

Poverty Identity and Competitiveness

Sachin Banker

David Eccles School of Business, University of Utah

Syon Bhanot

Swarthmore College

Aishwarya Deshpande

Barcelona Graduate School of Economics

One's personal identity can play an important role in decision making. We propose that a key identity that shapes behavior among poor populations is conceptualizing oneself as financially insecure, which we term "poverty identity." Two experiments suggest that this identity can influence one's propensity to compete, a personal characteristic that considerably impacts labor market success and life outcomes. We first demonstrate in a lab experiment with students that making one's financial insecurity salient can lead individuals to select less competitive labor tasks. We suggest that poverty identity is perpetually salient among truly impoverished individuals, regularly impacting decisions. Thus, small salience perturbations will have a negligible differential impact on behavior. A lab-in-field experiment conducted in Dharavi, a slum in Mumbai, India, confirms this prediction and evaluates an intervention strategy for promoting competitive behavior. Our results indicate that a verbal self-affirmation intervention, a tool designed to specifically counteract negative effects of identity salience, can encourage low-income individuals to select more competitive labor tasks. These findings have important implications for economic models of identity, policy design aimed at improving wellbeing for disadvantaged populations, and debates around persistent inequality.

Key words: behavioral economics, social identity, competition, poverty, verbal self-affirmation

History: March 29, 2018

1. Introduction

Research across the social sciences finds that people's preferences and behaviors are often shaped by the social groups they identify with (Akerlof and Kranton 2000, Benjamin et al. 2010, Chen and Li 2009). Past work has found that people who hold social identities defined by race (Benjamin et al. 2010), religious beliefs (Benjamin et al. 2016), a history of charitable giving (Kessler and Milkman 2016), and even a criminal past (Cohn et al. 2015) all tend to align their behavior with the perceived norms of the groups that define who they are. We propose that one crucially important identity is the image one might have of oneself as being financially insecure – which we term a "poverty identity." That is, if an individual conceptualizes themselves as being an "impoverished person" (in either an absolute or relative sense), this view of themselves may harm their perceived self-efficacy in achieving positive outcomes in the future. One consequence of this is that poverty identity may reduce one's willingness to compete, which would have important implications for management practices, including recruitment, hiring, and promotions, in the labor market.

Indeed, a willingness to compete is essential for human capital accumulation in the modern economy, from applying for college or graduate schools to competing for jobs on the labor market to

moving up in organizations. There is little doubt that a variety of demographic and personal characteristics can help explain and drive competitive preferences. Yet, to date relevant experimental studies have largely focused on gender disparities in competitive preferences (e.g., Niederle and Vesterlund (2007, 2011), Gneezy et al. (2009)). This work has generally established that men and women have different labor market experiences in part because women often respond less favorably to competition than men. While research continues to examine the nuanced relationship between gender, competitiveness, and labor market outcomes, little attention has been paid to a broader implication from this literature, namely that the degree to which one identifies with individual characteristics (of which gender is but one example) can influence competitive preferences. We argue that an additional characteristic, one's financial insecurity, may shape how people define who they are and what they are capable of and can, as a consequence, lead people to display less competitive preferences.

A growing body of work has explored how poverty may influence individual decision making processes, offering insights into the psychological world of the impoverished (e.g., see Mullainathan and Shafir (2013)). However, a limitation in extrapolating from existing research in this area is the substantial reliance on student and online populations (e.g., Roux et al. (2015), Mehta and Zhu (2015), Shah et al. (2012, 2015)) who may not experience meaningful poverty from a global perspective. In light of this, we use the so called "artefactual" or lab-in-field experimental approach (Harrison and List 2004, Haigh and List 2005, Voors et al. 2012, Jakiela and Ozier 2016) to present evidence documenting the impact of traditional identity salience manipulations and targeted interventions among a population of individuals living in Dharavi, a slum in Mumbai, India. By gathering experimental evidence from both student and developing-world populations, we are able to present a theoretical framework that explains certain differences between populations. In short, we argue that making a given identity salient may have a smaller impact on decisions for those who associate strongly with the identity, because that identity already shapes their daily lives. Accordingly, studying identity-related behaviors by increasing identity salience in the lab may indeed correspond to the baseline behavior of those who strongly hold the identity outside of the lab. This framework builds on earlier theoretical work in the domain (most notably Benjamin et al. (2010)) to help us interpret our findings, but also more broadly allows us to account for other, previously unexplained empirical findings in the identity salience literature.

We first report on a controlled lab experiment at a large, public U.S. university (Study 1), where we find that increasing the salience of one's economic insecurity leads students to select less competitive (and less financially rewarding) labor tasks. In this study, lab participants answered a series of questions that either did or did not make financial insecurity salient (adopting the manipulation technique used in other work on identity salience, including Benjamin et al. (2010))

and Cohn et al. (2015)) before making a labor decision that involved choosing between a non-competitive, poorly-compensated task and a competitive, better-compensated task. Our findings show that reminders of financial insecurity lead to less competitive decisions, without any impact on risk and time preferences, at least for a developed world student population similar to those examined in previous research on scarcity and decision making.

Second, we present a lab-in-field experiment conducted in the Dharavi slum in Mumbai, India (Study 2), to better understand if and how poverty identity salience manipulations influence behavior in truly impoverished populations. Recent research suggests that for the very poor, the psychological effects of poverty are far-reaching and pervade everyday life (Shah et al. 2018), suggesting that poverty identity may be perpetually salient for these populations. In our experiment in Mumbai, we find that small perturbations in poverty identity salience did not impact the competitive preferences of those who already experience impoverishment. This is consistent with our theoretical framework, which predicts stronger effects on behavior when changing the salience of less saturated identities. To further test our predictions, we also simultaneously tested a second treatment condition involving a verbal self-affirmation, an intervention that involved a one-on-one conversation with each individual discussing their positive traits. This verbal self-affirmation was designed to increase the salience of a less saturated identity positively associated with self-efficacy. Our verbal self-affirmation intervention applied the most robust existing elements from the affirmation literature (see Cohen and Sherman (2014) for a recent review), requiring one-on-one verbal involvement from each participant, and thus providing a low-cost and theoretically-grounded policy tool with enough fortitude to shape behavior. We find that verbal self-affirmation increased the likelihood with which participants select into competitive labor opportunities. This result supports the proposition that impoverished individuals bear not only heavy economic burdens but also considerable psychological burdens associated with the identity of being poor.

This work makes several contributions to the existing body of research. First and foremost, we introduce the idea of a “poverty identity,” arguing that economically-impoverished individuals not only experience financial difficulties but also define who they are and what they are capable of by this economic condition. Second, we present evidence suggesting that an individual’s poverty identity can influence competitiveness, expanding on prior competitiveness findings that focus almost exclusively on gender. Third, we describe and provide some evidence supporting a model of identity and preferences (building on Benjamin et al. (2010)) that makes a distinction between identity states that are more- versus less-strongly held. In the context of poverty identity, our model suggests that making a poverty identity salient for those who experience severe poverty on a daily basis may have a smaller impact on behavior than it does for individuals who do not hold the identity quite as strongly. Notably, our model helps to account for findings in the identity

literature that have not been captured by recent economic models, such as how multiple identities held by a single individual may interact to shape preferences. Fourth, we introduce and provide evidence supporting the use of a new verbal method of self-affirmation, and argue that it may be an important tool for combating undesirable identity-driven effects in general and poverty identity effects in particular. Indeed, our findings suggest that interventions that “build up” impoverished individuals prior to competitive choice might encourage beneficial levels of competitiveness in these environments (such as applying for jobs, college admission, etc.).

Our findings also have broader implications for labor market outcomes and persistent inequality. In particular, these findings point to a previously unexamined mechanism through which states of impoverishment can be difficult to overcome. Specifically, effects of poverty identity on preference have the potential to form a dynamically self-reinforcing poverty trap; that is, impoverished individuals may select away from competitive environments in a way that perpetuates their impoverished status due to identity-driven preferences. In a world where competitiveness is increasingly associated with economic achievement, such reinforcing identity effects have serious consequences for the very poor.

2. Background

2.1. Conceptual Background

An important stream of recent work in economics has documented the impact of various personal identities on economic preferences (Akerlof and Kranton 2000, 2010). This literature has established, for instance, that increasing the salience of one’s racial identity can lead individuals to exhibit distinct time and risk preferences (Benjamin et al. 2010), activating religious identities and donor identities can increase public good contributions and charitable giving (Benjamin et al. 2016, Kessler and Milkman 2016), and increasing the salience of one’s professional bank employee identity or criminal identity can increase dishonest behavior (Cohn et al. 2014, 2015). Building on literature in psychology, this research indicates that a salient social identity can shape preferences and behavior in a manner that corresponds with the associated group. Prior research in psychology and more recent work in economics has focused on performance effects, showing that black students (and not white students) perform more poorly on GRE exam questions when race is made salient (Steele and Aronson 1995). Relatedly, Asian-American women have been shown to perform better on math tests when their Asian identity is activated but perform worse when their female identity is activated (Shih et al. 1999). In work conducted in developing countries, increasing the salience of one’s caste in Uttar Pradesh, India has been shown to impair intellectual performance of individuals from a low caste (Hoff and Pandey 2014, 2006) and that increasing the salience of one’s hukou identity in Beijing, China can also reduce the performance of rural migrant children (Afridi

et al. 2015). Researchers have theorized that greater mental taxation under resource scarcity or stereotype threat can magnify cognitive biases, in that individuals become more inclined to rely upon intuitive decision making processes (which are more prone to error), rather than deliberative decision processes (Schilbach et al. 2016, Schmader et al. 2008).

Our conceptualization of a poverty identity builds on evidence suggesting that “being poor” can develop into a personal identity. Stigmas associated with being poor include perceptions of incompetence, of being lazy, unmotivated, and a societal burden (Kerbo 1976, Hall et al. 2014, Horan and Austin 1974, Rogers-Dillon 1995), and individuals frequently self-identify with their disadvantaged economic status (Hoff and Walsh 2017). In fact, prompting people to consider their scarce economic resources can result in self-fulfilling negative outcomes such as reduced cognitive performance (Mani et al. 2013) and antisocial behavior (Prediger et al. 2014). Those who experience financial difficulties even fail to take advantage of benefits offered at no cost to the recipient because they wish to avoid the associated stigma (Kissane 2003). The psychological effects of poverty seem to pervade everyday life for the poor; thoughts about financial constraints are central and can be triggered by very mundane circumstances, suggesting that the poor may come to see economic challenge in all kinds of situations they experience throughout their daily lives (Shah et al. 2018). We posit that the frequent reminders of economic hardship that are inherent to a life in poverty can cause the formation of a strong poverty identity, which subsequently shapes preferences in ways that are economically meaningful.

Specifically, we argue that a poverty identity may inhibit competitiveness. There are multiple reasons why this could be the case. First, individuals holding a poverty identity might align their competitive preferences with the stereotypes of laziness or failure associated with being poor. Second, poverty identity might induce feelings of learned helplessness, whereby individuals in poverty might feel they lack control over the direction of their lives, and thereby feel they are unable to achieve in competitive contexts (Seligman 1972). Third, individuals who strongly hold the identity of being poor may feel that competitive opportunities are simply “not for people like me.”

Competitiveness is especially important to study in the context of poverty because it has been associated with positive outcomes in the labor market and in life more generally. Competitive decisions in the lab have been linked to higher starting salaries (Reuben et al. 2015), actual and expected job earnings (Buser et al. 2015, Reuben et al. 2015), investment choices of entrepreneurs (Berge et al. 2015), and enrollment into competitive high-school exams and specializations (Zhang 2013, Buser et al. 2017c, 2014). Because of the important labor market implications, a growing body of research has aimed to understand the personal characteristics that contribute to individual preferences to engage in competitive activities.

Much of the existing literature has focused on describing gender differences in competitive preferences. For instance, early work in the area of gender and competitiveness (Niederle and Vesterlund 2007, Datta Gupta et al. 2013) introduced an influential paradigm for studying competitive preference by offering participants a choice between piece-rate and tournament-based compensation schemes, and identifying selection of the latter as a measure of willingness to compete. Using this approach, Niederle and Vesterlund (2007) found a substantial gender gap in competitiveness, even though performance (on mathematics puzzles) did not differ by gender. This difference in individual preference for competition by gender has been repeatedly documented and persists even when controlling for factors such as ability, beliefs about relative performance, and risk aversion (see Niederle and Vesterlund (2011) and Dariel et al. (2017) for recent comprehensive reviews of findings from similar paradigms). Further studies have explored how and why these gender differences in competition exist, showing that they can arise even at very early ages in life (Sutter and Glätzle-Rützler 2014) and that differences in confidence (Kamas and Preston 2012), personality traits (Müller and Schwieren 2012), reactions to feedback (Berlin and Dargnies 2016, Buser et al. 2017b, Möbius et al. 2007), and stress (Buser et al. 2017a) may all contribute to the gender gap in competition. While this literature on competitiveness has offered rich insights into gender differences, other personal characteristics that may be associated with competitive preferences, including other social identities, have been largely ignored thus far.

However, two studies are relevant to our work in examining effects of identity on competitive preferences. First, in a sample of adolescents in Norway, Almås et al. (2015) observed that children from families with low socioeconomic status were less likely to compete than those from families with medium and high socioeconomic status. Second, Siddique and Vlassopoulos (2017) also found that ethnic minority groups in Bangladesh were marginally less likely to compete in groups in which they were in the minority, compared to groups that were ethnically balanced. Our current investigation builds on this work by focusing specifically on how one's poverty identity, developed through repeat exposure to economic deprivation, influences competitive preferences. Furthermore, we add to this emerging literature by assessing the efficacy of a new intervention strategy aimed at countering the potentially harmful consequences of poverty identity salience.

Prior work on gender and competition has proposed a number of interventions to address gaps in competitiveness, including the implementation of affirmative action policies (Niederle et al. 2013, Balafoutas and Sutter 2012), competing in teams (Dargnies 2012), and imposing marriage reform (Zhang 2018). While these interventions have reduced the gender gap in competitiveness, they can be costly to implement and do not directly address the salience of one's personal identity, which can be the root cause of differences in competitive preferences.

In contrast, we develop and test a low-cost, behaviorally-informed intervention strategy that builds upon established findings in psychology. While personal identities are often static, an array of studies has pointed to methods in which the harmful consequences of identity-salience can be countered. This intervention strategy is known as self-affirmation, a process in which people affirm to themselves core values that they consider to be important (Cohen and Sherman 2014, Sherman and Cohen 2006, McQueen and Klein 2006). Notably, our intervention applies the most robust elements from prior work in the self-affirmation literature by adopting a “verbal self-affirmation” procedure consisting of an extended, one-on-one conversation with each individual. This procedure demands a high degree of involvement from each participant. The verbal self-affirmation intervention functions by strengthening the so-called “psychological immune system,” which can insulate an individual against threats to their confidence and sense of self. Because those who live in impoverishment may hold a perpetually salient poverty identity, verbal self-affirmation can serve to block the negative effects of this threatening identity and build up one’s conceptualization of oneself as being capable of achieving success. For instance, prior research in psychology has shown that after undergoing self-affirmation, women improved performance on difficult math tests (Martens et al. 2006), minority students improved educational performance (Cohen et al. 2006), and low-income individuals in the U.S. improved cognitive performance (Hall et al. 2014). We extend these findings to consider how self-affirmation might also alter competitive preferences. Specifically, we hypothesize that a verbal self-affirmation intervention targeting individuals who identify with their impoverished status might lift the stigmas associated with being poor and enable individuals to select into more competitive (and more financially rewarding) labor opportunities.

2.2. Theoretical Framework

To connect our propositions and findings to prior literature on identity in economics, we adopt and build on a simple theoretical framework from Benjamin et al. (2010) that captures identity-driven motivations. First, consider some action x , such as one’s likelihood of applying to a competitive institution. Individuals identify with a social group C (such as “women” or “people of low socioeconomic status”) with strength $s \geq 0$, and each social group is associated with a prescribed action, x_C . Further note that an individual prefers x_0 in the absence of any identity considerations. Benjamin et al. (2010) proposed that an individual selects x so as to maximize:

$$U = -(1 - w(s))(x - x_0)^2 - w(s)(x - x_C)^2$$

where $w(s) \in [0, 1]$ denotes the weight of social category C on decisions. This objective function thus assigns a quadratic penalty associated with deviating from the action prescribed by the group and with deviating from the action an individual privately favors.

We extend this framework by proposing that individuals may instead identify simultaneously with n different social groups, C_j , each with strength s_j , such that $\sum_{j=0}^n w(s_j) = 1$. We further assume concavity in w (i.e., $w' > 0$ and $w'' < 0$), at least over the domain we examine within the current participant populations. Intuitively, this captures the idea that the more strongly one identifies with a given social group, C , the more weight such identity-related motivations will have in their decision making, but that this relationship between s and $w(s)$ is increasing at a diminishing rate. Then, an individual selects x to maximize:

$$U = - \sum_{j=0}^n w(s_j)(x - x_j)^2$$

where x_j is the prescribed action for members of the social group C_j . First order conditions imply that the optimal action $x^* = \sum_{j=0}^n w(s_j)x_j$, is a weighted average of the actions prescribed by each social group.

Furthermore, we adopt the idea that the strength of a particular group identity, s_j , can be changed through increasing its salience via questionnaires (as in Benjamin et al. (2010) and Cohn et al. (2015)) or other stimuli in the environment. Since $w' > 0$, the weight placed on an identity increases with its salience (i.e., $w(s_j + \epsilon) > w(s_j)$, where $\epsilon > 0$). However, we also assume that $w'' < 0$, implying that individuals who are saturated with a given identity are impacted less by small perturbations in its salience. As a consequence, reminders of situations where an individual felt financially incapable of meeting their needs will have a much smaller impact on the decisions of people who live in a constant state of poverty relative to those who do not experience constant poverty. That is, $w(t_j + \epsilon) - w(t_j) < w(s_j + \epsilon) - w(s_j)$, where $t_j > s_j$. Intuitively, this captures the notion that salient reminders of an identity are not as impactful when one already holds the identity strongly.

In addition, because $\sum_{j=0}^n w(s_j)$ is fixed, increasing the salience of one group identity will then necessarily reduce the weight placed on at least one other identity. This aspect of the framework allows us to account for phenomena that have not been captured in recent models. In particular, several studies have established that individuals hold multiple identities, each having a distinct impact on behavior. For instance, Shih et al. (1999) and Ambady et al. (2001) demonstrated that among Asian-American women students, activating a “female” identity reduced mathematical performance, but activating an “Asian” identity instead improved mathematical performance. Cadsby et al. (2013) also found that among MBA students, increasing gender identity salience led women to compete less than men, while increasing professional identity salience led women to compete more than men. By modeling the individual as belonging to a mixture of social groups, we are able to account for the disparate effects of changing the salience of multiple identities that can be held by a single person.

Our theoretical framework also points to new intervention strategies that can rectify undesirable distortions of behavior driven by identity. In a poverty identity context, the model suggests that when individuals from disadvantaged groups have a strongly-held, saturated poverty identity, a self-view that can serve as an obstacle to taking up beneficial opportunities, policymakers should not attempt to directly reduce the salience of the saturated identity. Rather, policymakers should instead focus on increasing the salience of other, unsaturated identities held by the individual that are positively associated with desirable behaviors. That is, since $w(s_j + \epsilon) - w(s_j) > w(t_j + \epsilon) - w(t_j)$, where $s_j < t_j$, efforts to increase the salience of a positive, unsaturated identity will have a greater impact on decisions than similar efforts to decrease the salience of a negative, saturated identity. In addition, by increasing the salience of an unsaturated identity, weights on other identities must fall (potentially including the negative, saturated identity of interest).

In line with these ideas, we examine a verbal self-affirmation intervention strategy designed to make salient an identity positively associated with feelings of capability. We remain agnostic regarding which particular identity our affirmation intervention makes salient. That is, the intervention may operate by increasing weights placed on one's baseline preferences held in the absence of any identity considerations, $w(s_0)$, or it may increase the salience of a different, ideal-self identity, $w(s_k)$, that may vary on an individual basis. Both possibilities are encapsulated by the model and make the prediction that preference for competition will increase when other identities positively associated with self-efficacy are made salient among individuals who already hold a highly-saturated poverty identity.

3. Study 1: Methods and Results

We first conducted a controlled lab experiment in the U.S. in the spring of 2017 to examine how making a poverty identity salient to students (through reminders of socioeconomic status and, most importantly, situations in which they did not have enough money to achieve their goals) influenced competitive behavior.

3.1. Methods

A total of 212 participants completed the study in a behavioral research laboratory for partial course credit at a large public U.S. university. We aimed to recruit as many participants as possible during the week in which the study was administered. After answering a sequence of questions, all participants were given a choice as to which task they wanted to complete next. The key manipulation in the experiment centered around the nature of the questions immediately preceding the task choice, which sought to manipulate the salience of a poverty identity. To be clear, we do not suggest that most students at a public university define themselves by a state of impoverishment. Instead we aimed to simulate transient feelings of poverty by providing reminders of not having

enough money to purchase items, an experience shared by individuals at a range of different income levels. Indeed, prior research broadly conceptualizes poverty as the gap between one's needs and the resources available to fulfill them, which may apply to individuals in both the developing and developed worlds (Mani et al. 2013). Consistent with lab paradigms within the scarcity literature (e.g., Roux et al. (2015), Mehta and Zhu (2015)), this study thus examines whether feelings of perceived poverty are sufficient to influence competitive preferences.

Specifically, participants were randomly assigned to one of two experimental conditions: either a treatment condition ("Poverty Identity") or a control condition ("Control"). In the Poverty Identity condition, participants answered questions about their parents' education, occupation, and household income; we further increased the salience of their own personal economic hardships by asking them to describe in detail a situation in which they did not have enough money to purchase something. This procedure was based on those used in existing literature involving identity salience manipulations in both economics and psychology (e.g., Benjamin et al. (2010, 2016), Cohn et al. (2015), Chen and Li (2009), Croizet and Claire (1998), Mani et al. (2013), Roux et al. (2015), Mehta and Zhu (2015)). In the Control condition, participants were not asked economic status questions, but were instead asked a set of neutral questions about their parents' age and height and the population of their home city, and were then asked to describe a recent situation in which they paid for something. Table 1 shows the specific questions applied in each condition. Importantly, a major element of the manipulation involved describing a past situation in which money was or was not an issue (i.e., a recent situation when they did not have enough money to purchase something or a recent situation when they paid for something). Timing data indicated that participants spent on average 95 seconds answering this single essay question, whereas they spent on average a combined total of 44 seconds answering the preceding five questions. As in prior research, to mask the intent of the questions, all participants were also asked to report their year in school and whether they live on or off campus.

After answering this series of questions, participants made their task selection. Specifically, they were asked to choose either: (1) a competitive labor task involving the completion of challenging puzzles; or (2) a leisure task in which participants were allowed to watch a short, entertaining video for a few minutes. Importantly, while both tasks took the same amount of time, choosing the former option (the labor task) had a higher associated payout on expectation—for each puzzle solved, participants earned a ticket into a raffle for a \$50 Amazon gift card, whereas participants choosing the video would forego any chance to win the gift card. Thus, the task had a clear competitive aspect, with better relative performance resulting in a greater likelihood of winning a financial prize. This was made clear to participants in the instructions, as was the fact that the two options would take the same amount of time.

Table 1 U.S.: Experimental Conditions

Control	Poverty Identity
What is your father's approximate age?	What is your father's occupation?
What is your mother's approximate age?	What is your mother's occupation?
What is your father's approximate height?	What is the highest level of education your father completed?
What is your mother's approximate height?	What is the highest level of education your mother completed?
What is the approximate population of the town you live in?	Information about income is very important to understand. Would you please give your best guess? Please indicate the answer that includes your entire household income in (previous year) before taxes.
Please describe a recent situation when you paid for something (a bill, a product, etc.). Below, try to describe the situation in as much detail as possible. What was the context? Why did you want it? How did you feel?	Please describe a recent situation when you didn't have enough money to pay for something (a bill, a product, etc.). Below, try to describe the situation in as much detail as possible. What was the context? Why were you not able to afford it? How did you feel?

Those who chose the competitive labor task completed the 2-step version of the N-back task (i.e., the 2-back task; Jaeggi et al. (2008)). In the 2-back task, participants viewed a sequence of shapes on screen and were asked whether the current shape displayed was identical to the shape shown two trials earlier. In order to perform effectively, participants needed to maintain a buffer of shapes in their memory, thus demanding considerable attention. Each shape was presented for 1500 milliseconds, with a 2000 millisecond inter-trial interval. Participants were provided with written instructions and a set of practice trials before completing a 60-round session in which performance was linked to participants' likelihood of winning the gift card, as described above.

Following the task they chose, all participants completed several follow up questions including the Financial Well-Being Index (Sharma and Alter 2012), task confidence, and identification strength (adapted from Benjamin et al. (2007), Luhtanen and Crocker (1992)). Participants in the Control condition also provided information regarding their incomes at this point (note that participants in the Poverty Identity condition had already provided this information as part of the manipulation). Subsequently all participants completed incentive-compatible risk preference and time preference elicitation tasks (Holt and Laury 2002, Eckel and Grossman 2002, Epper et al. 2011), to allow for these to be factored into the analysis.

3.2. Results

3.2.1. Demographics and balance check Table 2 shows the mean values for the demographic variables collected for participants in the Control and Poverty Identity conditions, namely age, gender, and income category. It also reports on an F-test conducted to check for balance on these observable demographics, which suggest some imbalance in the sample. In particular, while

age and gender were roughly the same in the two conditions, the distributions of income in the two groups differed slightly. Note that self-reported household income was captured as part of the manipulation in the Poverty Identity condition (along with parents' occupation and education) and was instead captured as a separate post-task demographic item in the Control condition. As a result of this imbalance from randomization, we control for these demographic variables to improve precision in our estimates.

Table 2 U.S.: Demographics

	Control	Poverty Identity
Age	23.00	23.11
Female	38.89%	33.65%
Income: Less Than \$10,000	8.33%	2.88%
Income: 10,000–19,999	16.67%	3.85%
Income: 20,000–29,999	11.11%	6.73%
Income: 30,000–39,999	3.70%	5.77%
Income: 40,000–49,999	7.41%	5.77%
Income: 50,000–59,999	7.41%	8.65%
Income: 60,000–69,999	5.56%	8.65%
Income: 70,000–79,999	6.48%	3.85%
Income: 80,000–89,999	0.93%	5.77%
Income: 90,000–99,999	2.78%	2.88%
Income: 100,000–149,999	9.26%	19.23%
Income: \$150,000 or more	20.37%	25.96%
<i>N</i>	108	104
<i>F-test statistic</i>		2.54
<i>F-test p-value</i>		0.0030

Notes: This table presents the mean values of the demographic variables collected from participants in Study 1. The table also reports on a F-test conducted to test for balance between the conditions on these demographic variables.

3.2.2. Competitiveness Our outcome variable of interest was whether or not participants elected to complete the competitive labor task. We begin with a simple comparison of the average rate at which participants choose the competitive task in the two experimental conditions. We find that significantly fewer people chose to complete the competitive labor task in the Poverty Identity condition than in the Control condition (62.5% vs. 81.5%). A regression analysis, outlined in Table 3, confirms this result. Note that columns 1-3 in Table 3 present regressions both without and with controls for demographic characteristics (gender, age, and income category), participants' risk preferences (as measured by the Holt-Laury Risk Score drawn from the risk tasks, ranging from 0-9 with lower numbers indicating greater risk aversion), and participants' impatience score (numbers range from 1-5 with higher numbers indicating greater impatience; task based on Epper et al. (2011)). In the regression specification with controls for demographics, risk preferences, and impatience (column 3), the Poverty Identity condition is associated with a 19.3 percentage

Table 3 U.S.: ATE on Competitive Choice

	DV: Competitive Choice (Binary)			
	(1)	(2)	(3)	(4)
Poverty Identity	-0.190*** (0.0607)	-0.206*** (0.0641)	-0.193*** (0.0633)	-0.157** (0.0683)
Holt-Laury Risk Score			0.0387** (0.0188)	0.0401** (0.0180)
Impatience Score			-0.00190 (0.0306)	0.00195 (0.0304)
Positive Emotion Score				-0.00472 (0.00671)
Negative Emotion Score				-0.0305*** (0.0111)
Constant	0.815*** (0.0376)	0.790*** (0.206)	0.514* (0.262)	0.559** (0.265)
Observations	212	212	212	212
R^2	0.045	0.082	0.109	0.137
Demographic Controls	No	Yes	Yes	Yes

Notes: This table presents the results from four regressions, assessing the average treatment effects of the Poverty Identity condition on competitive choice in Study 1, relative to the Control. Specifications both without and with controls for demographics (gender, age, and income), risk and impatience measures, and emotion measures derived from text analysis using LIWC are presented. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

point decrease in the probability of choosing the competitive labor task relative to the Control condition. Controlling for risk preferences in this manner is in line with the techniques used in related literature on competitive choice (Niederle and Vesterlund 2011), and helps us isolate a treatment effect on competitive labor preference in this instance (as distinct from a treatment effect on risk preferences more generally). These findings illustrate that making economic hardship and an associated “poverty identity” salient can lower an individual’s propensity to engage in competitive labor tasks.

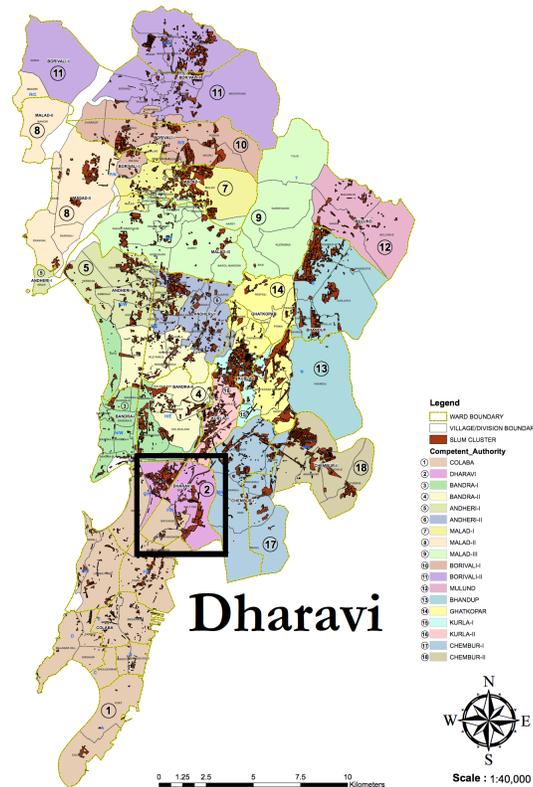
While we acknowledge that the median public university student likely does not possess a deeply-held poverty identity, we argue that feelings of perceived poverty, or the relative inability to meet one’s financial goals, can be sufficient to influence competitive preferences. Supporting this proposition, we observe negative point estimates for treatment effects across participants’ household income levels. Specifically, when we partition participants into three income brackets (approximating terciles) based on self-reported household income category (less than \$50,000, \$50,000 to \$149,999, and \$150,000 or more) and replicate the specification in column 4 in Table 3, we find average treatment effects of Poverty Identity on competitive choice of -0.141 for the lowest-income participants ($t(76) = 1.06$, $p = 0.294$), -0.212 for participants in the middle income bracket ($t(85) = 1.96$, $p = 0.054$), and -0.037 for the wealthiest income bracket ($t(48) = .32$, $p = 0.749$).

These findings suggest that while the effect sizes may vary by income, reminders of financial insecurity within a developed-world student population decreased competitiveness in particular among those with household incomes in the middle tercile. The magnitude of the effect sizes is largely consistent with our theoretical model, which predicts smaller effects on behavior for those who already strongly associate with the identity, and this evidence is perhaps even suggestive of an s-shaped $w(s)$ identity weighting function, a possibility that we consider further in the Discussion section.

3.2.3. Robustness checks with text analysis We also present the results from an additional robustness check to assess whether the effect we observe could be accounted for by emotional differences between conditions. That is, writing about not having enough money to make a purchase may have induced a negative emotional state for participants in the Poverty Identity condition, who subsequently may have wanted to repair their mood by watching a video (rather than engaging in the cognitively demanding competitive labor task). To evaluate this possibility, we conduct a linguistic analysis of the responses provided by participants using LIWC (Linguistic Inquiry and Word Count; Pennebaker et al. (2015)). This analysis identifies instances in which positive and negative emotion words were used by participants, quantifying the emotional properties of each individual's response. When including measures of positive and negative emotion in our regression model (column 4 in Table 3), we find that greater negative emotion is associated with decreased choice of the competitive option, whereas positive emotion is not. Importantly, however, we continue to observe a significant effect of the treatment on competitive choice, suggesting that identity salience influenced competitive choice independently of emotion, as well as risk and time preferences.

4. Study 2: Methods and Results

In our second experiment, we aimed to extend our study to a population of individuals who experience persistent states of poverty. This study was conducted in the Dharavi slum, located in Mumbai, India (shown in Figure 1, a map of Mumbai with Dharavi marked; Mumbai Slum Rehabilitation Authority (2016)), in the summer of 2017. Dharavi is the third-largest slum in the world, with a population of approximately 1 million. Though there are no hard data on income levels, most of Dharavi's slum-dwellers reportedly live on \$1-2 a day (Asian Century Institute 2016), meaning that the population in Dharavi is quite poor by global standards and located in a city with highly visible wealth inequality. In keeping with the growing number of lab-style experimental studies in the development economics literature (Haushofer et al. 2014, Bhanot et al. 2018, Lowe 2018, Kramer and Kunst 2017), we chose this context because the residents of Dharavi represent an ideal sample for this study, constituting individuals for whom poverty may truly define how

Figure 1 Ward and village-wise slum cluster map of Greater Mumbai

Note. Source: The Slum Rehabilitation Authority - Mumbai, Govt. of Maharashtra.

they view themselves in a way that pervades even the contents of their everyday thoughts (Shah et al. 2018).

In this experiment we used a similar competitiveness paradigm, and replicated versions of the “Control” and “Poverty Identity” conditions from Study 1. Our ex-ante theoretical prediction was that changing identity salience in the “Poverty Identity” condition would not influence competitiveness in this impoverished population because individuals would spontaneously conjure thoughts of economic hardship in all situations (as in Shah et al. (2018)) in a way that makes poverty identity perpetually salient and saturated. Because of this null prediction, we also included a condition that tested the efficacy of a targeted intervention designed to affirm participants’ positive attributes and counteract the influence of poverty identity on decisions by making salient an identity positively associated with self-efficacy. This intervention involved a verbal self-affirmation strategy in which individuals discussed and affirmed their positive traits prior to making labor decisions, building on intervention strategies originally developed in psychology to specifically counter undesirable identity-linked behaviors (Cohen and Sherman 2014). We hypothesized that this intervention would encourage more competitiveness, by making salient an identity positively associated with a sense of capability.

4.1. Methods

The participants in this study were 456 low-income individuals from two areas of Dharavi: Shastri Nagar and Kamala Nehru Nagar. We aimed to recruit as many participants as possible in the period during which the study could be administered. The experiment was conducted on-site at three local centers of the Dharavi Office of the Integrated Child Development Services (ICDS), colloquially known as *anganwadis*. The *sevika* (the local officer of the *anganwadi*) assisted in participant recruitment due to her accrued trust in the local communities, and participants were selected using two inclusion criteria, namely: (1) they were above the age of 18; and (2) they had maximum monthly household earnings of Rs 15,000 (~\$229 USD).

Because residents of Dharavi speak several different languages, a team of six research assistants who spoke either Hindi or Marathi performed the study. All research assistants were blind to the hypotheses, and we took steps to disguise the purpose from them. Each research session consisted of between five to seven participants, and each day between three to eight sessions were conducted. During the experiment, participants could neither see nor hear each other due to physical dividers. Furthermore, participants were told that any attempt to communicate with other participants during the session would result in a penalty, which proved a sufficient instruction to eliminate any attempts at communication. These steps were taken to reduce the potential for social influence across participants in decisions during the experiment.

The experiment proceeded as follows. First, participants answered a set of basic demographic questions (age, religion, education, marital status, and number of children). Then each participant was handed a steel plate that was divided into three parts using cut pieces of an aluminum plate, with mixed red and yellow lentils in the middle (see Figure 2). The participants' task was to sort the lentils by color (this procedure was similar to that used in Bhanot et al. (2018)). As a baseline measure of their ability to complete the task, participants were instructed to sort as many lentils as possible for three minutes and were informed that they would be paid one rupee per gram of sorted lentils of both colors. This mirrors the noncompetitive piece-rate setup at baseline used by other studies on competitive preferences, including Niederle and Vesterlund (2007). At the end of the baseline task, participants were informed of the amount they sorted.

Next, the experimental manipulation was administered. The manipulation involved a series of questions that varied across three conditions: "Control", "Poverty Identity", and "Self-Affirmation." The condition was randomly determined at a session-level such that every participant in a given research session was assigned to the same treatment. Because the study was implemented verbally due to literacy issues, this design was employed to minimize the possibility of spillover effects across conditions (which may occur if, for example, participants were to overhear any conversations in adjacent spaces). In addition, to prevent any potential time-of-day confounds, the order in which sessions were allocated to each experimental condition was shuffled each day.

Figure 2 India: Lentil Sorting Task

Each of the three experimental conditions involved verbally answering a different series of questions. The Poverty Identity condition involved a set of questions designed to increase the salience of participants' impoverished status. Specifically, the questions pertained to whether participants owned luxury goods (such as an air conditioner, a laptop, etc.), their parents' education level, and their problems with financial security. In contrast, the Self-Affirmation condition was designed to affirm the participant by discussing the traits they share with successful people, building on an intervention strategy developed in psychology (see Cohen and Sherman (2014) for a recent review). The Control condition involved neutral questions regarding participants' general preferences and hobbies. All questions used are shown in Table 4.

Following the experimental manipulation, participants were handed a second plate of lentils to sort, and were told that they would again complete a sorting task for three minutes. However, participants could now choose between two different payoff structures. The first option (Option A) was the same noncompetitive piece-rate setup as at baseline, under which they would be paid one rupee per gram sorted. The second option (Option B) was a "tournament" style competitive pay set-up, whereby they would be paid three rupees per gram, but only if they sorted 25 grams or more in the three-minute period (failure to sort 25 grams or more would result in no task-based pay). This decision to use a piece-rate vs. threshold/tournament payoff structure was informed by previous paradigms examining competitive behavior (e.g. Niederle et al. (2013), Buser et al. (2014), Niederle and Vesterlund (2007), Gneezy et al. (2009)). Building on this past research, the "threshold"-based approach was used rather than a direct competition because it ensured that participants were not directly competing with others in the room, and therefore eliminated the concern that opting not to compete might be driven by caring about others' payoffs and not

Table 4 India: Experimental Conditions

Control	Poverty Identity	Self-Affirmation
What is your favorite TV show?	Do you own: 1. A smartphone? 2. A TV? 3. An AC? 4. A refrigerator? 5. A microwave? 6. A laptop? 7. A two-wheeler? 8. A four wheeler?	Who in your eyes is very successful?
Who is your favorite actor/actress?	What is your father's education level? What is your mother's education level?	What do you think the person did to become this successful? What traits do they have?
What do you do to relax?	How often do you find yourself unable to pay the bills?	Describe some traits that you have that are similar to this successful person.
What is your favorite dish?	How often do you borrow from family or friends to make ends meet?	What are some concrete steps you can take to build up those traits on the road to success?
What do you think about the weather?	Have there been any incidences when your kids demanded something but you haven't been able to fulfill their wishes?	
	Describe your last financial emergency.	
	Consider a family that is more financially secure than yours. How do you think their life is different than yours?	

true competitive preferences (Niederle and Vesterlund 2011). Participants were informed of their performance in the second sorting task at the very end of the experiment, rather than immediately after the task, in order to prevent any income effects on ensuing choices.

In order to provide a measure of social preferences, participants next completed a variant of the classic public goods game. The participants were given 10 plastic chips, each worth 2 rupees. They were instructed that the total value of the coins (20 rupees) was their endowment. They were then told to decide how many chips to contribute to the “group pot” and how many to keep for themselves, where the pooled value of the coins in the group pot would be doubled and equally distributed among all individuals in their group. In order to ensure that they understood the game, participants were reminded that what they chose to give would not influence what other participants would give in any way. The reason for playing this modified public goods game was two-fold. First, it was intended to help us rule out the possibility that our manipulations were influencing competitive choices through the channel of social preferences (which would be possible if participants misunderstood the “threshold” aspect of the competitive choice and thought competing would actually hurt others in the room). Second, it was intended to help mask the intent of the study from the research assistants implementing it in the field, by introducing a faux outcome variable.

Next, to measure risk preferences, participants were asked to make a simple decision involving a gamble. This risky choice involved choosing between a guaranteed payment (120 rupees) or a 50-50 gamble (involving an actual coin) with the potential for a higher (200 rupees) or lower (40 rupees) reward. This simple task was selected for the Dharavi population based on pilot testing which suggested it would maximize participant comprehension. Importantly, participants were instructed before their decision that the coin flip and the resulting payout would only actually be implemented for one participant at the end of the session. The lucky participant was determined by a random draw using random.org. This task was conducted to help us control for risk preferences in our analysis, as in prior work on competitiveness (Niederle and Vesterlund 2011).

At the end of the study, participants were asked a series of general information and demographic questions. They indicated where they could urgently get money of different denominations, how capable they thought they were with regards to the people around them, and a set of questions about their hometown, rent, and last month's electricity bill (proxies for income).

4.2. Results

4.2.1. Demographics and balance check Table 5 shows the mean values for the various demographic variables collected for participants in the three conditions. It also reports on two F-tests, conducted to check for balance between each "treatment" condition (Poverty Identity and Self-Affirmation) and the control. These F-tests suggest balance between the Control and Poverty Identity conditions, but some imbalance in the Self-Affirmation condition relative to the Control. As a result, we control for these demographic variables throughout our analyses to improve precision in our estimates and ensure robustness.

4.2.2. Competitiveness Turning to our main results, we first examine how the experimental manipulations influenced competitive behavior. Our outcome variable of interest is whether or not participants made a competitive labor selection, which in this case means choosing the "threshold"-based payment structure rather than the piece rate payment structure.

We first compare mean rates of competitive choice across conditions. We find no evidence of significantly different levels of competitiveness in the Control and Poverty Identity conditions (23.3% vs. 24.5%), as visible in column 1 in Table 6 (note that this and all specifications in Table 6 use standard errors clustered at the session level, as randomization occurred at the session level). Thus, while reminders of financial insecurity decreased competitive preference in the relatively more affluent U.S. sample in Study 1, similar reminders had no effect on competitive preferences for a truly impoverished population in India. Taking the findings from both experiments together, these data are consistent with the idea that situational stimuli that increase identity salience may have smaller effects on populations who are already saturated with the identity.

Table 5 India: Demographics

	Control	Poverty Identity	Self-Affirmation
Owens Home	65.56%	63.87%	62.67%
Married	66.89%	73.55%	74.67%
Female	85.43%	86.45%	91.33%
Number of Children	1.66	2.12	2.01
Task 1 Sort Amount	8.26	8.07	8.84
Age: 18-25	32.45%	29.03%	26.00%
Age: 26-35	30.46%	35.48%	35.33%
Age: 36-45	19.21%	14.19%	19.33%
Age: 46-55	14.57%	12.90%	7.33%
Age: 56-65	2.65%	7.74%	10.00%
Age: 66+	0.66%	0.65%	2.00%
Education: None	7.95%	14.84%	10.00%
Education: Some Primary	11.26%	9.03%	17.33%
Education: Some Secondary	27.81%	25.81%	26.67%
Education: 10th Std Grad	11.92%	14.19%	10.00%
Education: Some Higher Secondary	7.28%	5.81%	4.67%
Education: 12th Std Grad	9.93%	9.03%	5.33%
Education: Some College	7.95%	6.45%	4.67%
Education: College Grad and Above	3.97%	3.23%	9.33%
Education: Not Specified	11.92%	11.61%	12.00%
<i>N</i>	151	155	150
<i>F-test statistic</i>		1.31	3.69
<i>F-test p-value</i>		0.1219	0.0000

Notes: This table presents the mean values of the demographic variables collected from participants in Study 2. The table also reports on F-tests conducted to test for balance between each of the treatment conditions and the control condition on these demographic variables. Note that these F-tests are based on three categorical variables in addition to those reported in the table, which we omitted from the table for space reasons, namely: home electricity source, home type, and religion.

In contrast, we observe a large effect of verbal self-affirmation on competitive choice (36% in the Self-Affirmation condition vs. 23.3% in the Control), as visible in column 1 in Table 6. Notably, this intervention did not significantly impact performance, as the number of lentils sorted in the second task was similar across conditions, as visible in Table 7 (which again clusters standard errors at the session level). Taken together, these findings suggest that the verbal self-affirmation strategy influenced attitudes toward competition specifically, leading to an increase in the individual tendency to select competitive labor options.

To confirm the robustness of these results, Table 6 displays regression results with controls for various covariates, including risk preference, baseline task performance, and demographic characteristics. In our preferred specification, column 5 in Table 6, we also include research assistant fixed effects to account for any potential differences in the implementation of the experiment. The results are robust to all specifications. Controlling for all other factors, verbal self-affirmation is associated with an 14.5 percentage point increase in the likelihood of participants choosing the competitive labor option (statistically significant at the 5% level).

Table 6 India: ATE on Competitive Choice

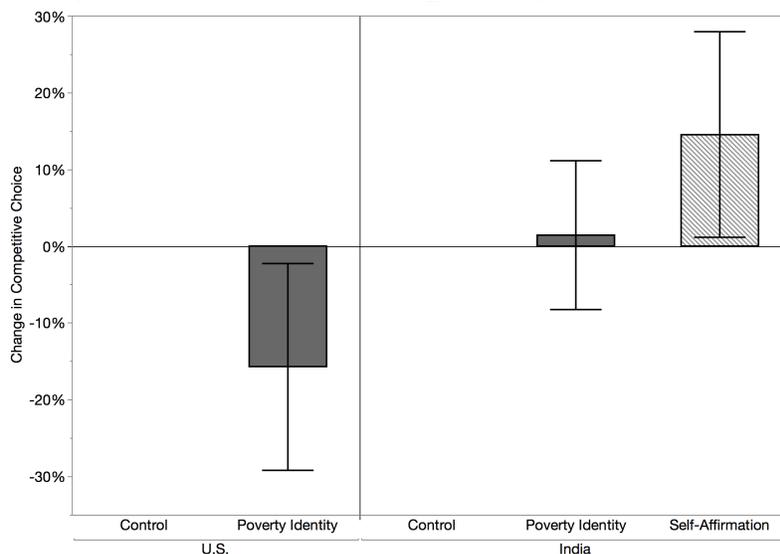
	DV: Competitive Choice (Binary)				
	(1)	(2)	(3)	(4)	(5)
Poverty Identity	0.0134 (0.0556)	0.00992 (0.0554)	0.0145 (0.0485)	0.0154 (0.0481)	0.0142 (0.0487)
Self-Affirmation	0.128* (0.0712)	0.125* (0.0702)	0.112* (0.0633)	0.147** (0.0675)	0.145** (0.0673)
Risk Dummy		0.101** (0.0426)	0.101** (0.0423)	0.0723* (0.0420)	0.0628 (0.0425)
Amount Sorted in Baseline			0.0236*** (0.00479)	0.0154*** (0.00557)	0.0169*** (0.00570)
Constant	0.232*** (0.0394)	0.188*** (0.0471)	-0.00693 (0.0493)	0.0150 (0.193)	0.123 (0.216)
Observations	456	456	456	456	456
R^2	0.016	0.029	0.079	0.188	0.202
Demographic Controls	No	No	No	Yes	Yes
RA Fixed Effects	No	No	No	No	Yes

Notes: This table presents the results from five regressions, assessing the average treatment effects of the Poverty Identity and Self-Affirmation conditions on competitive choice in Study 2, relative to the Control. Specifications both without and with controls for risk, amount sorted at baseline, and demographics (home type, home electricity type, home ownership status, gender, age, marital status, number of children, education level, and religion), as well as RA fixed effects, are presented. Standard errors are clustered at the session level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 7 India: ATE on Amount Sorted in Second Task

	DV: Amount Sorted in Second Task			
	(1)	(2)	(3)	(4)
Poverty Identity	-0.0261 (1.042)	0.231 (0.372)	0.180 (0.353)	0.182 (0.348)
Self-Affirmation	1.212 (1.312)	0.449 (0.394)	0.456 (0.374)	0.452 (0.388)
Amount Sorted in Baseline		1.327*** (0.111)	1.240*** (0.147)	1.228*** (0.144)
Constant	10.76*** (0.727)	-0.207 (0.916)	-0.274 (1.866)	-1.232 (2.244)
Observations	456	456	456	456
R^2	0.007	0.717	0.761	0.769
Demographic Controls	No	No	Yes	Yes
RA Fixed Effects	No	No	No	Yes

Notes: This table presents the results from four regressions, assessing the average treatment effects of the Poverty Identity and Self-Affirmation conditions on the amount of lentils sorted (in grams) in the second sorting task in Study 2, relative to the Control. Specifications both without and with controls for the amount sorted at baseline and demographics (home type, home electricity type, home ownership status, gender, age, marital status, number of children, education level, and religion), as well as RA fixed effects, are presented. Standard errors are clustered at the session level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figure 3 Across Experiments and Conditions: Change in Competitive Preferences Relative to Control

Note. This figure displays average treatment effects on competitive choice relative to the study control from all treatments across the two studies we report in this paper. These results mirror those reported in Table 3, column 4, and Table 6, column 5. 95% confidence intervals around the estimates are shown.

5. Discussion and Conclusions

Our findings here demonstrate that identity considerations, and more specifically the extent to which one identifies with a poverty identity (i.e., conceptualizing oneself as being an impoverished or financially insecure person), can have a significant impact on economic preferences. In particular, we argue that individuals who hold a salient poverty identity are less willing to compete, which can influence their choices in the markets for human capital and labor, and their lives in general. We furthermore describe an important distinction regarding how the effects of modulating the salience of an identity may depend on its preexisting saturation level.

Our first experiment, a controlled lab-study conducted at a public university in the United States, demonstrated that reminders of financial insecurity decreased competitiveness: participants in the treatment condition were more inclined to watch an entertaining video rather than expend effort to compete for a large financial bonus. However, in a second experiment, conducted in the field with a very poor population in an Indian slum, similar reminders of financial insecurity had no effect on competitiveness: participants in the treatment condition were as likely to select the competitive labor option as those in the control. We suggest that this pattern of findings (shown in Figure 3) can be explained by diminishing sensitivity to changes in identity salience when the identity is more strongly-held. That is, whereas reminders of financial insecurity may temporarily change the extent to which individuals who loosely hold a poverty identity “feel poor” (e.g., college students in the United States), similar reminders may have little to no effect on those who deeply define

themselves by their impoverished status (e.g., those who experience persistent poverty while living in Indian slums). As a consequence, policymakers targeting those who live in extreme poverty may face great difficulty in removing the stigma associated with being poor, since nudges designed to modulate poverty identity salience may have limited effect at high preexisting saturation levels.

However, we also present evidence supporting the efficacy of a low-cost, targeted, and psychologically-grounded intervention strategy that can combat the undesirable effects of poverty identity on competitive preferences. This evidence further substantiates our conceptualization of poverty as an identity through which people define who they are and who they are not. Specifically, we demonstrate in our second experiment, in India, that a verbal self-affirmation intervention in which individuals have simple one-on-one conversations elaborating on their positive traits can increase competitiveness. Because these self-affirmation procedures were originally developed in psychology to selectively insulate individuals against the harmful consequences of negative self-conceptualizations (e.g., see Cohen and Sherman (2014)), this result lends support to the notion that poor individuals do in fact experience impoverishment as an identity that defines who they are, beyond merely a difficult financial situation. We conclude that focusing intervention strategies on increasing the salience of other identities positively associated with self-efficacy may increase selection into competitive labor tasks and potentially improve labor market outcomes for low-income populations.

We further account for our findings, and others in the broader identity salience literature, by presenting a formal economic framework that captures how multiple identities simultaneously contribute to individual preferences. Building on Benjamin et al. (2010), we offer an extension that characterizes the individual as holding many different identities with differing weights. This approach not only allows us to explain our findings across both developed and developing-world populations, but also presents a more realistic model, in our view, of how identities manifest within individuals. Every individual belongs to many different social groups, each of which may prescribe different normative behaviors that may pull a person in different directions. This has been shown in prior research, which has provided examples of individuals demonstrably associating with both “female” and “professional” identities (Cadsby et al. 2013), as well as both “female” and “Asian” identities (Shih et al. 1999, Ambady et al. 2001). Our theoretical framework suggests that increasing the salience of an identity will increase its decision weight, leading individuals to express behavior that is most closely in line with the most salient identity. These phenomena are not captured by recent models of identity-driven preferences (e.g., Benjamin et al. (2010), Kessler and Milkman (2016)). We hope our work offers a useful framework for further research that examines the ways in which multiple identities can simultaneously influence preferences.

Furthermore, this characterization produces interesting new policy implications that involve the simultaneous impact of multiple identities. By assuming the identity weighting function ($w(s)$) is concave, our framework suggests that interventions aiming to modulate saturated identities may be less effective than those aimed at “building up” less strongly held identities that are positively associated with a desired behavior. Take, for instance, the findings in (Hoxby and Avery 2013), which suggest that the vast majority of high-achieving students from low-income backgrounds choose not to apply to any selective college or universities despite the fact that these institutions often cost less due to financial aid, and that similar students who do apply typically gain admission and successfully graduate. Our framework suggests that in this context, an intervention that serves to increase the extent to which such students define who they are as a “high-achieving student” (such as verbal affirmations of their strengths and skills by guidance counselors) may be especially effective in increasing applications to competitive institutions as compared to interventions that aim to reduce the influence of a saturated poverty identity (such as counseling sessions seeking to encourage students to worry less about their financial background). Our findings indicate that these interventions might be especially effective as verbal interactions, applied at the moment a competitive decision is being made.

Our results also offer some interesting insights regarding the shape of the identity weighting function, $w(s)$. Benjamin et al. (2010) postulated that $w(s)$ may be either convex or concave; however, we believe that $w(s)$ may in fact be both convex and concave, or in other words, s-shaped. The data we present here are consistent with concavity in that those who more strongly held an identity were less susceptible to perturbations in its salience. Yet we do not believe that concavity extends across the entire domain as it yields intuitively unlikely predictions. For instance, concavity would suggest that the largest impacts on behavior would come through increasing the salience of identities that are the least strongly held (i.e., s near zero). However, we would not expect, for example, that impoverished people would display the greatest change in their competitive behavior when their non-existent identity as dentists was made salient. Instead, we anticipate that $w(s)$ is more likely s-shaped, where w is convex at low levels of saturation (s near zero) and concave at high levels of saturation (s near one). This is broadly consistent with the effect sizes by income bracket in Study 1 (largest for the middle income bracket, and smaller for the lowest and highest income brackets). If so, this curvature in $w(s)$ would imply that when multiple social identities are similarly associated with positive behaviors, policymakers should focus efforts on strengthening partially-held identities, and in particular the identity where $w(s)$ has the greatest slope (as in the “high-achieving student” example discussed earlier). Future research may aim to precisely measure the strength with which individuals hold various identities in order to enable policy makers to apply such highly-targeted interventions.

More broadly, our conceptualization of poverty as a crucial force in identity formation has important implications for both labor markets and persistent inequality debates as well. If it is the case that impoverished people internalize their poverty in a way that influences their competitive choices, this would create a self-perpetuating cycle whereby poverty identity encourages the precise behaviors that prevent individuals from escaping poverty (namely, an unwillingness to compete). At the micro level, this has important implications for managers hiring workers, who need to be more aware of the identity-related threats that might shape individual willingness to compete for credentials, jobs, and promotions. At the macro level, these effects of poverty identity could restrict social mobility and exacerbate income inequality in society. Policymakers interested in addressing the large and growing social and economic gaps between the rich and the poor would be well-served to consider this important channel influencing behavior in order to devise better techniques to address these identity-driven challenges at the individual level.

Acknowledgments

The authors wish to thank Anya Chaudhri, Gursimran Pannu, Kanishka Chhabra, Sharvari Rajadhyaksha, Nikita Shahu, Dhvani Zaveri and The Integrated Child Development Services Dharavi Office for their research assistance in the field in Mumbai; we also thank Guihyun Byon and Haksoo Lee for research assistance. Funding for this work was generously provided by The Lang Center for Civic and Social Responsibility at Swarthmore College and the David Eccles School of Business at the University of Utah. We wish to thank Eldar Shafir for helpful suggestions as well as Alin Coman, Nathan Fong, Johannes Haushofer, Julian Jamison, Jessica Leight, Brigitte Madrian, John McCoy, Mike Norton, Stephen O'Connell, Barry Schwartz, Catherine Tucker, and seminar participants at American University and JDMWS 2018 for comments on earlier versions of this work.

References

- Afridi F, Li SX, Ren Y (2015) Social identity and inequality: The impact of China's hukou system. *Journal of Public Economics* 123:17–29, URL <http://dx.doi.org/10.1016/j.jpubeco.2014.12.011>.
- Akerlof GA, Kranton R (2000) Economics and identity. *The Quarterly Journal of Economics* 115(3):715–753.
- Akerlof GA, Kranton R (2010) Identity economics. *The Economists' Voice* 7(2).
- Almås I, Cappelen AW, Salvanes KG, Sørensen E, Tungodden B (2015) Willingness to compete: Family matters. *Management Science* 62(8):2149–2162.
- Ambady N, Shih M, Kim A, Pittinsky TL (2001) Stereotype susceptibility in children: Effects of identity activation on quantitative performance. *Psychological Science* 12(5):385–390.
- Asian Century Institute (2016) Dharavi, India's most famous slum. URL <http://asiancenturyinstitute.com/society/1094-dharavi-india-s-most-famous-slum>.
- Balafoutas L, Sutter M (2012) Affirmative action policies promote women and do not harm efficiency in the laboratory. *Science* 335(6068):579–582.
- Benjamin DJ, Choi JJ, Fisher G (2016) Religious identity and economic behavior. *Review of Economics and Statistics* 98(4):617–637.
- Benjamin DJ, Choi JJ, Strickland JA (2007) Social identity and preferences. *Working paper* .
- Benjamin DJ, Choi JJ, Strickland JA (2010) Social identity and preferences. *American Economic Review* 100(4):1913–1928.
- Berge LIO, Bjorvatn K, Pires AJG, Tungodden B (2015) Competitive in the lab, successful in the field? *Journal of Economic Behavior & Organization* 118:303–317.
- Berlin N, Dargnies MP (2016) Gender differences in reactions to feedback and willingness to compete. *Journal of Economic Behavior & Organization* 130:320–336.
- Bhanot SP, Han J, Jang C (2018) Workfare, wellbeing and consumption: Evidence from a field experiment with Kenyas urban poor. *Journal of Economic Behavior & Organization* ISSN 01672681, URL <http://dx.doi.org/10.1016/j.jebo.2018.01.007>.
- Buser T, Dreber A, Mollerstrom J (2017a) The impact of stress on tournament entry. *Experimental Economics* 20(2):506–530.
- Buser T, Geijtenbeek L, Plug E (2015) Do gays shy away from competition? Do lesbians compete too much? *IZA Discussion Papers* .
- Buser T, Gerhards L, van der Wee J (2017b) Responsiveness to feedback as a personal trait. *Journal of Risk and Uncertainty (forthcoming)* .
- Buser T, Niederle M, Oosterbeek H (2014) Gender, competitiveness, and career choices. *The Quarterly Journal of Economics* 129(3):1409–1447, URL <http://dx.doi.org/10.1093/qje/qju009>.

- Buser T, Peter N, Wolter SC (2017c) Gender, competitiveness, and study choices in high school: Evidence from Switzerland. *American Economic Review* 107(5):125–130.
- Cadsby CB, Servátka M, Song F (2013) How competitive are female professionals? A tale of identity conflict. *Journal of Economic Behavior & Organization* 92:284–303.
- Chen Y, Li SX (2009) Group identity and social preferences. *American Economic Review* 99(1):431–457.
- Cohen GL, Garcia J, Apfel N, Master A (2006) Reducing the racial achievement gap: A social-psychological intervention. *Science* 313(5791):1307–1310.
- Cohen GL, Sherman DK (2014) The psychology of change: Self-affirmation and social psychological intervention. *Annual Review of Psychology* 65.
- Cohn A, Fehr E, Maréchal MA (2014) Business culture and dishonesty in the banking industry. *Nature* 516(7529):86.
- Cohn A, Maréchal MA, Noll T (2015) Bad boys: How criminal identity salience affects rule violation. *The Review of Economic Studies* 82(4):1289–1308.
- Croizet JCC, Claire T (1998) Extending the concept of stereotype threat to social class: The intellectual underperformance of students from low socioeconomic backgrounds. *Personality and Social Psychology Bulletin* 24(6):588–594, URL <http://dx.doi.org/10.1177/0146167298246003>.
- Dargnies MP (2012) Men too sometimes shy away from competition: The case of team competition. *Management Science* 58(11):1982–2000.
- Dariel A, Kephart C, Nikiforakis N, Zenker C (2017) Emirati women do not shy away from competition: Evidence from a patriarchal society in transition. *Journal of the Economic Science Association* 3(2):121–136.
- Datta Gupta N, Poulsen A, Villeval MC (2013) Gender matching and competitiveness: Experimental evidence. *Economic Inquiry* 51(1):816–835.
- Eckel CC, Grossman PJ (2002) Sex differences and statistical stereotyping in attitudes toward financial risk. *Evolution and Human Behavior* 23(4):281–295, URL [http://dx.doi.org/10.1016/s1090-5138\(02\)00097-1](http://dx.doi.org/10.1016/s1090-5138(02)00097-1).
- Epper T, Fehr-Duda H, Bruhin A (2011) Viewing the future through a warped lens: Why uncertainty generates hyperbolic discounting. *Journal of Risk and Uncertainty* 43(3):169–203.
- Gneezy U, Leonard KL, List JA (2009) Gender differences in competition: Evidence from a matrilineal and a patriarchal Society. *Econometrica* 77(5):1637–1664, URL <http://dx.doi.org/10.3982/ecta6690>.
- Haigh MS, List JA (2005) Do professional traders exhibit myopic loss aversion? An experimental analysis. *The Journal of Finance* 60(1):523–534.
- Hall CC, Zhao J, Shafir E (2014) Self-affirmation among the poor: Cognitive and behavioral implications. *Psychological Science* 25(2):619–625.

- Harrison GW, List JA (2004) Field experiments. *Journal of Economic Literature* 42(4):1009–1055.
- Haushofer J, Collins M, de Giusti G, Njoroge J, Odero A, Onyango C, Vancel J, Jang C, Kuruvilla M, Hughes C (2014) A methodology for laboratory experiments in developing countries: Examples from the busara center. *SSRN Working Paper* .
- Hoff K, Pandey P (2006) Discrimination, social identity, and durable inequalities. *American Economic Review* 96(2):206–211.
- Hoff K, Pandey P (2014) Making up people: The effect of identity on performance in a modernizing society. *Journal of Development Economics* 106:118–131.
- Hoff K, Walsh JS (2017) The whys of social exclusion: Insights from behavioral economics (English). *Policy Research working paper: no.WPS 8267* .
- Holt CA, Laury SK (2002) Risk aversion and incentive effects. *American Economic Review* 92(5):1644–1655.
- Horan PM, Austin PL (1974) The social bases of welfare stigma. *Social Problems* 21(5):648–657, URL <http://dx.doi.org/10.2307/799640>.
- Hoxby C, Avery C (2013) The missing “one-offs”: The hidden supply of high-achieving, low-income students. *Brookings Papers on Economic Activity* 2013(1):1–65.
- Jaeggi SM, Buschkuhl M, Jonides J, Perrig WJ (2008) Improving fluid intelligence with training on working memory. *Proceedings of the National Academy of Sciences* 105(19):6829–6833.
- Jakiela P, Ozier O (2016) Does Africa need a rotten kin theorem? Experimental evidence from village economies. *Review of Economic Studies* 83(1):231–268, URL <https://econpapers.repec.org/RePEc:oup:restud:v:83:y:2016:i:1:p:231-268>.
- Kamas L, Preston A (2012) The importance of being confident: Gender, career choice, and willingness to compete. *Journal of Economic Behavior & Organization* 83(1):82–97.
- Kerbo HR (1976) The stigma of welfare and a passive poor. *Sociology & Social Research* .
- Kessler JB, Milkman KL (2016) Identity in charitable giving. *Management Science* URL <http://dx.doi.org/10.1287/mnsc.2016.2582>.
- Kissane RJ (2003) What’s need got to do with it? Barriers to use of nonprofit social services. *Journal of Sociology & Social Welfare* 30:127.
- Kramer B, Kunst D (2017) Intertemporal choice and income regularity: Non-fungibility in a lab-in-the-field experiment. *IFPRI Discussion Paper* .
- Lowe M (2018) Types of contact: A field experiment on collaborative and adversarial caste integration. *Working Paper* .
- Luhtanen R, Crocker J (1992) A collective self-esteem scale: Self-Evaluation of one’s social identity. *Personality and Social Psychology Bulletin* 18(3):302–318, URL <http://dx.doi.org/10.1177/0146167292183006>.

- Mani A, Mullainathan S, Shafrir E, Zhao J (2013) Poverty impedes cognitive function. *Science* 341(6149):976–980.
- Martens A, Johns M, Greenberg J, Schimel J (2006) Combating stereotype threat: The effect of self-affirmation on women’s intellectual performance. *Journal of Experimental Social Psychology* 42(2):236–243.
- McQueen A, Klein WMP (2006) Experimental manipulations of self-affirmation: A systematic review. *Self and Identity* 5(4):289–354.
- Mehta R, Zhu M (2015) Creating when you have less: The impact of resource scarcity on product use creativity. *Journal of Consumer Research* 42(5):767–782.
- Möbius MM, Niederle M, Niehaus P, Rosenblat T (2007) Gender differences in incorporating performance feedback. *mimeo* .
- Mullainathan S, Shafrir E (2013) *Scarcity: Why having too little means so much* (Macmillan).
- Müller J, Schwieren C (2012) Can personality explain what is underlying women’s unwillingness to compete? *Journal of Economic Psychology* 33(3):448–460.
- Mumbai Slum Rehabilitation Authority (2016) GIS-MIS Slum Data. URL <http://sra.gov.in/page/innerpage/gis-mis-slum-data.php>.
- Niederle M, Segal C, Vesterlund L (2013) How costly is diversity? Affirmative action in light of gender differences in competitiveness. *Management Science* 59(1):1–16, URL <http://dx.doi.org/10.1287/mnsc.1120.1602>.
- Niederle M, Vesterlund L (2007) Do women shy away from competition? Do men compete too much? *The Quarterly Journal of Economics* 122(3):1067–1101.
- Niederle M, Vesterlund L (2011) Gender and competition. *Annual Review of Economics* 3(1):601–630, URL <http://dx.doi.org/10.1146/annurev-economics-111809-125122>.
- Pennebaker JW, Boyd RL, Jordan K, Blackburn K (2015) The development and psychometric properties of LIWC2015. Technical report, Austin, TX:University of Texas at Austin.
- Prediger S, Vollan B, Herrmann B (2014) Resource scarcity and antisocial behavior. *Journal of Public Economics* 119:1–9.
- Reuben E, Sapienza P, Zingales L (2015) Taste for competition and the gender gap among young business professionals. *NBER Working Paper* .
- Rogers-Dillon R (1995) The dynamics of welfare stigma. *Qualitative Sociology* 18(4):439–456, URL <http://dx.doi.org/10.1007/bf02404490>.
- Roux C, Goldsmith K, Bonezzi A (2015) On the psychology of scarcity: When reminders of resource scarcity promote selfish (and generous) behavior. *Journal of Consumer Research* 42(4):615–631.

- Schilbach F, Schofield H, Mullainathan S (2016) The psychological lives of the poor. *American Economic Review* 106(5):435–440, ISSN 00028282, URL <http://dx.doi.org/10.1257/aer.p20161101>.
- Schmader T, Johns M, Forbes C (2008) An integrated process model of stereotype threat effects on performance. *Psychological Review* 115(2):336–356.
- Seligman MEP (1972) Learned helplessness. *Annual Review of Medicine* 23(1):407–412.
- Shah AK, Mullainathan S, Shafir E (2012) Some consequences of having too little. *Science* 338(6107):682–685.
- Shah AK, Shafir E, Mullainathan S (2015) Scarcity frames value. *Psychological Science* 26(4):402–412.
- Shah AK, Zhao J, Mullainathan S, Shafir E (2018) Money in the mental lives of the poor. *Social Cognition* 36(Special Issue: The Status of Status: Vistas from Social Cognition):4–19.
- Sharma E, Alter AL (2012) Financial deprivation prompts consumers to seek scarce goods. *Journal of Consumer Research* 39(3):545–560, URL <http://dx.doi.org/10.1086/664038>.
- Sherman DK, Cohen GL (2006) The psychology of self-defense: Self-affirmation theory. *Advances in Experimental Social Psychology* 38:183–242.
- Shih M, Pittinsky TL, Ambady N (1999) Stereotype susceptibility: Identity salience and shifts in quantitative performance. *Psychological Science* 10(1):80–83, URL <http://dx.doi.org/10.1111/1467-9280.00111>.
- Siddique A, Vlassopoulos M (2017) Competitive preferences and ethnicity: Experimental evidence from Bangladesh. *IZA Discussion Papers* .
- Steele CM, Aronson J (1995) Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology* 69(5):797.
- Sutter M, Glätzle-Rützler D (2014) Gender differences in the willingness to compete emerge early in life and persist. *Management Science* 61(10):2339–2354.
- Voors MJ, Nillesen EEM, Verwimp P, Bulte EH, Lensink R, Van Soest DP (2012) Violent conflict and behavior: A field experiment in Burundi. *American Economic Review* 102(2):941–964.
- Zhang JY (2013) Can experimental economics explain competitive behavior outside the lab? *SSRN Papers* .
- Zhang JY (2018) Culture, institutions, and the gender gap in competitive inclination: Evidence from the communist experiment in China. *Economic Journal* .