president that appointed the first female Secretary of State in the US
    - George H.W. Bush
    - Bill Clinton
    - George W. Bush
    - Barack Obama
12. International Workers' Day is on
    - April 15
    - May 1
    - August 1
    - December 12
13. The 2018 Winter Olympic Games were held in
    - Sochi
    - Tokyo
    - Beijing

- PyeongChang

14. Joule is a unit of

    - Energy
    - Pressure
    - Heat
    - Temperature

15. The number of adult human bones is

    - 200
    - 206
    - 212
    - 218

In a minute, you will be assigned a status group based on the number of correct answers on the quiz. If you are in the (*Low*; *Low or Middle*) status group(s), you will have the opportunity to claim a token that can be redeemed for an extra $1. You will be called to come to the front of the room to **publicly claim** the token to redeem this additional payment at the end of the session.

Will you claim this token if you are in the eligible group(s)?

- Yes
- No

Your ranking is (*1*; *2*; *3*).

Based on your ranking, you are in the (*High*; *Middle*; *Low*) status. Status assignments are as follows:

Rankng	1	2	3
Status	High	Middle	Low

Based on your ranking and status, you earned (*$6*; *$4*; *$2*) from this exercise.

Before distributing tokens for the additional $1, please answer the questions below. You will receive an additional $0.50 for any correct guesses.

(*only plausible deniability treatment*) Of those in the middle status (including yourself, if applicable), how many people do you think will claim the additional $1.00?

Of those in the low status (including yourself, if applicable), how many people do you think will claim the additional $1.00?

Please Wait for Further Instruction

(*At this time, the session monitor called the ID numbers of those who cliamed the token and were eligible to claim the token paper, before moving to Part 2*)

Part 2, Exercise 1

For this exercise, you will be asked to solve a set of addition problems independently. You will be given 5 minutes to answer them. You cannot use a calculator, however, you are welcome to write the numbers down and make use of the provided scratch paper. Your answers are anonymous.

You will earn \$0.50 per problem you solve correctly and \$0 for incorrectly answered ones. We refer to this payment as the **piece-rate** payment. You will not be informed of how many questions you correctly solve until the end of the session.

Please do not talk with one another for the duration of this session. If you have any questions, please raise your hand.

Part 2, Exercise 2

For this exercise, you will be asked to solve a set of addition problems independently. You will be given 5 minutes to answer them. You cannot use a calculator, however, you are welcome to write the numbers down and make use of the provided scratch paper. Your answers are anonymous.

You will be paid according to the payment scheme you choose at this time:

- **piece-rate**: as in the first exercise, you will earn \$0.50 per problem solved correctly and \$0 for incorrect answers
- **tournament** you will earn \$1.50 per problem answered correctly if you are the top performer of your group and earn \$0 if you are not the top performer. If there are any ties, all winners will earn \$1.50 per problem. You would be competing with members of the group that you were assigned to in Part 1.

Please pick a payment scheme: piece-rate or tournament

Please do not talk with one another for the duration of this session. If you have any questions, please raise your hand.

How do you think you did relative to the rest of your group?

- Top performer
- Middle performer
- Lowest performer

Part 3, Exercise 1

In the following, you'll face 10 decisions listed on your screen. Each decision is a paired choice between "Option A" and "Option B". While the payoffs of the two options are fixed for all decisions, the chances of the high payoff for each option will vary.

After you have made all of your choices, one of the 10 decisions will be randomly chosen for your payment. For the option you chose, A or B, in this decision, it will be randomly determined (according to the corresponding probabilities) whether the low or high outcome will constitute your payoff.

To summarize: You will make 10 choices; for each decision you will have to choose between "Option A" and "Option B". You may choose A for some decision rows and B for other rows. When you are finished, one of the 10 decisions will be randomly picked for your payoff. Then a random number will be drawn to determine your earnings for the option you chose in that decision.

Note: the following table was split into ten different decision screens; we present each decision into one table for succinctness

Option A	Option B	Your Choice
1/10 of \$2.00; 9/10 of \$1.60	1/10 of \$3.85; 9/10 of \$0.10	
2/10 of \$2.00; 8/10 of \$1.60	2/10 of \$3.85; 8/10 of \$0.10	
3/10 of \$2.00; 7/10 of \$1.60	3/10 of \$3.85; 7/10 of \$0.10	
4/10 of \$2.00; 6/10 of \$1.60	4/10 of \$3.85; 6/10 of \$0.10	
5/10 of \$2.00; 5/10 of \$1.60	5/10 of \$3.85; 5/10 of \$0.10	
6/10 of \$2.00; 4/10 of \$1.60	6/10 of \$3.85; 4/10 of \$0.10	
7/10 of \$2.00; 3/10 of \$1.60	7/10 of \$3.85; 3/10 of \$0.10	
8/10 of \$2.00; 2/10 of \$1.60	8/10 of \$3.85; 2/10 of \$0.10	
9/10 of \$2.00; 1/10 of \$1.60	9/10 of \$3.85; 1/10 of \$0.10	
10/10 of \$2.00; 0/10 of \$1.60	10/10 of \$3.85; 0/10 of \$0.10	

Part 3, Exercise 2

In this exercise there are four decisions. Each decision is a paired choice between "Option A" and "Option B." You will be randomly paired with someone in the room who will earn the "other" option and you will earn the "self" option. You will record your decision for each pair in the final column, but only one of them will be used in the end to determine your earnings. A number will be drawn at random to determine which of these decisions will be paid.

Option A	Option B	Your Choice
\$1.00 for self; \$1.00 for other	\$1.00 for self; \$0.60 for other	
\$1.00 for self; \$1.00 for other	\$1.60 for self; \$0.40 for other	
\$1.00 for self; \$1.00 for other	\$1.00 for self; \$1.80 for other	
\$1.00 for self; \$1.00 for other	\$1.10 for self; \$1.90 for other	

For this next part, please read each item carefully and decide to what extent it is characteristic of your feelings and behavior:

I feel tense when I'm with people I don't know well

1. Very uncharacteristic
2. Uncharacteristic
3. Neutral
4. Characteristic
5. Very characteristic

I am socially somewhat awkward

1. Very uncharacteristic
2. Uncharacteristic
3. Neutral
4. Characteristic
5. Very characteristic

I am often uncomfortable at parties and other social functions

1. Very uncharacteristic
2. Uncharacteristic
3. Neutral
4. Characteristic
5. Very characteristic

When in a group of people, I have trouble thinking of the right things to talk about

1. Very uncharacteristic
2. Uncharacteristic
3. Neutral
4. Characteristic
5. Very characteristic

It is hard for me to act natural when I am meeting with new people

1. Very uncharacteristic
2. Uncharacteristic

3. Neutral
4. Characteristic
5. Very characteristic

I feel nervous when speaking to someone in authority

1. Very uncharacteristic
2. Uncharacteristic
3. Neutral
4. Characteristic
5. Very characteristic

I have trouble looking someone right in the eye

1. Very uncharacteristic
2. Uncharacteristic
3. Neutral
4. Characteristic
5. Very characteristic

I feel inhibited in social situations

1. Very uncharacteristic
2. Uncharacteristic
3. Neutral
4. Characteristic
5. Very characteristic

I am more shy with members of the opposite sex

1. Very uncharacteristic
2. Uncharacteristic
3. Neutral
4. Characteristic
5. Very characteristic

Please answer the following questions

Year in college:

- 1st
- 2nd
- 3rd
- 4th
- 5th+

Major:

Sex:

- M
- F