Psychology and Economics[1]
14.13 Lectures 11, 12, and 13: Social Preferences

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Midterm

- Midterm postponed, until further notice.

- The midterm exam will consist of three parts:
  (1) One longer question similar to (easier) pset questions
  (2) True/false/uncertain questions
  (3) Multiple choice questions

- See course website for examples of previous exams.

- TAs will provide guidance in recitation.

How can you prepare for the midterm?

- Things you can/should do:
    - Make sure you understand the lecture and recitation slides.
    - You are responsible for lectures until lecture 12 (March 11).
    - Go back to starred readings if needed.
    - Make sure you understand the psets and solutions.
    - Ask (and answer) questions on Piazza!
    - Make sure to sleep enough!

- What if you miss or bomb the midterm?
    - If you do better at final than at midterm, only final will count.

Broad plan for social preferences

- What are social preferences?

- How do we measure them?

- Are people genuinely nice to each other?

- Are social preferences malleable? Can policies change pro-sociality?

- Two types of evidence
  - Lab experiments
  - Field evidence

Three games to measure social preferences

- On Wednesday, we played the following games in class
  - (1) Dictator Game
  - (2) Ultimatum Game
  - (3) Trust Game

- See descriptions and discussions of these games in Camerer and Fehr (2004).
  - Levitt and List (2007) provide a thoughtful discussion of what laboratory experiments measuring social preferences reveal about the real world.

The Dictator Game

- Simplest way to study interested distributional preferences
  - "Dictator" makes an allocational decision that affects herself and other subject(s), the "recipient(s)"
  - That's it.

- Can be thought of as measuring 'raw' concern for others
  - When you don't know anything about the other person and she hasn't done anything within the interaction
  - Original version: giving recipient $1 costs dictator exactly $1.
  - Other versions: giving recipient $1 costs dictator $x.

The Ultimatum Game

- Simple 'bargaining' game that extensively studied by experimental economists.
  Two players, who typically remain anonymous:

  (1) The "proposer" (or sender)

     - Given divisible pie (usually money)
     - Offers a portion x of the pie to the "responder"

  (2) The "responder" (or receiver)

     - Knows both the offer and the total amount of the pie.
     - Accepts or rejects the offer.

- Payoffs

  - If accepted, responder receives amount offered, and the proposer receives remainder.
  - If rejected, neither player receives anything.

The Trust Game

- Very similar to Ultimatum Game

- Key difference: Amount sent by sender is tripled before the decides how much to return (if anything).

- Sending large amounts can have very high returns for the sender (and it is socially efficient).

- But sender will only send large amounts if she trusts that the responder will return a significant amount.

What are social preferences?

- Social preferences: degree and nature of how individuals care about others

- Most economic analysis assumes self-interest narrowly defined; caring only about one's own outcomes.

- Adam Smith (1776):

  It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard for their own interest. We address ourselves not to their humanity, but to their self-love, and never talk to them of our necessities, but of their advantage.

Broader conception of human nature

- Assuming that people are selfish isn't a bad assumption at all.
    - It reflects a realistic psychological view of humans.
    - Question: what do we miss by ignoring social preferences?

- Experimental and empirical research make it clear that preferences depart from pure self-interest in non-trivial ways.

- Goal: to understand how common and how important these departures are, and what their nature is

Understanding of social preferences by Hawaiians

- Banana bread freely available for everyone

- Paired with a lockbox to deposit payments

- What perception of social preferences does this photo reflect?

Why do the Hawaiians do this?

- They probably realize that:
  - (1) People are nice enough: most people will probably pay for the banana bread.
  - (2) People can be selfish: if a lot of cash were easy to take, someone would do so.

We will take a similar perspective to the Hawaiians'.

- Self-interest is probably major driver of behavior in many economic contexts, but:
  (1) In some situations self-interest is not the main motive.
  (2) Even seemingly small departures from pure self-interest can dramatically influence economic outcomes.

- Some examples:
  - Positive: helping a stranger with directions, calling an ambulance, helping a fellow student with computer trouble, washing your hands
  - Negative: cheap revenge, consumer boycotts, theft

The Ultimatum Game

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- Payoffs

  - If accepted, responder receives amount offered, and the proposer receives remainder.
  - If rejected, neither player receives anything.

What does game theory predict?

- Clear prediction as to what happens in the game

- Responder cares only about money, so will accept any $x > 0$.

- Proposer cares only about money, so offers as little as possible.

- Equilibrium offer: zero or smallest possible positive amount

## Typical results in the Ultimatum Game

(1) Most offers are between 40% and 50% of the pie.

(2) Such offers are mostly accepted.

(3) The acceptance rate is increasing in the offer.

(4) Offers below 20% are mostly rejected.

Ultimatum Game: results from this class in line with typical results

# of Groups	Total Pie	Avg. Offer	Avg. Accepted Offer	Avg. Rejected Offer	Mode Offer	Rejection %
81	100	46.93	50.03	30.69	50	16.05

Ultimatum - Frequency Histogram
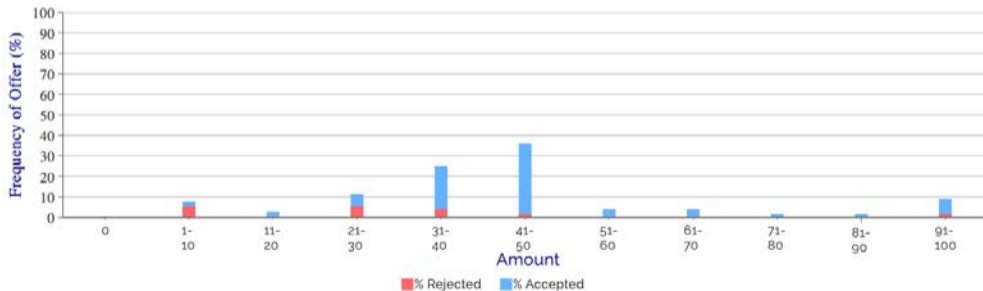
Variation across countries

- The game has been studied in many societies. Some remarkable patterns have emerged.

- Very little variation in play among industrial societies very broadly understood. Subjects in Pittsburgh, Ljubljana, Yogyakarta, Tokyo play much the same way.

- Increasing the stakes to several months' pay (by running the experiment in poorer countries) has little effect on play.
    - Since rejecting a low-percentage offer is more expensive with higher stakes, this might be surprising.
    - But there is a countervailing force: increasing the stakes also enhances whatever psychological considerations are involved.

Henrich et al. (2001): The Ultimatum Game in Hunter-Gatherer Societies

- Set of experiments illustrates both some outliers to the uniformity of play, and how play can reflect the culture in which it's played.

Henrich et al. (2001): The Ultimatum Game in Hunter-Gatherer Societies

Henrich et al. (2001): The Ultimatum Game in Hunter-Gatherer Societies

Large variation across societies

Group	Mean	Mode (% sample)	Rej.	Rej.$<$20%
Machiguenga	0.26	0.15/0.25 (72%)	1/21	1/10
Lamalera	0.57	0.50 (63%)	4/20*	3/8*
Au/Gnau	0.38	0.4 (32%)	10/25	3/6

- Group-level differences in economic organization and the degree of market integration explain a substantial portion of the behavioral variation across societies
- **Machiguenga:** slash-and-burn horticulturalists with little concern for others outside the family or for social status
- **Lamalera:** whale-hunting culture based on strong and meticulously-detailed cooperation
- **Au/Gnau:** a culture where gift-giving is an avenue to status and gives the right to ask for reciprocity at any time

What's going on in the Ultimatum Game? Responders

- Why do responders reject low offers?

  (1) Hypothesis #1: responders dislike coming out behind the proposer and therefore reject low offers.
  (2) Hypothesis #2: responders dislike being treated unfairly and are willing to punish the proposer for such unfairness.

- Can we distinguish between these motives based just on the Ultimatum Game? No.

What's going on in the Ultimatum Game? Proposers

- The proposer's motives are even harder to gauge.

  (1) Hypothesis #1: proposer offers non-trivial amounts because she wants to be nice.
  (2) Hypothesis #2: she's completely selfish and just does not want to get rejected.

- If we want to understand motives in social situations precisely, we have to use different evidence.

Models of social preferences: three broad categories

(1) **Distributional preferences:** can be represented purely in terms of the amount of money (or other resources) people get.

(2) **Face-saving concerns:** people don't want to look bad in front of others (and themselves).

(3) **Intentions-based preferences:** include reciprocity, procedural justice, and other facets of social preferences that imply people care about how allocations came about.

Distributional Preferences

- Simplest kind of social preferences; natural extension of how economists think about individuals' preferences.
    - Typical economic assumption: a person cares only about her own material outcomes.
    - In social settings, we can assume that she cares about her own *and others'* material outcomes.

- <u>Interested</u> distributional preferences: preferences when choices affect one's own as well as others' outcomes.

- <u>Disinterested</u> distributional preferences: what distributions do people prefer for others?

The Dictator Game

- Simplest way to study interested distributional preferences
    - "Dictator" makes an allocational decision that affects herself and other subject(s), the "recipient(s)"
    - That's it.

- Can be thought of as measuring 'raw' concern for others
    - When you don't know anything about the other person and she hasn't done anything within the interaction
    - Original version: giving recipient \$1 costs dictator exactly \$1.
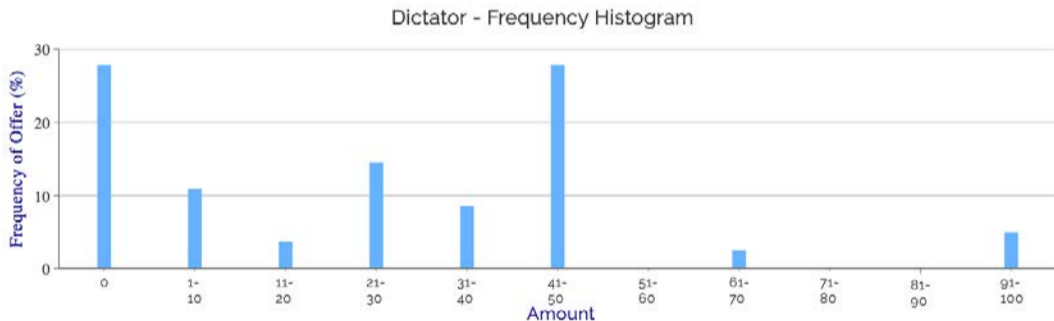   - Other versions: giving recipient \$1 costs dictator \$x.

Dictator Game in this class: no stakes
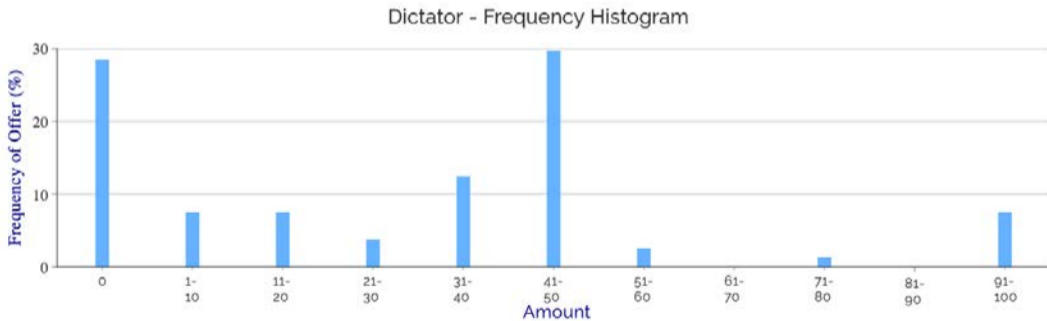
# of Groups	Total Pie	Avg. Offer	Mode Offer
81	100	31.83	0

Dictator - Frequency Histogram
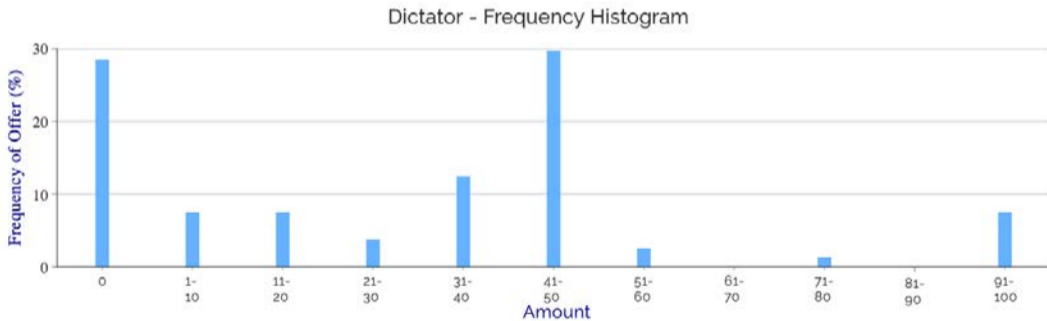
Dictator Game: very similar answer with monetary stakes

# of Groups	Total Pie	Avg. Offer	Mode Offer
83	100	28.40	0

Dictator - Frequency Histogram

Dictator Game: size of monetary stakes does seem to matter much

# of Groups	Total Pie	Avg. Offer	Mode Offer
81	100	31.83	0

Dictator - Frequency Histogram

Dictator Game: somewhat lower giving in private

# of Groups	Total Pie	Avg. Offer	Mode Offer
83	100	29.54	50

Dictator - Frequency Histogram
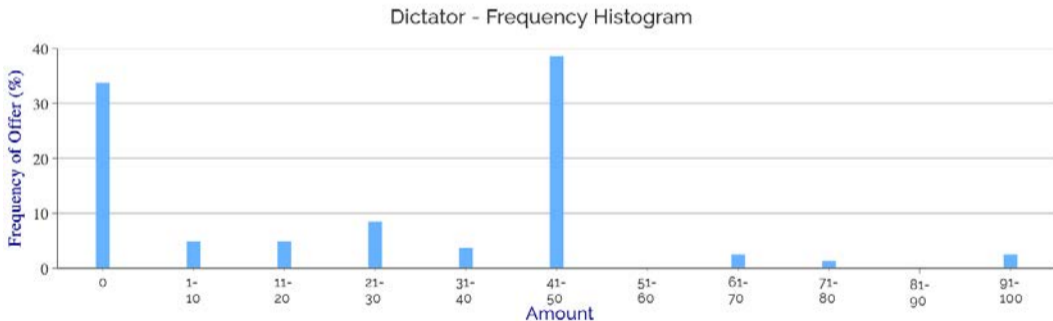
Dictator Game: higher giving of chocolate

# of Groups	Total Pie	Avg. Offer	Mode Offer
83	100	37.07	50

Dictator - Frequency Histogram
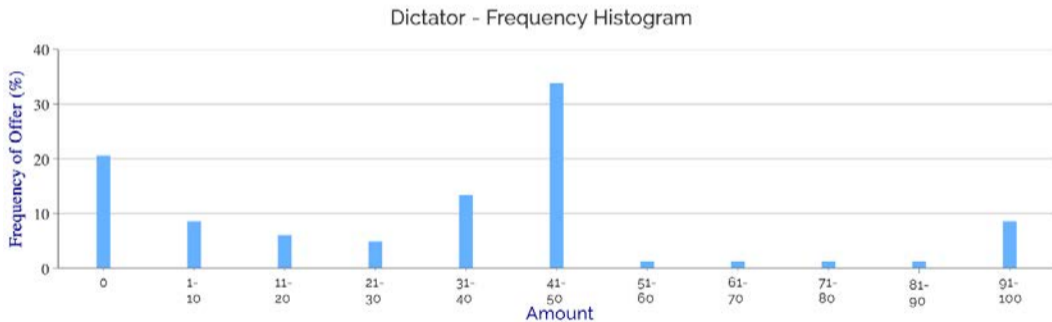
Dictator Game: even higher giving of apples

# of Groups	Total Pie	Avg. Offer	Mode Offer
82	100	54.38	50

Dictator - Frequency Histogram
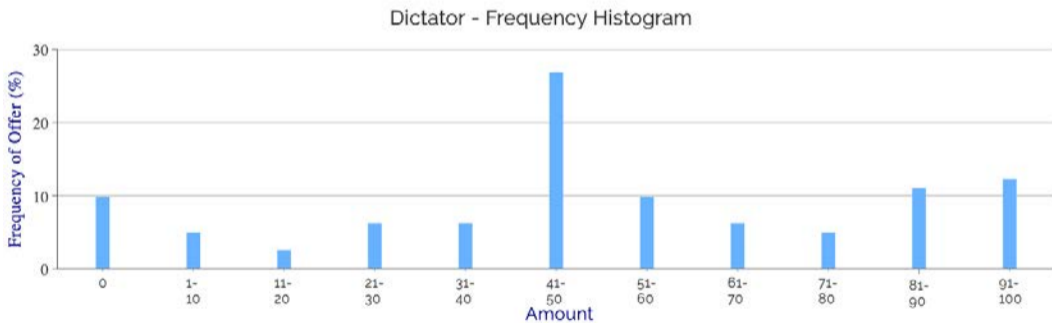
Dictator Game in class: What did we learn?

- People look fairly generous in dictator games, even when game is (largely) private.
    - Average amount given is about 30 percent of the total.
    - Hypothetical vs. actual choices look quite similar.
    - Size of stakes does not seem to matter much.

- Somewhat different behavior for chocolates and apples. Why?
    - Relative marginal utility of dictator and recipient matters.

- What is the outside option?
    - Some people might give low amounts and decide to give the money to someone else.
    - Those people will look selfish in dictator game when in fact they are generous.

Modeling distributional preferences (Charness and Rabin, 2002)

- Two players, with player 2 being the dictator. Her preferences over outcomes x_1 and x_2 are:

$$u_2(x_1, x_2) = \begin{cases} \rho x_1 + (1 - \rho)x_2 & \text{if } x_2 \geq x_1 \\ \sigma x_1 + (1 - \sigma)x_2 & \text{if } x_2 \leq x_1. \end{cases} \quad (1)$$

- What do ρ and σ measure?

  - ρ: weight person 2 puts on the other person when ahead
  - σ: weight she puts on the other person when behind
  - Presumably, $\rho \geq \sigma$ for most people.

- What case does $\sigma < 0$ represent?

  - When behind, person 2 prefers to *hurt* the other player to reduce the inequality between them.

Example with $\sigma < 0$

- For example, suppose $\sigma = -1/3$, and she must choose between allocations $(0, 0)$ and $(9, 1)$.

- Since

$$0 = -\frac{1}{3} \cdot 0 + \frac{4}{3} \cdot 0 > -\frac{1}{3} \cdot 9 + \frac{4}{3} \cdot 1 = -\frac{5}{3}, \tag{2}$$

  she chooses the lower, more equal allocation.

- $\sigma < 0$ can potentially explain the rejection of low offers in Ultimatum Games.

Experimental evidence on ρ

- Most subjects seem to have a positive ρ.
  - When ahead, they're willing to sacrifice some money to increase the other's payoff.

- A minority are even willing to sacrifice money to give another person an equal amount of money or even less.

- When deciding how to split \$10 or other similar amounts of money, subjects tend to give 20-25% on average.
  - This class: students gave about 28% on average.

- Overall, the average (estimated) ρ is around 0.4.

Experimental evidence σ

- Only about 10-20% have negative σ strong enough to pay a non-trivial amount to hurt the other player.

- About 30% willing to *sacrifice* to help a player ahead of them

- If a person is behind, she often neither wants to help nor hurt the other person by much.

Signs of generosity?

- So subjects tend to be quite generous in the Dictator Game.

- Similarly, Americans give a lot of money to charity.
    - Charitable giving amounts to about 2% of GDP.
    - The majority of this comes from individuals, and individuals' giving has stayed steady or increased over time.

- Share of GDP contributed is higher if we count volunteering and other hard-to-measure contributions
    - 44% of respondents reported having given some time; those who have estimated working 15 hours per month on average.

- Relatively positive picture of people's generosity?

Work on social recognition: Less rosy picture of people's generosity?

- Recent work: Motives for giving much more nuanced than simple concern for distribution of resources

- Example: distribution of gifts to organizations.
    - Many organizations group donors into categories according to the range in which their contribution falls.
    - Boston Symphony Orchestra has different categories of donations. Many donors give near the lowest amount in their range.

- Is social recognition a major motivation for giving?
    - People seem to care not only about what others *get*, but also about what others *think of them* when they (not) give.
    - If we see people give to others, is that because they genuinely care about them, or for other reasons?

Costly exit in the Dictator Game

- Lazear et al. (2012): experiment to study motives for giving. Two treatments:

  (1) Standard Dictator game experiment, where dictators split €10 between themselves and another subject.

  (2) In another treatment, subjects decide whether to even participate in the dictator game.

- If a dictator chooses to participate:
  - Recipient is informed of the game.
  - Standard dictator game commences.

- If a potential dictator chooses not to participate:
  - She receives €10 without option to distribute the money.
  - The potential recipient is not told about the Dictator Game.

What do distributional preferences predict?

- Dictators who want to give some money strictly prefer to stay in the dictator game.

- Those who would keep everything for themselves are indifferent.

- In either case, the option to exit the game should have no effect on how much dictators share.

Results

- Exit option lowers giving when exit is free
  - In standard Dictator Game, dictators share €1.87 on average.
  - When dictators can exit, they share only €0.58 on average.

- Subjects even willing to pay to avoid dictator-game situation:
  - Many subjects take €9 rather than split €10 in Dictator Game.
  - On average, subjects are willing to take 82.4% of the pie rather than split the full pie in the dictator game.

- Why do subjects want to exit?
  - They want to take the money for themselves.
  - But they don't want to indicate to the potential recipient that she's been treated unfairly.
 - Exiting allows them to satisfy their greed AND not worry about the recipient's reaction.

Excuses to be selfish: Andreoni and Bernheim (2009)

- Different version of (non-anonymous) Dictator Game

- Dictator's choice was *forced* with some probability.
    - Computer chooses ($20,$0) or ($0,$20) with equal probability.
    - Dictator observes the allocation chosen by the computer, but the recipient does not.
    - Dictator makes dictator-game allocation with a pie of $20.
    - Computer's forced allocation implemented with probability p known to both dictator and recipient
    - Dictator's choice was implemented with probability $1 - p$.
    - Recipient only learns allocation, not dictator's choice

What do distributional preferences predict?

- Dictator only thinks about case in which her choice counts.

- Only case in which she affects the distribution

- So p should have no effect on choice.

- Why could p matter anyway?

"Hiding" behind the forced choice to justify being selfish
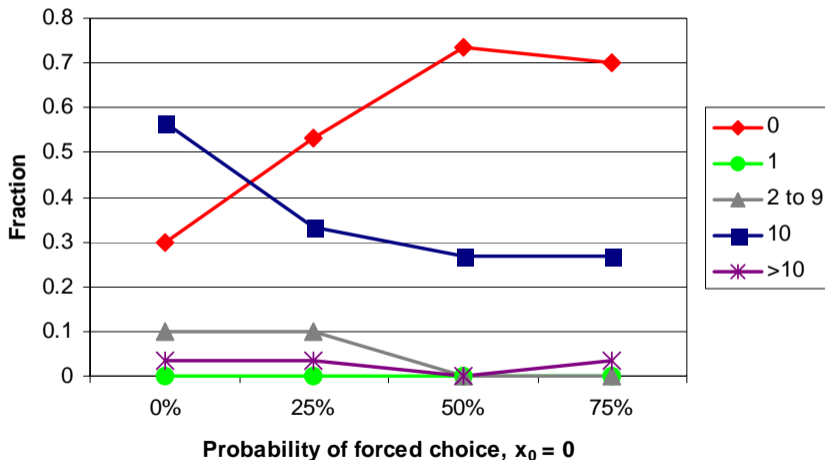
What do we learn from this graph?

- The y-axis shows the fraction that the dictator chose to share.

- The x-axis shows p^*, the probability of the forced choice being implemented, i.e. the chance that the computer forces the (20,0) allocation.

    - For example, for $p^* = 50\%$, the allocation is (20,0) with a 50% chance, and whatever the dictator chose with 50% chance.

- The higher p^*, the easier it is for the dictator to 'hide' behind the computer.

    - For high values of p^*, when the dictator chooses (20,0), the recipient doesn't know whether the computer chose the allocation or whether the dictator was selfish.

What do we learn from this graph (cont'd)?

- The different lines show the fraction who chose to share a certain amount.
  - For example, the red line shows the fraction of people who chose (20,0), i.e. who gave nothing, for different values p^*.
  - The higher p^*, i.e. the easier it is to 'hide behind the computer', the higher the fraction of people who give nothing.

- The next slide shows further evidence that people 'hide behind the computer':
  - It shows results from the exact same experiment, except for that now the computer now forces the allocation (19,1).
  - Giving \$1 gives dictators plausible deniability as long as $p^* > 0$.
  - The higher p^*, the higher the fraction of people who give \$1.

- Taken together, this is evidence that people are not as nice as results from simple dictator games might suggest.

"It wasn't up to me, that's what the computer chose..."
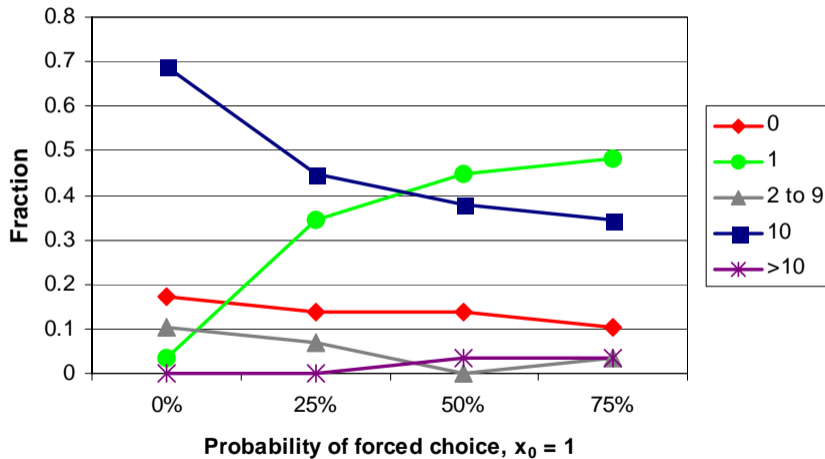
Face-saving concerns (social image)

- Face-saving concerns are the motivation to avoid unfavorable judgments by others.

- The previous experiments provide a way to people to avoid such judgments.

- When the dictator's choice might be forced, the recipient can't ever be sure that the dictator is greedy.

- And when there's an option to exit the dictator game, one avoids the recipient's judgment altogether.

What does this mean in terms of utility functions?

- Dictator's (player 2's) utility given allocations x_1 and x_2 could be something like

$$\rho x_1 + (1 - \rho)x_2 + v(\text{player 1's beliefs about } \rho) \qquad (3)$$

- More generally

$$u(x_1, x_2) + v(\text{others' beliefs about } u). \qquad (4)$$

- Such models are hard to analyze, so won't do so in detail (for now).

Is giving positively or negatively motivated?

- People might give because they enjoy giving, or because it's uncomfortable refusing to give.

- The evidence we've talked about suggests that the latter motivation is more important for many.

- Supporting this hypothesis is that those who give the most in the dictator game are willing to pay most to avoid it.

Moral wiggle room

- Dana et al. (2007) asked subjects to choose between self-other allocations of
  - Option A: ($6 for self, $x for other person)
  - Option B: ($5 for self, $y for other person)

- x and y varies across subjects.

- What would you choose for $x = 1$ and $y = 5$?
  - Option A: ($6, $1)
  - Option B: ($5, $5)

- For $x = 1$ and $y = 5$, 26% choose A and 74% choose B.

- Choosing Option A is not a very nice move.
  - Person gets additional $1 at cost of $4 for the other person.
  - What if the person could avoid feeling bad about being mean?

A twist

- For some subjects, x and y were initially unknown, with either $x = 1$ and $y = 5$ or $x = 5$ and $y = 1$ being equally likely.

- This means the subjects are making one of two choices:

  (1) Option A ($6, $1) vs. Option B ($5, $5), OR
  (2) Option A ($6, $5) vs. Option B ($5, $1)

- Subjects could *costlessly find out* which one is the case (with the recipient not learning whether they did).

- Could this twist reduce giving for people with distributional preferences?

What do distributional preferences predict?

- If optimal choice depends on x and y, you should want to find them out since it helps you implement your preferred allocation.

- And if you find that out $x = 1$ and $y = 5$, you should make the same choice as if you had always known this.

- If your choice doesn't depend on x and y, you should be indifferent between finding them out and not.

- In either case, when $x = 1$ and $y = 5$, leaving x and y initially unknown should *not* decrease the amount of giving.

Results

- In contrast, 44% chose not to find out x and y, and of these subjects, 95% chose option A.

- For situations with $x = 1$ and $y = 5$, the proportion of selfish choices was 63% (as opposed to 26% in the baseline case).

- Concern for others' beliefs is not a likely explanation. Why?
  - Other person doesn't find out whether you learned her payoff.
  - Not learning doesn't help in improving her opinion.

Saving face (self image)

- More likely explanation based on how *dictators* feel about themselves
    - The uncertainty in whether the selfish action helps or hurts the other person gives an excuse to be selfish.
    - You can keep telling yourself that you didn't mean any harm.
    - Many subjects take advantage of this "moral wiggle room."
    - It's pretty amazing that the excuse works in people's minds even when it's *very* easy to find out what's going on.

- Want to save face in front of themselves, not only others.

Giving and communication

- An interesting additional issue is how interactions between dictator and recipient affect giving.

- Ellingsen and Johannesson (2008) modified the dictator game by allowing for a very limited form of communication.
    - One group of subjects played the usual dictator game.
    - In another group, recipients allowed to send anonymous message to the dictator after they received their share
   - What results do we expect?

Results

- Anticipation of feedback increased sharing from 24.84% of the pie on average to 34.12%.

- Most recipients chose to send a message. Some examples:

    "So you choose to take all the money yourself, you greedy bastard. I was just wondering if there was anyone who would do that and the answer apparently is yes, apparently people like you exist! Have a nice evening!"

    "Thanks you greedy bastard. You will like it as investment banker! I hope you will buy something nice."

    "There is hope for a better world!"

    "With the help of your generosity and your big heart I can tonight break the black-pudding curse. No more pea soup! You have a standing invitation to dinner at my place. The door is always open. With love!"

- This evidence indicates that beyond caring about the recipient's reaction, dictators care about how shielded they are from it.

This class: Dictator Game: no communication (monetary stakes)

- Not much evidence of communication affecting behavior, perhaps because different details of communication (before choices as opposed to after choices).

# of Groups	Total Pie	Avg. Offer	Mode Offer
84	100	38.40	50

Dictator - Frequency Histogram

60
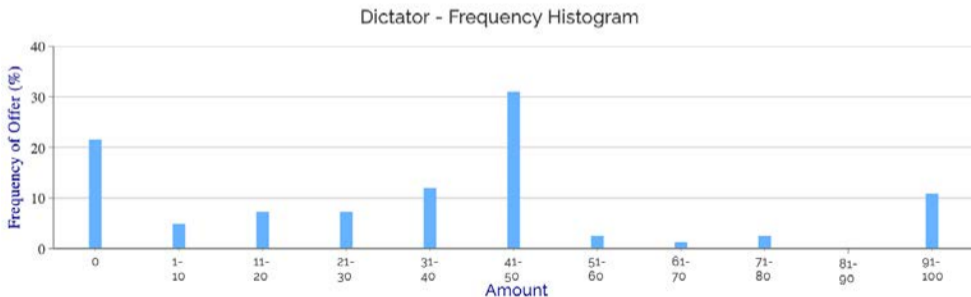
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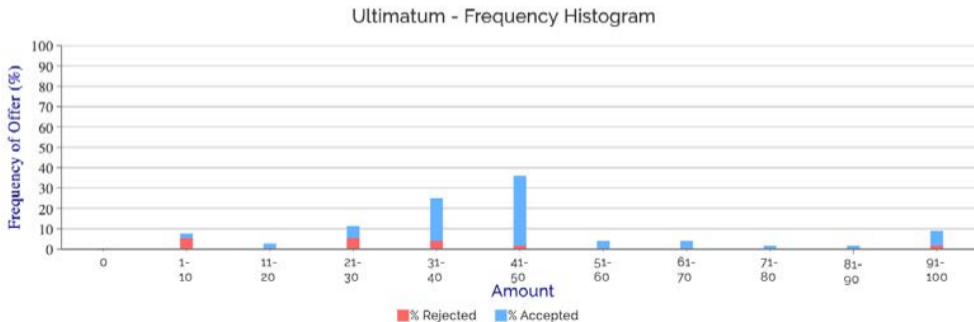
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Dictator - Frequency Histogram

61
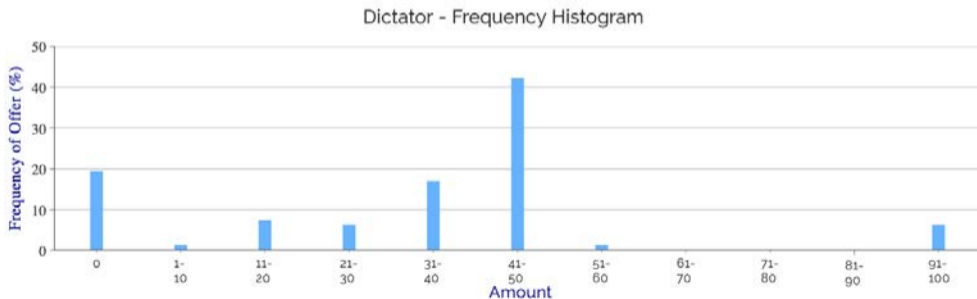
This class: Ultimatum Game: no communication (monetary stakes)

- Also not much evidence that communication affected behavior in ultimatum game
- Somewhat lower rejection rate and lower lower average offers with communication

# of Groups	Total Pie	Avg. Offer	Avg. Accepted Offer	Avg. Rejected Offer	Mode Offer	Rejection %
81	100	46.93	50.03	30.69	50	16.05

Ultimatum - Frequency Histogram

This class: Ultimatum Game: communication (monetary stakes)

- Also not much evidence that communication increased giving in ultimatum game
- Lower rejection rate with communication but slightly lowered average offers

# of Groups	Total Pie	Avg. Offer	Avg. Accepted Offer	Avg. Rejected Offer	Mode Offer	Rejection %
81	100	45.85	50.41	16.82	50	13.58

Ultimatum - Frequency Histogram

63
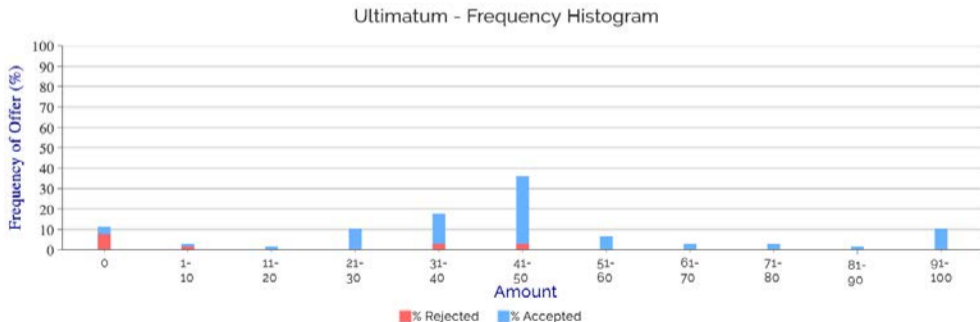
Intentions-based social preferences

- A relevant tale
    - A boy finds two ripe apples as he walks home from school.
    - He keeps the larger one, gives the smaller one to his friend.
    - "It wasn't nice to keep the larger one," the friend says.
    - "What would you have done?"
    - "I'd have given you the larger one and kept the smaller one."
    - "Well, we each got what you wanted, so what are you complaining about?"

- Punchline: people don't only care about outcomes but about *how* these outcomes come about.

Fairness and reciprocity

- Assumption in most of economics (and this course)
  - Our satisfaction with outcomes doesn't depend on how the outcome came about.

- An important preference discussed in organizational behavior and social psychology is that for **procedural justice**: fairness in the process used to allocate resources.
  - It may be OK for somebody to be much richer than others, but much less so if he obtained the money in a corrupt process.

- **Reciprocity**: People like to treat others as others have treated or are treating them. More generally, the way we treat others depends on how they treat us.

A return to the Ultimatum Game

- Why do responders reject low offers in the ultimatum game?

  - Hypothesis #1: responders dislike coming out behind the proposer.
  - Hypothesis #2: responders dislike being treated unfairly, and are willing to punish the proposer for such unfairness.

- These hypotheses are impossible to separate based on the ultimatum game.

  - Can compare responders' choices in the ultimatum game to choices when the offer isn't generated by the recipient
  - Consider how choices *from the same set of distributional alternatives* depend on how the set was generated.
  - Quite a bit of work in behavioral game theory on this issue

- Next lecture: Breza et al. (2018): The Morale Effects of Pay Inequality

Welcome to 14.13 on Zoom!

- Please be patient!
  - Feedback much appreciated! Piazza, email, office hours, etc.
  - Zoom town hall meeting on Wednesday at 6 pm (see my email).

- Some rules
  - You are muted unless you raise your virtual hand
  - You may comment via chat.
  - If possible, please turn your video on.

Some additional logistics

- Class is pass/fail.
    - No need to be stressed about grades! You will pass this class.
    - Try to still learn useful things in this and other classes.

- Protect your own and others' mental health.

- Psets and mid-term
    - Pset 3 is due on Wednesday (April 1) at 6 pm. Pset 4 will be posted soon!
    - Mid-term exam next Monday (April 6) online – you pick your own two-hour window.
    - Exam will cover material until lecture 12 (i.e. <u>not</u> including lecture 13).

Overview of field evidence on social preferences

(1) Social preferences at the workplace

- Impact of relative pay versus piece rate on productivity (Bandiera et al., 2005)
- The morale effects of pay inequality (Breza et al., 2018)
- Ethnic divisions and production in firms (Hjort, 2014)

(2) Can policies increase pro-sociality?

- Mixing rich and poor children in school (Rao, 2019)
- Mixing cricket players (Lowe, 2019)
- Mixing roommates in college (Corno et al. 2018)

(3) Do people underestimate the benefits of pro-sociality?

- Undervaluing gratitude (Kumar and Epley, 2018)

Bandiera et al. (2005): impact of relative pay on productivity

- Field evidence from a fruit farm in the UK

- Two types of payment schemes
  - Piece rate: workers paid per unit of output
  - Relative pay: workers paid relative to others

- How does relative pay affect worker effort and output?
  - Negative externality of relative pay: increasing own pay comes at cost of others' pay.
  - Workers may reduce effort if they care about others.

How does switching to piece rate affect productivity?

- Test for impact of social preferences in the workplace
    - Use personnel data from a fruit farm in the UK
    - Measure productivity as a function of compensation scheme

- Timeline of quasi-field experiment:
    - (1) First 8 weeks of the 2002 picking season:
        - Fruit-pickers compensated on a relative performance scheme
        - Per-fruit piece rate is decreasing in the average productivity.
        - Incentive to keep the productivity low if care about others
    - (2) Next 8 weeks:
        - Compensation switched to flat piece rate per fruit.
        - Externalities shut down.
        - Switch announced on the day change took place (so it came as a surprise to workers).

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Dramatic increase in productivity with introduction of piece rates
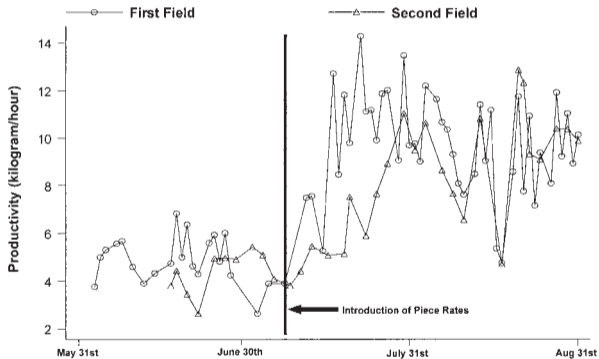

FIGURE I
Productivity (kilogram/hour) over the Season

- Figure shows average worker productivity for two fields of the farm.

- No trends before introduction of piece rates

- Introduction of piece-rate pay increases productivity by over 50 percent.

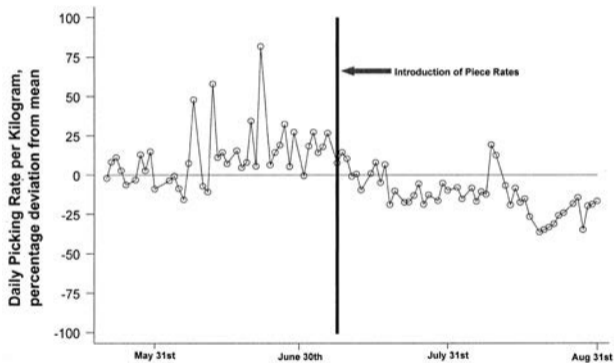# Increase in productivity not due to increased payment per unit of output

FIGURE IIIa
Unit Wage over the Season

- Wage per unit (kg) of output decreased with introduction of piece rates.

Stronger impacts if more friends are on the field. Two interpretations

(1) Social preferences:

- Work less to help others
- Work even less when friends benefit, since care more for them

(2) Repeated game

- Enforce low-effort equilibrium
- Equilibrium changes when switch to flat pay

How can we test between these two explanations?

- Consider tall plant for which others' productivity is unobserved
    - Fruit Type 1 (Strawberries): productivity observed
    - Fruit Type 2 (Raspberries): productivity unobserved

- No impact of piece rate for Fruit Type 2
    - No evidence of pure altruism
    - Effects could be driven by reciprocity
    - Important to control for repeated game effects

No impact of piece rate for raspberries (when effort is unobservable)

TABLE V

Monitoring

DEPENDENT VARIABLE = LOG OF WORKER'S PRODUCTIVITY

(KILOGRAM PICKED PER HOUR PER FIELD-DAY)

ROBUST STANDARD ERRORS REPORTED IN PARENTHESES, ALLOWING FOR CLUSTERING

AT FIELD-DAY LEVEL

	(1) Fruit type 2	(2) Fruit type 1	(3) Fruit types 1 and 2 combined
Piece rate dummy (P_t)	−.063	.483***	
	(.129)	(.094)	
Piece rate × fruit type 2			−.100
			(.095)
Piece rate × fruit type 1			.490***
			(.092)
Worker fixed effects	Yes	Yes	Yes
Field fixed effects	Yes	Yes	Yes
Other controls	Yes	Yes	Yes
Adjusted R^2	.3015	.3777	.6098
Number of observations (worker-field-day)	934	4224	5150

- Dependent variable: log worker productivity (kg picked per hour)

- No effect on Fruit Type 2 (raspberries) suggesting effects are driven by reciprocity

- Results highlight importance of setting incentives carefully.

Breza et al. (2018): the morale effects of pay inequality

- Randomized field experiment in rural India with low-skill manufacturing workers
  - Do workers care about relative pay?
  - What is the notion of fairness (perceived justifications)?

- Potential relevance for many features of the labor market
  - Wage compression
  - Wage rigidity
  - Sorting of workers into firms and inequality
  - Firm boundaries
 - HR policies

Motivation: Relative Pay Concerns

3 people from a village get hired to work on a construction site together. The prevailing wage is Rs. 250. <u>The contractor pays them Rs. 250/day</u>. How well will they work together?
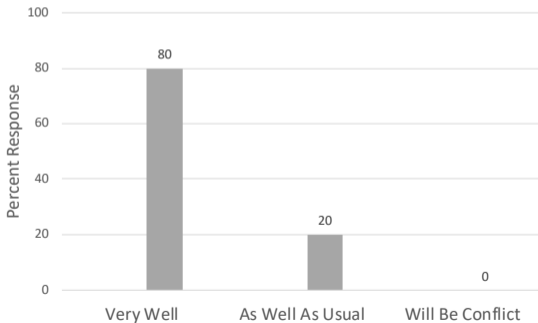
Motivation: Relative Pay Concerns

3 people from a village get hired to work on a construction site together. The prevailing wage is Rs. 250. The contractor pays them different wages: Rs. 250/day, Rs. 270/day, and Rs. 290/day. How well will they work together?
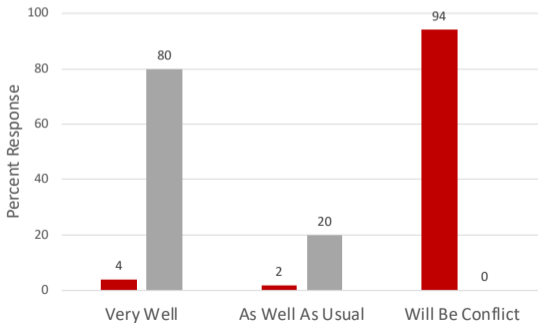
Experimental design

- 10 production units of 3 workers each in each "factory"
    - Each unit produces different product (e.g. unit 1 makes brooms, unit 2 makes incense sticks, etc.)
    - All unit members produce *same* product

- Key experimental variation: wage dispersion across workers within teams

- Production tasks vary in observability of performance

Inc

Justifications I: Productivity differences

Worker Rank	Heterogeneous	Compressed_L	Compressed_M	Compressed_H
Low productivity	w_{Low}	w_{Low}	w_{Medium}	w_{High}
Medium productivity	w_{Medium}	w_{Low}	w_{Medium}	w_{High}
High productivity	w_{High}	w_{Low}	w_{Medium}	w_{High}

- Rank computed from baseline productivity
- Productivity is continuous
- Modest wage differences (< 10%)

- Discrete fixed differences in wages

$\rightarrow$ Variation in { ΔWage / ΔProductivity } among co-workers

Wage Treatments

Design: Wage Treatments

Worker Rank	Heterogeneous	Compressed_L	Compressed_M	Compressed_H
Low productivity	w_{Low}	w_{Low}	w_{Medium}	w_{High}
Medium productivity	w_{Medium}	w_{Low}	w_{Medium}	w_{High}
High productivity	w_{High}	w_{Low}	w_{Medium}	w_{High}

- Rank computed from baseline productivity

- Modest wage differences ($< 10\%$)
- Compare "Pay Disparity" vs. "Compressed", holding baseline productivity and wage levels fixed

Wage Treatments

Design: Wage Treatments

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Lar

Effects of Relative Pay Differences

ity

| Worker Rank	Pay Disparity	Compressed_L	Compressed_M	Compressed_H
Low productivity	W_{Low}	W_{Low}	W_{Medium}	W_{High}
Medium productivity	W_{Medium}	W_{Low}	W_{Medium}	W_{High}
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Low Rank Workers

	Output (std dev.) (1)	Attendance (2)	Output | Attendance (3)
Low wage: Pay disparity effect	-0.332 (0.128)***	-0.120 (0.053)**	-0.204 (0.114)*

~22% of mean output

9% loss in earnings

Effects of Relative Pay Differences

Worker Rank	Pay Disparity	Compressed_L	Compressed_M	Compressed_H
Low productivity	w_{Low}	w_{Low}	w_{Medium}	w_{High}
Medium productivity	w_{Medium}	w_{Low}	w_{Medium}	w_{High}
High productivity	w_{High}	w_{Low}	w_{Medium}	w_{High}

High Rank Workers

Standardized production residual vs Day
--- Compressed_High Pay   — Pay Disparity
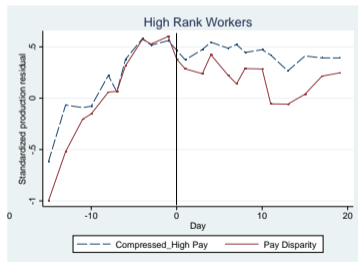
	Output (std dev.) (1)	Attendance (2)	Output | Attendance (3)
Low wage: Pay disparity effect	-0.332 (0.128)***	-0.120 (0.053)**	-0.204 (0.114)*
Medium wage: Pay disparity effect	-0.226 (0.187)	-0.129 (0.060)**	-0.061 (0.114)
High wage: Pay disparity effect	-0.172 (0.181)	-0.104 (0.052)**	-0.009 (0.152)

- Effects for all 3 groups strengthen in later weeks

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Breza et al. (2018): summary

- Pay disparity lowers work performance for *all* team members
  - Pay disparity undermines workers' ability to cooperate in own self-interest
  - Perceived justification essential in mediating effects

- Implications
  - Wage compression may be more likely in some settings than in others
  - Harder to justify wage dispersion if performance is difficult to quantify and observe for workers

Overview of field evidence on social preferences

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- Mixing roommates in college (Corno et al. 2018)

(3) Do people underestimate the benefits of pro-sociality?

- Undervaluing gratitude (Kumar and Epley, 2018)

Rao (2019): are social preferences malleable?

- What are the origins of social preferences?

- Why are some people nicer than others?

- What policies (if any) can affect social preferences?

Main question

- How does being mixed with poor students in school affect the social preferences of rich students?

- Policy change: admissions quota of 20% for poor students in primary schools in Delhi

- Two sources of variation:

  (1) Variation across classrooms $\implies$ Overall effect

    - Within schools: Treated vs. Control cohorts
    - Within cohorts: Treated vs. Control schools

  (2) Variation within classrooms $\implies$ Role of personal interactions

    - Idiosyncratic assignment to study groups

Outcomes of interest

- Prosocial behavior and generosity
  - Volunteering for charities at school
  - Dictator games

- Discrimination and social interactions
  - Teammate selection for sports contest
  - Willingness to attend play dates

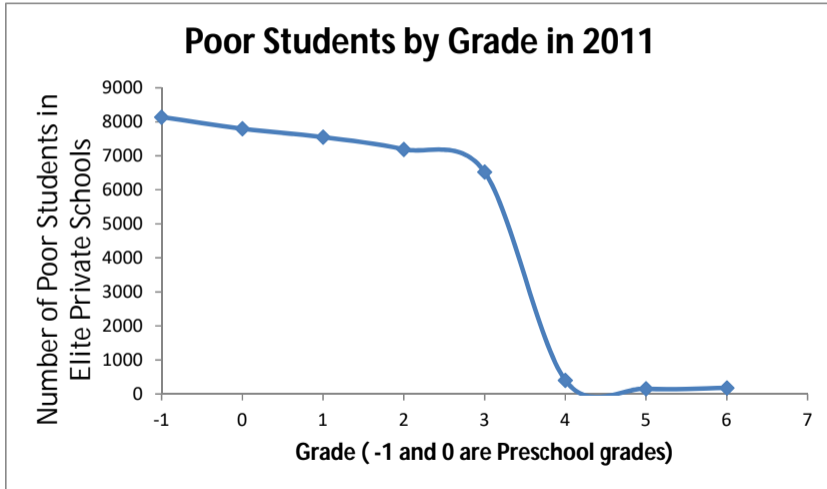- Academic outcomes
  - Test scores
  - Disciplinary infractions

Policy innovation in Delhi in 2007

- 20% admissions quota in private schools for poor students
  - Household income cutoff: $2000/year

- Schools which received subsidized land from state govt.
  - Over 90% of **elite** private schools

- No fees for poor children

- No tracking (i.e. no separation of students by performance)

- Poor kids selected using lotteries

Students from very different socioeconomic groups

Stude

Courtesy of Gautam Rao. Used with permission.

Poor Students by Grade in 2011

Number of Poor Students in Elite Private Schools

Grade (-1 and 0 are Preschool grades)
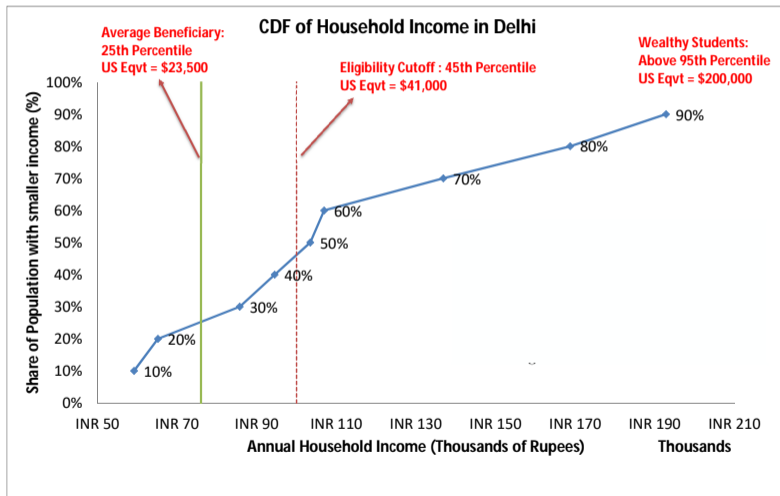
Courtesy of Gautam Rao. Used with permission.
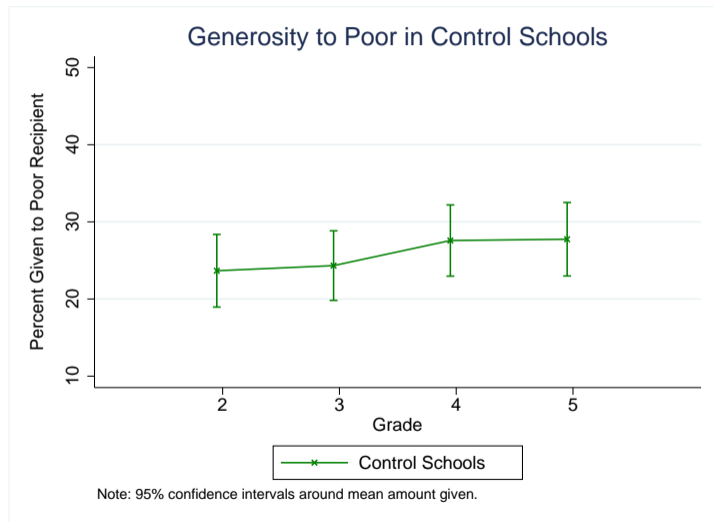
Variation within and across schools

- Variation within schools across classrooms

- But also variation across schools:
  - (1) Treatment Schools: Comply in 2007
  - (2) Delayed Treatment Schools: Comply in 2008
    - "Jump" shifted by one cohort
  - (3) Control Schools: Not subject to policy (until 2013)
    - Had received land from federal govt. or private foundations
    - No treatment, i.e. all students are rich.

Dictator Games

- Students endowed with 10 Rupees, choose to share $x \in [0, 10]$
  - Can exchange money for candy later (Rs. 1 per piece)

- Vary recipient's identity (order randomized)
  - Game 1: **Poor** student in a school for poor children
  - Game 2: **Rich** student in a private (control) school

- Name and photographs of school shown to subjects
  - Debriefing: Subjects understood recipient poor / rich
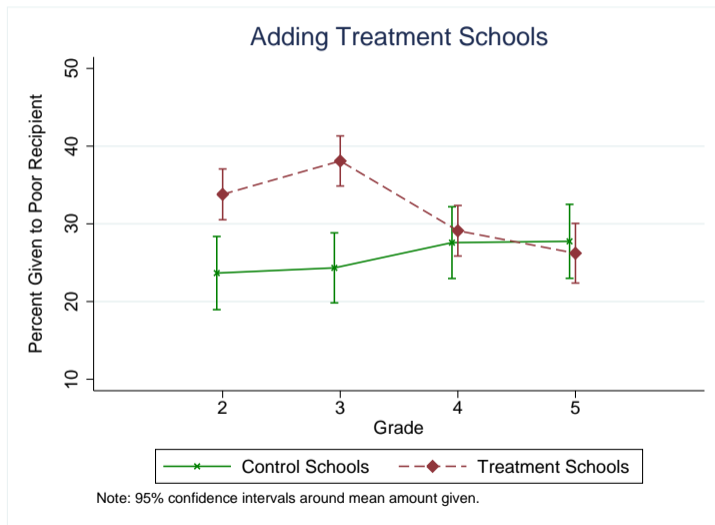
Dictator Game with Poor Recipient

Dictato

Courtesy of Gautam Rao. Used with permission.

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Dictator Game with Poor Recipient

Courtesy of Gautam Rao. Used with permission.

Dictator Game with Poor Recipient
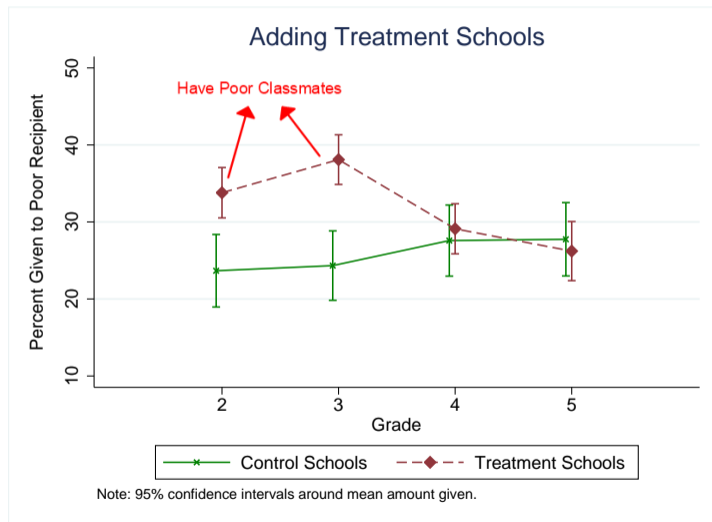
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Courtesy of Gautam Rao. Used with permission.

Dictator Game with Poor Recipient

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Courtesy of Gautam Rao. Used with permission.
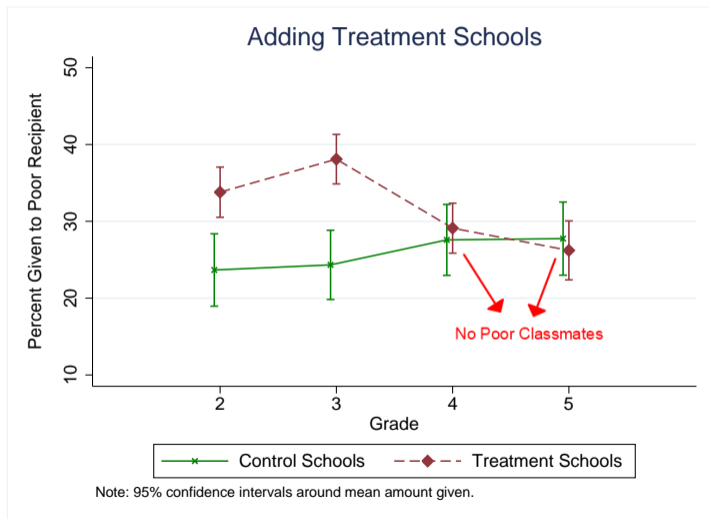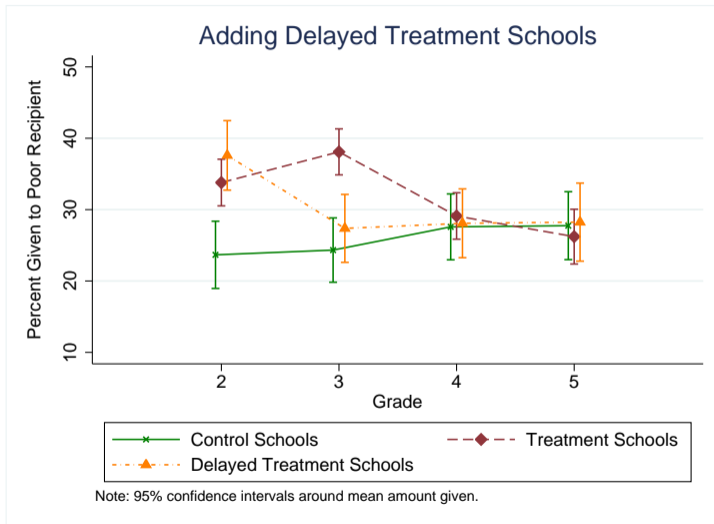
Dictator Game with Poor Recipient
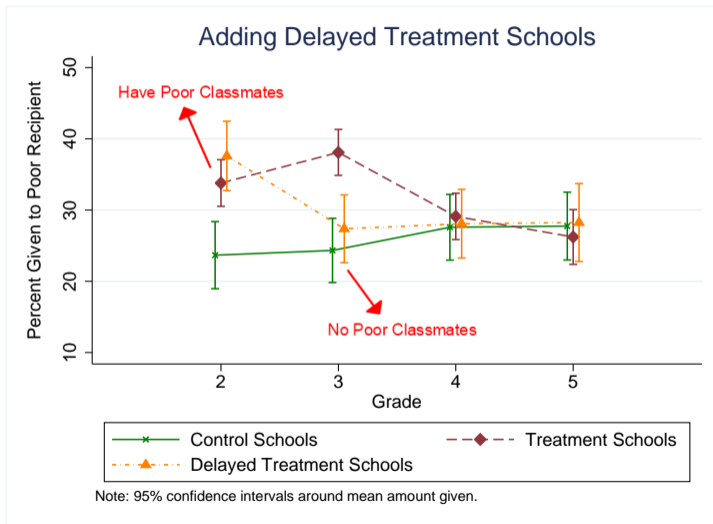
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Adding Delayed Treatment Schools

Note: 95% confidence intervals around mean amount given.

Courtesy of Gautam Rao. Used with permission.

Dictato

Dictator Game with Poor Recipient

Adding Delayed Treatment Schools

Note: 95% confidence intervals around mean amount given.

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Dictator

Dictator Game with Poor Recipient

Having Poor Classmates Increases Generosity to Poor

Note: 95% confidence intervals around mean amount given.
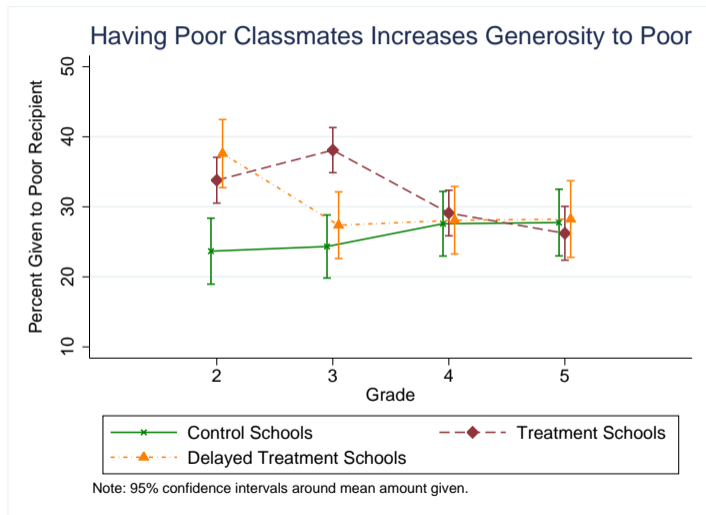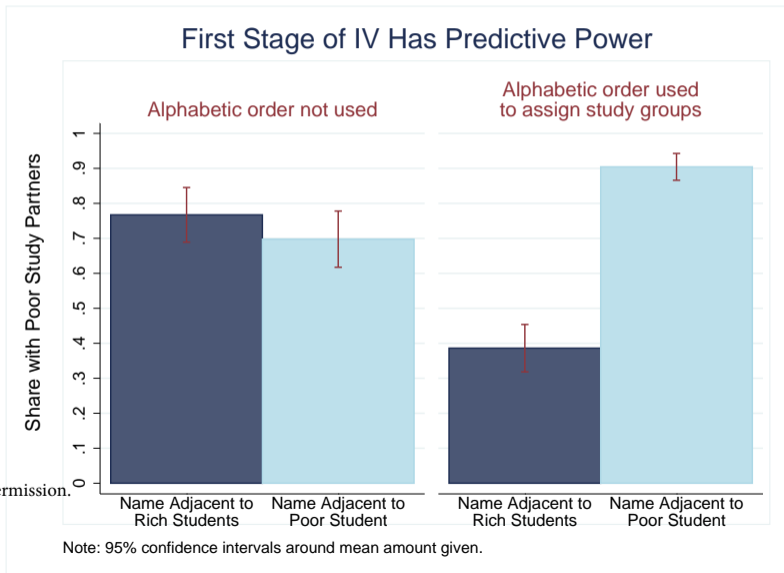
Courtesy of Gautam Rao. Used with permission.

Why is the variation <u>within</u> classroom helpful?

- Diff-in-diff identifies *overall* effect of having poor classmates.
    - Personal interactions
    - Teacher / curriculum change

- Within-classroom strategy exploits assignment to study groups
    - Isolates the role of direct personal interactions
    - Not subject to sorting concerns

- 1 hour a day working in small groups of 2-4 students
    - Some schools ($k = 7$) use alphabetic order of first name to assign study groups.
        - Exogenous variation in personal interactions
    - Other schools ($k = 4$) frequently shuffle groups
        - Only "direct" effect of name

Alphabetic Order Predicts Study Partners

Courtesy of
Guatam Rao. Used with permission.

Dictator   Poor Recipient - Regressions

Table 3. Generosity towards Poor Students

Dependent Variable:
Share Given to Poor Recipient in Dictator Game (%)

Specification: Sample:	(1) DiD Full Sample	(2) DiD Younger Sibs	(3) IV Treated Class	(4) DiD+IV Full Sample
Treated Classroom	12.22*** (1.901)	12.95*** (2.274)		8.747** (3.510)
Has Poor Study Partner			7.53** (3.147)	12.08*** (4.313)
Controls	Yes	Yes	Yes	Yes
Fixed Effects	School, Grade	School, Grade	Classroom	School, Grade
p-value (CGM)	< 0.01	< 0.01	.	.
Control Mean	27.12	26.75	33.77	27.12
Control SD	27.22	26.53	28.13	27.22
N	2015	1141	677	2015

Courtesy of Gautam Rao. Used with permission.

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Control Mean	27.12	26.75	33.77	27.12
Control SD	27.22	26.53	28.13	27.22
N	2015	1141	677	2015

Note. Standard errors in parentheses. This table reports regression results for giving in the dictator game when matched with a poor recipient. **Col 1** reports a difference-in-differences estimates of the effect of having poor students in one's classroom, with standard errors clustered at the school-by-grade level. The p-value reported in the table

Generosity

- How about generosity towards other wealthy children?
  - Turns out that increases as well!
  - Smaller effect size, but still substantial and significant

- Why?
  - Possible explanation: being exposed to poor children increases inequity aversion or some form of egalitarian preferences among rich children.

Changes in amounts given to rich recipients
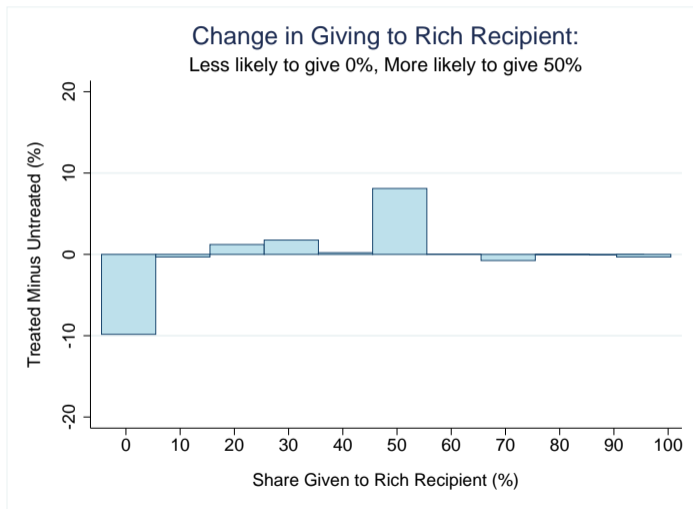
Courtesy of Gautam Rao. Used with permission.

Field experiment on team selection

- Subjects are students from two elite private schools
  - One treatment school, one control school
  - Invite *athletic* poor students from a public school

- Students must choose teammates to run relay race
  - Tradeoff: ability vs. social similarity

Team selection experiment design

Stage 1: Randomization

- Randomized to sessions with varying stakes
  - Rs. 50, Rs. 200 or Rs. 500 per student for winning team
    - Rs. 500 ($10) approx. one month's pocket money
  - Variation in "price" of discrimination
- Brief mixing to judge socioeconomic status

Team selection experiment design

Stage 2: Ability revelation and team selection

- Observe a 2-person race
  - Usually one poor and one rich student
    - Neither is from your school
  - Uniforms make school identifiable
- Pick which of the two runners you want as your partner
- Discrimination: picking the slower runner

Team selection experiment design

Stage 3: Choice implementation and relay race

- Students randomly picked to have their choices implemented
  - Plausible deniability provided
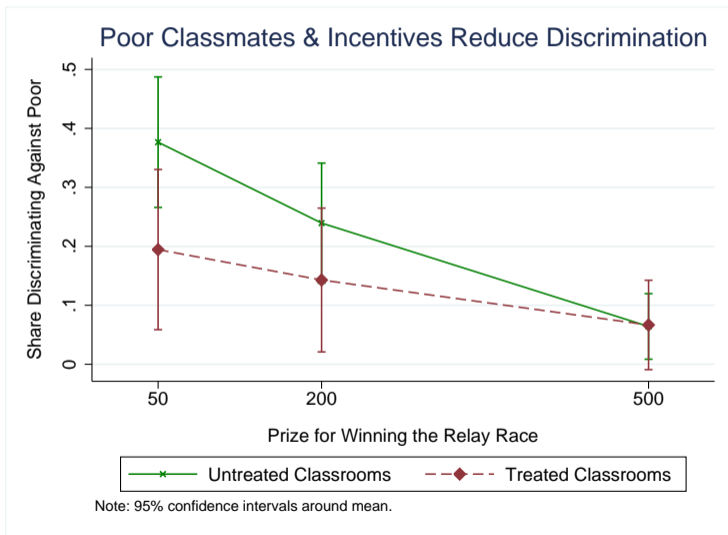- Relay races held and prizes distributed as promised

Stage 4: Social interaction

- Must spend 2 hours playing with teammates
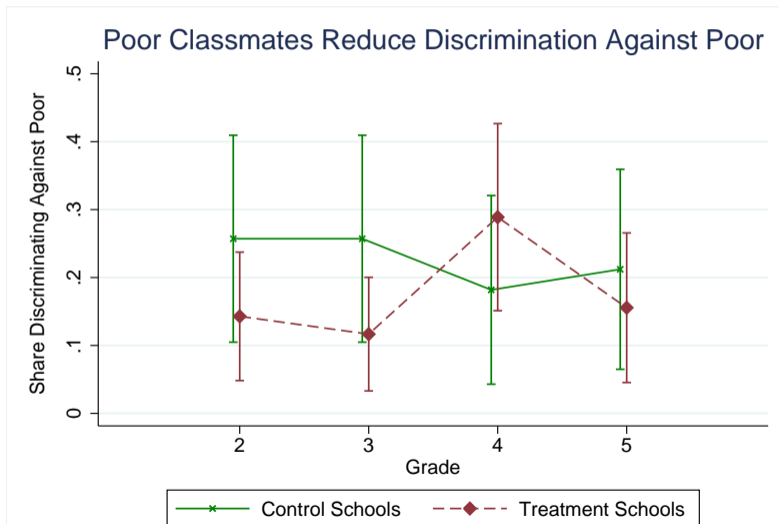 - board games, sports, playground
- Was pre-announced

A   for discrimination

Poor Classmates & Incentives Reduce Discrimination

Note: 95% confidence intervals around mean.

Courtesy of Gautam Rao. Used with permission.

Discrimination lower in treated classrooms

Poor Classmates Reduce Discrimination Against Poor

Note: 95% confidence intervals around mean. Courtesy of Gautam Rao. Used with permission.

Test scores and discipline

- Arguably "positive" effects on social preferences
  - Does this come at the cost of academic outcomes?

- No effect on aggregate test score index
  - Zero effect on Hindi and Math
  - Reduction in English scores of 0.09 s.d (p=0.09)
    - Largest gap between poor and rich in English

- Mild effects on discipline
  - Increase in swearing!
  - No effect on violent / disruptive behavior

Summary: having poor classmates makes wealthy students:

- More prosocial and generous
  - Volunteer more for charities
  - Give more in dictator games
  - Choose more equitable outcomes

- Discriminate less + more willing to socialize
  - Choose poor teammates more often in sports contest
  - More willing to attend play dates with poor children

- Some (small) negative effects on academic outcomes

Other work on the contact hypothesis

- Lowe (2019)
  - Allport (1954): Inter-personal contact reduces prejudice (under certain conditions)
  - Do cricket leagues in India increase cross-caste interaction and pro-sociality?
  - Does the type of contact matter? Collaborative vs. adversarial interactions
  - Impacts on trade/efficiency in economic exchange (gloves!)

- Corno et al. (2018)
  - Impact of random inter-racial interaction among college roommates on stereotypes, attitudes, and performance
  - Living with a roommate of a different race reduces white students' stereotypes towards black students and increases inter-racial friendships.
  - Improved grades and lower dropout rates among black students

Overview of field evidence on social preferences

(1) Social preferences at the workplace

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(3) Do people underestimate the benefits of pro-sociality?

- Undervaluing gratitude (Kumar and Epley, 2018)

Do we have correct beliefs about the impacts of generosity?

- Many pro-social acts require estimating the impacts on recipients
  - Helping people in need
  - Donating money
  - Gratitude letters
  - Random acts of kindness

- 'Egocentric bias' may lead us to systematically underestimate the positive impacts.
  - Predicting others' mental states is difficult.
 - Requires perspective-taking

Undervaluing gratitude?

- Experiments by Kumar and Epley (2018) test whether people misunderstand the consequences of showing appreciation.

  (1) Pick a pro-social act (e.g. writing a gratitude letter)
  (2) Estimate how giver and recipient will be affected
  (3) Perform pro-social act
  (4) Assess how giver and recipient were actually affected

Predicted vs. actual ratings in Kumar and Epley (2018)
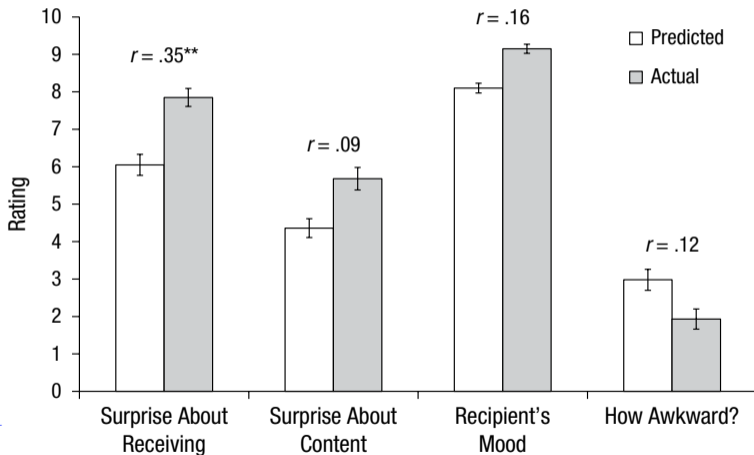
Kumar, Epley

Fig. 1. Results from Experiment 1: expressers' mean predictions of recipients' experiences receiving a letter of gratitude and recipients' actual ratings. The correlation between predicted and actual ratings is reported for each item. All items were answered on response

Summary from Kumar and Epley (2018)

- We systematically underestimate others' appreciation of expressions of gratitude.

- Similar results for social connection (Epley and Schroeder, 2014)
  - People underestimate (on average) how they themselves and others will feel when starting conversations.

- Do these effects persist for repeat interactions?

- Can we make others AND ourselves happier by being more prosocial?

Overall summary of social preferences

- Others' outcomes and utility matter for people's choices.
  - Upon closer look, not much evidence of 'pure' altruism.
  - Motivation: save face in front of others (social image) and themselves (self image).
  - Situational circumstances matter greatly. Societal norms are important.
  - Understanding norms and circumstances is key for fostering pro-sociality.

- Social preferences matter at workplace.
  - Relative pay can depress incentives to work (Bandiera et al., 2005).
  - Pay inequality can lower performance via reduced morale (Breza et al., 2018).

- Social preferences appear to be malleable.
  - Mixing of students can foster pro-sociality (Rao, 2019).
  - Type of contact matters (Lowe, 2019).

- Biased beliefs may lower pro-sociality (Kumar and Epley, 2018).

Next lectures

- Lecture 14: Limited attention

- Lectures 15 and 16: Beliefs and learning

- Lecture 17: Projection and attribution bias

References used in this lecture I

Andreoni, James and Doug Bernheim, "Social Image and the 50-50 Norm: A Theoretical and Experimental Analysis of Audience Effects," *Econometrica*, 2009, *77* (5), 3333–3356.

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