The Fading American Dream
Trends in Absolute Income Mobility Since 1940

Raj Chetty, Stanford Economics
David Grusky, Stanford Sociology
Maximilian Hell, Stanford Sociology
Nathan Hendren, Harvard Economics
Robert Manduca, Harvard Sociology
Jimmy Narang, UC-Berkeley Economics

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Absolute Mobility and the American Dream

- Absolute mobility: fraction of children who have a higher standard of living than their parents

- High rates of absolute mobility are a defining feature of the American Dream [Samuel 2012]
  - When asked to assess economic progress, children frequently compare their earnings to their parents [Goldthorpe 1987]
  - Obama (2014): “People’s frustrations are partly rooted “in the fear that their kids won’t be better off than they were”
Longstanding interest in measuring rates of absolute mobility, focusing on two questions:

1. What fraction of children earn more than their parents today?
2. How have rates of absolute mobility changed over time?
How many people are better off than their parents? Depends on how you cut the data.

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SOCIAL MOBILITY MEMOS

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Key problem for estimating absolute mobility: lack of large panel datasets linking parents and children
We develop a method of estimating absolute mobility for the 1940-84 birth cohorts that can be implemented using existing data.

We estimate mobility by decomposing joint distribution of income into two components:

1. Marginal income distributions for parents and children, estimated using CPS and Census cross-sections
2. Joint distribution of parent and child ranks (copula)
   - For recent cohorts, obtain copula from tax records, building on prior work showing stable relative mobility [Chetty et al. 2014]
   - For early cohorts, derive bounds to show that estimates of absolute mobility are insensitive to copula
Outline

1. Data and methods
2. Baseline estimates under copula stability
3. Bounds under alternative copulas
4. Sensitivity to specification choices
5. Policy counterfactuals
Data and Methods
Methodology

- Baseline income measure: pre-tax family income at age 30, deflated using CPI-U-RS

- Estimate absolute mobility by combining three sets of inputs for each birth cohort:
  1. Children’s marginal income distributions
  2. Parents’ marginal income distributions
  3. Copula: joint distribution of parent and child ranks
Children’s Income Distributions

- Estimate income distributions at age 30 for children in each birth cohort from 1940-84 using CPS data from 1970-2014
- Sample: all non-institutionalized individuals born in the U.S.
- Income defined as sum of spouses’ personal pre-tax incomes
Parents’ Income Distributions

- Constructing parents’ income distributions by child’s birth cohort is more complicated
  - Requires pooling data from multiple Census cross-sections
Parents’ Income Distributions

- Example: income distribution of parents of children in 1970 birth cohort

- Combine data from three Censuses (1% IPUMS):
  1. In 1970 Census, select parents aged 25-35 with children born in that year
  3. In 1960 Census, select all individuals aged 25-35

  - Give this group weight equal to the fraction of individuals who have 1 year old children after age 35 in 1970 Census

  - Assumption: income distribution of those who have kids after age 35 is representative of income distribution of general population
For children born in 1980s, estimate copula using population tax data [Chetty, Hendren, Kline, Saez, Turner 2015]

Income definition in tax records: pre-tax family income (AGI+SSDI)

For non-filers, use W-2 wage earnings + SSDI + UI income

If no 1040 and no W-2, code income as 0

Incomes of children born in 1980s measured at age ~30 in 2012

Incomes of parents measured in 1996-2000 between ages 30-60

Copula (distribution of ranks) is stable after age 30 [Chetty et al. 2014]
Estimate copula non-parametrically as a 100 x 100 percentile transition matrix for 1980-82 birth cohorts

- Rank children based on their incomes relative to other children in same birth cohort
- Rank parents of these children based on their incomes relative to other parents
- Compute joint probabilities of each rank pair
Chetty et al. (2014) show that copula is very stable back to 1971 birth cohort using Statistics of Income 0.1% sample

- Constant \textit{relative} mobility (in percentile ranks, not absolute dollars)

Baseline: assume copula stability for \textit{all} cohorts going back to 1940

- Then derive bounds for absolute mobility with alternative copulas
Baseline Estimates of Absolute Mobility

- Consider children in 1940 birth cohort
- Estimate absolute mobility in four steps:
  1. Identify parents of children born in 1940 using Census and translate parents’ incomes at age 25-35 to percentile ranks
  2. Obtain distribution of child ranks for each parent rank using copula from tax data for 1980 cohort
  4. Calculate fraction of children with incomes exceeding parents by parent income percentile
Percent of Children Earning More than their Parents
By Parent Income Percentile

Pct. of Children Earning more than their Parents

Parent Income Percentile (conditional on positive income)
Percent of Children Earning More than their Parents
By Parent Income Percentile

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Parent Income Percentile (conditional on positive income)
Mean Rates of Absolute Mobility by Cohort

Pct. of Children Earning more than their Parents
Bounds with Alternative Copulas
Baseline estimates rely on assumption that copula remains stable back to 1940 cohort

Now relax this assumption and derive bounds on absolute mobility under alternative copulas by birth cohort

Consider all copulas under which children’s incomes increase with parent income (first-order stochastic dominance)

Rules out negative intergenerational persistence

High-dimensional (10,000-variable) maximization problem, but objective function and constraints are all linear

Can be solved efficiently using linear programming
Household Income Distributions of Parents and Children at Age 30
For Children in 1940 Birth Cohort

Income (Measured in Real 2014$)
Household Income Distributions of Parents and Children at Age 30

For Children in 1940 Birth Cohort

- 80th percentile of parents distribution
- 14th percentile of children's distribution

Income (Measured in Real 2014$)
Household Income Distributions of Parents and Children at Age 30

For Children in 1980 Birth Cohort

- 74th percentile of children's distribution
- 80th percentile of parents distribution
Child Rank Required to Earn More Than Parents

- **1940**: (Point on graph)
- **1980**: (Point on graph)
- **(80, 74)**: (Point on graph)
- **(80, 14)**: (Point on graph)
Child Rank Required to Earn More Than Parents with Copula for 1980 Cohort

Note: Darker colors represent higher density in copula.
Sensitivity Analysis
Sensitivity Analysis

- Assess sensitivity of results to key specification choices

1. Using alternative price deflators

   - CPI-U-RS fails to account adequately for quality improvements and new products [Boskin et al. 1996, Broda and Weinstein 2009]

   - Following literature by subtracting 0.8% from inflation rate implied by CPI-U-RS [Meyer and Sullivan 2009, Broda and Weinstein 2010]
Trends in Absolute Mobility: Alternative Price Deflators

- Baseline: CPI-U-RS
- CPI-U-RS minus 0.8%
- PCEPI
- PPI

Pct. of Children Earning more than their Parents

Child's Birth Cohort

Trends in Absolute Mobility: Alternative Price Deflators

- Baseline: CPI-U-RS
- CPI-U-RS Minus 2%
- GDP Deflator
- CPI-U

Pct. of Children Earning more than their Parents

Child's Birth Cohort

Sensitivity Analysis

- Assess sensitivity of results to key specification choices
  1. Using alternative price deflators
  2. Using post-tax and transfer incomes

   - Conceptually, not clear whether earnings or consumption is the relevant metric for absolute mobility
   - Assess whether distinction matters empirically
   - Calculate tax rates using NBER TAXSIM since 1960 and using raw federal MTR’s prior to 1960
   - Estimate cash and in-kind transfers (SNAP, WIC, housing assistance) since 1967 using CPS data from Fox et al. (2014)
Trends in Absolute Mobility: Including Taxes and Transfers

Baseline: Pre-Tax Income

Pct. of Children Earning more than their Parents

Child's Birth Cohort
Trends in Absolute Mobility: Including Taxes and Transfers

- Baseline: Pre-Tax Income
- Including Taxes
Trends in Absolute Mobility: Including Taxes and Transfers

Pct. of Children Earning more than their Parents

Trends in Absolute Mobility: Including Taxes and Transfers

Baseline: Pre-Tax Income
Including Taxes
Including Taxes and Transfers

Child's Birth Cohort

Sensitivity Analysis

- Assess sensitivity of results to key specification choices

1. Using alternative price deflators
2. Using post-tax and transfer incomes
3. Measuring incomes at age 40 instead of 30

   - Children today may take longer to reach peak earnings than those in earlier cohorts
Trends in Absolute Mobility: Income Measured at Age 40

Baseline: Children Age 30, Parents 25-35
Children Age 40, Parents 35-45

Pct. of Children Earning more than their Parents

Child's Birth Cohort

Sensitivity Analysis

- Assess sensitivity of results to key specification choices
  1. Using alternative price deflators
  2. Using post-tax and transfer incomes
  3. Measuring incomes at age 40 instead of 30
  4. Using individual income instead of family income

  - Fraction of individuals married at age 30 has fallen over time → family income may be lower for recent cohorts
Trends in Absolute Mobility: Individual Income, Children vs. Fathers

- Baseline
- Son vs. Parents' Family Income
- Daughter vs. Parents' Family Income
- Son vs. Father Individual Income
- Daughter vs. Father Individual Income

Pct. of Children Earning more than their Parents

Child's Birth Cohort
Sensitivity Analysis

- Assess sensitivity of results to key specification choices
  1. Using alternative price deflators
  2. Using post-tax and transfer incomes
  3. Measuring incomes at age 40 instead of 30
  4. Using individual income instead of family income
  5. Adjusting for changes in household size
    - Households have grown smaller over time → consumption per person may not have fallen as much

Households have grown smaller over time → consumption per person may not have fallen as much
Trends in Absolute Mobility: Adjusting for Family Size

- Baseline: No Adjustment
- Divide by Family Size
- Divide by Sqrt(Family Size)

Pct. of Children Earning more than their Parents

Child's Birth Cohort

Result that absolute mobility has declined sharply since 1940 is robust to key specification choices

1. Using alternative price deflators
2. Using post-tax and transfer incomes
3. Measuring incomes at age 40 instead of 30
4. Using individual income instead of family income
5. Adjusting for changes in household size
Counterfactuals
Counterfactual Scenarios

- What policies can restore absolute mobility to historical levels?

- Two key macroeconomic changes since 1940: lower GDP growth rates and less equal distribution of growth [e.g., Goldin and Katz 2009]

- Consider two counterfactual scenarios for children born in 1980:

  1. **Higher growth**: growth rate since birth corresponding to 1940 cohort, with GDP distributed across households as it is today

  2. **More equal growth**: Same GDP growth as today, but distribute GDP across income percentiles as in 1940 cohort
Counterfactual Rates of Absolute Mobility by Parent Income Percentile

Parent Income Percentile (conditional on positive income)

Pct. of Children Earning more than their Parents

Mean AM: 91.5%

1940 Empirical

Mean AM: 50.0%

1980 Empirical
Counterfactual Rates of Absolute Mobility by Parent Income Percentile

Parent Income Percentile (conditional on positive income)

Pct. of Children Earning more than their Parents

1940 Empirical
Mean AM: 91.5%

1980 Empirical
Mean AM: 61.9%

1940 GDP/family growth rate (2.5%), 1980 income shares
Mean AM: 50.0%
Counterfactual Rates of Absolute Mobility by Parent Income Percentile

Pct. of Children Earning more than their Parents

Parent Income Percentile (conditional on positive income)

Mean AM: 91.5%
Mean AM: 79.6%
Mean AM: 61.9%
Mean AM: 50.0%

1940 Empirical
1980 Empirical

1980 GDP/family growth rate (1.5%), 1940 income shares
1940 GDP/family growth rate (2.5%), 1980 income shares
Absolute Mobility Under Counterfactual Growth Rates
Growth Distributed According to GDP Shares for 1980 Cohort

Pct. of Children Earning more than their Parents

Real GDP/Family Growth Rate (%)
1. Rates of absolute mobility have fallen from ~90% for 1940 birth cohort to ~50% for children entering labor market today.

2. Absolute mobility has fallen primarily because of growing inequality in distribution of economic growth.

   - Inequality and absolute mobility are tightly linked.

   → Those who are interested in reviving absolute mobility must be interested in more even distribution of economic growth.
Results raise two sets of questions for future research:

1. Positive: What policies generate more equal growth and greater absolute mobility?

2. Normative: How should tax and transfer policies be designed when planner’s objective includes absolute mobility?
Median Individual Income Among Working Individuals Ages 25-34 by Year

- Our Sample - Males
- CPS Historical Income Tables - Males
- Our Sample - Females
- CPS Historical Income Tables - Females
Median Ratio of Child’s Income to Parents’ Income by Birth Cohort
Trends in Absolute Mobility: Wage vs Family Income

Pct. of Children Earning more than their Parents

Baseline
Wage Income Only
Family Income

Child's Birth Cohort
Trends in Absolute Mobility: Including Immigrants

Pct. of Children Earning more than their Parents

Child's Birth Cohort


Baseline
Including Immigrants
Trends in Absolute Mobility: CPS vs Census

Pct. of Children Earning more than their Parents

Child's Birth Cohort
Trends in Absolute Mobility: Robustness to Age of Parent-Child Linkage

- **Baseline:** Children Age 30, Parents 25-35
- **Children Age 40, Parents 35-45**

The graph illustrates the percentage of children earning more than their parents over different birth cohorts from 1940 to 1980. The baseline scenario shows a consistent decline in the percentage of children earning more than their parents, while the alternative scenario (Children Age 40, Parents 35-45) displays a more pronounced and rapid decrease compared to the baseline.
Child Rank Required to Earn More than Parents

Upper Bound Copula for 1980 Birth Cohort
Effects of Uniform Increase in Children’s Income on Absolute Mobility for 1980 Cohort

Pct. of Children Earning more than their Parents

Magnitude of Income Increase for Children in 2010

Effects of Uniform Increase in Children’s Income on Absolute Mobility for 1980 Cohort