Week 8: Wealth Inequality
SUNG-JAE SIM

- Assume that an attitude to high-risk, high return assets depends on Race.
- These different patterns of portfolio behavior would strengthen racial differences in wealth ownership.


- Decompose income into current income and permanent income.
- The issue of different explanatory power: their model explain a much smaller fraction when they estimate the wealth model on a black sample.
- They try to handle with this by considering sibling effects, but...
Why wealth matters?

- Using income alone to study financial well-being would be sufficient if income and wealth were highly correlated. But they aren’t.

- Many of the truly wealthy have rather low earnings because they are able to support current consumption with income derived from assets.

- In 1992, while median income for black families was about 60% of the median for white families, median net worth for blacks was only 8% of median net worth for whites.

- While 25% of white families had zero or negative assets, more than 60% of black families had no wealth.
Higher Risk Assets: Business, Stocks and Bonds
Lower Risk Assets: Cash accounts and Life ins.
Moderate Risk Assets: Home and Real estate
Keister (2000)

Research Background (3/4)

- Why is it relatively easy for whites to accumulate wealth?
  - Homeownership
    - White families are more likely to own homes than black families
    - The values of the homes owned by whites appreciate more rapidly than those of blacks.
    - The resale values of homes are greater for whites than for blacks, and that whites typically receive more favorable terms in home mortgage lending than blacks.
  - Preferences for saving and consumption
    - Different demographics and family background
      - Blacks tend to start out in families that are less well off and experience lower rate of upward mobility, which restrains them from investing in risky assets.
    - Discrimination in lending and interest rate differences
      - Blacks enjoy less opportunities to invest and save are structurally constrained.
Why the asset ownership issue matters in inequality studies?

- Inequality worsens during times of relative prosperity and improves during times of economic decline.

- This relationship between economic booms and wealth inequality has largely been a function of stock market movement and the distribution of stock ownership across families.

- The relationship between the stock market and wealth inequality was particularly evident in the early to mid-1990s.

- But stock market booms in the 1990s had a less dramatic effect on inequality than they had in the past because increased numbers of households were investing in stocks.
Keister (2000)

Research Design

- Research question
  - Investigate the relationship between race, asset ownership, and wealth inequality
  - But it is difficult to estimate the importance of portfolio behavior in determining levels of wealth inequality because the effects of asset ownership and other influences are interrelated.
    - “Other influences”: the wealth of family of origin, educational attainment, patterns of marriage and divorce, fertility, labor force participation, and earnings.

- Alternative method
  - Use two-staged methods: logistic regression and simulation
  - Logistic regression: the relationship between race and asset ownership
  - Simulation model: integrate above regression equations into a simulation model
    - It makes possible to separate the effects of asset ownership on wealth distribution
Keister (2000)

Logistic Regression (1/3)

- Research Data: the 1983-1986 panel of the Survey of Consumer Finances (SCF)
- Total sample size: 2791 families

### TABLE 1
Descriptive Statistics, 1983 and 1986

<table>
<thead>
<tr>
<th></th>
<th>1983</th>
<th></th>
<th>1986</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% owners</td>
<td>Mean (SD)</td>
<td>% owners</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td>Home (primary residence)</td>
<td>.64</td>
<td>67.7 (.705)</td>
<td>.67</td>
<td>79.8 (81.5)</td>
</tr>
<tr>
<td>Other real estate</td>
<td>.20</td>
<td>93.2 (.22)</td>
<td>.22</td>
<td>124.5 (.34)</td>
</tr>
<tr>
<td>Business</td>
<td>.14</td>
<td>195.6 (.24)</td>
<td>.13</td>
<td>217.5 (483.1)</td>
</tr>
<tr>
<td>Stocks and mutual funds</td>
<td>.20</td>
<td>60.7 (.20)</td>
<td>.20</td>
<td>80.5 (1,069.6)</td>
</tr>
<tr>
<td>Bonds</td>
<td>.24</td>
<td>513.2 (.19)</td>
<td>.19</td>
<td>27.1 (538.7)</td>
</tr>
<tr>
<td>Cash (checking and savings account)</td>
<td>.89</td>
<td>4.0 (10.7)</td>
<td>.89</td>
<td>7.3 (23.8)</td>
</tr>
<tr>
<td>Life insurance</td>
<td>.41</td>
<td>7.8 (29.5)</td>
<td>.43</td>
<td>8.2 (29.3)</td>
</tr>
<tr>
<td>Explanatory variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>.18</td>
<td>.18 (38)</td>
<td>.18</td>
<td>.18 (38)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No high school</td>
<td>.12</td>
<td>.14 (.32)</td>
<td>.14</td>
<td>.14 (.32)</td>
</tr>
<tr>
<td>Some high school</td>
<td>.11</td>
<td>.14 (.31)</td>
<td>.14</td>
<td>.14 (.31)</td>
</tr>
<tr>
<td>High school graduate</td>
<td>.29</td>
<td>.31 (.45)</td>
<td>.31</td>
<td>.31 (.45)</td>
</tr>
<tr>
<td>Some college</td>
<td>.17</td>
<td>.18 (.37)</td>
<td>.18</td>
<td>.18 (.37)</td>
</tr>
<tr>
<td>College</td>
<td>.32</td>
<td>.23 (.47)</td>
<td>.23</td>
<td>.23 (.47)</td>
</tr>
<tr>
<td>Income</td>
<td>28.9</td>
<td>67.5 (58.3)</td>
<td>28.9</td>
<td>194.6 (194.6)</td>
</tr>
<tr>
<td>Married</td>
<td>.67</td>
<td>.62 (.47)</td>
<td>.62</td>
<td>.49 (.47)</td>
</tr>
<tr>
<td>Age</td>
<td>47.8</td>
<td>51.0 (16.1)</td>
<td>47.8</td>
<td>51.0 (16.1)</td>
</tr>
<tr>
<td>Number of children</td>
<td>.80</td>
<td>.75 (1.13)</td>
<td>.80</td>
<td>.75 (1.13)</td>
</tr>
</tbody>
</table>

Note. All variables are weighted to account for oversampling of high-income households. Mean values are for owners only and are in thousands. 1983 income is income reported on 1982 tax returns, 1986 income is income reported on 1985 tax returns, n = 2791.
Keister (2000)

Logistic Regression (2/3)

- **Dependent Variable**
  - Seven discrete choice variables indicating whether a family owned a particular asset in 1986

- **Independent Variable**
  - a lagged endogenous variable
    - Indicate the degree to which families continue to own the same assets or the rate at which they became owners.
  - BLACK
  - AGE /AGE SQUARE
  - Separate indicators of education for prior owners and new owners of each type of wealth
  - INCOME
    - the (logged) value of average total household income (in thousands) from 1983 to 1985
  - WINDFALLS, NUMBER OF CHILDREN and MARRIED
Main Result

- Past ownership predicts current ownership of each asset → Existence of path dependency
- Black families were less likely than whites to own certain assets, particularly high-risk assets.
- The education variables were not generally significant → the status attainment perspective to explain the empirical relationship between education and wealth may be incorrect.
- Income had a clear positive and significant effect of the dependent variable.
Keister (2000)

Microsimulation (1/3)

▲ Research question at this stage
   ▲ “What would the distribution of wealth look like if there were no racial differences in asset and in educational attainment?”

▲ Research design at this stage
   ▲ The author integrated previous logistic regression equations into the microsimulation model.
   ▲ Three equations are to be merged
      ▲ (1) logistic equations predicting the ownership of three additional net worth components
      ▲ (2) logistic equations predicting three categories of debt
      ▲ (3) generalized least squares estimates of the value of each of the 1 assets and 3 debts owned by families that are owners.
Microsimulation (2/3)

- Research data set
  - (1) survey data from cross sections of the Surveys of Consumer Finances
  - (2) estate tax data (nonpublic data from the Department of the Treasury) that indicates that amount of wealth owned by top wealth holders at the time of their deaths
- Research procedure: two experiments
  - First, simulate the effects of removing racial differences in asset ownership
  - Second, remove the race variable and reduce racial differences in educational attainment
- Why education variable should be involved?
  - (1) it interacts with portfolio behavior in important ways as I described in the previous section
  - (2) educational attainment can be targeted relatively easily by policy makers
  - (3) preliminary analyses demonstrated that altering educational attainment produced relatively dramatic effects on wealth inequality.
Main Result

Table 3

Before the experiment, there were no black families in this upper segment of the wealth distribution.

After removing the effect of race on asset ownership and education attainment, the very wealthy segment of the distribution began to include some black families.

Table 4

The first experiment reduced the share of wealth owned by the top 1% to about 30% in each year.

Following the experiment, families in the top quintile consistently owned less than 80% of total wealth.

TABLE 3

<table>
<thead>
<tr>
<th></th>
<th>% white</th>
<th>% black</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before</td>
<td>98</td>
<td>0</td>
</tr>
<tr>
<td>After experiment 1</td>
<td>91</td>
<td>3</td>
</tr>
<tr>
<td>After experiment 2</td>
<td>88</td>
<td>5</td>
</tr>
<tr>
<td>1989</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before</td>
<td>97</td>
<td>0</td>
</tr>
<tr>
<td>After experiment 1</td>
<td>89</td>
<td>4</td>
</tr>
<tr>
<td>After experiment 2</td>
<td>85</td>
<td>7</td>
</tr>
<tr>
<td>1995</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before</td>
<td>96</td>
<td>0</td>
</tr>
<tr>
<td>After experiment 1</td>
<td>85</td>
<td>5</td>
</tr>
<tr>
<td>After experiment 2</td>
<td>83</td>
<td>8</td>
</tr>
</tbody>
</table>

TABLE 4

<table>
<thead>
<tr>
<th></th>
<th>Top 1%</th>
<th>Top 20%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before</td>
<td>After experiment 1</td>
</tr>
<tr>
<td>1962</td>
<td>34</td>
<td>32</td>
</tr>
<tr>
<td>1983</td>
<td>34</td>
<td>31</td>
</tr>
<tr>
<td>1989</td>
<td>38</td>
<td>30</td>
</tr>
<tr>
<td>1992</td>
<td>39</td>
<td>32</td>
</tr>
<tr>
<td>1995</td>
<td>39</td>
<td>31</td>
</tr>
</tbody>
</table>
Altonji & Doraszelski (2005)

Research Design

- Two research questions
  - “To what extent can the large race gap in wealth be explained with income and demographic variables?”
    - In this issue the authors use permanent income, not current income.
    - Permanent income is the component that is predictable given race, sex, age, education, health status, number of children, and geographic location. cf. temporary income or windfall
    - In the case of single men and single women, they could explain the entire race gap in the level of wealth with income and demographics provided that we estimate the wealth equation on the white sample.
  - “Why are the wealth holdings of blacks less sensitive to income and demographics than the wealth holdings of whites?”
    - Some researchers have hypothesized that differences in inter vivos transfers and inheritances play a major part in explaining the wealth gap.
    - They tried to answer it by relating differences among siblings in current and permanent income and demographics to differences in wealth.
Wealth-income equations

We evaluate the explanatory power of our wealth models using a slightly modified regression decomposition (Blinder 1973, Oaxaca 1973) that allows for median regression models and accommodates the use of population weights in computing the wealth gap. Let \( \{\omega^j_i\}_{i=1}^N \) denote a set of population weights such that \( \omega^j_i > 0 \) and \( \sum_{i=1}^N \omega^j_i = 1 \). (See Section III for details on how the weights are constructed.) Let \( Z^j_i = (1, Y^j_i, X^j_i) \) and \( \theta^j = (\alpha^j_w, (\alpha^j)^', (\beta^j)^')' \). Equations 1 and 2 can be written as

\[
W^j_i = Z^j_i \theta^j + \varepsilon^j_i, \quad j = w, b,
\]

where the definition of \( \theta^j \) and \( \varepsilon^j \) depends on whether we use mean or median regression. Let \( \hat{W}^j_i = \sum_{i=1}^N \omega^j_i (Z^j_i \hat{\theta}^j) \) denote the mean of the predictions for individuals in demographic group \( j \), where \( \hat{\theta}^j \) is an estimate of \( \theta^j \). For a given family type, say couples, write
Blinder-Oaxaca decomposition

\[
\hat{W}^w - \hat{W}^b = \sum_{i=1}^{N^w} \omega^w_i (Z_i^w \hat{\theta}^w) - \sum_{i=1}^{N^b} \omega^b_i (Z_i^b \hat{\theta}^b)
= \left\{ \sum_{i=1}^{N^w} \omega^w_i (Z_i^w \hat{\theta}^b) - \sum_{i=1}^{N^b} \omega^b_i (Z_i^b \hat{\theta}^b) \right\} + \left\{ \sum_{i=1}^{N^w} \omega^w_i (Z_i^w \hat{\theta}^w) - \sum_{i=1}^{N^w} \omega^w_i (Z_i^w \hat{\theta}^b) \right\}.
\]

The first term thus represents the part of the wealth gap \(\hat{W}^w - \hat{W}^b\) that is “explained” by differences between blacks and whites in the explanatory variables.

The second term represents the unexplained part of the wealth gap.

This equation is decomposed by \(\hat{\theta}^b\), the coefficient vector for blacks.

The authors contrasted the decomposition based on the above equation with the decomposition using the coefficient vector for whites (i.e. \(\hat{\theta}^w\)) to measure the part of the wealth gap that is explained by differences in income and demographics.
The pooled PSID (the Panel Study of Income Dynamics) data from 1984, 1989, and 1994 wealth surveys

Dependent variable: it is composed by race (black/white), marital status, and mean/median.

Independent variable: log of wealth, wealth, ratio of wealth, log of taxable non-asset income, permanent log income, total taxable non-asset income, permanent income, and demographic variables divided by head and spouse.

It is continued below.
If we focus on the white coefficients decomposition (marked by red line), we can find that most or all of the race gap in the wealth distribution is attributable to income and demographics.

E.g., the model for the white sample implies that black women would have 103 percent of the wealth that white women hold if they had the same income and demographics as white women (11p).

However, the wealth model for blacks exhibit much less sensitivity to income and demographics.

There is a large discrepancy between the white and the black wealth models in the degree to which racial differences in income and demographics variables explain the wealth gap.
Altonji & Doraszelski (2005)
Intergenerational Transfers and the Wealth Gap

- Why that discrepancy of wealth holding happens?
- The authors tried to answer this question by using sibling models to explore the possibility that differences in intergenerational transfers are the source of differences in wealth holding.
- Using siblings largely neutralizes the effects of differences between whites and blacks in inter vivos transfers and inheritances and provides a way of controlling for the effects of adverse history on the position of blacks relative to whites with similar income and demographics.
- Unfortunately, they didn’t get significant results from sibling model.
Using the five-year changes between the 1984 and 1989 surveys or between the 1989 and 1994 surveys. These show a much more rapid rate of accumulation for whites than for blacks. Income and demographic characteristics explained more of the gap in wealth accumulation when the wealth model for whites is used.