Empirical research on economic inequality: Normative considerations and empirical practice.

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Literature

Questions asked in the empirical literature on economic inequality:

- What's the share of top incomes, and how has it changed?
  Atkinson et al. (2011)
- How and why did women's participation in wage labor change over time?
  Goldin (2006)
- Is there racial discrimination in the labor market?
  Bertrand and Mullainathan (2004)
- Has the decline of unionization led to rising inequality?
  Fortin and Lemieux (1997)

- What's the role of migration, technical change, education in explaining wage inequality?
  Card (2009), Autor et al. (2008)
- How large is intergenerational economic mobility, and what are the factors that influence it?
  Chetty et al. (2014)
- Who benefits or loses from price changes due to trade?
  Deaton (1989)
- How should redistributive taxes be designed?
  Saez (2001)

What to ask?

- Which of these questions should we focus on?
- What are the objects we should try to estimate?
- What methods should we use to estimate them?
- How should we report empirical findings?
- How should we evaluate findings?

Normative questions and empirical research

- We ask empirical questions because we think the answers matter.
- Statistical reporting is necessarily selective.
- Thereby relies on implicit normative choices.
- An explicit normative framework is helpful to provide guidance on
  1. which empirical questions to ask.
  2. how to interpret the answers.

This talk

1. Social welfare functions
2. Intergenerational mobility and inequality of opportunity
3. Between group inequality and labor market discrimination

$\Rightarrow$ takeaways for empirical research

1) Social welfare and normative individualism

Common presumption for most theories of justice:

- Normative statements about society
  based on statements about individual welfare
- Formally:
  - Individuals $i = 1, \ldots, n$
  - Individual i's welfare v_i
  - Social welfare as function of individuals' welfare

$$SWF = F(v_1, \ldots, v_n).$$

- **Who is to be included** among $i = 1, \ldots, n$?
  - All citizens? All residents? All humans on earth?
  - Future generations? Animals?
- **How to measure individual welfare** v_i?
  - Opportunities or outcomes?
  - Utility? Resources? Capabilities?
- **How to aggregate** to *SWF*?
  How much do we care about
  - Trevon vs. Emily, Sophie vs. José?
  - Millionaires vs. homeless people?
  - Sick vs. healthy people?
  - Groups that were victims of historic injustice?

How to aggregate

Welfare weights:

- $SWF = F(v_1, \ldots, v_n)$
- Define:

$$\omega_i := \frac{\partial}{\partial v_i} F(v_1, \ldots, v_n).$$

- For small change of some policy:

$$dSWF = \sum_i \omega_i \cdot dv_i.$$

- Welfare weight ω_i measures how much we care about increasing welfare of i.
- There is no "objective" way to pick welfare weights.

Takeaways for empirical research

- **Averages are meaningless**, unless you have very anti-egalitarian preferences.
- There can be reasonable disagreement about welfare weights.
  - $\Rightarrow$ **Report disaggregated results**.
  - Allows readers to evaluate no matter what their welfare weights,
  - makes tradeoffs between winners and losers of changes explicit.
- For instance:
  - Quantiles and effects on quantiles.
  - Effects for demographic subgroups.

How to measure individual welfare

Utilitarian approach:

- Dominant in economics
- Formally:
  - Choice set C_i
  - Utility function $u_i(x)$, for $x \in C_i$
  - Realized welfare
$$v_i = \max_{x \in C_i} u_i(x).$$
- Double role of utility
  - Determines choices (individuals choose utility-maximizing x)
  - Normative yardstick (welfare is realized utility)

- Policies do not change u_i but change C_i
  $\Rightarrow$ change v_i
- Problems with utilitarian approach:
  1. Preferences do not exist in a pre-social vacuum.
     (parental aspirations, gender norms, ...)
  2. People might not always act according to their preferences.
     (cf. behavioral economics)
  3. How to compare utility across people?

Alternative to utilitarianism 1 – Capabilities approach:

- Proposed by

  Sen, A. (1995). Inequality reexamined. *Oxford University Press, Oxford.*

- Evaluate C_i directly, without reference to u_i
- "Capability to function"
  subject to all constraints faced by individuals
  - legal
  - economic
  - political
  - social norms
  - ...
- Distinction between choices and options
  (example: religious fasting vs. starving)

Alternative to utilitarianism 2 – Opportunities approach:

- Proposed by

  Roemer, J. E. (2009). Equality of opportunity*. Harvard University Press.*

- Empirical / pragmatic approach:
  - Define a list of observable factors called “circumstances.” (parental background, race, gender, ...?)
  - Inequality predicted by these factors: “inequality of opportunity” Rest: “inequality of effort”
  - v_i: outcomes predicted by circumstances
- Problems
  - How to pick the list of factors?
  - Separation circumstances vs. effort conceptually shaky

2) Intergenerational mobility and equality of opportunity

Chetty, R., Hendren, N., Kline, P., and Saez, E. (2014). Where is the land of opportunity? The geography of intergenerational mobility in the United States. Quarterly Journal of Economics*, 129(4):1553–1623.*

Lee, C. and Solon, G. (2009). Trends in intergenerational income mobility. The Review of Economics and Statistics*, 91(November):766–772.*

Black, S. and Devereux, P. (2011). Recent developments in intergenerational mobility. Handbook of Labor Economics*, 4:1487–1541.*

- To what extent is equality of opportunity a reality?
- Has it changed over time? Does it differ across countries?
- Often translated as:
  To what extent does family background determine life chances, and, in particular, income?
- The question is less well defined than it might seem.
- There are several alternative objects one might try to estimate.

Object 1

- **Predictability** of (log) child income in a given year s (or a few years) **using** (log) parent **income in a given year** t (or a few years):

$$E[Y_{c,s}|Y_{p,t}]$$

- Expressed as elasticity (regression slope):

$$\frac{\text{Cov}(Y_{p,t}, Y_{c,s})}{\text{Var}(Y_{p,t})}$$

- If $Y =$ log income:
  Percentage increase in an average child's income for a 1% increase in parent income
- Most common measure of intergenerational mobility

Object 2

- **Predictability** of (log) child's lifetime income **using** (log) parent's **lifetime income**:

$$E[\overline{Y}_c|\overline{Y}_p]$$

- Expressed as elasticity (regression slope):

$$\frac{\text{Cov}(\overline{Y}_p, \overline{Y}_c)}{\text{Var}(\overline{Y}_p)}$$

- Life cycle of earnings, transitory shocks, measurement error
  $\Rightarrow$ Income in given year varies a lot around lifetime income.
  $\Rightarrow$ Lifetime income is in general more strongly related between parents and children.
- Lifetime income usually not available in data

Object 3

- **Predictability using additional variables:**

$$E[\overline{Y}_c|\overline{Y}_p, X_p, W_p]$$

- Expressed as elasticities (regression slopes):

$$\text{Var}((\overline{Y}_p, X_p, W_p))^{-1} \cdot \text{Cov}((\overline{Y}_p, X_p, W_p), \overline{Y}_c).$$

- Motivation: Why stop at parental income?
  Other factors such as parent education, location of residence, etc., also predict a child's outcomes and are "morally arbitrary."
- The more predictive factors we consider, the better we can predict a child's outcomes.

Object 4

- The **causal effect of** parent **lifetime income**:

$$\overline{Y}_c = g(\overline{Y}_p, \varepsilon).$$

- Not all correlations are causal – do we care about prediction or causality?
- Example: Parent and child incomes might be correlated because parental education has a causal effect, but not parental income.
- Notation: If parent income is changed, g and ε do *not* change, describing counterfactual (cf. potential outcomes)

Object 5

- The **causal effect of additional variables**:

$$\overline{Y}_c = h(\overline{Y}_p, X_p, W_p, \varepsilon')$$

- Combines 3 and 4.

Takeaways for empirical research

- Equality of opportunity $\neq$ high intergenerational mobility
  - Equality of opportunity supposes distinction constraints vs. choices
  - Unjustified but common: mapping into distinction predictability (by parent income) vs. residual
- Empirical research should consider comprehensive set of predictors for child life-outcomes
- Prediction vs. causation
  - Prediction relevant to the extent that predictable inequalities are considered less legitimate (unequal opportunity).
  - Causation relevant to the extent that policy interventions might affect life chances of children.

3) Inequality between groups and discrimination

- We observe large economic inequalities along dimensions such as race and gender.
- Why?
- Many channels through which they might be created!

Possible channels

Differences in

1. early childhood influences
2. neighborhoods of growing up
3. access to / quality of
   primary, middle, and high school education
4. chance of being hired when applying for a job
5. wages conditional on being hired
6. chance of being promoted or fired in a given job
7. treatment by customers or clients
8. treatment by police and courts
9. ...

4. Chance of being hired when applying for a job

Decomposes further into

a. chance of being invited to an interview
b. chance of being hired given an interview

a. Chance of being invited to an interview

Bertrand, M. and Mullainathan, S. (2004). Are Emily and Greg More Employable Than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination. American Economic Review*, 94(4):991–1013.*

- Chance might depend on
  1. the (perceived) race and gender of an applicant,
  2. neighborhood of residence,
  3. the high school attended, ...
- Bertrand and Mullainathan (2004):
  What is the causal effect of perceived race
  on the chance of being invited to an interview,
  for *otherwise identical* CVs?

What is a causal effect?

- Potential outcome framework: answer to “what if” questions
- Two “treatments”: $D = 0$ or $D = 1$
- e.g. “black name” vs. “white name” on the CV
- Y_i: CV i’s outcome
  e.g. being invited for an interview
- Potential outcome Y_i^0:
  what if CV i had a “black name” (treatment 0)
- Potential outcome Y_i^1:
  what if CV i had a “white name” (treatment 1)

Takeaways for empirical research

- Two reasons to focus on inequality between specific groups:
  1. Associated with specific mechanisms
  2. Normative salience
- Many mechanisms generate between-group inequalities.
  - one of them: different treatment in hiring
  - possible reasons: statistical discrimination, employer / co-worker / customer bigotry,...

- Conjecture: focus on discrimination in this literature is related to a normative ideal of a competitive market.
  - Under some conditions, discrimination in this sense is absent from competitive markets.
  - $\Rightarrow$ wages and hiring just reflect "marginal productivity."
  - Absence of discrimination is consistent with great inequalities, e.g. due to different access to education.
- Research on between-group inequality should
  - Consider variety of mechanisms, rather than focus only on discrimination in the labor market.
  - Also consider within-group inequality.

Advertisement

- I will teach a PhD class on empirical research on economic inequality at WU starting May 22; guests welcome.
- More on concepts and methods: my open online textbook,

`http://inequalityresearch.net/`

Thank you!