Econ 219B
Psychology and Economics: Applications
(Lecture 8)

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Outline

1. Methodology: Field Experiments II
2. Social Preferences: Charitable Giving
3. Social Preferences: Social Pressure
4. Social Preferences: Evolution

1 Methodology: Field Experiments II

- **Advice 6.** Other practical issues:
  - Keep in mind *implementation* of randomization
    - Example: Cross Designs hard to implement correctly
    - Example: **Green-Gerber (APSR, 2001)** on voter turnout:
      - cross-randomize phone calls, mailings, in-person visits
      - Hard to implement –> Lead to loss of randomization
    - OK if just computerized implementation (ex: loan offers)
  - Monitor what happens in the field *continuously*
  - Build in *data redundancy* to catch errors or implementation problems
    - 'Did you see a flyer on the door?' in DellaVigna-List-Malmendier (2009)

- **Advice 7.** Start looking soon for funding. Some options:
  - Russel Sage Small Grant Program: $7,500 (two to three months wait, once-in-career) (http://www.russellsage.org/research/behavioral-economics)
  - RSF-Sloan group on Behavioral Household finance: $10,000 awards for research (ie, Justin Gallagher)
  - NSF dissertation improvement grant website (http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13453)
  - IBER: $1,000 administered quickly (one week or so)
  - Look at CVs of assistant professors in your field or job market students (Jonas' advice)
  - Ask your advisor –> May know of some funding sources

2 Social Preferences: Charitable Giving

- **Andreoni (2004).** Excellent survey of the theory and evidence
- Stylized facts:
  - US Giving very large: 1.5 to 2.1 percent GDP!
  - Most giving by individuals (Table 1)

Table 1
Sources of Private Philanthropy, 2002

Source of gifts	Billions of dollars	Percent of total
Individuals	183.7	76.3
Foundations	26.9	11.2
Bequests	18.1	7.5
Corporations	12.2	5.1
Total for all Sources	240.9	100

Source: Giving USA, 2003

- – Giving fairly constant over time (Figure 1)

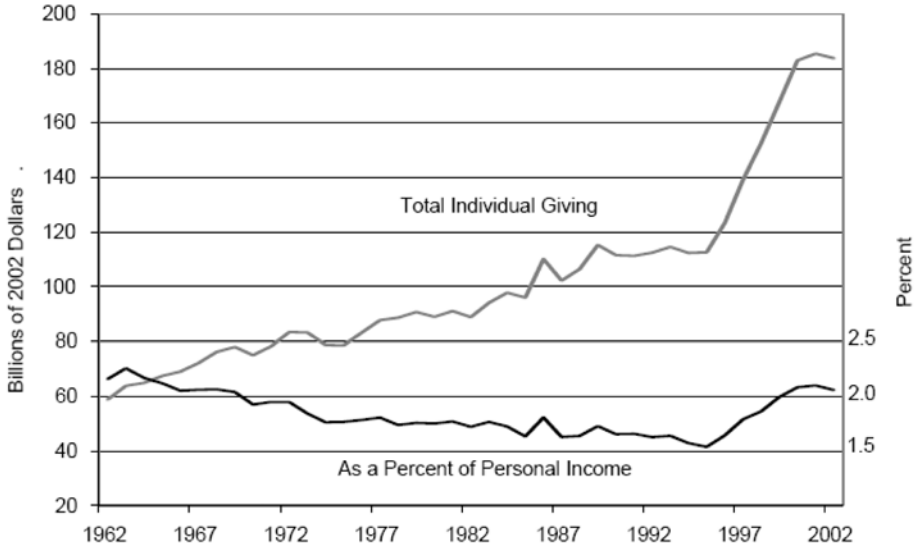


Figure 1: Trends in Individual Giving.
Source: Giving USA 2003.

- Giving by income, age, and education (Table 2 – no controls)
  - Giving as percent of income fairly stable
  - Increase for very rich (tax incentives matter here)

Table 2
Private philanthropy by income, age, and education of the giver, 1995

	Percent of households who give	Average amount given by those who give	Percent of household income
All contributing households	68.5	1,081	2.2
Household Income			
under $10,000	47.3	324	4.8
10,000–19,000	51.1	439	2.9
20,000–29,999	64.9	594	2.3
30,000–39,999	71.8	755	2.2
40,000–49,999	75.3	573	1.3
50,000–59,999	85.5	1,040	1.9
60,000–74,999	78.5	1,360	2.0
75,000-99,999	79.7	1,688	2.0
100,000 or above	88.6	3,558	3.0

- Giving to whom? (Table 3)
  - Mostly for religion
  - Also: human services, education, health
  - Very little international donations

Table 3
Private Philantropy by Type of Charitable Organization, 1995.

Type of Charity	Percent of Households who give	Average amount given by those who give	Percent of total household contributions
Arts, culture and humanities	9.4	221	2.6
Education	20.3	335	9.0
Environment	11.5	110	1.6
Health	27.3	218	8.1
Human Services	25.1	285	9.5
International	3.1	293	1.1
Private and community foundations	6.1	196	1.4
Public or Societal benefit	10.3	127	1.7
Recreation	7.0	161	1.4
Religious	48.0	946	59.4
Youth Development	20.9	140	3.8
Other	2.1	160	0.3

Source: Author's calculations, data from Independent Sector, Giving and Volunteering, 1995.

- What else do we know?

- Until 1990s, very limited research on charitable giving

- Then:

  1. Evidence by Jim Andreoni and others on fund-raising, and especially on crowding out prediction (see below)

  2. Field experiments by John List and others

- Focus on Field Experiments. First paper: **List and Lucking-Reiley (2002)** focuses on seed money
  - Capital campaign to raise money for computer center at Univ. Central Florida
  - 3,000 letters assign to 6 treatments
  - Randomization of seed money, i.e., how much money was already raised
  - Randomization of whether refund promised if threshold not matched

TABLE 1
RESULTS OF THE FIELD EXPERIMENT

	10	10R	33	33R	67	67R
	A. Experimental Design					
Number of solicitations mailed	500	500	500	500	500	500
Seed money (%)	10%	10%	33%	33%	67%	67%
Seed money ($)	$300	$300	$1,000	$1,000	$2,000	$2,000
Refund offered?	no	yes	no	yes	no	yes
	B. Results					
Number of contributions	17	20	33	31	42	40
Participation rate	3.4%	4.0%	6.6%	6.2%	8.4%	8.0%
Total contributions	$202	$379	$805	$863	$1,485	$1,775
Mean amount given	$11.88	$18.95	$24.39	$27.84	$35.36	$44.38
Standard error of mean amount	$2.27	$3.13	$2.50	$4.59	$2.26	$6.19

- Huge effect of the seed money, less so of refund
- Interpretation: Presumably signalling of quality

- **Falk (EMA, 2008)** — field experiment in fund-raising
  - 9,846 solicitation letters in Zurich (Switzerland) for Christmas
  - Target: Schools for street children in Dhaka (Bangladesh)
  - 1/3 no gift, 1/3 small gift 1/3 large gift
  - Gift consists in postcards drawn by kids

Appendix: An example of the included postcards

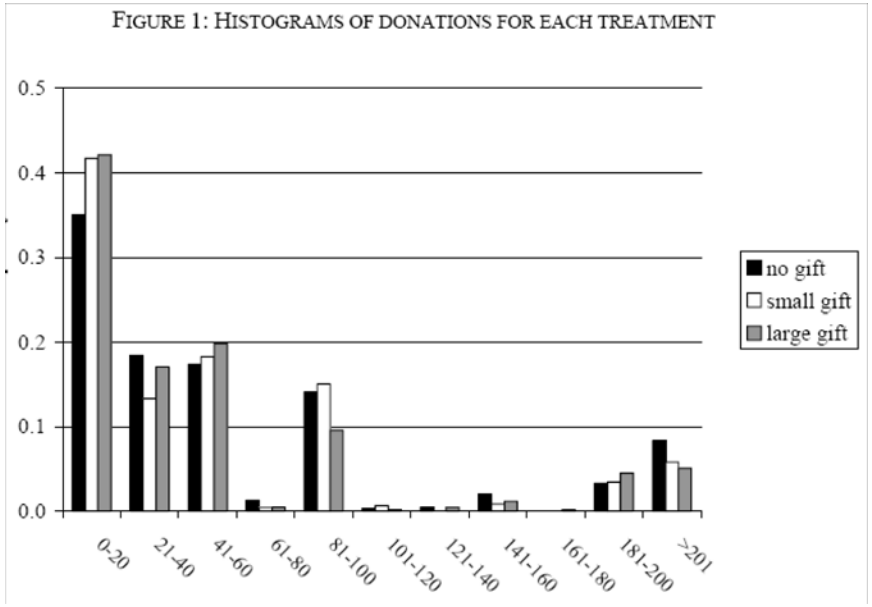
- Short-Run effect: Donations within 3 months

TABLE 1: DONATION PATTERNS IN ALL TREATMENT CONDITIONS

	No gift	Small gift	Large gift
Number of solicitation letters	3,262	3,237	3,347
Number of donations	397	465	691
Relative frequency of donations	0.12	0.14	0.21

- Large gift leads to doubling of donation probability
- Effect does not depend on previous donation pattern (donation in previous mailing)
- Note: High donation levels, not typical for US

- Small decrease in average donation, conditional on donation (Marginal donors adversely selected, as in 401(k) Active choice paper)



- Limited intertemporal substitution. February 2002 mailing with no gift. Percent donation is 9.6 (control), 8.9 (small gift), and 8.6 (large gift) (differences not significant)

- **Landry et al. (QJE, 2006)**
  - Door-to-door fund-raising as opposed to mailer
  - Test different form of solicitation
    - Seed Money or not
    - Lottery or not
  - Examines also features of solicitor
- Main finding: Female attractiveness matters, male attractiveness does not

TABLE IV

DICHOTOMOUS CONTRIBUTION DECISION AND SOLICITOR CHARA

	Model A	Model B	Model C	Model D	Model E
Overall constant—VCM is baseline	0.27**	0.28**	0.25**	0.27**	0.26**
	(0.03)	(0.08)	(0.07)	(0.08)	(0.07)
VCM with seed money	−0.11**	−0.08	−0.07	−0.06	−0.07
	(0.04)	(0.06)	(0.05)	(0.05)	(0.05)
Single-prize lottery	0.20**	0.19**	0.20**	0.21**	0.19**
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Multiple-prize lottery	0.15**	0.18**	0.20**	0.21**	0.20**
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Solicitor beauty rating		0.07**			
		(0.03)			
Beauty—male solicitor			−0.02	−0.03	−0.04
			(0.04)	(0.04)	(0.04)
Beauty—female solicitor			0.12**	0.13**	0.12**
			(0.04)	(0.04)	(0.04)

- What does this teach us about charitable giving in general? That more affects giving than just pure altruism

- Charitable giving important phenomenon – How do we understand it?
- **Model 1.** Social preferences: Giving because caring for welfare of others
- Problem (i): Amounts given off relative to lab experiments
- Problem (ii): Model predicts crowding out of giving:
  - If government spends on income of needy group, corresponding one-on-one decrease in giving
  - Evidence of crowding out: Limited crowd-out
- Problem (iii): Model predicts giving to one highest-value charity—Instead we observe dispersion across charities
- Problem (iv): In-person or phone requests for giving raise much more than impersonal requests (mail)

- **Model 2. Andreoni (1994)**: Warm-Glow or Impure altruism.
  - Agent gets utility $v(g)$ directly from giving
  - Utility $v(g)$ sharply concave

- Can explain (i), (ii), and (iii) – See Problem Set 3

- Does not directly explain (iv) – Can assume though that warm-glow is triggered more by in-person giving

- **Model 3.** Giving is due to social pressure
  - Pay a disutility cost S if do not give when asked
  - No disutility cost if can avoid to meet the solicitor

- Can explain (i), (ii), and (iii): Give small amounts to charities, mostly because asked

- Can also explain (iv): Give more in higher social pressure environments

- Key prediction differentiating Models 2 and 3:
  - Model 2: Agent seeks giving occasions to get warm glow
  - Model 3: Agents avoids giving occasions to avoid social pressure

- **DellaVigna, List, and Malmendier (QJE 2012)**

This Paper

- Model of giving with altruism and social pressure
  - Consumer may receive advance notice of fundraiser
  - Consumer can avoid (or seek) fundraiser at a cost
  - Consumer decides whether to give (if at home)
- Field experiment: door-to-door fundraiser
  - Control group: standard fundraiser
  - Flyer Treatment: flyer on doorknob on day before provides advance notice about hour of visit
  - Opt-Out Flyer Treatment: flyer with box “do not disturb”

Flyer Layout with and without Opt-Out

LA RABIDA
CHILDREN'S HOSPITAL

Fundraising Campaign for La Rabida Children's Hospital

Fundraisers will visit this address tomorrow (/) between and to raise funds for La Rabida Children's Hospital.

☐ Check this box if you **Do not want to be disturbed.**

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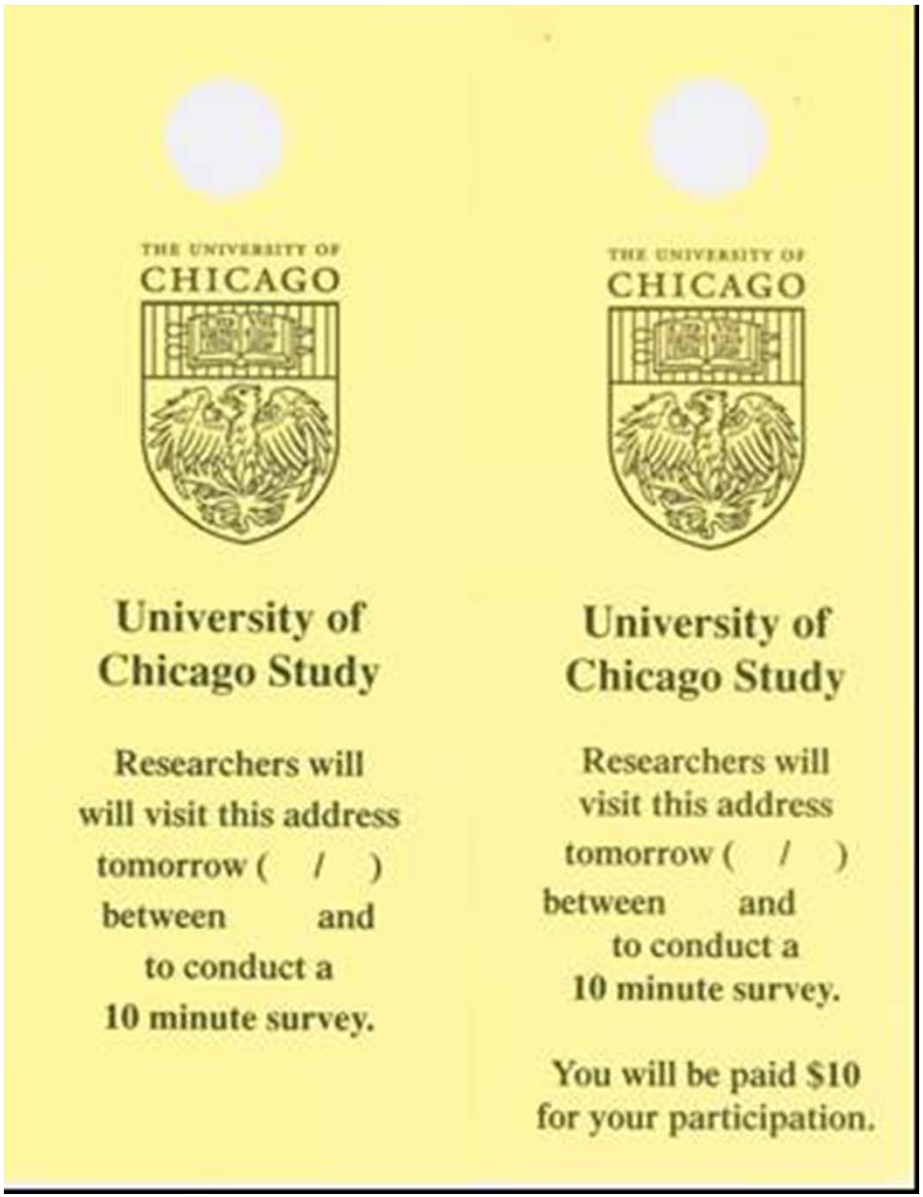
  - Flyer Treatment: flyer on doorknob on day before provides advance notice about hour of visit
  - Opt-Out Flyer Treatment: flyer with box "do not disturb"
  - Survey Treatments: Administer surveys with varying payment and duration and with or without flyers → to structurally estimate parameters.

Survey Flyers



THE UNIVERSITY OF
CHICAGO

University of Chicago Study

Researchers will will visit this address tomorrow (/) between and to conduct a 10 minute survey.

THE UNIVERSITY OF
CHICAGO

University of Chicago Study

Researchers will visit this address tomorrow (/) between and to conduct a 10 minute survey.

You will be paid $10 for your participation.

- **Model**

- Giving game with giver and fund-raiser. Timing:
  - *Stage 1*:
    - No Flyer: Giver at home with probability $h = h_0$
    - Flyer:
      - Giver sees flyer with probability r
      - Can alter probability of being at home h from baseline h_0 at cost $c(h)$, with $c(h_0) = 0$, $c'(h_0) = 0$, and $c''(\cdot) > 0$
  - *Stage 2*:
    - Fund-raiser visits home of giver:
      - If giver at home (w/ prob. h), in-person donation $g^* \geq 0$
      - If saw flyer (w/ prob. r), donation via mail $g_m^* \geq 0$

- Utility function of giver:

$$U(g) = u(W - g - g_m) + av(g + \theta g_m, G_{-i}) - s(g)$$

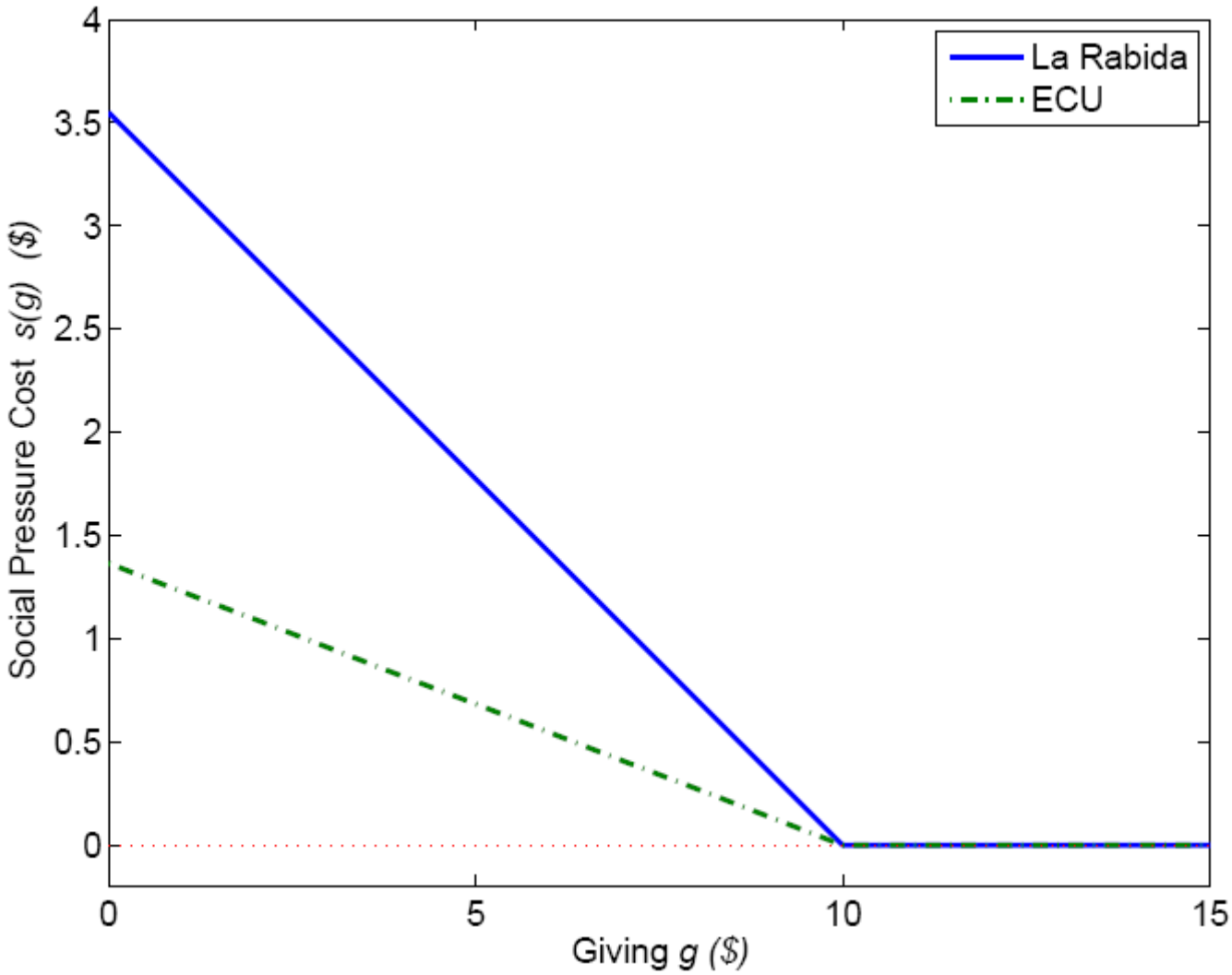
- Agent cares about:
  - Private consumption $u(W - g - g_m)$, with $u'(\cdot) > 0$ and $u''(\cdot) \leq 0$
  - Giving to charity $av(\cdot, G_{-i})$, with $v'_g(\cdot,\cdot) > 0$, $v''_{g,g}(\cdot,\cdot) < 0$, $\lim_{g\to\infty} v'_g(g,\cdot) = 0$, and $v(0, G_{-i}) = 0$.

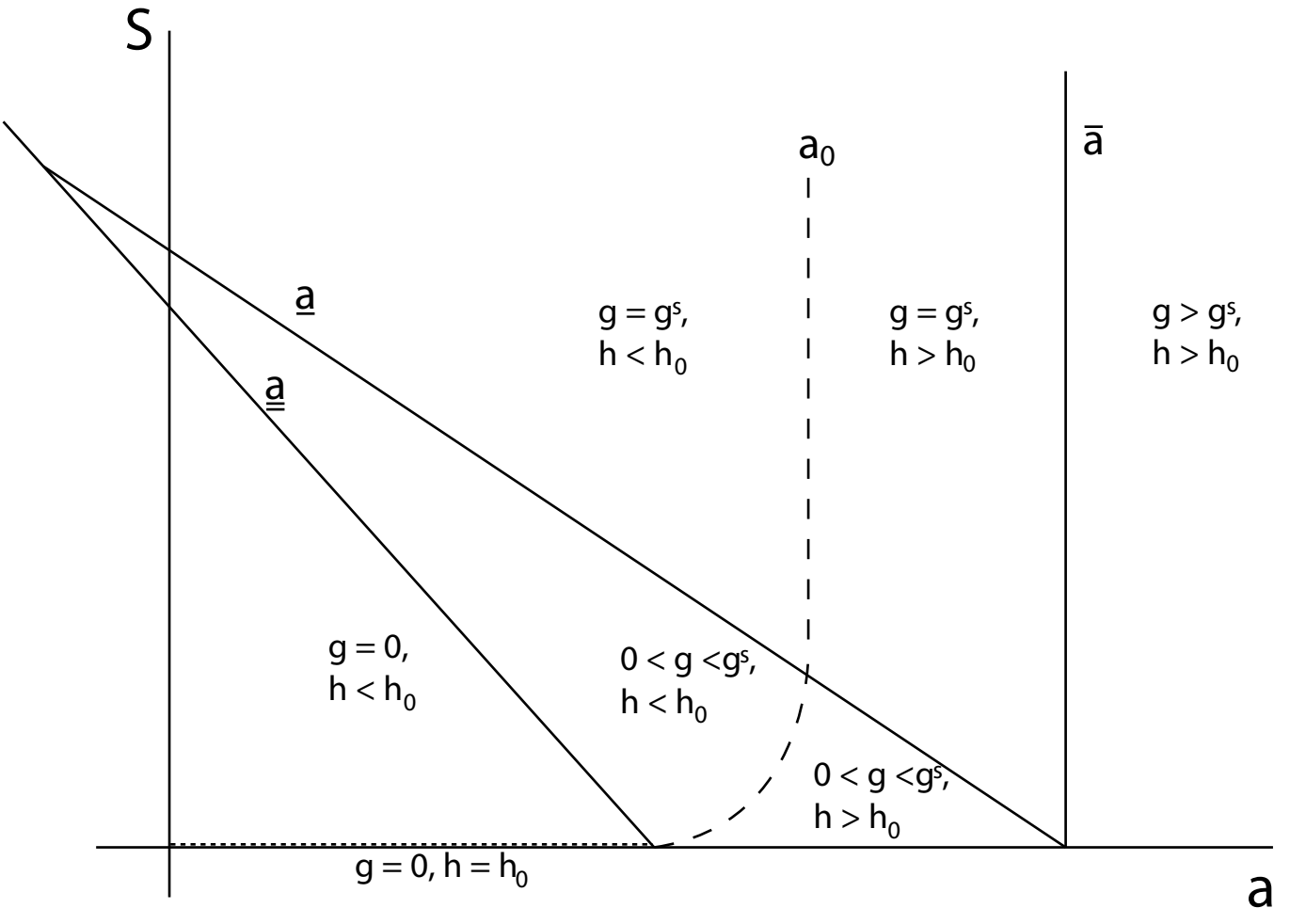
- Two special cases for $v(g, G_{-i})$:
  - *Pure altruism* (Charness and Rabin 2002, Fehr and Gächter, 2000): $v(g, G_{-i}) = v(g + \theta g_m + G_{-i})$, a is altruism parameter
  - *Warm glow* (Andreoni, 1989 and 1990): $v(g, G_{-i}) = v(g)$, a is weight on warm glow

- Giving via mail is less attractive ($\theta < 1$): less warm glow, cost of giving,...

- Social Pressure $s(g) = S(g^s - g) \cdot \mathbf{1}_{g<g^s} \geq 0$
  - Social pressure $s = 0$ if not at home or if giving $g \geq g^s$ (socially acceptable amount)
  - Social pressure $s > 0$ for giving $g < g^s$, decreasing in g
- Captures identity (Akerlof and Kranton, 2000), social norms, or self-signalling (Bodner and Prelec, 2002; Grossman, 2007)
- Psychology evidence:
  - Tendency to conformity and obedience (Milgram, 1952 and Asch, 1957)
  - Effect stronger for face-to-face interaction

Figure. Social Pressure Cost At Estimated Parameters




S
a
a_0
$\bar{a}$
$\underline{a}$
$\underline{\underline{a}}$
g = g^s, h < h_0
g = g^s, h > h_0
g > g^s, h > h_0
g = 0, h < h_0
0 < g < g^s, h < h_0
0 < g < g^s, h > h_0
g = 0, h = h_0

- **Opt-Out (O) Treatment**
  - Flyer + Consumers can tell the charity not to disturb
  - Cost of probability of home:

$$C(h) = \begin{cases} 0 & \text{if } h = 0 \\ c(h) & \text{if } h > 0 \end{cases}$$

  - Still costly to remain at home, but no cost to keep charity out
  - (Notice: Never want to set $0 < h < h_0$)

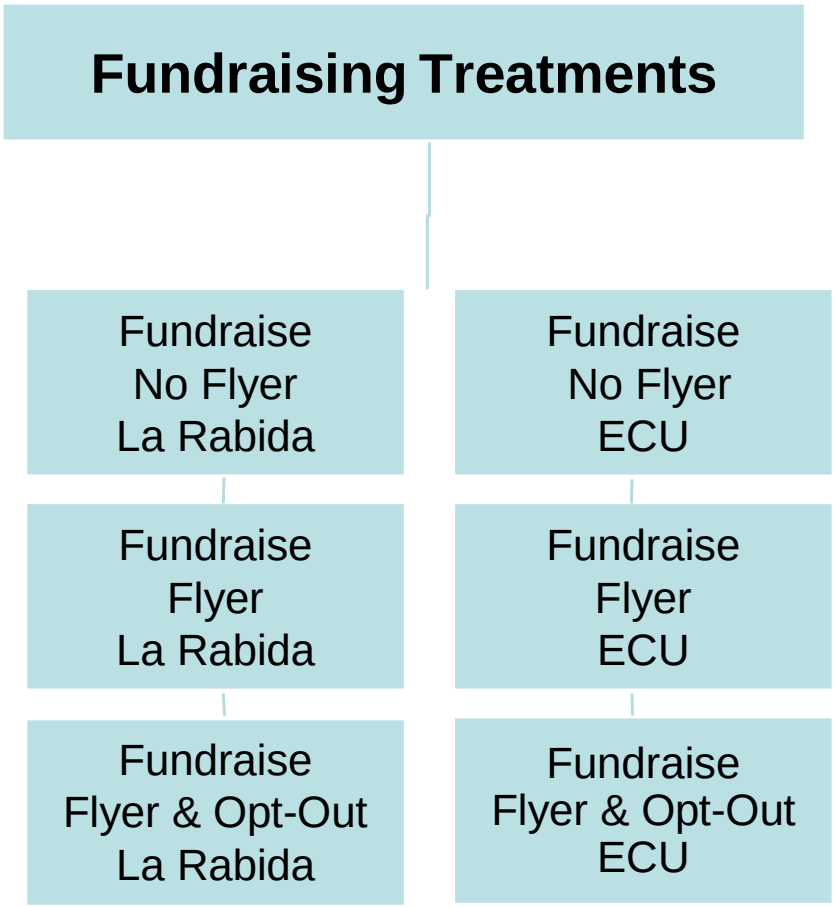
- **Lemma 3 (Opt-Out Decision).** *For $S = 0$ (no social pressure), the agent never opts out for any a. For $S > 0$ (social pressure), the agent opts out for sufficiently low altruism, $a < a_0(S)$.*

- Allow for heterogeneity in altruism a, with $a \sim F$

- Two special cases:
  - *Altruism and No Social Pressure* (*A-NoS*, $S = 0$ and $F\left(\underline{\underline{a}}\right) < 1$)
  - *Social Pressure and Limited Altruism* (*S-NoA*, $S > 0$ and $F\left(\underline{\underline{a}}\right) = 1$)

- **Proposition 1.** *The probability* $P(H)$ *of home presence is*
  - *A-NoS:* $P(H)_F = P(H)_{OO} > P(H)_{NF}$
  - *S-NoA:* $P(H)_{NF} > P(H)_F > P(H)_{OO}$

- **Proposition 2.** *The unconditional probability* $P(G)$ *of giving is*
  - *A-NoS:* $P(G)_F = P(G)_{OO} > P(G)_{NF}$
  - *S-NoA:* $P(G)_{NF} > P(G)_F > P(G)_{OO}$


Fundraising Treatments
Fundraise
No Flyer
La Rabida
Fundraise
No Flyer
ECU
Fundraise
Flyer
La Rabida
Fundraise
Flyer
ECU
Fundraise
Flyer & Opt-Out
La Rabida
Fundraise
Flyer & Opt-Out
ECU

Experimental Design

- Recruitment and Training: 48 solicitors and surveyors
  - undergraduate students at the University of Chicago, UIC, and Chicago State University
  - Interviewed, trained at UoC
  - aware of different charities but not of treatment
- Time and Place:
  - Saturdays and Sundays between April, 2008 and October, 2008
  - Hours between 10am and 5pm
  - Towns around Chicago: Burr Ridge, Flossmoor, Kenilworth, Lemont, Libertyville, Oak Brook, Orland Park, Rolling Meadows, and Roselle
- Randomization
  - within a solicitor-day observations (4h/6h shifts per day) and
  - at the street level within a town
- Different treatments in different periods ➔ randomization is conditional on solicitor and day fixed effects

Estimation Strategy

- Estimate treatment effects conditioning on solicitor, town, and day fixed effects

$$y_{i,j,t,h} = \alpha + \Gamma T_{i,j,t,h} + \eta_i + \varphi_j + \lambda_t + BX_{i,j,t,h} + \varepsilon_{i,j,t,h}$$

- Obtain estimate for baseline treatment from same regression without any controls.
- Estimate impact for
  - Probability of answering door
  - Probability of giving
  - (Implied Conditional probability of giving)
  - Probability of large versus small giving

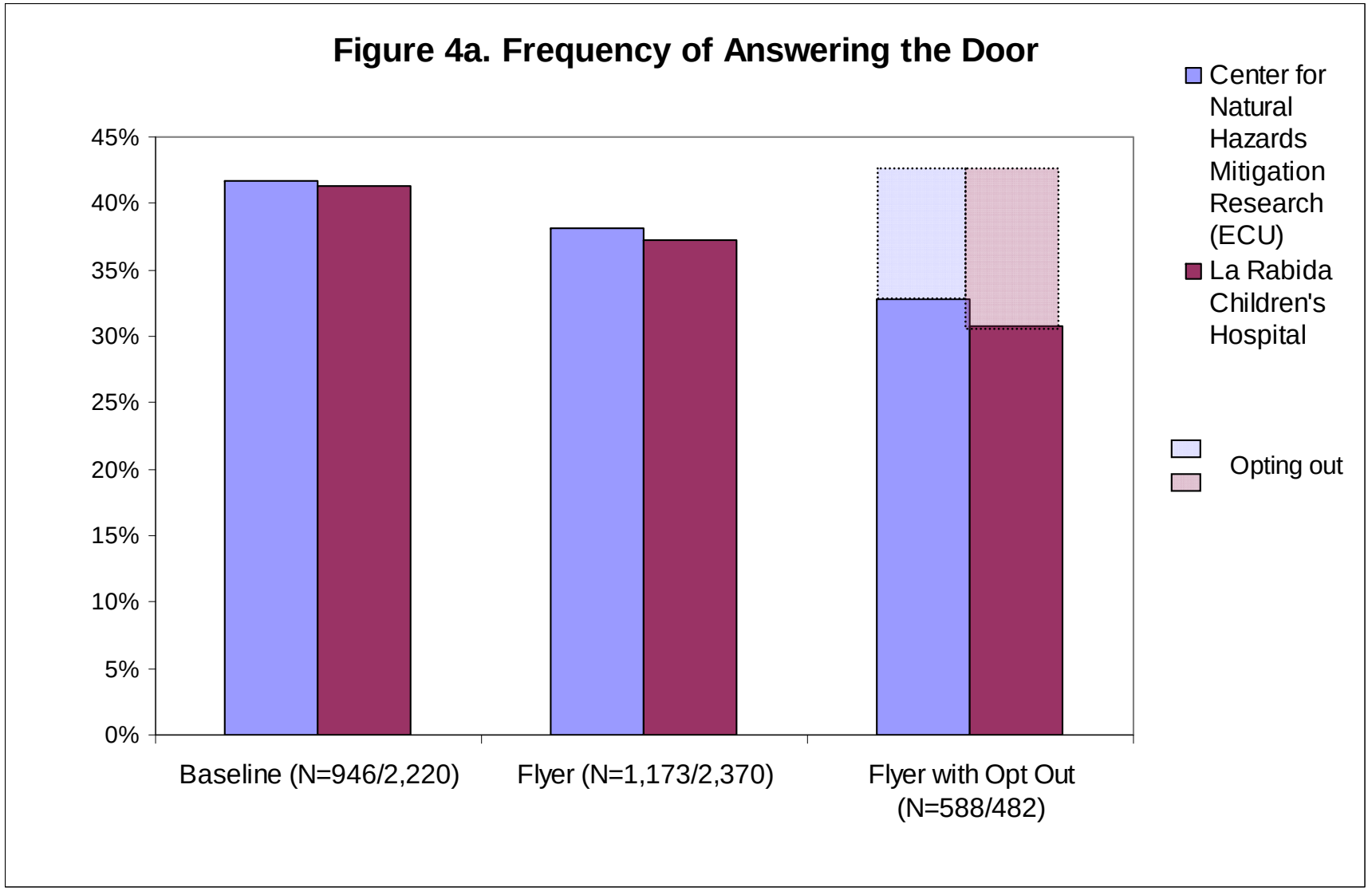


Figure 4a. Frequency of Answering the Door
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Baseline (N=946/2,220)
Flyer (N=1,173/2,370)
Flyer with Opt Out (N=588/482)
Center for Natural Hazards Mitigation Research (ECU)
La Rabida Children's Hospital
Opting out

Figure 4b. Frequency of (Unconditional) Giving

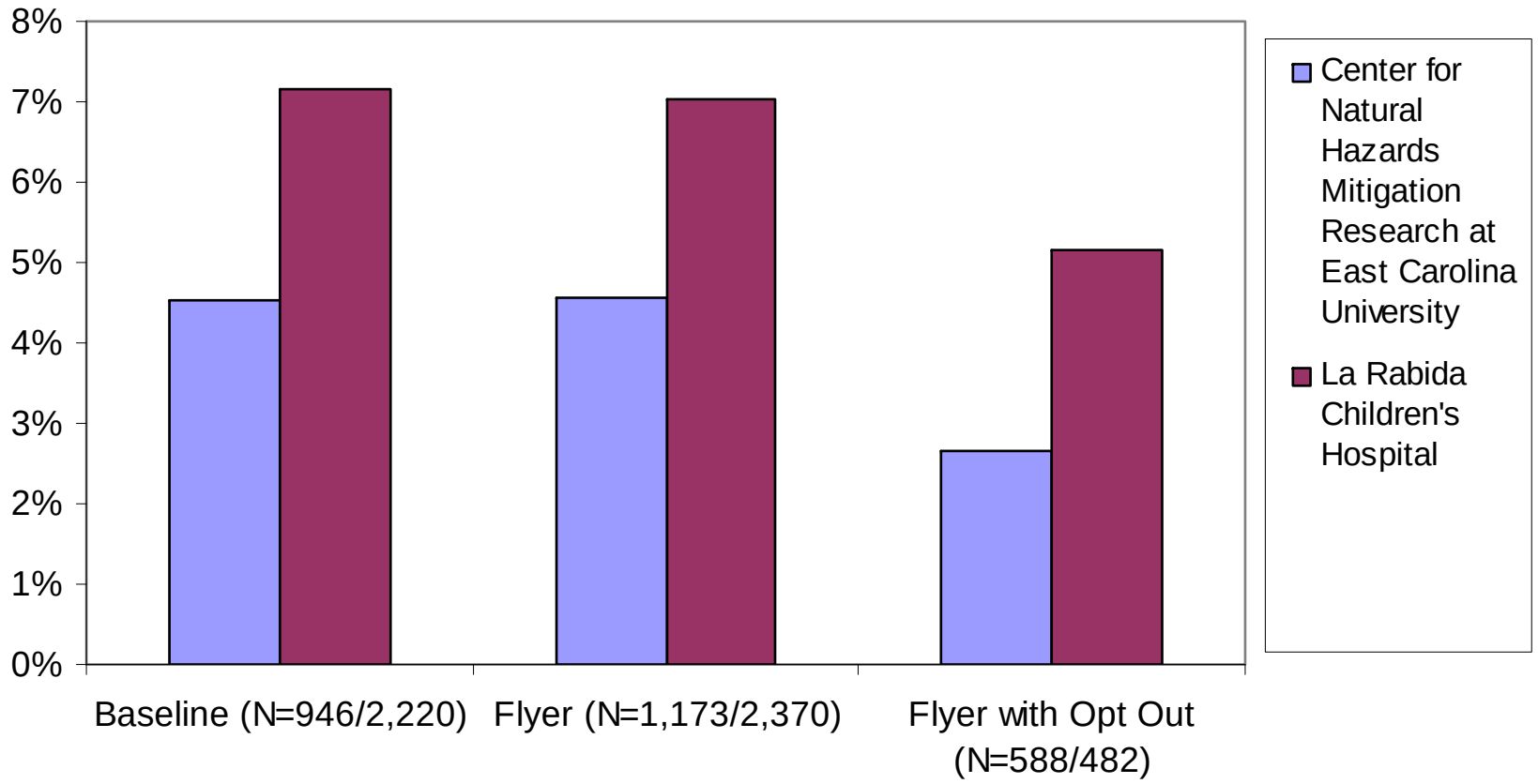


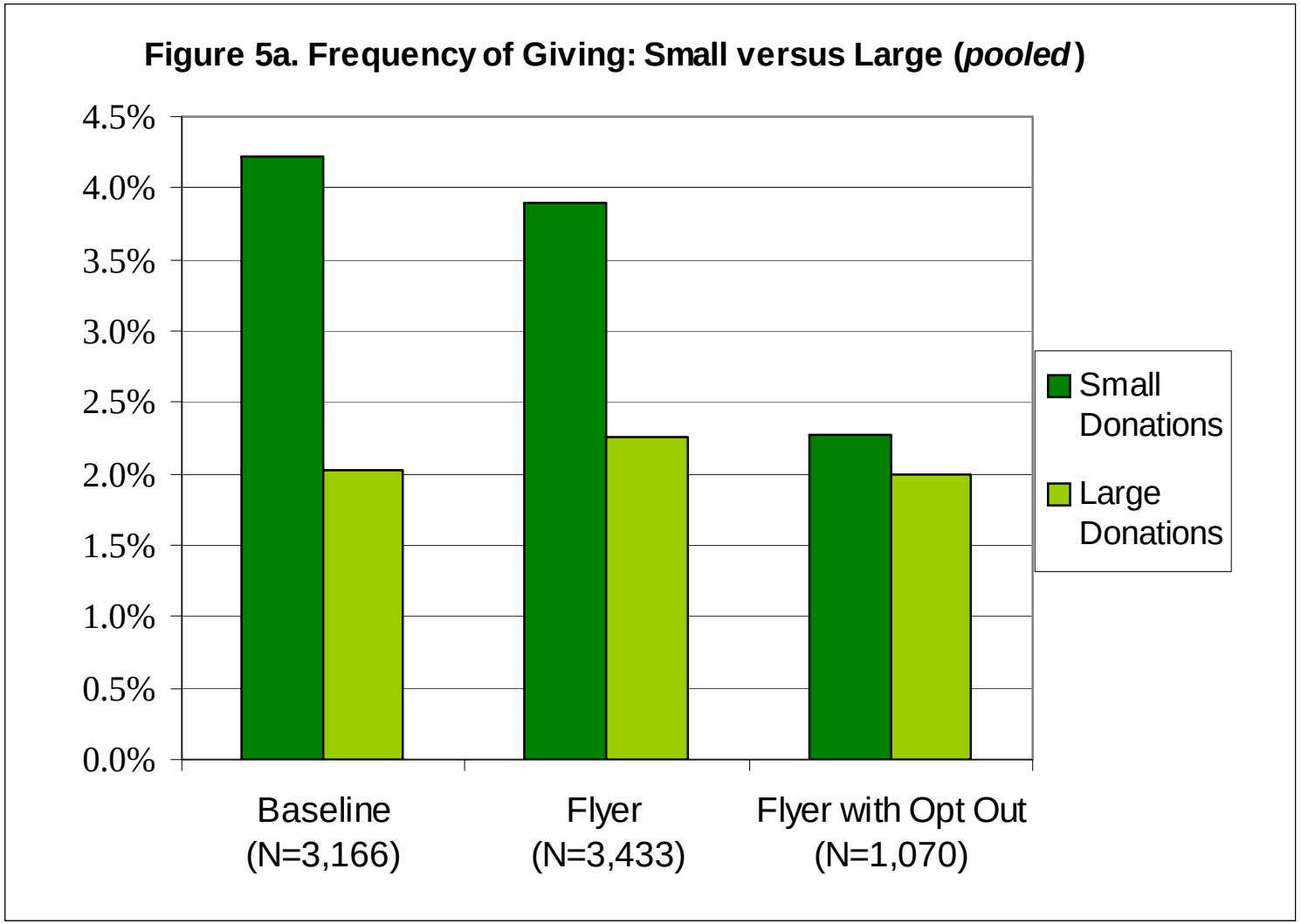
Table 2. Results for Fund-Raising Treatments

Specification:	OLS Regressions			
Dep. Var.:	Indicator for Answering the Door		Indicator for Giving	
	(1)	(2)	(3)	(4)
Flyer Treatment	-0.0388 (0.0137)***		-0.0009 (0.0062)	
Flyer with opt out Treatment	-0.0966 (0.0193)***		-0.0197 (0.0083)**	
Flyer Treatment * ECU Charity		-0.0365 (0.0313)		0.0006 (0.0094)
Flyer with opt out * ECU Charity		-0.089 (0.0271)***		-0.0183 (0.0100)*
Flyer Treatment * La Rabida Charity		-0.0396 (0.0144)***		-0.0019 (0.0078)
Flyer with opt out * La Rabida Charity		-0.106 (0.0319)***		-0.0202 (0.0132)
Indicator ECU Charity		0.0041 (0.0234)		-0.0263 (0.0085)***
Omitted Treatment	No-Flyer	No-Flyer, La Rabida	No-Flyer	No-Flyer, La Rabida
Mean of Dep. Var. for Omitted Treatment	0.4151	0.413	0.0629	0.0717
Fixed Effects for Solicitor, Date-Location, Hour, and Area Rating	X	X	X	X
N	N = 7668	N = 7668	N = 7668	N = 7668

- **Evidence by Donation Size:**

  Social pressure more likely to yield small donations

  Use median donation size ($10) as cut-off point



- **Giving via mail and Internet:**

  Altruism → Giving via mail in response to flyer

  Warm Glow → Also if warm glow in impersonal giving

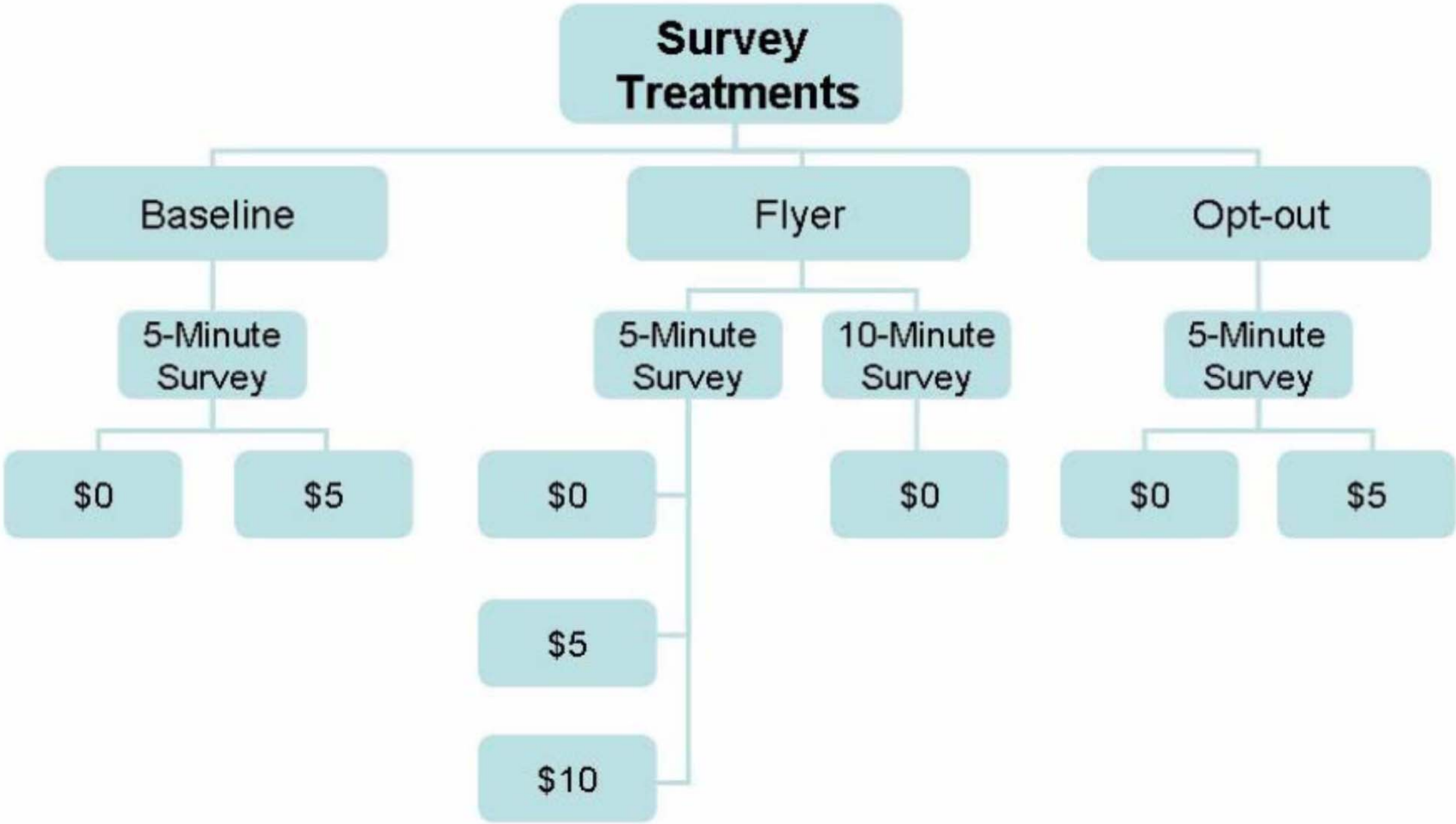
  Social pressure → No giving via mail

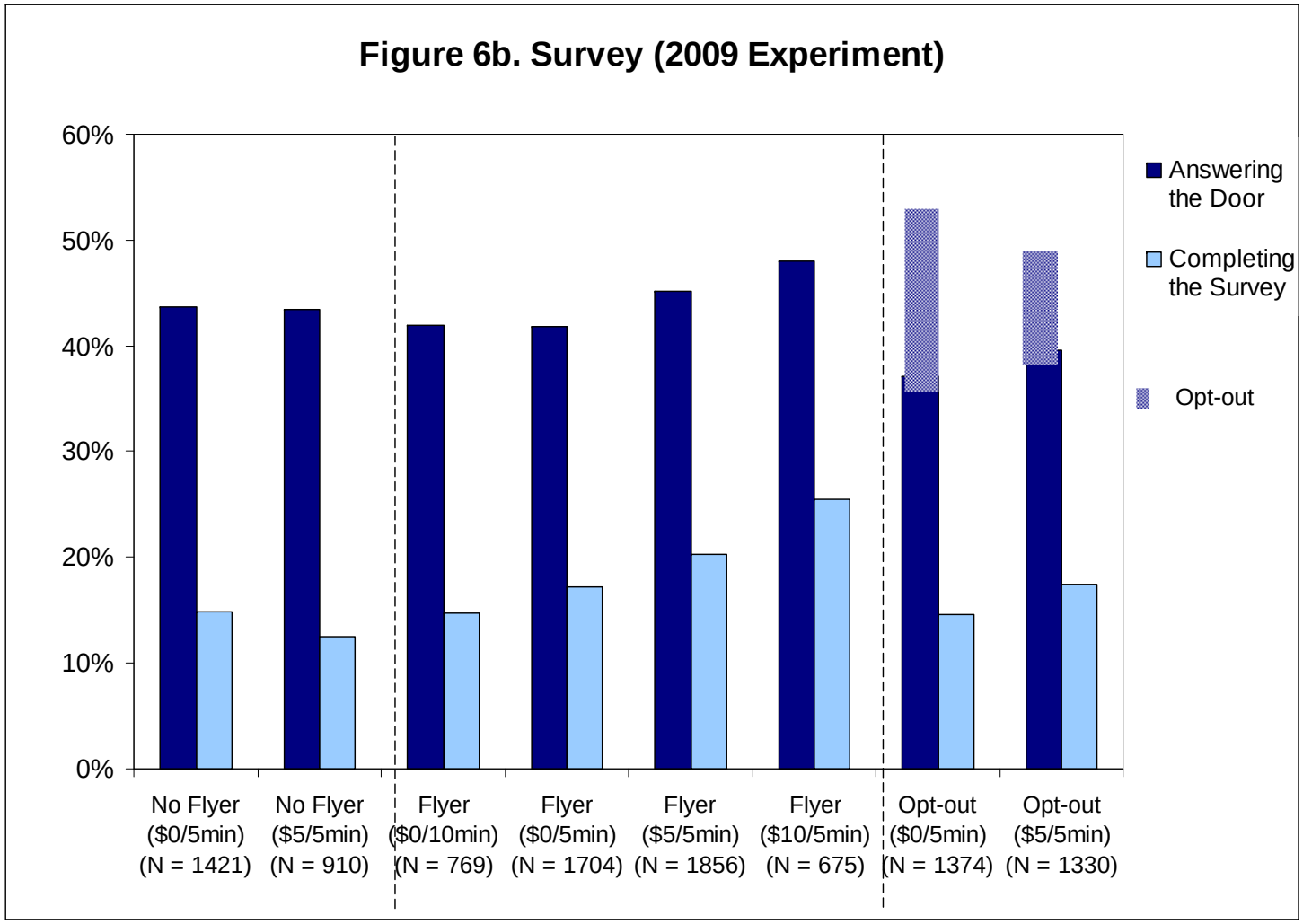
Number of Households Giving (Mail/Internet)	
ECU	La Rabida
(7)	(8)
Zero donations across all treatments	One ($25) donation across all treatments
N = 2707	N = 4962

Survey Treatments

- Results of fundraiser do not easily allow the estimation of altruism and social pressure parameters
  - Unobserved cost of adjustment *c(h)*
- Solution: estimate elasticity with respect to monetary incentives
- Survey treatments with varying compensation and duration
- Treatments run in 2008 and 2009

Figure 2b. Summary of Door-to-Door Experimental Treatments Run in 2009





- **Survey Results (2009, N = 10,032)**

Higher payment (lower duration)
 increases proportion at home monotonically
 increases survey completion monotonically (except in NF)

- **Structural estimates (Minimum-distance estimator)**

- Minimize distance between predicted moments $m(\vartheta)$ and observed ones $\hat{m}$:

$$\min_{\vartheta} (m(\vartheta) - \hat{m})' W (m(\vartheta) - \hat{m})$$

- Moments $m(\vartheta)$:
  1. Probability of opening the door $(P(H)_j^c,\ j = F, NF, OO,\ c = LaR, Ecu)$
  2. Probability of checking opt-out box $(P(OO)_{OO}^c,\ c = LaR, Ecu)$
  3. Probability of giving at all, and giving an amount range $(P(G)_j^c,\ j = F, NF, OO,\ c = LaR, Ecu)$
  4. Probability of opening door in survey $(P(H)_j^S)$
  5. Probability of filling survey $(P(S)_j^S)$

- Weighting matrix W diagonal of inverse of variance-covariance matrix

- Parametric assumption to estimate the model:
  1. Consumption utility linear: $u(W-g) = W-g$
  2. Altruism function $av(g, G_{-i}) = a \log(G+g)$
  3. Altruism a is distributed $N(\mu, \sigma)$
  4. Acceptable donation $g^S = \$10$ (median)
  5. Cost function $c(h) = (h-h_0)^2/2\eta$
  6. No mail giving ($\theta = 0$)

- Marginal utility of giving: $a/(G+g) - 1$

- Parameters ϑ:
  1. h_0^{2008} and h_0^{2009}—probability of being at home in no-flyer conditions
  2. r—probability of observing and remembering the flyer
  3. η—responsiveness of the probability of being at home to the utility of being at home
  4. μ_a^c $(c = LaR, Ecu)$—mean of the distribution F of the altruism α
  5. σ_α^c $(c = LaR, Ecu)$—standard deviation of $F(\alpha)$
  6. G—curvature of altruism/warm glow function
  7. S^c $(c = LaR, Ecu)$—social pressure associated with not giving
  8. μ^S—mean of the distribution F^S from which the utility of the survey is drawn
  9. σ^S—standard deviation of F^S
  10. S^S—social pressure associated with saying no
  11. v^S—value of an hour of time completing a survey

- Identification:
  - Prob. being at home h_0 <– Control group
  - Prob. seeing flyer r <– Share opting out
  - Utility of doing survey μ^S and σ^S <– Share completing survey
  - Value of time v^S <– Comparison of effect of \$10 payment and 5 minute duration
  - Elasticity of home presence η <– Share opening door in survey for different payments + Giving in charity
  - Altruism parameters μ^c, σ^c, G <– Given η, share giving different amounts
  - Social pressure parameters S^i and S^S <– Share opening door and giving

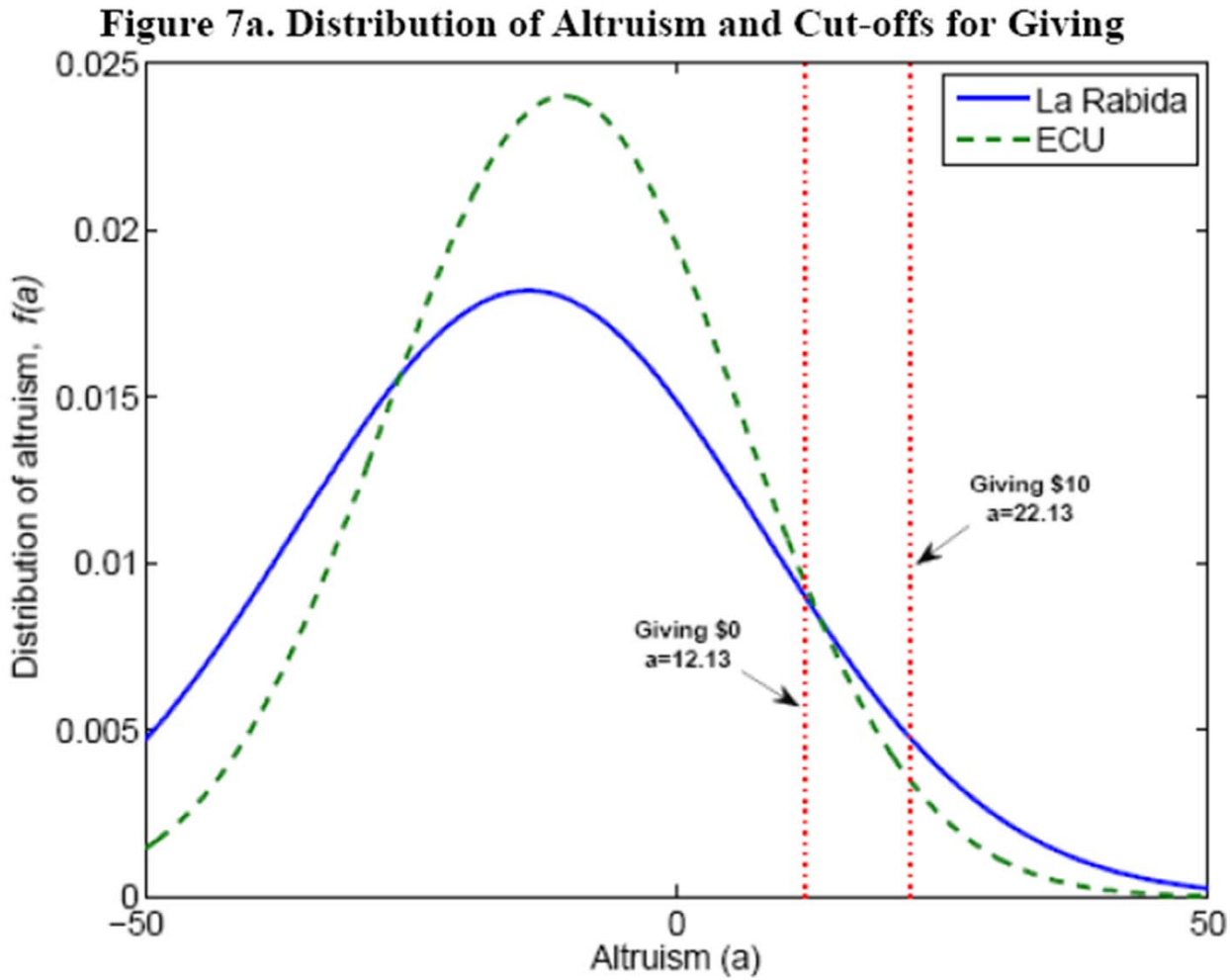
Appendix Table 1. Empirical Moments and Estimated Moments

Specification:	Minimum-Distance Estimates			
Charity	La Rabida Charity		ECU Charity	
Moments for Charity	Empirical Moments	Estimated Moments	Empirical Moments	Estimated Moments
Moments	(1)	(2)	(3)	(4)
P(Home) No Flyer	0.4130	0.4142	0.4171	0.4142
P(Home) Flyer	0.3733	0.3735	0.3806	0.3983
P(Home) Opt-Out	0.3070	0.2989	0.3281	0.2911
P(Opt Out) Opt-Out	0.1202	0.1142	0.0988	0.1179
P(Giving) No Flyer	0.0717	0.0666	0.0455	0.0422
P(Giving) Flyer	0.0699	0.0710	0.0461	0.0449
P(Giving) Opt-Out	0.0515	0.0633	0.0272	0.0390
Additional Moments (not shown)				
P(0<Giving<10), P(Giving=10), P(10<Giving<=20), P(20<Giving<=50), P(Giving>50) in Treatments NF, F, OO	X	X	X	X
N	N = 4962	N = 4962	N = 2707	N = 2707

Table 4. Minimum-Distance Estimates: Benchmark Results

	Benchmark Estimates		Estimates with Identity Weighting Matrix	
Common Parameters	(1)		(2)	
Prob. Answering Door (h) - Year 2008	0.414		0.414	
	(0.004)		(0.006)	
Prob. Answering Door (h) - Year 2009	0.449		0.445	
	(0.007)		(0.008)	
Prob. Observing Flyer (r)	0.322		0.302	
	(0.011)		(0.012)	
Elasticity of Home Presence (eta)	0.047		0.060	
	(0.014)		(0.031)	
Implied Cost of Altering Prob. Home by 10 pp.	0.106		0.083	
Survey Parameters				
Mean Utility (in $) of Doing 10-Minute Survey	-26.865		-26.936	
	(4.233)		(5.509)	
Std. Dev. of Utility of Doing Survey	30.285		30.332	
	(5.208)		(6.303)	
Value of Time of One-Hour Survey	74.580		76.761	
	(22.901)		(26.130)	
Social Pressure Cost of Saying No to Survey	4.784		3.869	
	(1.285)		(1.918)	
Charity Parameters	La Rabida	ECU	La Rabida	ECU
Mean Weight on Altruism Function (mu)	-13.910	-10.637	-13.586	-15.109
	(3.250)	(4.273)	(9.481)	(10.919)
Std. Dev. of Weight on Altruism Function	21.935	16.620	19.832	19.832
	(1.335)	(1.832)	(3.885)	(3.998)
Curvature of Altruism Function (G)	12.133		12.224	
	(5.147)		(15.518)	
Social Pressure Cost of Giving 0 in Person	3.550	1.364	3.140	1.906
	(0.615)	(0.744)	(1.674)	(1.475)

Implied distribution of altruism

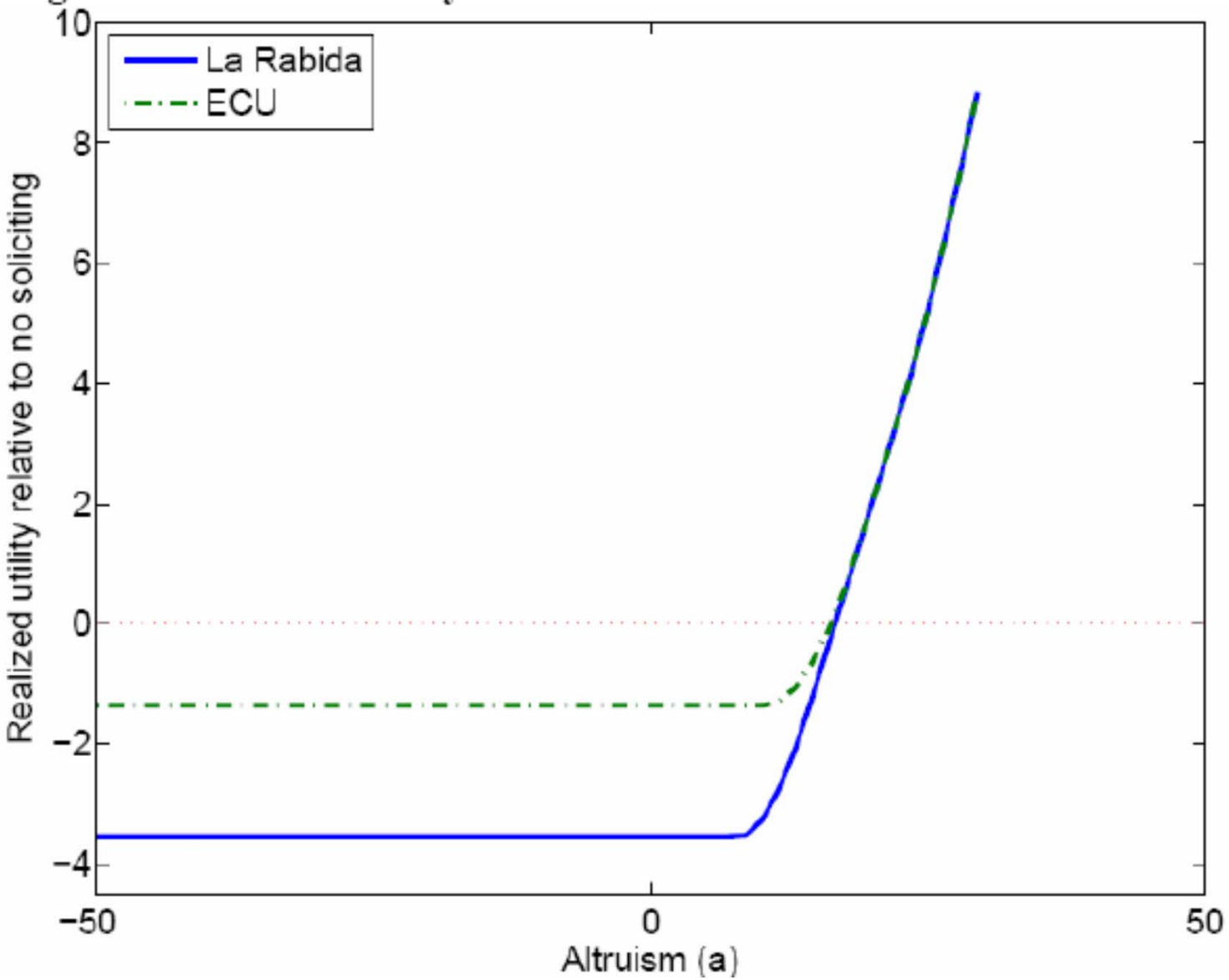


Marginal utility of giving (for $S = 0$) is $a/(G+g)-1$

Hence, give $g > 0$ if $a > G=12.13$

Welfare: Does a fund-raiser increase utility for the giver?

Figure 7b. Overall Utility of Fund-Raiser as function of Altruism



Welfare

1. Low-altruism households pay social pressure cost
2. High-altruism households get benefit
3. Since the former dominate, on net negative welfare for solicitee

Panel C. Welfare	**La Rabida Charity**	**ECU Charity**
Welfare in Standard (No-Flyer) Fund-Raiser		
Welfare per Household Contacted (in $)	-1.077 (0.160)	-0.439 (0.286)
Money Raised per Household Contacted	0.722 (0.036)	0.332 (0.046)
Money Raised per Household, Net of Salary	0.247 (0.036)	-0.143 (0.046)

- Societal welfare effect can still be positive if money used very well
  But amount of money raised small (negative for ECU)

Flyer and opt-out treatment increase solicitee welfare

- Can also raise charity welfare (i.e., net fund-raising)

Panel C. Welfare	**La Rabida Charity**	**ECU Charity**
Welfare in Standard (No-Flyer) Fund-Raiser		
Welfare per Household Contacted (in $)	-1.077 (0.160)	-0.439 (0.286)
Money Raised per Household Contacted	0.722 (0.036)	0.332 (0.046)
Money Raised per Household, Net of Salary	0.247 (0.036)	-0.143 (0.046)
Welfare in Fund-Raiser with Flier		
Welfare per Household Contacted (in $)	-0.924 (0.145)	-0.404 (0.273)
Money Raised per Household Contacted	0.859 (0.044)	0.333 (0.046)
Money Raised per Household, Net of Salary	0.248 (0.044)	-0.278 (0.046)
Welfare in Fund-Raiser with Opt-out		
Welfare per Household Contacted (in $)	-0.586 (0.085)	-0.248 (0.196)
Money Raised per Household Contacted	0.810 (0.045)	0.369 (0.055)
Money Raised per Household, Net of Salary	0.294 (0.036)	-0.147 (0.046)

3 Social Pressure

- Social preferences so far are largely about internalizing utility of others
- **Social pressure**: Pay a disutility cost S if do not behave as per some expectation:
  - May reflect power of norms
  - May reflect signalling game as in Andreoni and Bernheim (2011)
- *Milgram experiment*: post-WWII
- Motivation: Do Germans yield to pressure more than others?
  - Subjects: Adult males in US

- Recruitment: experiment on punishment and memory
- Roles:
  * teacher (subjects)
  * learner (accomplice)
- Teacher asks questions
- Teacher administers shock for each wrong answer
- Initial shock: 15V
- Increase amount up to 450V (not deadly, but very painful)
- Learner visible through glass (or audible)
- Learner visibly suffers and complains

- Results:
  - 62% subjects reach 450V
  - Subjects regret what they did ex post
  - When people asked to predict behavior, almost no one predicts escalation to 450V
- It's not the Germans (or Italians)! Most people yield to social pressure
- Furthermore, naivete' — Do not anticipate giving in to social pressure
- Social Pressure likely to be important in organization and public events

- Second classical psychology experiment: **Asch (1951)**
  - Subjects are shown two large white cards with lines drawn on them
    - First card has three lines of substantially differing length on them
    - Second card has only one line.
  - Subjects are asked which of the lines in the first card is closest in length to the line in the second card

- Control treatment: subjects perform the task in isolation –> 98 percent accuracy

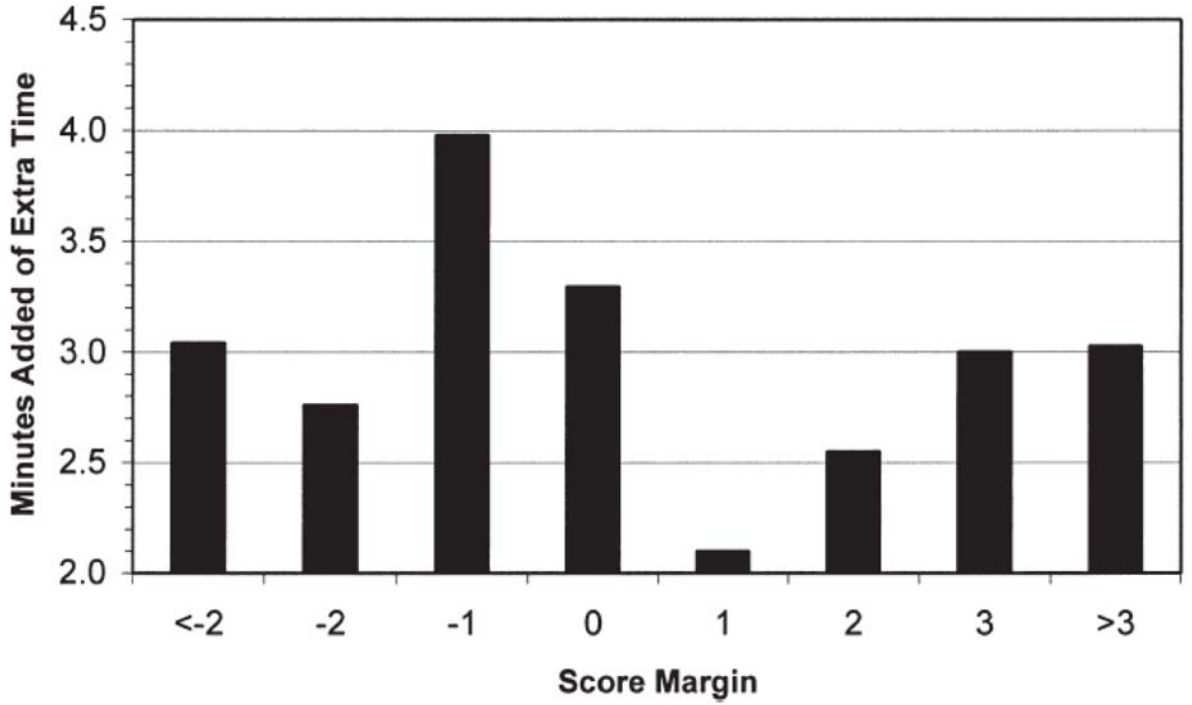
- High social-pressure treatment: subjects choose after 4 to 8 subjects (confederates) unanimously choose the wrong answer –> Over a third of subjects give wrong answer

- Social Pressure Interpretation:
  - Avoid disagreeing with unanimous judgment of the other participants
  - Result disappears if confederates are not unanimous
- Alternative interpretation: Social learning about the rules of the experiment
- Limitation: subjects not paid for accuracy

- An example of social pressure in a public event
- **Garicano, Palacios-Huerta, and Prendergast (REStat, 2006)**
  - Soccer games in Spanish league
  - Injury time at end of each game (0 to 5 min.)
  - Make up for interruptions of game
  - Injury time: last chance to change results for teams
- Social Pressure Hypothesis: Do referees provide more injury time when it benefits more the home team?
  - Yielding to social pressure of public
  - No social learning plausible
  - Note: referees professionals, are paid to be independent

- Results: Figure 1 – Clear pattern, very large effects

FIGURE 1.—INJURY TIME AWARDED BY SCORE MARGIN



Number of minutes awarded by referees as a function of the margin in favor of the home team at the end of the match. Score margin = (goals scored by home team) − (goals scored by visiting team). Note: 3.3% of the matches ended with score differences smaller than −2; 5.2%, with score differences greater than 3.

- Table 5. Response to incentives –> After 1994, 3 points for winning (1 for drawing, 0 for losing).

TABLE 5.—MARGINAL EFFECT OF INCENTIVES ON INJURY TIME

Statistic	[1]	[2]
Constant	3.50**	3.11**
	(0.14)	(0.32)
Score Difference	**−1.53****	**−1.56****
	(0.18)	**(0.18)**
Year Effect	0.81**	0.7**
	(0.18)	(0.21)
Year × Score Difference	**−0.58***	**−0.52***
	(0.23)	**(0.23)**
Yellow Cards		0.07**
		(0.02)

- Table 6. Response to social pressure: size of audience

TABLE 6.—EFFECT OF THE SIZE AND COMPOSITION OF THE CROWD ON REFEREE BI

Statistic	[1]	[2]
Constant	3.23**	2.94**
	(0.18)	(0.20)
Score Difference	**−0.93****	**−0.96****
	(0.20)	**(0.21)**
Year Effect	0.36**	0.33**
	(0.11)	(0.11)
Attendance	0.00	0.00
	(0.00)	(0.00)
Attendance × Score Difference	**−0.02****	**−0.02****
	(0.00)	**(0.00)**
Yellow Cards		0.07**
		(0.02)
Budget Home		

- P*eer effect* literature also points to social pressure

- **Falk-Ichino (JOLE, 2006):** effect of peer pressure on task performance
  - Recruit High-school students in Switzerland to perform one-time job for flat payment
  - Stuff letters into envelopes for 4 hours
  - Control group of 8 students did the task individually
  - Treatment group of 16 students worked in pairs (but each student was instructed to stuff the envelopes individually)

- Results:
  - Students in treatment group stuffed more envelopes (221 vs. 190)
  - Students in treatment group coordinated the effort within group: within-pair standard-deviation of output is significantly less than the (simulated) between-pairs standard deviation

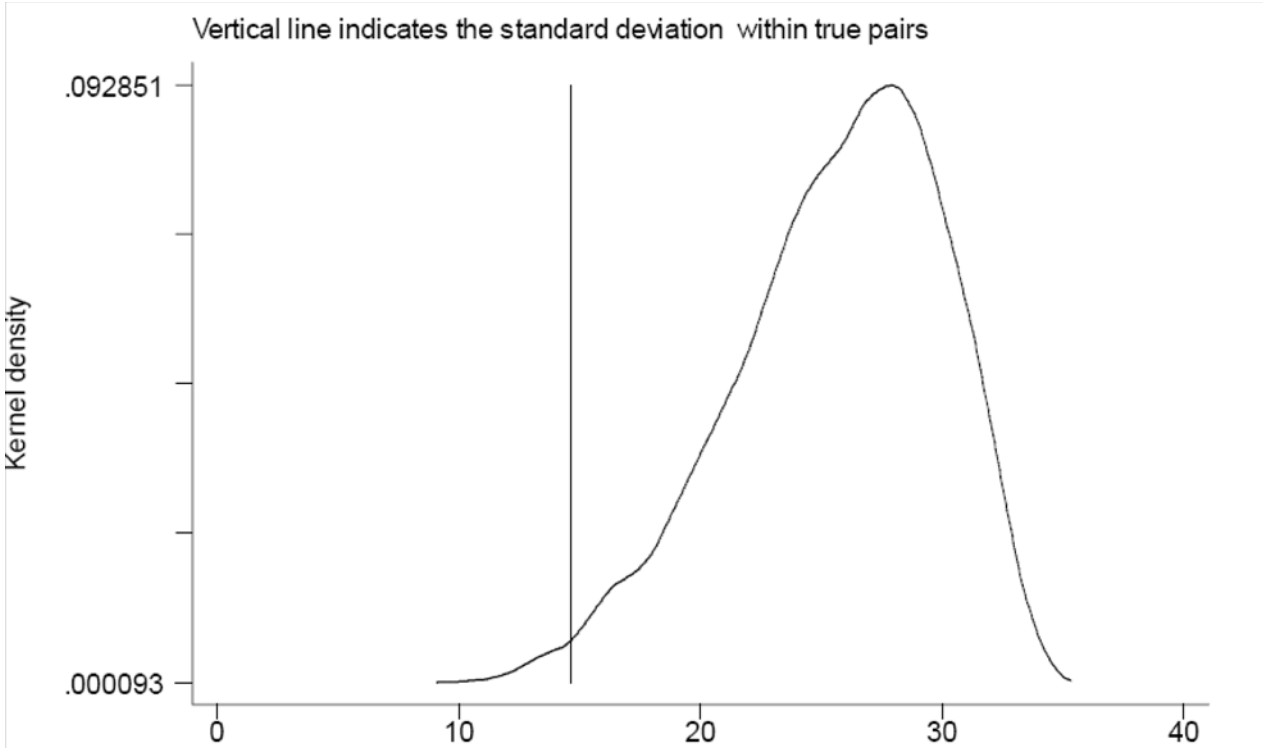


Fig. 3: St. dev. within true and hypothetical pairs in pair sample

- **Mas-Moretti (AER 2009).** Evidence of response to social pressure in the workplace
  - Workplace setting –> Large retail chain
  - Very accurate measure of productivity, scanning rate
  - Social Pressure: Are others observing the employer?
- Slides courtesy of Enrico

Introduction

- We use internal scanner data from a supermarket chain to obtain a high-frequency measure of productivity of checkers

- Over a two year period, we observe each item scanned by each worker in each transaction. We define individual effort as the number of items scanned per second.

- We estimate how individual effort changes in response to changes in the average productivity of co-workers

Introduction

- Over the course of a given day, the composition of the group of co-workers varies, because workers shifts do not perfectly overlap

- Scheduling is determined two weeks prior to a shift

=> within-day timing of entry and exit of workers is predetermined

- Empirically, entry and exit of good workers appear uncorrelated with demand shocks:

    - The entry of fast workers is not concentrated in the ten minutes prior to large increases in customer volume, as would be the case if managers could anticipate demand changes

    - The exit of fast workers is not concentrated in the ten minutes prior to large declines in customer volume

    - The mix of co-workers ten minutes into the future has no effect on individual productivity in the current period.

Data

- We observe all the transactions that take place for 2 years in 6 stores. For each transaction, we observe the number of items scanned, and the length of the transaction in seconds.
- We define individual productivity as the number of items scanned per second.
- We know who is working at any moment in time, where, and whom they are facing
- Unlike much of the previous literature, our measure of productivity is precise, worker-specific and varies with high-frequency.

What is the relationship between individual effort and co-worker permanent productivity?

- First we measure the *permanent* component of productivity of each worker

$$y_{itcs} = \theta_i + \Sigma_{j \neq i} \pi_j W_{jtcs} + \psi X_{itcs} + \gamma_{dhs} + \lambda_{cs} + e_{itcs.}$$

For each worker *i*, 10 minute period and store, we average the permanent productivity of all the co-workers (excluding *i*) who are active in that period: $\Delta\bar{\theta}_{-ist}$

- Second, we regress ten minutes *changes* in individual productivity on *changes* in average permanent productivity of co-workers

Finding 1: There is a positive association between changes in co-worker permanent productivity and changes in individual effort

	(1)	(2)
Δ Co-worker permanent Productivity	0.176 (0.023)	0.159 (0.023)
Controls	No	Yes

$$\Delta y_{itcs} = \beta \Delta \bar{\theta}_{-ist} + \gamma_{tds} + \psi \Delta X_{tcs} + e_{itcs}$$

i = individual
t = 10 minute time interval
c = calendar date
s = store

Finding 1: There is a positive association between changes in co-worker permanent productivity and changes in individual productivity

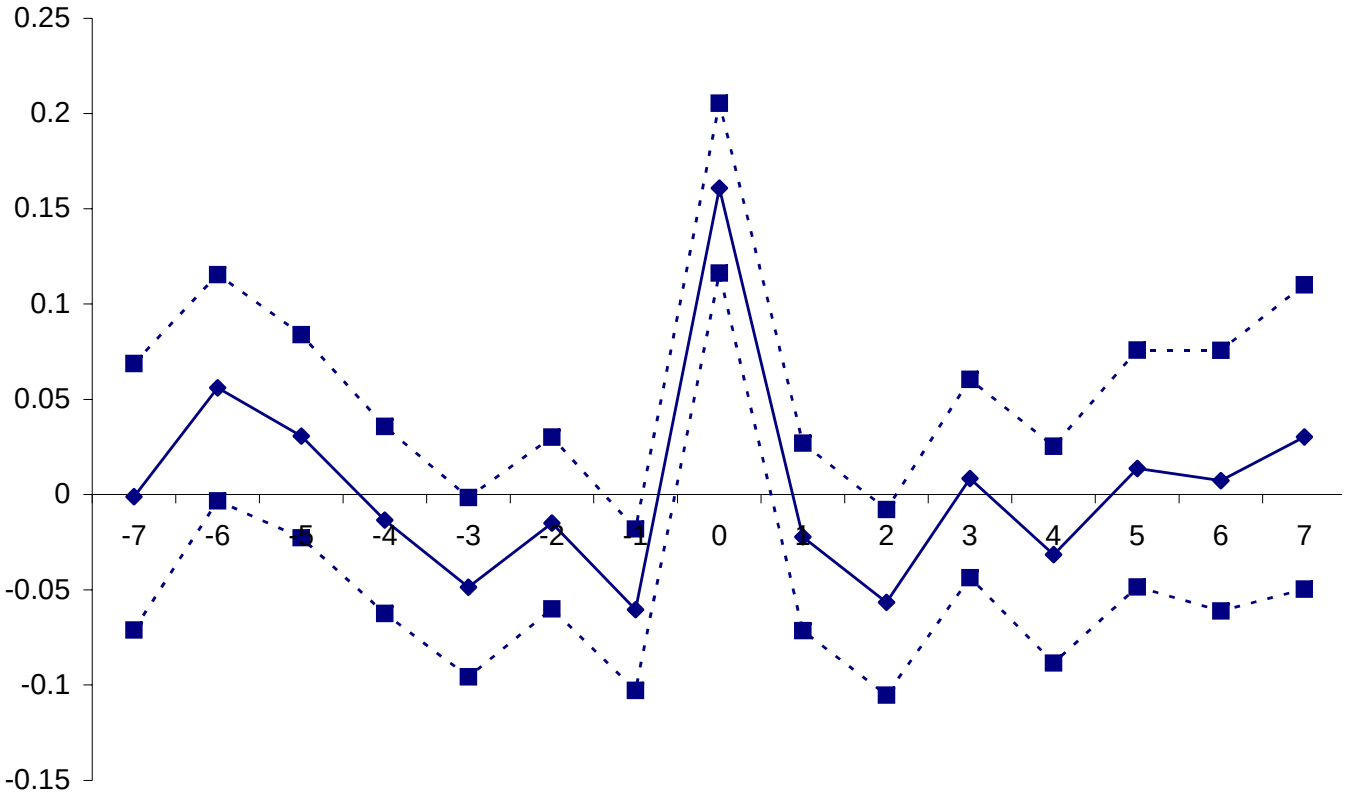
Entry of above average productivity worker	0.011 (0.001)	
Exit of an above average productivity worker	-0.005 (0.001)	
Shift entry of above average productivity worker		0.006 (0.002)
Shift exit of an above average productivity worker		-0.006 (0.002)
Controls	Yes	Yes

Finding 2: The magnitude of the spillover effect varies dramatically depending on the skill level

	(2)	(3)
Δ Co-worker permanent productivity	0.159 (0.023)	0.261 (0.033)
Δ Co-worker permanent prod. × Above average worker		-0.214 (0.046)
Observations	1,734,140	1,734,140
Controls	Yes	Yes

$$\Delta y_{itcs} = \beta \Delta \bar{\theta}_{-ist} + \gamma_{tds} + \psi \Delta X_{tcs} + e_{itcs}$$

The lags and leads for the effect of changes of average co-worker productivity on reference worker productivity



$$\Delta y_{itcs} = \beta_{-7}\Delta\bar{\theta}_{-i(t-7)cs} + \beta_{-6}\Delta\bar{\theta}_{-i(t-6)cs} + \beta_{-5}\Delta\bar{\theta}_{-i(t-5)cs} + \beta_{-4}\Delta\bar{\theta}_{-i(t-4)cs} + \beta_{-3}\Delta\bar{\theta}_{-i(t-3)cs} + \beta_{-2}\Delta\bar{\theta}_{-i(t-2)cs}$$
$$+ \beta_{-1}\Delta\bar{\theta}_{-i(t-1)cs} + \beta_{0}\Delta\bar{\theta}_{-i(t)cs} + \beta_{1}\Delta\bar{\theta}_{-i(t+1)cs} + \beta_{2}\Delta\bar{\theta}_{-i(t+2)cs} + \beta_{3}\Delta\bar{\theta}_{-i(t+3)cs} + \beta_{4}\Delta\bar{\theta}_{-i(t+4)cs} + \beta_{5}\Delta\bar{\theta}_{-i(t+5)cs}$$
$$+ \beta_{6}\Delta\bar{\theta}_{-i(t+6)cs} + \beta_{7}\Delta\bar{\theta}_{-i(t+7)cs} + \zeta\mathbf{M} + e_{itcs},$$

What explains spillovers?

- There are at least two possible explanations (Kendal and Lazear, 1992)
  - Guilt / Contagious enthusiasm
  - Social pressure ("I care what my co-workers think about me")
- We use the spatial distribution of register to help distinguish between mechanisms

- Guilt / Contagious enthusiasm implies that the spillover generate by the entry of a new worker should be larger for those workers who can observe the entering worker

- Social pressure implies that the spillover generate by the entry of a new worker should be larger for those workers who who are observed by the new worker

Table 5: Models by spatial orientation and proximity

	(1)	(3)
Δ Co-worker permanent productivity behind	0.233	
	(0.019)	
Δ Co-worker permanent productivity in front	0.007	
	(0.018)	
Δ Co-worker permanent productivity behind & closer		0.162
		(0.016)
Δ Co-worker permanent productivity in front & closer		0.016
		(0.015)
Δ Co-worker permanent productivity behind & farther		0.100
		(0.018)
Δ Co-worker permanent productivity in front & farther		0.003
		(0.018)

- Final Example: Effect of Social Pressure on Voting
  - Large literature of field experiments to impact voter turnout
  - Typical design: Day before (local) election reach treatment household and encourage them to vote
  - Some classical examples

Paper	Treatment (1)	Election type or question (2)	Variable t (3)	Year (4)	Place (5)	Sample size (6)	Control group t_T (7)	Treatment group t_C (8)	Exposure rate $e_T - e_C$ (9)	Persuasion rate (10)
Field Experiments										
Gerber and Green [2000]	Door-to-door canvassing	Federal elect.	Turnout	1998	New Haven	N = 14,473	0.422	0.463	0.270	0.263
	Canvassing + mail + calls	Federal elect.	Turnout	1998	New Haven	N = 14,850	0.422	0.448	0.270	0.167
Green, Gerber, and Nickerson [2003]	Door-to-door canvassing	Local elect.	Turnout	2001	6 cities	N = 18,933	0.286	0.310	0.293	0.118
Green and Gerber [2001]	Phone calls by youth vote	General elect.	Turnout	2000	4 cities	N = 4,377	0.660	0.711	0.737	0.205
	Phone calls 18–30-year-olds	General elect.	Turnout	2000	2 cities	N = 4,377	0.405	0.416	0.414	0.045

- In these experiments, typically mailings are the cheapest, but also the least effective get-out-the-vote treatment

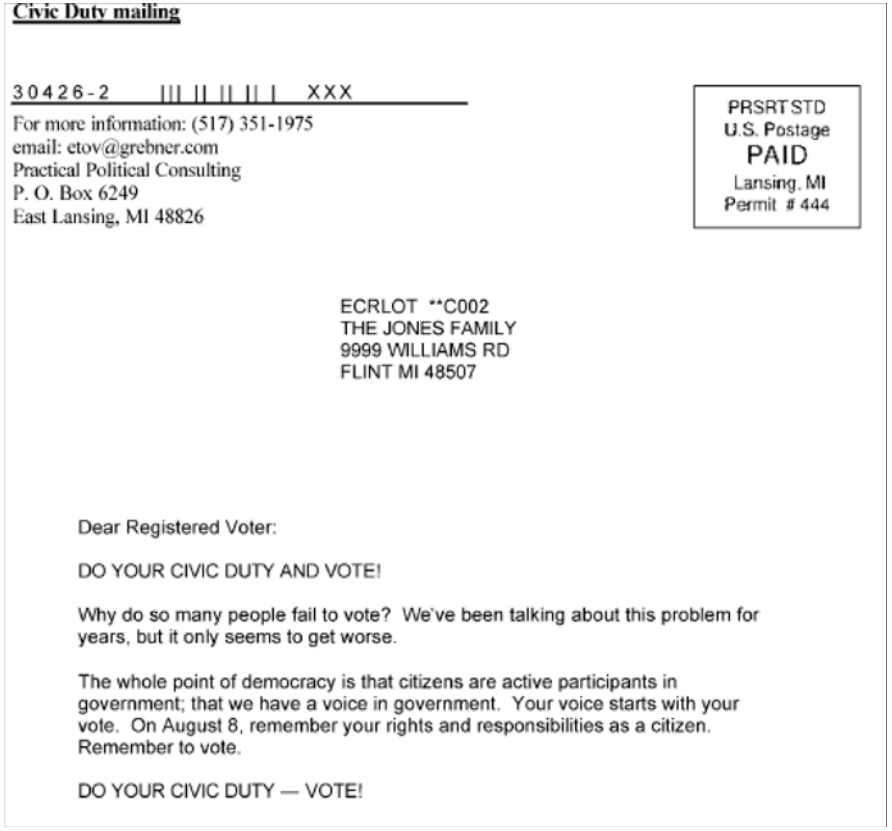
- **Gerber, Green, and Larimer (APSR, 2008):** Add social pressure to these treatments

- Setting:
  - August 2006, Michigan
  - Primary election for statewide offices
  - Voter turnout 17.7% registered voters

- Experimental sample: 180,000 households on Voter File

- Mailing sent 11 days prior to election

- Experimental design:
  - Control households get no mail (N=100,000)
  - *Civic Duty Treatment.* 'DO YOUR CIVIC DUTY—VOTE!"'



Civic Duty mailing

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Dear Registered Voter:

DO YOUR CIVIC DUTY AND VOTE!

Why do so many people fail to vote? We've been talking about this problem for years, but it only seems to get worse.

The whole point of democracy is that citizens are active participants in government; that we have a voice in government. Your voice starts with your vote. On August 8, remember your rights and responsibilities as a citizen. Remember to vote.

DO YOUR CIVIC DUTY — VOTE!

- – *Hawthorne Treatment.* Information that voters turnout records are being studied

Dear Registered Voter:

YOU ARE BEING STUDIED!

Why do so many people fail to vote? We've been talking about this problem for years, but it only seems to get worse.

This year, we're trying to figure out why people do or do not vote. We'll be studying voter turnout in the August 8 primary election.

Our analysis will be based on public records, so you will not be contacted again or disturbed in any way. Anything we learn about your voting or not voting will remain confidential and will not be disclosed to anyone else.

DO YOUR CIVIC DUTY — VOTE!

- – *Self-Information Treatment.* Give information on own voting record

Dear Registered Voter:

WHO VOTES IS PUBLIC INFORMATION!

Why do so many people fail to vote? We've been talking about the problem for years, but it only seems to get worse.

This year, we're taking a different approach. We are reminding people that who votes is a matter of public record.

The chart shows your name from the list of registered voters, showing past votes, as well as an empty box which we will fill in to show whether you vote in the August 8 primary election. We intend to mail you an updated chart when we have that information.

We will leave the box blank if you do not vote.

DO YOUR CIVIC DUTY—VOTE!

OAK ST	Aug 04	Nov 04	Aug 06
9999 ROBERT WAYNE		Voted	_____
9999 LAURA WAYNE	Voted	Voted	_____

- – *Other-Information Treatment.* Know if neighbors voted!

Dear Registered Voter:

WHAT IF YOUR NEIGHBORS KNEW WHETHER YOU VOTED?

Why do so many people fail to vote? We've been talking about the problem for years, but it only seems to get worse. This year, we're taking a new approach. We're sending this mailing to you and your neighbors to publicize who does and does not vote.

The chart shows the names of some of your neighbors, showing which have voted in the past. After the August 8 election, we intend to mail an updated chart. You and your neighbors will all know who voted and who did not.

DO YOUR CIVIC DUTY — VOTE!

MAPLE DR	Aug 04	Nov 04	Aug 06
9995 JOSEPH JAMES SMITH	Voted	Voted	_____
9995 JENNIFER KAY SMITH		Voted	_____
9997 RICHARD B JACKSON		Voted	_____

- Results:
  - Substantial impacts especially when neighbors get to see
  - All the results are highly statistically significant
  - Results huge given that 1/3 of recipients probably never opened the mailer
  - Impact: Obama campaign considered using this, but decided too risky

TABLE 2. Effects of Four Mail Treatments on Voter Turnout in the August 2006 Primary Election

	Experimental Group				
	Control	Civic Duty	Hawthorne	Self	Neighbors
Percentage Voting	29.7%	31.5%	32.2%	34.5%	37.8%
N of Individuals	191,243	38,218	38,204	38,218	38,201

4 Social Preferences: Evolution

- In given economic setting, take preferences as given (Becker, '*De Gustibus non est disputandum*')
- But over medium-term, preferences can shift
- Focus on evolution of social preferences
- Example 1: **Hjort (2013)** – conflict affects social preferences between workers of differen ethnicities

- Example 2: **Fisman, Kariv, and Markovits (2009)**
  - Subjects: Yale Law School students
  - Exploit random assignment to either econ-trained or non-econ-trained teachers
  - Exposure to economics makes more selfish
  - Also, makes more attentive to efficiency

Figure 2A. Decision-level distributions of expenditure on tokens given to *other* by price-ratio tercile
Economics subjects

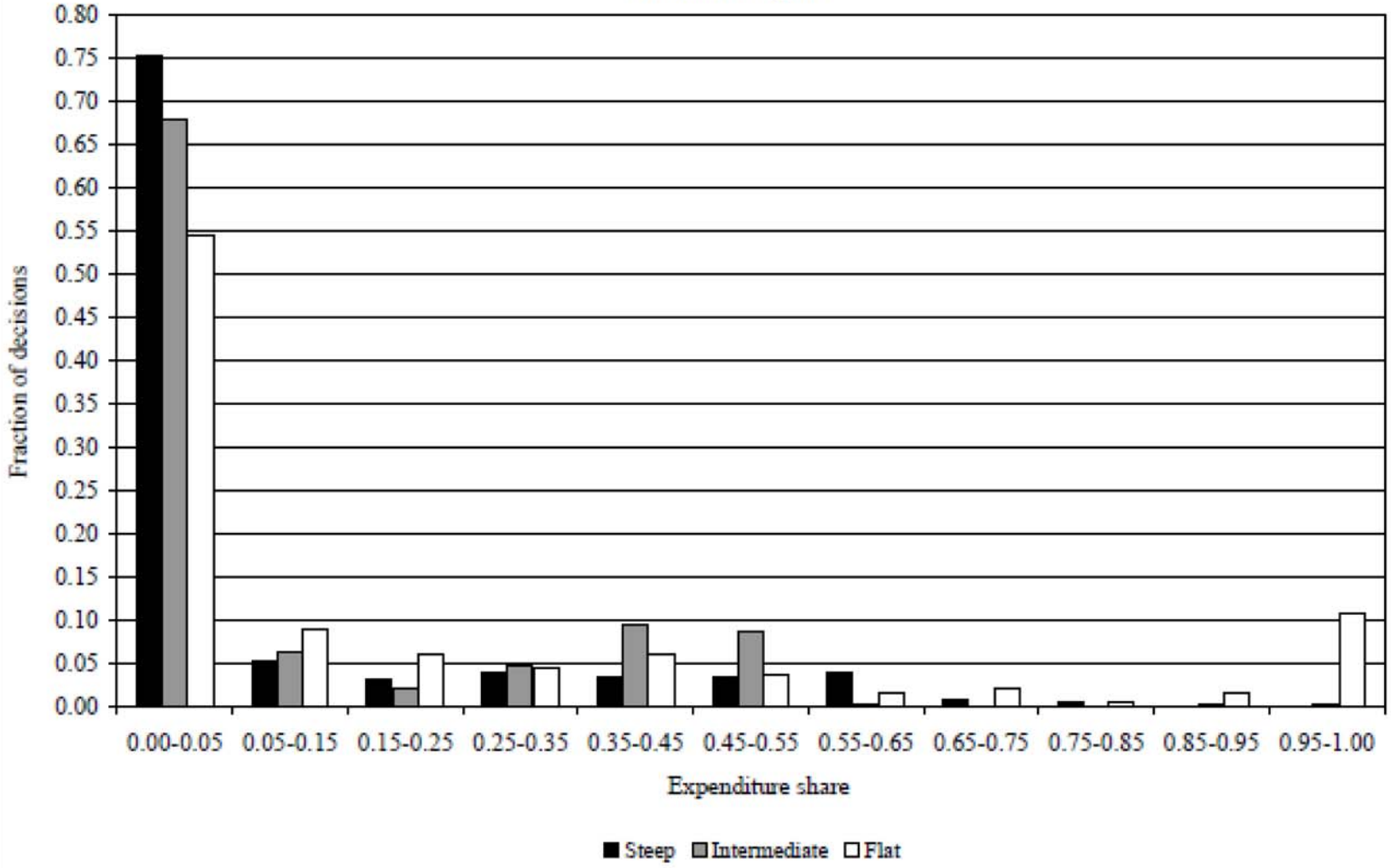
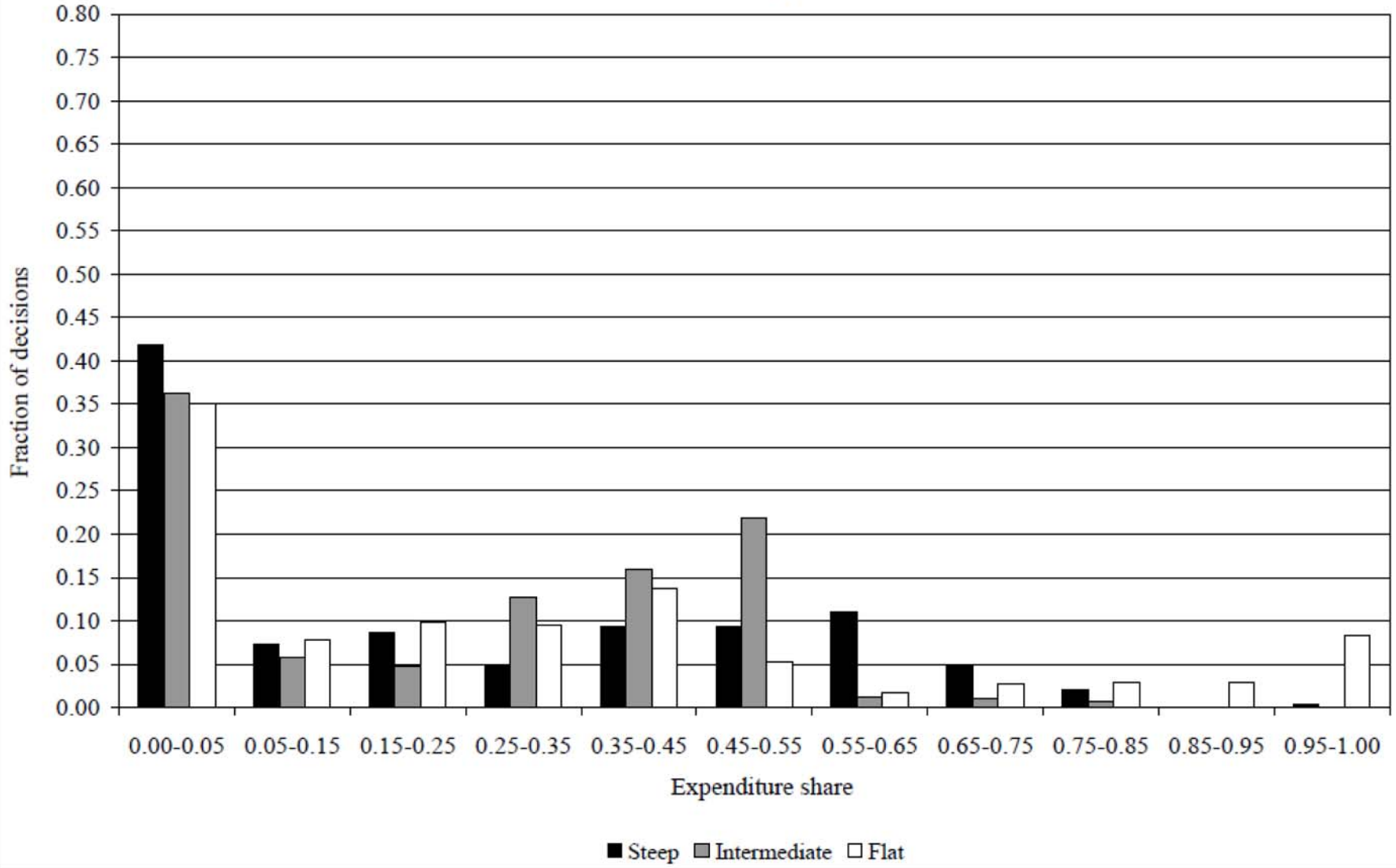


Figure 2C. Decision-level distributions of expenditure on tokens given to *other* by price-ratio tercile

Humanist subjects



- **Rao (2014):** Consider the impact of exposure to students of different social class on preferences

- Remarkable impacts over just 1-2 years of exposure

- Slides courtesy of Gautam

Elite Private Schools in Delhi

Elite private schools are:

- Expensive: Tuition \$500-\$2500/year (25-110% of median annual household income)
  - Public schools are free
- Selective: In my sample, accept $\approx 7\%$ of applicants
  - Strictly regulated admissions criteria
    - Neighborhood
    - Older siblings in same school
    - Parents alumni, parent interview

Policy Innovation

Policy change 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

Variation across classrooms

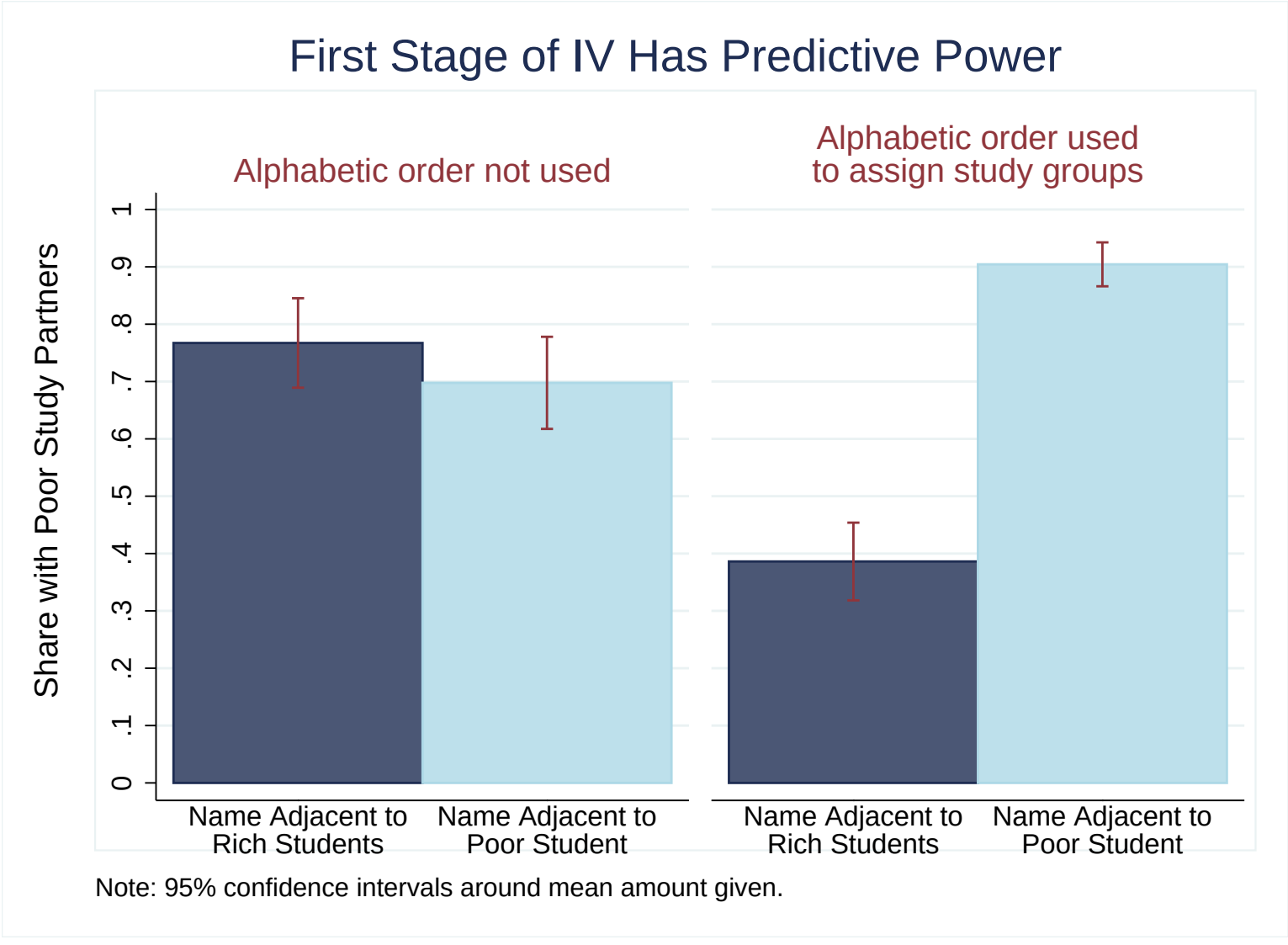
Sample for this paper:

- $k = 14$ schools
  - 9 Treatment Schools
  - 2 Delayed Treatment Schools
  - 3 Control Schools
- $n = 2017$ randomly selected students in 14 schools
  - in Grades 2-5
- Over-sample control, delayed treatment schools
  - Treatment schools in same neighborhoods

Variation within classroom (IV strategy)

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

Alphabetic Order Predicts Study Partners

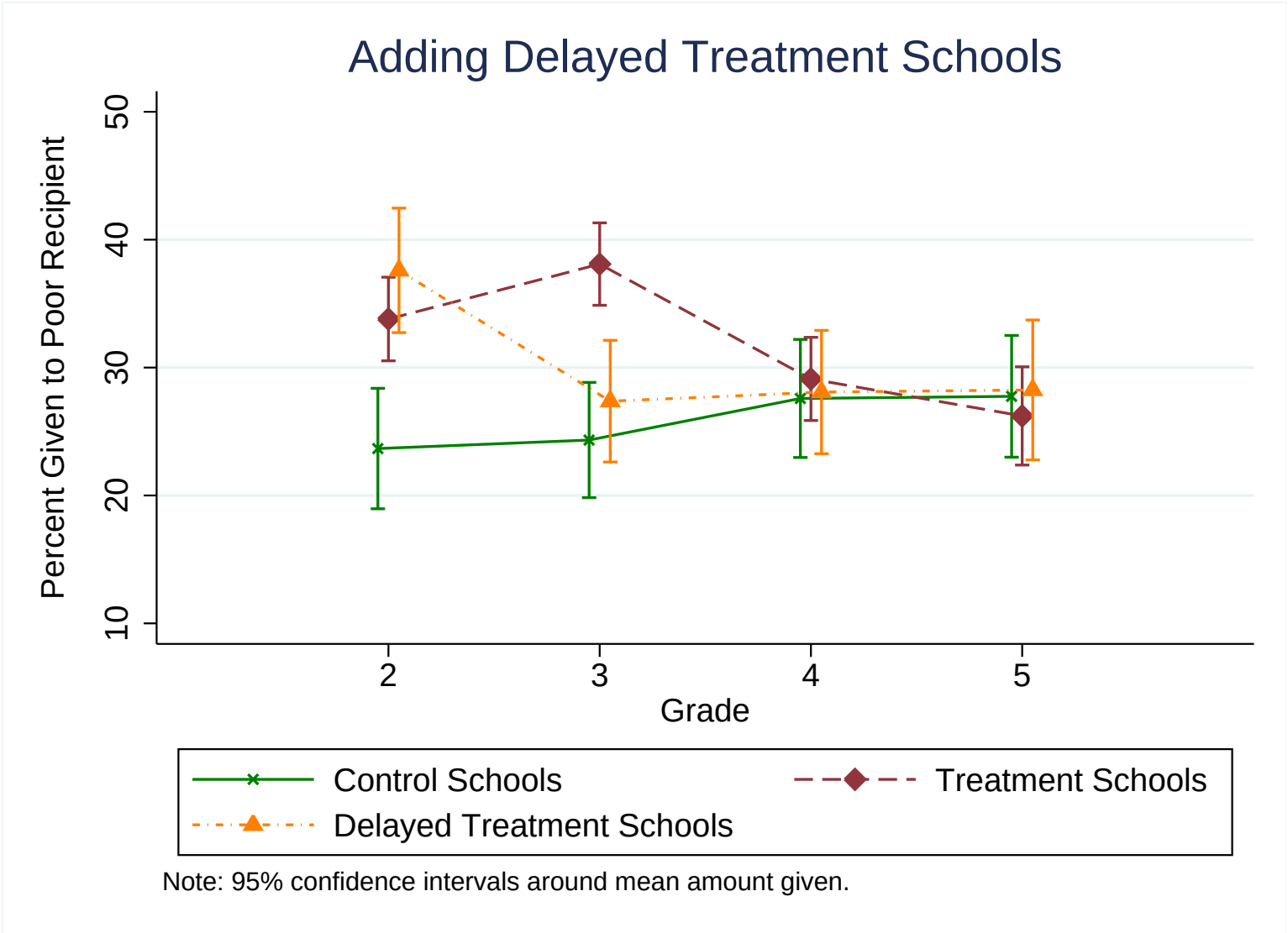


Note: 95% confidence intervals around mean amount given.

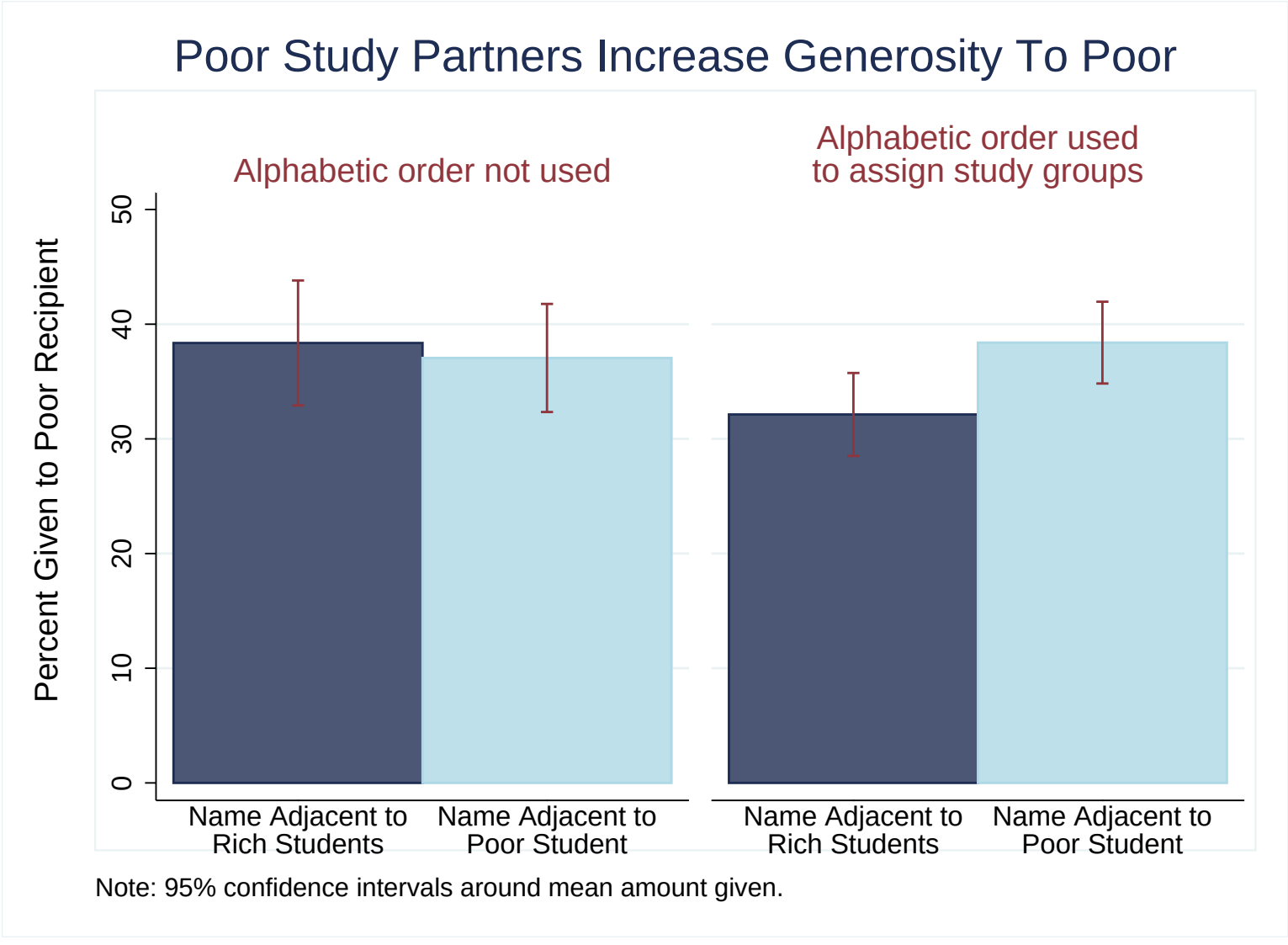
Dictator Games

- Students endowed with 10 Rupees, choose to share $x \in [0, 10]$
  - Can exchange money for candy later (Rs. 1 per piece)
- Vary the identity of the recipient
  - Game 1: **Poor** student in a school for poor children
  - Game 2: **Rich** student in a private (control) school
  - Order randomized
- Name and photographs of school shown to subjects.
  - Debriefing: Subjects understood recipient poor / rich

Dictator Game with Poor Recipient



Dictator Game with Poor Recipient

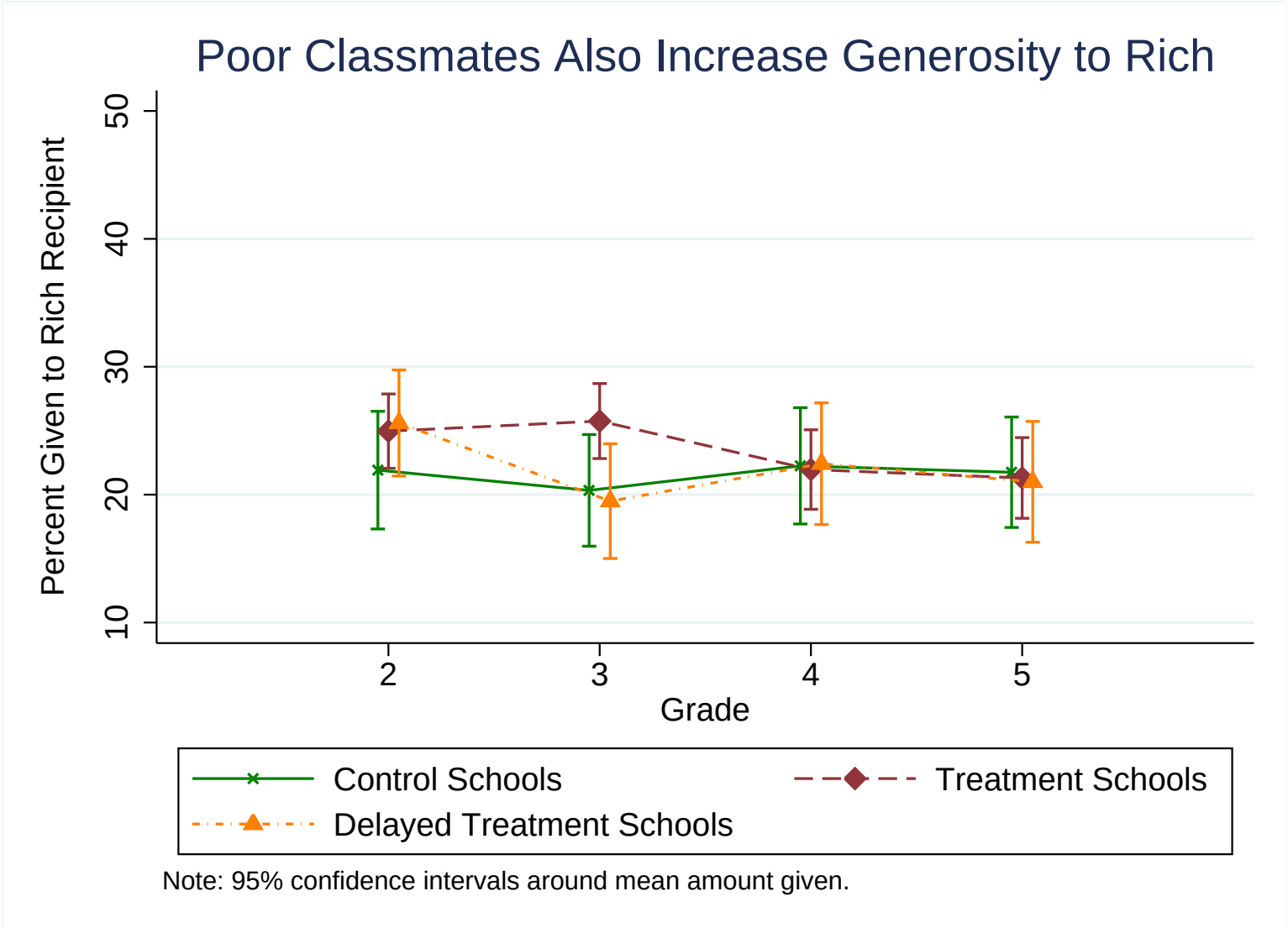


Dictator Game with Poor Recipient - Regressions

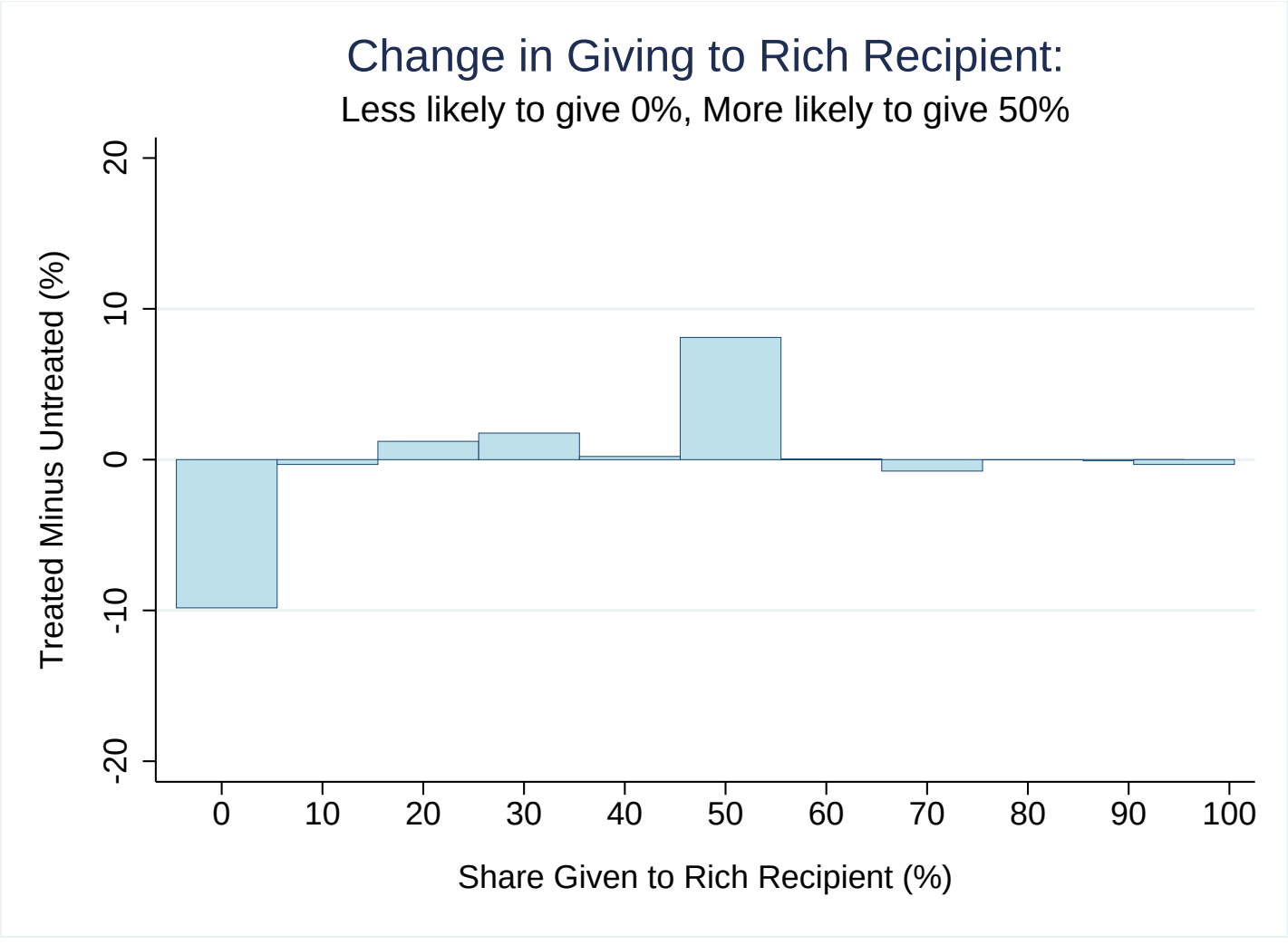
Dependent Variable:
Share Given to Poor Recipient in Dictator Game (%)

Specification:	(1) DiD	(2) DiD	(3) IV	(4) DiD+IV
Sample:	Full Sample	Younger Sibs	Treated Class	Full Sample
Treated Classroom	12.22***	12.95***		8.747**
	(1.901)	(2.274)		(3.510)
Has Poor Study Partner			7.53**	12.08***
			(3.147)	(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

Dictator Game with Rich Recipient



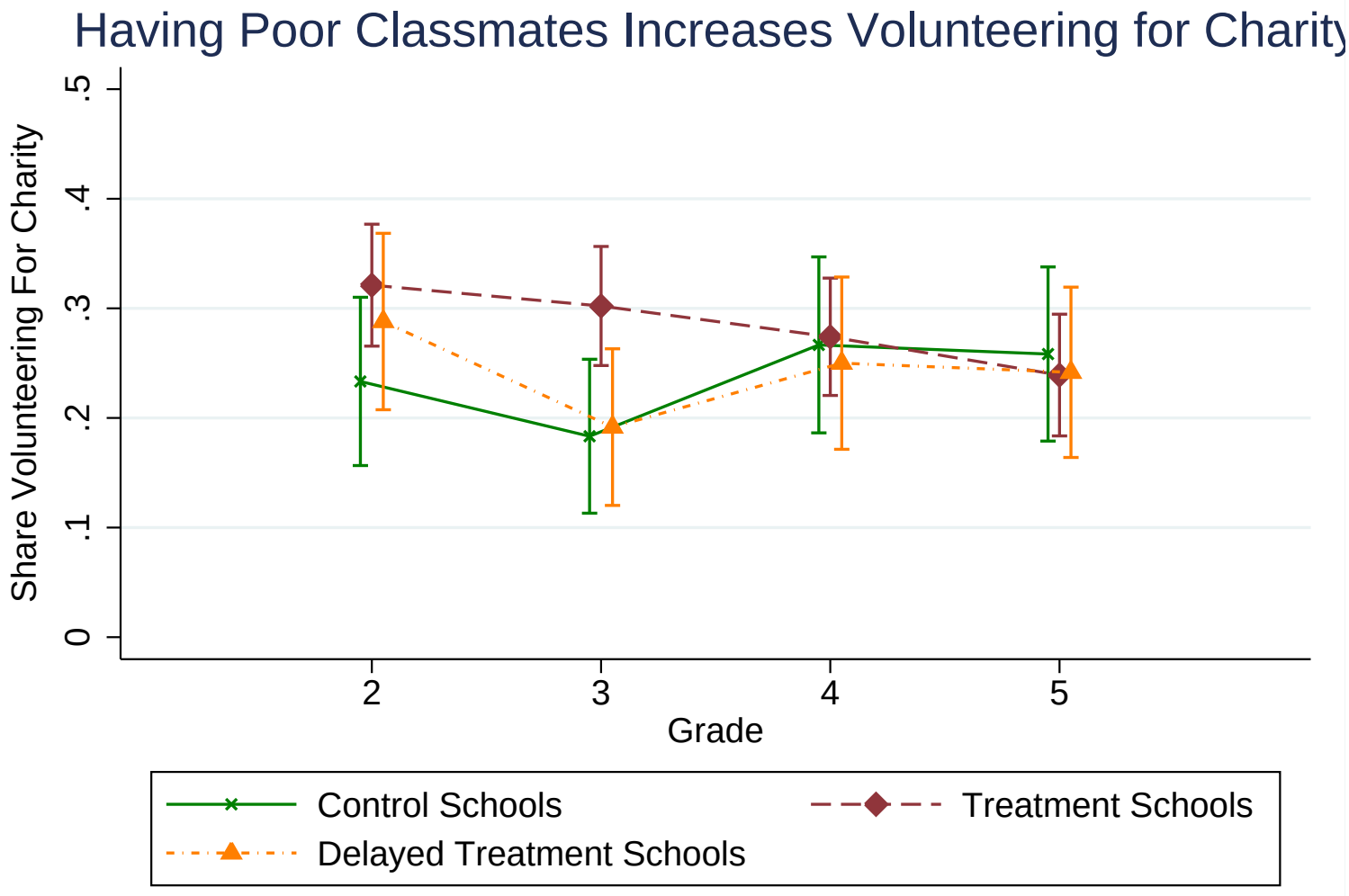
Changes in amounts given to rich recipients



Volunteering for charity

- Schools offer volunteer opportunity for charities
  - Spend two weekend afternoons in school to help fundraise for a children's NGO
- Participation is strictly voluntary
  - Only 28% of students participate
- Administrative data on attendance

Volunteering for charity



Note: 95% confidence intervals around mean amount given.

Field experiment on team selection

- Subjects are students from two elite private schools
  - One treatment school, one control school
  - We invite *athletic* poor students from a public school
- Students must choose teammates to run relay race
  - Tradeoff ability vs. social similarity
- $n = 342$

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

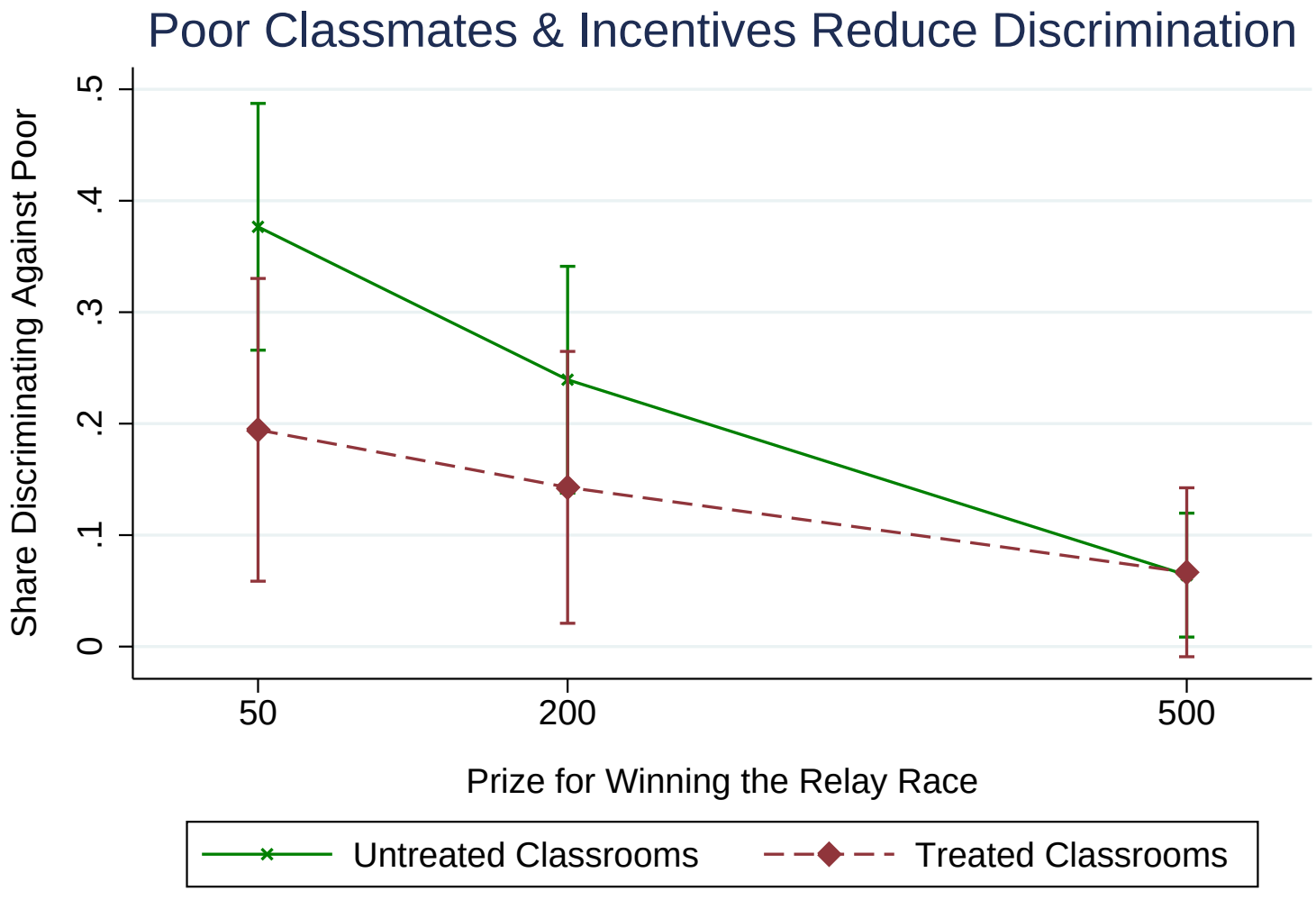
Stage 3: Choice implementation and relay race

- 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 quasi-demand curve for discrimination

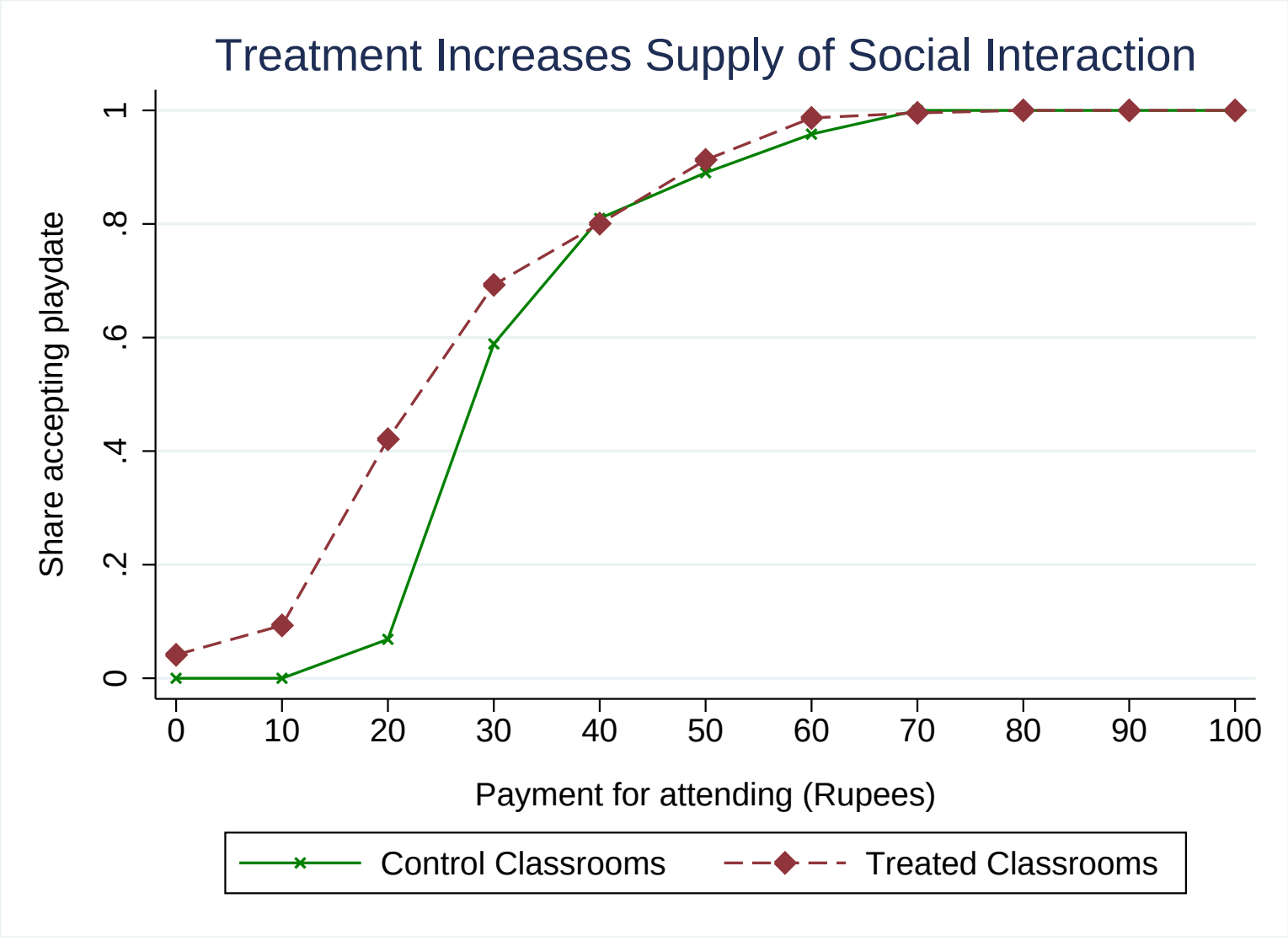


Willingness to Play Experiment

Invite students to a "play date" at poor school

- Opportunity to make new friends in neighborhood
- Elicit incentivized Willingness To Accept to attend
  - Using simple BDM mechanism
  - Students require payments to attend

Increase in supply of social interactions



◂ Play Date Tables

What part of the treatment is crucial?

- Personal interactions explain a lot of the overall effect
  - 70% of the change in "willingness to play"
  - 38% of the increase in giving to the poor
- Likely an underestimate of importance of interaction

Mechanisms

What's the mechanism? My speculation:

1. Interacting with poor children changes fairness notions
   - Makes students care more about equality of payoffs
   - Changes in preferences vs. norms / social image
2. Familiarity breeds fondness $\rightarrow$ discrimination $\downarrow$, socializing $\uparrow$
   - Change in prefs due to "mere-exposure"
   - Changes in beliefs
     - No effects on beliefs about niceness, intelligence, hard work.

Policy Relevance

- India-wide roll-out of this policy beginning in 2013-14
  - 400 million children under age 15
  - 30% of Indian students already attend private schools
  - Could have large-scale effects on social behaviors
    - Note unrepresentative sample

5 Next Lecture

- Non-standard Beliefs
- Overconfidence
- Projection Bias