Econ 219B
Psychology and Economics: Applications
(Lecture 7)

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Outline

1. Social Preferences: Introduction
2. Social Preferences: The Workplace
3. Social Preferences: Gift Exchange in the Field
4. Social Preferences: Charitable Giving
5. Methodology: Field Experiments

1 Social Preferences: Introduction

- Laboratory data from ultimatum, dictator, and trust games
  —> Clear evidence of social preferences

- Charness-Rabin simplified model of preferences of B when interacting with A:

$$\begin{aligned} U_B(\pi_A, \pi_B) &\equiv \rho\pi_A + (1-\rho)\pi_B \text{ when } \pi_B \geq \pi_A. \\ U_B(\pi_A, \pi_B) &\equiv \sigma\pi_A + (1-\sigma)\pi_B \text{ when } \pi_B \leq \pi_A. \end{aligned}$$

- Captures:
  - baseline altruism (if $\rho > 0$ and $\sigma > 0$)
  - differentially so if ahead or behind ($\rho > \sigma$)

- In addition to payoff-based social preferences, intentions likely to matter
- ρ and σ higher when B treated nicely by A
- Positive reciprocity and negative reciprocity
- More evidence of the latter in experiments

- Taking this to field data? Hard

- **Charitable giving.**
  - Patterns consistent with social preferences
  - However: Very hard to export models from the lab
  - Lab: Person A and B. Field: Millions of needy people. Public good problem
  - Lab: Forced interaction. Field: Sorting (fund-raisers)

- Focus on **Field Experiments on Reciprocity**
  - Exogenously manipulate 'niceness' of A with a gift
  - Observe behavior of B

- Other field applications we do not analyze
  1. Pricing. When are price increases acceptable?
     - **Kahneman, Knetsch and Thaler (1986)**
     - Survey evidence
     - Effect on price setting
  2. Wage setting. Fairness toward other workers –> Wage compression

2 Social Preferences: The Workplace

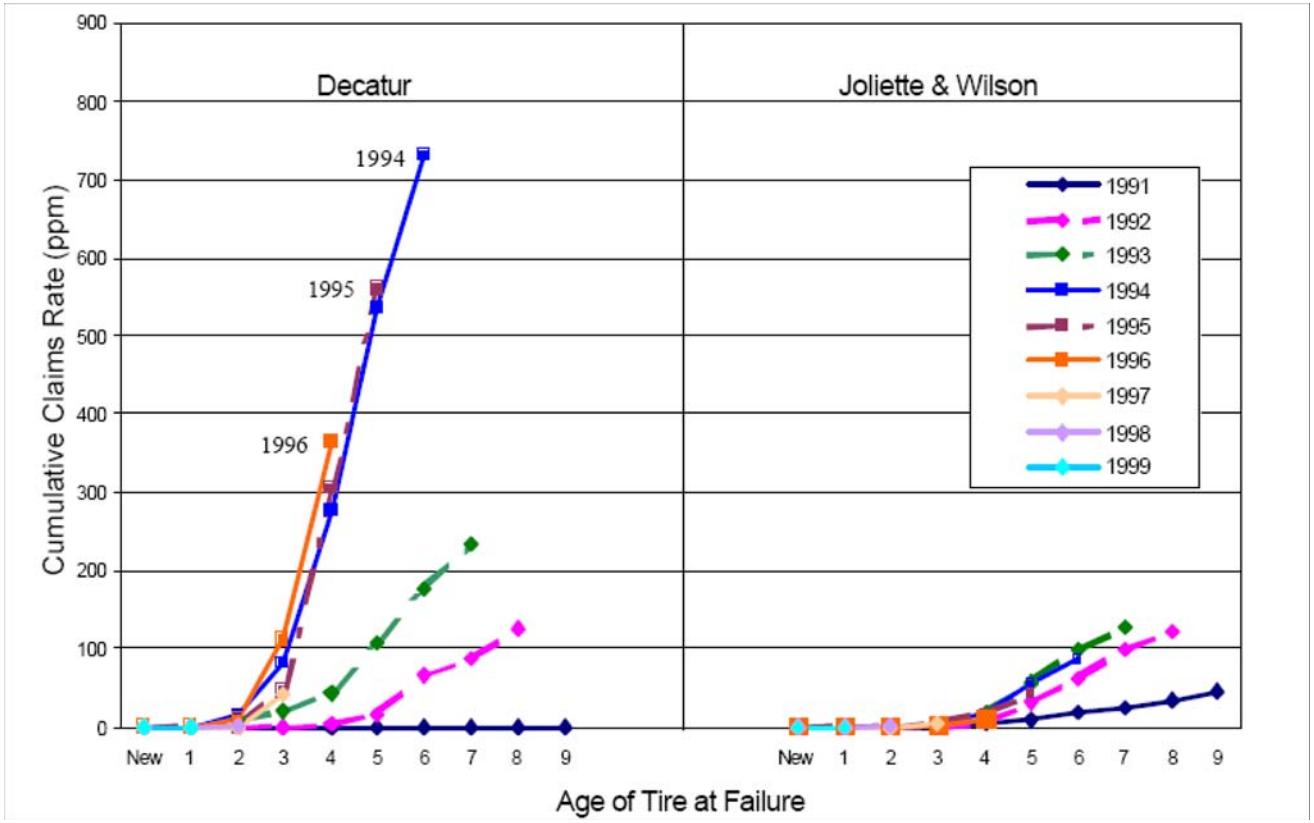
- In the workplace, do workers respond in kind to generous behavior by employers?

- Basis for some efficiency wage models
  - Natural Experiment: Krueger-Mas (2004)
  - Field Experiment on Social Preferences: Bandiera-Barankay-Rasul (2005)
  - Field Experiments on Gift Exchange: Kube-Marechel-Puppe and Gneezy-List

- **Krueger-Mas (JPE, 2004).**

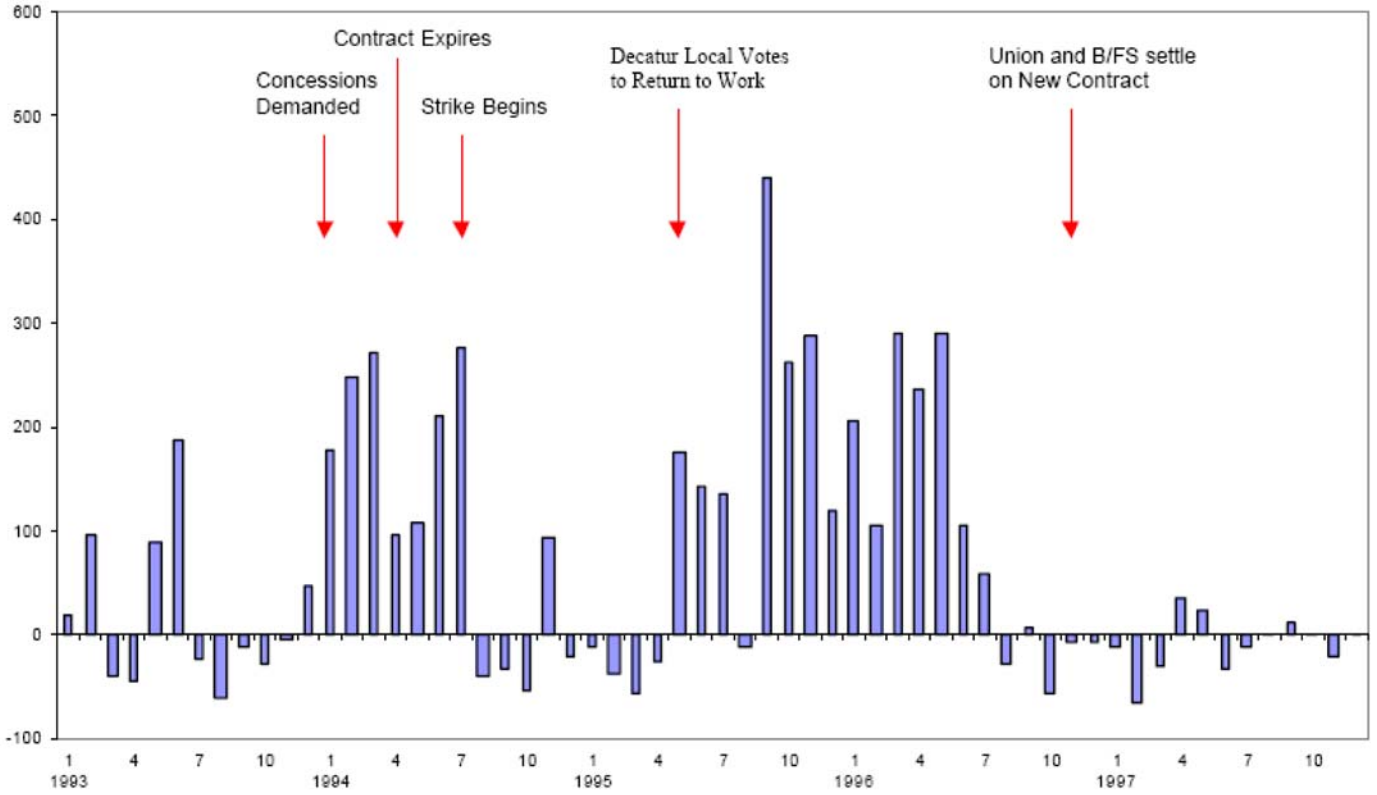
- Setting:
  - Unionized Bridgestone-Firestone plant
  - Workers went on strike in July 1994
  - Replaced by replacement workers
  - Union workers gradually reintegrated in the plant in May 1995 after the union, running out of funds, accepted the demands of the company
  - Agreement not reached until December 1996

- Do workers sabotage production at firm?
  - Examine claims per million tires produced in plants affected
  - Compare to plant not affected by strike (Joliette&Wilson)



- Ten-fold increase in number of claims
- Similar pattern for accidents with fatalities
- Possible explanations:
  - Lower quality of replacement workers
  - Boycotting / negative reciprocity by unionized workers
- Examine the timing of the claims

Figure 8: Difference in the Number of Complaints per million Tires Produced by Month: Decatur Plant minus Joliette and Wilson Plants.



Source: Authors' calculations based on NHTSA complaints data. Records with missing data are excluded.

- Two time periods with peak of claims:
  - Beginning of Negotiation Period
  - Overlap between Replacement and Union Workers
- Quality not lower during period with replacement workers
- Quality crisis due to Boycotts by union workers
- Claims back to normal after new contract settled
- Suggestive of extreme importance of good employer-worker relations

- **Bandiera-Barankay-Rasul (QJE, 2005).**
- 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:
  - 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.
    * Workers that care about others have incentive to keep the productivity low
  - Next 8 weeks –> Compensation switched to flat piece rate per fruit
  - Switch announced on the day change took place

- Dramatic 50 percent increase in productivity

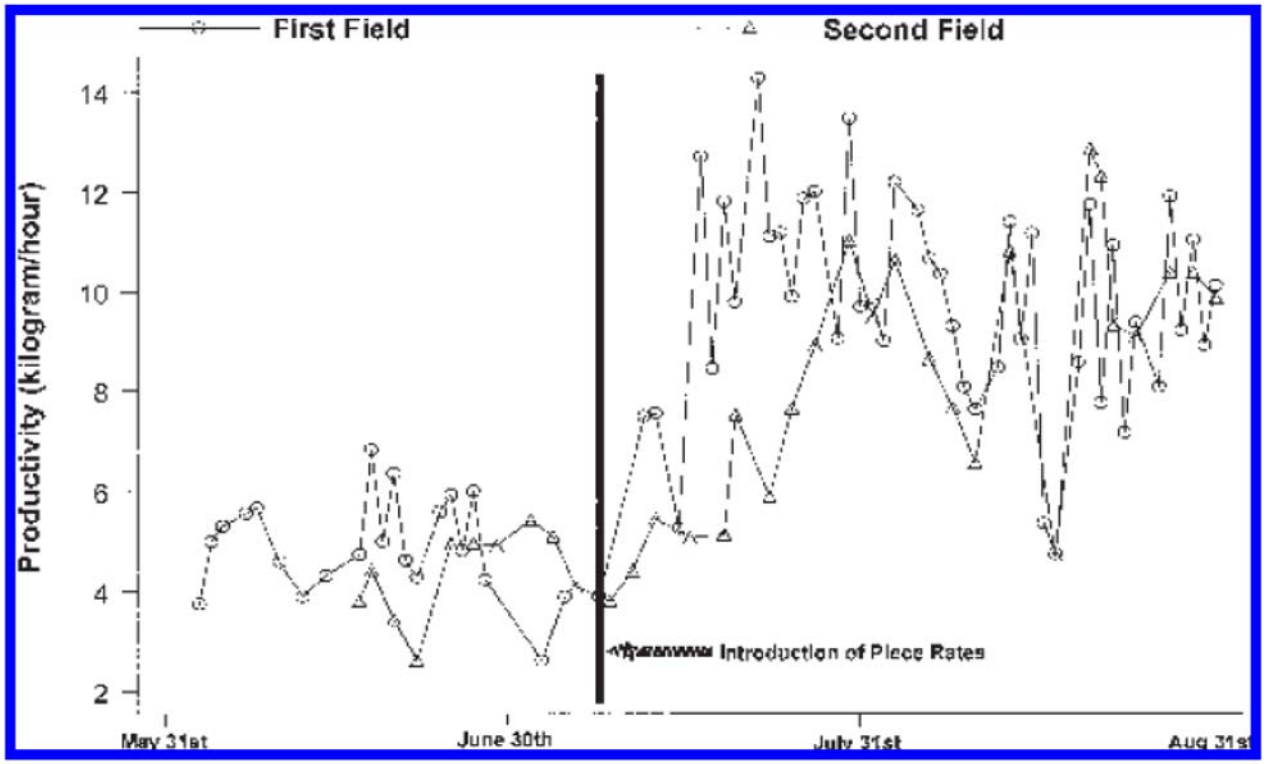


FIGURE I
Productivity (kilogram/hour) over the Season

- No other significant changes

	Relative incentives	Piece rates	Difference
Worker productivity (kg/hr)	5.01	7.98	
	(.243)	(.208)	2.97***
	[4.53, 5.49]	[7.57, 8.39]	
Kilos picked per day	Confidential		23.2***
Hours worked per day	Confidential		−.475
Number of workers in same field	41.1	38.1	−3.11
	(2.38)	(1.29)	
Daily pay	Confidential		1.80
Unit wage per kilogram picked	Confidential		−.105***

*** denotes significance at 1 percent. Sample sizes are the same as those used for the productivity regressions. Standard errors and confidence intervals take account of the observations being clustered by field-day. Productivity is measured in kilograms per hour. Daily pay refers to pay from picking only. Both daily pay and the unit wage per kilogram picked are measured in UK Pounds Sterling. Some information in the table cannot be shown due to confidentiality requirements.

- Is this due to response to change in piece rate?
  - No, piece rate went down –> Incentives to work less (susbt. effect)

- Results robust to controls

- Results are stronger the more friends are on the field

	(1a) Relative incentives	(1b) Relative incentives	(2a) Piece rates	(2b) Piece rates
Share of workers in the field who are friends	−1.68***	−5.52**	.072	1.17
	(.647)	(2.36)	(.493)	(1.60)
Share of workers in the field who are friends × number of workers in same field		1.60**		−.285
		(.684)		(.501)
Number of workers in same field		.182		.085
		(.117)		(.069)
Marginal effect of group size (at mean friends' share)		.236**		.076
		(.110)		(.065)
Worker fixed effects	Yes	Yes	Yes	Yes
Field fixed effects	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes
Adjusted R^2	.3470	.3620	.3065	.3081
Number of observations (worker-field-day)	2860	2860	4400	4400

- Two Interpretations:
  - Social Preferences:
    - Work less to help others
    - Work even less when friends benefit, since care more for them
  - Repeated Game
    - Enforce low-effort equilibrium
    - Equilibrium changes when switch to flat pay
- Test: Observe results for tall plant where cannot observe productivity of others (raspberries vs. strawberries)

- Compare Fruit Type 1 (Strawberries) to Fruit Type 2 (Raspberries)
  - No effect for Raspberries

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)

- –> No Pure Social Preferences. However, can be reciprocity

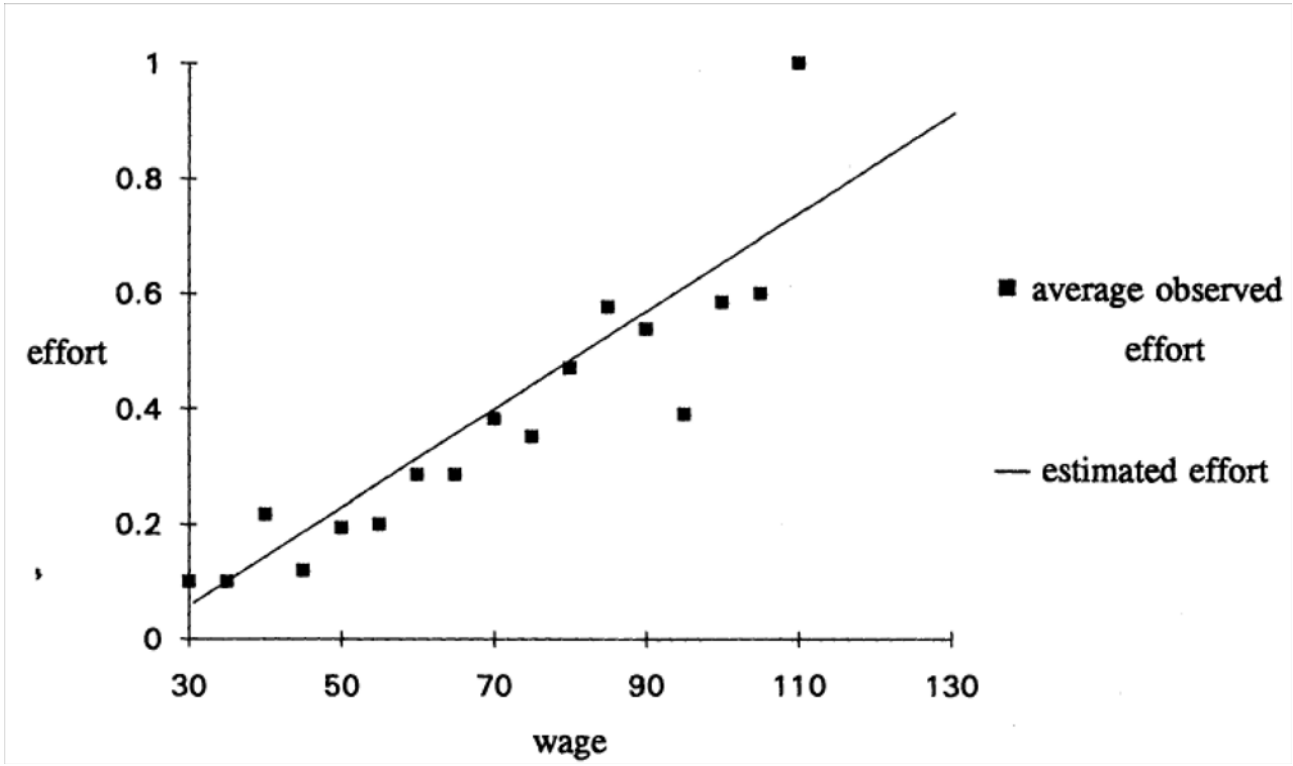
- Important to control for repeated game effects –> Next papers

3 Social Preferences: Gift Exchange in the Field

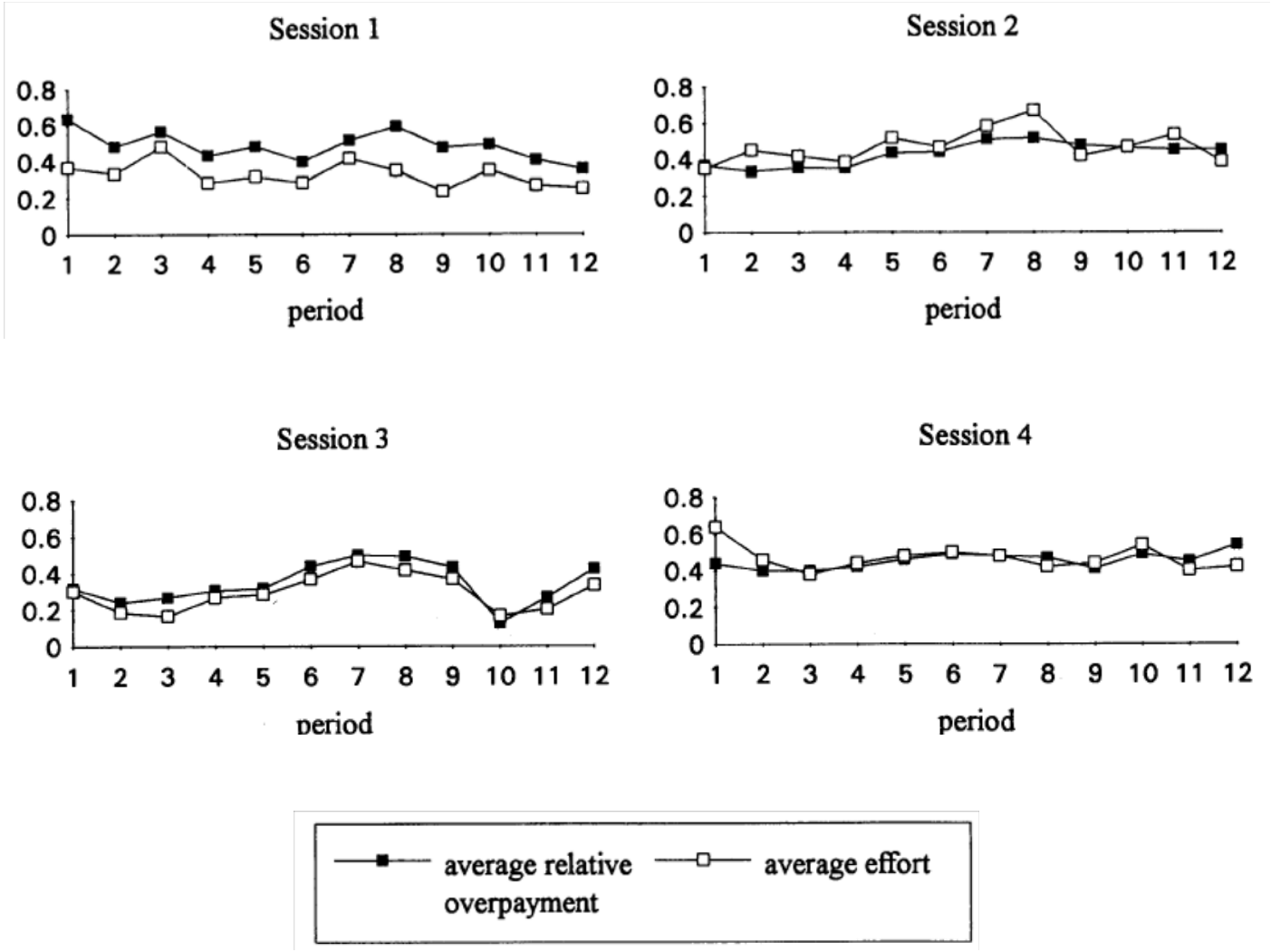
- Laboratory evidence: **Fehr, Kirchsteiger, and Riedl (QJE, 1993).**
  - 5 firms bidding for 9 workers
  - Workers are first paid $w \in \{0, 5, 10, ...\}$ and then exert effort $e \in [.1, 1]$
  - Firm payoff is $(126 - w)\, e$
  - Worker payoff is $w - 26 - c(e)$, with $c(e)$ convex (but small)

- Standard model: $w^* = 30$ (to satisfy IR), $e^*(w) = 0$ for all w

- Findings: effort e increasing in w and $Ew = 72$



- These findings are stable over time


Session 1
0.8
0.6
0.4
0.2
0
1 2 3 4 5 6 7 8 9 10 11 12
period
Session 2
0.8
0.6
0.4
0.2
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1 2 3 4 5 6 7 8 9 10 11 12
period
Session 3
0.8
0.6
0.4
0.2
0
1 2 3 4 5 6 7 8 9 10 11 12
period
Session 4
0.8
0.6
0.4
0.2
0
1 2 3 4 5 6 7 8 9 10 11 12
period
average relative overpayment
average effort

- Where evidence of gift exchange in the field?

- **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

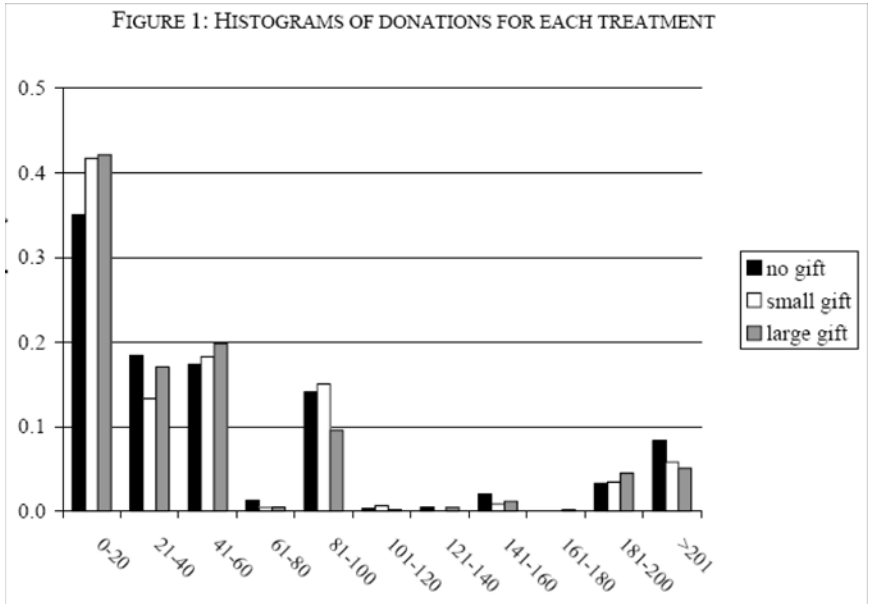
- Short-Run effect: Donations within 3 months

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

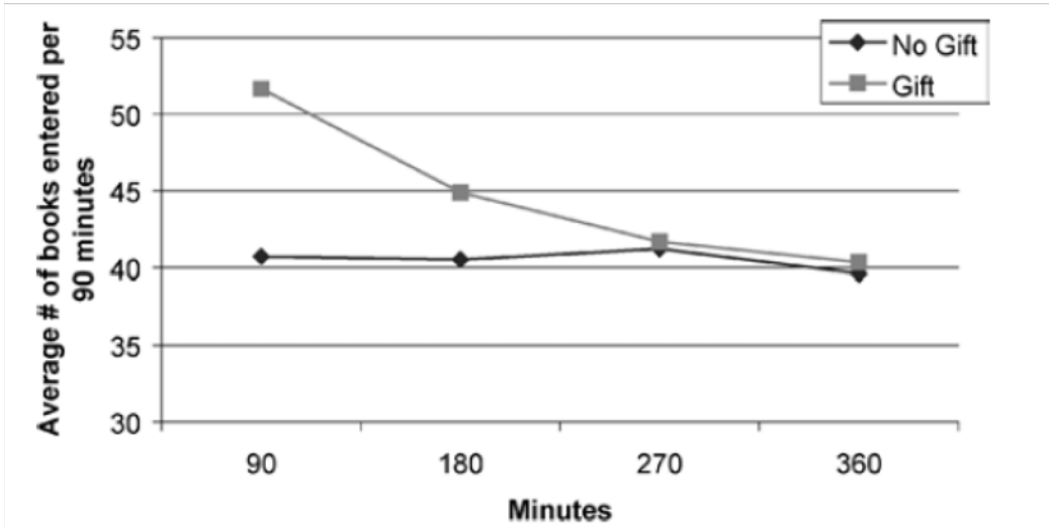
- Small decrease in average donation, conditional on donation (Marginal donors adversely selected, as in 401(k) Active choice paper)



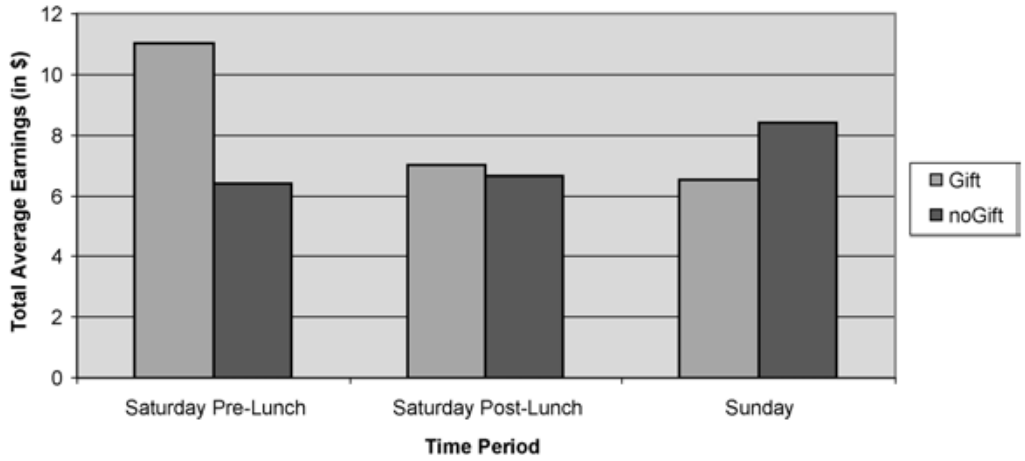
- Limited intertemporal substitution. February 2002 mailing with no gift. Percent donation is 9.6 (control), 8.9 (small gift), and 8.6 (large gift) (differences not significant)

- **Gneezy-List (EMA, 2006)** –> Evidence from labor markets

- *Field experiment 1.* Students hired for one-time six-hour (typing) library job for \$12/hour
  - No Gift group paid \$12 ($N = 10$)
  - Gift group paid \$20 ($N = 9$)



- *Field experiment 2.* Door-to-Door fund-raising in NC for one-time weekend for \$10/hour
  - Control group paid \$10 ($N = 10$)
  - Treatment group paid \$20 ($N = 13$)



- Note: Group coming back on Sunday is subset only (4+9)

- Evidence of reciprocity, though short-lived

- Issue: These papers test only for positive reciprocity

- Very difficult to test for negative reciprocity (which is strongest in the lab)
  - Send nasty drawing when asking for money?
  - Cut people's wage?
  - Can say that pay is random and see what happens to (randomly) lower paid people

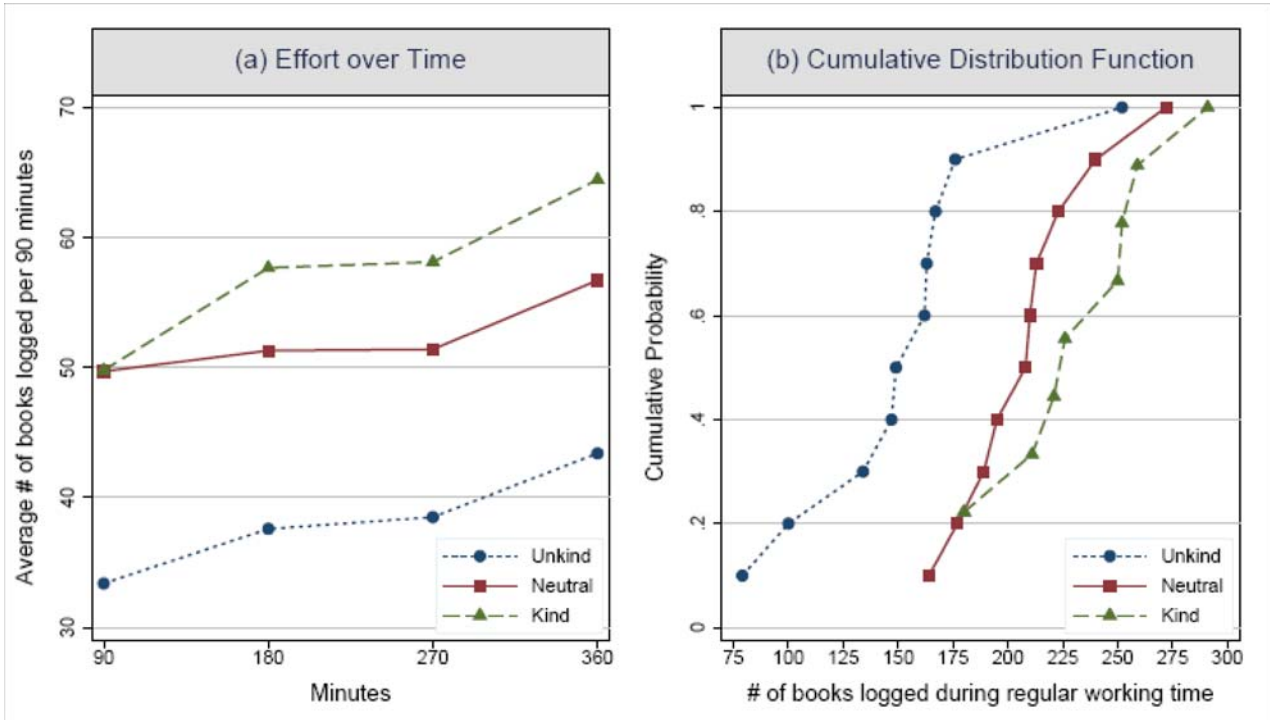
- **Kube, Marechal, and Puppe (2007).**

- Field Experiment: Hire job applicants to catalog books for 6 hours

- Announced Wage: Presumably 15 Euros/hour
  - Control ($n = 10$). 15 Euros/hour
  - Treatment 1 (Negative Reciprocity, $n = 10$). 10 Euros/hour
  - Treatment 2 (Positive Reciprocity, $n = 9$). 20 Euros/hour

- Offer to work one additional hour for 15 Euros/hour

- Result 1: Substantial effect of pay cut
- Result 2: Smaller effect of pay increase
- Result 3: No decrease over time



- Notice: No effect on quality of effort (no. of books incorrectly classified)

- Finding consistent with experimental results:
  - Positive reciprocity weaker than negative reciprocity

- Final result: No. of subjects that accept to do one more hour for 15 Euro:
  - 3 in Control, 2 in Pos. Rec., 7 in Neg. Rec.
  - Positive Reciprocity does not extend to volunteering for one more hour

- **List (JPE, 2005).** Test of social preferences from sellers to buyers

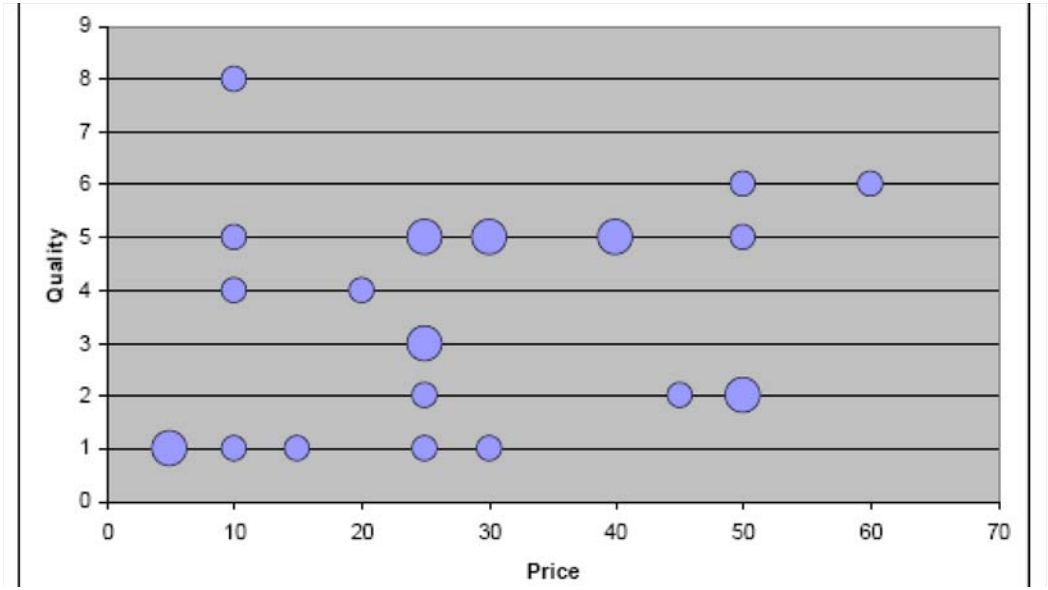
- Context: sports card fairs –> Buyers buying a particular (unrated) card from dealers

- Compare effect of laboratory versus field setting

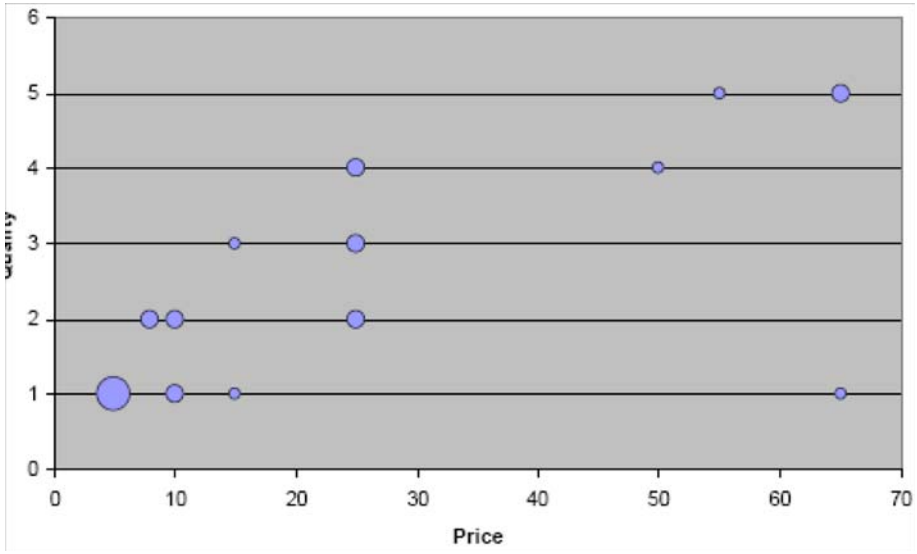
- *Treatment I-R.* Clever dual version to the **Fehr, Kirchsteiger, and Riedl (1993)** payoffs
  - Laboratory setting, abstract words
  - Buyer pay $p \in \{5, 10, ...\}$ and dealer sells card of quality $q \in [.1, 1]$
  - Buyer payoff is $(80 - p)\, q$
  - Dealer payoff is $p - c(q)$, with $c(q)$ convex (but small)

- Standard model: $p^* = 5$ (to satisfy IR), $q^*(p) = 0.1$ for all p

- Effect: Substantial reciprocity
  - Buyers offer prices $p > 0$
  - Dealers respond with increasing quality to higher prices

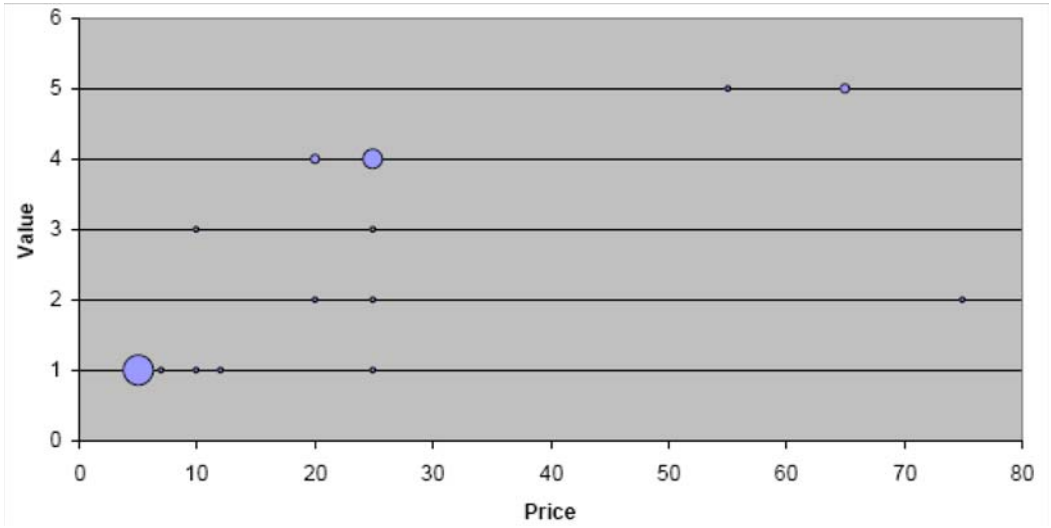


- *Treatment I-RF.* Similar result (with more instances of $p = 5$) when payoffs changed to
  - Buyer payoff is $v(q) - p$
  - Dealer payoff is $p - c(q)$, with $c(q)$ convex (but small)
  - $v(q)$ estimated value of card to buyer, $c(q)$ estimate cost of card to dealer

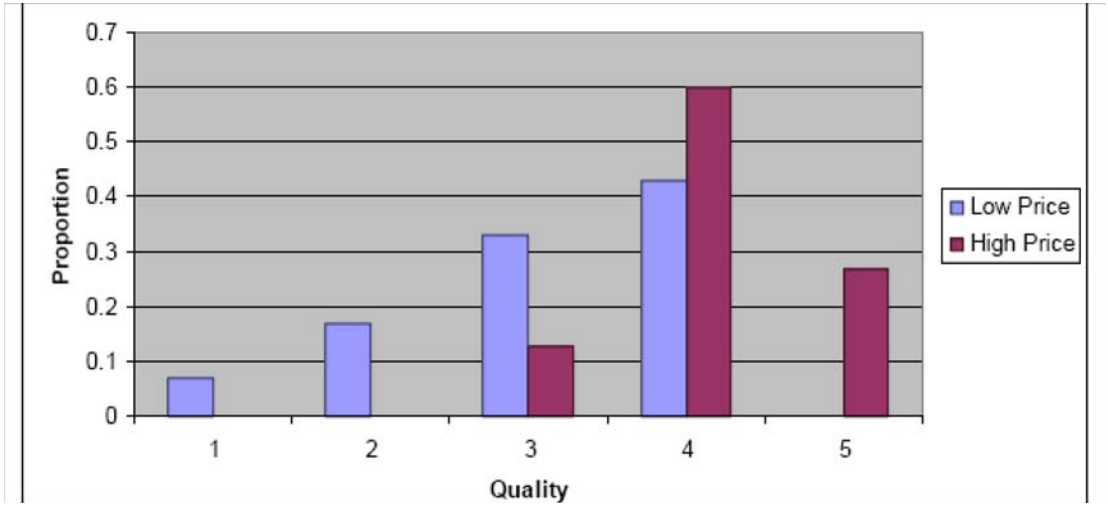


- *Treatment II-C.* Same as Treatment I-RF, except that use context (C) of Sports Card

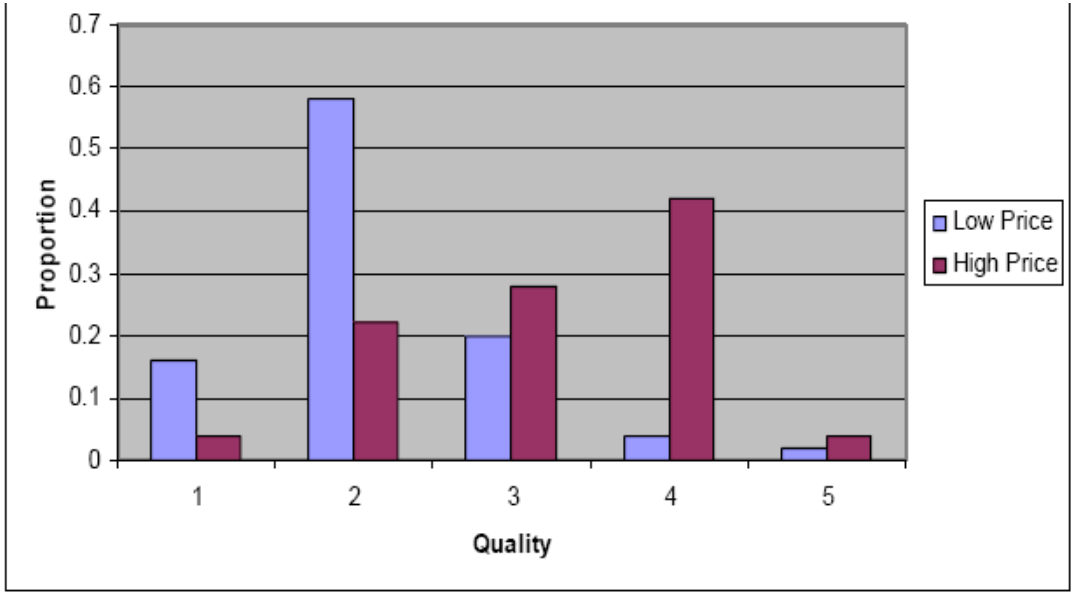
- Relatively similar results



- *Treatment II-M* –> Laboratory, real payoff (for dealer) but...
  - takes place with face-to-face purchasing
  - Group 1: Buyer offers $20 for card of quality PSA 9
  - Group 2: Buyer offers $65 for card of quality PSA 10
  - Substantial "gift exchange"



- *Treatment III* –> In field setting, for real payoffs (for dealer)
  - Group 1: Buyer offers $20 for card of quality PSA 9
  - Group 2: Buyer offers $65 for card of quality PSA 10
  - Lower quality provided, though still "gift exchange"



- However, "gift exchange" behavior depends on who the dealer is
  - Local dealer (frequent interaction): Strong "gift exchange"
  - Non-Local dealer (frequent interaction): No "gift exchange"

- This appears to be just rational behavior

- *Treatment IV.* –> Test a ticket market before (*IV-NG*) and after (*IV-AG* and *IV-G*) introduction of certification
  - No "gift exchange" in absence of certification(*IV-NG*)
  - "gift exchange" only for local dealers

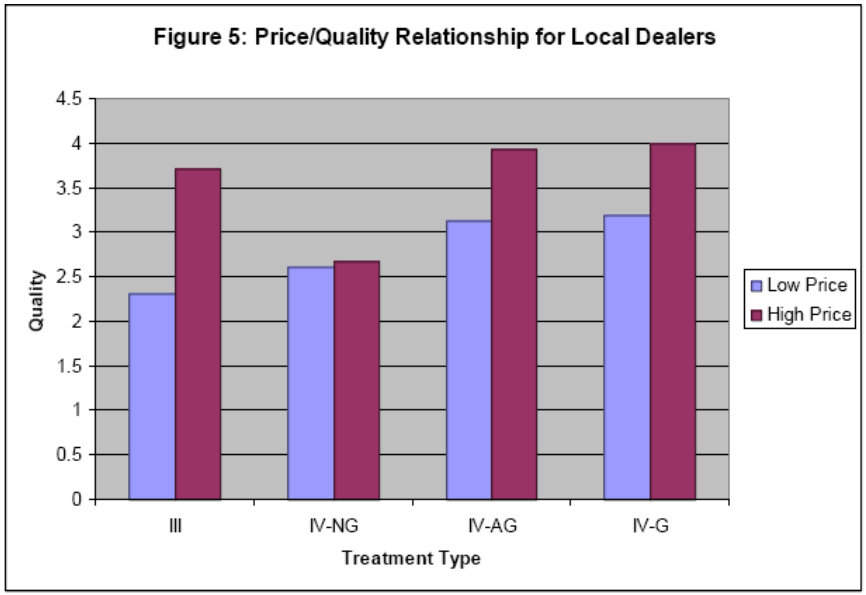


Figure 5: Price/Quality Relationship for Local Dealers
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Quality
III
IV-NG
IV-AG
IV-G
Treatment Type
Low Price
High Price

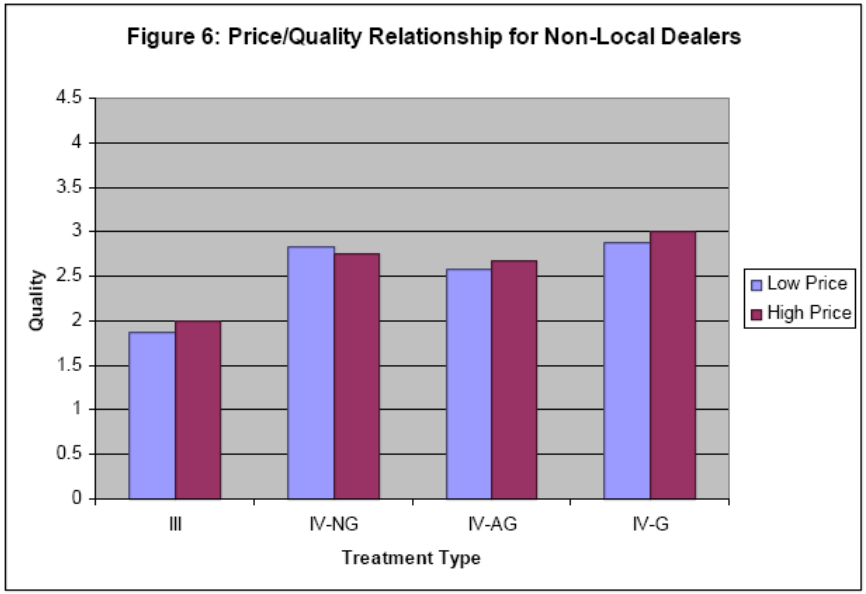


Figure 6: Price/Quality Relationship for Non-Local Dealers
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Quality
III
IV-NG
IV-AG
IV-G
Treatment Type
Low Price
High Price

Table 1. Experimental Design

Treatment I	**Treatment I-R** *Replicate lab studies* *n* = 25	**Treatment I-RF** *Extend to field values* *n* = 25	**Treatment I-RF1** *Extend to one-shot environment* *n* = 27
Treatment II	**Treatment II-C** *Adds market context* *n* = 32	**Treatment II-MS20** *Adds market interaction* *n* = 30	**Treatment II-MS65** *Adds market interaction* *n* = 30
Treatment III	**Treatment IIIS20** *Naturally occurring sportscards* *n* = 50	**Treatment IIIS65** *Naturally occurring sportscards* *n* = 50	
Treatment IV	**Treatment IV-NG** *Naturally occurring tickets before grading was available* *n* = 60	**Treatment IV-AG** *Naturally occurring tickets post-grading announcement* *n* = 54	**Treatment IV-G** *Naturally occurring tickets when grading service is available* *n* = 36

Notes: Each cell represents one (or two, in the case of Treatment IV) unique treatment. For example, Treatment I-R in row 1, column 1, denotes that 25 dealer and 25 nondealer observations were gathered to replicate the laboratory gift exchange studies in the literature.

Table 3: Marginal Effects Estimates for the Sellers' Quality[a,b]

	Treatment Type									
Variable	**I-R**	**I-RF**	**I-RF1**	**II-C**	**II-M**	**III**	**IV-NG**	**IV-AG**	**IV-G**	**IV-P**
Price	0.05*	0.05^	0.10^	0.06^	0.02^	0.02^	-0.001	0.02^	0.02	0.02^
	(1.8)	(3.3)	(5.0)	(4.2)	(4.4)	(6.6)	(0.01)	(2.1)	(1.1)	(2.6)
Constant	0.6	-0.4	-0.8	-0.6	1.6^	0.6^	1.7^	1.6^	1.8^	1.7^
	(0.7)	(0.7)	(1.7)	(1.7)	(6.2)	(3.1)	(8.0)	(5.8)	(3.3)	(7.3)
θ	---	$0.72^	$1.3^	$0.77^	0.45^	$0.21^	$0.01	$0.17	$0.23	$0.21^
		(3.6)	(5.5)	(4.2)	(2.1)	(5.0)	(0.3)	(1.1)	(1.1)	(2.3)
Person Random Effects	YES	YES	NO	NO	YES	YES	YES	YES	YES	YES
N	25	25	27	32	60	100	60	54	36	90

[a]Dependent variable is the sellers' product quality given to the buyer. IV-P pools IV-AG and IV-G data. θ is the monetary gift exchange estimate, computed as $\hat{\partial}v(q)/\hat{\partial}P$.
[b]t-ratios (in absolute value) are beneath marginal effect estimates.
^ Significant at the .05 level.
* Significant at the .10 level.

Table 4: Marginal Effects Estimates for the Sellers' Quality Split by Dealer Type[a,b,c]

	Treatment Type								
Variable	**III_L**	**III_N**	**IV-NG_L**	**IV-NG_N**	**IV-AG_L**	**IV-AG_N**	**IV-G_L**	**IVG_N**	**IV-P_L**
Price	0.03^	0.004	0.002	-0.005	0.04^	0.003	0.04^	0.003	0.04^
	(8.6)	(0.7)	(0.2)	(0.5)	(2.1)	(0.3)	(2.7)	(0.1)	(4.8)
Constant	0.6^	0.6^	1.6^	1.8^	1.7^	1.5^	1.8^	1.8*	1.8^
	(4.1)	(4.6)	(5.0)	(5.2)	(5.2)	(4.6)	(5.0)	(1.7)	(10.0)
θ	$0.31^	$0.01	$0.02	-$0.006	$0.32	$0.02	$0.42	$0.03	$0.35^
	(5.2)	(0.5)	(0.4)	(0.5)	(1.4)	(0.6)	(1.5)	(0.1)	(2.1)
Person Random Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	70	30	36	24	30	24	20	16	50

- Conclusion on gift exchange and social preferences
  - Reciprocation and gift exchange are present in field-type setting (Falk)
  - They disappear fast (Gneezy-List)...
  - ...Or maybe not (Kube et al.)
  - They are stronger on the negative than on the positive side (Kube et al.)
  - Not all individuals display them – not dealers, for example (List)
  - Laboratory settings may (or may not) matter for the inferences we derive

4 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

- – Slight trend to decrease in generosity (Figure 1)

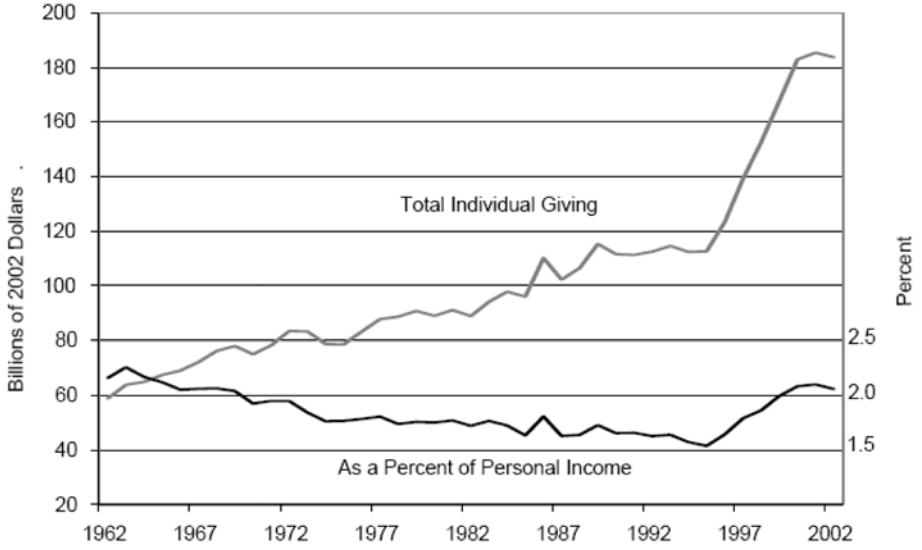


Figure 1: Trends in Individual Giving.
Source: Giving USA 2003.

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

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

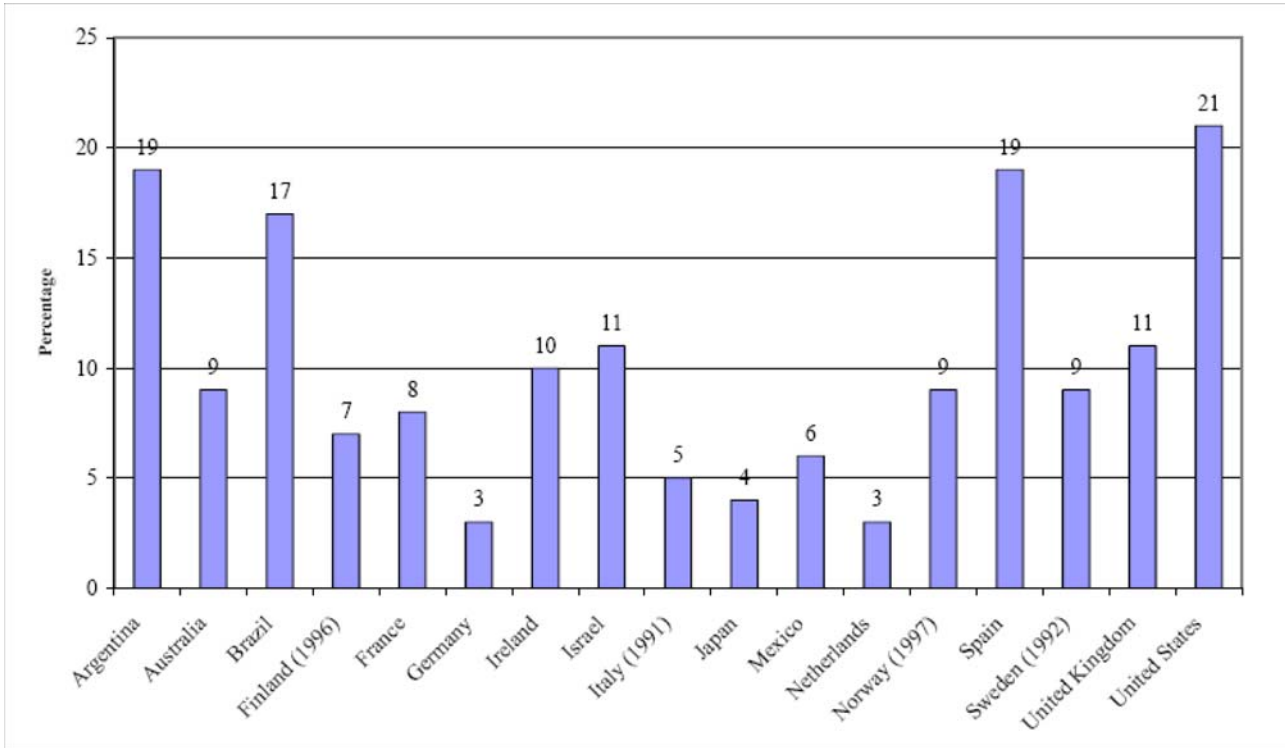
- Giving to whom? (Table 3)
  - Mostly for religion
  - Also: human services, education, health
  - Very little international donations

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.

- Compare to giving in other countries (Figure 2)
  - In US non-profits depend more on Charitable contributions



- Do poorer people receive more? Not obvious
- Donate to person with highest marginal utility in more general model
- Table 3: Very little international donations –> Limited donations to poorest countries

- Additional prediction of model – Crowding out
- If government spends on income of Mark, Wendy will donate less.
- What is the evidence of crowding out?
- Mixed evidence – open question

5 Methodology: Field Experiments

- Field Experiments combine advantages of field studies and natural experiments:
  - Field setting (External Validity)
  - Randomization (Internal Validity)
- Common in Development, Public, Psychology and Economics, (Labor)
- Uncommon in IO, Corporate Finance, Asset Pricing, Macro

- What to do if planning one?

- **Advice 1.** Read how-to manuals and previous field experiments
  - Recommendation 1: **Harrison and List (JEL, 2003), soon also a book**
    - Categorizes field experiments
    - Also, John List's website: Link to many field experiments
  - Recommendation 2: **Duflo, Kremer, and Robinson (NBER, 2006)**
    - Great discussion of practical issues: Power, Compliance, Sample Size,...
    - Targeted toward development

- **Advice 2.** Choose what type of Experiment
  - *Large-Scale Experiment.* Example: Bandiera et al. (2005)
    - More common in Development
    - Need to convince company or organization (World Bank, Government)
    - Need substantial funding
    - Example among students:
      - Damon Jones ran field experiment on tax preparers
      - However also: Long-planned field experiment with H&R Block fell through after 1+ year of planning

- *Small-Scale Experiment.* Example: Falk (2008)
  * More common in Psychology and Economics
  * Need to convince non-profit or small company
  * Limited funds needed – often company will pay
  * Example among students:
    - Dan Acland running field experiment on projection bias and gym attendance
    - Pete Fishman convinced small video store to randomize advertising

- **Advice 3.** Need two components:

  1. Interesting economic setting:
     - Charity, Gym, Village in Kenya
     - Does Video Game work? Maybe
  2. Economic model to test
     - Self-control, reciprocity, incentives
     - Do not do pure data-finding experiments
     - If you can, pick a case where 'either' result is interesting
     - Best scenario: Do a field experiment tied enough to a model to infer parameters

- **Advice 4.** Keep in mind practical issues:
  - Mostly refer to **Duflo, Kremer, and Robinson (NBER, 2006)**
  - Need approval from Humans Subjects!
    * At Berkeley, takes about 2 months
    * More about this later
  - When designing randomization, keep in mind implementation
    * 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 to do if requires just computerized implementation (ex: loan offers)

* Also: Monitor the field continuously

– Funding harder to obtain for graduate students:

* Try IBER, PIPE, Russel Sage Small Grant Program

* Ask your advisor

6 Next Lecture

- Non-Standard Beliefs
- Overconfidence
- Law of Small Numbers
- Projection Bias