Social Interactions: General Ideas

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Outline

1. Basic ideas

2. Theory

3. Econometrics

4. Public Policy

Social Influences and Individual Outcomes: The Memberships Theory of Inequality

1. Individual beliefs, preferences, and opportunities are conditioned by group memberships. This dependence typically takes the form of complementarities, so the likelihood or level of an action by one person increases with respect to the behavior (or certain characteristics) of others.

2. Memberships evolve in response to these interactions. Groups (nonoverlapping subsets of the population) stratify along characteristics which affect outcomes. Economic and social (typically ethnic) segregation result in neighborhoods, schools, etc.

3. Persistent intergenerational inequality and poverty result as individuals face different interactions environments over their lives as well as well as persistent intergenerational inequality and poverty as stratification of society affects both parents and children.

Social interaction models thus study the interplay of social forces which influence individual outcomes and individual decisions which determine group memberships and hence social forces.

In the context I have described, produces "memberships theory of inequality" in which segregation is source of persistent inequality.

Key Features of this Approach

1. Individual incentives and social structure meld into a more general explanation of individual behavior. From the perspective of economics, introduction of better sociology; from the perspective of sociology, better economics!

2. Approach explicitly incorporates incomplete markets and other deviations from baseline neoclassical theory of choice.

3. Aggregate behaviors such as crime or nonmarital fertility rates emerge through the interactions within a heterogeneous population

Examples of Social Influences

1. Peer group effects

2. Role models

3. Social norms

4. Social learning

Phenomena Where Social Interactions Plausibly Matter

1. Fertility

2. Education

3. Employment

4. Health

5. Language

Types of Groups

1. Endogenous

-Neighborhoods

-Firms

-Schools

2. "Exogenous"

- Ethnicity

- Gender

-Religion

Limitations of Group Approach

1. Ignores richer formulation of social network relations. In particular, no need for groups to be nonoverlapping and it may make sense to work with sociomatrices, which allow pair-specific bilateral interaction intensities

2. Fails to address salience of particular groups.

Basic Structure of Social Interactions Theories

"Standard" Model of Individual Choice

ω_i = choice of behavior of individual i

Ω_i = constraint set

X_i = observable individual characteristics,

ε_i = unobservable individual characteristics (to the modeler)

Algebraically, the individual choices represent solutions to

$$\max_{\omega_i \in \Omega_i} V(\omega_i, X_i, \varepsilon_i)$$

$$\text{such that } \Omega_i = \Omega(X_i, \varepsilon_i)$$

Social Interactions Approach

$g(i) =$ group of individual i

$Y_{g(i)} =$ characteristics of $g(i)$

$\mu_i^e(\omega_{-i}) =$ subjective beliefs individual i has concerning behavior of others in his group, where

$$\omega_{-i} = (\omega_1, \ldots \omega_{i-1}, \omega_{i+1}, \ldots \omega_I)$$

In this case, choice is described by

$$\max_{\omega_i \in \Omega_i} V\left(\omega_i, X_i, Y_{g(i)}, \mu_i^e\left(\omega_{-i} \mid Y_{g(i)}\right), \varepsilon_i\right)$$

$$\text{such that } \Omega_i = \Omega\left(X_i, Y_{g(i)}, \mu_i^e\left(\omega_{-i}\right), \varepsilon_i\right)$$

In words, preferences, constraints, beliefs depend on memberships.

Key Theoretical Properties

1. Multiple Equilibria

2. Social Multipliers

3. Phase Transition

– The properties are "universal," although they of course depend on parameter values.

– These models are intrinsically nonlinear.

Empirical Evidence

1. Ethnography

2. Social Psychology Experiments

3. "Natural" Experiments

4. Statistical Analyses of Observational Data

Ethnography

1. Important researchers include Elijah Anderson, Mitchell Duneier

2. Evidence is powerful, and has received, in my view, inadequate attention because of its qualitative nature.

3. Important feature: heterogeneity of individual behaviors. Requires explicit modeling of poor communities as interactive, stochastic processes.

Social Psychology Experiments

1. Robbers Cave (Sherif)

2. "Obedience to Authority" (Milgram)

Evidence of social effects is extremely persuasive. Further, these experiments clearly deal with the statistical problems described above. However, link to poverty-related behaviors and to residential neighborhoods is far from clear.

Analyses Based on "Natural" Experiments

1. Gautreaux

2. Moving to Opportunity

3. US Army

However, each has limitations. Gautreaux and Army suffer from self-selection of "treatment".   MTO has random assignment of vouchers, but use of vouchers induces self-selection.   This limits what can be learned, notably generalizability. Further, all three are "black boxes."

Example: Asthma and MTO

However, this does not justify treating analyses as uninformative, it simply means that one needs to recognize their limitations.

Regression Analysis with Observational Data

$$\omega_i = k + cX_i + dY_{g(i)} + \varepsilon_i$$

A statistically significant d is interpreted as evidence of neighborhood effects.

Where Does the Regression Literature Stand?

1. Various combinations of group variables do appear to be statistically significant in a wide range of studies. Datcher (1982) is a key early study.

2. Not clear which variables best capture group effects. Little attention to variables robust.

3. Role of endogenous effects typically ignored.

4. Little is known about actual microstructure.

Econometric Criticisms

1. Clasicl Identification: Assuming one has "properly" accounted for the error structure in choice model, can different types of social interaction effects be disentangled?

2. Self-Selection: How does self-selection into neighborhoods affect standard econometric procedures and how can self-selection be accounted for.

3. Unobserved Group-Level Variables: Omitted common factors may confound social interactions.

Example

To understand the difficulties that exist in empirically identifying a causal role for groups in determining individual outcomes, it is useful to consider a specific example. Suppose that a researcher wishes to evaluate the effect of high poverty neighborhoods on teenage educational attainment, such as completion of high school. The crude fact leading one to believe such an effect is present is a bivariate relationship between high poverty neighborhoods and low educational attainment.

Possible Explanations

1. High poverty neighborhoods are disproportionately composed of adults with low labor market aspirations (as compared to more affluent communities). If parents transmit low aspirations to their own children, and if these low aspirations adversely influence educational attainment, then poor neighborhoods will exhibit lower educational attainment than richer ones, without any causal influence from the neighborhood to the individual.

2. Families in high poverty neighborhoods are less likely to be able to finance post-secondary education, hence the opportunities for further education generated by a high school diploma are not available to many teenagers in these neighborhoods.

3. Teacher quality is lower in high poverty neighborhoods as better teachers should to be employed in schools in communities with lower crime rates.

4. High poverty neighborhoods possess a relatively high concentration of individuals who, despite graduating from high school, failed to achieve success in the labor market. Hence teenagers observing the economic benefits of graduation will not observe examples where graduation had much of a payoff.

5. Teenagers are influenced by the aspirations of role models in the community where they live. If the role models in a neighborhood have low labor market aspirations, then this will depress the educational achievements of children in the neighborhood.

6. Teenagers in high poverty neighborhoods are, due to local public finance, higher crime, etc. provided lower quality schools than students in other communities.

7. Teenagers are influenced by the behaviors of their peers through a "primitive" desire to conform to others. In a given community, high and low levels of educational attainment are self-reinforcing as the educational effort of a given teenager reflects his preference to seem like "one of the crowd."

Each of these explanations will produce the same correlations between low individual educational attainment and neighborhood poverty, but each is based on a different causal mechanism.

The statistical question is whether these different explanations can be disentangled in a given data set.

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explanations 1 and 2 attribute the correlation of neighborhood poverty and low individual educational attainment to self-selection

explanation 3 is an example of an unobserved group level effect

explanations 4, 5, 6 are examples of contextual effects as the distribution of educational levels and incomes among older members of the community are affecting current behaviors;

explanation 6 is an example of an endogenous effect as it is based on contemporaneous interdependences in behavior.

My Perspective

1. Individual pieces of evidence may be challenged, but overall, clear that groups effects matter.

2. Statistical analyses are the least persuasive component of evidence. The literature suffers from serious questions re: identification and misspecification. Too much attention to statistical significance, too little attention to identification.

Public Policy

-Associational redistribution

-Nonlinearity

Associational Redistribution

Examples

-affirmative action

-busing for integration

-charter schools/magnet schools

Normative Issues

-competing ethical claims

-political feasibility

-supply side approach

Ethics of Associational Redistribution

Following ideas due to John Roemer and others, one objective of public policy is to reduce the dependence of individual outcomes on factors for which an individual is not responsible.

Many group memberships fall into this category, therefore the government may be justified in redistributing group memberships.

Competing Ethical Claims

-Meritocracy

-Self Actualization

Politics of Associational Redistribution

Bottom Line: Such policies are immensely unpopular.

Possible alternative: implement policies that only indirectly redistribute memberships. One way to do this is to invest differentially in individuals to alter chances of admission, etc.

Nonlinearities

Neighborhoods models strongly suggest that policy effects may be highly nonlinear.

This means is that one cannot evaluate a large policy intervention by a proportional scaling up of the effects found from a small policy intervention. This nonlinearity can cut in more than one direction.

It is possible that a large scale expansion of the MTO demonstration could be far less efficacious than the small scale program has been. On the other hand, it is possible for large scale interventions to be far more efficacious than small scale ones. One reason is that a large scale intervention may alter the number of possible self-consistent aggregate behaviors for a given group.

Nonlinearity produces new issues associated with optimal policy design. Should resources be concentrated on a few of the disadvantaged in order to exploit nonlinearities? How does one deal with fairness issues?

Bottom line: equity and efficiency tradeoffs

Conclusions

1. Theories with social interactions well developed

2. Econometrics and empirical work making progress

3. Policy implications yet to be developed.