Improving Equality of Opportunity in America
New Evidence and Policy Lessons

Raj Chetty
Harvard University
The American Dream?

- Probability that a child born to parents in the bottom fifth of the income distribution reaches the top fifth:
The American Dream?

- Probability that a child born to parents in the bottom fifth of the income distribution reaches the top fifth:
  - USA: 7.5% (Chetty, Hendren, Kline, Saez 2014)
  - UK: 9.0% (Blanden and Machin 2008)
  - Denmark: 11.7% (Boserup, Kopczuk, and Kreiner 2013)
  - Canada: 13.5% (Corak and Heisz 1999)
The American Dream?

- Probability that a child born to parents in the bottom fifth of the income distribution reaches the top fifth:

<table>
<thead>
<tr>
<th>Country</th>
<th>Probability</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>7.5%</td>
<td>Chetty, Hendren, Kline, Saez 2014</td>
</tr>
<tr>
<td>UK</td>
<td>9.0%</td>
<td>Blanden and Machin 2008</td>
</tr>
<tr>
<td>Denmark</td>
<td>11.7%</td>
<td>Boserup, Kopczuk, and Kreiner 2013</td>
</tr>
<tr>
<td>Canada</td>
<td>13.5%</td>
<td>Corak and Heisz 1999</td>
</tr>
</tbody>
</table>

→ Chances of achieving the “American Dream” are almost two times higher in Canada than in the U.S.
Differences in Opportunity Within the U.S.

- Differences across countries have been the focus of policy discussion

- But upward mobility varies even more within the U.S.

- We calculate upward mobility for every metro and rural area in the U.S.
  - Use anonymous earnings records on 40 million children born between 1980-1993
  - Classify children based on where they grew up, and track them no matter where they live as adults

Source: Chetty, Hendren, Kline, Saez QJE 2014: The Equality of Opportunity Project
The Geography of Upward Mobility in the United States
Chances of Reaching the Top Fifth Starting from the Bottom Fifth by Metro Area

San Jose 12.9%
Salt Lake City 10.8%
Atlanta 4.5%
Denver 8.7%
Milwaukee 4.5%
Boston 10.4%
Washington DC 11.0%
Charlotte 4.4%
Minneapolis 8.5%

Note: Lighter Color = More Upward Mobility
Download Statistics for Your Area at www.equality-of-opportunity.org
The Geography of Upward Mobility in the Madison-Milwaukee Area

Odds of Reaching the Top Fifth Starting from the Bottom Fifth by County

Dane (Madison): 8.1%
Waukesha: 13.2%
Milwaukee: 3.2%
Why Does Upward Mobility Differ Across Areas? The Importance of Childhood Environments

- Much of the variation in upward mobility across areas is due to *causal effects* of childhood environment
  - *Not* purely differences in the type of people living in each area

- Document this by studying families that move
  - Do children who move from Milwaukee to Waukesha do better as adults?

- Study 8 million families that move across counties in the U.S. with children of different ages

*Source: Chetty and Hendren 2015*
Effects of Moving to a Different Neighborhood on a Child’s Income in Adulthood by Age at Move

Percentage Gain from Moving to a Better Area

Waukesha County

Milwaukee County

Age of Child when Parents Move
Children whose families move from Milwaukee to Waukesha when they are 9 years old get 70% of the gain from growing up in Waukesha from birth.
Effects of Moving to a Different Neighborhood on a Child’s Income in Adulthood by Age at Move

Percentage Gain from Moving to a Better Area

Age of Child when Parents Move
What are the Characteristics of High-Mobility Areas?
Five Strongest Correlates of Upward Mobility

1. Segregation
   - Racial and income segregation associated with less mobility
   - Long commute times (sprawl) associated with less mobility
Racial Segregation in Milwaukee
Whites (blue), Blacks (green), Asians (red), Hispanics (orange)

Source: Cable (2013) based on Census 2010 data
Racial Segregation in Sacramento
Whites (blue), Blacks (green), Asians (red), Hispanics (orange)

Source: Cable (2013) based on Census 2010 data
Five Strongest Correlates of Upward Mobility

1. Segregation

2. Income Inequality
   - Places with smaller middle class have much less mobility
   - Upper tail inequality (top 1%) not strongly related to mobility
Five Strongest Correlates of Upward Mobility

1. Segregation

2. Income Inequality

3. School Quality

   - Higher expenditure, smaller classes, higher test scores correlated with more mobility
Five Strongest Correlates of Upward Mobility

1. Segregation

2. Income Inequality

3. School Quality

4. Family Structure
   - Areas with more single parents have much lower mobility
   - Strong correlation even for kids whose own parents are married
### Five Strongest Correlates of Upward Mobility

1. Segregation
2. Income Inequality
3. School Quality
4. Family Structure
5. Social Capital

- “It takes a village to raise a child”
Policies to Improve Upward Mobility

- What policy changes can improve mobility?

- Focus here on two types of policies suggested by correlations:
  - Reducing segregation: affordable housing policies
  - Improving education: teacher effectiveness

- Other factors (e.g. family stability, social capital) may be important, but they are harder to change
One way to increase integration: give low income families subsidized housing vouchers to move to better areas.

HUD Moving to Opportunity Experiment: gave such vouchers using a randomized lottery.

- 4,600 families in Boston, New York, LA, Chicago, and Baltimore in mid 1990’s.

Source: Chetty, Hendren, and Katz 2015
Children who moved to low-poverty areas when young (e.g., below age 13) do much better as adults:

- 30% higher earnings = $100,000 gain over life in present value
- 27% more likely to attend college
- 30% less likely to become single parents

But moving had little effect on the outcomes of children who were already teenagers

Moving also had no effect on parents’ earnings

Reinforces conclusion that childhood exposure is a key determinant of upward mobility
Housing Policy Implications

- Moving to a mixed-income neighborhood improves outcomes for low-income children

- Mixed-income neighborhoods produce, if anything, slightly *better* outcomes for the rich
  - Integration could help the poor without hurting the rich

- Subsidized housing vouchers and changes in urban planning could increase upward mobility, but there are limits to scalability
  - Moving *everyone* in Harlem to Bronx is unlikely to help
  - Ultimately need policies that improve existing neighborhoods rather than simply moving people around
Education Policy: Using Big Data to Study Teachers’ Impacts

School district records
2.5 million children
18 million test scores

Tax records
Earnings, College Attendance, Teen Birth

Source: Chetty, Friedman, Rockoff 2014a,b
One prominent measure of teacher quality: teacher value-added

How much does a teacher raise her/his students’ test scores on average?
A Quasi-Experiment: Entry of High Value-Added Teacher

Entry of Teacher with VA in top 5%

Scores in 4th Grade

Average Test Score

School Year

Scores in 3rd Grade
A Quasi-Experiment: Entry of Low Value-Added Teacher

Entry of Teacher with VA in bottom 5%

Scores in 4th Grade

Scores in 3rd Grade
The Value of Improving Teacher Quality

Teacher Quality (Value-Added) Percentile

5th 95th Median
+$50,000 \text{ lifetime earnings per child}
= $1.4 \text{ million per classroom of 28 students}
= $250,000 \text{ in present value at 5\% int. rate}
Equality of Opportunity and Economic Growth

- Traditional argument for greater social mobility is based on principles of justice

- But improving opportunities for upward mobility can also increase size of the economic pie
  - One child’s success need not come at another’s expense

- To illustrate, focus on innovation
  - Study the lives of 750,000 patent holders in the U.S.

Source: Bell, Chetty, Jaravel, Petkova, van Reenen 2015
Patent rate for children with parents in top 1%: 22.5 per 10,000

Patent rate for children with parents below median: 2.2 per 10,000
Patent Rates vs. 3rd Grade Test Scores

Inventors per Ten Thousand

3rd Grade Math Test Score (Standard Deviations Relative to Mean)

85th Percentile
Patent Rates vs. 3rd Grade Test Scores for Children with Low vs. High Income Parents

Inventors per Ten Thousand

3rd Grade Math Test Score (Standard Deviations Relative to Mean)

Parent Income Below Median
Parent Income Above Median
High-ability children much more likely to become inventors if they are from high-income families.
Upward Mobility and Economic Growth

- Gaps in test scores grow rapidly as children grow older
  - Low income children fall further behind over time

- Suggests that innovation gap may again be driven by differences in childhood environments

- Improving equality of opportunity could ultimately benefit everyone, not just low-income families
Policy Lessons

1. Tackle social mobility at a local, not just national level
   - Focus on specific cities such as Milwaukee
Policy Lessons

1. Tackle social mobility at a local, not just national level

2. Improve childhood environment at all ages (not just earliest ages)
   - Short term: housing vouchers to help families move
   - Long term: improve neighborhoods (e.g., schools)
1. Tackle social mobility at a local, not just national level

2. Improve childhood environment at all ages (not just earliest ages)

3. Harness big data to evaluate other policies scientifically and measure local progress and performance
   - Identify which neighborhoods are in greatest need of improvement and which policies work
# Downloadable Data on Intergenerational Mobility

<table>
<thead>
<tr>
<th>Data Description</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preferred Mobility Measures by Commuting Zone</td>
<td>Stata file</td>
</tr>
<tr>
<td>Online Data Table 1: National 100 by 100 Transition Matrix</td>
<td>Stata file</td>
</tr>
<tr>
<td>Online Data Table 2: Marginal Income Distributions by Centile</td>
<td>Stata file</td>
</tr>
<tr>
<td>Online Data Table 3: Intergenerational Mobility Statistics and Selected Covariates by County</td>
<td>Stata file</td>
</tr>
<tr>
<td>Online Data Table 4: Intergenerational Mobility Statistics by Metropolitan Statistical Area</td>
<td>Stata file</td>
</tr>
<tr>
<td>Online Data Table 5: Intergenerational Mobility Statistics by Commuting Zone</td>
<td>Stata file</td>
</tr>
<tr>
<td>Online Data Table 6: Quintile-Quintile Transition Matrices by Commuting Zone</td>
<td>Stata file</td>
</tr>
<tr>
<td>Online Data Table 7: Income Distributions by Commuting Zone</td>
<td>Stata file</td>
</tr>
<tr>
<td>Online Data Table 8: Commuting Zone Characteristics</td>
<td>Stata file</td>
</tr>
<tr>
<td>Online Data Table 9: Commuting Zone Characteristics Definitions and Data Sources</td>
<td>Excel file</td>
</tr>
<tr>
<td>Geographic Crosswalks (Tolbert and Sizer 1996, Autor and Dorn 2008 &amp; 2013)</td>
<td>Zip file</td>
</tr>
<tr>
<td>Replication Stata Code and Datasets</td>
<td>Zip file</td>
</tr>
<tr>
<td>Downloadable Map of Absolute Upward Mobility</td>
<td>Zip file</td>
</tr>
</tbody>
</table>


For more information on the data, please email info@equality-of-opportunity.org
## An Opportunity and a Challenge

<table>
<thead>
<tr>
<th>Metro Area</th>
<th>Odds of Rising from Bottom to Top Fifth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dubuque, IA</td>
<td>17.9%</td>
</tr>
<tr>
<td>San Jose, CA</td>
<td>12.9%</td>
</tr>
<tr>
<td>Washington DC</td>
<td>10.5%</td>
</tr>
<tr>
<td><em>U.S. Average</em></td>
<td>7.5%</td>
</tr>
<tr>
<td>Chicago, IL</td>
<td>6.5%</td>
</tr>
<tr>
<td>Milwaukee, WI</td>
<td>4.5%</td>
</tr>
</tbody>
</table>

**Dubuque, IA 17.9%**

**San Jose, CA 12.9%**

**Washington DC 10.5%**

**U.S. Average 7.5%**

**Chicago, IL 6.5%**

**Milwaukee, WI 4.5%**

An Opportunity and a Challenge
Milwaukee vs. Waukesha County Ranking on Five Predictors of Upward Mobility

- Income Segregation
- Income Inequality
- Social Capital
- Fraction Single Parents
- Test Scores

Percentile Ranking Across Counties in U.S.

- Milwaukee
- Waukesha

U.S. Average