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Abstract

Using new long-run microdata, this paper studies wealth and income trends of college and non-college households in the United States since 1956. We document the emergence of a substantial *college wealth premium* since the 1980s, which is considerably larger than the *college income premium*. Over the past four decades, the wealth of American households with a college-educated head has tripled. By contrast, the wealth of non-college households has barely grown in real terms over the same period. Part of the rising wealth gap can be traced back to systematic portfolio differences between college and non-college households that give rise to different exposures to asset price changes. Non-college households have a lower exposure to the equity market and have profited much less from the recent surge in the stock market. We also discuss the importance of financial literacy and business ownership for the increase in wealth inequality between college and non-college households.

JEL-Codes: I240, E210, D310.

Keywords: wealth, inequality, education, college wealth premium.

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1 Introduction

It is a well-documented fact that the college wage premium has increased substantially since the 1970s (see e.g. Levy and Murnane 1992, Katz and Autor 1999, Goldin and Katz 2007). This trend can be traced back to differences in the growth of demand and supply of college-educated workers that are driven by skill-biased technical change, socio-demographic factors, and institutional features (Card and Lemieux 2001, Fortin 2006). Recent work has begun to analyze the relationship between college education and wealth inequality (Emmons et al. 2018, Pfeffer 2018), and demonstrated an increasing association between college education and wealth.

In this paper, we take a long-run perspective on college and non-college income and wealth over the entire post-WW2 period. We use a novel household-level data set, the "SCF+", which combines the post-1983 Survey of Consumer Finances with data from historical surveys going back to 1949. To ensure consistent coding of education groups, our analysis starts in 1956. Kuhn et al. (2018) have harmonized the data across the historical survey waves.[1] The combined data provide long-run household-level information on income, assets, debt and demographics. The SCF+ closes an important gap, as high-quality microdata were not available over longer time horizons before. For instance, the Panel Study of Income Dynamics (PSID), which is one of the most important sources of household-level wealth data in the U.S., only includes questions on family wealth since 1984 (see Pfeffer et al. 2016).

Our analysis confirms a strong increase in the college income premium since the 1970s. The average income of households with a college-educated head has increased by about 40% in real terms since the 1970s. However, the increase of the college income premium is dwarfed by the college wealth premium. The wealth of college households has increased by a factor of 3 between 1983 and 2016, while non-college wealth has barely grown at all. A substantial part of the widening of the wealth gap between college and non-college households is driven by strong wealth gains within the top 10% of the wealth distribution. Moreover, the share of non-college households making it to the top 10% of the wealth distribution has declined over time. We also document that households with two college-educated spouses have enjoyed particularly large gains in wealth. However, this trend is not driven by assortative matching, but by the overall growth in college education. Consistent with previous findings of Eika et al. (forthcoming), assortative mating appears to have *decreased* among college graduates over time.

An important question raised by our findings is why the ratio of college to non-college wealth has grown so much more than the income gap. The workhorse economic models of wealth accumulation imply a tight co-movement of income and wealth differences, as income is the sole determinant of wealth. We demonstrate that college and non-college

[1] Kuhn et al. (2018) study another key stratifying dimension of inequality from the SCF+, namely race, and document income and wealth trends for black and white households.

households exhibit systematic differences not only in the size of their asset holdings, but also in the composition of their portfolios. College households own a higher share of stocks and mutual funds. As a consequence, college and non-college households are differentially exposed to asset price changes. College households reap disproportionately high capital gains during stock market booms. Importantly, such capital gains are unrelated to income. This is consistent with the de-coupling in the evolution of the college income and wealth advantage since the 1980s (see also Kuhn et al. 2018).[2] We also find some indication that business ownership matters for the increase of the college wealth premium, especially since the late 1990s. The fact that the college wealth advantage is associated with equity holdings and business ownership may be related to higher levels of financial literacy and entrepreneurial skills among college households. We discuss the role of these factors and their potential to affect wealth via portfolio composition and differential returns.

While the paper documents a sharply rising college wealth premium in recent decades, it is important to note that causality can run in both directions. College graduates may hold more wealth due to their higher educational attainment, but there is also evidence that it is easier to obtain college degrees when coming from a wealthy family. Wealthy families can afford more investment in the educational careers of their offspring. The cost of college has increased considerably since the 1980s, which constitutes an obstacle for children from poorer households (see e.g. Haveman and Smeeding 2006). Beyond providing a basis for *inter vivos* transfers, wealth may also have an insurance function as a "safety net" (Pfeffer 2018). In this sense, wealth can work as a "catalyzer", facilitating human capital investment in early life. This will typically lead to higher wealth, which may additionally be augmented by gifts and bequests. The process can accumulate across generations, creating a succession of college-educated households with ever more wealth (Pfeffer and Killewald 2018).[3] Our SCF+ data consist of repeated cross-sections, and therefore remain silent on inter-generational wealth links. At the same time, the wealth information in the PSID is less detailed than in the SCF+, and in particular the coverage of wealth at the top is not comprehensive (Pfeffer et al. 2016). New data sources are needed to address these questions.

The paper begins with a description of the data in section 2. In section 3, we present our empirical results. Section 4 focuses on the role of asset prices and business ownership for college wealth growth. Section 5 discusses potential transmission mechanisms, and section 6 concludes.

[2]Note that total household income in the SCF+ is defined net of capital gains.

[3]Parental income and wealth may even affect educational outcomes beyond assistance to tap one's full skill potential. Looking at the income of U.S. households, Reeves and Howard (2013) find evidence of "glass floors" in educational outcomes: Children from high-income households tend to do better in terms of education and income than their skills would suggest. The authors stress that wealth is likely to play an important role beyond income. Certainly, the persistence of education and wealth across generations and their interaction are important topics for further research.

2 Data

Our analysis is based on a newly compiled resource for inequality research, the SCF+. The modern Survey of Consumer Finances (SCF) is conducted every three years by the U.S. Federal Reserve Board (see Bricker et al. 2017). It is one of the most widely used data sets for the study of distributional issues in the United States. The modern waves cover the period since 1983. However, a predecessor of the modern surveys was conducted at an annual frequency by the Survey Research Center of the University of Michigan from 1947 to 1971, and again in 1977. Based on the original codebooks, Kuhn et al. (2018) extract the historical data. They match and harmonize variables across the historic and modern waves to create rich microdata that allow to study the joint distribution of income and wealth, along with key demographic variables, over the period from 1949 to 2016. We follow Kuhn et al. (2018) and pool the annual historic waves over three-year windows.

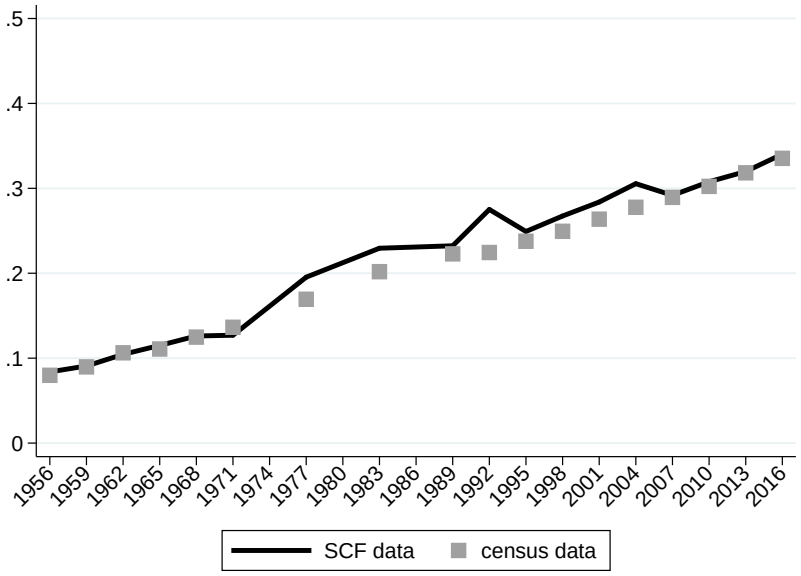
Missing data in the old waves were inferred by using multiple imputation methods like predictive mean matching (cp. Schenker and Taylor 1996) and historical data are re-weighted to account for non-response at the top of the income and wealth distribution. These adjustments are described in detail in Kuhn et al. (2018). Moreover, to assure representativeness along socio-demographic dimensions, the data were re-weighted to match the U.S. Decennial Census. Specifically, the data were post-stratified to match the age structure of the population, as well as the share of households with a black household head, the share of households whose head has at least obtained some college education, and the homeownership rate.[4] For the new waves, the survey weights and data are the ones provided on the website of the U.S. Federal Reserve Board.

The key advantage of the data set is that it combines rich information on economic and financial data with key socio-demographic variables. Total household income in the SCF+ data includes income from wages and salaries, professional practice and self employment, rental income, interest, dividends, business and farm income, as well as transfer payments. Assets comprise liquid assets (certificates of deposit, checking, saving, call and money market accounts), housing and other real estate, bonds, stocks, mutual funds, corporate and non-corporate equity, and defined-contribution retirement accounts. Total debt sums housing debt, car loans, education loans, loans for consumer durables, other non-housing debt, as well as credit card debt. Net wealth is computed as total assets net of total debt. All monetary variables were transformed to 2016 dollars using the U.S. consumer price index (CPI) for all urban consumers from the Macrohistory Database (Jordà et al. 2017). This is also the source for the stock price data used in section 4.

Figure 1 compares the share of households headed by a college graduate in the SCF+ with data from the U.S. Current Population Survey (CPS). These data are available since 1962. For the earlier periods, we relied on linearly interpolated data from the Decennial Census.

[4]Throughout the paper, demographic information will always refer to the household head, if not otherwise stated. In the case of married couples, the household head is typically male.

Figure 1: Comparison to Census Data



Notes: The figure shows the share of households with a college-educated head in the SCF+ data in comparison to the share obtained from the U.S. Current Population Survey (CPS) for the period from 1962 to 2016 and from the U.S. Decennial Census for 1950 and 1960. Intermediate data points were obtained by linear interpolation.

Note that in the following analysis, college households will be defined as households whose head has obtained at least a bachelor's degree. Householders with "some college" will be included in the group of non-college households.[5] The distinction between households with some college versus a college degree was not made in the earliest surveys, and there are notable differences in the portfolios and incomes of these groups (see table B.1). Therefore, we decided to discard the first two three-year windows, and let our sample begin with the 1956 window (1954-1956).

While a close match to targeted census shares is a good test of the re-weighting procedure, it does not necessarily imply that the aggregated microdata match macroeconomic variables. Yet Kuhn et al. (2018) demonstrate that the SCF+ data closely match aggregate trends in income, wealth, housing, financial and non-financial assets, as well as housing and non-housing debt. In addition, they demonstrate that the data exhibit a close fit to top income shares from Piketty and Saez (2003) using IRS tax data and top wealth shares from Saez and Zucman (2016) using IRS data and the capitalization method.

3 Six decades of college income and wealth premia

Going beyond previous research, the SCF+ data allow us to document income and wealth differences between college and non-college households over the long run. As discussed

[5] As noted, the re-weighting was done based on the share of households with *at least some* college. A comparison of the SCF+ and census data with respect to this measure is provided in Figure A.1.

above, much of the previous literature has focused on wage differences between college and non-college individuals. Instead of looking at wages at the individual level, we consider total income and wealth at the household level, with a particular focus on the college wealth premium, the ratio of college to non-college wealth.

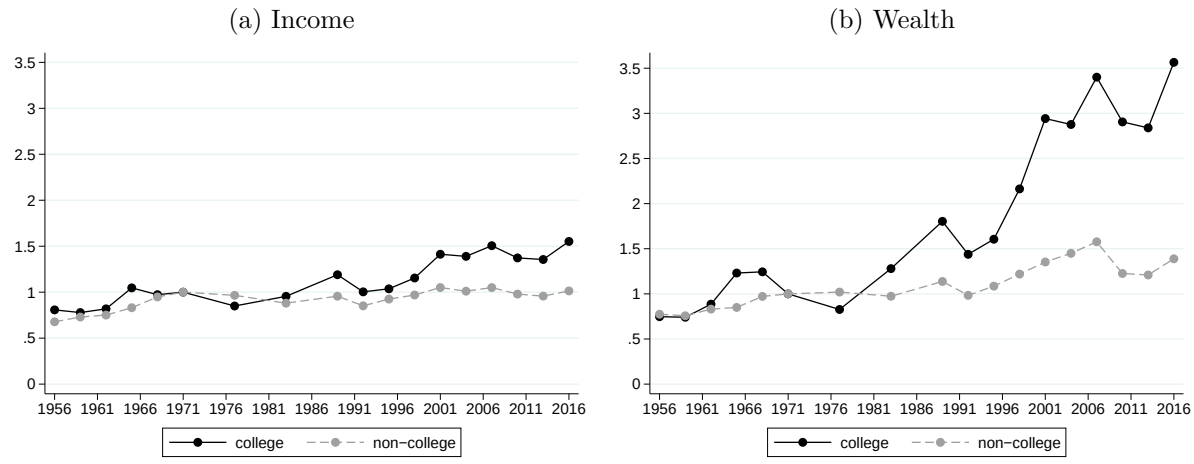
3.1 Income and wealth growth

Figure 2 shows the development of average household income and wealth for college and non-college households. The two groups evolved similarly until the 1970s, and have diverged afterwards. In Figure 2, we normalize the data to 1971 to track the divergence since the 1970s. The left panel reveals that income has grown at, by and large, similar rates for both groups until the 1970s. Since the 1970s, the real income of non-college households stagnated, while the real income of college households has risen by around 50%. In other words, our data confirm a secular rise of the college income premium.

The differential growth of college and non-college income is considerable, but it is dwarfed by the discrepancy in wealth. Just as income, wealth has evolved similarly for both groups until the 1970s, and stagnated for non-college households afterwards. The only exception is the period prior to the financial crisis in 2008, when non-college households increased their wealth to around 1.5 times its 1971 level. Consistent with the results of Kuhn et al. (2018), this was mainly due to the short-lived effects of the house price boom in the 2000s. As we will document below, housing constitutes a particularly large share of total wealth for non-college household (see Figure 12). While non-college households were treading water in terms of wealth, college households have increased their net worth by a factor of three compared to 1971.

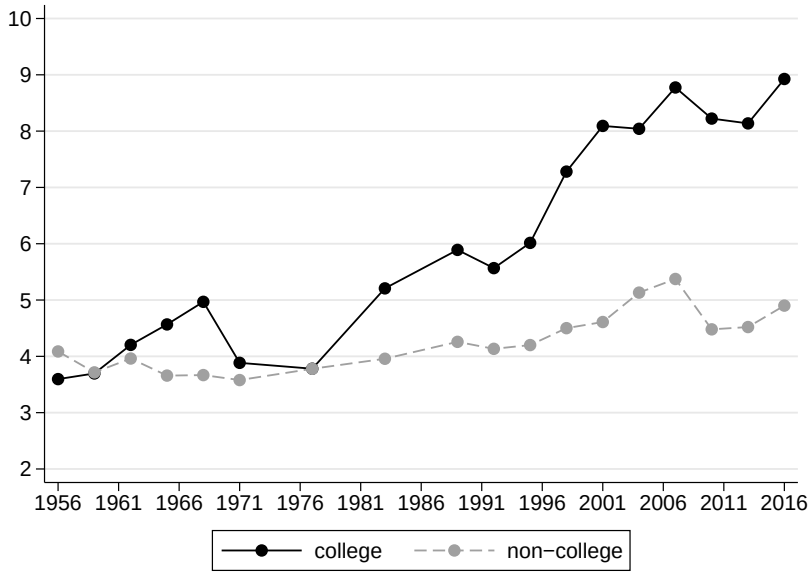
As average wealth has increased by more than average income for both college and non-

Figure 2: Wealth and Income Levels



Notes: The figure shows the average wealth and income of households with and without a college-educated head over time, normalized by each group's level in 1971.

Figure 3: Wealth-to-Income Ratios



Notes: The figure shows the ratio of average net wealth to average income among households with and without a college-educated head over time.

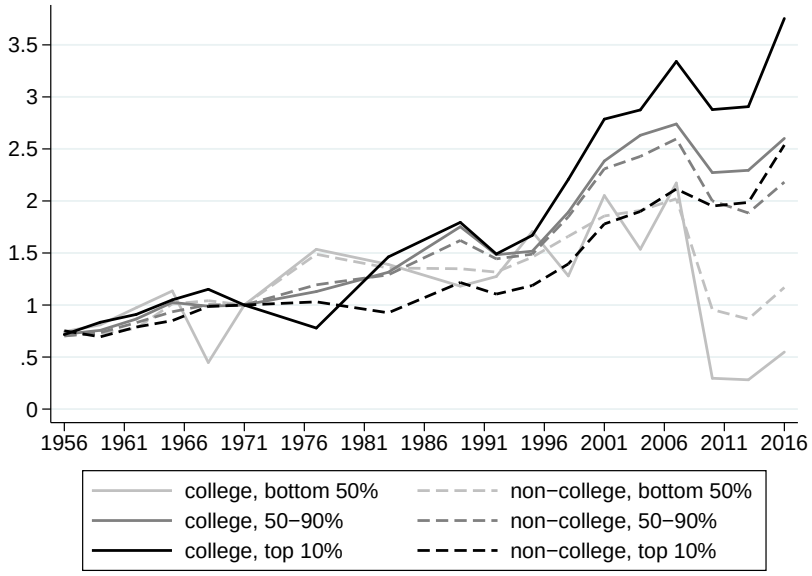
college households, wealth-to-income ratios have expanded as well.[6] However, the increase has been much larger for college households due to their massive surge in wealth. Their wealth-to-income ratio has more than doubled, from around 3.9 in 1971 to 8.8 in 2016 (see Figure 3). The corresponding growth for non-college households was only 50%, from around 3.6 to 5.4. Figure A.2 in the Appendix shows that the gap between the two groups is somewhat reduced when excluding pension wealth. Yet the difference still remains substantial: While college households would still have experienced an increase in their average wealth-to-income ratio by a factor of approximately 1.9 (from 3.9 to 7.5) without pensions, non-college households would not have experienced any increase in wealth relative to income, apart from the house price boom period prior to 2007.

3.2 Decomposing wealth growth

In the next step, we explore wealth growth for three groups of the wealth distribution. Within each of these wealth groups, we distinguish between college and non-college households. In the middle group, which we define as the 50th to 90th percentile of the wealth distribution, college and non-college wealth has to co-move closely by construction, as it is limited both from below and above. What can change for this group is the share of college and non-college households who belong to the group. Figure 4 shows wealth growth for all three wealth groups, stratified by education. It reveals that the widening of the college wealth gap has been pronounced within the top 10% of the aggregate wealth distribution, whereas college and non-college households have evolved similarly within the

[6]The ratios reported throughout the paper are ratios of averages (as opposed to averages of ratios).

Figure 4: Wealth Growth Along the Wealth Distribution



Notes: The figure shows the average wealth growth of college and non-college households in the bottom 50%, middle 50-90% and top 10% of the aggregate wealth distribution over time, relative to 1971.

bottom 50% and the middle 50-90%.[7] As Kuhn et al. (2018) point out, the top 10% of the aggregate wealth distribution are more heavily invested in equity and business wealth. We will discuss the role of these factors in more detail in sections 4 and 5.

The graphs for the different parts of the aggregate wealth distribution in Figure 5 relate to Figure 2b via the following decomposition:

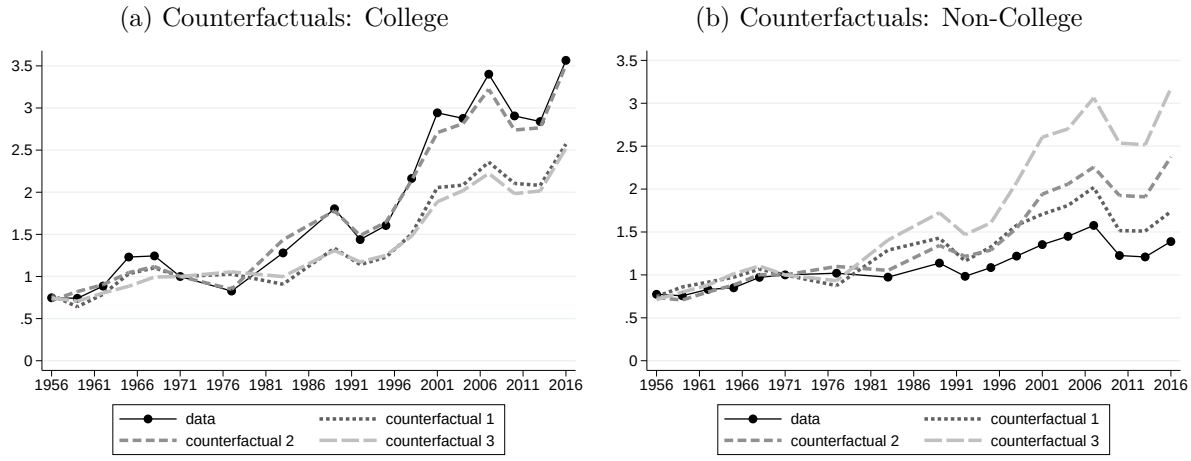
$$\frac{\overline{W}_{e,t}}{\overline{W}_{e,71}} = \frac{\sum_{i=1}^{3} s_{e,i,t}\overline{W}_{e,i,t}}{\overline{W}_{e,71}} = \sum_{i=1}^{3} s_{e,i,t}\frac{\overline{W}_{e,i,71}}{\overline{W}_{e,71}}\frac{\overline{W}_{e,i,t}}{\overline{W}_{e,i,71}} \quad e = c, nc. \tag{1}$$

$\overline{W}_{e,t}$ denotes average wealth of education group $e \in \{c, nc\}$ at time t, where c means college and nc means non-college. The index $i \in \{1, 2, 3\}$ refers to the three groups of the aggregate wealth distribution, and $s_{e,i,t}$ is the share of households in education group e and wealth group i out of all households in education group e at time t. Hence, the widening of the college wealth gap in Figure 2b depends on three factors: initial conditions in the base period, the development of the share $s_{e,i,t}$ over time, and the wealth growth in each education-wealth group depicted in Figure 4, $\frac{\overline{W}_{e,i,t}}{\overline{W}_{e,i,71}}$.

Based on this decomposition, Figure 5a presents three counterfactuals. The first one assigns the average wealth growth of non-college households in the top 10% of the aggregate wealth distribution, $\frac{\overline{W}_{nc,top10,t}}{\overline{W}_{nc,top10,71}}$, to their college counterparts. The second one holds the share of college households in each wealth group i fixed at its 1971 level, $s_{c,i,71}$. The third counterfactual combines these two exercises. Figure 5b presents the analogous "converse"

[7] By contrast, the college wealth gap has increased in all parts of the aggregate income distribution. The corresponding decomposition is available from the authors upon request.

Figure 5: Wealth Growth Counterfactuals

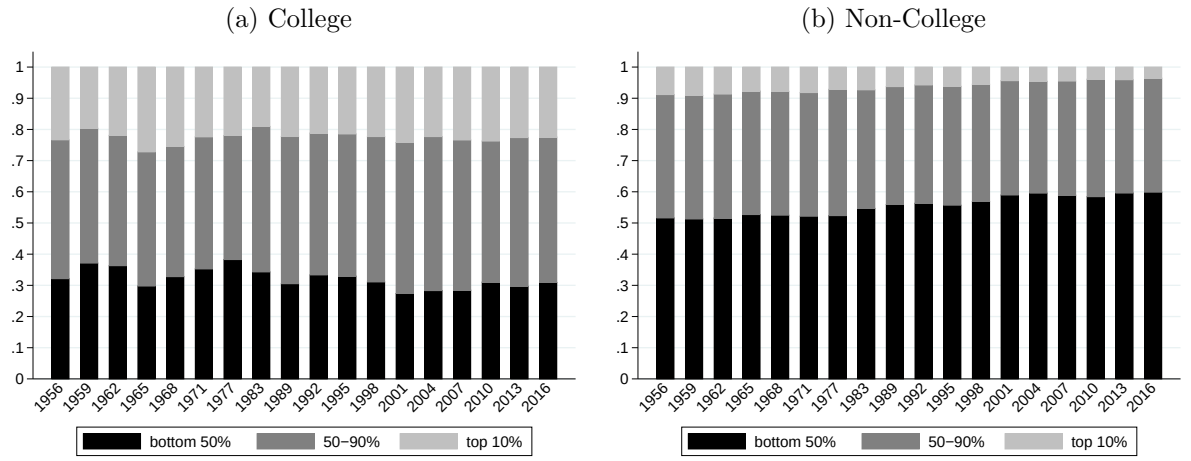


Notes: The left panel shows three counterfactuals for college households. In counterfactual 1, college households from the top 10% of the aggregate wealth distribution are assigned the average wealth growth of their non-college counterparts, $\overline{W}_{nc,top10,t} \,/\, \overline{W}_{nc,top10,71}$. In counterfactual 2, the share of college households in each wealth group i is fixed at its 1971 level, $s_{c,i,71}$. Counterfactual 3 combines the previous two counterfactuals. The right panel presents the analogous exercise for non-college households.

counterfactuals for non-college households. For college households, a substantial part of their wealth growth was driven by faster wealth growth within the top 10% of the wealth distribution, whereas compositional effects across wealth groups barely mattered. By contrast, both compositional effects and wealth growth in the top 10% played an important role for lower wealth growth in the case of non-college households.

Surprisingly at first glance, compositional effects across wealth groups only played a minor role in accounting for aggregate wealth growth. To understand why, Figure 6 shows the share of households belonging to the bottom 50%, the middle 50-90% and the top 10% of

Figure 6: Shares Within Education Group

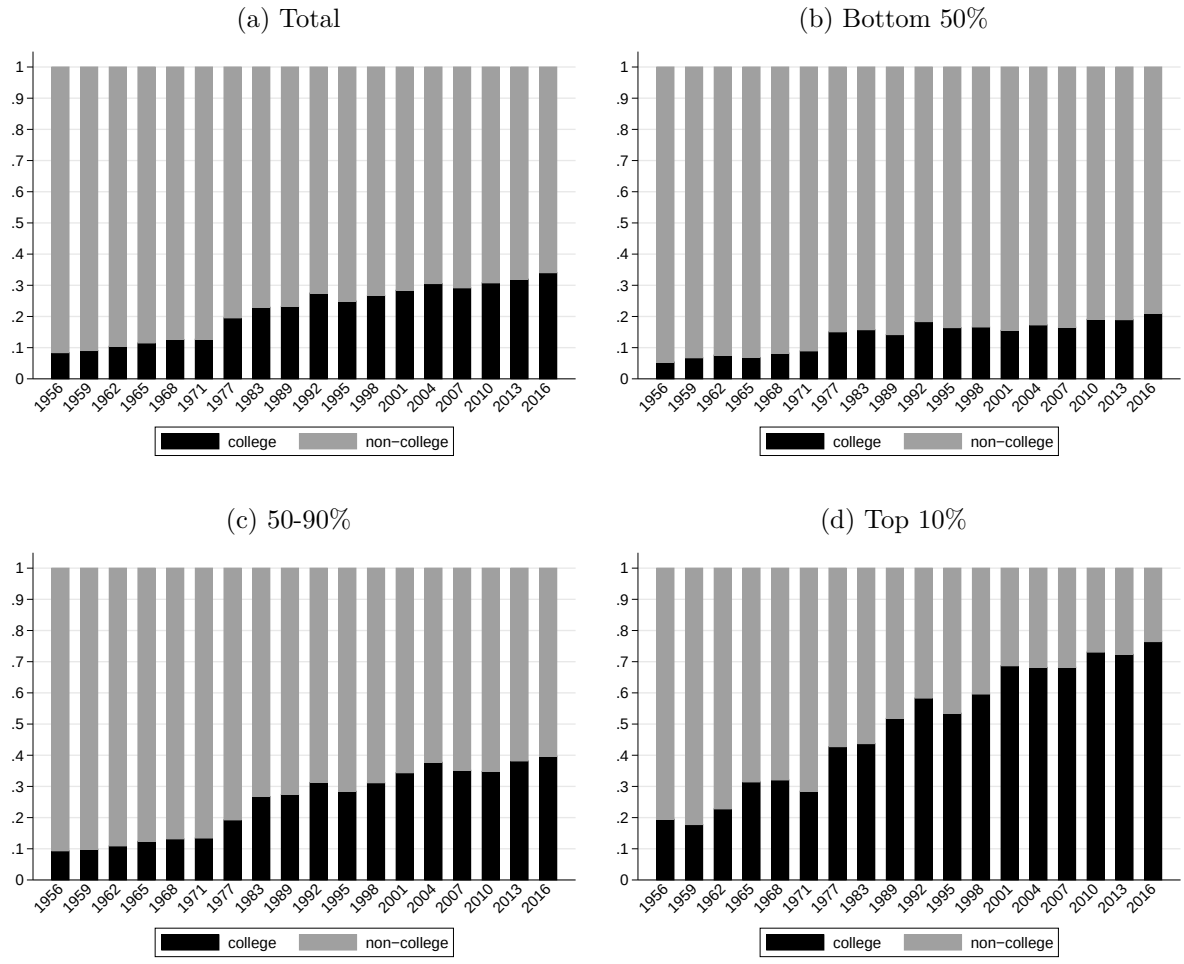


Notes: The figure shows the share of households belonging to the bottom 50%, 50-90% and top 10% of the aggregate wealth distribution for both college and non-college households over time.

the aggregate wealth distribution within the group of college households (left panel) and non-college households (right panel). The finding that compositional changes contribute little to college wealth growth is reflected in the fact that shares have remained remarkably stable over time. Among college households, around 23% belong to the top 10% on average, 45% to the middle class, and 32% are in the bottom 50% of the aggregate wealth distribution. We observe only small fluctuations around these time averages over time. For non-college households, the corresponding shares are 6%, 38% and 56%, but there is a visible trend towards a lower top 10% share and a larger bottom 50% share, which is reflected in the results of Figure 5b.

The relative stability of the shares within the group of college households also has important implications for the discussion of education as a means of financial mobility. Our results suggest that obtaining a college degree does not increase the probability of finding oneself in the upper parts of the wealth distribution. A college degree seems to help households to keep pace, but not to climb the wealth ladder.

Figure 7: Shares of College and Non-College Households by Wealth Group



Notes: The figure shows the share of college and non-college households in the entire population and in each group of the aggregate wealth distribution over time.

While Figure 6 slices the data by educational attainment, Figure 7 shows the share of college and non-college households within each group of the wealth distribution, as well as the full cross section. The overall share of households with a college-graduated head has quadrupled from 8.4% in 1956 to 34% in 2016. We find that this increase was distributed evenly across wealth groups, so that this trend is consistent with Figure 6. Between 1956 and 2016, the college share rose from 5.4% to 21% in the bottom 50% of the aggregate wealth distribution, from 9.3% to 39.7% in the middle class (50-90%), and from 19.5% to 76.4% in the top 10%. In other words, it has roughly quadrupled in each group, implying that obtaining a higher educational degree does not necessarily go hand in hand with a higher level of wealth. However, it is evident from the figure that the college share is largest in the top 10% of the wealth distribution.

It is noteworthy that the increase in average college income and wealth, which we have documented above, has taken place while the group of college households grew larger. Accordingly, the total cake has grown faster than the amount of people sharing it. These developments also imply that college households have appropriated larger and larger shares of total wealth and income over time. While non-college households still accounted for 84% of total wealth and 82% of total income in 1956, these shares have fallen to 26% and 39%, respectively, by 2016. As we will show next, the wealth and income advantages are particularly large if a household is formed by two spouses who both hold a college degree.

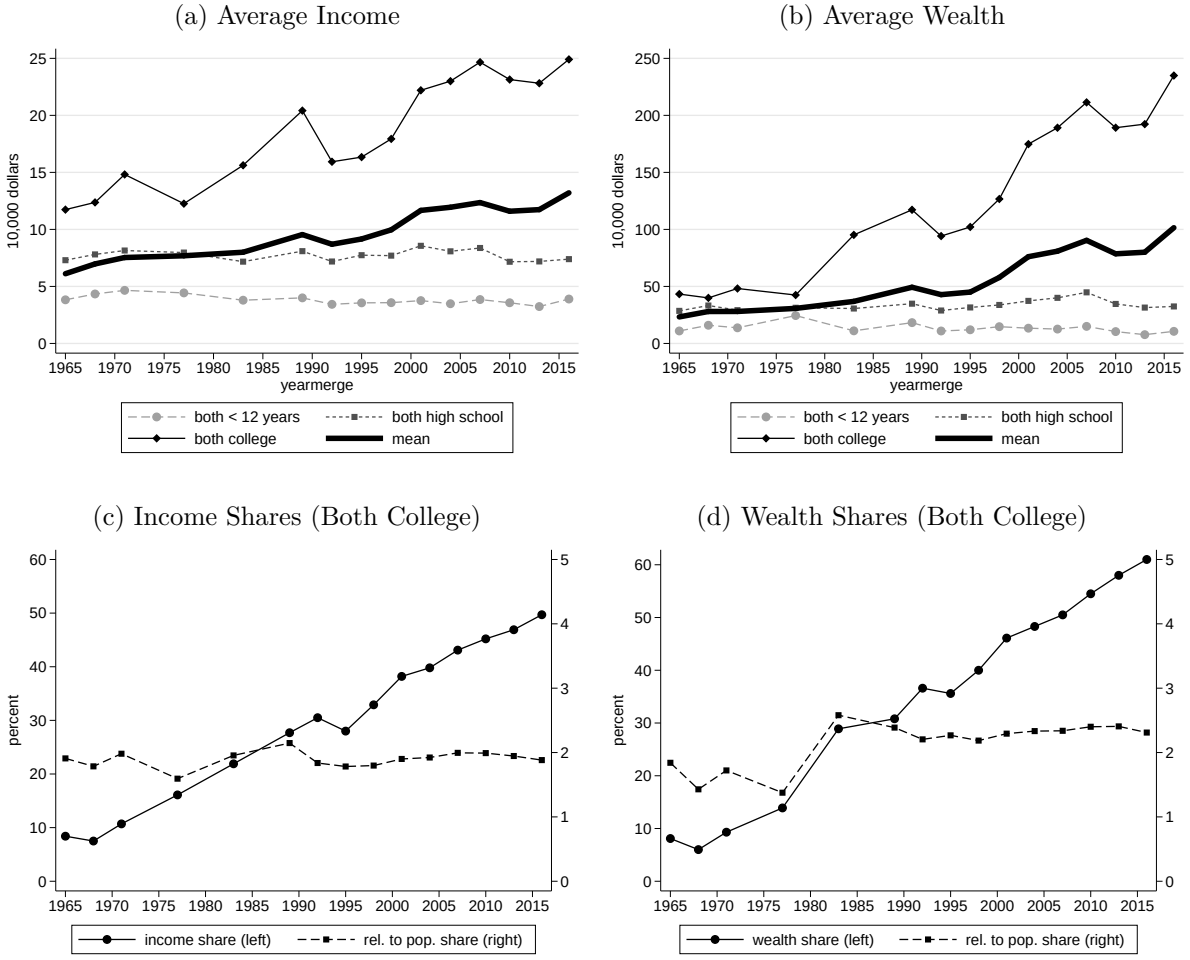
3.3 The role of marriage patterns for wealth and income growth

The share of households in which both partners hold a college degree has risen over time. Using Census data, previous research has investigated the importance of assortative mating for income inequality (Eika et al. forthcoming, Greenwood et al. 2014, Greenwood et al. 2015). Positive (negative) assortative mating refers to a situation when people with the same level of education marry more (less) frequently than what would be expected if marriage patterns were random. The existing studies suggest that positive assortative mating helps to explain cross-sectional income inequality, but hardly contributes to changes of income inequality over time. The SCF+ data allow to shed light on the role of marriage patterns and assortative mating for wealth in addition to income inequality.

The data show that couples with two college-educated spouses saw particularly large increases in income and wealth. In Figure 8a, we see that dual-college households have increased their average income by a factor of around two between 1965 and 2016, while income stagnated for households in which both partners hold a high school degree, and decreased for households in which both spouses have completed less than 12 years of schooling.[8] A qualitatively similar, but quantitatively even more pronounced picture emerges for wealth in Figure 8b. Households in which both spouses have a college degree

[8]Information on the spouse's educational attainment is only available since 1965.

Figure 8: Average Income and Wealth by Education of Spouses



Notes: The upper left panel shows average income of households in which *both* partners have less than 12 years schooling, a high school degree and a college degree, respectively, over time. The thick black line depicts average income for all non-single (married or living with partner) households. The male partner was defined as the household head. The upper right panel shows analogous results for net wealth. The lower left panel shows the share of total income of non-single households appropriated by dual-college households, once in percent (black line, left axis), and once relative to this group's population share (gray line, right axis). The lower right panel shows analogous results for net wealth.

have more than quadrupled their wealth, while households without any college-educated spouse have experienced very meager wealth growth.

Figure 8c shows that while dual-college households only appropriated 8.4% of all non-single households' income in 1965, the figure has increased to 49.7% in 2016.[9] However, the population share of this group has also increased from 4.4% to 26.4%, such that the income share of dual-college households relative to their population share has hardly changed. A similar result pertains to wealth (see Figure 8d). In this sense, the increasing share of total income and wealth accruing to (dual-)college households has not been disproportionate.

[9]Non-single households comprise marriage and cohabitation. We find very similar results when only considering married households.

Table 1: Marriage patterns in selected years – Actual data versus random matching

	Data				Random			Ratio		
head/spouse	(1)	(2)	(3)	*sum*	(1)	(2)	(3)	(1)	(2)	(3)
< 12 years (1)	**36.1**	14.5	0.4	51.0	**22.9**	24.8	3.3	**1.6**	0.6	0.1
high school (2)	8.6	**27.0**	1.6	37.2	16.7	**18.1**	2.4	0.5	**1.5**	0.7
college (3)	0.3	7.2	**4.4**	11.9	5.4	5.8	**0.8**	0.1	1.2	**5.8**
sum	45.0	48.7	6.4	100						
		1977				*1977*			*1977*	
< 12 years (1)	**20.1**	13.1	0.7	33.9	**9.6**	19.1	5.3	**2.1**	0.7	0.1
high school (2)	7.6	**32.7**	4.8	45.1	12.7	**25.4**	7.0	0.6	**1.3**	0.7
college (3)	0.5	10.5	**10.1**	21.1	6.0	11.9	**3.3**	0.1	0.9	**3.1**
sum	28.2	56.3	15.6	100						
		1989				*1989*			*1989*	
< 12 years (1)	**11.8**	10.7	0.7	23.2	**4.4**	14.4	4.4	**2.7**	0.7	0.2
high school (2)	6.6	**38.9**	5.2	50.7	9.6	**31.5**	9.5	0.7	**1.2**	0.5
college (3)	0.6	12.5	**12.9**	26.0	4.9	16.1	**4.9**	0.1	0.8	**2.6**
sum	19.0	62.1	18.8	100						
		1998				*1998*			*1998*	
< 12 years (1)	**6.9**	7.6	0.2	14.7	**1.7**	9.2	3.8	**4.0**	0.8	0.1
high school (2)	4.3	**44.4**	7.4	56.1	6.6	**35.1**	14.5	0.7	**1.3**	0.5
college (3)	0.5	10.5	**18.3**	29.3	3.4	18.3	**7.6**	0.1	0.6	**2.4**
sum	11.7	62.5	25.9	100						
		2007				*2007*			*2007*	
< 12 years (1)	**6.7**	6.3	0.3	13.3	**1.5**	7.8	4.0	**4.4**	0.8	0.1
high school (2)	4.4	**41.0**	8.2	53.6	6.1	**31.4**	16.1	0.7	**1.3**	0.5
college (3)	0.3	11.2	**21.6**	33.1	3.8	19.4	**10.0**	0.1	0.6	**2.2**
sum	11.4	58.5	30.1	100						
		2016				*2016*			*2016*	
< 12 years (1)	**5.4**	6.1	1.0	12.5	**1.2**	6.5	4.8	**4.5**	0.9	0.2
high school (2)	3.8	**35.2**	11.0	50.0	4.9	**26.0**	19.2	0.8	**1.4**	0.6
college (3)	0.5	10.7	**26.4**	37.6	3.6	19.6	**14.4**	0.1	0.5	**1.8**
sum	9.7	52.0	38.4	100						

Notes: The table shows the relative size (in percent) of marriage groups defined by education of head and spouse over time. The reference total are all non-single households (married or living with partner) with information on the educational attainment of both spouses. (1) means less than 12 years of schooling, (2) means that the person has a high school degree, and (3) that the person has a college degree. Rows refer to the head, columns to the spouse. The male partner was defined as the household head. The left part of the table shows each group's relative size in the data. The middle part shows the corresponding shares if matching was random. The right part shows the ratio of the shares in the data to the shares that would have been obtained with random matching. The counterfactual was computed from marginal frequencies. Reading example: In 1965, in 4.4% of households both head and spouse had a college degree. 6.4% of all spouses had a college degree, and 11.9% of all heads. The share of dual-college households was 5.8 times as large as it would have been with random matching.

The data also document that the fact that dual-college households have appropriated larger shares of income and wealth over time has little to do with assortative mating. Table 1 compares actual marriage patterns with those that would have been observed under random matching based on marginal frequencies. We find that assortative mating has actually *decreased* for college-educated people, whereas it has increased for low-educated individuals. Our results are both qualitatively and quantitatively consistent with the findings of Eika et al. (forthcoming), who use U.S. data from the March Current Population Survey (CPS) for 1962-2013.[10] In other words, the fact that we see a larger share of dual-college households nowadays can mainly be attributed to increases in educational attainment, especially among females, rather than changes in preferences and sorting. While there were around 12% male college graduates in 1965, the share of college graduates among the female partners was only half as large (6.4%). The shares have increased to 37.6% for males and 38.4% for females in 2016.

4 Portfolio composition and entrepreneurship

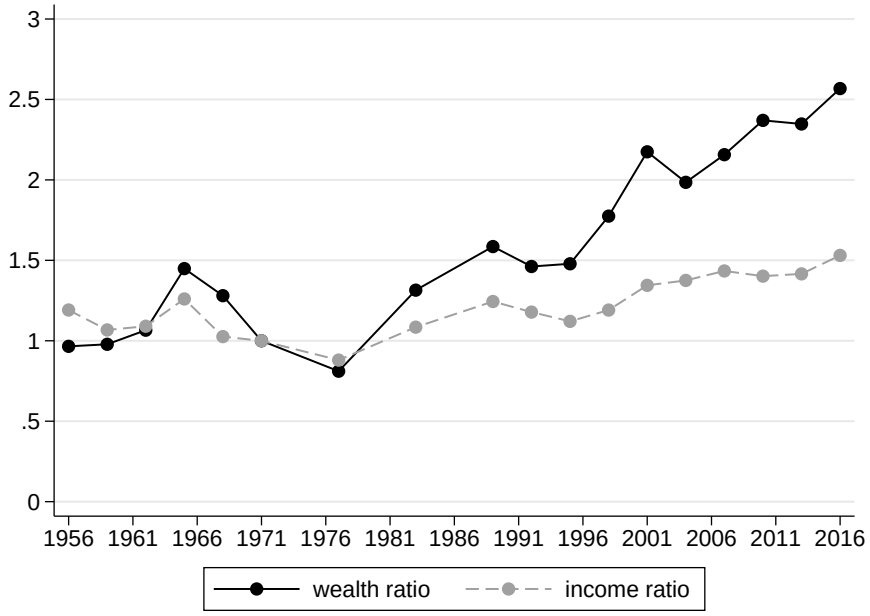
The previous section has presented evidence that college households have improved their wealth position substantially compared to non-college households, a finding we referred to as an increase of the college wealth premium. In this section, we will investigate potential drivers of this development in more detail. Figure 9 illustrates the increase in the college income and wealth premium. The ratio of college to non-college income was roughly stable until the late 1970s. The ratio of college to non-college wealth fluctuated somewhat more over this period, but did not show any trending behavior. In the early 1980s, both ratios embarked on a largely uninterrupted upward trend. The only exceptions were the early 1990s recession and the burst of the "dot-com bubble" in 2001. The wealth gap has widened considerably more than the income gap, namely by around 150% as opposed to a widening of 50% for the income gap between 1971 and 2016.

The discrepancy in the development of income and wealth becomes even more explicit when we only consider the middle class (50-90%) of the *income* distribution and average the data by decades. The results are shown in Figure 10. Even for these households who, by construction, had almost identical income paths, the widening of the college wealth gap since the 1980s stands out. While wealth has doubled for college households, non-college households with the same income trends saw their wealth only increasing by 25%.

Which role do demographic shifts play for the observed phenomena? So far, we have looked at unconditional averages. To obtain an estimate of the "college wealth effect" net of potential confounders such as demographics, we estimate the following micro-level

[10] Eika et al. (forthcoming) demonstrate the robustness of these patterns to accounting for sorting by age and changes in the probability of marriage by education level, as well as to different measures of assortative mating.

Figure 9: Wealth and Income Ratios: College/Non-College



Notes: The graph shows the ratio of college to non-college wealth (black line) and income (gray dashed line) over time, relative to its level in 1971.

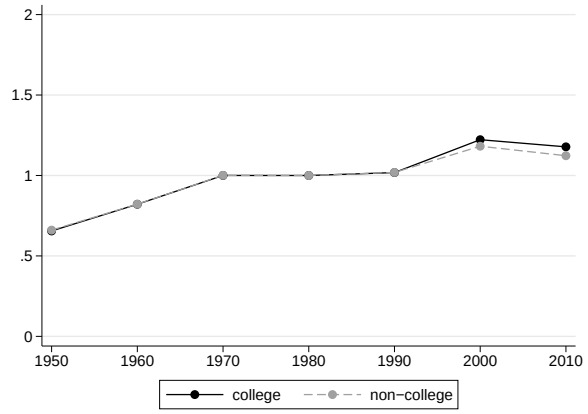
regression:

$$W_{it} = \beta_0 + \beta_1 c_{it} + \sum_{t>1956} \beta_{2,t} \mathbb{I}_{[year=t]} \cdot c_{it} + \sum_{t>1956} \beta_{3,t} \mathbb{I}_{[year=t]} + \Gamma' X_{it} + \xi_{it} \,. \tag{2}$$

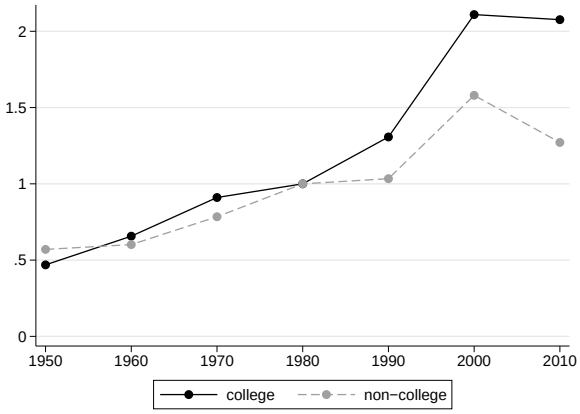
W_{it} denotes wealth of household i in survey wave t, $\mathbb{I}_{[year=t]}$ are survey wave fixed effects for $t \in \{1959, 1962, ..., 2016\}$, and c_{it} is an indicator for whether the head has a college degree. The control vector X_{it} includes total household income, a full set of age dummies,

Figure 10: Middle-Class Wealth and Income Levels by Decade

(a) Middle-Class Income

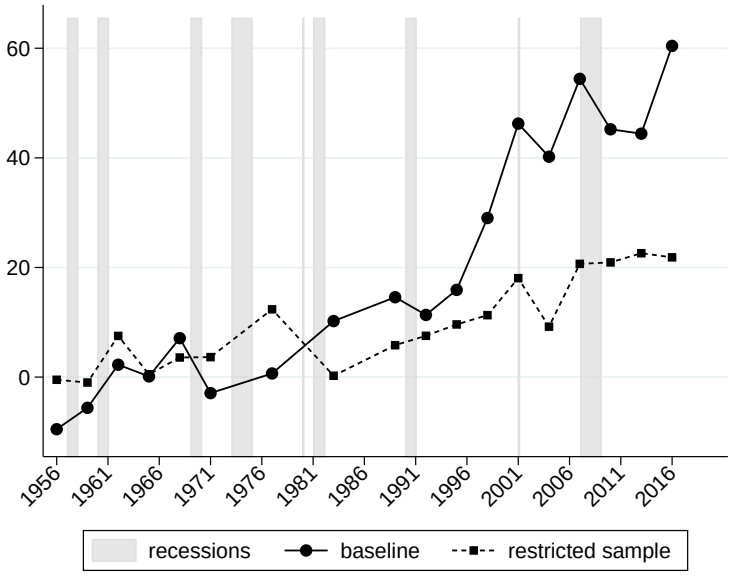


(b) Middle-Class Wealth



Notes: The figure shows average income and wealth for households from the 50-90% of the aggregate *income* distribution by education. Data were averaged across decades, and normalized to the 1980s.

Figure 11: Regression Evidence



Notes: The graph shows the advantage of having a college degree ($\beta_1 + \beta_{2,t}$) over time. The solid line with dots refers to the baseline in (2). The dashed line with squares presents the results for a restricted sample including only households from the 50-90% of the aggregate income distribution. The shaded gray areas show NBER recessions.

a dummy for whether the household includes children, and an indicator for whether the head is married.

As a baseline specification, we estimate this regression on the entire sample. As a robustness check, we also estimate it on a restricted sample that is limited to households in the 50-90% group of the aggregate income distribution. This restriction can be interpreted as an additional non-parametric way of controlling for income.

Figure 11 illustrates the results, and the underlying coefficient estimates are summarized in Table B.3. The college wealth effect ($\beta_1 + \beta_{2,t}$) is clearly visible from the 1980s on. The figure also illustrates that college wealth tends to be hit more severely in recessions, which tend to reduce the college wealth premium.

For the middle-class income sample, the college wealth effect is smaller in size, but still clearly visible since the 1980s. Indeed, the college wealth effect is strongest for the top 10% of the income distribution, but also visible for the bottom 90% (see Figure A.3). By contrast, the college income effect is much smaller, and entirely driven by the top 10% of the aggregate income distribution.[11]

[11] A possible explanation for the heterogeneity of the college income premium is offered by Eika et al. (forthcoming), who demonstrate with Norwegian data that the income premium varies substantially across different fields of study.

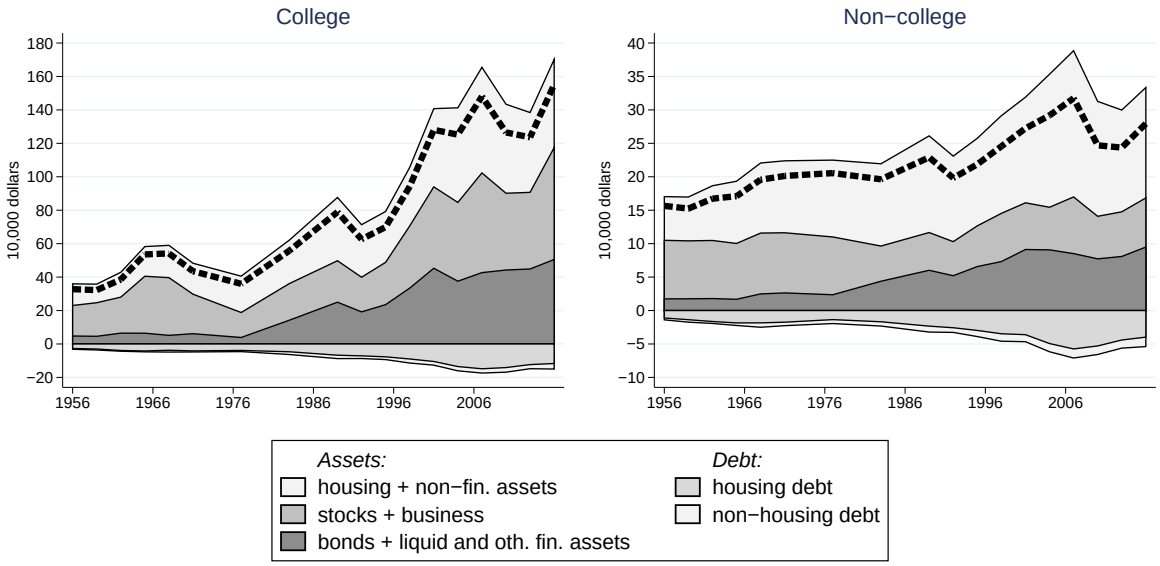
4.1 Portfolio heterogeneity

In workhorse models of wealth inequality following the early work of Huggett (1993) and Aiyagari (1994), wealth growth depends on the amount of savings, so that changes in income inequality translate into changes in wealth inequality. However, it is a well-established fact that wealth inequality exceeds income inequality. Economic theory highlights the role of bequests, entrepreneurship and differential returns on assets to explain this finding (see e.g. Cagetti and De Nardi 2008, De Nardi and Fella 2017, Benhabib et al. 2017). Kuhn et al. (2018) provide further empirical substance to the important role of differences in portfolio choice and associated returns. They illustrate how differences in household portfolios along the wealth distribution, combined with differential asset price growth, can lead to a "decoupling" of the growth of income and wealth.

The SCF+ data allow us to examine the portfolio composition of households along educational lines. Figure 12 illustrates that the average portfolios of college and non-college households do not merely differ in size, but also in composition. In particular, the share of non-financial assets is substantially larger for non-college households. Table B.2 in the Appendix shows that this high share is mainly accounted for by housing. For instance, the housing portfolio share of non-college households was 50.9% in 2007, compared to 35.6% for households with a college-educated head. In 2016, these shares had slightly decreased to 43.6% and 28.8%. By contrast, college households tend to hold larger shares of business wealth and equity than non-college households.

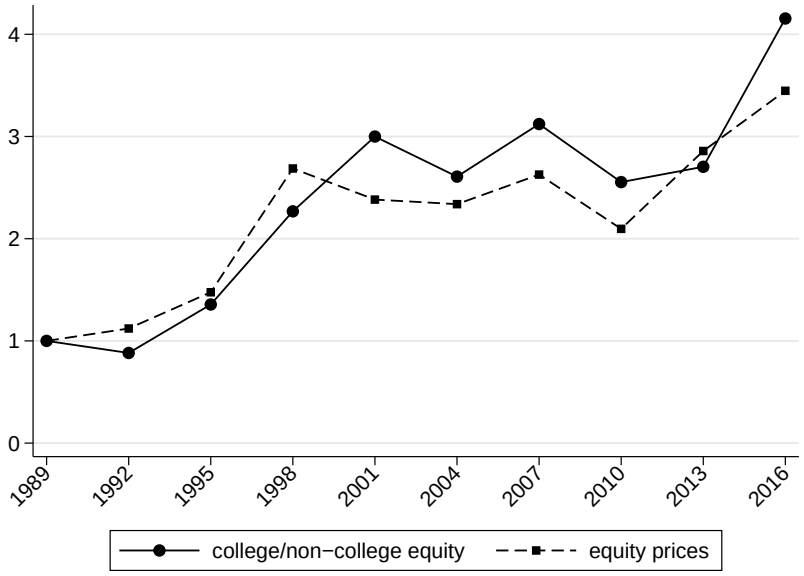
Kuhn et al. (2018) show how portfolio differences give rise to differential exposure to asset

Figure 12: Portfolio Shares of College and Non-College Households



Notes: The left panel shows the portfolio composition of college households over time. The right panel shows the portfolio composition of non-college households. Housing includes non-residential real estate. Stocks include mutual fund holdings.

Figure 13: Stock Market Exposure and Equity Prices



Notes: The solid line with dots shows the ratio of average college to non-college equity. The dashed line with squares shows the average stock price from the Macrohistory database, transformed to 2016 dollars. Both series were indexed to 1989. Stocks include mutual fund holdings.

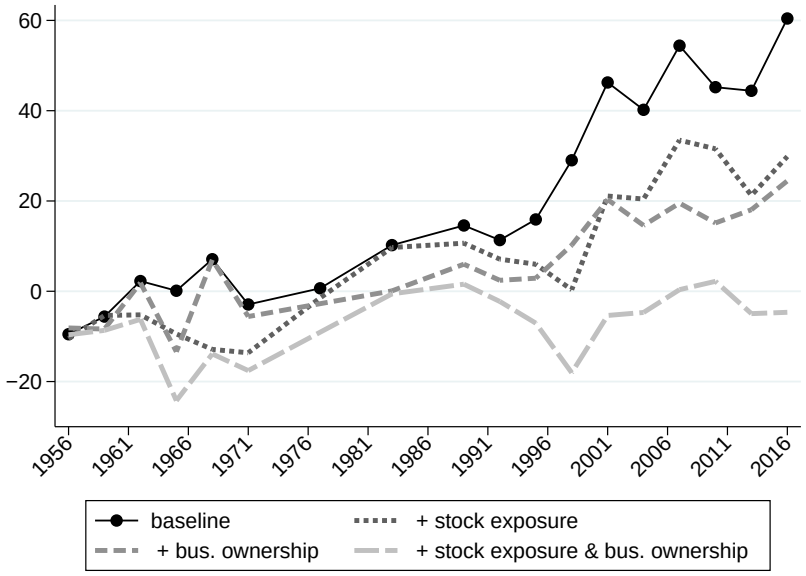
price changes. In the case of college households, their higher equity portfolio share allowed them to reap higher capital gains during the stock price boom of the past 30 years. Figure 13 shows that real equity prices, taken from the Macrohistory Database, have tripled since 1989. The figure also illustrates that the increase in stock prices has moved hand in hand with the ratio of college to non-college equity holdings over this period.

As capital gains from asset price changes are unrelated to the development of income, they can help to explain why the college wealth gap has widened substantially more than the college income gap. Indeed, the estimated college wealth advantage is reduced when we control for stock market exposure in our micro regressions (see Figure 14). We measure stock price exposure via the portfolio share of equity s^e and the real average equity price P^e, included in levels, interacted with each other, and interacted with college. More precisely, we estimate the following regression:

$$W_{it} = \beta_0 + \beta_1 c_{it} + \sum_{t>1956} \beta_{2,t} \mathbb{I}_{[year=t]} \cdot c_{it} + \sum_{t>1956} \beta_{3,t} \mathbb{I}_{[year=t]} + \beta_4 s^e_{it} + \beta_5 s^e_{it} \cdot c_{it} + \beta_6 s^e_{it} \cdot P^e_t + \beta_7 s^e_{it} \cdot P^e_t \cdot c_{it} + \Gamma' X_{it} + \epsilon_{it} \,. \quad (3)$$

Figure 14 shows that controlling for stock price exposure reduces the college wealth premium substantially, especially during the stock market booms in the 1960s and since the 1990s. The high correlation of college to non-college equity growth with stock price growth since the 1990s stock market boom, together with the micro-level regression evidence, suggests that differential stock market exposure via direct stock and mutual fund holdings played a key role for the rapid increase in the college wealth premium since the

Figure 14: Controlling for Stock Market Exposure



Notes: The graph shows the advantage of having a college degree ($\beta_1 + \beta_{2,t}$) over time. The solid line with dots repeats the baseline from (2) as a reference. The short-dashed, dark gray line presents the results for regression (3), the dashed, dark medium line presents the results for regression (4), and the long-dashed, light gray line includes the additional controls from both (3) and (4).

1980s.

4.2 Business ownership

While stock price exposure can account for an important share of the observed college wealth premium, there still remains an unexplained wealth growth differential between college and non-college households. In a second step, we therefore ask which role business ownership played for the observed trends. Motivated by the fact that business wealth has gained importance in the portfolio of college households in recent years, and that business assets, just like equity, are an asset class which is primarily held by the top 10% of the aggregate wealth distribution (Kuhn et al. 2018), we look at the effects of controlling for business ownership.

In (3), we included the portfolio share of equity and mutual funds. Fagereng et al. (2018) point out that entrepreneurial skills may affect the whole portfolio via differential returns. Therefore, we include a more general dummy for business ownership, bus_{it}, instead of the portfolio share of business wealth in this specification. Since there is no general market price for business assets, we interacted it with year fixed effects to allow for variation

across time. Apart from these slight changes, the specification follows that in (3):

$$W_{it} = \beta_0 + \beta_1 c_{it} + \sum_{t>1956} \beta_{2,t} \mathbb{I}_{[year=t]} \cdot c_{it} + \sum_{t>1956} \beta_{3,t} \mathbb{I}_{[year=t]} + \beta_4 bus_{it} + \beta_5 bus_{it} \cdot c_{it} + \sum_{t>1956} \beta_{6,t} \mathbb{I}_{[year=t]} \cdot bus_{it} + \sum_{t>1956} \beta_{7,t} \mathbb{I}_{[year=t]} \cdot bus_{it} \cdot c_{it} + \Gamma' X_{it} + \varepsilon_{it} \,. \quad (4)$$

The dashed, medium gray line in Figure 14 shows the resulting coefficients β_1 and $\beta_{2,t}$. Moreover, we estimate a specification of the regression in which we include the additional controls from (3) and (4) jointly. This specification is shown as the long-dashed, light gray line in Figure 14. The estimations suggest that also business ownership has contributed to the widening of the college wealth gap. Yet our regressions only show conditional correlations, and cannot lay claim to causality. In the following section, we will discuss potential underlying mechanisms for the observed correlations.

5 Financial literacy and returns on wealth

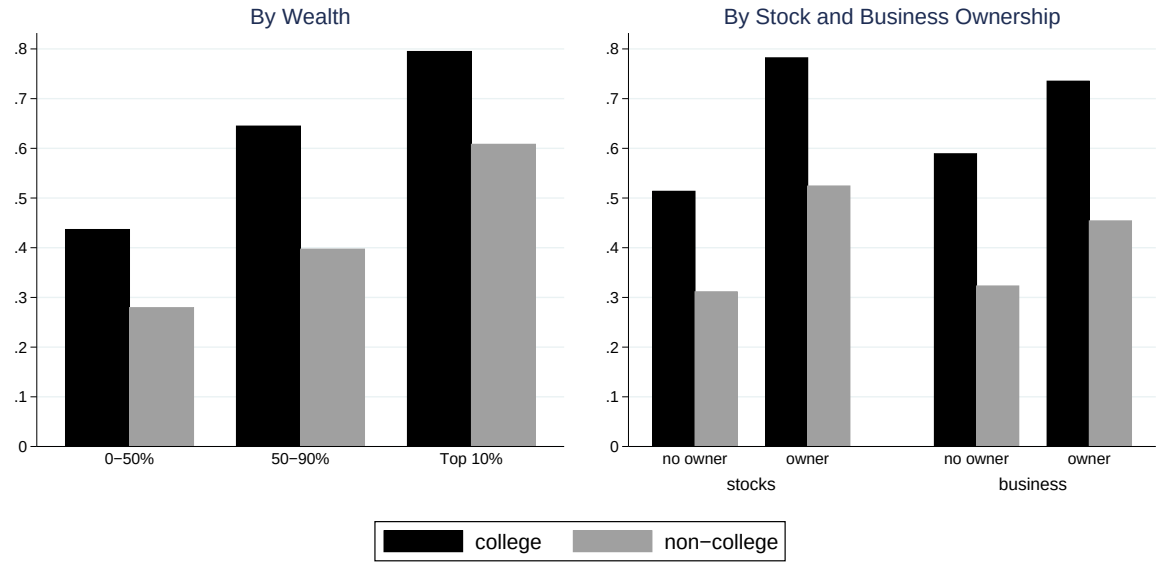
Our results suggest stock market exposure and business ownership as driving forces for the rise of the college wealth premium. In the following, we will explore potential reasons why these factors are important, pointing to promising directions for future research. In particular, we will ask which role financial literacy plays for portfolio composition and for differential returns on wealth.

5.1 Financial literacy and portfolio composition

One reason why college households hold different assets may be financial literacy. Previous research has consistently established that higher educational attainment is associated with higher levels of financial literacy (see Lusardi and Mitchell 2011, Lusardi and Mitchell 2014, Lusardi et al. 2017).[12] Higher financial literacy can, for example, affect wealth growth through portfolio composition. Typically, financial literacy is measured via three questions that elicit the understanding of interest compounding, inflation, and risk diversification (see Lusardi and Mitchell 2011). Since the 2016 wave, these questions are also part of the SCF. The left part of Figure 15 shows the share of households who answered all three questions correctly, stratified by wealth and education. The figure reveals that financial literacy increases with wealth, and is clearly higher for college than for non-college households in all wealth groups. Moreover, the right part of Figure 15 shows that stock owners do on average have a higher level of financial literacy than non-owners. The same is true for business owners.

[12] Lusardi et al. (2017) demonstrate that this can actually be an individually optimal outcome, as households with different levels of education have different life-cycle income paths, which entail different incentives to save. Given that financial knowledge helps to earn higher returns on savings, this creates different incentives to invest in financial literacy.

Figure 15: Financial Literacy



Notes: The left panel shows the share of households who answered all three questions on financial literacy correctly in the 2016 SCF by education and wealth group. The right panel shows this share stratified by stock and business ownership instead of wealth.

In a study of Dutch household survey data, Von Gaudecker (2015) shows that low financial literacy leads to return losses due to under-diversification in financial assets (unless households seek financial advice). Indeed, the question on risk diversification is the financial literacy question which respondents find most challenging across a wide range of countries (see Lusardi and Mitchell 2014). In the 2016 SCF, the difference between college and non-college households is most pronounced for the risk diversification question, with an average share of correct answers of 75.9% for college and 55.9% for non-college households.[13] Moreover, while we have only looked at direct stock market exposure, this may also impact indirect exposure via pension plans. Lusardi et al. (2017) stress the heightened importance of financial literacy in the U.S. due to the movement from defined benefit to defined contribution plans, such as 401(k)s. This transition has started in the 1980s, coinciding with the timing of the widening college wealth premium.

To explore the role of financial literacy, we estimated a regression analogous to the baseline in (2) for 2016. When we included the SCF financial literacy measure (which equals one if all three questions were answered correctly, and otherwise zero), as well as its interaction with the college indicator, the estimated college effect was reduced by around 40%. Yet this result is only suggestive. Further research is necessary to investigate the robustness of the finding and potential transmission mechanisms.

[13]The corresponding share for the question on interest compounding are 86% and 73%, and for the question on real interest rates 86.7% and 72.9%.

5.2 Returns on wealth

College education might affect wealth accumulation not only through its effect on portfolio allocation to different asset classes. A second channel could be that college households earn higher returns *within* a given asset class, as they are savvier in picking investments with high returns or low fees. Fagereng et al. (2018) demonstrate that persons with higher levels of education, and especially those with an economics-related college degree, earn higher returns on their wealth and financial assets even *conditional on* portfolio composition. This suggests that our estimate of the effect of differential asset price exposure from section 4 might be conservative, given that we applied the average rate of return on stocks for all households.

Apart from financial savvy, Fagereng et al. (2018) also point to entrepreneurial skills as a source of differential returns. Moreover, borrowing constraints can induce entrepreneurs to save substantial amounts and thus become very wealthy (Cagetti and De Nardi 2006). There is evidence that business ownership is associated with higher education (see e.g. Hurst and Lusardi 2004). Consistently, the share of business owners in the SCF+ is higher among college households than among non-college households in all waves (and conversely, the share of college households is disproportionately high among business owners).

Fagereng et al. (2018) use administrative individual-level data from Norway to construct a measure of returns to financial wealth. To this end, they add income from save and risky assets, and divide it by the average stock of financial and business assets.[14] Due to the panel structure of their data, they can use the average of beginning- and end-of-period assets as the denominator, in order to account for changes in the stock of assets over the current period. This is not possible with the SCF, as it consists of repeated cross sections. Moreover, income is reported for the year previous to the survey year.

For these reasons, a similar measure constructed from SCF data is likely to include more measurement error. Keeping this in mind, we construct an analogous proxy for returns based on the modern SCF data, which include detailed information on different components of income.[15] For the numerator, we used information on income from farming and business, income from other businesses, rents, trusts or royalties, income from non-taxable investments such as municipal bonds, dividend income, capital gains and losses, and other interest income. For the denominator, we added the amount of stocks, liquid assets and

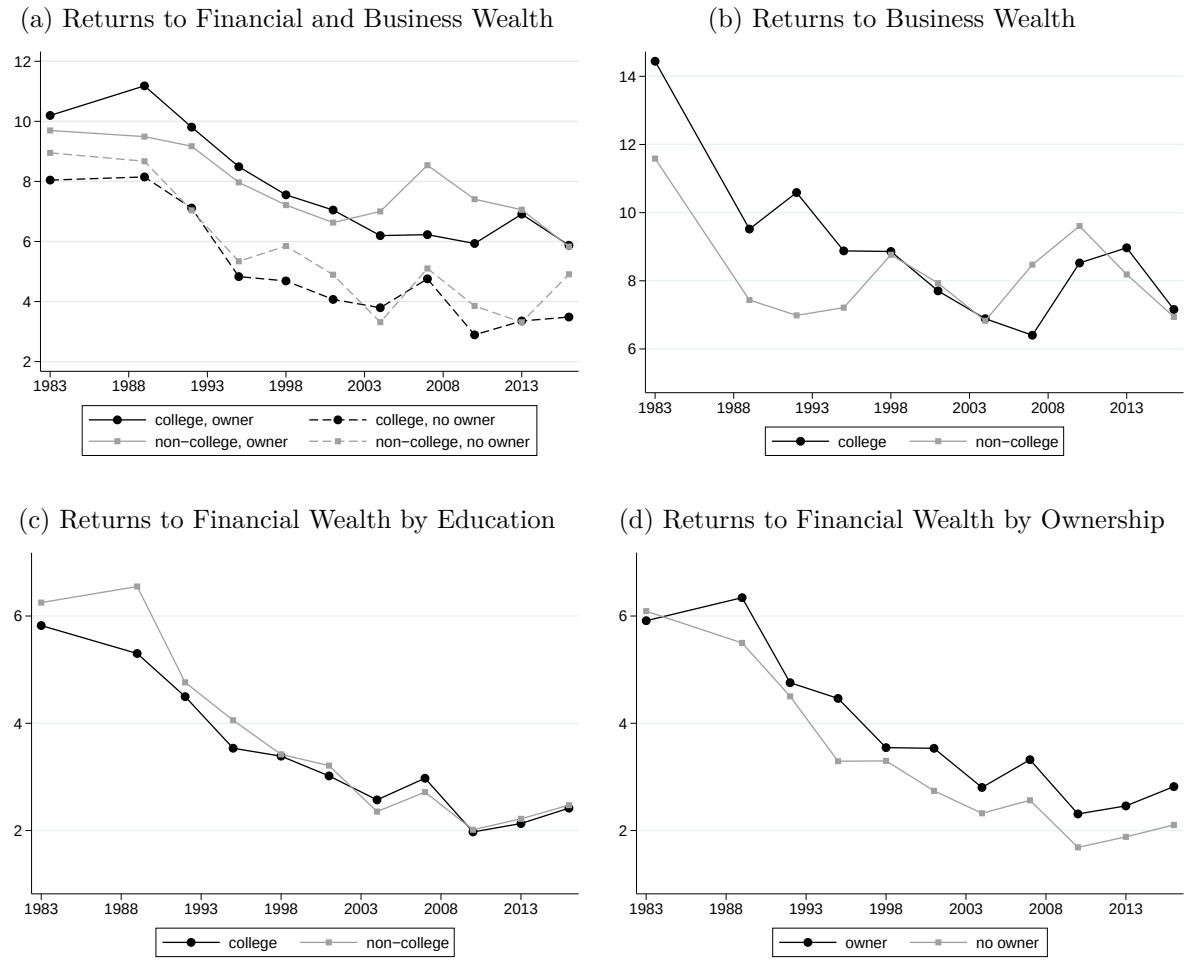
[14] They consider the following income components: interest income earned on bank deposits and bond yields, yields from risky assets held abroad and outstanding claims and receivables, yields from mutual funds, yields from directly held listed shares (dividends and accrued capital gains), yields from all private equity holdings (distributed dividends and the individual share of retained profits). Financial wealth includes bank deposits, money market funds, bond mutual funds, government and corporate bonds, stocks and mutual fund shares, the value of shares in private businesses and other unlisted shares, and the value of risky assets held abroad and of outstanding claims and receivables.

[15] Fagereng et al. (2018) also construct a proxy for returns to net worth. As this measure requires information on interest payments on all debt, which is so far neither included in the SCF+ nor the readily available extracts of the modern SCF, we decided to focus on returns to financial and business wealth.

certificates of deposit, bonds, mutual funds, other managed and financial assets, the cash value of life insurances, defined contribution pension wealth, and business wealth.

Fagereng et al. (2018) exclude persons with less than 500 dollars in financial wealth, and winsorize the bottom and top 0.5% of the returns distribution. We also drop households with less than 500 dollars in financial wealth, and drop returns below the 0.5th and above the 95th percentile. The larger trimming region at the top was chosen to take into account that we only observe wealth at one point in time, and with a certain lag compared to income. If a household sold most of its financial assets in the year prior to the survey, it would have had a high capital income in that year, and a relatively low amount of financial assets when surveyed, which would lead to an upward bias in the returns proxy. As Fagereng et al. (2018) report that their results are insensitive to applying an age limit of 20 to 75 years, we include households of all ages. Like them, we use real variables before taxes.

Figure 16: Returns to Financial and Business Wealth



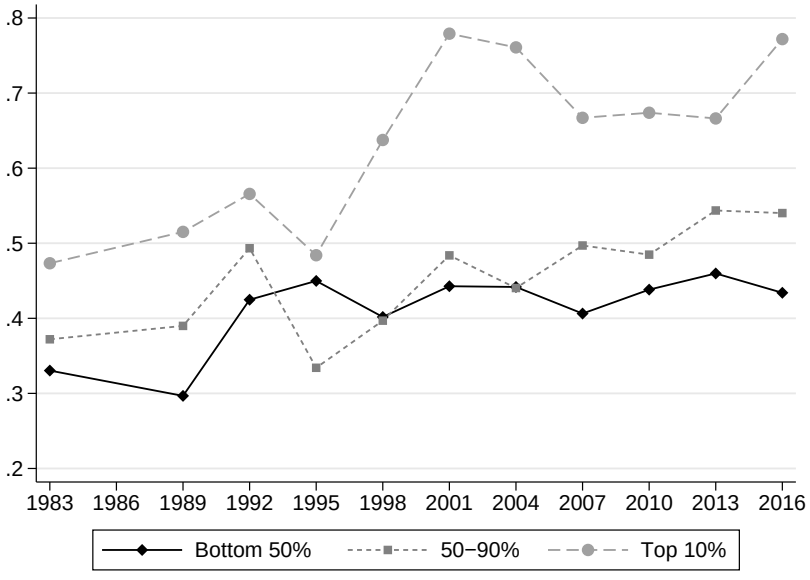
Notes: The upper left panel shows the proxy for returns to financial and business wealth by education and business ownership status. The upper right panel presents a similar proxy for business wealth only, stratified by education. The lower left panel presents analogous results for a proxy based on financial wealth only. The lower right panel presents the latter measure by business ownership status instead of education. See text for additional details.

The results are presented in Figure 16a. On average, business owners earn higher returns on their financial assets than non-owners. However, the difference between college and non-college households is limited. Figure 16b presents a similar returns proxy for business wealth only, i.e., with income from farming, business, other businesses, rents, trusts or royalties in the numerator, and business wealth in the denominator. While college households had higher returns to business wealth as measured by the proxy until the mid 1990s, the advantage disappears afterwards, and is even reversed after 2004.

The same comparison for financial wealth is presented in Figure 16c, using the complementary set of income measures in the numerator. Importantly, there is no advantage for college households with respect to this measure, and even a disadvantage in the 1980s. Finally, Figure 16d shows the proxy for returns to financial wealth by business ownership status instead of education. Apparently, business owners earn slightly higher returns on their non-business wealth as well, in line with the hypothesis of Fagereng et al. (2018) that entrepreneurs' "talent to manage and organize their business" (p. 5) enables them to generate higher returns in general.

However, while our return proxies are necessarily coarse due to the measurement issues described above, it appears that the return differences between college and non-college households are small. Yet it is important to keep in mind that a similar rate of return can translate into large level differences if the difference in the underlying asset values is large. Figure 17 shows the share of college households in the bottom 50%, middle 50-90% and top 10% of the business wealth distribution, conditional on owning a business. The college share is particularly high in the top 10% group, and has increased from slightly

Figure 17: College Business Ownership



Notes: The figure shows the share of college households in the bottom 50%, middle 50-90% and top 10% of the business wealth distribution (conditional on owning a business).

below 50% to almost 80% between 1983 and 2016.

Based on the existing literature and our explorative results presented in this section, it seems plausible that the interaction of educational attainment, financial literacy, and business acumen has played an important role in shaping the differential development of college as opposed to non-college wealth. However, portfolio composition, not differential returns between college and non-college households in the same asset class, appear to play the dominant role.

6 Conclusion

This paper documents the evolution of U.S. college and non-college income and wealth over six decades using newly compiled long-run household-level data. We corroborate that the college income premium has increased substantially since the 1980s. Yet though the college income premium is large, the college wealth premium has risen even more than the income premium. Since the 1980s, college households have outpaced non-college households by a factor of 2.5 in terms of wealth growth. We provide evidence that especially households with two college-educated spouses could appropriate large amounts of wealth. However, we confirm previous evidence that this is not related to assortative mating, but rather to rising educational attainment.

We find that portfolio choices and the resulting exposure to asset price changes played a crucial role for the observed trends. Using the asset information in the SCF+, we uncover systematic differences in the size and composition of college versus non-college household portfolios. Building on insights from previous research, we study the combined role of portfolio choices and asset price changes for the evolution of the wealth distribution. Our results suggest that college households could reap large capital gains from stock market booms owing to the higher equity share in their portfolios. This explanation is consistent both with the fact that college wealth grew faster than non-college wealth, and that college wealth grew faster than college income, since capital gains from asset price changes are not related to income. Moreover, we provide suggestive evidence that the increase in the college wealth premium is related to business ownership.

In the last part of the paper, we discuss potential reasons for the importance of differential asset price exposure and capital gains such as financial literacy and entrepreneurial skills. Both can affect wealth accumulation via portfolio choice and differential returns. These factors also interact with institutional features such as the change from defined benefit to defined contribution pension plans. Further research will be needed to disentangle different hypotheses for the rising college wealth premium and establish causal relationships.

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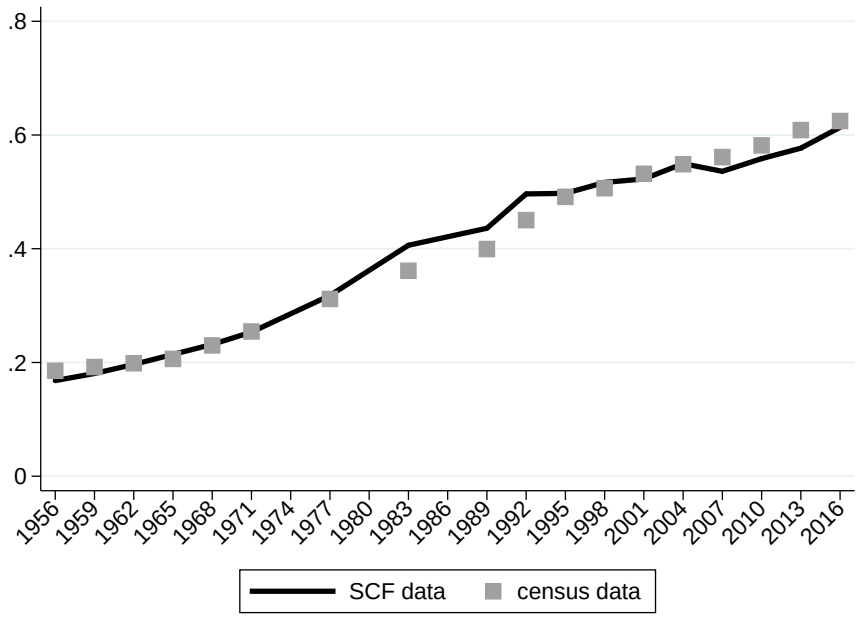
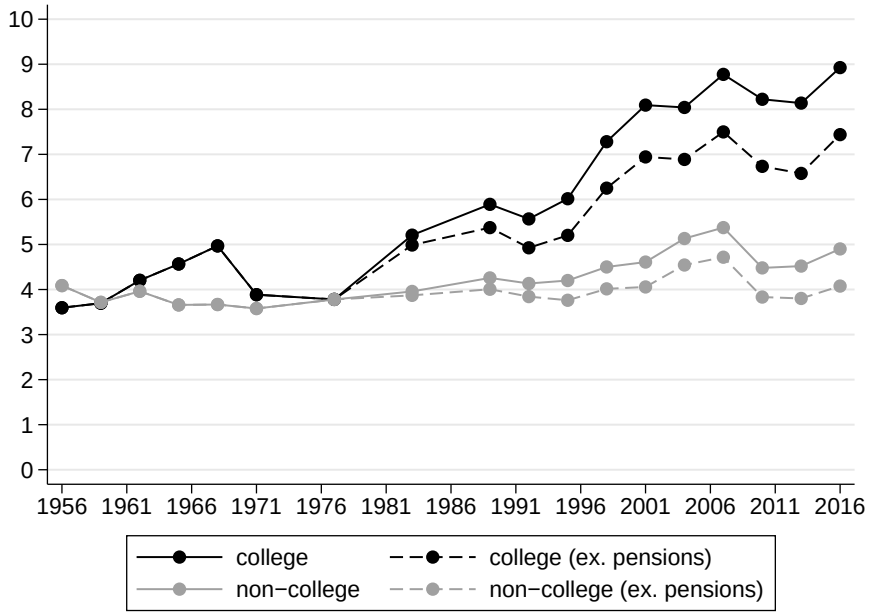
A Supplementary Figures

Figure A.1: Comparison to Census Data



Notes: The figure shows the share of households whose head has at least obtained some college education in the SCF+ data in comparison to the share obtained from the U.S. Current Population Survey (CPS) for the period from 1962 to 2016 and from the U.S. Decennial Census for 1950 and 1960. Intermediate data points were obtained by linear interpolation.

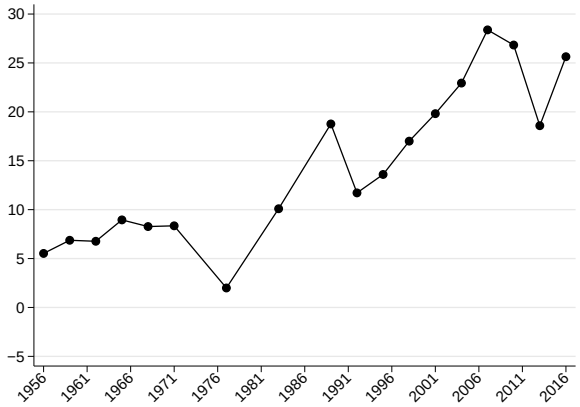
Figure A.2: Wealth-to-Income Ratios Excluding Pensions



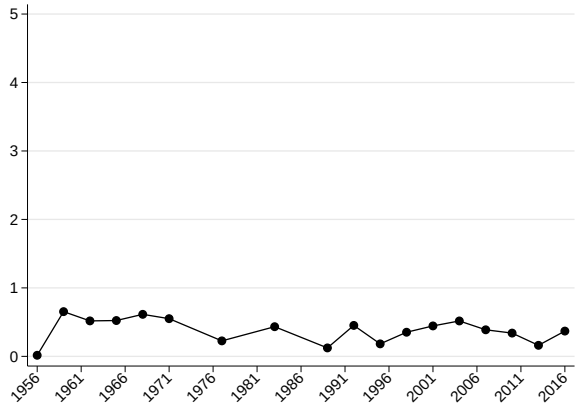
Notes: The figure shows the ratio of average net wealth to average income among households with and without a college-educated head over time. The solid lines replicate the baseline from Figure 3 for comparison. The dashed lines show average net wealth net of pensions relative to average income.

Figure A.3: Regression Coefficients: Advantage of College Within Income Groups

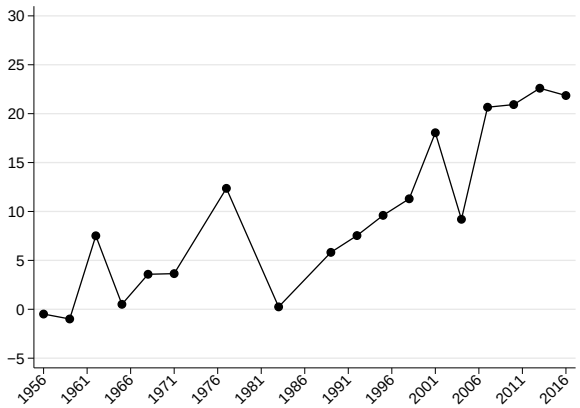
(a) Wealth Bottom 50%



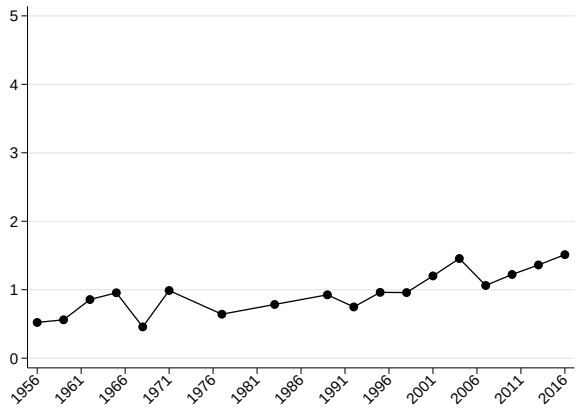
(b) Income Bottom 50%



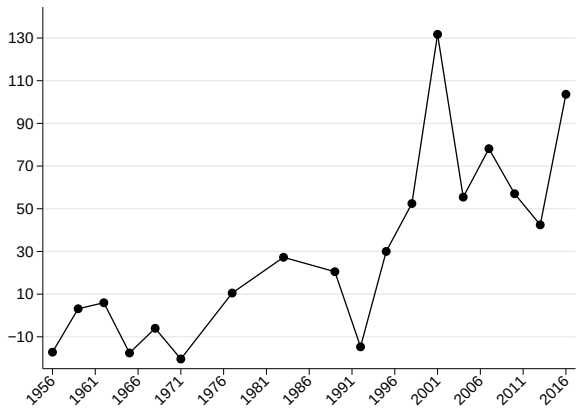
(c) Wealth 50-90%



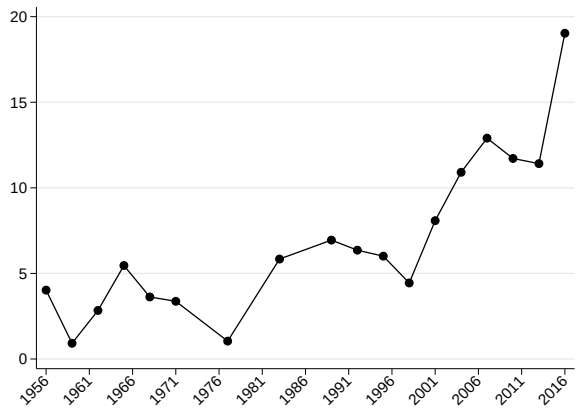
(d) Income 50-90%



(e) Wealth Top 10%



(f) Income Top 10%



Notes: The figure shows the advantage of having a college degree ($\beta_1 + \beta_{2,t}$) within the bottom 50%, 50-90% and top 10% of the aggregate income distribution over time. The dependent variable is wealth for the left panels and income for the right panels.

B Supplementary Tables

Table B.1: Comparison of Households with College versus Some College

year	1956			1959		
college status	some college	college	% Δ	some college	college	% Δ
liquid assets + bonds	41535.5	47900.0	15.3	36776.2	46037.6	25.2
houses	103254.8	119419.9	15.7	93663.8	105381.8	12.5
other nonfin. assets	9079.2	10021.2	10.4	5538.6	5741.3	3.7
housing debt	23709.2	26736.1	12.8	25636.5	30050.4	17.2
non-housing debt	4471.3	4920.0	10.0	5440.8	5783.0	6.3
total income	76019.3	90456.7	19.0	74127.8	87215.9	17.7

Notes: The college status is college for households whose head has obtained at least a bachelor's degree, and some college for those whose head has at least attended college for a year. The columns "% Δ" show the difference between the two groups in percent.

Table B.2: Portfolio Shares Non-College

year	oth. non-fin. ass.	housing	business	equity	liq. ass.+ bonds	oth. fin. ass.
(a) college						
1956	3.1	35.3	35.0	16.4	10.2	-
1965	2.7	45.4	21.8	21.4	8.7	-
1977	4.1	47.0	33.5	4.8	10.5	0.1
1989	6.3	49.0	17.7	3.9	12.2	10.9
1998	6.2	43.9	14.1	10.7	8.2	16.9
2007	5.4	50.9	15.9	5.9	5.9	16.0
2016	6.0	43.6	15.9	6.1	6.1	22.3
(b) non-college						
1956	2.8	33.2	27.2	23.4	13.3	-
1965	1.0	29.4	36.4	22.0	11.1	-
1977	3.3	50.2	18.8	18.0	9.5	0.1
1989	4.3	38.9	19.5	8.8	10.0	18.6
1998	3.5	29.6	18.6	16.6	6.7	25.0
2007	2.6	35.6	21.5	14.6	6.1	19.7
2016	2.2	28.8	20.5	18.9	6.6	23.1

Notes: The table shows the portfolio shares of other non-financial assets, housing, business assets, equity, liquid assets and bonds, as well as other financial assets for college and non-college households over time. Stocks include mutual fund holdings.

Table B.3: Regression Results: College Effect ($\beta_1 + \beta_{2,t}$) by Year

year	baseline		restricted sample		+ stock exposure		+ bus. ownership		+ stock & bus.	
1956	−9.51**	(0.031)	−0.49	(0.767)	−10.49**	(0.013)	−8.12*	(0.054)	−9.63**	(0.016)
1959	−5.61	(0.214)	−0.99	(0.525)	−5.35	(0.233)	−8.37**	(0.022)	−8.66**	(0.016)
1962	2.26	(0.717)	7.51	(0.203)	−5.22	(0.359)	1.88	(0.719)	−6.21	(0.194)
1965	0.12	(0.992)	0.51	(0.780)	−9.44	(0.470)	−13.38	(0.151)	−24.23***	(0.006)
1968	7.10	(0.359)	3.58	(0.118)	−12.87**	(0.037)	6.98	(0.342)	−13.87**	(0.015)
1971	−2.92	(0.578)	3.64	(0.284)	−13.62***	(0.005)	−5.59	(0.188)	−17.57***	(0.000)
1977	0.66	(0.911)	12.37	(0.243)	−1.47	(0.802)	0.00***	(0.000)	0.00***	(0.000)
1983	10.23**	(0.026)	0.25	(0.879)	9.70**	(0.029)	0.09	(0.976)	−0.57	(0.846)
1989	14.58**	(0.016)	5.82*	(0.092)	10.66*	(0.063)	6.00	(0.153)	1.57	(0.690)
1992	11.34***	(0.010)	7.54***	(0.000)	7.11*	(0.075)	2.43	(0.449)	−2.26	(0.429)
1995	15.91***	(0.001)	9.60***	(0.000)	5.99	(0.159)	2.89	(0.439)	−7.05**	(0.029)
1998	29.02***	(0.000)	11.30***	(0.000)	0.34	(0.943)	10.23**	(0.018)	−18.05***	(0.000)
2001	46.26***	(0.000)	18.05***	(0.000)	21.10***	(0.001)	20.32***	(0.000)	−5.35	(0.256)
2004	40.21***	(0.000)	9.20**	(0.011)	20.44***	(0.001)	14.59***	(0.003)	−4.69	(0.246)
2007	54.41***	(0.000)	20.66***	(0.000)	33.46***	(0.000)	19.53***	(0.000)	0.36	(0.937)
2010	45.21***	(0.000)	20.93***	(0.000)	31.55***	(0.000)	15.13***	(0.003)	2.20	(0.602)
2013	44.42***	(0.000)	22.60***	(0.000)	21.25***	(0.000)	18.07***	(0.000)	−4.95	(0.198)
2016	60.43***	(0.000)	21.85***	(0.000)	29.86***	(0.000)	24.46***	(0.000)	−4.65	(0.282)
N	89545		34220		86392		89545		86392	
R^2	0.246		0.118		0.252		0.261		0.267	

Notes: The dependent variable is net wealth. The controls include survey wave fixed effects, total household income, a full set of age dummies, a kids dummy, and an indicator for marital status. The "baseline" columns refer to the specification in (2), and "restricted sample" presents the same regression for the middle 50-90% of the aggregate income distribution. The specification "+ stock exposure" includes the additional controls from (3), "+ bus. ownership" includes the additional controls from (4), and "+stock & bus." includes the additional controls from both (3) and (4). Multiply imputed observations were averaged for the regressions. p-values are given in parentheses (* p<0.1, ** p<0.05, *** p<0.01).