The Demographics of Wealth

How Age, Education and Race Separate Thrivers from Strugglers in Today's Economy

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An Introduction to the Series

The Demographics of Wealth

How Age, Education and Race Separate Thrivers from Strugglers in Today's Economy

By Ray Boshara, William R. Emmons and Bryan J. Noeth

A new economic reality is emerging in the U.S. It's between the thrivers, the one-quarter of the population who, generally, are accumulating wealth, and the strugglers, the other three-quarters who, generally, are not. As we show, race, education and age increasingly determine whether someone is a thriver or a struggler.

This is the second in a series of essays that the Center for Household Financial Stability at the Federal Reserve Bank of St. Louis will publish on how a family's race or ethnicity, educational attainment, and age are related to its financial choices and the financial outcomes it experiences. Our primary data source is the Federal Reserve's triennial Survey of Consumer Finances, which provides the most comprehensive picture of American families' balance sheets and financial behavior over time. We use information from over 40,000 families, each of which was surveyed in one of nine waves between 1989 and 2013.

By partitioning the sample in each wave into 48 nonoverlapping groups based on four racial or ethnic groups, four levels of educational attainment, and three age ranges, we document profound and persistent differences in financial decision-making, balance-sheet choices and wealth outcomes across groups. We show that each demographic dimension is important in its own right.

After considering each of the 48 groups, we describe eight of them as thriving financially. These groups include families headed by someone who is typically middle-aged or older, white or Asian, and with a college degree alone or with a graduate or professional degree. These families generally earn above-average incomes, make or respond to good financial choices, and have accumulated substantial wealth. These families constituted 24 percent of all U.S. families in 2013; they owned 67 of the economy's wealth.

The groups we describe as struggling financially—the remaining 76 percent of all families—are typically younger, less educated, or black or Hispanic. They earn average or below-average incomes, make or respond to less-conservative financial choices, and have accumulated little or no wealth; they own 33 percent of the nation's total wealth. Many, although not all, of these families are financially unstable.

Demography may not be destiny, but it is powerful in predicting family wealth. By documenting the links between race and ethnicity, educational attainment, and age on the one hand, and financial behaviors and financial outcomes on the other, we hope to inform policymakers, community practitioners, financial institutions and others in their efforts to improve the financial health of American families and the nation as a whole.

EXECUTIVE SUMMARY OF ESSAY NO. 2

Our research shows that there's a strong correlation between education and money. More of the former often leads to more of the latter. However, correlation is not causation—there is no guarantee that more education will lead to more wealth. Many other factors might be in play, such as natural ability, family environment, inheritances and even health. It's entirely possible that what's learned in the classroom has much less influence on lifetime earnings and wealth accumulation than most people believe. In fact, your ability, family background, inheritances or health might be responsible for some—perhaps a large part—of your success even if you hadn't received the education you did.

These and other connections that may exist between education and wealth are examined in this second essay in our "Demographics of Wealth" series. (The first looked at the link between race and wealth; it can be read at www.stlouisfed.org/hfs.) All of the essays are the result of an analysis of data collected between 1989 and 2013 through the Federal Reserve's Survey of Consumer Finances. More than 40,000 families were interviewed over those years.

For this essay, only those heads of families at least 40 years of age were studied—because by age 40, the vast majority of adults have completed their formal education. These family heads were broken down into four groups: those without a high school diploma; those with only such a diploma, a GED or a vocational/technical certificate; those with exactly a two- or four-year college degree; and those with a bachelor's degree plus a graduate or professional degree.

Our key findings:

- The median income for those without a high school diploma in 2013 was $22,320, down 1 percent from 1989; for those with such a diploma, etc., $41,190, down 16 percent; for those with a two- or four-year degree, $76,293, down 5 percent; and for those with an advanced degree, $116,265, up 4 percent. (All dollar amounts are adjusted for inflation.)
- When looking at wealth (net worth, or assets minus liabilities), the median in 2013 for those without a high school diploma was $37,766, down 44 percent; for those with such a diploma, etc., $95,072, down 36 percent; for those with a two- or four-year degree, $273,488, up 3 percent; and for those with an advanced degree, $689,100, up 45 percent.
- Those with more education had stronger balance sheets—more liquidity, a better mix of investments and lower leverage.
- In most categories, women are outpacing men in educational attainment.
- When it comes to race or ethnicity, Asian-Americans have the highest graduation rates at every level of schooling, followed by whites, blacks and Hispanics.
- As for the contributions of successive generations to rising educational attainment, members of Generation X and Generation Y have lifted college-degree levels less than did the Baby Boomers before them.

Essay No. 2

Education and Wealth

By William R. Emmons and Bryan J. Noeth

The first essay in this series showed the existence of large and persistent differences in financial behaviors and financial outcomes across racial and ethnic groups.[1] Non-Hispanic whites and Asians are much more likely to be thriving financially than non-Hispanic blacks and Hispanics of any race, who were more likely to be struggling.

This essay documents large and growing differences in financial choices and financial outcomes across educational levels since at least 1989, when our data begin. We divide the population 40 or older into four groups:

- families headed by someone with no high school diploma (representing 12 percent of all families 40 or older in the 2013 Survey of Consumer Finances);
- those with only a high school diploma, General Educational Development (GED) certificate, or a vocational or technical certificate (50 percent);
- those with exactly a two- or four-year college degree (25 percent);
- and those with a bachelor's degree plus a graduate or professional degree (13 percent).[2] (See Sidebar 1.)

We show that more education is strongly linked to higher income, better financial decision-making and greater wealth. Higher levels of educational attainment also are correlated with other factors, like native ability and family background, that are, themselves, significant contributors to wealth accumulation. Thus, a person's educational attainment is associated with his or her income, financial behavior and wealth accumulation for direct and genuine, as well as indirect and spurious, reasons.[3]

The existence of factors that lead to a partly spurious correlation between education and wealth suggests caution is warranted when analyzing trends such as increasing educational attainment. We should not expect increased educational attainment alone by an individual or group to translate into greater wealth to the full extent suggested by the raw correlation we observe in historical data. If the other key contributors to income, financial behavior and wealth accumulation do not change, the increased level of education alone may be insufficient to generate the increased wealth that a naïve interpretation of the education-wealth correlation would suggest.

The essay begins by distinguishing between genuine and spurious sources of the observed correlation between education and wealth. The second section contains brief qualitative snapshots of the current income, wealth and key financial behaviors of each of the four education groups. The third section provides detailed characterizations of family balance sheets and financial behaviors during the past quarter-century, based on the Survey of Consumer Finances (SCF). The final section investigates the outlook for financial disparities across education levels. We conclude that the connections between education and wealth are likely to become even stronger in the future.

Sidebar 1: Classifying Individuals and Families by Educational Attainment

Classification of a family into an education group in the Survey of Consumer Finances (SCF) is based on the responses of the interviewee to a series of questions. The respondent is asked about his or her education level and that of his or her partner, if married or living with someone. In this essay, we use the education classification for the head of the household, who is not necessarily the survey respondent.

The survey taker uses the answers to the following questions taken together to classify a family's education level:

- What is the highest grade of school or year of college (you/he/she/he or she) completed?
- Did (you/he/she/he or she) either get a high school diploma or pass a high school equivalency test?
- Did (you/he/she/he or she) get a college degree?
- What is the highest degree (you/he/she/he or she) earned?

A family's level of education, therefore, is self-reported. It is well-known that self-reports of educational attainment contain errors, both intentional and unintentional. Because we have no independent source of verification, we use the information as reported in the SCF.

Each family is assigned a single level of education even if there are two or more adults in the family with different levels of educational attainment. For example, if the male head of household has a lower level of education than his wife, the household's education level is that of the man.[4] We restricted the sample to families headed by someone 40 years old or older. This minimizes the possibility that a family will be placed in an education category lower than its ultimate degree attainment because a very small number of people over 40 receive a diploma.[5]

We use the term **graduate or professional** when referring to families whose head has earned a master's or Ph.D. degree in any field or a professional degree, such as a law, medical or dental degree. We use the term **college** in referring to families whose head has earned a two- or four-year college degree in any field but has earned no higher degree, even if he or she attended school beyond college. **High school or GED** is used in referring to families headed by someone whose highest level of education is a high school diploma or a GED certificate even if that person attended college (but did not receive a college degree) or received a vocational qualification. The category **no high school diploma** refers to families whose head has not finished high school or received a GED or any other comparable academic qualification.

I. Genuine vs. Spurious Links

People who complete college and postgraduate degrees have skills that are rewarded in the job market.[6] A large and growing "college wage premium"—and an even larger "postgraduate wage premium"—vis-à-vis people without a degree can translate into much higher earnings over a career and the potential for higher savings and wealth.[7] We show below that people with college and postgraduate degrees also generally make financial decisions that are more conducive to wealth accumulation. These include regular saving habits, timely payment of all obligations and conservative financial practices, such as holding adequate cash reserves, investing in a broad array of assets and borrowing moderately.

How much of the higher earnings, better financial decision-making and higher wealth accumulation of college graduates results from their educational experience? Said differently, would these financially successful people have been relatively successful even if they had not earned their degrees? We can never know the answers to these counterfactual questions, but economists have developed methods to shed light on the underlying issue. The research suggests that some, but not all, of the college wage premium is due to the skills imparted by the education itself, while other factors that correlate with educational attainment are partly responsible, as well.[8] We provide evidence in this essay that suggests the same is true for financial behavior and financial outcomes.

Sources of the partly spurious correlation between education and wealth. There are a host of reasons why education and wealth are correlated–

Table 1. Inheritances and Other Gifts

	Share of families expecting to or already having received any sizable gift or inheritance
All families 40 years or older in 2013	32%
Of which:	
Graduate or professional degree	50
Exactly 2- or 4-year college degree	38
High school diploma or GED	28
No high school diploma or GED	15

All information in the tables and charts comes from the Federal Reserve Board's Survey of Consumer Finances unless otherwise noted.

reasons that are not directly related to the outcome of the educational experience itself. These factors contribute to a partly spurious correlation between education and wealth. In short, the positive correlation we observe between a person's education and his or her wealth does not imply that education itself is solely responsible for the amount of wealth accumulated. Some factors contributing to the partly spurious correlation include:

- *Natural ability:* People with higher natural cognitive ability are more likely to complete higher levels of education; indeed, measures of cognitive ability predict success not only in education but also in achieving higher social status, avoiding poverty and criminality, enjoying better health and greater longevity, and other desirable outcomes;[9]
- *Family background:* Even controlling for measures of a person's intelligence, which may be largely inherited, the parents' social class or status, occupation, education, income and wealth also predict many measures of success as an adult[10]
- *Assortative mating ("like marries like"):* The strong link between education and earnings means that the tendency for highly educated people to marry each other effectively doubles the college wage premium for these families and compounds the effects of better financial decision-making potentially contributed by both partners;[11]
- *Incentive to become financially knowledgeable:* High-earning individuals and couples have a strong incentive to become financially knowledgeable because the bulk of their lifetime earnings accrues in a relatively short period during middle age; so, they are motivated to learn how to shift their resources efficiently to early and later stages of life; [12]
- *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 (see Table 1);[13]
- *Benefits of better health and longer lifespans:* People with more education are healthier, on average, which extends their working lives and lengthens their healthy retirement years; this means they collect more lifetime benefits from Social Security and private pensions, as well as giving their investments (generally better-diversified and higher-earning) more time to compound and grow.[14]

The key point is that none of these contributors to wealth is *caused* by having more education. Instead, people who have more education are more likely to benefit from one or more of them—as if by coincidence.[15]

Table 2. Median Wealth of Families by Education Level

	Median wealth in 1989	Percent of families in upper half of nation's 40+ wealth distribution	Median wealth in 2013	Percent of families in upper half of nation's 40+ wealth distribution
All families 40 years or older	$152,179	50%	$145,360	50%
Of which:				
Graduate or professional degree	$475,051	85	$689,100	82
Exactly 2- or 4-year college degree	$266,740	67	$273,488	64
High school diploma or GED	$149,182	49	$95,072	41
No high school diploma or GED	$67,730	31	$37,766	24

All dollar amounts are expressed in 2013 dollars, deflated by the CPI-U-RS (Consumer Price Index for Urban Consumers, Research Series).

II. Financial Snapshots of Four Education Groups

A family head's level of education is not preordained at birth or truly "exogenous," as are a person's year of birth, race or ethnicity.[16] Nonetheless, the vast majority of adults have completed their formal education by age 40, and very few who enroll in college after 40 ever complete. Thus, we focus on families headed by someone 40 years or older in this essay; for the vast majority of them, education was "predetermined" when they were interviewed for the SCF.[17] In 2013, families headed by someone 40 or older constituted 71 percent of the sample, up from 62 percent in 1989.

Despite instances of entrepreneurs, entertainers and sports stars earning great fortunes without much formal education, becoming rich without a college degree is rare. Among all families or single-person households 40 years or older without a four-year college degree in 2013, only about 1 in 20 (that is, 5 percent) had at least $1 million in net worth. (See Sidebar 2.) Among families or single individuals 40 or older with at least a four-year college degree, on the other hand, about 1 in every 3.5 (more pre-

Sidebar 2: Family Wealth and Income

Wealth is a family's net worth, consisting of the excess of its assets over its debts at a point in time. Total assets include both financial assets, such as bank accounts, mutual funds and securities, as well as tangible assets, including real estate, vehicles and durable goods. Total debt includes home-secured borrowing (mortgages), other secured borrowing (such as vehicle loans) and unsecured debts (such as credit cards and student loans). Debt incurred in association with a privately owned business or to finance investment real estate is subtracted from the asset's value, rather than being included in the family's debt. All wealth figures in the essay are adjusted for inflation to be comparable to values recorded in 2013.

To measure income for the SCF, the interviewers requested information on the family's cash income, before taxes, for the full calendar year preceding the survey. The components of income in the SCF are wages, self-employment and business income, taxable and tax-exempt interest, dividends, realized capital gains, food stamps and other related support programs provided by government, pensions and withdrawals from retirement accounts, Social Security, alimony and other support payments, and miscellaneous sources of income for all members of the primary economic unit in the household. [18]

cisely, 29 percent) had $1 million or more.

Even among four-year college degree holders aged 40 or older, more education is strongly associated with higher wealth. The odds of having at least $1 million were about 1 in 4.6 (about 22 percent) for a family with exactly a four-year degree but about 1 in 2.6 (about 38 percent) among families with a graduate or professional degree.

The same link between education and wealth holds for noncollege graduates 40 or older, too. About 1 in 18 (6 percent) of families or individuals 40 or older with exactly a high school diploma had at least $1 million in wealth, while a family headed by someone 40 or older without a high school diploma faced long odds of becoming a millionaire—about 1 in 110 (less than 1 percent).

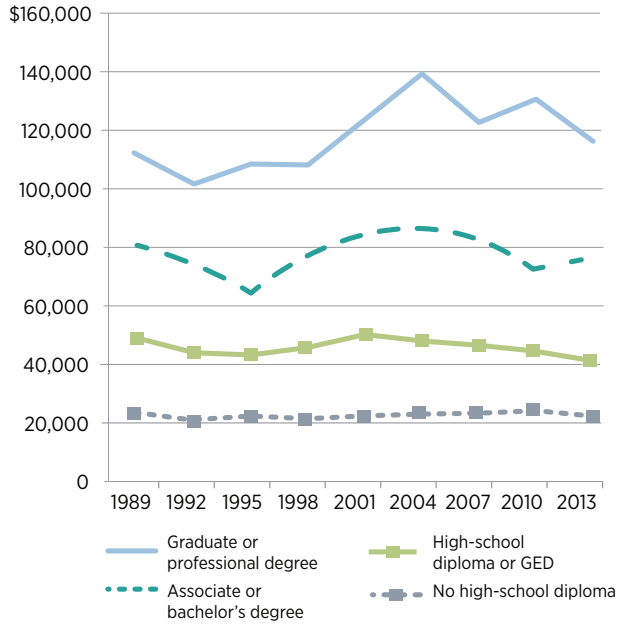
A snapshot of families headed by someone 40 or older without a high school diploma. The head of a randomly chosen family headed by someone 40 or older without a high school diploma in 2013 was somewhat more likely to be black and much more likely to be Hispanic than his or her respective share in the overall population. The family's income and wealth were likely to be far below the levels of families with more education. The family's cash reserves, financial or business assets, and borrowing were likely to be small or nonexistent, that is, the typical family without a high school diploma essentially operated on a cash basis outside the banking system. As Table 2 shows, only 31 percent of families 40 or older headed by someone without a high school diploma ranked in the top half of the wealth distribution in 1989, falling to 24 percent by 2013.

A snapshot of families headed by someone 40 or older with exactly a high school diploma. The head of a randomly chosen family headed by someone 40 or older with exactly a high school diploma or GED in 2013 was somewhat more likely to be black and much less likely to be Asian than his or her respective share in the overall population. The family's income and wealth were likely to be somewhat below the levels of families with more education. The family's cash reserves and financial or business assets were likely to be somewhat below those of better-educated families. The family's borrowing was likely to be comparable to that of the typical family with more education. Thus, the debt of a typical high school family was high relative to the income, wealth, liquidity and diversification standards displayed by better-educated families. As Table 2 shows, 49 percent of families 40 or older headed by someone with exactly a high school diploma ranked in the top half of the wealth distribution in 1989, falling to 41 percent by 2013.

A snapshot of families headed by someone 40 or older with exactly a two- or four-year college degree. The head of a randomly chosen family headed by someone 40 or older with a two- or four-year college degree in 2013 was much more likely to be Asian and much less likely to be black or Hispanic than his or her respective shares in the overall population. The income and wealth of the typical college-educated family were considerably above those of the typical high school family but significantly below those of the typical family with a graduate or professional degree. The family's cash reserves and financial or business assets were a bit below those of the typical graduate family, and the former's borrowing was somewhat above the graduate family's level. As Table 2 shows, 67 percent of families 40 or older headed by someone with exactly a two- or four-year college degree ranked in the top half of the wealth distribution in 1989, dipping to 64 percent by 2013.

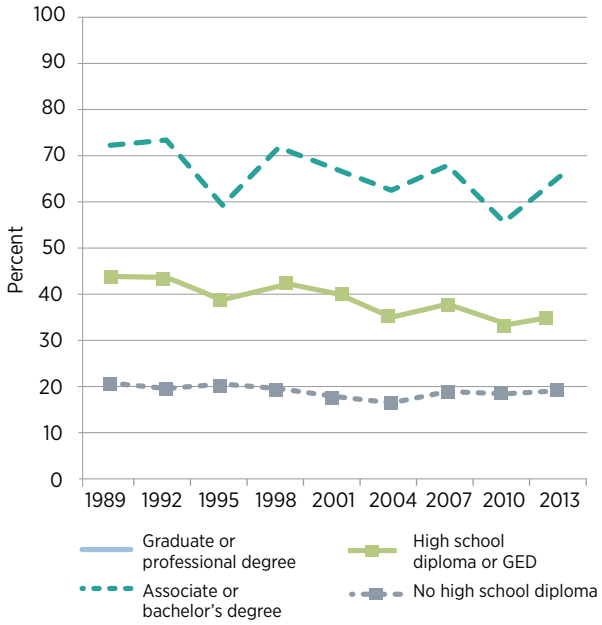
A snapshot of families headed by someone 40 or older with a graduate or professional degree. The head of a randomly chosen family headed by someone 40 or older with a graduate or professional degree in 2013 was much more likely to be Asian and much less likely to be black or Hispanic than his or her respective share in the overall population.[19] The typical graduate family's income and wealth were likely to be far above the levels of less-educated families. The family's cash reserves and financial or business assets were likely to be higher than those of

Figure 1. Median Income of Families Headed by Someone 40 or Older



All dollar amounts are expressed in 2013 dollars, deflated by the CPI-U-RS (Consumer Price Index for Urban Consumers, Research Series).Median family income is the value of cash income, before taxes, for the full calendar year preceding the survey for the family that ranks exactly in the middle of a ranking by income. The median income among all families 40 or older increased from $47,139 in 1989 to $50,118 in 2013, or 6.3 percent. See Sidebar 2 for more information.

Figure 2. Median Income of Families Headed by Someone 40 or Older Relative to Median Graduate- or Professional-Degree Family Income



Median family income is the value of cash income, before taxes, for the full calendar year preceding the survey for the family that ranks exactly in the middle of a ranking by income. See Sidebar 2 for more information.

The figure shows that the median income among families with exactly an associate's or bachelor's degree in 2013 was 65.6 percent as large as the median income among families headed by someone with a graduate or professional degree. The median family with exactly a high school degree or GED had 35.4 percent as much income as the median in the most highly educated group. The median family without a high school degree had only 19.2 percent as much income as the median in the most highly educated group.

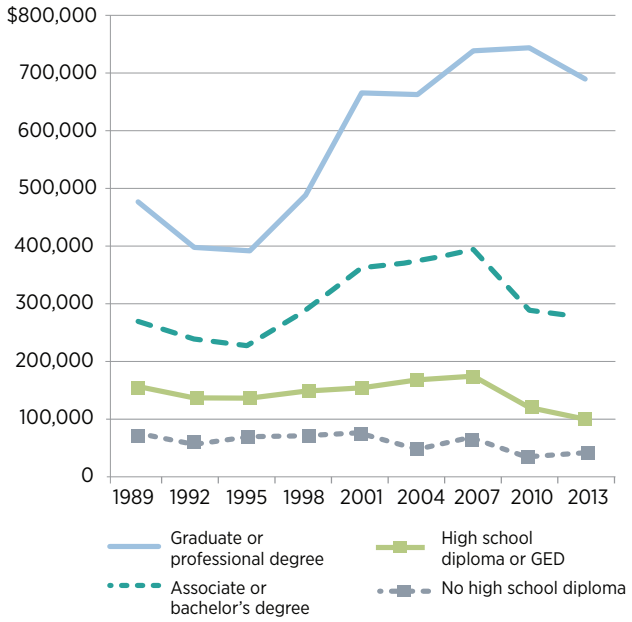
any other group, and their borrowing was likely to be significantly less, that is, the typical graduate family had significantly higher income, more wealth and a more conservative balance sheet. As Table 2 shows, 85 percent of families 40 or older headed by someone with a graduate or professional degree ranked in the top half of the wealth distribution in 1989, declining to 82 percent by 2013.[20]

With few exceptions, the gaps between the median families in the respective education groups widened between 1989 and 2013 on all measures—income, wealth and several indicators of balance sheet strength. These trends, along with evidence that the college and postgraduate earnings premiums continue to widen, suggest that the correlation between education and wealth will become even stronger in the future.[21]

III. Income, Wealth, Balance Sheets and Financial Behaviors

Across education groups are striking and persistent differences in the typical family's income, wealth, balance sheet structure and a measure of

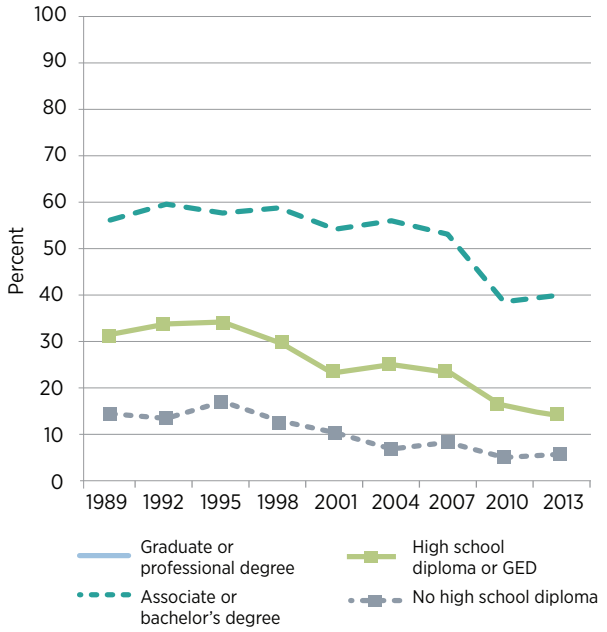
Figure 3. Median Net Worth of Families Headed by Someone 40 or Older



All dollar amounts are expressed in 2013 dollars, deflated by the CPI-U-RS (Consumer Price Index for Urban Consumers, Research Series).

Median family net worth is the value of total assets minus total debts for the family that ranks exactly in the middle of a ranking by net worth. The median wealth among all families 40 or older declined from $152,179 in 1989 to $145,360 in 2013, or 4 percent. See Sidebar 2 for more information.

Figure 4. Median Net Worth of Families Headed by Someone 40 or Older Relative to Median Graduate- or Professional- Degree Net Worth



Median family net worth is the value of total assets minus total debts for the family that ranks exactly in the middle of a ranking by net worth. See Sidebar 2 for more information.

The figure shows that the median net worth among families with exactly an associate's or bachelor's degree in 2013 was 39.7 percent as large as the median net worth among families headed by someone with a graduate or professional degree. The median family with exactly a high school degree or GED had 13.8 percent as much wealth as the median in the most highly educated group. The median family without a high school degree had 5.5 percent as much wealth as the median in the most highly educated group.

financial decision-making we call financial health. With few exceptions, the differences have grown larger since 1989, when our data begin.

Income. Median income in 2013 ranged from $22,320 among families 40 or older without a high school diploma to $116,265 among families with a graduate or professional degree. Median families with exactly a high school diploma and exactly a two- or four-year college degree were intermediate, with incomes of $41,190 and $76,293, respectively. (See Figure 1.)

Only the median family with a graduate or professional degree had a higher inflation-adjusted income in 2013 than in 1989 (up 4 percent), although the declines were small for college families (down 5 percent) and families with no high school diploma (down 1 percent). The biggest decline over the 24-year period was for the median high school family, down 16 percent. These data are consistent with the widely held view that the U.S. labor market suffered from "polarization" or "hollowing out," in which middle-skill workers were under the most pressure

from globalization and technological advances. Interestingly, the median income among all families 40 or older increased from $47,139 to $50,118, or 6.3 percent, over the period—more than the increase in any single education group. This is due to the changing composition of the population—especially rising educational attainment—and shifts in the distributions within education groups.

Figure 2 illustrates clearly the downward drift in earnings of middle-skill families between 1989 and 2013 relative to the most highly skilled families. As a percent of the median income among families with a graduate or professional degree, the income of the median college family declined from 72 to 66 percent, while the median income of the high school family declined from 44 to 35 percent. The median family without a high school diploma declined from 20 to 19 percent of the median graduate family's income.

Wealth. A simple measure of a household's financial strength is its net worth, or wealth. Figure 3 shows the median inflation-adjusted net worth of each education group. The median wealth of graduate families 40 or older in 1989 was $475,051, while the medians for college graduates, high school graduates and families without a high school diploma were $266,740, $149,182 and $67,730, respectively (all expressed in terms of 2013 purchasing power). The median wealth of the top three groups generally increased until the mid-2000s, after which they declined due to the bursting of the housing bubble and to the Great Recession. In 2013, the median wealth estimates of the four groups were $689,100 (up 45 percent from 1989), $273,488 (up 3 percent), $95,072 (down 36 percent) and $37,766 (down 44 percent), respectively. The median wealth among all families 40 or older declined from $152,179 to $145,360, or 4 percent.

Comparing Figures 4 and 2 reveals two stark differences between trends in income and wealth across education groups. First, median wealth gaps were larger in percentage terms than median income gaps throughout the period. While median incomes of the three lowest education groups ranged from 19 to 66 percent of the median income of the highest group in 2013, the corresponding wealth range was from 5 to 40 percent. In other words, the median family with exactly a two- or four-year college degree in 2013 had income about 34 percent less than the median graduate- or professional-degree family but wealth about 60 percent less. For the least-educated families, the gap in 2013 was 81 percent for income and 95 percent for wealth.

The second stark difference between income and wealth trends revealed in Figures 2 and 4 is the more rapid decline in the relative wealth of less-educated families compared with a gradual decline of relative incomes. For college families, the decline in relative wealth (that is, as a share of the median graduate family's wealth) was from 56 percent in 1989 to only 40 percent in 2013; for high school families, from 31 to 14 percent; and for no-high school families, from 14 to 5 percent. Combined with the increasing share of all families with graduate or professional degrees, the rising relative wealth level of these highly educated families means that they own a rapidly rising share of all wealth.[22]

The much larger and faster-growing wealth gaps between more- and less-educated families compared to the somewhat smaller and more stable income gaps point toward forces at work beyond the labor market. In many discussions, education is first and foremost linked to earnings. Yet education-related income gaps have changed much less than wealth gaps. The other factors likely contributing to the rapidly expanding wealth gaps include financial choices and behaviors that may have been—but probably were not—learned in school. These factors, in other words, may be increasing the extent to which the correlation between education and wealth is spurious—that is, caused not by educational attainment itself but by factors correlated with it, such as ability, family background, assortative mating and others discussed previously.

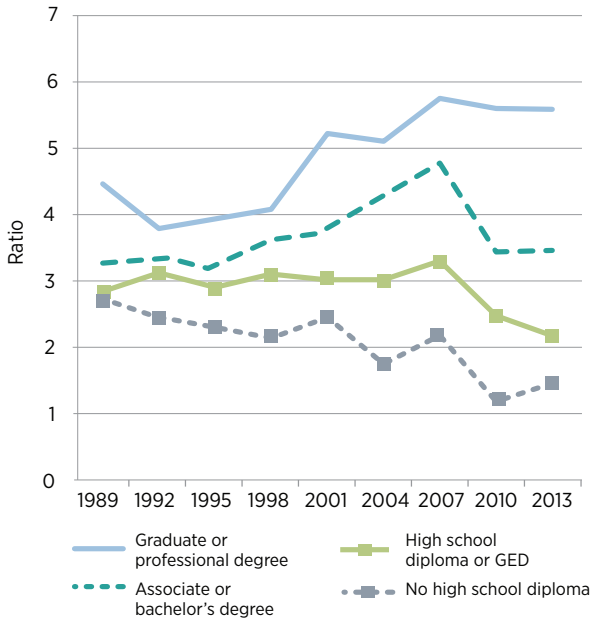
Wealth-to-income ratio. The wealth-to-income ratio is a simple measure that compares a family's financial strength to its earning power. If a family's or group's wealth and income grow at the same rate, their wealth-to-income ratio doesn't change over time.

One interpretation of the wealth-to-income ratio is as a measure of the efficiency with which a family translates income into wealth. Figure 5 depicts a significant widening of the gaps over time between median wealth-to-income ratios of the four education groups. It may be that more highly educated families have done a better job of translating income into wealth than less-educated families, with the differences becoming more pronounced over time. Evidence presented below that better-educated families generally maintain balance sheets with more liquidity, better asset diversification and lower leverage is consistent with this interpretation.

An alternative interpretation focuses on the incentives a family faces in accumulating wealth for retirement or bequests. A family with a "hump-shaped" lifetime pattern of earnings—more typical of highly educated and higher-earning families—faces a strong incentive to build up wealth that can be used to smooth spending levels in retirement or left in an estate. Government policy also plays a role. Many "tax expenditures" take the form of reduced marginal tax rates on saving, which mostly benefit high-income taxpayers with high marginal tax rates. Saving may be more attractive if the after-tax return is enhanced.[23]

On the other hand, a family with a low and/or relatively flat lifetime earnings profile has much less ability and incentive to accumulate wealth. The cost in terms of foregone current consumption may be too large to justify somewhat higher spending far in the future. Asset-based means tests for some public benefits eligibility also discourage saving in some cases. The incentive to save is further weakened by our progressive old-age social programs, such as Social Security and Medicare, which replace or insure a higher fraction of low-income workers' incomes in retirement than high-income workers' incomes.

Figure 5. Median Wealth-to-Income Ratio among Families Headed by Someone 40 or Older



All data are natural numbers.

The median is the family that ranks exactly in the middle. The wealth-to-income ratio is net worth divided by income.

The figure shows average wealth as a multiple of average annual income for each group of families. In 2013, for example, the ratio for families with a graduate or professional degree was 5.58, meaning that for every dollar of income there was $5.58 of wealth, on average. The ratio for families with exactly an associate's or bachelor's degree was 3.45, the ratio for families with exactly a high school degree or GED was 2.15 and the ratio for families without a high school degree was 1.43.

The incentive-based perspective, thus, would lead to an interpretation of Figure 5 as evidence that saving incentives have increased for highly educated, mostly high-earning families, while saving incentives have weakened among low-skill workers. Of course, both interpretations of the wealth-to-income ratio—financial efficiency and incentives to save—may have some validity.

Overall balance-sheet health. A household's balance sheet lists assets and liabilities. Although there

Figure 6. Median Share of Safe and Liquid Assets in Total Assets of Families Headed by Someone 40 or Older

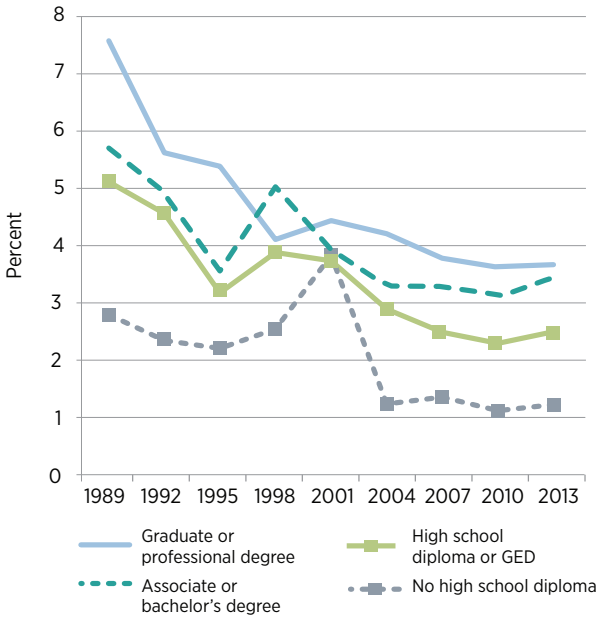
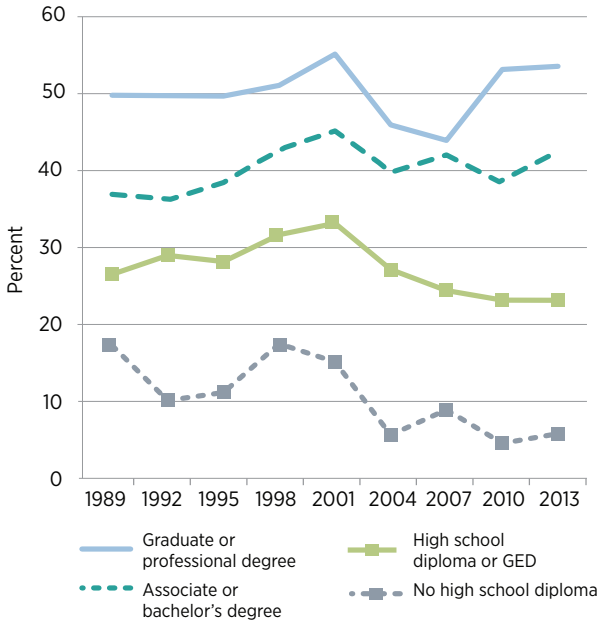


Figure 7. Median Share of Financial and Business Assets in Total Assets of Families Headed by Someone 40 or Older



All information in the tables and charts comes from the Federal Reserve Board's Survey of Consumer Finances unless otherwise noted.

Safe and liquid assets are defined as checking and saving accounts, certificates of deposits, bonds and savings bonds. These are assets that can be drawn upon quickly at low or no cost in terms of fees or potential loss of value when selling on short notice.

The figure shows the median among all families in each group of the percent of total assets held in the form of safe and liquid assets. For example, the median family headed by someone with a graduate or professional degree in 2013 held 3.7 percent of its total assets in safe and liquid form. compared with 3.4 percent in the median family headed by a two- or four-year college graduate, 2.5 percent in a family headed by a high school graduate or GED holder or someone with a vocational/technical certificate, and 1.2 percent in the median family headed by someone without a high school diploma.

Financial assets include all securities and accounts that can be turned into cash. Business assets include the value of all privately owned businesses minus its debts, shares in private businesses minus the debts of the business for which the person is responsible, and investment real estate minus associated debt. Financial and business assets include all of a family's assets except tangible assets, which include real estate, vehicles and other real property. Financial and tangible assets are counted independently of any debts owed by the person; business assets are expressed net of the associated debt.

The figure shows the median among all families in each group of the percent of total assets held in the form of financial and business assets. For example, the median family headed by someone with a graduate or professional degree in 2013 held 53.9 percent of its total assets in the form of financial assets or business assets compared with 42.8 percent in the median family headed by a two- or four-year college graduate, 23.2 percent in a family headed by a high school graduate or GED holder or someone with a vocational/technical certificate, and 5.8 percent in the median family headed by someone without a high school diploma.

is no such thing as a perfect balance-sheet configuration or a one-size-fits-all set of prescriptions on how best to make financial decisions, several principles of wealth accumulation and retention are reasonably clear. All else equal, each of the following balance-sheet choices is likely to support greater wealth accumulation:

- Greater balance-sheet liquidity can support greater wealth accumulation over time by buffering a family against financial shocks, which can lead to high-cost borrowing, distressed-asset sales, or costly default on debts and other obligations;
- Greater asset diversification—including high-return assets like stocks or a small business—can lead to greater wealth on average over time due to lower volatility for any given level of expected return on assets (or equivalently, a higher expected return for a given level of volatility), reducing the likelihood of encountering costly financial distress; and
- Lower leverage (debt-to-assets ratio) can lead to greater wealth on average over time both because borrowing itself is expensive and because balance-sheet leverage amplifies any shock to a family's asset values, raising the risk of insolvency and of costly default on debt or other obligations.

These balance-sheet practices can be described as elements of prudent or conservative financial decision-making. Figure 6 shows that college- and graduate-degree families typically have more-liquid balance sheets than families without college degrees. Because more highly educated families generally have more assets overall, as well as higher income and wealth, the higher ratio of liquid to total assets implies a significantly larger stock of cash reserves and much greater ability to buffer themselves against shocks. The lowest-skill families typically have the lowest level of cash reserves. These often are families that have volatile incomes and that have a very small margin for making cash-management mistakes. In other words, the families for which liquidity matters the most typically have the least.

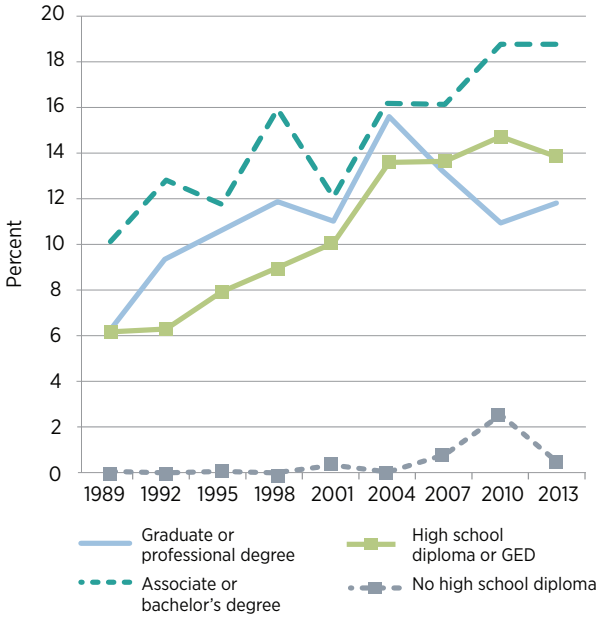
Figure 7 shows that college- and graduate-degree families typically have a much greater share of their assets invested in financial and business assets, which provide both asset diversification and higher average returns in the long run than a portfolio consisting mostly of tangible assets like a house, vehicles or other durable goods.[24] The gap between the highest- and lowest-educated families' share of financial and business assets to total assets increased from 33 percentage points in 1989 to 48 percentage points in 2013. This large asset-allocation difference contributes importantly to different wealth trajectories.

Figure 8 shows the median ratios of debt to assets (leverage) for each education group. The median family without a high school diploma had little or no debt throughout the period, most likely because a large number of these families did not qualify for any credit at the time of the survey. The median leverage among the other three education groups increased noticeably throughout most of the period.

Figure 9 displays the ratio of the average debt of all families within a group divided by the average assets of all families within a group. This measure represents the leverage of a hypothetical consolidated balance sheet of all families within an education group. Figure 9 suggests that the average amount of leverage of noncollege families increased sharply after 2001 as the housing bubble inflated, while the leverage of exactly college families increased less and that of graduate-degree families not at all. All groups declined slightly between 2010 and 2013. Thus, the housing boom's legacy of historically high balance sheet leverage is most prominent among the least-educated families.

Thus, two important reasons why better-educated families accumulate much more wealth than less-educated families appear to be their higher incomes and stronger balance sheets. A third factor relates to routine financial choices that contribute to wealth accumulation, which we represent with a financial health scorecard. (See Sidebar 3.)

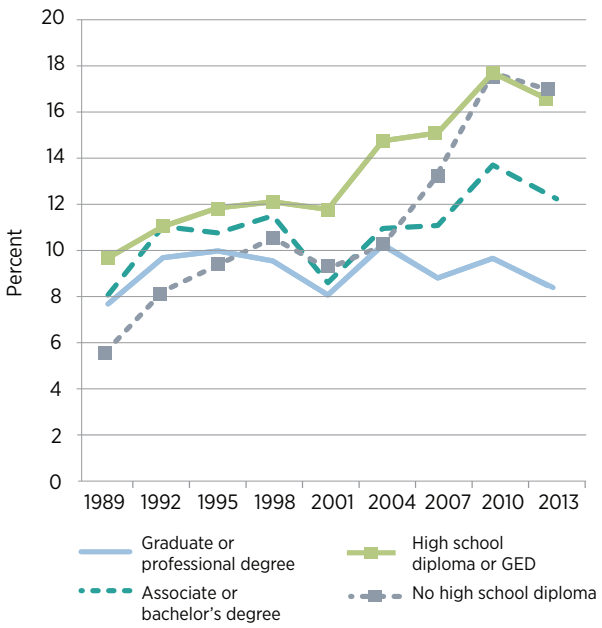
Figure 8. Median Ratio of Total Debt to Total Assets of Families Headed by Someone 40 or Older



The chart shows the median of the ratio of total debt to total assets among all families in a group.

For example, the median family headed by someone with a graduate or professional degree in 2013 had a debt-to-assets ratio of 11.8 percent, compared with 18.6 percent in the median family headed by a two- or four-year college graduate, 13.8 percent in a family headed by a high school graduate or GED holder or someone with a vocational/technical certificate, and 0.5 percent in the median family headed by someone without a high school diploma.

Figure 9. Ratio of Mean Total Debt to Mean Total Assets of Families Headed by Someone 40 or Older



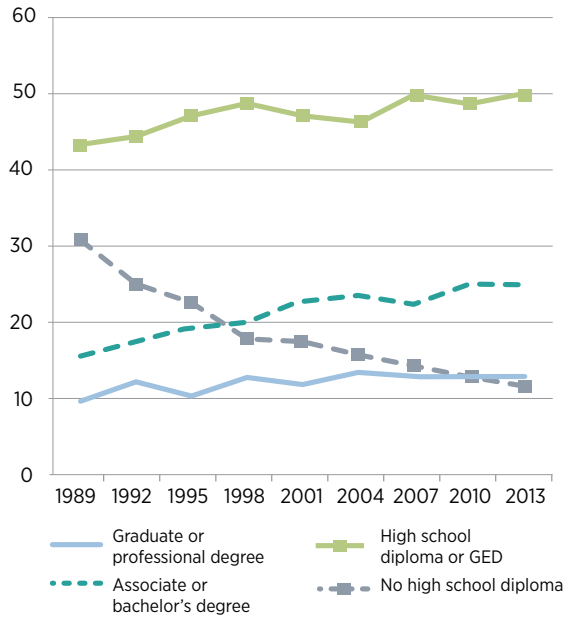
The chart shows the average total debt across all families in a group divided by average total assets across all families in a group.

For example, the ratio of total average debt to total average assets across all families headed by someone with a graduate or professional degree in 2013 was 8.5 percent, compared with 12.5 percent across all families headed by a two- or four-year college graduate, 16.7 percent across all families headed by a high school graduate or GED holder, and 17.2 percent across all families headed by someone without a high school diploma.

Financial behaviors and financial health. The logic behind our financial health scorecard is that a family's ability to make good everyday financial decisions—its financial health—and its ability to accumulate wealth over time are likely to be correlated. Each financial choice we examined includes two feasible alternatives, one of which is more likely to lead to financial success. For example, saving is clearly preferred to not saving, even if only a small amount is saved. Paying one's bills on time is clearly preferred to missing a payment, and so on. For the question about credit cards, we applied a series of screens if a family did not have any credit cards. Having been denied a card or choosing not to apply because the family member expected to be rejected were scored as negative signals, earning a score of zero. Owning no credit cards by choice was a positive sign, earning a score of one.

Table 4 shows that, as in the entire sample, average financial health scores were strongly related to education among families headed by someone 40 or older in the period 1992-2013. Because the standard errors of estimation for each group covering the entire sample ranged from 0.008 (for high school graduates) to 0.017 (for those with graduate degrees), we are highly confident in a statistical sense that the average score among noncollege families was lower than the average score of both college-degree and

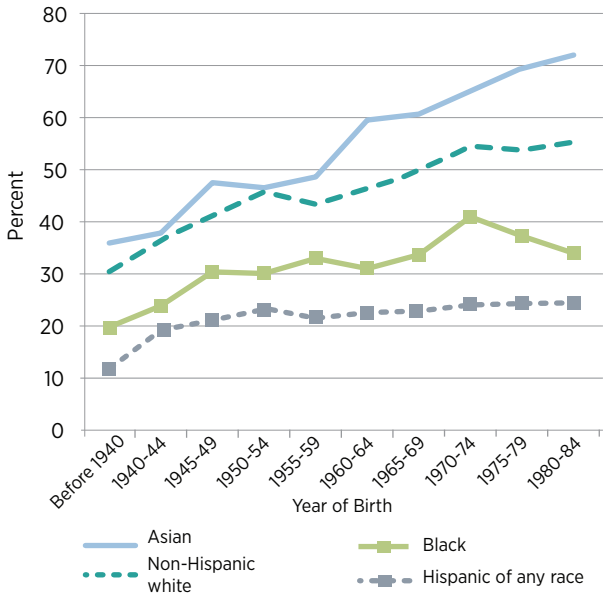
Figure 10. Share of Families 40 or Older by Level of Education



The chart shows the share of families in the population with each level of educational attainment.

For example, in 2013 about 12 percent of families were headed by someone without a high school diploma, about 50 percent of family heads had exactly a high school degree, about 25 percent of family heads had exactly a two- or four-year college degree and about 13 percent of family heads had a graduate or professional degree.

Figure 11. Share of Birth Cohort with Any Degree beyond High School in 2014, Both Sexes



The chart shows the share of adults of all ages and both sexes with any educational qualification beyond a high school diploma as of 2014.

For example, among people born between 1980 and 1984, the share with a degree or certificate beyond a high school diploma was 72 percent among Asians, 55 percent among non-Hispanic whites, 34 percent among blacks and 25 percent among Hispanics.

SOURCE: Census Bureau, Educational Attainment in the United States, 2014.

graduate-degree families. The average score among college families also was lower than the average score of graduate families in a statistical sense.

Financial health scores correspond fairly closely to differences in the key portfolio choices highlighted above, namely, liquidity, diversification and leverage.[28] In general, the higher a group's average financial health score, the higher its balance sheet liquidity, the greater its asset diversification and the lower its leverage—all elements of the conservative financial decision-making that is likely to lead to greater wealth accumulation.

IV. Trends in Educational Attainment and Prospects for the Future

The association is very strong between education and virtually all measures of economic and financial success discussed here—including income, wealth, balance-sheet strength and financial health. Moreover, the gaps between education groups on most of these measures have widened since 1989—particularly between the highest-educated families and everyone else.

Yet we have said little about changes in the composition of the groups themselves and how they might evolve in the future. Figure 10 shows that the average educational attainment of the U.S. popu-

Sidebar 3: A Financial Health Scorecard That Predicts Wealth Accumulation

To characterize the quality of basic financial decision-making by a typical family, we calculated a financial health scorecard for each family in each wave of the SCF.[25] The scorecard consists of five questions that were asked of each of the 38,385 families that participated in the survey between 1992 and 2013:[26]

- Did you save any money last year?
- Did you miss any payments on any obligations in the past year?
- Did you have a balance on your credit card after the last payment was due?
- Including all of your assets, was more than 10 percent of the value in liquid assets?
- Is your total debt service (principal and interest) less than 40 percent of your income?

How we scored the responses to these questions and the average number of points all respondents received on each question are in Table 3.[27] To investigate the predictive power of the scorecard for financial success, we split the SCF sample in each survey year into 48 unique group combinations, based on:

- Three age groups: younger than 40, 40-61, and 62 and older;
- Four education groups: less than high school diploma, high school or GED diploma or vocational/technical certificate, two- or four-year college degree only, and graduate or professional degree;
- Four racial and ethnic groups: black, Hispanic, Asian and white.

The individual item and overall index scores in 2013 were remarkably similar to the averages computed over all eight waves of the SCF for which all the data were available (1992-2013). In other words, the elements of financial health we estimated appear to be stable over time.

The average group scores are financially meaningful, too—the simple correlation co-efficient between the average financial health score of a group and the 1992-2013 average of median inflation-adjusted net worth (expressed as a logarithm) for each of the 48 groups was 0.67. In other words, our financial health scorecard was very good at predicting how much wealth a group was likely to have.

lation has increased over time. Only the group of families without high school has decreased, from 31 percent in 1989 to 12 percent in 2013. The share of families headed by high school graduates increased from 44 to 50 percent, exactly college graduates from 16 to 25 percent and graduate-degree holders from 10 to 13 percent.

To explore the changing educational attainment of the U.S. population during the past quarter-century and to provide clues about the future, we highlight the racial, ethnic, gender and generational dimensions of education. It turns out that the overall trend toward higher educational attainment is far from being uniformly spread across the population.

Instead, higher attainment of two- or four-year college degrees has been concentrated among whites and Asians, with women outpacing men within each race and ethnicity. At the graduate- and professional-degree level, only Asians have demonstrated a strong upward trend over the entire post-World War II period. As for the contributions of successive generations of Americans to rising educational attainment, members of Generation X (born 1965-80) and Generation Y (born 1981 or later, also called Millennials) have lifted college-degree levels less than did the Baby Boomers before them. Much of the slowdown in the increase in college-graduation rates in recent years is related to the rising share of Hispanic and black young adults in the population, who continue to have much lower college graduation rates than whites and Asians.

The role of race and ethnicity. There is a clear rank ordering among races and ethnicities in the U.S. in educational-attainment rates at every level of education. Throughout the 20th and continuing in the 21st century, successive birth cohorts have produced a stable ranking of attainment rates; from highest to lowest, they are Asian, white, black and Hispanic. Figure 11 shows that, for the young adults who were born in the years 1980-84 (who were between the ages of 30 and 34 in 2014), 72 percent of Asians had obtained a degree of some kind beyond high school, 55 percent of whites

Table 3. Questions in the Financial Health Scorecard

Questions	Scoring	Mean Score in Eight SCF Waves, 1992-2013	Mean score in 2013 SCF only
1. After adjusting for any purchases of durable goods or investments you made, did you spend more, the same or less than your income in the past year?	Less = 1; Same or more = 0	0.56	0.53
2. Does either of these statements apply to you?"We sometimes got behind or missed payments;" or "Considering all the various loan or mortgage payments we made during the last year, not all of the payments were made the way they were scheduled; sometimes, they were made later or missed."	No, neither one applies = 1; Yes, one or both apply = 0	0.84	0.85
3. Do any of these statements apply to you?"We carried over a credit-card balance after we made our last payment;" or"We have been turned down in the past five years by a particular lender or creditor when I (or my {husband/wife/partner}) made a request for credit, or we were not given as much credit as we applied for;" or"There was a time in the past five years that we thought of applying for credit at a particular place, but changed our minds because we thought we might be turned down."	No, none applies or no credit cards by choice = 1; Yes, one or more apply = 0	0.44	0.47
4. Including all of your assets, was more than 10 percent of the value in safe and liquid assets, defined as liquid accounts (checking, saving or money-market accounts), certificates of deposits, bonds or savings bonds?	Yes = 1, No = 0	0.27	0.26
5. Is your total debt service, including both scheduled repayment of principal and interest owed, less than 40 percent of your income?	Yes = 1, No = 0	0.91	0.92
Total score	**0 to 5 possible**	**3.01**	**3.03**

A family's score on the financial health scorecard is the sum of the individual scores, with a range of zero to five. A score of five indicates the highest financial health; a score of zero indicates the lowest financial health.

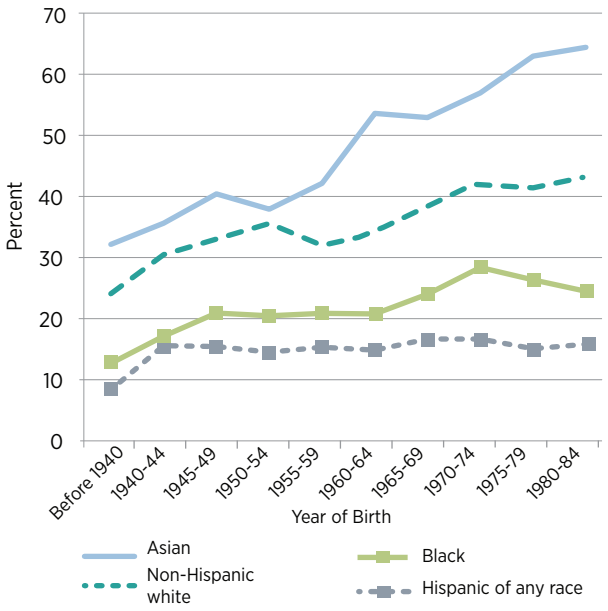
Splitting the sample in each SCF wave into 48 unique groups, based on three age groups (less than 40, 40-61, and 62 and over), four education groups (less than high school, high school or GED or vocational/technical certificate, two- or four-year college only, and graduate or professional degree), and four racial and ethnic groups (African-American, Hispanic of any race, Asian and non-Hispanic white), the simple correlation co-efficient between a group's average financial health scorecard score for 1992-2013 and the group's inflation-adjusted median net worth averaged across the eight waves is 0.67.

Table 4. Average Group Scores for Families on the Financial Health Scorecard

	Average financial health score in all years, 1992- 2013
All families 40 years or older	3.11
Of which:	
Graduate or professional degree	3.45
Exactly 2- or 4-year college degree	3.18
High school diploma or GED	3.02
No high school diploma or GED	3.04

A family's score on the financial health scorecard is the sum of the individual scores to questions listed in Table 3, with a range of zero to five. A score of five indicates the highest financial health; a score of zero indicates the lowest financial health.

Figure 12. Share of Birth Cohort with At Least a Four-Year College Degree in 2014, Both Sexes

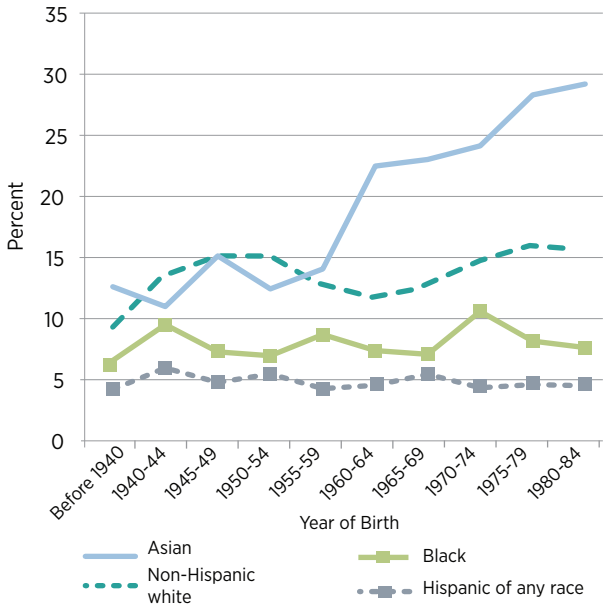


The chart shows the share of adults of both sexes with at least a four-year college degree as of 2014.

For example, among people born between 1980 and 1984, the share with at least a four-year college degree was 64 percent among Asians, 43 percent among non-Hispanic whites, 24 percent among blacks and 16 percent among Hispanics.

SOURCE: Census Bureau, Educational Attainment in the United States, 2014.

Figure 13. Share of Birth Cohort with A Graduate or Professional Degree in 2014, Both Sexes



The chart shows the share of adults of both sexes with a graduate or professional degree as of 2014.

For example, among people born between 1980 and 1984, the share with a graduate or professional degree was 30 percent among Asians, 16 percent among non-Hispanic whites, 8 percent among blacks and 5 percent among Hispanics.

SOURCE: Census Bureau, Educational Attainment in the United States, 2014.

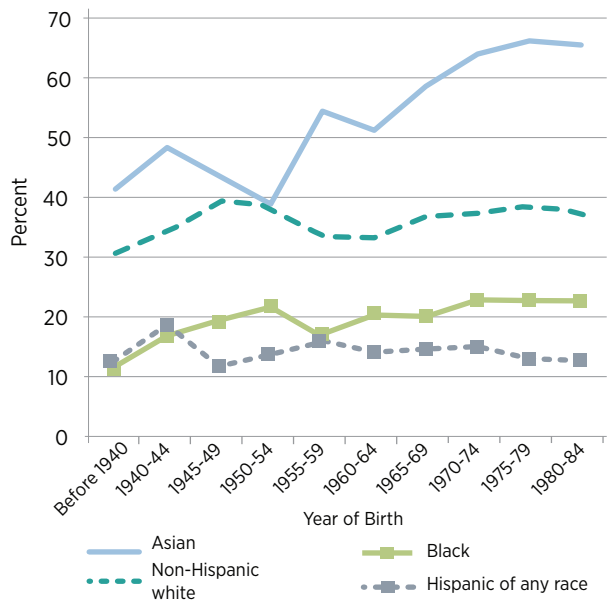
had such a degree, while only 34 percent of blacks and 25 percent of Hispanics had a post-secondary qualification. The picture is qualitatively identical for attainment of four-year college degrees and postgraduate degrees. (See Figures 12 and 13.)

Thus, in addition to a very strong association between education and wealth, there also is a strong association between race or ethnicity and education.[29] The nexus between education and race or ethnicity is complex, and there is no agreement about why the link is so strong and persistent or what could be done to weaken it. Yet the implications of this tight link between education and race or ethnicity are crystal clear—on current trends, there is virtually no chance that blacks and Hispanics will narrow the economic and financial gaps they face vis-à-vis whites and Asians. Indeed, the gaps are more likely to widen as the importance of educational attainment continues to grow.

Gender differences in educational attainment. With the exception of Asian men receiving postgraduate degrees, women of every race and ethnicity have surpassed their male counterparts at every level of degree attainment. Figure 14 displays four-year college attainment rates as of 2014 by birth year for men of all four racial and ethnic groups; Figure 15 does the same for women. The pictures are qualitatively similar for both lesser and greater levels of education and are not shown.

Comparing the two figures demonstrates a strik-

Figure 14. Share of Birth Cohort with At Least a Four-Year College Degree in 2014, Male Only

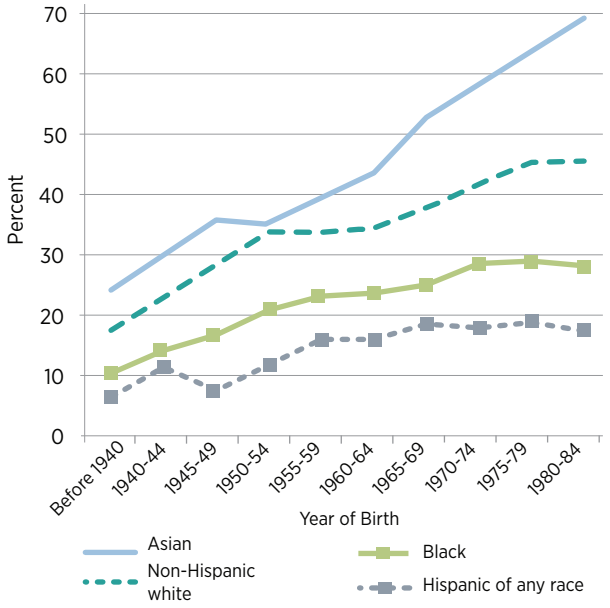


The chart shows the share of adult men with at least a four-year college degree as of 2014.

For example, among men born between 1980 and 1984, the share with at least a four-year college degree was 66 percent among Asians, 38 percent among non-Hispanic whites, 23 percent among blacks and 13 percent among Hispanics.

SOURCE: Census Bureau, Educational Attainment in the United States, 2014.

Figure 15. Share of Birth Cohort with At Least a Four-Year College Degree in 2014, Female Only



The chart shows the share of adult women with at least a four-year college degree as of 2014.

For example, among women born between 1980 and 1984, the share with at least a four-year college degree was 69 percent among Asians, 45 percent among non-Hispanic whites, 28 percent among blacks and 17 percent among Hispanics.

SOURCE: Census Bureau, Educational Attainment in the United States, 2014.

ing superiority of women's college attainment levels for the Asian cohorts beginning with 1980-84; for all white cohorts since 1955-59; for all black cohorts since 1955-59; and for all Hispanic cohorts since 1960-64. As of the 1980-84 cohorts, women's college attainment rates exceed those of men of the same race or ethnicity by 3.4 percentage points among Asians, by 7.7 percentage points among whites, by 5.4 percentage points among blacks and by 4.7 percentage points among Hispanics. Moreover, with the exception of Asian men, the college attainment rates of white, black and Hispanic men have remained basically flat since the cohorts born immediately after World War II. Among women, on the other hand, college attainment rates increased consistently for cohorts born throughout the second half of the 20th century except for some flattening in recent cohorts among black and Hispanic women.

It is not clear what the economic and financial implications of the very different educational experiences of men and women will be. To the extent that women continue to have lower labor force participation rates than men and, even when employed, appear to face gender-based barriers to advancement in some situations, they constitute an underused resource—both for their families and for the nation as a whole. The relatively slow increase in men's educational attainment certainly reduces their ability to contribute both to their own families' and the nation's economic and financial advancement.

Generational differences in educational attainment. As noted, cohorts born after the Baby Boom (1965 and later) have contributed less to the long-term trend of rising educational attainment than the Boomers and earlier generations did. Two underlying reasons for this are the near flat-lining of men's education levels in recent decades—with the exception of Asian men—and the rising share in the population of Hispanics and blacks, who have relatively low levels of college- and graduate-degree attainment. Another contributing factor is the fact that, among Hispanic and black women, college attainment rates have not increased since the cohorts born in the late 1960s and early 1970s.

There is no reason to believe that any of these underlying trends will change in the near future. To be sure, a rising college and postgraduate wage premium provides an incentive for more people to obtain college and postgraduate degrees. However, that enticement has existed for several decades, and the flattening out of attainment rates has become more pronounced. Thus, it seems likely that the long-term trend toward greater average educational achievement across the population will continue to slow.

V. Conclusions

We document a very strong association between a family's education level and its level of income and wealth. There also is a strong association between education and several indicators of balance sheet strength and financial health. If anything, the associations have become stronger over time, and the gaps between education groups have widened.

The correlation between education and various measures of economic and financial success does not represent causation exclusively. In fact, there are reasons to believe that the correlation is partly spurious. Factors that are correlated with educational attainment—such as native ability, family background, assortative mating, incentives to become financially knowledgeable, the likelihood of receiving a sizable gift or inheritance and better health—undoubtedly are responsible for some of the positive outcomes families with more education experience.

An implication of the partly spurious correlation between education and wealth is that increasing the educational attainment alone of an individual or group is unlikely to result in all of the positive effects that are hallmarks of families with advanced education. Some important contributors to the economic and financial success of many highly educated people cannot be granted along with a degree—contributors such as highly educated and wealthy parents.

Despite the caveat that correlation does not imply causation, there is no doubt that rising educational attainment over time has contributed much to families' and the nation's advancement. Yet increasing educational attainment is not uniformly distributed across the population. Asians of both genders, as well as women of all races and ethnicities, have made remarkable educational progress, but their success makes the failure of many men to advance—especially black and Hispanic men—even more glaring.

The continuing barriers facing women in fully contributing to their families' and the economy's progress, together with the rising share of the black and Hispanic population with very low education levels, make it likely that educational advances will contribute less to economic and financial growth in the future than they have in recent decades. At the same time, those with more education are likely to reap an increasing share of the economy's rewards.

The next essay in this series will explore the connection between age and wealth. Look for it in the summer of 2015 on the website of the Center for Household Financial Stability at **www.stlouisfed.org/hfs**. There, you will also find a short video summarizing each of the essays in this series.

Endnotes

1. See Emmons and Noeth (2015).
2. Data in this article are from the Federal Reserve's Survey of Consumer Finances (SCF) unless otherwise noted; totals do not equal 100 percent due to rounding. We examined families headed by adults 40 and older because younger adults are much less likely to have completed their education, making classification difficult.
3. A spurious relationship is a statistical association between two variables that is not at all or not entirely a causal relationship. For example, a crowing rooster signals dawn (a highly reliable statistical association), but roosters do not cause the sun to rise by crowing (a spurious relationship). Instead, the earth's rotation causes both the dawn and the rooster to crow.
4. See the appendix in Bricker for a detailed discussion of the methodology in the SCF for assigning an education level to a family.
5. Based on the entire cohort of people who entered a four-year college-degree program for the first time in the fall of 2008—about 2.67 million students—only 1.47 million, or 55 percent, had received a degree by 2014. Of these, 96 percent were under 40. Thus, only about 59,000 people at least 40 years old received a college degree in 2014 within six years of their first enrollment in college. In addition, an unknown number of people 40 years or older received college degrees in 2014 after more than six years of enrollment or as the result of a second or subsequent stint of enrollment. Compared to the total population aged 40 or older in 2014 of about 150.3 million, however, we believe the share of people 40 or older who received a bachelor's degree for the first time was tiny. See National Student Clearinghouse Research Center and Census Bureau.
6. See Canon and Gascon.
7. Typical earnings differ across fields of study and majors, also. See Altonji, Kahn and Speer. Because this is not the focus of our study, we treat all college and all postgraduate degrees the same.
8. See Card. The most powerful evidence uses the relatively small earnings differences between twins with different education levels to highlight the importance of common background factors like ability and family environment.
9. See Strenze.
10. See Bukodi et al.
11. See Greenwood et al.
12. See Lusardi et al.
13. See Charles and Hurst.
14. See Hai and Heckman.
15. One might object that assortative mating implies that a college or graduate degree is required to attract a similarly educated spouse. However, the degree likely serves as a signal of the type of person you are, including your earning potential, rather than proving that you have particular classroom-based skills that make you attractive as a partner.
16. An exogenous characteristic is something caused by forces external to or beyond the influence of an individual. One's race or ethnicity and one's year of birth are exogenous characteristics because they are not chosen by or under the influence of the individual.
17. A predetermined variable is something that does not change after a certain time. See Sidebar 1 for a discussion of the evidence that a family's highest level of education is very unlikely to change after age 40.
18. See Bricker et al.
19. White families constituted 74 percent of all families 40 and older in 2013, by far the largest single racial group. Thus, their representation in each education group is near the share of that education group in the population simply because their numbers are so large. For example, 8 percent of white families are headed by someone without a high school degree compared to 12 percent of all families. The respective shares of

white (all) families headed by high school grads, college grads and post-graduates in 2013 were 50 (50), 27 (25) and 15 (13) percent.

20. The likelihood of being in the top half of the 40-plus wealth distribution declined for all educational groups because the composition of the population changed. Average educational attainment increased, effectively "crowding out" some families that would have been above but close to the boundary without the increased number of better-educated families. Another way to think about it is to recognize that, as any group becomes larger and eventually approaches 100 percent of the population, the share in the upper half necessarily converges to 50 percent.
21. See Valletta.
22. According to the SCF, the share of all wealth owned by graduate- or professional-degree holding families 40 or older increased from 24.9 percent in 1989 to 39.8 percent in 2013. This rapid increase is due both to the rising number of highly educated families and their increasing average wealth. The share of all families 40 and older with graduate or professional degrees increased from 9.8 to 13 percent between 1989 and 2013. The average wealth of these families increased from $1,210,946 to $2,117,037 (both in 2013 dollars).
23. Examples of tax expenditures include the government revenue losses due to reduced tax rates on capital gains and dividend income and favorable tax treatment of certain retirement and college savings accounts.
24. See Cooper and Zhou. See Emmons and Noeth (2013, Tables 1 and 2) for evidence from the Survey of Consumer Finances that financial assets have produced much higher returns than housing over long time periods.
25. See Emmons and Noeth (2014) for more discussion of the scorecard and its correlation with wealth accumulation.
26. We excluded 1989 because it did not contain a satisfactory version of the first question in our scorecard.
27. The questions in the text are paraphrases; the precise wording of the questions is in Table 3.
28. See Emmons and Noeth (2015).
29. See Emmons and Noeth (2015).

References

Altonji, Joseph G.; Kahn, Lisa B.; and Speer, Jamin D. "Trends in Earnings Differentials across College Majors and the Changing Task Composition of Jobs," *American Economic Review*, Vol. 104, No. 5, May 2014, pp. 387-93.

Bricker, Jesse; Dettling, Lisa J.; Henriques, Alice; Hsu, Joanne W.; Moore, Kevin B.; Sabelhaus, John; Thompson, Jeffrey; and Windle, Richard A. "Changes in U.S. Family Finances from 2010 to 2013: Evidence from the Survey of Consumer Finances." *Federal Reserve Bulletin*, September 2014, Vol. 100, No. 4.

Bukodi, Erzsebet; Erikson, Robert; and Goldthorpe, John H. "The Effects of Social Origins and Cognitive Ability on Educational Attainment." *Acta Sociologica*, Vol. 57, No. 4, November 2014, pp. 293-310

Canon, Maria E.; and Gascon, Charles S. "College Degrees: Why Aren't More People Making the Investment?" Federal Reserve Bank of St. Louis *Regional Economist*, April 2012, Vol. 20, No. 2, pp. 4-9.

Card, David. "The Causal Effect of Education on Earnings." Chapter 30 in *Handbook of Labor Economics*, David Card and Orley Ashenfelter, editors, Vol. 3, 1999, Elsevier, pp. 1,801-63.

Census Bureau. Educational attainment in the United States: 2014—Detailed Tables.

Charles, Kerwin Kofi; and Hurst, Erik. "The Correlation of Wealth across Generations," *Journal of Political Economy*, Vol. 111, No. 6, 2003, pp. 1,155-182.

Cooper, Russell; and Zhu, Guozhong. "Household Finance Over the Life Cycle: What Does Education Contribute?" National Bureau of Economic Research (NBER) Working Paper No. 20684. November 2014.

Emmons, William R.; and Noeth, Bryan J. "Economic Vulnerability and Financial Fragility." Federal Reserve Bank of St. Louis *Review*, September/October 2013, Vol. 95, No. 5, pp. 361-88.

Emmons, William R.; and Noeth, Bryan J. "Five Simple Questions that Reveal Your Financial Health and Wealth." Federal Reserve Bank of St. Louis *In the Balance*, December 2014, No. 10.

Emmons, William R.; and Noeth, Bryan J. "Race, Ethnicity and Wealth." *The Demographics of Wealth*, Federal Reserve Bank of St. Louis, February 2015, No. 1.

Federal Reserve Board, Survey of Consumer Finances. See www.federalreserve.gov/econresdata/scf/scfindex.htm.

Greenwood, Jeremy; Guner, Nezih; Kocharkov, Georgi; and Santos, Cezar. "Marry Your Like: Assortative Mating and Income Inequality," *American Economic Review*, Vol. 104, No. 5, May 2014, pp. 348-53.

Hai, Rong; and Heckman, James J. "A Dynamic Model of Health, Education, and Wealth with Credit Constraints and Rational Addiction." Working Paper, 2014.

Lusardi, Annamaria; Michaud, Pierre-Carl; and Mitchell, Olivia S. "Optimal Financial Knowledge and Wealth Inequality." NBER Working Paper No. 18669, January 2013.

National Student Clearinghouse Research Center. "Completing College: A National View of Student Attainment Rates—Fall 2008 Cohort." November 2014. See http://nscresearchcenter.org/signaturereport8/.

Strenza, Tarmo. "Intelligence and Socioeconomic Success: A Meta-Analytic Review of Longitudinal Research." *Intelligence*, Vol. 35, No. 5, 2007, pp. 401-26.

Valletta, Rob. "Higher Education, Wages and Polarization." Federal Reserve Bank of San Francisco Economic Letter. No. 2, Jan. 12, 2015.

The center was launched by the Federal Reserve Bank of St. Louis in 2013 to research and strengthen the balance sheets of struggling American families.

The Great Recession was called a "balance-sheet recession," and we at the center believe that balance sheets (what a family saves, owns and owes – in other words, its net worth) have been relatively under-studied but increasingly recognized as essential to the stability of families and the overall performance of the U.S. economy.

Specifically, the center aims to address three questions:

1. What is the state of American families' balance sheets?
2. What are the economic and social outcomes associated with varying levels of savings, assets and net worth—and why do these matter for families and the economy?
3. What can researchers, policymakers, community organizations, financial institutions and households do to improve family balance sheets?

The center's work includes conducting and publishing research on key balance-sheet issues and organizing research, policy and community forums locally and nationwide to better understand and respond to the balance-sheet issues affecting struggling families and communities.

A basic premise of the center is that families improve their financial stability through broad-based economic growth, higher net household incomes and, especially, stronger balance sheets. Financially stable families face less economic risk and more economic mobility within and across generations. As financially healthy families spend, save and invest more, the national economy grows, too.

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