DECISION-MAKING IN GROUPS AND GROUP IDENTITY

BEHAVIORAL ECONOMICS

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Introduction

Group decision-making

- Standard economic textbook analysis: individual decisions that are not influenced by others
- Real life: many family, business, military or political decisions are made by groups, rather individuals acting in isolation
- What are the differences in individual vs. group decision-making?

Group identity

- People belong to different groups
- Does group identity affect their individual decision-making?

Main questions

- **Are there differences in decision-making of individuals and of groups?**
  - **Are groups more rational / cognitively sophisticated?**
  - Are groups more selfish / less pro-social?

- How can group identity influence economic outcomes?

- How can we measure the effects of group identity on behavior?

Are groups more cognitively sophisticated?

Kocher and Sutter (2005)

- Beauty-contest game (also known as "guessing game")
  - N decision-makers
  - Choose number from the interval [0,100]
  - The winner is the decision-maker whose number is closest to p times the average chosen number, where $p<1$
  - Let's set $p=2/3$

- Please go to menti.com
- Write your choice of a number between 0 and 100.

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- Write your choice of a number between 0 and 100.

- Now please form groups of three. Discuss, jointly agree and write the average number that you expect to be chosen now (just once for each group).

Are groups more cognitively sophisticated?

Kocher and Sutter (2005)

- What is the equilibrium of the game?
  - Number zero
  - Let's say a player considers others choosing randomly -> average of a random choice is 50 -> best response is 33.3
  - However, if one anticipates that everyone else will anticipate and also best-respond to random choice, the best response is 22.2., etc.
  - Textbook rationality: iterate infinitely
  - Empirical evidence: decision-makers iterate only a few steps, i.e. the depth of reasoning is rather limited.

Are groups more cognitively sophisticated?

Kocher and Sutter (2005)

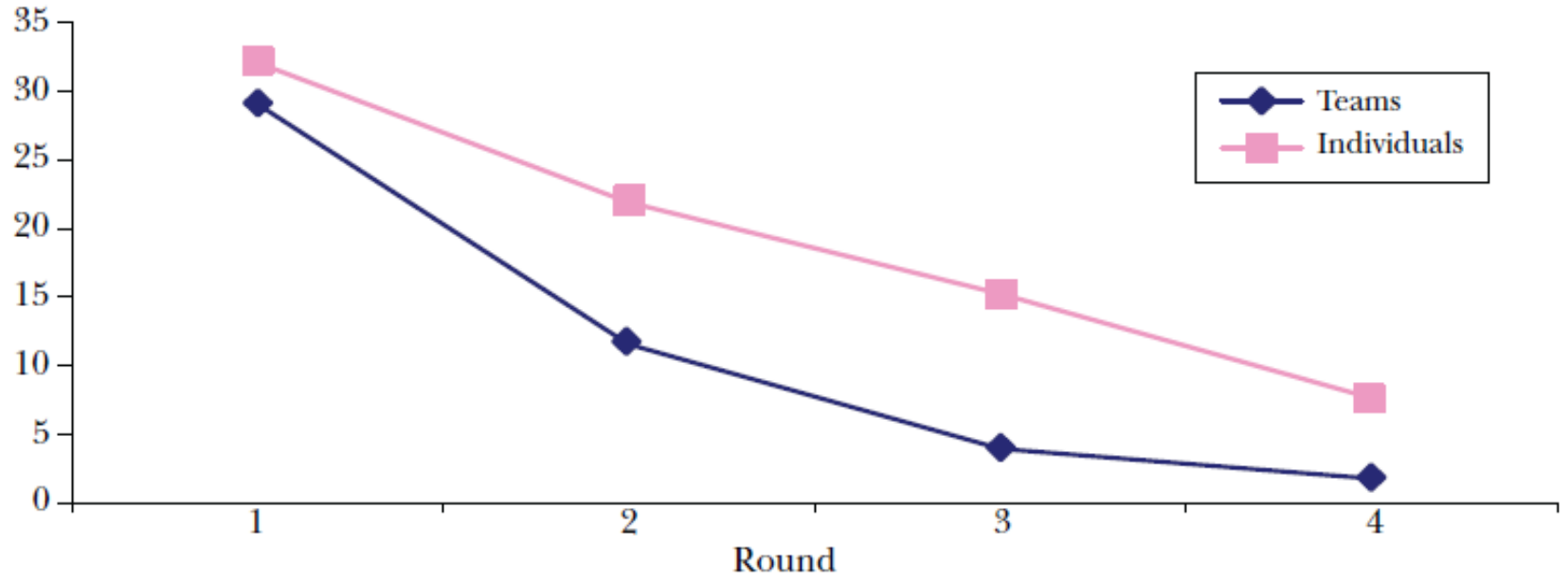
- Manipulations
  - Individuals choosing in isolation
  - Groups of three subjects who freely discuss and have to agree on a joint strategy

- Findings
  - Groups choose systematically lower numbers
  - Groups converge more quickly to the equilibrium if the game is repeated
  - Groups outperform individuals
  - The results suggest that groups are reasoning more deeply about strategy of the game and are expecting other parties to reason more deeply as well

Are groups more cognitively sophisticated?

Kocher and Sutter (2005)

Median Number Chosen by Groups and Individuals in a Beauty-Contest Game



Source: Kocher and Sutter (2005).

Note: In this simultaneous move game, a set of n decision makers chooses a number from the interval $[0, 100]$, and the winner is the decision maker whose number is closest to p times the average chosen number, with p being some fraction less than 1.

Are groups less prone to make errors?

Charness, Karni and Levin (2010)

- Linda paradox (Kahneman and Tversky 1983)
  - Linda is 31 years old, single, outspoken, and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in anti-nuclear demonstrations.
  - Which is more probable?
    - Option A: Linda is a bank teller.
    - Option B: Linda is a bank teller and is active in the feminist movement.
  - Please go to menti.com and make your choice.

Are groups less prone to make errors?

Charness, Karni and Levin (2010)

- Theory: Since B imposes an extra restriction, it cannot be more probable than A.
- Empirical evidence (Kahneman and Tversky 1983): 85 percent of respondents (when making choices individually) answer B, and thus violate rational choice.

- Experimental manipulations
  - With incentives and without incentives (paid if correct answer)
  - Individual choices
  - People consulted in groups of two prior making own decision
  - People consulted in groups of three prior making own decision

Are groups less prone to make errors?

Charness, Karni and Levin (2010)

Violations of the Conjunction Rule in an Experiment Undertaken with Individuals, Pairs, and Trios

Study	*Details*	*Incorrect answers/ total sample*	*Error rate (percent)*
Individuals			
T&K, 1983	UBC undergrads, no incentives	121/142	85.2
CKL, 2010	UCSB students, singles, no incentives	50/86	58.1
CKL, 2010	UCSB students, singles, incentives	31/94	33.0
CKL, 2010	UCSB students, total singles	**81/180**	**45.0**
Pairs			
CKL, 2010	UCSB students, in pairs, no incentives	27/56	48.2
CKL, 2010	UCSB students, in pairs, incentives	5/38	13.2
CKL, 2010	UCSB students, total in pairs	**32/94**	**34.0**
Trios			
CKL, 2010	UCSB students, in trios, no incentives	10/39	25.6
CKL, 2010	UCSB students, in trios, incentives	5/48	10.4
CKL, 2010	UCSB students, total in trios	**15/87**	**17.2**

Main questions

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- How can we measure the effects of group identity on behavior?

Are groups less pro-social? Trust game

Kugler et al. (2007)

- Trust game (investment game)
  - Player A can send an amount $x \leq c$ to Player B
  - Player B receives $3x$ and can send back $y \leq 3x$
  - Standard game theoretic prediction with selfish agents
    - Player B should not transfer anything back
    - Knowing this, Player A should not transfer anything to the first player
    - Socially inefficient outcome

- Manipulations
  - Either groups or individuals were in the role of Player A or Player B

Are groups less pro-social? Trust game

Kugler et al. (2007)

- Groups send smaller amounts as Player A and expect lower returns. They are less trusting, and thus closer to the standard rationality paradigm.
- Groups return on average the same fraction of amount sent as individuals. They are not less trustworthy.
- Social welfare is smaller when groups make the decisions.

Are groups less pro-social? Trust game

Kugler et al. (2007)

Table 1
Mean amount x sent by senders (standard deviation in parentheses)

Sender	Responder	
	I(ndividual)	G(roup)
I(ndividual)	65.5 (36.4) $N = 32$	76.3 (31.2) $N = 25$
G(roup)	54.0 (41.6) $N = 25$	43.7 (42.4) $N = 27$

Table 2
Mean return in % ($=y/3x$) (standard deviations in parentheses)

Sender	Respondent	
	I	G
I	25.1 (19.5)	25.1 (17.5)
G	23.3 (22.1)	16.7 (18.7)

Are groups less pro-social? Prisoner's dilemma game

- Creation of economic surplus often requires cooperation.
- Conflict between taking a privately costly action that improves social welfare and a non-costly action that only suits private interests of the player.

- Prisoner's dilemma game (PD)
  - Workhorse for studying cooperation
  - Simultaneous game, in which players act without knowing action of the other player.
  - Two players, who are, regardless of the strategy of the other player, always strictly better of (in monetary terms) when taking non-cooperative action (defect, confess, cheat, free-ride,..)

Are groups less pro-social? Prisoner's dilemma game

- Prisoner dilemma game
  - Player A and Player B make choices simultaneously
  - Can choose to cooperate or to defect
  - Defection is the dominant strategy for purely selfish agents
  - In contrast, social welfare maximized if cooperation is selected

		Player B	
		Cooperative	Defect
Player A	Cooperative	(16; 16)	(8; 20)
	Defect	(20; 8)	(12; 12)

Are groups less pro-social? Prisoner's dilemma game

- Manipulations
  - Individuals play with individuals
  - Groups play with groups

- Findings
  - Groups are less likely to cooperate than individuals
  - Evidence from more than 130 studies (Wildschut et al. 2003)

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- How can we measure the effects of group identity on behavior?

Group identity

Akerlof and Kranton (2000)

- Incorporate identity into a general economic model of behavior
- Identity influences behavior and economic outcomes
- Social difference: people are assigned to social categories (e.g. men and women)
- Social categories are associated with different prescribed behaviors appropriate for these categories.
- Violating these prescriptions evokes anxiety and discomfort in oneself and in others.

Group identity

Choose x, to maximaze:

$U = - (1-w(s))*(x-x_o)^2 - w(s)*(x-x_c)^2$

- x: action choice
- x_o: preferred action in absence of identity considerations
- x_c: action prescribed for members of category C
- $0<=w(s)<=1$: weight placed on social category C in the person's decision
- s: strength of affiliation with a social category C

Main questions

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- **How can we measure the effects of group identity on behavior?**

Role of identity

- Differences between various groups of people often observed.
- But how to test the causal role of identity?
  - Confounders like socioeconomic status, opportunity, selection into some types of groups, etc.
  - For example, testing whether religious affiliation influences prosocial behavior.
  - Comparing prosocial behavior between people of different religions misleading:
    - Different religious groups might attract people with different prosocial inclinations.
    - Third unknown variables correlating with both religious identity and prosocial behavior.

Priming

- Experimental variation of the salience of a social category, within a specific social group
- Aim: measure the impact of primed concepts on behavior in subsequent tasks
- Activation of mental concepts through subtle situational cues
- Typical priming techniques: actively prompting subjects to think about specific concepts or recollect past experiences; unscrambling of sentences, background music and images, etc.

- $U = - (1-w(s))*(x-x_o)^2 - w(s)*(x-x_c)^2$

Priming identity, time and risk preferences

Benjamin, Choi and Strickland (2010)

- Observations
  - Asian-American identity is hypothesized to include the norm for patience
  - Female identity is hypothesized to include the norm for risk aversion

- Experimental manipulations (Asian-American subjects)
  - Treatment: questions on languages spoken by subject's family, how many generations have lived in US.
  - Control group: questions about the school meal plan and cable TV subscription.

Priming identity, time and risk preferences

Benjamin, Choi and Strickland (2010)

- Asians make fewer impatient choices when their ethnicity is primed.
- Whites do not respond to the prime → the Asian priming effect is not driven by some channel common to both Asians and whites.
- No changes in risk choices
- Using a similar method, no effect of more salient gender identity.

TABLE 1—PERCENT OF IMPATIENT OR SAFE CHOICES, EXPERIMENT 1

	Percent impatient choices		Percent safe choices	
	Asians	Whites	Asians	Whites
Control	26.37	20.90	66.67	57.96
	(17.49)	(17.94)	(21.54)	(25.00)
Ethnicity Salient	12.63	27.14	64.41	57.28
	(16.28)	(17.78)	(25.07)	(16.34)
p-value of difference	0.0010	0.1639	0.6872	0.8998
N	71	66	71	66

Priming identity and dishonesty among bankers

Cohn, Fehr and Marechal (2014)

- Motivation
  - Recently, scandals involving fraud undermined trust in the financial industry.
  - Attributed to the financial sector's business culture which is hypothesized to favor dishonest behaviors.

- Priming the professional identity of bank employees
  - Treatment: questions like "At which bank are you presently employed?", "What is your function at this bank?", etc.
  - Control: unrelated questions
  - Placebo experiment: employees of different industries and students.

Priming identity and dishonesty among bankers

Cohn, Fehr and Marechal (2014)

- Does priming work? Manipulation check
  - Conversion of word fragments into meaningful words.
  - "_ _ oker" into "broker" or "smoker"
  - Frequency of bank-related words in the treatment was 36%, in the control 26%.

- Measuring dishonest behavior
  - Coin-tossing task
  - Take a coin, toss it ten times in private and report the outcome. For each coin toss they could win USD20.
  - Dishonesty can be detected at the group level by comparing the reported outcomes with 50% benchmark implied by honest reporting.

Priming identity and dishonesty among bankers

Cohn, Fehr and Marechal (2014)

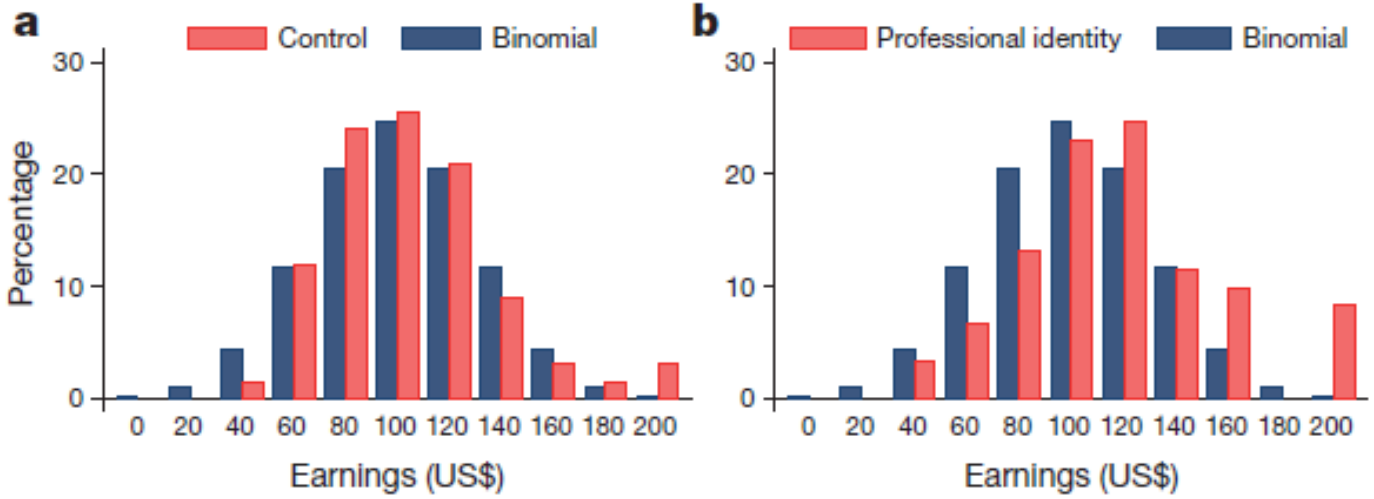


Figure 1 | Distribution of earnings in the coin tossing task claimed by the bank employees. **a, b**, Each successful coin toss yielded approximately $20. **a**, Distribution of earnings in the control condition in comparison to the binomial distribution implied by honest reporting. On average, bank employees reported 51.6% successful coin flips, which is not significantly different from 50% ($P = 0.415$, two-sided t-test; $n = 67$). **b**, Distribution of earnings in the professional identity condition in comparison to the binomial distribution. Bank employees in the professional identity condition reported 58.2% successful coin flips, which is significantly above chance ($P = 0.002$, two-sided t-test; $n = 61$) and significantly higher than the reported success rate in the control group ($P = 0.033$, two-sided rank-sum test; $n = 128$).

Priming identity and dishonesty among criminals

Cohn, Marechal and Noll (2015)

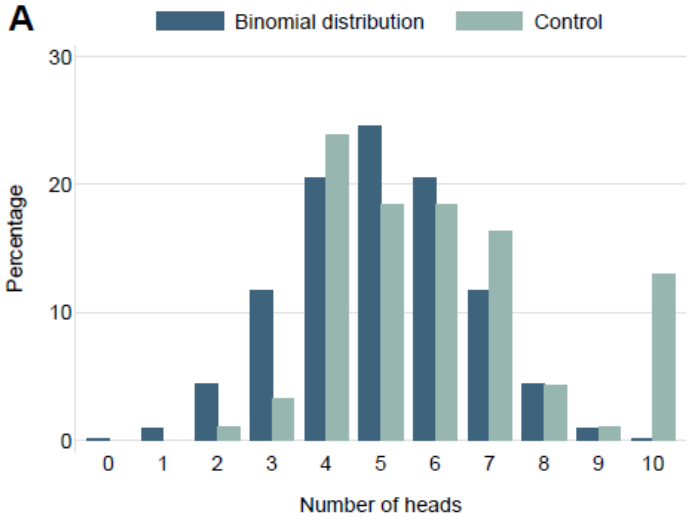
- Hypothesis: deviant people have a moral and a criminal identity, differing in the extent to which they impose rule compliance.

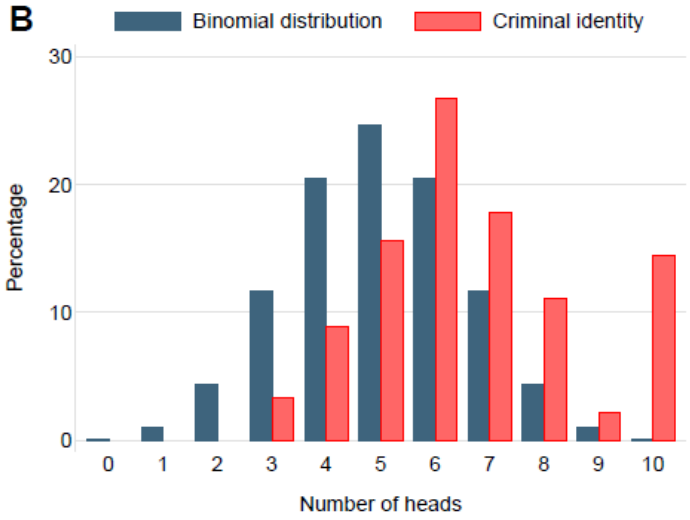
- Challenge in identifying the causal influence of criminal identity on rule-violating behavior
  - Comparison of criminals and non-criminals is problematic, these groups differ in many dimensions.

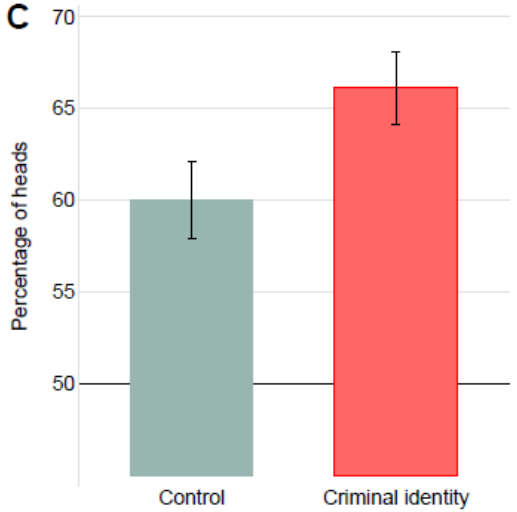
- Sample: 182 inmates from the maximum security prison in Switzerland
- Priming: questions reminding them the are incarcerated criminals
- Outcome measure: coin tossing task

Priming identity and dishonesty among criminals

Cohn, Marechal and Noll (2015)







- Behavior in the experiment correlates with inmates' offenses against in-prison regulation (aggression, drugs use, etc.)
- Coin task may provide an externally valid measure of rule violating behavior.
- Placebo experiment with regular citizens.

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