Education and Wealth: Correlation Is Not Causation

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The Demographics of Wealth: An Essay Series


- Part 1: Race, Ethnicity and Wealth (Feb. 2015).
The Demographics of Wealth: An Essay Series


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The Demographics of Wealth: An Essay Series

- www.stlouisfed.org/household-financial-stability/the-demographics-of-wealth
- Part 1: Race, Ethnicity and Wealth (Feb. 2015).
- Part 3: Age, Birth Year and Wealth (July 2015).
Overview of Education and Wealth: Correlation Is Not Causation

- Educational attainment and wealth are highly correlated.

- But some of the education-wealth correlation is *spurious*—that is, not *causal* but due instead to *other factors* that affect *both* education and wealth.

- In addition to wealth, education also is correlated with:
  - Income, financial decision-making, inheritances
  - Child’s education, socio-economic status, race/ethnicity
  - Health behaviors, morbidity, mortality

- A college degree itself does not magically confer all of the benefits that college grads typically enjoy—financial success requires more than a sheepskin.
Educational Attainment Predicts Median Family Income

Source: Federal Reserve Board, Survey of Consumer Finances

Note: these figures include all families. Some of our recent work covers only families headed by someone 40 or older.
Educational Attainment Predicts Median Family Wealth

Note: these figures include all families. Some of our recent work covers only families headed by someone 40 or older.
Generally Speaking, Only College Grads Have Gained Wealth Over Time

Index levels equal 100 in 1989

Note: these figures include all families. Some of our recent work covers only families headed by someone 40 or older.

Source: Federal Reserve Board, Survey of Consumer Finances
Generally Speaking, Only College Grads Have Gained Wealth Over Time

Change in Median Net Worth From 1989 to 2013

Note: these figures include all families. Some of our recent work covers only families headed by someone 40 or older.

Source: Federal Reserve Board, Survey of Consumer Finances
Education Predicts Asset Diversification, Which Is Associated With Greater Wealth

Median Asset Share in Financial or Business Assets, 2013

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Median Asset Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-graduate degree</td>
<td>54</td>
</tr>
<tr>
<td>2- or 4-year college degree</td>
<td>43</td>
</tr>
<tr>
<td>High-school diploma or GED</td>
<td>23</td>
</tr>
<tr>
<td>Less than high school</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Assets = Tangible Assets + Financial Assets + Business Assets

Source: Federal Reserve Board, Survey of Consumer Finances
Education Predicts Leverage, Which Is Inversely Associated With Wealth

**Ratio of Total Debt to Total Assets, 2013**

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Ratio (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-graduate degree</td>
<td>13</td>
</tr>
<tr>
<td>2- or 4-year college degree</td>
<td>19</td>
</tr>
<tr>
<td>High-school diploma or GED</td>
<td>33</td>
</tr>
<tr>
<td>Less than high school</td>
<td>35</td>
</tr>
</tbody>
</table>

Source: Federal Reserve Board, Survey of Consumer Finances
In 1989, College Grads Represented 28% of Families But Owned 55% of Wealth

Source: Federal Reserve Board, Survey of Consumer Finances

Note: these figures include all families. Some of our recent work covers only families headed by someone 40 or older.
In 2013, College Grads Represented 39% of Families But Owned 75% of Wealth

2013 SCF Sample Shares by Educational Attainment

- No college: 61%
- Less than high school: 11%
- Graduate or professional degree: 13%
- Associate’s or Bachelor’s degree: 26%
- High-school diploma or GED: 50%

All college graduates: 39%

2013 SCF Wealth Shares by Educational Attainment

- No college: 25%
- Less than high school: 2%
- Graduate or professional degree: 39%
- High-school diploma or GED: 23%
- Associate’s or Bachelor’s degree: 36%

All college graduates: 75%

Note: these figures include all families. Some of our recent work covers only families headed by someone 40 or older.

Source: Federal Reserve Board, Survey of Consumer Finances
How Are Education and Wealth Related? Common Fallacies

 “If you get a college degree you will be rich; with a post-graduate degree you’ll be even richer.”
  ➢ Not necessarily—We observe a correlation but cannot determine causation.

 “If we could send everyone to college we would eliminate wealth disparities.”
  ➢ Probably not—Not everyone can (or wants to) complete college.
  ➢ Wealth disparities are very large among college grads, too.

 Education and wealth are related but exactly how is very complicated!
An Illustration of Spurious Correlation: Education and Inheritance

Share of Families Receiving/Expecting an Inheritance, 1989-2013

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-graduate degree</td>
<td>45</td>
</tr>
<tr>
<td>2- or 4-year college degree</td>
<td>39</td>
</tr>
<tr>
<td>High-school diploma or GED</td>
<td>28</td>
</tr>
<tr>
<td>Less than high school</td>
<td>16</td>
</tr>
</tbody>
</table>

Source: Federal Reserve Board, Survey of Consumer Finances
Correlation vs. Causation

- Does more education cause more inheritances?
- Do inheritances cause more education?
- No to both—or not by themselves.
- Rather, people who are more educated tend to have parents who also are more educated and wealthier.
- Education is one input—among many—into wealth accumulation.
- There are many determinants of educational attainment, too.
1. **Inheritances**: Better-educated people are much more likely to receive sizable gifts or inheritances simply because they are more likely to have better-educated, higher-earning parents who have accumulated wealth.

**Bottom line**: Educated parents produce both educated offspring and wealth that can be passed down.
2. **Natural abilities**: People with higher natural cognitive and non-cognitive abilities are more likely to complete higher levels of education. At the same time, measures of cognitive and non-cognitive ability also predict success in achieving higher social status, avoiding poverty and criminality, enjoying better health and achieving greater longevity.

Bottom line: More-talented people get more education and do many other things that can lead to greater wealth.
3. **Family background**: The parents’ socio-economic status (social class, occupation, education, income, wealth) contributes to the child’s success as an adult in many different ways.

**Bottom line**: High-status children get more education and enjoy other economic and financial benefits.
4. **Assortative mating** ("like marries like"): The link between education and earnings and the tendency for highly educated people to marry each other effectively doubles the college wage premium for these families. Financial decision-making also may be improved with two educated spouses.

**Bottom line:** Your education creates wealth and attracts an educated spouse.
5. **Incentive to become financially knowledgeable:** High-earning families have a strong incentive to learn how to shift middle-age income into retirement.

Bottom line: High income during working years creates wealth and spurs financial learning.
Six Sources of the Partially Spurious Correlation Between Education and Wealth

6. Better health and longer lifespans: People who get more education are healthier, on average.

Better health extends working lives and lengthens healthy retirement years.

Longer-lived people collect more from Social Security and private pensions and their investments have more time to grow.

Bottom line: People who get more education tend to be healthier and wealthier.
Correlation vs. Causation: Three Theories

Theory 1

Education $\rightarrow$ Income $\rightarrow$ Wealth
Correlation vs. Causation: Three Theories

Theory 1

Education → Income → Wealth

Theory 2

Education → Financial decision-making → Income → Wealth
Correlation vs. Causation: Three Theories

Theory 1

Education ➔ Income ➔ Wealth

Theory 2

Education ➔ Financial decision-making ➔ Wealth

Theory 3

- Cognitive ability
- Non-cognitive traits ("grit")
- Socio-economic status
- Education itself
- Education by-products
  - Educated spouse
  - Incentive to become financially savvy

Income ➔ Financial decision-making ➔ Wealth

In Sum: Education and Wealth Are Correlated But Causal Link May Be Weak

- Some—perhaps much—of the education-wealth correlation is spurious.
  - That is, education alone does not cause wealth accumulation; a college degree is not magic.
  - Rather, many factors (ability, socio-economic status, grit) affect both educational attainment and wealth.
- Therefore, educational attainment alone may be a weak policy instrument for widening and equalizing the distribution wealth.
For More Information

Center for Household Financial Stability
www.stlouisfed.org/household-financial-stability

Education and Wealth essay

In the Balance articles
www.stlouisfed.org/publications/in-the-balance