Social Stigma and Subsequent Competitive Behavior

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Abstract

Social signaling influences economic behavior. For instance, individuals may exhaust resources to competitively signal higher levels of social status. Conversely, individuals may avoid signaling their status to minimize the stigma associated with low status. We conduct a laboratory experiment to explore how benefit eligibility stigma drives decisions to competitiveness. Similar to Friedrichsen, König, and Schmacker (2018), we induce a stigma associated with a benefit for the low status group. We then introduce a treatment in which the stigma is reduced by expanding the eligibility to a middle-status group in a plausible deniability treatment. While we do not observe evidence of a stigma affecting benefit take-up, we do observe a difference in preferences for competitiveness in a subsequent and unrelated task; namely, when individuals in the middle group qualify for the benefit their rate of competition is reduced by 33% 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 Motivation & Purpose

It is well known that people are driven to showcase a desirable status in different market contexts through consumption of prestigious goods and services (Bursztyn & Jensen, 2017; Clingingsmith & Sheremeta, 2018). On the other hand, people also experience stigma from low status environments, such as qualifying for special assistance programs due to low income or performance (Moffitt, 1983). 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, Sanders, & Taylor, 1999; Currie, 2001; Friedrichsen, König, & Schmacker, 2018).[1] While social welfare programs are conceived to alleviate specific problems and benefit recipients, the stigma may work in the opposite direction. Individuals in need may not access relevant programs out of stigma aversion or alternatively program participation may reduce the confidence of recipients later in their lives.

This paper studies how eligibility for a special social benefit based on low performance 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 stages. In the first stage, subjects are randomly assigned to groups of three and are evaluated under a general knowledge quiz. Based on their performance, they are assigned as the low, medium, or high performing individual with higher earnings for higher performance. The lowest-performing individuals are eligible to receive a 'welfare benefit' that they claim by coming to the front of the room, thereby inducing feelings of stigma.

[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).

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. In both treatments, over 85% of eligible individuals claimed the benefit, suggesting that the stigma had little effect on benefit take-up.

The second parts of both treatments are identical, featuring an elicitation of preferences for competitiveness based off Niederle and 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. The basic results show the first task influences decisions to compete in a subsequent task. There are no differences in the propensity to compete for the high-status group across treatments nor for the low-status group. 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. We also collected the emotional responses of our subjects and found that our subjects exhibit negative emotions when finding they achieve their status and when making the decision to compete.

Extensive literature has investigated the effects of social status on economic behavior, especially for high status in markets (Ball, Eckel, Grossman, & Zame, 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, Ness, & Anderson, 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, Ferman, Fiorin, Kanz, & Rao (2017) conducted a field experiment that exogenously altered the qualificiations 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. While there has not been much literature focusing on stigma from low status, previous work documents that individuals experience stigma from participating in government benefit programs (Andrade, 2002; Daponte et al., 1999; Currie, 2001) or educational programs (Bursztyn & Jensen, 2015; Bursztyn, Egorov, & Jensen, 2017). Some literature documents benefit-eligibility stigma driving the decision to not take welfare benefits (Moffitt, 1983; Major & O'brien, 2005; Andrade, 2002). Specifically, eligible low-status individuals are less like to accept the benefit when their decision is visible to others compared to private environments (Friedrichsen et al., 2018). Our research induces three different statuses, which gives us the opportunity to observe behavior for three disctintive 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 affects 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). However, identity seems to be a driver for competitive behavior (Shih, Pittinsky, & Ambady, 1999; Ibarra, Carter, Silva, et al., 2010; Zhang, Zhang, & Palma, 2020). 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, Choi, & Strickland, 2010). When exploring how being associated with low economic status affects competition, Banker, Bhanot, & Deshpande (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, our environment aligns with previous literature investigating the role of socioeconomic status, financial scarcity, and performance in cognitive ability for different status levels (Mani, Mullainathan, Shafir, & Zhao, 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, Dimant, & Schmidt, 2021; Gillies, Rigdon, et al., 2019). 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-status 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 low status group did not increase competitiveness after the benefit is expanded to the middle status group in the plausible deniability treatment. The two tasks in 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 the low performance group were eligible for an additional benefit, similar to the treatment featured in Friedrichsen, König, and Schmacker (2018). In the Plausible Deniability treatment, low and middle performance individuals were eligible for the additional benefit. In this treatment, we expected to minimize the stigma/visibility low performance individuals as they can use plausible deniability for being in the middle performing group to reduce their stigma. We also explore how the eligibility for this additional benefit affects willingness to compete.

Each experimental session had three stages that transpired as follows.

2.1 Stage 1: Status assignment and benefit allocation

In the first part of the experiment, subjects were randomly assigned to a group of three players that remain anonymous. Then, they had ten minutes to complete a 15-question general knowledge quiz that covered several topics and required no specific training to answer. The questions were selected from a bank of general knowledge questions (Kassas & Palma, 2019).[2] Subjects were informed that their performance on the quiz relative to the other players in their randomly assigned group would determine their status and payment schedule as described in Table 1.

[2]Mean and median correct answers were 7.50 (SD = 2.01) out of 15.

Table 1: Payment table

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

After completing the quiz, but before revealing performance, subjects were informed of the additional $1 benefit and the eligibility conditions of their respective treatment. The strategy method was employed to ask all subjects whether they would accept a $1 benefit if they 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 learned 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 in Friedrichsen, König, and Schmacker (2018).

2.2 Stage 2: Competition

In the second stage of the experiment, the subjects engaged in a competitive tournament entry task following Niederle and 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 but had the option to choose between a paid piece-rate, the same way as the first exercise, or to participate in a tournament against the other two people within their group, that is, the same group from Stage 1. Specifically, they would receive $1.50 per correctly calculated answer if they were the top performer, and $0 otherwise. They were not informed of their performance in this task, however, after the subjects completed these tasks, they were asked how they believed

to have performed in the second task relative to the other two people within the group (top performer, middle performer, or lowest performer).

2.3 Stage 3: Additional tasks

The subjects then revealed their risk preferences using a multiple price list (Holt & Laury, 2002), completed a social preferences task (Bartling, Fehr, Maréchal, & Schunk, 2009), completed a shyness scale (Cheek & Buss, 1981), and then answered some basic demographic questions. We collected these measures as control measures for competition and benefit claim rates. After completing these additional tasks subjects found out 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 fee plus earnings, averaging $20 in additional earnings. The experiment lasted approximately an hour.

3 Hypotheses

Akerlof and 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, Choi, & Strickland (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 what a particular social category may engage in.

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 whatever social stigma is associated with that benefit. 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 identical between treatments.*

Hypothesis 1a. *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 either gain utility from choosing the piece-rate payment scheme or from entering competition and winning it. However, individuals also gain or lose utility from entering the competition based on the prescribed notions of their assigned status and whether they should compete or not. More specifically, the unrelated assignment for the high-status groups gives license to engage in competitive behavior while it penalizes it for the low-status individuals. 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 (invidious comparison) (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 theoretical 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. *There is no difference in the competitive behavior in a subsequent task between the three status groups.*

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

By introducing plausible deniability, we expect that the low-status group may use this setting as a justification and respond by increasing their rate of competition relative to the control. Plausible deniability affords this group the opportunity to reduce the impact of the benefit claim eligibility to their status identity. We expect an opposite behavior for the middle status group. 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, it makes them 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. *There is no change in competitiveness for each group when comparing the control with the plausible deniability treatment.*

Hypothesis 3a. *Low status individuals will increase their competitive behavior relative to the control.*

Hypothesis 3b. *Middle status individuals will decrease their competitive behavior relative to the control.*

4 Results

Table 9 in the appendix provides some summary statistics and a balance test. We find that our sample is balanced across our demographics. To test our results across treatments and varying conditions, we utilize Mann-Whitney tests. Overall, we observe that the benefit take-up behavior of the subjects in our sample is very high. The left side of Figure 1 shows that the benefit take-up for low status in the Control and in the Plausible Deniability treatment is similar at nearly 87%. On the right side of Figure 1 we include the benefit take-up rate for the middle performance group in the plausible deniability treatment since they were eligible for the benefit in that treatment.[3] Of this group, 98% claimed the benefit which is higher than the 87% eligible individuals in the Control treatment ($p < 0.06$). Since we employed the strategy method to elicit take up behavior, we also have the rate claimed by ineligible middle-status individuals in the control. The take up rate is only slightly lower for the Control's middle group ($p < 0.1$) and there is no difference in take-up rates for those in the high-status group. It is clear there is no difference in take-up rates between groups. Thus, we cannot reject null hypothesis 1 in favor of 1a.

Result 1 *There is no difference in take-up between the Plausible Deniability Treatment and Control for any of the three status groups.*

Before showing the remaining results, we present the performance during the second stage across the three status groups in Table 2. Subjects correctly answered 8.5 math problems on average in the piece-rate task and 10.4 math problems on average in the tournament task. The Control group had a slightly better performance in the piece-rate task than the Plausible Deniability treatment, but the performance in the tournament portion is not statistically different ($p > 0.1$). All status groups performed the same on average in both

[3]We have also included the claim rate of the middle performance group in the Control treatment, even though they were not eligible for the benefit.

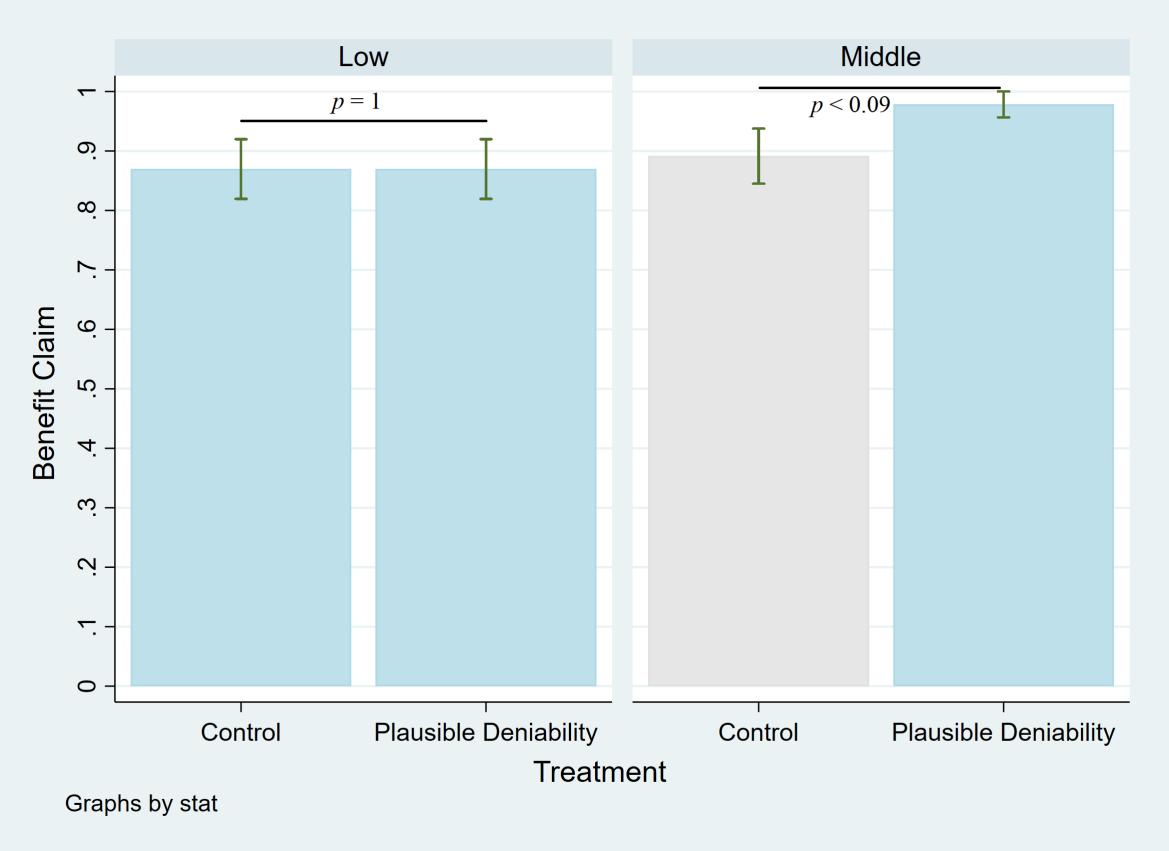


Figure 1: Benefit Claim for eligible statuses

tasks, and there are no differences in performance across gender. From this data, we can infer that any decision to compete is not related to performance across the three status groups.

Figure 2 features the tournament entry decision by status group and treatment. In the control group the low status group has the lowest competitive entry rates with 32.6%. The high-status group displays the highest rate with 67.4%. This rate of entry represents a significant difference in the rates of competition between the low- and high-status groups ($p < 0.01$). These results provide general support for hypothesis 2a that the status assignment during stage 1 affects the subsequent competitive status and the low and high-status groups showcase the lowest and highest competition entry rates, respectively.[4] Hypothesis 2a states that the middle-status group competes at a rate between the low status and the high

[4]For reference, the tournament entry rates in Niederle and Vesterlund (2007) are 35% for women and 73% for men, so that the competition gap between the high and low status groups is similar to the original gender gap rate reported.

Table 2: Performance in Stage 2, piece-rate and tournament tasks

	Control	Plausible Deniability	p_{MW}
Piece-rate task performance			
Overall	9.0	8.0	0.02**
High	9.2	8.5	0.13
Middle	8.9	7.8	0.26
Low	8.9	7.8	0.16
Tournament task performance			
Overall	10.7	10.1	0.14
High	10.8	10.0	0.14
Middle	10.9	10.1	0.20
Low	10.4	10.2	0.95

status. The results show that the competition entry rates of the middle-status group mirrors the competitive behavior of the high-status groups, competing at a rate of 58.7% and 67.4%, respectively ($p < 0.40$), distinguishing themselves from the low-status group ($p < 0.02$).

Result 2: *An induced status in an unrelated task affects subsequent competitive behavior.*

We first note that 32.6% of the low-status group choose to enter competition in both the Control and Plausible Deniability conditions, that is, those who are low status do not change their behavior across treatments ($p = 1.0$). This result indicates a rejection of hypothesis 3a. In the Control treatment, 58.7% of the middle-status group chooses competition which is not statistically different than the high-status group ($p < 0.40$). However, the middle-status group changes their behavior in the plausible deniability treatment. More specifically, the benefit eligibility in the Plausible Deniability treatment significantly reduces the rate of competition of the middle-status group to 39.1%, and it is not statistically different than then low status group ($p > 0.50$), and it is lower than the rate of competition of the high-status group ($p < 0.01$). Hence, we observe a significant decrease in the rate of competitiveness between the Control and the Plausible Deniability treatments for the middle-status individuals, providing support for hypothesis 3b ($p < 0.07$). As for the high-status group, we observe that 69.6% of this group enters the competition in the Plausible Deniability treatment, which is

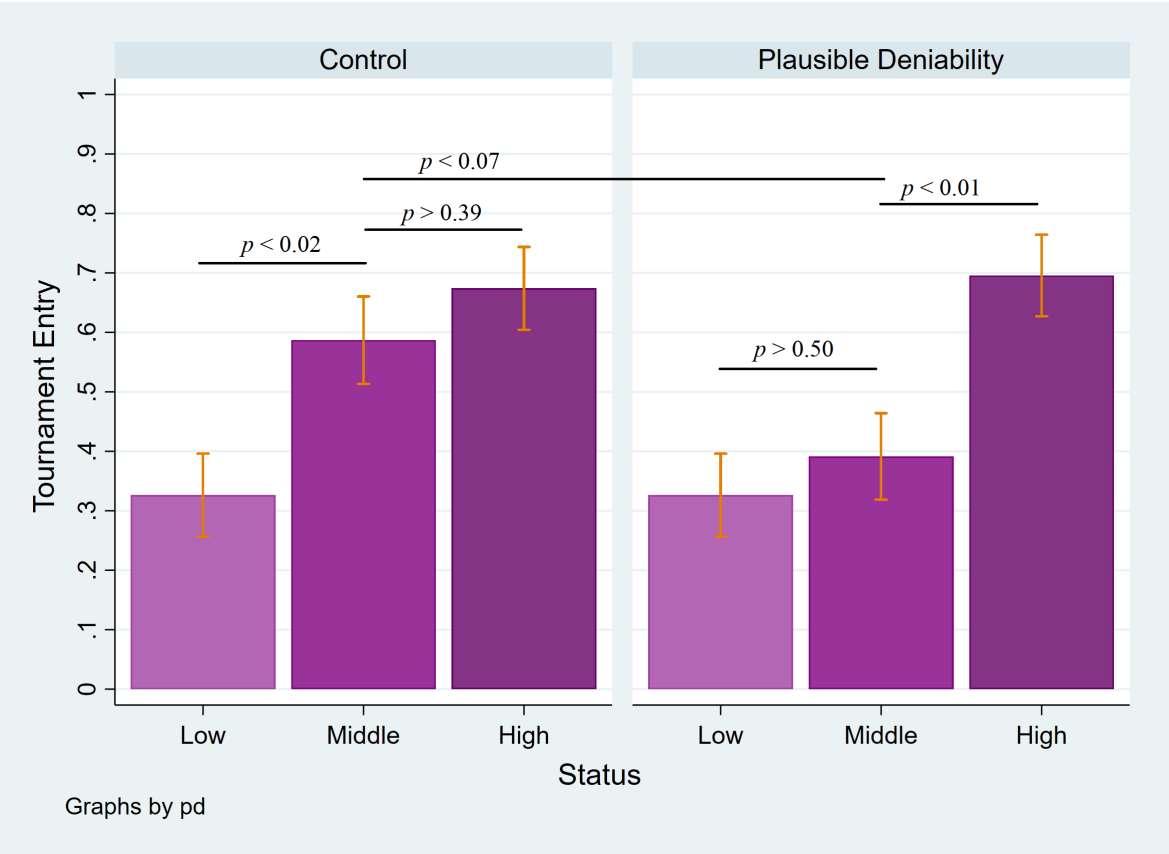


Figure 2: Tournament decision entry by status group

not statistically different from the 67.4% that enter competition in the Control condition ($p > 0.80$); the expansion of eligibility through plausible deniability does not affect those who earn a high-status.

RESULT 3: *Plausible deniability has heterogeneous effects on entry into competition and gender.*

To confirm the robustness of our findings, we estimate a linear probability model on the tournament entry decision as a function of the treatments and additional control variables (Table 3). The equation for this model takes the form

$$Pr(tournamententry = 1) = \beta_0 + \beta_1 PD + \beta_2(PDxLow) + \beta_3(PDxMiddle) + \beta_4 Risk + \beta_5 Female \quad (1)$$

where PD is an indicator for the plausible deniability treatment, Low is an indicator for low status, $Middle$ is an indicator for middle status, $Risk$ represents the number of safe choices an individual makes in the Holt and Laury task, and $Female$ is an indicator for female. In the first specification (1), we only include the variable that captures the plausible deniability treatment (β_1). Assignment to the plausible deniability treatment without regarding anything else does not affect preferences for competition of the overall sample. In the second specification, we include interaction terms for being assigned low or middle status and the plausible deniability treatment (β_2 and β_3). We find that being in the low status and in the plausible deniability treatment is associated with a 24.5 percentage point decrease in the probability to compete relative to the high status group. Similarly, being in the middle status group and in the plausible deniability treatment is associated with a 17.9 percentage point lower probability to compete relative to the high status group. with a lower propensity to choose competition relative to the high-status group. In the third specification, we control for risk preferences (β_4) and gender (β_5). We find that risk is not a significant determinant

Table 3: Linear Probability Model on entry into competition

	(1)	(2)	(3)
Plausible Deniability	-0.0580		
	(0.0603)		
Plausible Deniability x Low		-0.245***	-0.223***
		(0.0786)	(0.0798)
Plausible Deniability x Middle		-0.179**	-0.190**
		(0.0811)	(0.0795)
Risk			-0.00598
			(0.0146)
Female			-0.209***
			(0.0586)
Constant	0.529***	0.571***	0.718***
	(0.0426)	(0.0367)	(0.0863)
Observations	276	276	276

Standard errors in parentheses
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

for entry into competition. However, being female is associated with a 20.9 percentage point decrease in probability to compete relative to men. The effect on those who are assigned to low status or middle status in the plausible deniability treatment reflects a 22.3 percentage point and a 19 percentage point decrease, respectively, in the probability of entering competition relative to the high-status group. This is consistent with findings in the literature regarding females and competition. We also estimate a logit model which we include in Table 10 in our appendix.

We conducted a subsample analysis to uncover the potential drivers behind this result. Specifically, we look at gender. As cited extensively in previous literature, we replicate the finding that women compete at a lower rate than men do, that is, 62% of the males enter competition whereas only 41% of the females enter ($p < 0.01$). However, when exploring the different statuses by gender, there are some evident differences as shown in Figure 3. In the Control condition, we confirm that men compete at a higher rate than women for those with low or middle status. In the low status group, 47% of men enter competition whereas only 22% of females ($p < 0.08$). Similarly, in the middle status group, 77% of men

enter competition whereas 46% of women enter competition ($p < 0.04$). However, this is not the case in the high-status group. Males with a high status enter the competition at a rate of 74% and females enter at a rate of 63% ($p > 0.40$). Focusing on the Plausible Deniability treatment, we observe that the rate at which men and women compete is the same among low and middle status groups. Men in the low status enter competition 38% of the time, whereas women enter at a 30% rate ($p > 0.60$). Similarly, middle-status men enter the competition at a 50% rate and women enter 29% of the time ($p > 0.15$). Meanwhile, high-status men compete at a rate of 80%, whereas high-status women only compete 57% of the time ($p < 0.10$). This significant rate of competition among high-status individuals by gender points to the fact that men and women may have differential responses to inducing identity norms.

In Figure 4, we separate the results by gender so we can isolate the effect of the status across treatments. Evaluating the status only for females shows that there is no difference in the tournament entry rates between the Control and the Plausible Deniability treatments by status groups (Low, $p > 0.50$; Middle, $p > 0.20$; High, $p > 0.68$); that is, each status group selects into competition at the same rate both in the Control and in the Plausible Deniability treatment. The same analysis for males reveals that there is a difference between middle-status males across the two treatments. Specifically, we see that middle-status males in the Plausible Deniability treatment compete at a lower rate than middle-status males in the Control ($p < 0.08$). This result provides an explanation behind the second result, in which we find that benefit eligibility expansion through plausible deniability reduces the likelihood of competition. The males in the low status compete the same across treatments ($p > 0.56$), and those who attain high status also compete at the same rate across treatments ($p > 0.62$).

To further explore the underlying mechanisms behind the tournament entry decisions, we also explore the beliefs participants held regarding their relative performance within their group of three to elicit relative confidence. Specifically, we asked participants whether they

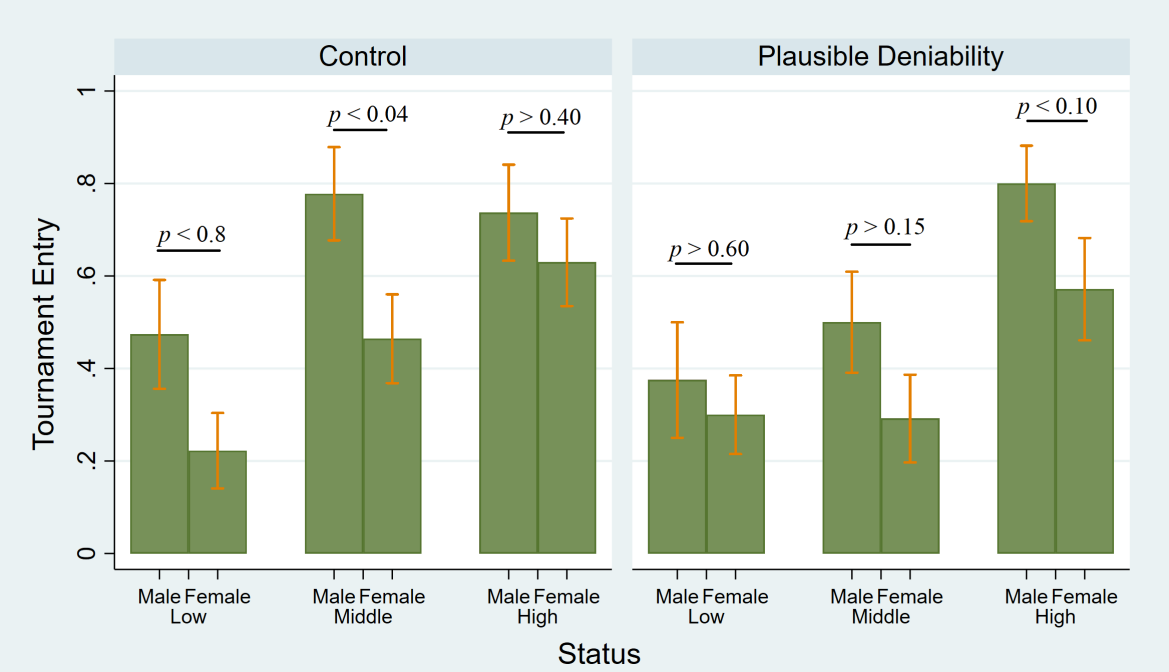
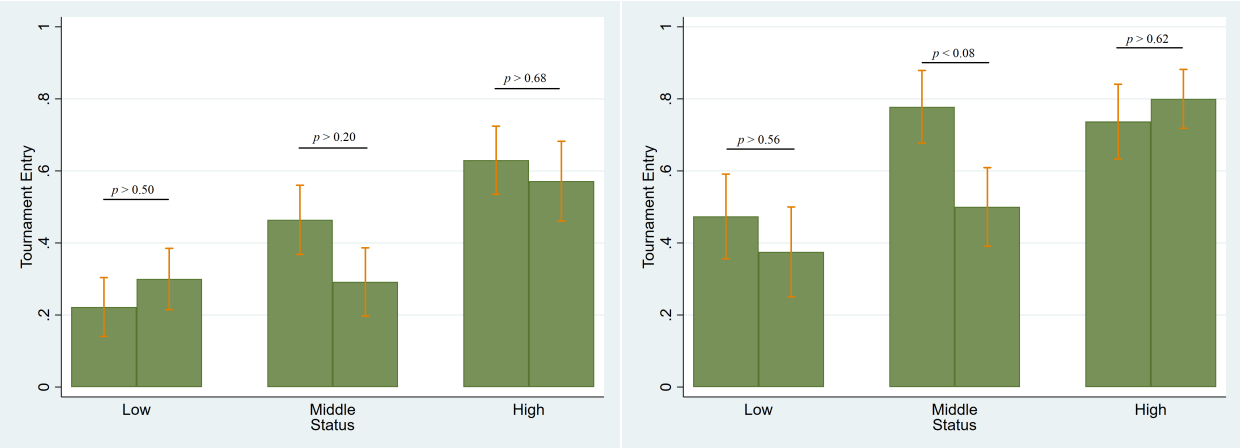


Figure 3: Tournament decision by status group and gender



(a) Females

(b) Males

Figure 4: Tournament entry decision by status

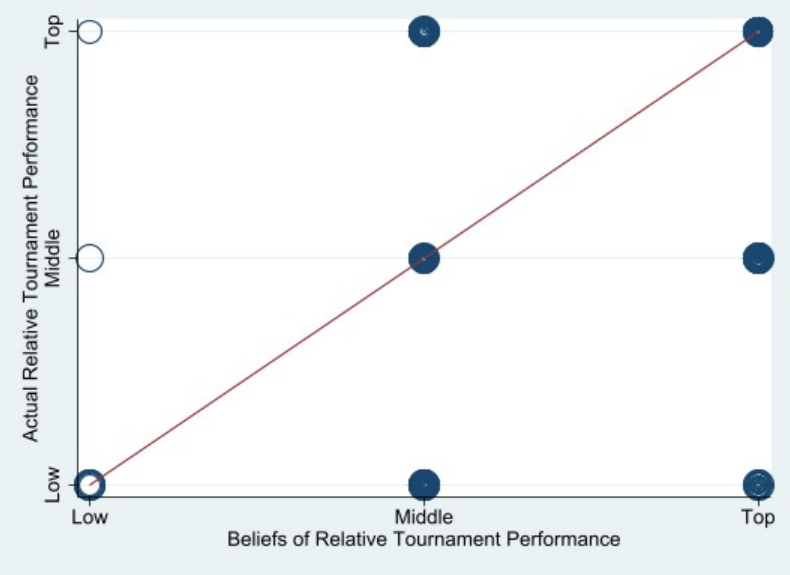


Figure 5: Perceived versus Actual Relative Tournament Performance

believed to be the top performer, the middle performer, or the lowest performer after the second part of the Niederle & Vesterlund (2007) task. Figure 5 shows the relationship between perceived relative performance elicited from beliefs versus actual relative performance. The continuous red line is where an accurate perceived relative performance would be mapped. The darker circles indicate a higher number of participants, whereas the empty circles indicate a lower number of participants. We find that less than four percent of our sample considers themselves to be the lowest performer; everyone else considers themselves either to be the middle performer in the group (53%) or the top performer in the group (44%) which may imply presence of the Dunning-Kruger effect (Kruger & Dunning, 1999). On average, we find that males are more confident than females in the overall sample which we may expect from the literature, but when we separate by treatment, we see this effect more pronounced in the Plausible Deniability treatment.

Table 4: Relative Performance Beliefs

	Top Performer	Middle Performer	Lowest Performer
Overall	0.44	0.53	0.04
Male, overall sample	0.55	0.42	0.03
Female, overall sample	0.35	0.61	0.04
Control	0.46	0.49	0.04
Plausible Deniability	0.41	0.56	0.03
Low status	0.33	0.64	0.05
Middle status	0.41	0.55	0.03
High status	0.60	0.38	0.02
Selected into tournament	0.62	0.37	0.01
Did not select into tournament	0.25	0.68	0.07
Control			
Males	0.48	0.50	0.02
Females	0.45	0.49	0.06
Low status	0.30	0.63	0.07
Middle status	0.48	0.48	0.04
High status	0.61	0.37	0.02
Plausible Deniability			
Males	0.62	0.35	0.03
Females	0.24	0.73	0.03
Low status	0.30	0.65	0.04
Middle status	0.35	0.63	0.02
High status	0.59	0.39	0.02
Low Status			
Males	0.50	0.50	0
Females	0.20	0.73	0.07
Middle Status			
Males	0.59	0.36	0.05
Females	0.13	0.85	0
High Status			
Males	0.72	0.24	0.04
Females	0.43	0.57	0

4.1 Emotions Data

We collected data on our subjects emotional responses using Affectiva through the iMotions software. Affective is an AI software based on a large data set and algorithms trained to recognize facial expressions through webcam recordings (Senechal, McDuff, & Kaliouby, 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. The tables presented below also have a response time, which is measured in seconds on the page.

First, we look at the emotions and valence on the status results page. At this stage, subjects have completed the quiz and have made a decision to take the benefit if eligible (strategy method). This is the page where they find out their earned status from the quiz. As a result, the subjects can infer their payment from the stage and, more importantly, whether they are benefit-eligible according to the treatment assigned.

In Table 5, we observe that two emotions are statistically different between the treatment conditions for the overall sample. We find that subjects assigned to the Plausible Deniability treatment are less surprised that those assigned to the Control ($p < 0.02$). Furthermore, we observe that subjects assigned to the Control treatment exhibit more anger than in the Plausible Deniability treatment ($p < 0.04$). We note, however, that the magnitude for this anger measure is fairly small and we do not observe this effect persistently when we focus on different status levels and treatments.

Table 5: Overall Emotional Measures on the [Quiz] Results page, by treatment

	Overall ($n = 247$)	Control ($n = 123$)	Plausible Deniability ($n = 124$)	p_{MW}
Valence	-4.7	-5.8	-3.7	0.34
Joy	3.8	3.2	4.4	0.80
Surprise	3.1	3.7	2.5	0.02**
Contempt	2.8	2.6	3.1	0.60
Anger	0.4	0.4	0.4	0.03**
Sadness	1.3	1.4	1.2	0.69
Disgust	1.1	1.4	0.7	0.43
Fear	4.2	4.6	3.9	0.87
Response time	13.6	14.2 ($n = 150$)	12.9 ($n = 126$)	0.28

Table 6: Emotional Measures on the [Quiz] Results page, by status

	Control ($n = 42$)	Plausible Deniability ($n = 41$)	p_{MW}, across treatments	p_{MW}, relative to other statuses (Control)	p_{MW}, relative to other statuses (PD)
Low status (Control $n = 42$; Plausible Deniability $n = 41$)					
Valence	4.5	0.3	0.33	0.92	0.36
Joy	4.5	7.5	0.81	0.03**	0.19
Surprise	4.1	3.2	0.08*	0.88	0.83
Contempt	1.4	2.8	0.84	0.20	0.15
Anger	0.2	0.2	0.22	0.67	0.70
Sadness	1	0.3	0.24	0.19	0.30
Disgust	0.9	0.6	0.28	0.64	0.55
Fear	4.8	1.9	0.39	0.45	0.58
Response Time	15.3 ($n = 68$)	13.0 ($n = 43$)	0.69	0.76	0.54
Middle status (Control $n = 42$; Plausible Deniability $n = 42$)					
Valence	-7.3	-3.4	0.15	0.65	0.46
Joy	0.0	3.0	0.13	0.007***	0.78
Surprise	3.3	1.2	0.40	0.15	0.33
Contempt	4.0	1.7	0.14	0.11	0.82
Anger	0.2	0.2	0.51	0.63	0.71
Sadness	0.8	0.8	0.72	0.73	0.30
Disgust	2.3	0.7	0.61	0.85	0.98
Fear	4.8	5.5	0.08*	0.17	0.17
Response Time	12.7 ($n = 42$)	11.4 ($n = 42$)	0.11	0.24	0.009***
High status (Control $n = 39$; Plausible Deniability $n = 41$)					
Valence	-5.5	-7.9	0.59	0.72	0.09*
Joy	5.1	2.8	0.49	0.62	0.29
Surprise	3.6	3.2	0.11	0.19	0.23
Contempt	2.5	4.7	0.47	0.76	0.22
Anger	0.8	0.8	0.20	0.36	0.99
Sadness	2.5	2.4	0.08*	0.32	0.04**
Disgust	0.9	0.8	0.90	0.50	0.54
Fear	4.1	4.3	0.43	0.53	0.41
Response Time	13.88 ($n = 40$)	14.12 ($n = 41$)	0.94	0.44	0.04**

Table 6 captures the same emotional measures broken down by status. In addition to looking at the different statuses across treatments, we also test whether these statuses exhibit the emotions more than other status within the treatments. We confirm that for the low status, they exhibit more surprise in the Control treatment than in the Plausible Deniability treatment ($p < 0.09$). This is likely an artifact of the strategy method, in which people did not expect to be the low status person and is perhaps enhanced in the Control condition where stigma is more likely to be associated with being low status. Interestingly, when we compare across statuses in the Control condition, we find that those who are assigned low status experience less joy than those who are not assigned low status ($p < 0.03$). Specifically, we note that the level of joy for the middle status is lower. Combined with these emotions expressed, we also note that those in the high status express more sadness compared to the other statuses in the Plausible Deniability treatment ($p < 0.05$). The fact that the low status expresses more joy in the Control, the middle status express less joy in the Control, and the high status expresses more sadness in the Plausible Deniability could be responses to earning the additional dollar tied to the benefit eligibility.

We now look at the emotions and valence on the decision to compete page. At this stage, subjects have completed the first part of the Niederle and Vesterlund (2007) task, that is, the piece-rate task. They do not have information on their performance from the first part, but they are aware of their status and that they would be competing against the same group of three from the status-assignment (quiz) stage.

In Table 7, we list the emotional measures captured for the overall sample across treatments. We note that three emotions change between the Control and the Plausible Deniability treatments. Specifically, those in the Plausible Deniability condition exhibit less surprise ($p < 0.05$), contempt ($p < 0.02$), and disgust ($p < 0.06$) when deciding whether to compete compared to the control. We also note that the response time to select competition varies, that is, those assigned to the Control condition spend more time on this page compared to in the Plausible Deniability treatment ($p < 0.01$). These results point to more deliberation

Table 7: Overall Emotional Measures on the Competition Decision page, by treatment

	Overall ($n = 243$)	Control ($n = 120$)	Plausible Deniability ($n = 123$)	p_{MW}
Valence	-9.4	-9.6	-9.2	0.85
Joy	1.5	1.7	1.2	0.18
Surprise	5.0	5.6	4.5	0.05**
Contempt	2.8	3.1	2.6	0.01**
Anger	0.6	0.5	0.7	0.45
Sadness	1.0	0.9	1.2	0.6
Disgust	1.2	1.3	1.1	0.06*
Fear	4.6	4.6	4.6	0.66
Response time	80.1	87.3 ($n = 152$)	71.3 ($n = 124$)	0.002***

needed, presumably because low status penalizes competition and it takes more deliberation to reach a decision.

In Table 8, we observe the same emotional measures divided by each status group and compare across status groups within treatments as in Table 6. Most notably, we observe that those in the middle status exhibit more surprise when in the Control ($p < 0.05$), and more contempt when making this decision in the Plausible Deniability treatment ($p < 0.04$). The middle group assigned to the Control treatment also spends more time on this page than those in the Plausible Deniability treatment ($p < 0.04$). The main difference across the treatments for this group is the benefit eligibility in stage 1. We can infer that the benefit eligibility stigma for the eligible middle group in the Plausible Deniability treatment may cause them to make a faster decision to compete less. In both the of the treatments, the middle group also experiences less joy on this page compared to the high and low status groups ($p < 0.07$). For the low status group, our data reflects more disgust in the Control condition than in the Plausible Deniability treatment ($p < 0.06$). When comparing across status groups, the low status group exhibits more joy relative to the other status groups in the Control condition ($p < 0.04$) and more surprise in the Plausible Deniability treatment ($p < 0.09$).

Table 8: Emotional Measures on the Competition Decision page, by status

	Control ($n = 40$)	Plausible Deniability ($n = 42$)	p_{MW}, across treatments	p_{MW}, relative to other statuses (Control)	p_{MW}, relative to other statuses (PD)
Low status (Control $n = 40$; Plausible Deniability $n = 42$)					
Valence	-10.0	-8.5	0.90	0.92	0.81
Joy	2.9	1.8	0.50	0.03**	0.90
Surprise	5.2	6.3	0.96	0.73	0.92
Contempt	2.3	1.8	0.26	0.73	0.92
Anger	0.3	0.9	0.88	0.70	0.71
Sadness	1.2	0.9	0.65	0.76	0.62
Disgust	1.5	0.9	0.05*	0.93	0.23
Fear	5.0	2.6	0.48	0.54	0.94
Response Time	92 ($n = 72$)	76 ($n = 43$)	0.10	0.69	0.32
Middle status (Control $n = 41$; Plausible Deniability $n = 41$)					
Valence	-10.8	-9.6	0.55	0.68	0.66
Joy	0.64	0.56	0.12	0.02**	0.06*
Surprise	4.8	2.5	0.04**	0.55	0.02**
Contempt	5.4	6.8	0.04**	0.99	0.31
Anger	0.9	0.3	0.54	0.60	0.39
Sadness	0.7	1.8	0.57	0.29	0.69
Disgust	1.1	1.1	0.64	0.90	0.40
Fear	4.1	5.8	0.49	0.07*	0.93
Response Time	79.2	66.2	0.03**	0.47	0.17
High status (Control $n = 39$; Plausible Deniability $n = 40$)					
Valence	-7.9	-9.5	0.85	0.75	0.84
Joy	1.6	1.4	0.16	0.88	0.08*
Surprise	6.9	4.5	0.14	0.34	0.55
Contempt	3.8	3.9	0.33	0.72	0.36
Anger	0.4	1.0	0.64	0.36	0.62
Sadness	0.7	1.0	0.22	0.17	0.91
Disgust	1.4	1.4	0.47	0.97	0.71
Fear	4.9	5.4	0.40	0.23	0.87
Response Time	87.2	71.5	0.11	0.73	0.70

5 Discussion

We implement a laboratory experiment where we can control the environment for factors that are normally correlated in observational data, specifically the provision and stigma of social welfare benefits and subsequent labor entry decisions. In our treatment, we allow the lowest performing group to have plausible deniability for being in that group by expanding the benefit's eligibility to include the middle performing group. Surprisingly, we find no effect on benefit take-up of either group. However, in eliciting competitiveness in a subsequent and unrelated task we find competitiveness of the middle-status group decreases. Other related measures such as performance ability, confidence and risk do not explain the difference in the rates of competitiveness. This result showcases that being exposed to social identity status in social benefit eligible programs can have significant effects on the later preferences for competition of the subjects.

Eligibility for the social benefit is tied to a low-performing 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. 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, Bhanot, & Deshpande, 2020; Hilbert, Noordewier, & van Dijk, 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.

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 (?, ?; on Budget & 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 (on Budget & Priorities, 2022). However, with the findings from this study, we note the importance of considering how the response of being low-income 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.

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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Appendix

Table 9: Balance Test

	Control	Plausible Deniability	p-value
Female	0.59	0.54	0.397
Year in school	2.4	2.5	0.660
Quiz performance	7.6	7.6	1
Math task, piece-rate	9	8	0.024**
Math task, tournament	10.7	10	0.137

Table 10: Logit regressions on entry into competition

	(1)	(2)	(3)
Plausible Deniability	-0.232		
	(0.241)		
Plausible Deniability x Low status		-1.010***	-0.965***
		(0.348)	(0.356)
Plausible Deniability x Middle status		-0.726**	-0.806**
		(0.337)	(0.347)
Risk			-0.0263
			(0.0612)
Female			-0.885***
			(0.256)
Constant	0.116	0.285*	0.930**
	(0.171)	(0.149)	(0.389)
Observations	276	276	276

Standard errors in parentheses
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 11: Number of groups per group size

	Overall	Control	Plausible Deniability
6 people	9	1	8
9 people	14	8	6
12 people	8	5	3

Table 12: OLS Regression on Quiz Score

	Quiz score	
Piece-rate performance	0.05	
	(0.03)	
Tournament performance		0.03
		(0.03)
Constant	7.19	7.30
	(0.32)	(0.38)
Observations	276	276