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Identity and Inequality

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Institute for
New Economic Thinking



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Introduction – Why do we care?

- Inequality – some people have more, some people have less.
- Why do we care?
- As social scientists, we want to describe such patterns.
- But why do we concentrate on **inequality** as a pattern of interest?
 - Maybe bad for growth, development overall.
 - Maybe its unfair, unjust.
- Particularly unjust when the inequalities are systematic – certain social groups have more and others have less.
- Inequality is not randomly distributed.
 - US: - blacks, hHispanics,
 - Europe – North Africans, Africans, Roma
 - Many parts of the world: women

Introduction – Social Categories

- Notice what we' ve just done.
- We' ve started talking about people in social terms – social categories.
- Identity –
- At a minimum a designator of a social group.
- How does identity figure into inequality??
 - As a mere descriptor?
 - As a part of processes that create and sustain inequality?

Outline of Lectures

- Introduction
 - Why we should think about identity and inequality.
- Identity & Inequality – Part 1 - Economic Theory
 - General overview of theoretical approaches
 - “Identity Economics” as a new approach.
 - Some specific models – Coate & Loury, Akerlof & Kranton
- Identity & Inequality – Part 2 – Experiments
 - Much ado about preferences for “fairness,” “inequity aversion.”
 - Do people have preferences for “inequality”? YES



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Identity and Inequality

Part 1

Economic Theory

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Introduction – Why theory?

- Putting identity/social category markers is standard practice in empirical study of socioeconomic outcomes.
 - (Dummy) variables: black, female, ethnicity, region, state
 - Interaction effects: black, female, etc.
- To fix ideas – consider education
 - child or adolescent “underachievers” in school; does not get the education that would be predicted by benefits and costs
 - black children in the United States
 - Roma children in Hungary
 - girls in a developing country
- What can account for the dummy variables, the interaction effects?
- Unpack the black box of these effects.

General Overview of Theoretical Approaches

- Basic Economic Model
 - Individuals have utility from own choices/actions
 - Idiosyncratic preferences, which are exogenous
 - Technology (constraints)
 - ➔ choices lead to patterns of behavior
- Strategic Interaction
 - Individuals have payoffs from own and others' actions
 - Idiosyncratic costs/benefits, which are exogenous
 - Game form (institutions), specifying information asymmetries etc.
 - ➔ equilibria give patterns of behavior
- Preferences determine utilities and payoffs
 - Preferences – what a person “likes” or “doesn't like” (Becker)
 - Preferences – what a person “should” or “shouldn't do” (A&K)
 - Combine with technology & constraints, strategic interaction
 - ➔ choices & equilibria give patterns of behavior

General Overview: Basic Economic Model

- Utility Function: individual w/exogenous, idiosyncratic preferences
 - Makes choice given technology and constraints.
- Child likes or not school (or is more or less talented at schoolwork)
 - Weighs costs and benefits of schooling, given school quality and opportunity cost of attending school, job networks, discrimination.
 - Pattern: Blacks have lower levels of academic achievement because they attend worse schools, have worse job networks.
 - Pattern: Girls have lower levels of academic achievement because they have high opportunity cost of time (household).
- Useful, because there could be such technology, constraints.
- Begs the question why blacks attend worse schools, why women “should” attend to household chores, why there is discrimination.
- Pushes the inequality question up one level, to what is behind the assumptions in our models.

General Overview: Strategic Interaction

- Strategic Interaction:
 - Individual payoffs depend on own preferences and others' actions.
 - Makes choices strategically, taking into account how others' react.
 - Equilibria → social pattern
- Repeated game, people punish those who violate the equil.action
 - Equilibrium can be a “bad social norm”
- Signaling game, actions indicate underlying unobserved attribute
 - Equilibrium is a social norm – but notice signaling costs
- Add labels – and then have a theory.
 - Girls invest less in school because they will face worse marriage prospects.
 - Blacks don' t achieve in school because it reveals they are dedicated to providing public goods to a community.

General Overview: Strategic Interaction

- Inequality is the capricious outcome of strategic interaction –
- Has no social context per
- There is nothing particularly meaningful about being black, female, North African, etc.
 - This view is useful. Social norms may indeed be “bad equilibria.” Intervention needed to change the equilibrium.
 - Civil rights law.
- But consider two basic points:
 - theoretical requirements to sustain equilibria are very strong
 - there is a lot of social context associated with norms – discussions in literature, press, law, activists, etc.
 - Bill Cosby, Grant Hill

General Overview – Preferences and “Identity”

- Preferences and norms are a possible source of inequalities.
- Becker: a taste-based theory of discrimination
 - In the same way some people like apples and others like oranges, some people may not want to work with blacks or women.
 - Employers might then not want to hire this group because workers with these tastes would require a wage premium...
 - Blacks/women then have lower benefits of education
 - But competition could eliminate such high cost firms.
- Point: maybe preferences per se matter.
- Akerlof & Kranton: preferences both “likes;” and “shoulds”
 - Preferences are not all idiosyncratic, rather socially derived
 - Depend on peoples’ social identities

General Overview – Preferences & “Identity”

- What is “identity?”
 - A person’s sense of self; a person’s self-image.
 - How a person views him/herself and/or others view him/her.
 - Note “identity” is used as a descriptor: “I am Hispanic,”
 - And “identity” is used as way of feelings/emotions
 - “I have a strong sense of identity; I feel good about myself.”
 - Judgment depends on ideals, norms a person holds for him/herself and others hold for that person – depends on social norms for who you are
 - “I am proud to be Hispanic”
 - This judgment depends on how “Hispanic” one feels, and whether you and other Hispanics are living up to norms and ideals.

General Overview - “Identity”

- Identity-contingent utility/payoff function.
 - Individuals have preferences over own and others’ actions, depending on identity and norms
 - Social categories & norms for categories
- Individuals care about **own actions**, depending on identity.
 - Utility enhanced when abide by norms for own category.
- Individual care about **others’ actions** - externalities
 - Externality: Others suffer a utility loss (offended?) when norms are violated.
 - Externality: Others retaliate against those who break the norms – incur a cost but restore utility loss from offense.

General Overview - “Identity”

- With such utility/payoffs,
- Individuals make choice, interact strategically
→ patterns of behavior

- Education example
 - Categories: white and black
 - Norms: White kids achieve, black kids don't
 - Black kids who achieve feels themselves as/seen as “acting white,” which decreases benefit of education

 - Categories: girls and boys
 - Norms: Boys do science and math, girls do literature and art
 - Girl who achieves is seen as “geek,” less popular, which decreases benefit of education

Now Let's Look at Some Specific Models

- Worker investment in education/participation in labor force
- Inequality as an equilibrium phenomenon.
 - Austen-Smith & Fryer: Acting white
- Inequality from preferences and interaction.
 - Akerlof & Kranton - Identity and Social Norms
 - Basic utility function (tastes, included)
 - Minority Poverty model
 - Education and Schooling

Austen-Smith & Fryer – Signaling (“Acting White”)

- Build a model of African American underachievement in school
- Social norm as an outcome of signaling game.
 - People choose action to signal underlying desirable attribute.
- Here: people signal their “sociability” by not achieving in school.
 - interpretation as a phenomenon of a particular social group comes from labels, nothing in the model per se
- Three sets of agents: individuals, firms, peer group
- Individuals have two hidden characteristics
 - social type $\lambda \in \{ \text{low}, \text{high} \}$
 - economic type $\varphi \in [\varphi, \infty)$

Austen-Smith & Fryer – Signaling (“Acting White”)

- Distribution of characteristics known
 - social type: $p(h)$ probability $\lambda = high$
 - economic type: $F(\varphi)$ cdf of φ , full support on $[\underline{\varphi}, \infty)$
- Individual has a type $t = \{\lambda, \varphi\}$
- Individuals endowed with a unit of time.
- Decide how much education to obtain: $s \in [0, 1]$
- Cost of education depends on economic type φ : $c(s, \varphi)$
 - Costs increasing and convex in s : $c_s(s, \varphi) > 0$, $c_{ss}(s, \varphi) > 0$
 - Costs lower for higher economic type : $c_\varphi(s, \varphi) < 0$
 - Single crossing property: $c_{\varphi s}(s, \varphi) < 0$
 - Costs $\Rightarrow 0$ as $s \Rightarrow 0$; Costs $\Rightarrow \infty$ as $s \Rightarrow 1$

Austen-Smith & Fryer – Signaling (“Acting White”)

- Marginal product of worker $f(s, \varphi)$
 - Increasing in s and φ
 - Complementarity between s and φ
 - Let $f(s, \varphi) = s \varphi$
- Firms are competitive – pay expected marginal product
 - Can observe s but not φ
- Assumptions standard for Spence signaling model
- Add a second audience and second motivation: *peer group*
 - Peer group interested in sociability of individual λ
 - Individual interested in being accepted by peer group

Austen-Smith & Fryer – Signaling (“Acting White”)

- Peer group only interested in accepting $\lambda = high$
 - if reject individual, peer group gets payoffs \underline{v}
 - $v(h) > \underline{v} > 0 = v(l)$
 - $a = 1$ if individual accepted into peer group.
 - $a = 0$ if individual not accepted into peer group
- Individual utility from leisure time: $(1 + \lambda a) (1 - s)$
 - higher for high sociability type when accepted
- Overall individual utility with wage w :

$$U(w, a, s, t) = w + (1 + \lambda a) (1 - s) - c(s, \varphi)$$

Austen-Smith & Fryer – Signaling (“Acting White”)

- Timeline

Austen-Smith & Fryer – Signaling (“Acting White”)

- Sequential equilibrium: (1) Agents act optimally given types and actions of other agents. (2) Beliefs consistent with equilibrium actions.
- Complete information benchmark: firms and peer group observe λ , φ
 - Firms pay marginal product: $w = f(s, \varphi) = s \varphi$
 - Peer group accepts high, rejects low sociability type
 - Individuals choose s to maximize utility
 - High sociability types choose lower s , higher returns to leisure
- Utility and choice of s for type $t = \{h, \varphi\}$:
 - $U(w, a, s, h, \varphi) = s \varphi + (1 + h)(1 - s) - c(s, \varphi)$
- Utility and choice of s for type $t = \{l, \varphi\}$:
 - $U(w, a, s, h, \varphi) = s \varphi + (1 - s) - c(s, \varphi)$

Austen-Smith & Fryer – Signaling (“Acting White”)

- Let $s^*(\varphi, \lambda; a)$ be optimal choice of s for type $t = \{\lambda, \varphi\}$ given a
- With appropriate normalizations, high and low sociability get less education given $a = 1$ (accepted into peer group).

$$0 < s^*(\varphi, h; 1) < s^*(\varphi, l; 1) < s^*(\varphi, \lambda; 0) \equiv s^*(\varphi; 0)$$

- Consider two partial information scenarios
 - (1) Social type is observable, but economic type is not.
 - (2) Economic type is observable, but social type is not.
 - These are essentially single audience signaling problems.
- Then consider two-audience signaling problem.
 - Both social and economic types are not observable.

Austen-Smith & Fryer – Signaling (“Acting White”)

- Social type λ is observable, economic type φ is not.
- Peer group accepts only high sociability types.
- Individuals use s to signal economic types to firms.
- Utility from s depends on whether h or l sociability type.
 - For all φ , h workers undertake lower s
 - But not confounded with low economic type workers, because employers can observe λ .
- Efficient outcome - no signaling costs

Austen-Smith & Fryer – Signaling (“Acting White”)

- Economic type φ is observable, social type λ is not.
- Firms pay according to s and φ : $w = f(s, \varphi) = s \varphi$
- Separating equilibrium:
- low sociability individuals undertake $s^*(\varphi ; 0)$
 - optimal education level if not accepted into peer group
- high sociability individuals undertake $s^*(\varphi, h ; 1)$
 - optimal education level if accepted into peer group
- peer group rejects individuals undertaking $s^*(\varphi ; 0)$
- peer group accepts individuals undertaking $s^*(\varphi, h ; 1)$
- Efficient outcome - no signaling costs

Austen-Smith & Fryer – Signaling (“Acting White”)

- Both economic type and social type not observable.
- Firms pay according to s and inferred φ from s
- Peer groups accept/reject according to λ inferred from s
 - Only way to signal sociability is through s
- In all equilibria, workers strategies have following form
- low sociability individuals separate by φ
 - φ adopt $s^*(\varphi; 0)$; $\varphi > \varphi$ adopt $s > s^*(\varphi; 0)$ so low φ do not mimic
- high sociability divide into groups a/c φ : $\varphi < \varphi_L \leq \varphi_H$
 - for $\varphi \in [\varphi, \varphi_L]$, workers separate with φ adopting lowest level
 - for $\varphi \in [\varphi_L, \varphi_H]$, workers pool
 - for $\varphi > \varphi_H$ workers separate, adopting same s as low sociability
- Inefficient outcome - high signaling costs for high λ low φ

Austen-Smith & Fryer – Signaling (“Acting White”)

- Interpretation:
- Equilibrium outcome involves inequality.
- Due to information asymmetries.
- Could be the same for any community.
 - Should predict the same phenomenon for any ethnic/racial group.
 - Only parameter that can be varied is the value of accepting or rejecting an individual from peer group.

Akerlof & Kranton – Identity & Preferences (Norms)

- Build a model where individuals think of themselves and other (more or less consciously) in terms of social categories.
- People have tastes, but also norms for how people *should* behave.
- People have utility from own actions, and others' actions
 - people internalize norms
 - punish others who violate “social code”
- Use this utility function to study minority poverty.

Identity – General Framework

- Start with a standard model of utility.

- The utility of person j is represented as

$$W_j = W_j(a_j, a_{-j})$$

where a_j are j 's actions, a_{-j} are others' actions.

- The inclusion of a_{-j} captures the possibility of externalities or strategic interaction.

- For example:

- a_j is the effort of j in school, and a_{-j} is the effort of others in school, which may hurt or help j 's academic achievement

Identity - General Framework: *Utility & Identity*

- Add identity ingredients
- Set of Social Categories: C .
- Individual j 's assignment of self and others to categories: c_j .
- Norms, N , give appropriate behavior, ideal attributes of each social category.
- Utility Function

$$U_j = U_j(a_j, a_{-j}, I_j)$$

a_j are j 's actions, a_{-j} are others' actions, I_j is j 's self-image:

$$I_j = I_j(a_j, a_{-j}; c_j, \varepsilon_j, N)$$

where ε_j are j 's given attributes.

Identity - General Framework: *Utility & Identity*

$$U_j = U_j(a_j, a_{-j}, I_j)$$

$$I_j = I_j(a_j, a_{-j}; c_j, \varepsilon_j, N)$$

- Overall utility depends on how actions a_j , a_{-j} affect “economic utility,” and how they affect self-image, I_j .
- Self-image (identity, I_j) depends on
 - Acting as should: match between actions and category norms
 - Fitting in: match between j 's attributes and ideal of category
 - Status: status of assigned category, given by $I_j()$
- In basic case, person j chooses a_j to max utility, taking as given category assignment (c_j) own attributes (ε_j) norms (N).
- In general, a person could act to change own category, own attributes, and societal norms.

Identity – Minority Poverty

- Large population of individuals with characteristic ε^*
- Two actions: One (working) and Two
 - Economic payoffs: One yields v_i , Two yields 0
 - Anyone who does One pays k if meets someone who does Two
 - (negative externality e.g. crime, less home maintenance)
- Social Categories: $C = \{Green, Red\}$
 - Norms: *Greens* should take action One; *Reds* action Two
 - Norms: *Green* ideal $\varepsilon_G \neq \varepsilon^*$ (*social exclusion*)
- Identity Utilities:
 - i loses r if adopt *Green* identity – does not fit ideal - social exclusion
 - an R loses $I_S(R)$ if does One – does not abide norms for R
 - a G loses $I_o(G)$ if meets R – punishment - R does not accept G ' s choice
 - an R loses $I_o(R)$ if meets G – punishment - G does not accept R ' s choice

Identity – Minority Poverty

- Random matching – individuals earn payoffs given own identity and action and those of whom they meet.
- Equilibrium: each individual maximizes payoffs, given choices of others in the population.
- Four options: $\{G,1\}$, $\{G,2\}$, $\{R,1\}$, $\{R,2\}$
 - Make appropriate assumptions so that $\{G,1\}$ always dominates $\{G,2\}$
- Let g be the proportion of population that adopts $\{G,1\}$
- Let p be the proportion of R' s that adopt 1
 - $(1-g)p$ = proportion of population that adopts $\{R,1\}$
 - $(1-g)(1-p)$ = proportion of population that adopts $\{R,2\}$

Identity – Minority Poverty

- Payoffs from each option:
 - $\{G,1\}$ earns $v_i - r - (1-g)I_o(G) - (1-g)(1-p)k$
 - $\{R,1\}$ earns $v_i - I_S(R) - gI_o(R) - (1-g)(1-p)k$
 - $\{R,2\}$ earns $-gI_o(R)$
- Many possible equilibria, **depend on r , social exclusion**:
 - all individuals are *Green* ($g = 1$)
 - some are *Green*, some are *Red*, various values of p .
- All *Green* is an equilibrium iff $r < I_o(R)$
 - social exclusion is less than punishment for adopting a Red identity
- Population split $\{G,1\}$, $\{R,2\}$ iff r is in intermediate range
 - Otherwise, when r is high, only Red

Identity – Education & Schooling

- Large population of students
- Each individual has two exogenously given characteristics ε_i
 - $n_i =$ “ability” $l_i =$ “looks” ; i.i.d. uniform on $[0,1]$
- Marketable Skills/Payoffs from effort choice e_i and ability:
 - $v_i = n_i e_i - c(e_i)$
- Social Categories: $C = \{Leading\ Crowd, Nerds, Burnouts\}$
 - Norms/Ideals: $l=1$ for Leading Crowd, $n=1$ for Nerds
 - Norms/Ideals: $e(N) > e(L) > e(B)$
- Identity utilities depend on category, effort, and fit with Ideal
 - $I_C - t(1 - \varepsilon_i(C)) - \frac{1}{2}(e_i - e(C))$
 - $I_L > I_N > I_B$

Identity – Education & Schooling

- Individuals choose (simultaneously) effort and category.
- Balance payoffs from effort in school, “fitting in” to category
- Low l and low n students choose to be B, rather than L or N.
 - (don’ t want to be a “wannabe”)
- High l , high n students choose to be L rather than N
- Identity payoffs leads to lower academic achievement

Identity – Education & Schooling

- Consider a school policy to affect achievement by changing student social arrangements
- Introduce athletics, and social category *Jocks* (as part of L)
- Students have another characteristic $a_i = \text{athletic ability}$
- Students make choice of category and effort:
 - High a but low l and low n students now choose to be L
 - High a but high n now choose to be L rather than N
- Overall increase or decrease academic achievement
- But less divergence in academic achievement
 - fewer B' s and fewer N' s

Identity – Education & Schooling

- Consider a population with different ethnic, social groups.
- Curriculum thought to favor one of the groups (dominant/majority)
- Marketable skills and identity payoffs depend on effort at mastering this curriculum.
- School policy to affect achievement by changing curriculum to affect identity payoffs of effort.
- Math vs. English class.



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Identity and Inequality

Part 2

Economic Experiments

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Experiments with Social Groups, Identity

- Do people behave differently towards others depending on identity/social group?
- Experiments where social category/identity is research objective
 - Strategic Play – do people have different expectations about how others will play depending on identity/social group?
 - Social Preferences (fairness, inequity aversion)
Do people have preferences for inequality?
- Challenge is to design experiments with social group variation.
 - Real-world groups – different ethnicity, club membership
 - Preserve anonymity to avoid repeated game effect
 - Create groups in the lab.

Experiments, Groups, Strategic Games

- “Discrimination in a Segmented Society” Fershtman & Gneezy (2001)
- Objective: test for “taste for discrimination” vs. “stereotypes”
 - Do people discriminate per se or are they concerned about actions others will stereotypically take?
- Israeli Jewish univ students – European vs. Eastern origin (last name)
- Trust game – sent less to Eastern (though return about the same)
- Dictator game – sent about the same to both types
- Ultimatum game – sent more to Eastern (“concern for respect”?)
- Evidence for stereotypes rather than discrimination.
- Trust result on for males.

Experiments, Groups, Strategic Games

- “Measuring Trust” Glaeser, Laibson, Scheinkman, Soutter (2000)
- Objective: do answers to survey questions on trust match behavior
- Harvard students Generally yes.
- Found that subjects less trustworthy, i.e., sent back less, when partners of different social category (white/non-white=Asian).

Experiments and Social Preferences

- Economic experiments/theory
 - Fairness, social welfare max. People not only self-interested.
 - Fehr & Schmidt (1999), Bolton & Ockenfels (2000), Andreoni & Miller (2002)
 - Charness & Rabin (2002)
 - Social welfare max rather than inequity averse
 - Increase inequality but increase overall payoffs
- Neuroscience
 - See (in the brain) “value” from being fair.
 - Zaki & Mitchell (2011)
- Debate over the *distribution* of social preferences
 - Fehr & Schmidt (1999), Binmore & Shaked (2009), Fehr & Schmidt (2009)

Identity and Social Preferences

- **Social Psychology Experiments, Minimal Group Paradigm**
 - Divide subjects into groups - by trivial criteria Tajfel & Turner (1979)
 - See status-seeking behavior – try to maximize difference between outcomes
- **Economics and Identity - Theory**
 - Introduce social identity and norms for behavior into economic analysis
 - Akerlof & Kranton (2000, 2010)
- **Economics and Identity - Experiments**
 - Subjects divided into groups and look for differences in play
 - Glaeser et al. (2000) , Fershtman & Gneezy (2001), Oxoby & Mcleish (2007)
 - MGP & estimate social preferences – Chen & Li (2009)

Identity and **Individual** Social Preferences

- Minimal Group & Political Group treatment
 - Kranton, Pease, Sanders, and Huettel (2013)
- Within subject design
 - Observe each subject in a social control and two treatments
 - Survey political opinions, party affiliations, demographics
- Estimate individual social preferences.
 - Mixing model – to identify subject “types”
- Study distribution of social preferences
- Test two hypotheses of Identity Economics
 - Subjects will act differently in-group vs. out-group
replicate previous results
 - Behavior depends on extent people identify with group.
new - group meaning matters, effects not “automatic”

Main Results

π_i	π_j
π'_i	π'_j

- Subjects divided into groups and allocate income to self and others
- Systematic heterogeneity of individual behavior
 - 20% selfish (max own payoff) in all conditions
 - 5% dominance-seeking in all conditions
- Selfishness and dominance-seeking predominant in group context
 - 35% selfish toward out-group
 - 20% dominance-seeking toward out-group

Main Results

π_i	π_j
π'_i	π'_j

- Response to group treatment relates to identity
 - Independents do not respond to MG but do respond to POL.
- Why not seen before in previous experiments?
 - Experiments with no social context, and didn't test for it.
 - Experiments with social context, but only look at average.
- Novel design, estimate individual social preferences

Description of Experiment

- Duke Center for Cognitive Neuroscience (no deception)
- Hour-long sessions \approx 5 subjects at a time.
- Schematic of Experimental Session

Instructions	3-5 minutes
Asocial Control	
52 Choices	12 minutes
Minimal or Political Group Treatment	
Survey	2-5 minutes
.....	
78 Choices	17 minutes
Minimal or Political Group Treatment	
Survey	2-5 minutes
.....	
78 Choices	17 minutes
Post-experiment Survey	10 minutes

Political Treatment: Some Details

1. Do you consider yourself a(n):

1	2	3	4
DEMOCRAT	REPUBLICAN	INDEPENDENT	NONE OF THE ABOVE

1(a). Are you a strong or moderate DEMOCRAT?

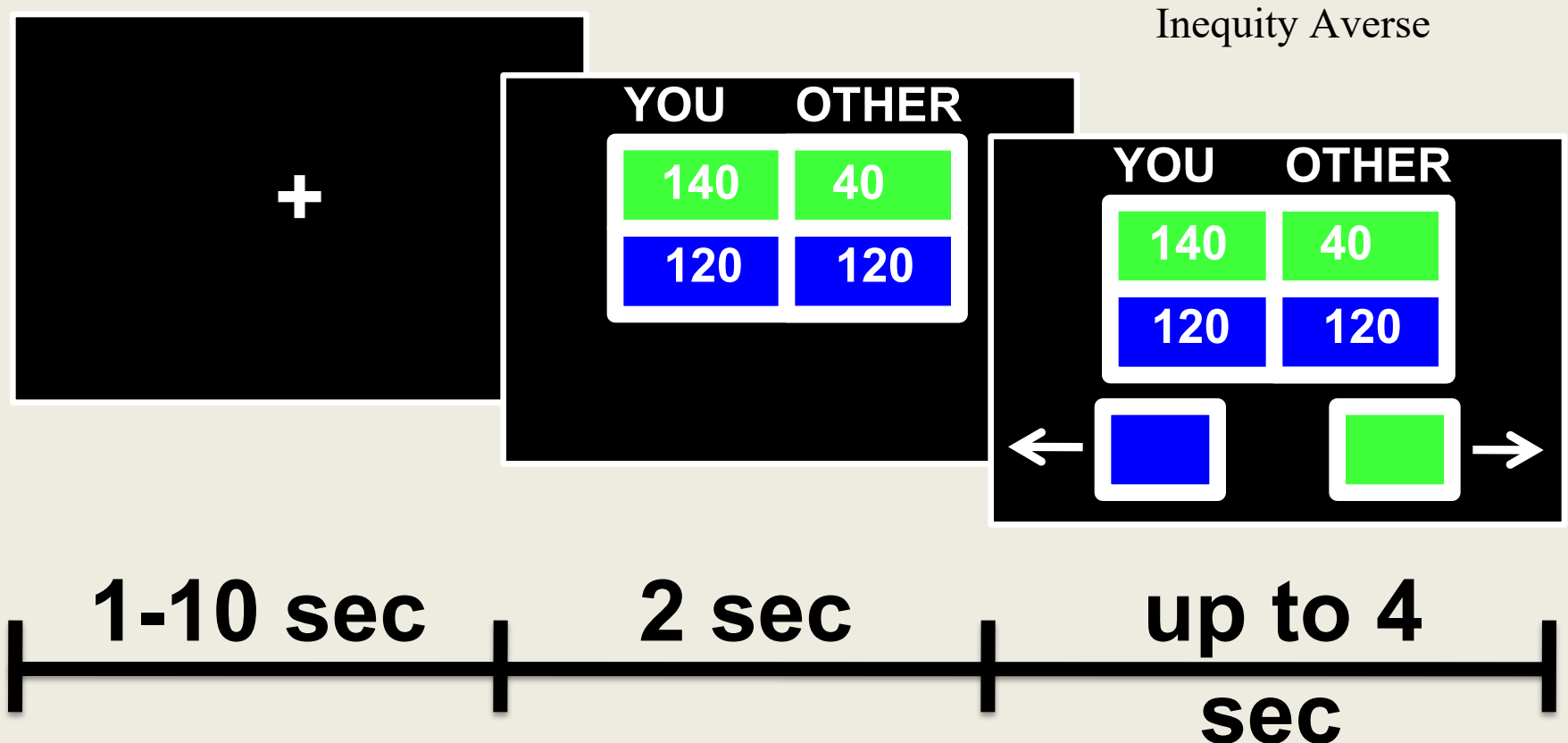
1	2
STRONG	MODERATE

1(a). Do you consider yourself closer to the::

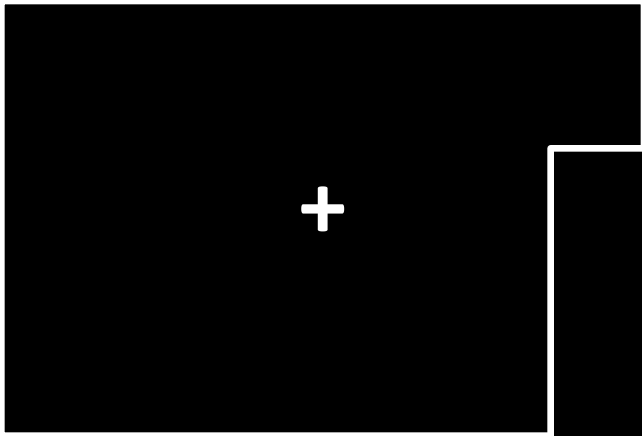
1	2
DEMOCRATIC PARTY	REPUBLICAN PARTY

Timed Choices - Details

- Allocation choices, timed as follows:



- 26 matrices, $26 \times 7 = 208$ decisions per subject
- Top, bottom, green, blue, left, right: all randomized





YOU	OTHER
140	100
120	20

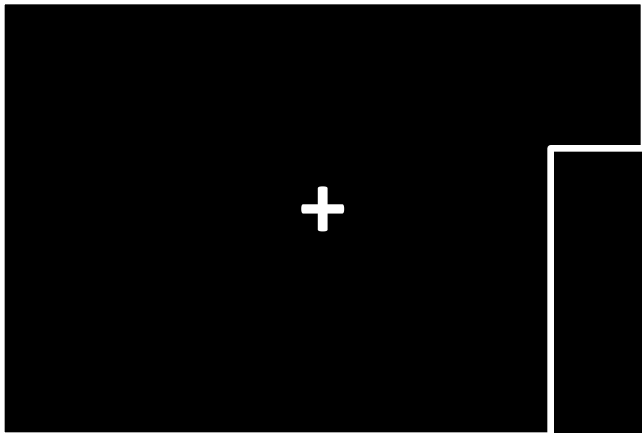
Dominance Seeking

(Inequality Loving)

YOU	OTHER
140	100
120	20

←   →





YOU	OTHER
100	140
100	60

Total Income Max

YOU	OTHER
100	140
100	60

← →



Analysis of Choices

- For each match, i picks between two allocations:
 (π_i, π_j) and (π'_i, π'_j)
- Choice of allocation (π'_i, π'_j) is consistent with:
 - “selfishness” $\pi'_i > \pi_i$
 - “inequity aversion” $|\pi'_i - \pi'_j| < |\pi_i - \pi_j|$
 - “total income max” $\pi'_i + \pi'_j > \pi_i + \pi_j$
 - “dominance seeking” $\pi'_i - \pi'_j > \pi_i - \pi_j$
- 26 matrices, timed choices

Analysis of Choices

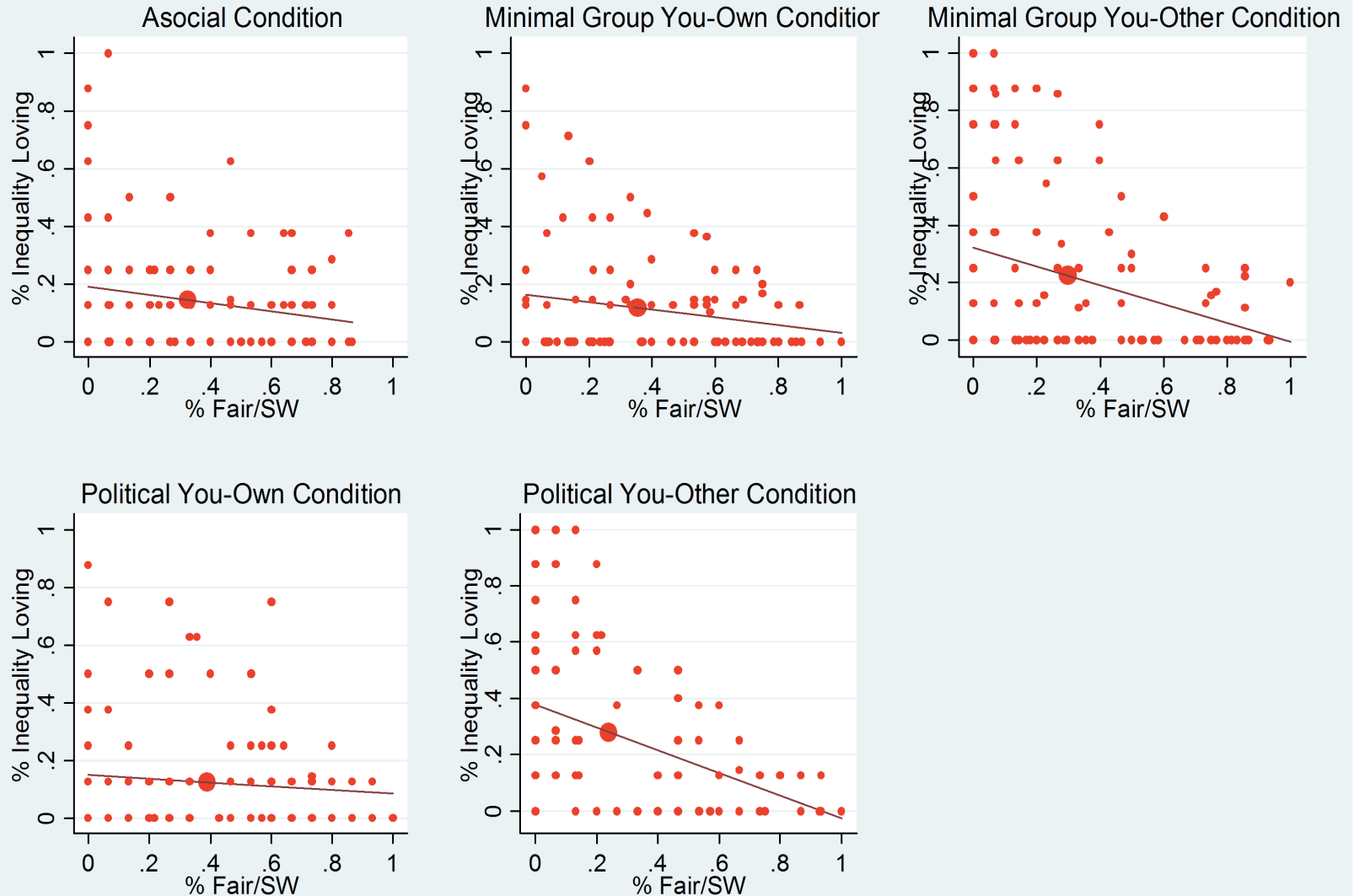
π_i	π_j
π'_i	π'_j

- Normalize matrix, top row gives (weakly) more to i .
 - $\Delta\pi_i = \pi_i - \pi'_i$ loss to i from choosing bottom row
- Choose top: consistent with being “selfish”
- Matrices test different social objectives
- Choose bottom: lose $\Delta\pi_i$ for social objective:
 - Inequity Aversion: $|\pi'_i - \pi'_j| < |\pi_i - \pi_j|$ (15 matrices)
 - Higher total income: $\pi'_i + \pi'_j > \pi_i + \pi_j$ (9 matrices)
 - Dominance: $\pi'_i - \pi'_j > \pi_i - \pi_j$ (10 matrices)

Individual Heterogeneity

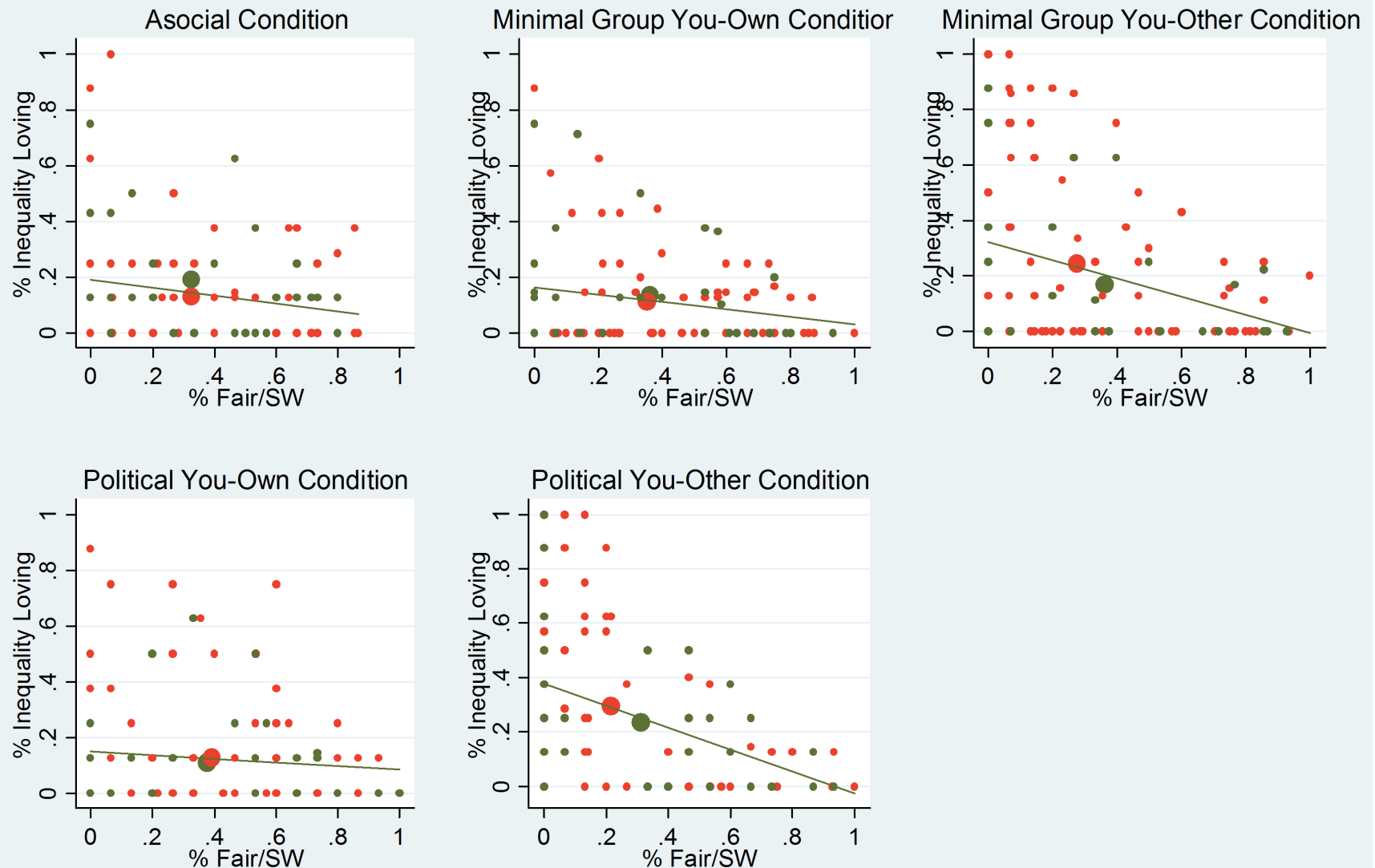
% of individual choices of bottom Fair/SW matrices vs. Inequality Loving Matrices

Figure 1A: Inequality Loving vs. Fair/SW Choices



D-Leaning Independents Non-Responsive to MG (Green)

Figure 1B: Inequality Loving vs. Fair/SW Choices

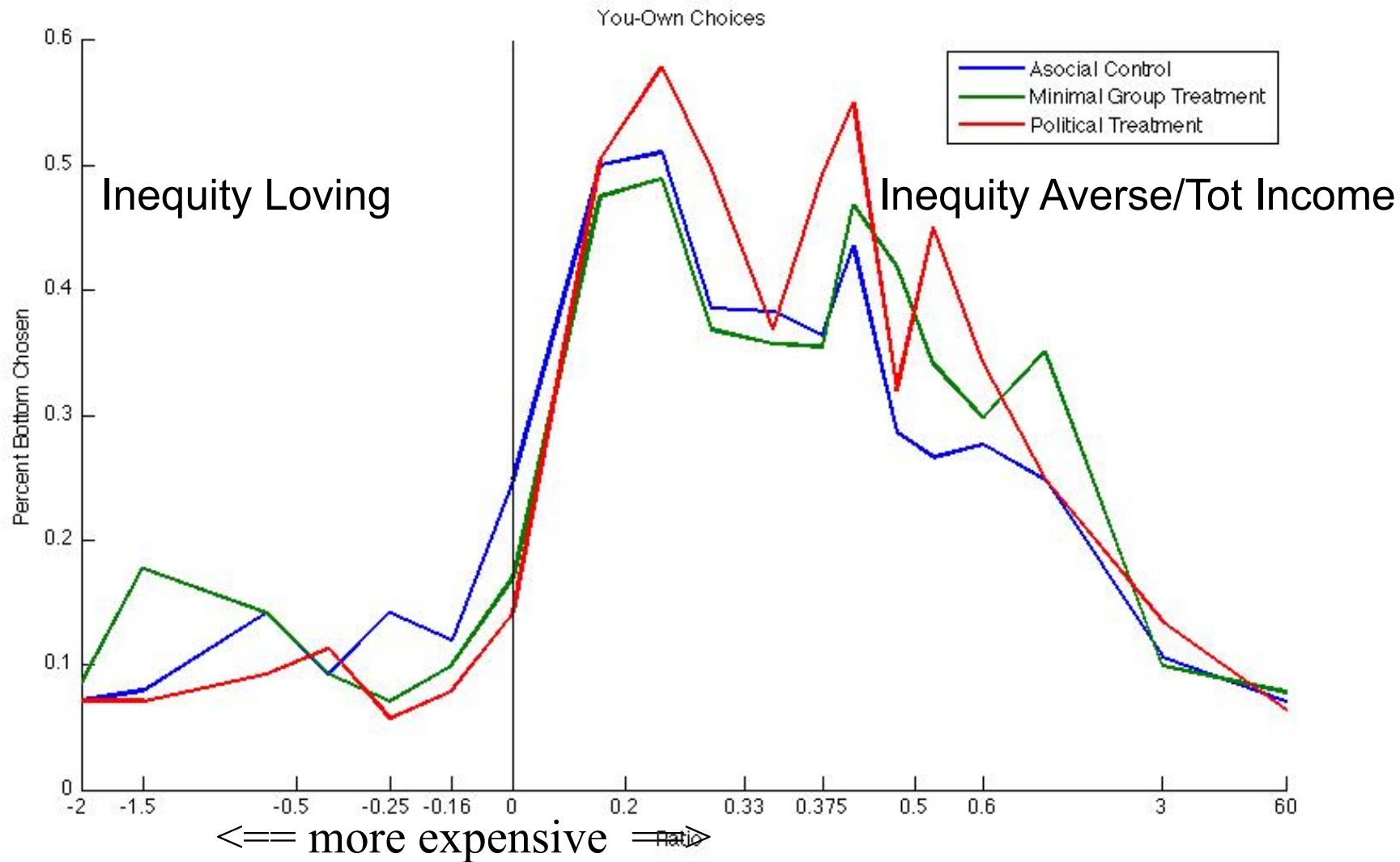


“Price” of Social Objective

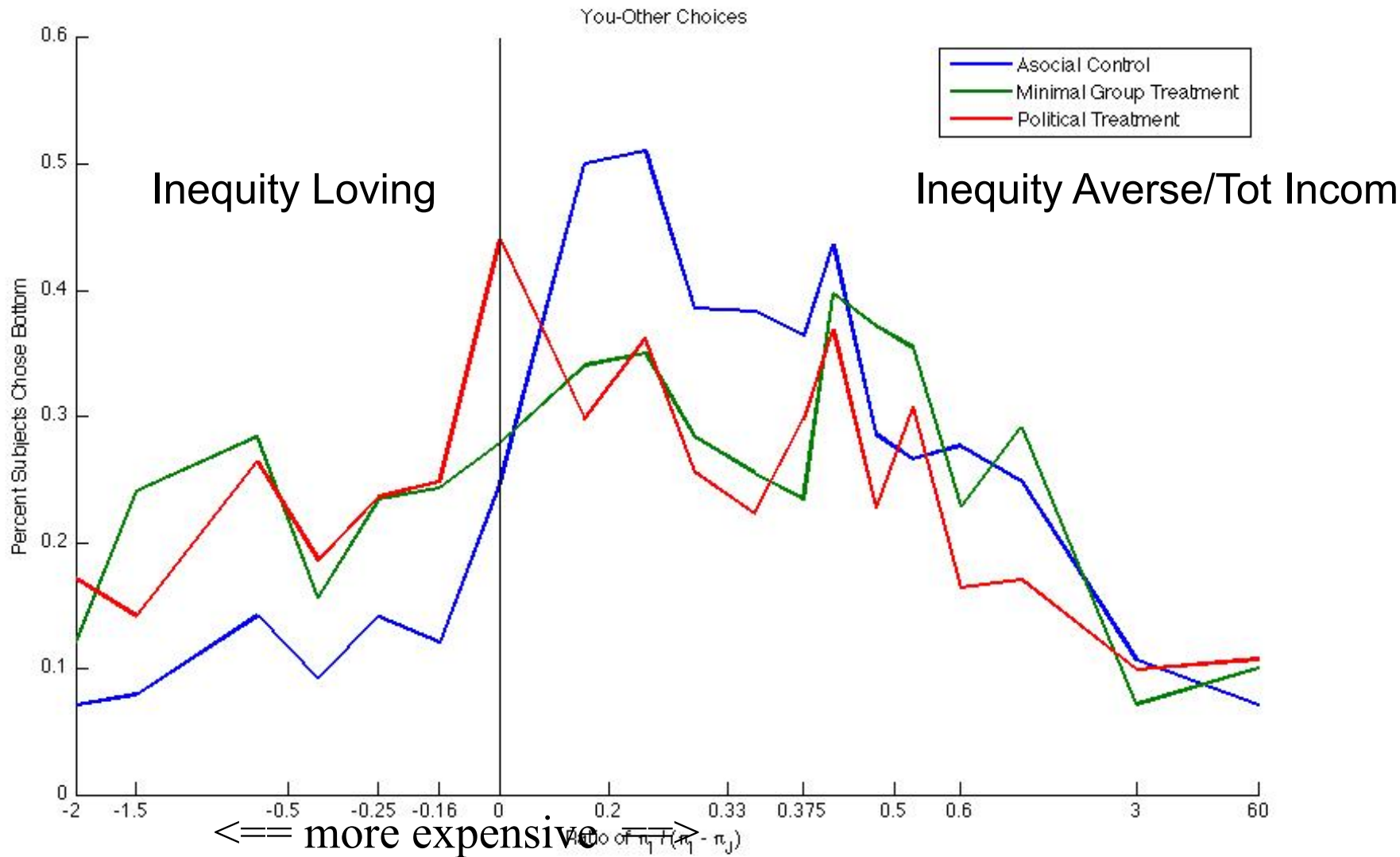
π_i	π_j
π'_i	π'_j

- $\left| \frac{\Delta\pi_i}{\Delta\pi_i - \Delta\pi_j} \right|$ = relative price of social objective
- Order matrices according to this measure
- Look at how often subjects choose bottom
- See subjects are price-sensitive.

You-Own Choices by Condition ($\Pi_i > \Pi_j$)



You-Other Choices by Condition ($\Pi_i > \Pi_j$)




Social Preferences Estimations

- Structural estimation of social preferences:
 - Posit a utility function
 - Modify Fehr & Schmidt (1999), Charness & Rabin (2002), Chen & Li (2009)
 - Estimation – max likelihood – discrete choice – logit
 - Mixing model to estimate possible “types”
- Statistically valid way to compare behavior
 - Across individuals, across conditions
 - Relate to individual characteristics, identity

Utility Function

- $U_i(\pi_i, \pi_j) = \beta_i \pi_i + \rho_i(\pi_i - \pi_j)r + \sigma_i(\pi_j - \pi_i)s$
- β_i weight on own income
- ρ_i weight on income difference for $\pi_i > \pi_j$ ($r = 1; s = 0$)
- σ_i weight on income difference for $\pi_i \leq \pi_j$ ($r = 0; s = 1$)

$\beta_i > 0$	$\sigma_i = 0$	$\sigma_i > 0$	$\sigma_i < 0$
$\rho_i = 0$	<i>Purely Selfish</i>	<i>Social Welfare Max</i>	<i>Fair/Dominance-Seeking</i>
$\rho_i < 0$	<i>Fair/Soc Welf Max</i>	<i>Social Welfare Max</i>	<i>Fair</i> 
$\rho_i > 0$	<i>Dominance-Seeking</i>	<i>Impossible</i>	<i>Dominance-Seeking</i>

Social Preferences Estimations

- Estimate parameters in each condition
- Discrete choice – logistic errors – maximum likelihood

$$prob(choose(\pi'_i, \pi'_j)) = \frac{e^{U_i(\pi'_i, \pi'_j)}}{e^{U_i(\pi'_i, \pi'_j)} + e^{U_i(\pi_i, \pi_j)}}$$

Social Preferences Estimations

- Population Estimates – for comparison with prev work
 - (β, ρ, σ) same across subjects
 - Charness & Rabin (2002), Chen & Li (2009)
- Estimate Utility Parameters for “Types” of People
 - Mixing Model – posit “types” of subjects
 - Estimate $(\beta_t, \rho_t, \sigma_t)$ for each type $t = 1, 2, 3, 4$
- Categorize each individual, using choices in experiment, highest posterior probability an individual is type t .
- Test effect of groups – different distribution of types?
- Test differential response to group treatments MG, POL
 - Compare Democrats, D- Independents

Social Preferences – Distribution of Types

- For four types— estimated parameters, % of population

Table 4: Results from Mixing Model and Population Average
Utility Function Estimates and Proportions for Four Types in Non-group Condition

Utility Function Parameters	Type 1	Type 2	Type 3	Type 4	ALL
Beta	0.152*** (0.0134)	0.0655*** (0.00441)	0.0312*** (0.00310)	0.0367*** (0.00980)	0.0436*** (0.00168)
Rho	-0.00372 (0.00254)	-0.0144*** (0.00157)	-0.0214*** (0.00138)	0.0528*** (0.0106)	-0.0112*** (0.000655)
Sigma	0.00489* (0.00287)	0.00544** (0.00240)	-0.00747*** (0.00240)	-0.0439*** (0.0169)	-0.00247** (0.00124)
Observations	3,636	3,636	3,636	3,636	
Proportion of Type	25 %	36 %	34 %	5 %	
Category Implied by Parameters	SELFISH	SOCIAL MAX	FAIR	DOMINANCE SEEKING	FAIR

Notes:

1. Standard errors in parentheses
2. *** p<0.01, ** p<0.05, * p<0.1

Categorize Individuals at Types – Posterior Probabilities

Table 5: Posterior Probabilities of Being Classified Type in Non-group Condition

Posterior Probability of:	Obs.	Mean	Std. Dev.	Min	2 nd Low	Max
SELFISH (Type 1)	35	0.966	0.051	0.725	0.908	0.999
SOCIAL MAX (Type 2)	52	0.932	0.096	0.541	0.717	0.999
FAIR (Type 3)	47	0.971	0.067	0.588	0.865	1.000
DOMINANCE (Type 4)	7	1.00	0.000	1.000	1.000	1.000

Table 6: Distribution of Types, by Condition and Match POPULATION

PANEL A: NON-GROUP				
Type	YOU-OTHER			
	Freq.	Percent		
SELFISH	35	25		
SOCIAL MAXIMIZER	52	37		
FAIR	47	33		
DOMINANCE	7	5		
Total	141	100		
PANEL B: MINIMAL GROUP				
Type	YOU-OWN		YOU-OTHER	
	Freq.	Percent	Freq.	Percent
SELFISH	40	28	42	30
SOCIAL MAXIMIZER	38	27	30	21
FAIR	57	40	47	33
DOMINANCE	6	4	22	16
Total	141	100	141	100
PANEL C: POLITICAL GROUP				
Type	YOU-OWN		YOU-OTHER	
	Freq.	Percent	Freq.	Percent
SELFISH	42	30	50	35
SOCIAL MAXIMIZER	26	18	18	13
FAIR	71	50	43	31
DOMINANCE	2	1	30	21
Total	141	100	141	100

: X-Squared Test of Differences in Distribution of Types, between con

POPULATION		
Comparison	Test Statistic	** P-Val < 0.05 * P-Val < 0.10
NG/AS: You-Other vs.:		
MG: You-Own	3.55	
MG: You-Other	14.30	**
POL: You-Own	16.96	**
POL: You-Other	33.64	**
MG: You-Own vs.:		
MG: You-Other	11.09	*
POL: You-Own vs.:		
POL: You-Other	33.53	**
MG: You-Own vs.:		
POL: You-Own	5.83	
MG: You-Other vs.:		
POL: You-Other	5.10	

- MG effect and POL effect
- You-Own vs. You-Other
- 35% selfish in POL
- 21% dominance-seeking in POL group condition

Subjects from AS to POL - Cross –Tabs

Table 8: Cross Tabulations of Subjects' Types

		POL: You-Other				
AS/NG: You-Other	SELF	SWM	FAIR	DOM	Total	
SELFISH	28	3	0	4	35	
SOCIAL WEL MAX	16	17	8	11	52	
FAIR	1	5	33	8	47	
DOMINANCE	0	0	0	7	7	
Total	45	25	41	30	141	

- Selfish mostly stay selfish, dominant stay dominant
- Biggest movement: social welfare max become selfish, dominant
- Fair become dominant

Test Responsiveness to Group Treatments

- Democrats vs. D-Independents
- Democrats respond to MG treatment and POL treatment
 - stronger response in POL, but difference not significant
- D-Independents respond to POL but not MG treatment
 - difference with MG is significant
- No universal response to (arbitrary) group divisions
 - group effect depends on individual characteristics and identity

Table 9a: Distribution of Types, by Condition and Match
DEMOCRATS

PANEL A: NON-GROUP				
Type	YOU-OTHER			
	Freq.	Percent		
SELFISH	15	22		
SOCIAL MAXIMIZER	27	40		
FAIR	21	31		
DOMINANCE	5	7		
Total	68	100		

PANEL B: MINIMAL GROUP				
Type	YOU-OWN		YOU-OTHER	
	Freq.	Percent	Freq.	Percent
SELFISH	18	26	20	29
SOCIAL MAXIMIZER	20	29	15	22
FAIR	26	38	20	29
DOMINANCE	4	6	13	19
Total	68	100	68	100

PANEL C: POLITICAL GROUP				
Type	YOU-OWN		YOU-OTHER	
	Freq.	Percent	Freq.	Percent
SELFISH	18	26	26	38
SOCIAL MAXIMIZER	14	21	11	16
FAIR	34	50	15	22
DOMINANCE	2	3	16	24
Total	68	100	68	100

X-Squared Test of Differences in Distribution of Types, between condi
DEMOCRATS

Comparison	Test Statistic	** P-Val < 0.05
		* P-Val < 0.10
NG/AS: You-Other vs.:		
MG: You-Own	5.05	
MG: You-Other	7.72	*
POL:You-Own	17.96	**
POL:You-Other	16.45	**
MG: You-Own vs.:		
MG: You-Other	6.37	*
POL: You-Own vs.:		
POL: You-Other	20.07	**
MG: You-Own vs.:		
POL: You-Own	2.79	
MG: You-Other vs.:		
POL: You-Other	2.42	

- MG effect and POL effect vis a vis NG/AS
- You-Own vs. You-Other
- Cannot reject POL same as MG

Table 9c: Distribution of Types, by Condition and Match
 DEMOCRAT-LEANING INDEPENDENTS

PANEL A: NON-GROUP				
Type	YOU-OTHER			
	Freq.	Percent		
SELFISH	9	26		
SOCIAL MAXIMIZER	11	32		
FAIR	12	35		
DOMINANCE	2	6		
Total	34	100		

PANEL B: MINIMAL GROUP				
Type	YOU-OWN		YOU-OTHER	
	Freq.	Percent	Freq.	Percent
SELFISH	11	32	9	26
SOCIAL MAXIMIZER	5	15	10	29
FAIR	16	47	13	38
DOMINANCE	2	6	2	6
Total	34	100	34	100

PANEL C: POLITICAL GROUP				
Type	YOU-OWN		YOU-OTHER	
	Freq.	Percent	Freq.	Percent
SELFISH	12	35	12	35
SOCIAL MAXIMIZER	5	15	1	3
FAIR	17	50	16	47
DOMINANCE	0	0	5	15
Total	34	100	34	100

Matched Test of Differences in Distribution of Types, between conditions

DEMOCRATIC-LEANING INDEPENDENTS		
Comparison	Test Statistic	P-Val
NG/AS: You-Other vs.:		
MG: You-Own	0.66	
MG: You-Other	0.88	
POL: You-Own	6.31	*
POL: You-Other	10.62	**
MG: You-Own vs.:		
MG: You-Other	2.18	
POL: You-Own vs.:		
POL: You-Other	7.70	*
MG: You-Other vs.:		
POL: You-Other	9.39	**

- No MG effect
- POL effect
- POL You-Own vs. You-Other
- Can reject POL You-Other same as MG You-Other

Post experiment survey:

Participants reports of motives match behavior:

Type	How Important: Highest to Me			How Important: Most Equal			How Important: Largest Total			How Important: Highest Difference		
	Very 1	Somewhat 2	Not 3	Very 4	Somewhat 5	Not 6	Very 7	Somewhat 8	Not 9	Very 10	Somewhat 11	Not 12
Panel A: Non-Group Condition												
Selfish	88.2%	11.8%	0.0%	5.9%	35.3%	58.8%	20.6%	32.4%	47.1%	2.9%	20.6%	76.5%
Social Max	71.2%	28.8%	0.0%	13.5%	61.5%	25.0%	28.8%	38.5%	32.7%	9.6%	11.5%	78.8%
Fair	22.2%	57.8%	20.0%	53.3%	42.2%	4.4%	53.3%	33.3%	13.3%	11.1%	13.3%	75.6%
Dominant	100.0%	0.0%	0.0%	14.3%	0.0%	85.7%	28.6%	14.3%	57.1%	85.7%	14.3%	0.0%
Panel B: Political Condition: You-Other												
Selfish	93.9%	6.1%	0.0%	2.0%	20.4%	77.6%	12.2%	26.5%	61.2%	8.2%	24.5%	67.3%
Social Max	77.8%	22.2%	0.0%	11.1%	44.4%	44.4%	16.7%	44.4%	38.9%	11.1%	16.7%	72.2%
Fair	31.7%	48.8%	19.5%	41.5%	41.5%	17.1%	48.8%	36.6%	14.6%	12.2%	19.5%	68.3%
Dominant	96.7%	3.3%	0.0%	3.3%	13.3%	83.3%	10.0%	10.0%	80.0%	73.3%	20.0%	6.7%

Conclusion: Experiment

- Study identity and distribution of social preferences.
- Main findings:
 - Large individual variation in social preferences - groups
 - 20% dominance-seeking against out-group
 - 35 % selfish against out-group
 - SWM become dominance-seeking, selfish
 - No universal response to group treatment –
 - Some people unresponsive to arbitrary group treatment
 - Individual heterogeneity in responsiveness to group divisions
 - Salience of identity

Summary & Directions for Future Research

- Social groupings are important features of patterns of inequality.
- Theories give different implications for policy.
 - In a model of individual choice, people from different groups face different constraints, technology. Necessarily have worse outcomes.
 - Policies- remove constraints, improve technology.
 - In a model of strategic interaction, there can be equilibria where people from different groups have worse outcomes.
 - Policies – law, collective action to change equilibrium.
 - In a model where preferences and identity norms are key, people from different groups may have different outcomes due to norms, preferences, social exclusion, social/strategic interactions.
 - Policies – change social arrangements, social meanings of action, categories and norms . .

Directions for Future Research

- Theory: Identity and Constraints and Technology (Institutions)
 - The classic model posits constraints and technology
 - How does identity relate to the economic and social institutions behind constraints and technology?
 - E.g., school system, curricula,
- Theory: Identity and Changes in Norms/Categories
 - How do norms/categories evolve and change within society?
 - Third party incentives to shape norms/categories.
- Theory: Mechanisms and Policy
 - Several factors can be at play at the same time (constraints, categories).
 - What are mechanisms and what policies might address different mechanisms?

Directions for Future Research

- Empirics: Measurement and Impact of Identity Effects
 - Measure impact of identity on choices/outcomes (e.g., education)
 - Identify economic impacts of categories/norms
 - Policies, interventions - Moving to Opportunity, Job Start/Corps
 - Social patterns across time and space
 - e.g., names (first vs. last) Algan, Mayer & Thoenig (2013)
 - e.g., marriage, labor supply Fernandez (2007) Bertrand, Kamenica & Pan (2013)
 - Key – identify/instrument for social norms, categories
- Experiments: Identity and Choices
 - Measure/identify effects on choices (e.g, work effort, redistribution)
 - Experimentally control for interactions, in the lab, in the field