

# Inequality of Opportunity and Aggregate Economic Performance

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(based on paper coauthored with Katharine Bradbury)

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The Consequences of Economic Inequality for Economic Performance

Columbia University

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The views expressed in this discussion are my own, and do not necessarily reflect those of the Federal Reserve Bank of Boston or of the Federal Reserve System.

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- The literature on the relationship between inequality of opportunity and economic growth is inconclusive.
- In contrast, there is a clear theoretical prediction that a reduction in inequality of opportunity will increase growth.
- Empirical work is generally consistent with this prediction.

# Inequality of opportunity in growth regressions

Two recent papers include measures of both inequality of opportunity and inequality of outcomes in growth regressions:

- Marrero and Rodriguez, “Inequality of Opportunity and Growth.” *Journal of Development Economics*, 2013.
- Ferreira, Lakner, Lugo & Ozler, “Inequality of Opportunity and Economic Growth: A Cross-Country Analysis.” World Bank, 2014.

Both papers use generalized entropy income inequality indices that can be decomposed into two components:

- Income inequality measured over groups defined by individuals' circumstances (inequality of opportunity).
- Residual income inequality - inequality within groups defined by circumstances.
  - Often labeled inequality of effort, but incorporates all inequality not associated with measured circumstances.

# Regression results in previous research

Marrero and Rodriguez, 2013:

- Estimates growth regression using panel of U.S. state-level data.
- Uses race and father's education to define circumstance groups within U.S. states.
- Finds a negative relationship between inequality of opportunity and growth and a positive relationship between inequality of effort and growth.

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Ferreira et al., 2014:

- Estimates growth regression using panel of cross-country data.
- 2-5 circumstance indicators per country
  - Circumstances include gender, race or ethnicity, language, immigration status, and region of birth or residence.
- Results are not sufficiently robust to draw conclusions on the effect of inequality of opportunity on growth.



# Commuting zone intergenerational mobility data

Data are from Chetty, Hendren, Kline, and Saez, “Where is the land of opportunity? The geography of intergenerational mobility in the United States.” NBER, 2014.

- United States divided into 741 “Commuting Zones” (CZ) - counties grouped by commuting patterns
- We use two measures of intergenerational mobility calculated for each CZ for the cohort born in the early 1980s:
  - Absolute mobility: Income rank in national distribution of children (at about age 30) whose parents were at 25<sup>th</sup> percentile of national income distribution (when children were teens).
  - Relative mobility: Expected difference in rank in national income distribution between children (at about age 30) whose parents were at the top of the income distribution within a CZ and those whose parents were at the bottom.

# Intergenerational mobility and inequality of opportunity

Inequality of opportunity is closely related to intergenerational mobility

- Parents' income can be viewed as the circumstance that would be used in computing inequality of opportunity.
- A key difference is that the extent of inequality of opportunity depends on both intergenerational income mobility and inequality of parents' income.

# Intergenerational mobility and inequality of opportunity

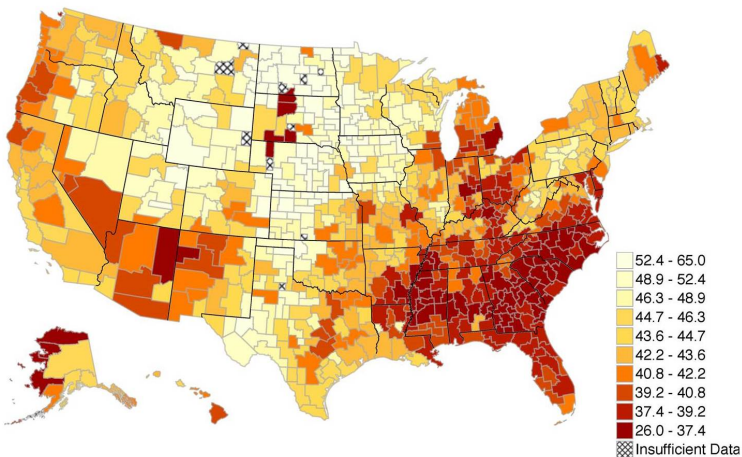
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Absolute or relative intergenerational mobility?

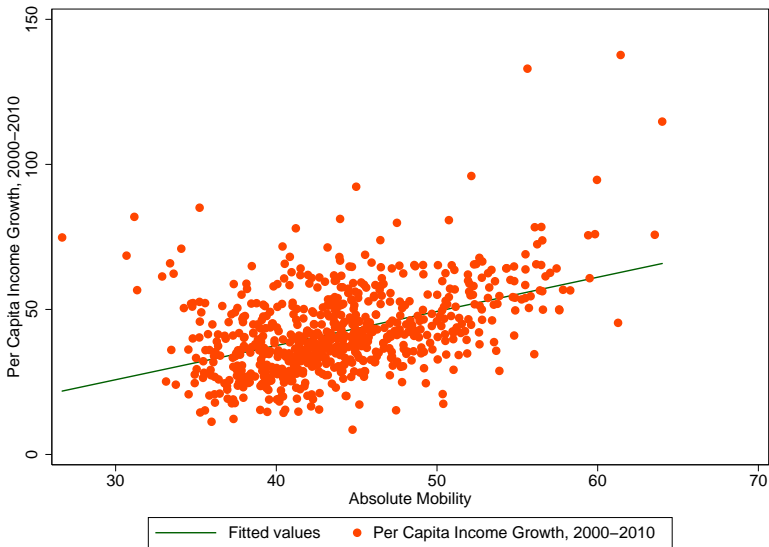
- Relative mobility may be driven by downward mobility among the rich as well as by upward mobility among the poor.
- Absolute mobility captures both income growth within a CZ relative to the nation and the degree of re-ranking of children's income relative to their parents' income.

# Absolute Mobility Across Commuting Zones



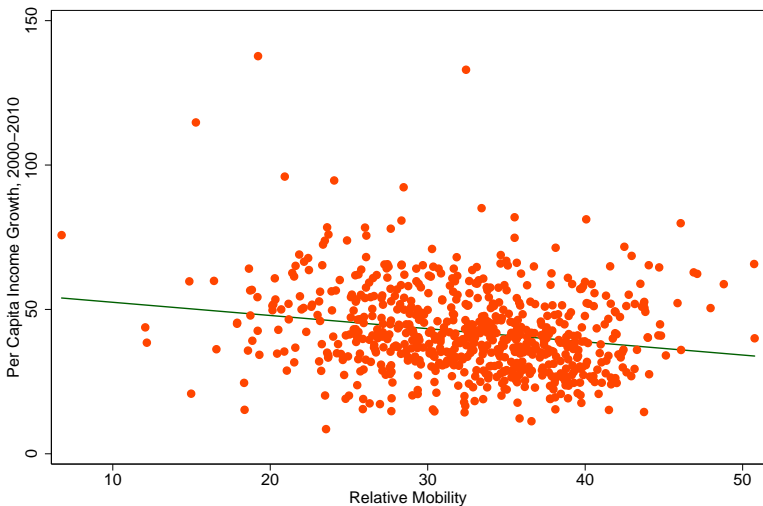
Source: Raj Chetty, Nathaniel Hendren, Patrick Kline, Emmanuel Saez. "The Geography of Upward Mobility in the United States." [http://obs.rc.fas.harvard.edu/chetty/geo\\_slides.pdf](http://obs.rc.fas.harvard.edu/chetty/geo_slides.pdf)

# Growth and Absolute Mobility, 2000-2010



$Slope = 1.2$  ( $p - value < 0.001$ )     $R^2 = .20$

# Growth and Relative Mobility, 2000-2010



$$\text{Slope} = -0.46 (p\text{-value} < 0.001) \quad R^2 = 0.039$$

# Regression of Growth on Mobility

Drawn from Table 2 in Paper

	Per Capita Income Growth			
	2000-2010		2007-2012	
	(1)	(2)	(3)	(4)
Absolute Mobility	1.1*** (0.1)		1.2*** (0.1)	
Relative Mobility		-0.071 (0.085)		-0.21* (0.08)
Gini	2.4 (7.9)	-19* (8.1)	-8.4 (7.8)	-33*** (7.9)
Observations	709	709	709	709
R-squared	0.59	0.54	0.52	0.46

*Note:* Significance as follows: +  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

# How does mobility affect growth?

## Estimation results:

- Mobility is a plus for economic growth
  - Absolute mobility, growth in both periods
  - Relative mobility significant only 2007-2012
- Overall inequality appears unrelated to growth across CZs



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Variations on simplest growth model – no change in results for mobility

Regression interpretation caution: descriptive facts *suggestive* of causal relationships

# Some channels through which inequality of opportunity affects economic performance

- Credit market imperfections.
  - Unequal access to collateral and insider networks.
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  - Unequal opportunities for risk diversification.
- Lack of information about profitable investment opportunities.
- Missing markets for inputs into job matching and human capital accumulation.
  - Jobs often found through personal contacts.
  - Non-marketed parental inputs.

# Channels (cont.)

- Unequal access to advantageous professions and educational institutions.
  - Explicit barriers to entry.
  - unequal access to:
    - network of contacts.
    - high quality K-12 schools.
    - early life investments in health and other human capital inputs.

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    - early life investments in health and other human capital inputs.
- Unequal opportunities for human capital investment may be detrimental to functioning of a market economy.
  - dilution of social capital and sense of trust.
  - potentially higher rates of criminal activity and lower rates of labor market participation.

# Effects of barriers to opportunity on output

Hsieh, Hurst, Jones & Klenow, “The Allocation of Talent and U.S. Economic Growth.” NBER, 2013

- Investigates macroeconomic consequences of the lessening of barriers to advantageous occupations faced by women and blacks.
- Occupational frictions resulted in inefficient allocation of people to occupations.
- Relaxation of barriers:
  - explains 15-20% of growth in output per worker from 1960 to 2008
  - caused substantial real wage growth for women and blacks, but a small reduction in real wages for white men
  - accounts for about 75% of the increase in female labor force participation during this period