

Social Image Concerns

Peer Pressure in Education

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Peer Pressure in Education

- ▶ Students may be motivated as much by desire to gain social approval or avoid social sanctions as by future benefits of education
 - ▶ e.g., Coleman (1961) *The Adolescent Society*
- ▶ Approval or sanctions take many forms
 - ▶ Being popular, trying to fit in
 - ▶ Teasing, being made fun of or called names, bullying, ostracized, etc.
 - ▶ “Acting White” hypothesis (Fordham & Ogbu 1986, Austen-Smith & Fryer 2005, Fryer 2011)
- ▶ Student making an educational effort/investment may face tradeoff between present social benefits/costs and future returns to effort/investment

Basic Idea

- ▶ When effort or investment is observable to peers, students may act to avoid social penalties or gain social favor by conforming to prevailing norms in their peer group
- ▶ Are students willing to deviate from what they privately believe to be the optimal scholastic effort or investment decision just because of such social concerns (i.e., due to peer pressure)?

Bursztyrn and Jensen, “How Does Peer Pressure Affect Educational Investments?” (QJE 2015)

Setting

- ▶ Los Angeles Unified School District (LAUSD)
 - ▶ 2nd largest school system in the U.S.: about 700,000 students
 - ▶ 150+ high schools
 - ▶ Relatively poor academic performance: dropout rates by 25%
 - ▶ Majority-minority: 70-75% Hispanic/Latino, 10% African American, 10% white, 5% Asian

Sample

- ▶ Experiment: 4 largest high schools in disadvantaged area of LA (each one about 3,000 students)
- ▶ Visited each school once, December 2013 – April 2014
- ▶ 26 total classrooms (11th grade—soon to take SAT)
- ▶ Stratified by honors and non-honors classes
 - ▶ Priors (and pilot-based evidence) that social acceptability of visibly undertaking effort/investment is likely to differ in the two
- ▶ 825 students, 100% participation rate (among those present)
 - ▶ More non-honors than honors classes, so split is 560 vs. 265

The Prep Course

- ▶ Students offered a free subscription to online SAT prep course
 - ▶ Practice exams, library of pre-recorded videos & instructional content, live online class sessions, analysis of individual performance & areas requiring additional focus, test taking strategies
- ▶ Prior to study, no students taking it
 - ▶ Only sold to schools (buy subscriptions in bulk & give to students). None of our schools had purchased it as of our study
- ▶ But company well-known to students, used for lots of things in LAUSD
- ▶ Asked students (after sign up) to estimate the cost—average was \$260 (true \$200/student when school buys in bulk)

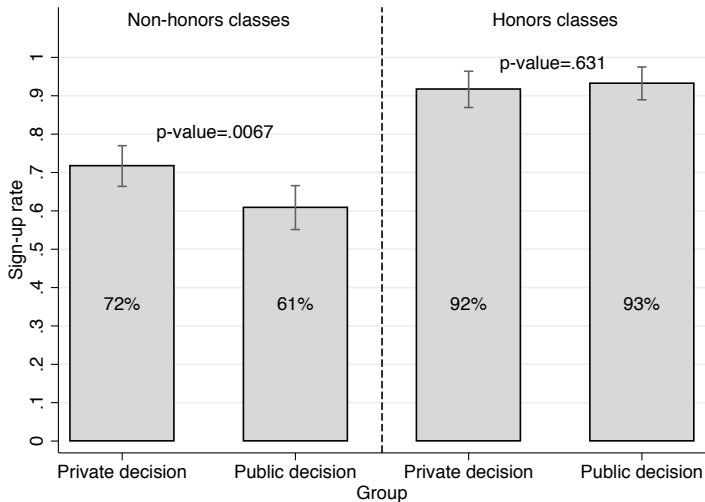
Experimental Design

- ▶ After brief introduction from team (no mention of SAT, college or peer pressure), students asked to fill out a form: name, sex, favorite subject
- ▶ At bottom, asked if they would like to sign up for the course
[Company Name] is offering a free online test preparation course for the SAT that is intended to improve your chances of being accepted and receiving financial aid at a college you like.
- ▶ Treatment consists simply of altering a single word with respect to privacy assurance:
Your decision to sign up for the course will be kept completely private from everyone, [except/including] the other students in the room.
- ▶ Call forms using word “including” the “private” treatment and forms using “except” the “public” treatment

Strategy – Dealing with Selection

- ▶ Differences in response to public treatment between honors and non-honors classes could be due to selection
- ▶ Exploit the fact that many students take just a few honors classes, not just all or none
- ▶ When both honors & non-honors versions of a subject are offered, students can choose which to take. Can't be denied entry to an honors class, nor can they be forced to take one
 - ▶ Might take just a few honors classes instead of all to manage work load & GPA
 - ▶ May want to take honors in a favorite subject
 - ▶ May like a particular teacher
- ▶ Conditional on taking fixed number of honors and non-honors, type of visited class uncorrelated with student characteristics
 - ▶ Hold fixed attributes of students and just vary classmates
- ▶ Using administrative records, focus on students taking exactly 2 honors classes (robust to pooling students taking 1-3 honors classes)

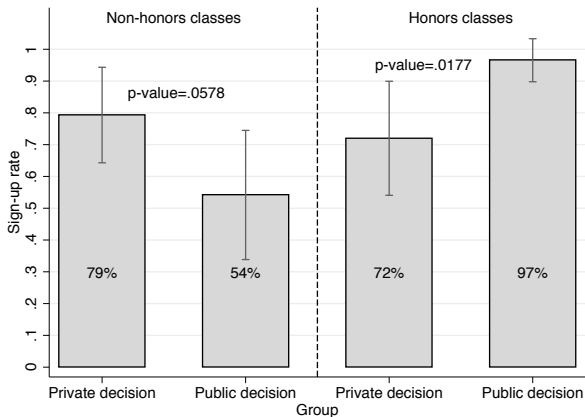
Sign-up Rates – Private vs Public Decisions, Non-Honors vs. Honors Classes



Identifying Peer Pressure

- ▶ Run analysis just for set of 2-honors students
- ▶ Comparable in honors and non-honors classes
- ▶ Their classmates:
 - ▶ Private take-up: 71% in non-honors; 97% in honors
 - ▶ GPA: 2.12 in non-honors and 3.29 in honors
 - ▶ Differences statistically significant
 - ▶ 2-honors students in between (private sign up is 76%, GPA is 2.67)
- ▶ This helps formulate hypothesis on direction of peer pressure
- ▶ If pushes students toward locally prevailing norm, one expects sign up to be:
 - ▶ *lower* in public when in non-honors classes
 - ▶ *higher* in public when in honors classes

Sign-up Rates – Private vs. Public, Non-Honors vs. Honors Classes for Students Taking Two Honors Classes



Small sample (107 students) – robust to permutation tests

Heterogeneity

- ▶ If peer pressure drives these results, those who care about being popular should be affected by public vs. private more than those who don't
- ▶ On a second form, after first (treatment) forms were collected, asked how important they thought it was to be popular, scale of 1-5 (increasing)
- ▶ Suggestive evidence that students who care about popularity respond more to public treatment

Potential Concerns (1)

1. Low stakes

- ▶ Challenge external validity but not internal validity
- ▶ Take up was very high already in private
- ▶ High login rate across conditions
- ▶ Students estimates cost at \$260 on average and could not buy otherwise the course

2. Did they expect another chance to sign up later?

- ▶ Not told would have another chance, not offered through school but by visitors
- ▶ Would have to believe that a second chance would involve different type of privacy
- ▶ No one communicated with us or teachers after study to get another chance to sign up
- ▶ Directly asked at last school—even with priming them, 85% said didn't think would have another chance
- ▶ Honors vs. non-honors difference

Potential Concerns (2)

3. Sign up as signal of (low) ability?

- ▶ Still a form of social pressure
- ▶ But SAT help very common
- ▶ 90% sign up in honors so unlikely
- ▶ Maybe instead fear of failure: prefer not to take it than take and signal low ability. But would need reason for asymmetric effect in honors vs. non-honors

4. Consumption externalities

- ▶ More peers taking course, more valuable to you so expect differences in honors vs. non-honors
- ▶ But for 2-honors students, private response should be higher in honors than non-honors

Potential Concerns (3)

5. Other changes besides peers for some-honors students in honors and non-honors classes
 - ▶ No honors and non-honors teachers or rooms
 - ▶ Similar class sizes
 - ▶ Anything common to all students in room (e.g., bad teacher, noisy) should not differentially affect private vs. public
 - ▶ Among 2-honors, private sign up if anything lower in honors
 - ▶ Common classroom or teacher effects would need to go in opposite directions for public vs. private in honors and non-honors classes

Setting

- ▶ Broad sample of schools, natural environment: what happens when good performance is observable in practice?
- ▶ Computer-based high school remedial courses (100+ schools, 5,000+ students). Math and English, designed for statewide high school exit exams
- ▶ Introduction of a point system and leaderboard
- ▶ Change was unannounced and unanticipated, and occurred after students had already been using the system for over a month
 - ▶ Prior to change, students would answer questions and receive private feedback on whether they were correct
 - ▶ Subsequently, points were assigned for correct answers and a leaderboard revealed the top three performers to the entire class (+ feedback on own rank)

Main Results - Figure

- ▶ Large decline in performance for students that were performing near the top of the class prior to the leaderboard (most “at risk” of being revealed to be in the top 3)

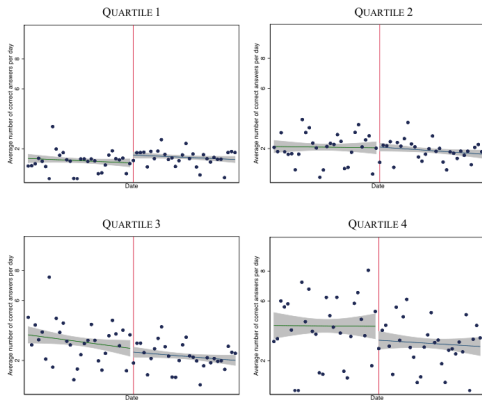


Figure: Average Number of Correct Answers per Day: One Month Before vs. One Month After Introduction of the New System

Discussion

- ▶ Peer pressure effects large and powerful
 - ▶ Can go in different directions, having a positive or negative effect
- ▶ Large increases in take-up when more privacy is assured in non-honors classes
- ▶ Implications for understanding disadvantage, implications for how assistance or help is offered in schools
- ▶ Changing peers likely to be difficult; changing observability less so
 - ▶ Important: many efforts students can make are observable, such as participating in class, joining study groups or seeking extra credit or extra help
 - ▶ Awards, honors or other forms of recognition that publicly reveal high performance may discourage effort for some students

Understanding Peer Pressure Effects

Bursztyn, Egorov and Jensen, “Cool to be Smart or Smart to be Cool? Understanding Peer Pressure in Education” (WP 2016)

- ▶ Austen-Smith and Fryer (2005)
 - ▶ Students have social type and economic type
 - ▶ Students like peers with high social types; firms want to hire high economic types (high ability)
 - ▶ Studying is costlier for high social types (opportunity cost), so it signals not just high economic type, but also low social type
 - ▶ ‘Acting white’ equilibrium: students reduce their educational effort to avoid sending signal of low social type
- ▶ But what if students also like smart peers?
 - ▶ Many observed actions might reveal info about one’s economic type
 - ▶ E.g., class participation, team work, etc.
 - ▶ Behavior might be affected and this can result in negative peer pressure

This Paper

- ▶ Formulates two mechanisms of peer pressure and build a model that encompasses both:
 - ▶ *Smart to be Cool*: simplified version of Austen-Smith and Fryer (2005); pressure to be 'cool' reduces takeup of educational activities
 - ▶ *Cool to be Smart*: if high ability is endorsed by peers, low-ability students might pretend that they do not care and avoid taking educational activity that might reveal information on ability
- ▶ Finds an intuitive way to disentangle the two mechanisms
- ▶ Designs and runs a field experiment which tests whether different mechanisms explain peer pressure in different settings
- ▶ Discusses potential implications of our results

Framework Intuition: Mechanisms

Consider an educational opportunity that generates private benefit to student and involves a cost (at least time cost):

1. Smart to be Cool

- ▶ Takeup if positive net benefit: low opportunity cost (low social type)
- ▶ Observability of choice might lower takeup
- ▶ **Intuition:** Being seen taking up signals low value to social group
- ▶ E.g., Studying a lot may signal you are not great at partying

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2. Cool to be Smart

- ▶ If takeup leads to more information about ability (economic type), observability might lower takeup
- ▶ **Intuition:** If low economic type, prefer to pretend to be someone who doesn't care about school instead of risking to reveal low economic type
- ▶ E.g., raising a hand in class to answer question and being called on

Framework Intuition: Disentangling Mechanisms

Disentangling:

- ▶ When taking the opportunity, probability p of receiving benefit and revealing information about economic type
- ▶ Case 1: higher p *increases* takeup in public
 - ▶ **Intuition:** social cost is paid at takeup stage: higher p means higher chance of getting private benefit from opportunity
- ▶ Case 2: higher p *decreases* takeup in public
 - ▶ **Intuition:** social cost is paid at type revelation stage: higher p means higher chance of revealing economic type

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 - ▶ 97% Hispanic/Latino; 74% eligible for free meal; avg ZIP code income: \$52K; 54% take SAT; avg SAT score: ~ 1200
 - ▶ Higher likelihood of staying after graduation: “Smart to be Cool”

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 - ▶ Two schools in higher income area: N=254
 - ▶ 33% Hispanic/Latino, 41% white; 41% eligible for free meal; avg ZIP codes income: \$103K; 60% take SAT; avg SAT score: ~1500
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 - ▶ Higher likelihood of moving after graduation: “Cool to be Smart”
- ▶ “To be popular in my school it is important that people think I am smart.” (1: strongly disagree ... 5: strongly agrees).
 - ▶ School 1: avg 2.39
 - ▶ Schools 2 and 3: avg 2.90

Experimental Design (1)

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- ▶ At the bottom:
 - “[Company Name] is offering a chance to win an SAT prep package intended to improve your chances of being accepted and receiving financial aid at a college you like. The package includes:*
 - ▶ *Premium access to the popular [App Name] test prep app for one year;*
 - ▶ *Diagnostic test and personalized assessment of your performance and areas of strength and weakness;*
 - ▶ *One hour session with a professional SAT prep tutor, tailored to your diagnostic test.*

This package is valued at over \$100, but will be provided completely free.”

Experimental Design (2)

- ▶ 2x2 design, cross-randomizing:
 1. Probability of winning the package conditional on signing up during the experiment (*Low/High probability*)
 2. Whether students believed other students in the room would observe their signup decision and their diagnostic test score (*Private/Public*)

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- ▶ The form therefore continued with the following lines:

“If you choose to sign up, your name will be entered into a lottery where you have a 25% [75%] chance of winning the package.

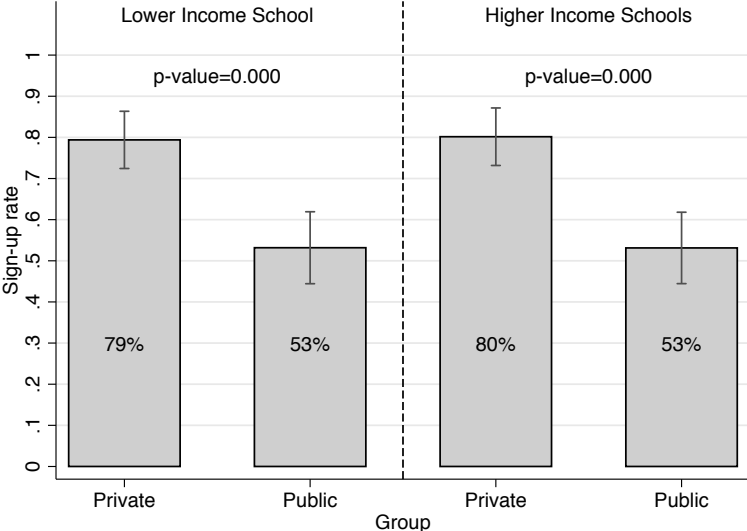
Both your decision to sign up and your diagnostic test score will be kept completely private from everyone, including [except] the other students in the room.”

Linking Experiment to Theoretical Framework

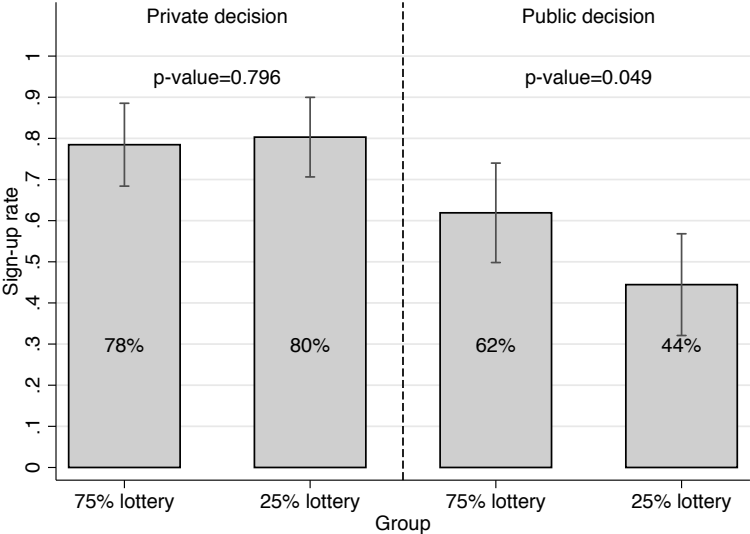
Empirical predictions, driven by the model and pre-registered:

1. Under both mechanisms, signup rate in public is lower than in private
2. Under both mechanisms, p should not affect signup rates in private
3. *Smart to be Cool*: conditional on publicly signing up (and thus paying the stigma cost), marginal student would prefer to get the package
 - ▶ Signup rate in public with $p = 0.75$ *higher* than with $p = 0.25$
4. *Cool to be Smart*: conditional on publicly signing up (and thus signaling that is high economic type), marginal-type student prefers not to get the package
 - ▶ Signup rate in public with $p = 0.75$ *lower* than with $p = 0.25$

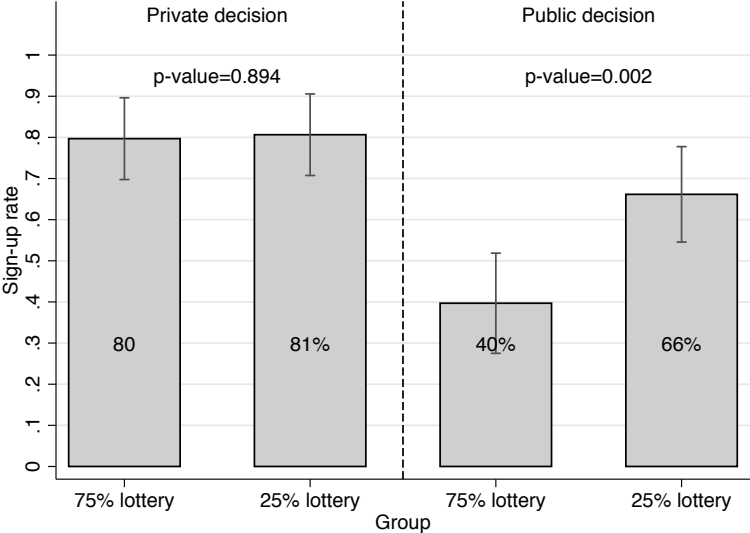
Effect of Public Treatment on Signup Decision



Mechanisms – Lower Income School

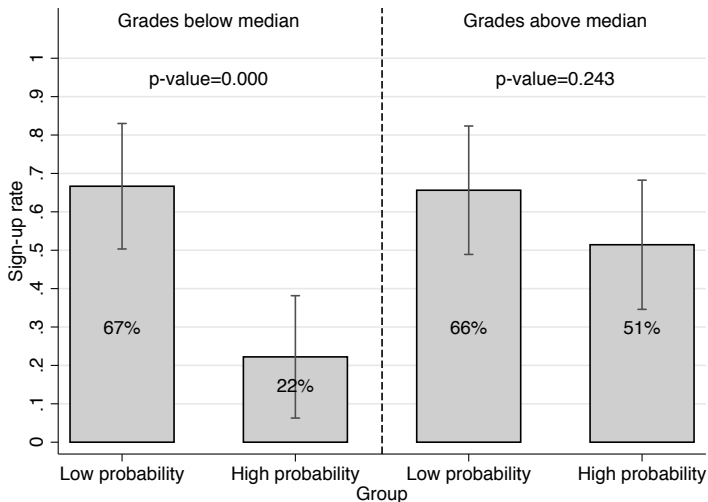


Mechanisms – “Cool to be Smart” Schools



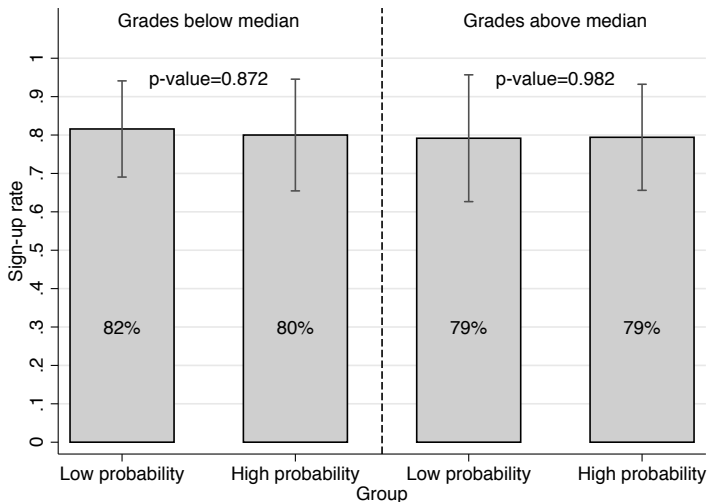
Heterogeneity (1) – “Cool to be Smart” Mechanism

Higher income schools, **public condition**, splitting by grades



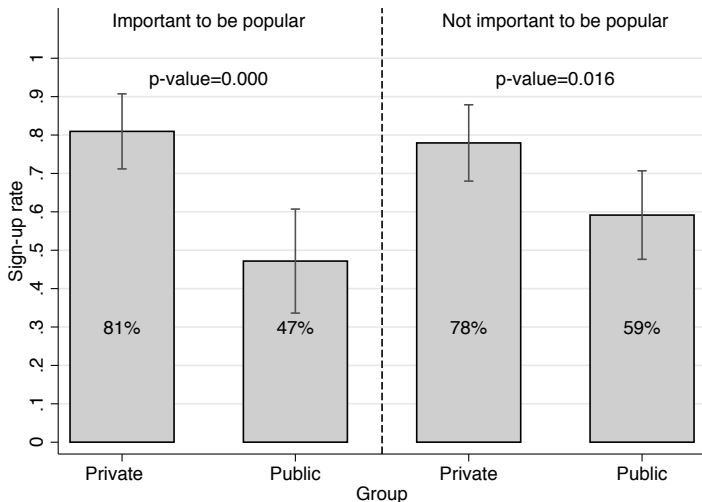
Heterogeneity (1) – “Cool to be Smart” Mechanism

Higher income schools, **private condition**, splitting by grades



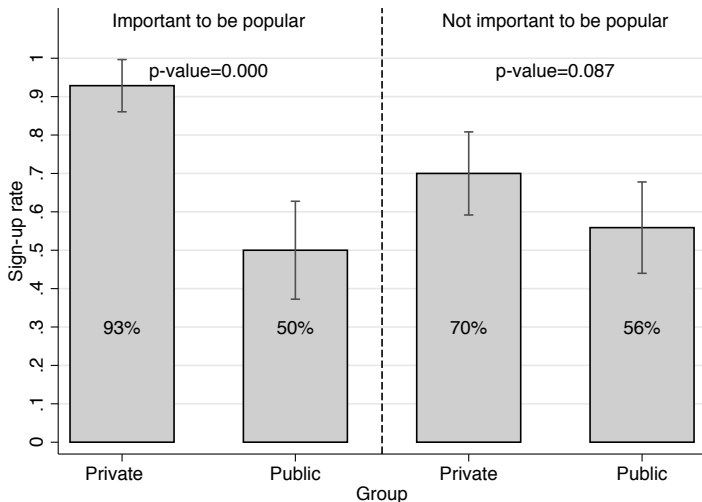
Heterogeneity (2) – Lower Income School

How important do you think it is to be popular in your school?

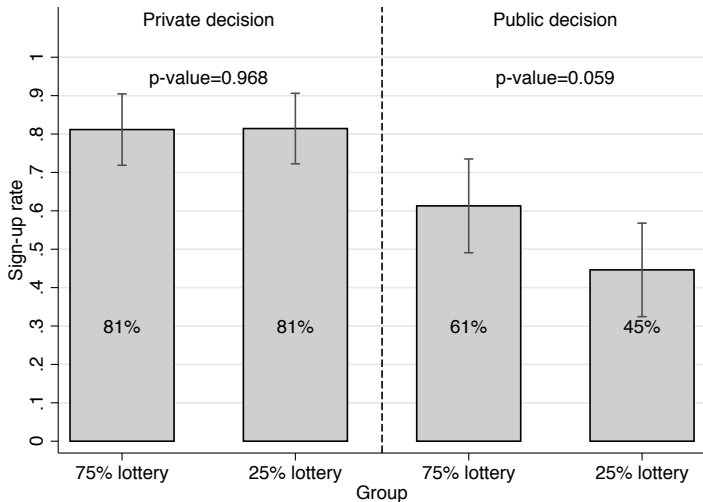


Heterogeneity (2) – Higher Income Schools

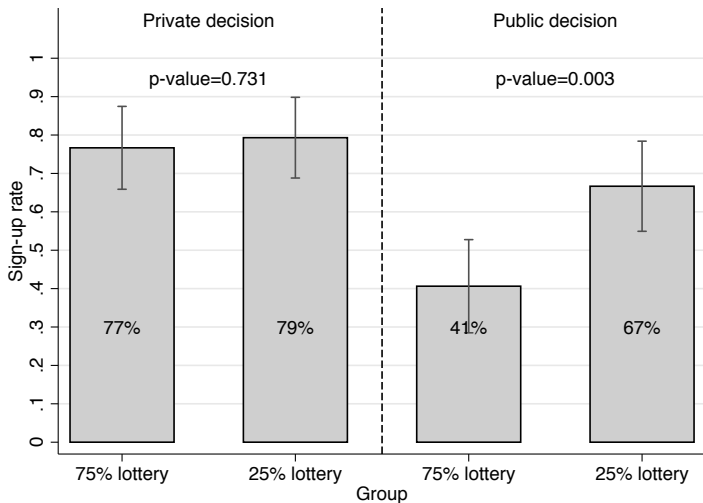
How important do you think it is to be popular in your school?



Classrooms Below Median in Opinion on Importance of Being Considered Smart to be Popular



Classrooms Above Median in Opinion on Importance of Being Considered Smart to be Popular



Additional Evidence of Mechanisms

- ▶ Cool to be Smart mechanism:
 - ▶ “Suppose a classmate becomes less popular because he/she is studying too hard. Why do you think this would happen?”
 - ▶ Most common answer: “Because other students now think he/she is not a fun person to spend time with” (37% in low income school)
- ▶ Smart to be Cool mechanism:
 - ▶ “Now suppose a classmate becomes more popular because he/she is studying too hard. Why do you think this would happen?”
 - ▶ Low income school: because peers can get help studying/copy answers; high income schools: because students admire hard workers or smart people

Conclusion

- ▶ Strong evidence consistent with peer pressure
- ▶ But very different peer cultures explaining seemingly similar negative effects of peer pressure
- ▶ Without disentangling, one could have thought “Acting White” phenomenon more common than previously believed
- ▶ Implications for policy design:
 - ▶ Policies for peer pressure not one-size-fits-all
 - ▶ Which particular motive dominates is predictable, and simple questions can help reveal it
 - ▶ Privacy of effort vs. privacy of outcomes
 - ▶ Informational campaigns