Experimental Techniques and Methods: Subject/Participation Selection

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What we will learn in this session?

Through this session, we will cover ...

Topics of this session

1. Group Identity manipulation in the Laboratory
2. Endogenous Participant Selection Mechanisms with entry fees or auctions
3. Bridging the Lab and external environment through selective payment schemes
4. Online Experiments and Mobile Labs

Exogenous Group Identity manipulation

Exogenous Group Identity manipulation:

Roth, A. E.; Prasnikar, V.; Okuno-Fujiwara, M. and Zamir, S. "Bargaining and Market Behavior in Jerusalem, Ljubljana, Pittsburgh, and Tokyo: An Experimental Study," *American Economic Review*, 1991, 81, 1068-1095

$\rightarrow$ Group identities generate by their nationalities.

Goette, L.; Huffman, D. and Meier, S. "The Impact of Group Membership on Cooperation and Norm Enforcement: Evidence Using Random Assignment to Real Social Groups," *American Economic Review*, 2006, 96, 212-216

$\rightarrow$ Group identities generate by their platoons in the Swiss Army.

Endogenous Group Identity manipulation

In a typical minimal group experiment, subjects are randomly assigned to groups, which are intended to be as meaningless as possible.
So, how to manipulate endogenous group identity in a laboratory?

Chen, Y. and Li, S. X. "Group Identity and Social Preferences," *American Economic Review*, 2009, 99, 431-457

$\rightarrow$ Group identities are induced by the choice of paintings (originally, this technique comes from social psychology experiments).
$\rightarrow$ All results are consistent with the hypothesis that participants are more altruistic toward an ingroup match.

Endogenous G.I. manipulation: Chen and Li (2009)

Experimental Design:

- **First stage** a group assignment stage
- **Second stage** a collective problem solving stage using an online chat program
- **Third stage** an other-other allocation stage, where each participant allocates tokens to two other participants
- **Fourth stage** a set of two-person sequential games

Treatments	Group assignment	Chat	Other-Other	Within/Between	No. sessions	No. subjects (A)
Control	N/A	No	No	N/A	9	134 (133)
Original	Painting	Yes	Yes	Within	15	240 (237)
NoChat	Painting	No	Yes	Within	4	64 (64)
NoHelp	Painting	No	No	Within	2	32 (32)
RandomWithin	Random	Yes	Yes	Within	2	32 (32)
RandomBetween	Random	Yes	Yes	Between	4	64 (64)
Total					36	566 (562)

Endogenous G.I. manipulation: Chen and Li (2009)

First stage:
Based on their reported painting preferences, subjects were divided into two groups, the Klee group and the Kandinsky group. Subjects were privately informed about their group membership and the number of people in their group. Groups remained the same throughout the experiment.

To experimentally evaluate the difference between our group assignment based on true painting preferences and random assignment, we used two treatments with random assignment, i.e., RandomWithin and RandomBetween. In both treatments, at the beginning of the experiment, each participant randomly drew one from a stack of envelopes, each of which contained either a Maize or a Blue slip, which determined whether they were assigned to the Maize group or the Blue group.

Endogenous G.I. manipulation: Chen and Li (2009)

Second stage:
By using an online chat program, one hundred tokens were rewarded to each participant for each correct answer. This part of the design is used to enhance group identity.

Third stage:
No one was allowed to allocate tokens to herself.

During each round, everyone decided how to allocate tokens between another two people under three scenarios: if both of them came from her own group, if both came from the other group, and if one came from her own group and the other from a different group.

Endogenous G.I. manipulation: Chen and Li (2009)

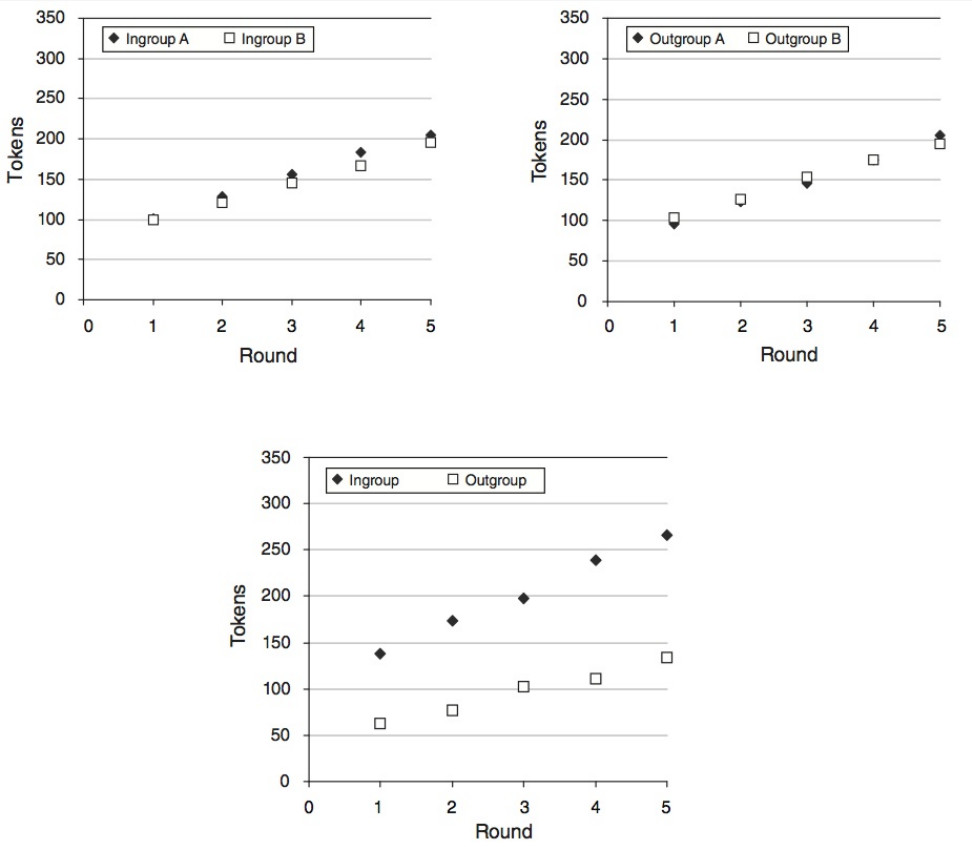
Fourth stage:
5 two-person dictator games and 16 two-person response games, and 3 more games

The two-person response games fall into three categories. For games in the first category, B incurs no cost to help or punish A. For games in the second category, B needs to sacrifice her own self-interest to help A. For games in the third category, B incurs a cost if she penalizes A.

Use the strategy method to solicit participant decisions under two scenarios: if the participant's match is from the same group, and if her match is from the other group

Endogenous G.I. manipulation: Chen and Li (2009)

Effects of Group Identity on Social Preferences



Endogenous G.I. manipulation: Chen and Li (2009)

The top panels show that, on average, participants allocate an almost equal amount to two other individuals, if they are both from an ingroup or an outgroup.

In the bottom panel, however, the average number of tokens allocated to an ingroup member (a diamond) is significantly more than that allocated to an outgroup member (a square).

The difference between ingroup and outgroup allocations (normalized by endowment) is between 32.2 percent and 38.4 percent.

$\rightarrow$ Their charity (envy) toward an ingroup match is significantly greater (less) than that toward an outgroup match.

Endogenous G.I. manipulation

Tajfel and Turner (1979): Three major components

Categorization the process of putting people into categories, Labeling (a Muslim, a female, or a soldier) and Self-image (what categories we belong to).

Identification the process by which we associate ourselves with certain groups.

Comparison the process by which we compare our groups with other groups, creating a favorable bias toward the group to which we belong.

Endogenous Participant Selection Mechanisms

Kogan, S., Kwasnica, A. M. and Weber, R. A. "Coordination in the presence of asset markets," *American Economic Review*, 2011, 101(2), 927–47.

→ They study the relationship between economic performance, measured by outcomes in the coordination game, and a corresponding asset market in which the traded assets' values are contingent on the game outcome

→ 2-stage game: auction and coordination game
→ Future markets into coordination game to study whether markets could improve coordination.
→ A market may create an incentive to engage in opportunism, thereby harming output in the underlying economic activity.

Endo. Participant Selection Mech.: Kogan et al. (2011)

In the second stage coordination game, each player simultaneously selects an input level $e_i \in \{1, ..., M\}$. Each player's payoff depends upon her own input level and the group's output, $m_j(e)$, which is determined by the input choices of all players:

$$\pi_i(e) = a + bm_j(e) - c|m_j(e) - e_i| \tag{1}$$

$j = 1$: First, groups often fail to coordinate on the Pareto-dominant equilibrium. Second, group size exerts a strong influence on equilibrium selection. Small groups of two to three players converge to much higher output levels than larger groups of six or more

$j > 1$: Generally, higher order statistics facilitate coordination on equilibria corresponding to higher input choices. However, efficient coordination is not trivial.

Endo. Participant Selection Mech.: Kogan et al. (2011)

Prior to the coordination game, all players participate in an asset market. In the market, the value of a traded security is based upon the output, $m_j(e)$, in the subsequent coordination game. More precisely, there are M state-contingent securities traded with the following payoffs:

$$X_m = \begin{cases} \beta & \text{if } m_j(e) = m; \\ 0 & \text{Otherwise.} \end{cases}$$

Since these assets pay off based upon the outcome of the game, the original game payoffs from (1) are modified to be:

$$\pi_i(e; x_i) = a + bm_j(e) - c|m_j(e) - e_i| + \beta \sum_{m=1}^{M} \delta_m(e) x_{mi},$$

where $\delta_m = 1$ if $m_j(e) = m$ and 0 otherwise.

Endo. Participant Selection Mech.: Kogan et al. (2011)

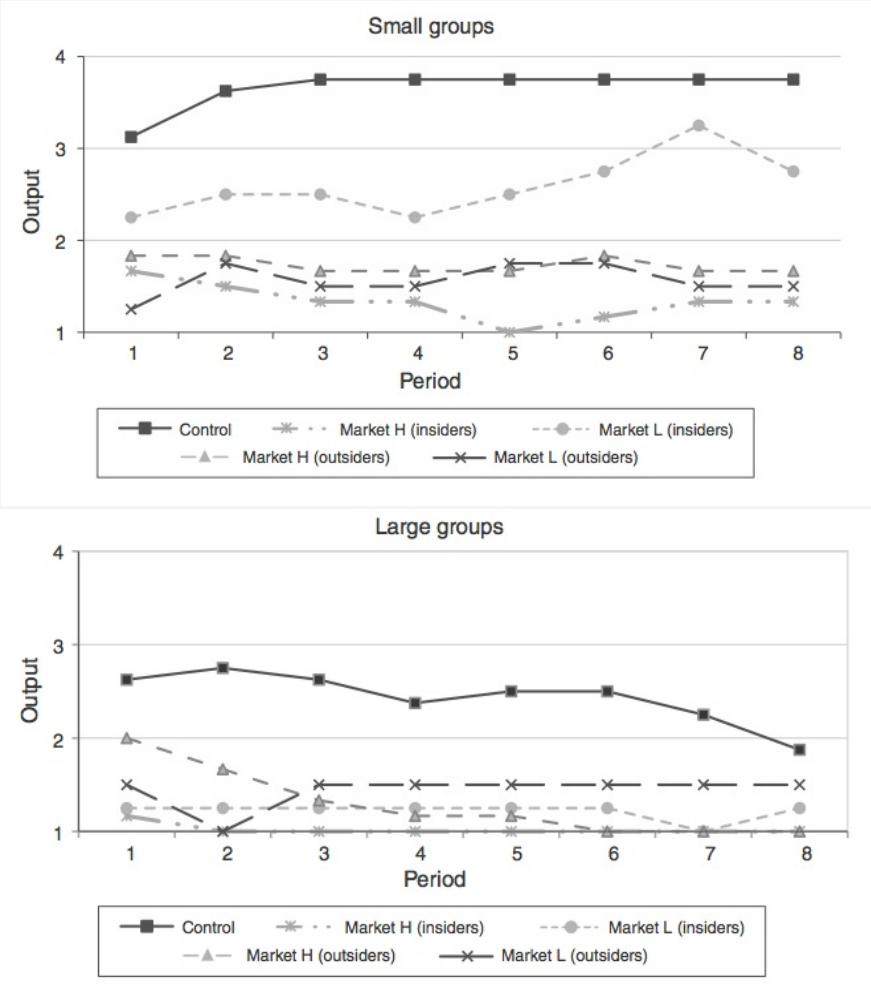
Market H and Market L treatments:
The Market L treatment significantly lowered the relative payoff of the market.
$\rightarrow$ Prediction: A likely much stronger negative effect of the market in the Market H treatment than in Market L.

Each market contained two types of traders:

Insiders subjects who traded on outcomes that they could directly influence, meaning that their own game determined asset values.

Outsiders subjects who traded on an exogenous outcome, meaning that asset values were determined by the outcome of the other group's game.

Endo. Participant Selection Mech.: Kogan et al. (2011)



Endo. Participant Selection Mech.: Kogan et al. (2011)

Results: Insider Group Output

- Market treatments produce output that is substantially lower compared with the Control treatment
- Group output is lower for large groups
- In the Market H treatment output is reduced further than in the Market L treatment, when controlling for group size

Results: Portfolio Incentives

- For Insiders, players' asset positions when j $= 1$ may negatively influence output through a distortion of individual incentives. Players who hold enough low-output assets may prefer to make low-input choices, regardless of their beliefs about others' behavior.

Bridging the Lab and external environment

Benz, M. and Meier, S. "Do people behave in experiments as in the field? – evidence from donations", *Experimental Economics*, 2008, 11, 268-281

→ The external validity of experiments is whether the same individuals act in experiments as they would in the field
→ Pro-social behavior is more accentuated in the lab, and the data show that pro-social behavior in experiments is correlated with behavior in the field

Bridging the Lab and external environment

In renewing their registration of each semester, every student has to decide anonymously if s/he wants to contribute to two social funds – as a field experimental part

- a specific amount (7 CHF) of money to a fund which offers cheap loans to students in financial difficulties
- a specific amount of money (5 CHF) to a second fund supporting foreigners who study for up to three semesters at the University

Note: Students have the choice of donating to no fund, only one fund or both funds.

$\rightarrow$ The panel structure of the dataset allows analyzing whether past behavior in the field explains behavior in the lab, and also whether behavior in the lab explains future behavior in the field

Bridging the Lab and external environment

Study 1: Students could make contributions to the exactly same social funds at the University of Zurich

Study 2: The contributions had to be made to charities completely unconnected with the University

$\rightarrow$ Varying the degree of the similarity between the decision in the field setting and the experimental studies

More detail settings: see Frey, B. S., and Meier, S. (2004). "Pro-social behavior in a natural setting," *Journal of Economic Behavior and Organization*, 54, 65-88.

Bridging the Lab and external environment

Experiment 'Social Funds' (99 students participated)

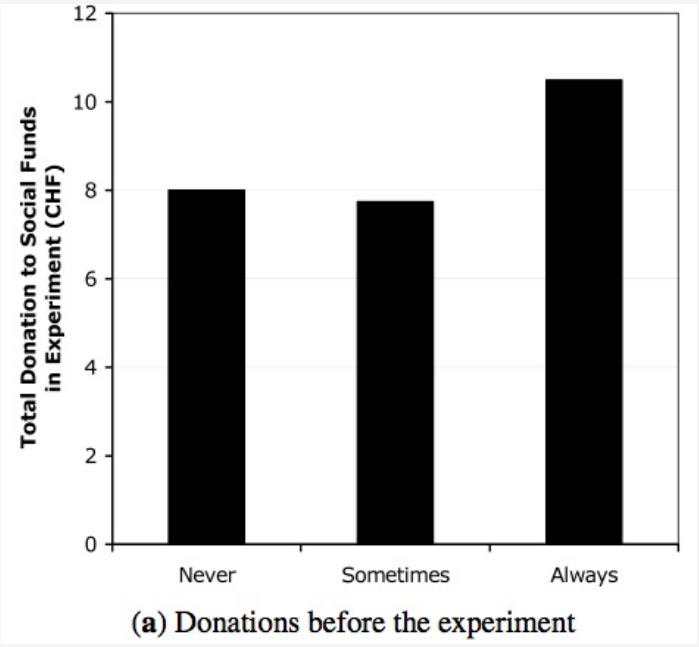
The experiment was performed at the end of two regular classes

The students received an endowment of in total 12 CHF and had to decide how much of the money they wanted to give to the two social funds at the University. Students had to decide to give $x_1 \in [0, 7]$ to one of the social funds and to give $x_2 \in [0, 5]$ to the other funds in increments of 0.5 CHF

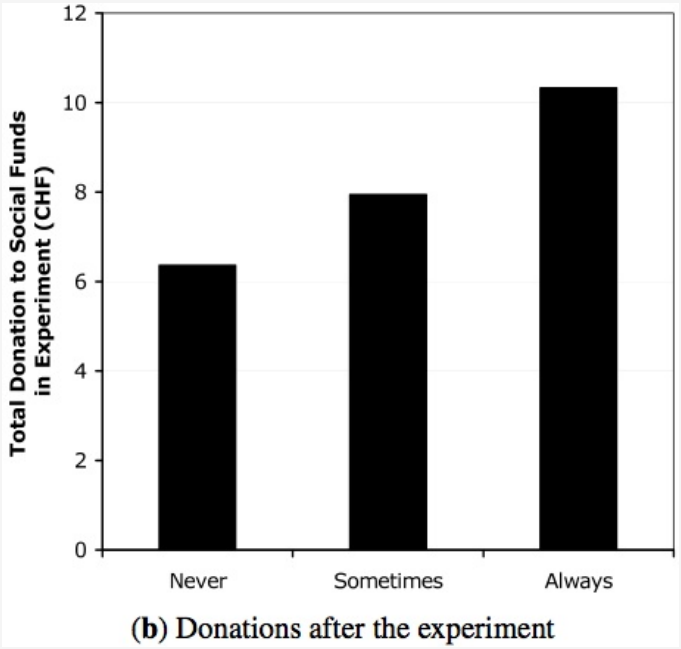
They passed almost 80 percent, 9.46 CHF, in both decisions to either the Loan Fund or the Foreigner Fund

Bridging the Lab and external environment

Subjects are divided into three groups according to their behavior in the field setting:



(a) Donations before the experiment



(b) Donations after the experiment

Bridging the Lab and external environment

They find :

- even students who never contributed to the charitable organizations in the field (before or after the experiment) donate 8 CHF and 6.4 CHF in the experimental setting
- the evidence of correlations between behavior in the settings ranging from 0.25 to 0.4.

Online, Classroom Experiments and Mobile Labs

Greiner, B. "An Online Recruitment System for Economic Experiments," Unpublished, 2004

Hergueux, J. and Jacquemet, N. "Social preferences in the online laboratory: a randomized experiment," *Experimental Economics*, 2015, 18, 251-283
$\rightarrow$ an "online laboratory" to compare social preferences and risk aversion online and in person. They conducted a Public good game, a Trust game, a Dictator game, and an Ultimatum game.

Online, Classroom Experiments and Mobile Labs

Criticisms:
Online experiments have weaker experimental controls compared to laboratory-based ones.

- the subject's characteristics issue (e.g., age, race, gender, etc.)
- the motivation issue (how they participate in the experiment seriously)
- the minoring issue

Online, Classroom Experiments and Mobile Labs

Mobile Labs (University of Essex)

- a control laptop computure
- a number of tablets (e.g. Apple iPad)
- a wireless router

$\rightarrow$ A location does not matter!