



# *Educational Attainment and Earnings Inequality among US-Born Men*

## *A Lifetime Perspective*

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## Introduction

Since the onset of the Great Recession over six years ago, restoring full employment has been the most urgent labor market priority. As the economy slowly recovers, long-term labor market challenges will receive renewed attention. Among the most significant is the growing earnings divide between different types of workers and the potential role of education in providing greater economic security.

This report takes advantage of a novel dataset, which tracks individuals over time, to better understand the historical relationship between education and earnings. Using survey data linked to longitudinal administrative earnings records, we follow a large, representative sample of men born in the United States between 1940 and 1974 over the course of their careers.<sup>1</sup> We examine how earnings inequality for these men has evolved over time with a particular emphasis on earnings differences by level of educational attainment, age, and year of birth. We also compare inequality as measured on an annual and lifetime basis. Lifetime earnings measures may be a better indicator of wellbeing in the long-run. They are also relevant for policy discussions surrounding the value of promoting higher education. Our analysis yields several important findings:

- **When you are born matters.** While it is generally well understood that male earnings inequality overall rose substantially beginning in the late 1970s, different cohorts of men experienced these changes in very different ways. For example, for those born between 1950 and 1954, the gap in earnings between the typical high school and college graduate was \$29,000 at age 47.<sup>2</sup> For those born just five years later, the gap at age 47 had grown to \$42,000—an increase of over 40 percent.
- **The trajectory of earnings inequality has shifted.** Among men born in the early 1940s, the college–high school earnings gap peaked at age 50 around \$31,000. In contrast, the earnings gap for those born between 1970 and 1974 is already as high at age 32.
- **The increase in earnings inequality reflects both absolute gains for highly-educated workers and absolute losses for lower-educated workers.** The growth in the college–high school earnings gap across cohorts reflects a symmetric increase in the level of earnings for college graduates and a decrease in earnings for high school graduates. Comparing the 1940–44 and 1965–69 birth cohorts in their mid 40s, college graduates’ median earnings rose from \$69,000 to \$78,000. Across the same cohorts, high school graduates’ median earnings fell from \$43,000 to \$33,000.
- **The biggest winners are those with advanced degrees.** Comparing the same cohorts as above, median earnings for those in their mid 40s with more than a college degree rose from \$75,000 to \$103,000—more than three times the increase than for those with just a four-year degree. Analyses that group college degree and advanced degree holders together will overstate the payoff to a four-year degree alone.
- **Across cohorts, there is virtually no change in earnings for those with some college but less than a four-year degree.** While earnings do rise with age for those with some college, the median earnings for workers in their mid 40s barely changed across cohorts—falling from \$48,000 to \$47,000.
- **Across cohorts, lifetime earnings inequality has increased more than annual earnings inequality.** Annual earnings inequality accumulates over workers’ careers. For example, the annual college–high school earnings premium more than doubled for workers in their mid 40s. But the cumulative earnings gap (earnings accumulated from age 18 through mid 40s) more than quadrupled.
- **Earnings inequality experiences also changed greatly *within* education groups.** Earnings inequality among workers with a given level of educational attainment increased substantially, although less so than the rise in inequality between education groups. The timing of the rise in within-group inequality differs from the timing of the rise in between-group inequality. Particularly large increases in within-group inequality have occurred among high school graduates. This within-group increase occurs purely across cohorts; there is no increase in within-group inequality for a given cohort as a result of aging.

- **Given the growth in both within-group and between-group inequality, it remains unclear how advantageous it would be for more men to attend college.** Among the most recent birth cohorts examined, high-earning men with only high school diplomas still make more than a substantial fraction of those with some college and those with a four-year college degree. Comparisons of average outcomes for high school and college graduates may overstate the returns that marginal college students can expect.

There are a few limitations of our study. We do not examine changes in the very top of the earnings distribution, which have also been substantial and ongoing.<sup>3</sup> We also do not advocate one set of explanations for why earnings inequality has increased.<sup>4</sup> Lastly, although we extensively document the relationship between education and earnings, we do not claim to measure the *causal* effect of education on earnings.<sup>5</sup>

This report proceeds as follows. In the Data section, we summarize the data used in this report. In the following section, we describe patterns of annual earnings inequality across education groups. We then report analogous results for cumulative earnings inequality, followed by analysis of within-group inequality. We then discuss calculations of the lifetime value of a college degree before concluding.

## Data

The data from this report come from the US Census Bureau's Survey of Income and Program Participation (SIPP) merged with Social Security administrative earnings records. The SIPP is a series of nationally representative surveys that contain core demographic and labor market data as well as information on supplemental topics. Social Security earnings records provide comprehensive earnings histories from the 1950s through 2007. There are many advantages to combining survey and administrative data. First, we are able to follow SIPP respondents over the course of their careers without sample attrition, which eliminates the possibility of compositional changes within cohorts that would influence the results. Second, reporting errors in earnings that are common in survey data are largely absent from administrative records. Third, survey data provide information such as educational attainment that is generally not collected in administrative earnings records.

We focus on samples of men born in the United States between 1940 and 1974 and track earnings from the year they turn age 18 onward. We include years with zero earnings, which allows us to capture actual labor force patterns and highlights the tradeoff involved in the decision to forgo work to attend school full-time. We divide the sample of men into seven groups of five-year birth cohorts: 1940–44, 1945–49, 1950–54, 1955–59, 1960–64, 1965–69, and 1970–74. We define educational attainment for each individual as the highest degree ever earned with five possible categories (high school dropout, high school degree or GED, some college, four-year college degree, and advanced degree). All earnings numbers are adjusted for inflation using the personal consumption expenditures deflator and are expressed in 2010 dollars. More details on the construction of the sample can be found in the appendix.

Table 1 provides summary statistics for each of the seven birth cohorts. For those born between 1940 and 1944, the share with exactly a four-year college degree is 14 percent. For those born between 1970 and 1974, the share rises to 22 percent. However, across the same two birth cohort groups, the share with advanced degrees has actually fallen from 13 percent to 9 percent.<sup>6</sup>

**Table I. Distribution of Educational Attainment for US-Born Men**

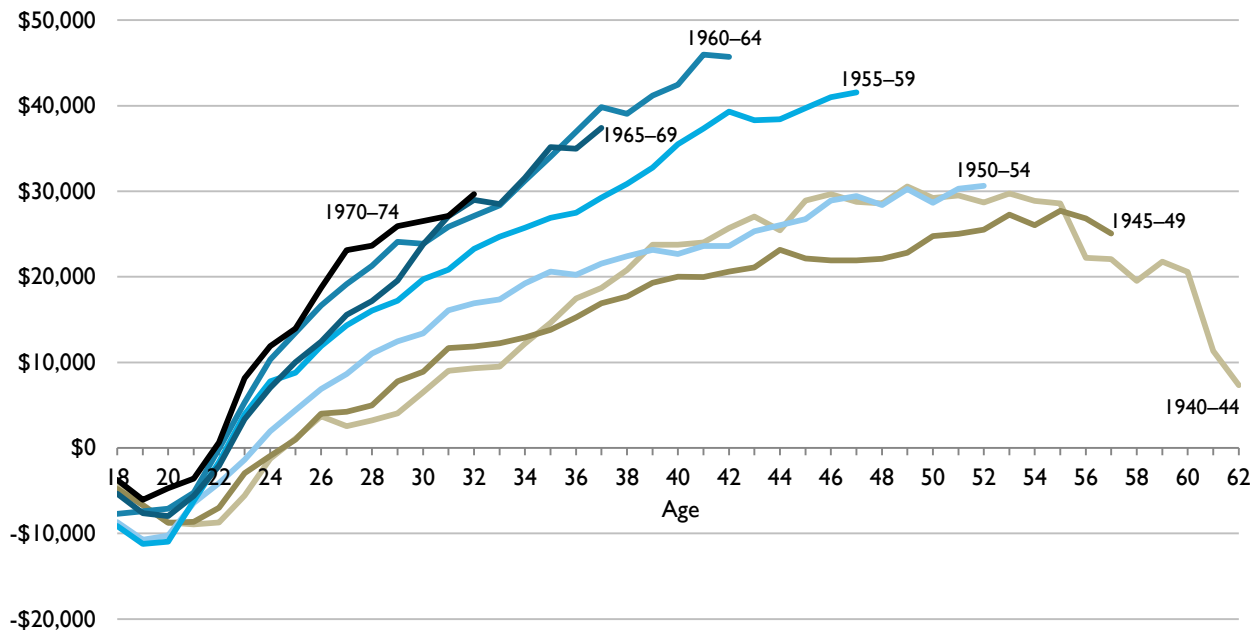
Birth cohort	High school dropout (%)	High school degree (%)	Some college (%)	College degree(%)	Advanced degree (%)	N
1940–44	16	34	23	14	13	3,800
1945–49	13	27	27	19	14	5,000
1950–54	9	31	30	20	10	5,700
1955–59	10	37	28	17	8	6,100
1960–64	10	34	32	18	6	4,000
1965–69	7	25	34	24	10	3,600
1970–74	5	23	41	22	9	2,000

Notes: Data from matched SIPP-SSA panels 1990–93, 1996, 2001, and 2004. Sample sizes are approximate. See appendix for more details.

## Changing Earnings Advantage of a College Degree over the Lifecycle

Figure 1 displays the lifecycle pattern of the college earnings premium—the annual earnings advantage for the typical individual who receives a four-year college degree compared with the typical high school graduate.<sup>7</sup> Each line tracks the evolution of the college earning premium as workers age for a different five-year birth cohort group. While it is always the case that college graduates earn a premium beginning in their mid 20s, the magnitude of that premium has fluctuated both across ages and birth cohorts.

**Figure 1. Male College–High School Median Earnings Premium over the Lifecycle**



Note: Data from matched SIPP-SSA panels 1990–93, 1996, 2001, and 2004. See appendix for more details.

For those born between 1940 and 1944, the college earning premium rises steadily until it plateaus around \$31,000 at age 50. From there, the premium shrinks as workers move closer to retirement age.

The same broad pattern is true for the first of the baby-boom cohorts, born between 1945 and 1949—except the college earnings premium is noticeably smaller during most of the period covering prime

working years, with a peak of only \$27,000. The college earnings premium for those born between 1950 and 1954 begins to increase at early ages relative to the premium for the two older cohorts, but the premium is not larger at older ages. For example, at age 35, the earnings premium for the oldest cohort was \$15,000, but it reached nearly \$21,000 for the early 1950s cohort. In contrast, at age 45, the premium was \$29,000 for the oldest cohort and \$27,000 for the 1950–54 cohort. At early ages there is some evidence of a rising premium among those born in the early 1950s. At mature ages, the premium is essentially unchanged compared with the oldest birth cohort.

Pronounced growth in inequality begins with the 1955–59 birth cohort group. Not only is the college premium higher at each age compared with older cohorts, but the slope of the premium as workers age is also much steeper. By age 47 (the oldest age available for this cohort), the premium stands at \$47,000, over 40 percent larger than for those at the same age born just five years earlier.

The 1960–64 birth cohorts continue the trend of rising inequality. The slope of the earnings premium-age relationship becomes even steeper than it is for the previous cohort group. By age 42 (the oldest age available for this cohort), the earnings premium stands at \$46,000 or 16 percent higher than for the 1955–59 group.

For the two most recent cohort groups, 1965–69 and 1970–74, there is no clear evidence of any further rise in the college earnings premium. Nevertheless, it is remarkable that the premium is already nearly as large at age 32 for the youngest cohort (\$30,000) as the oldest cohort's peak.<sup>8</sup>

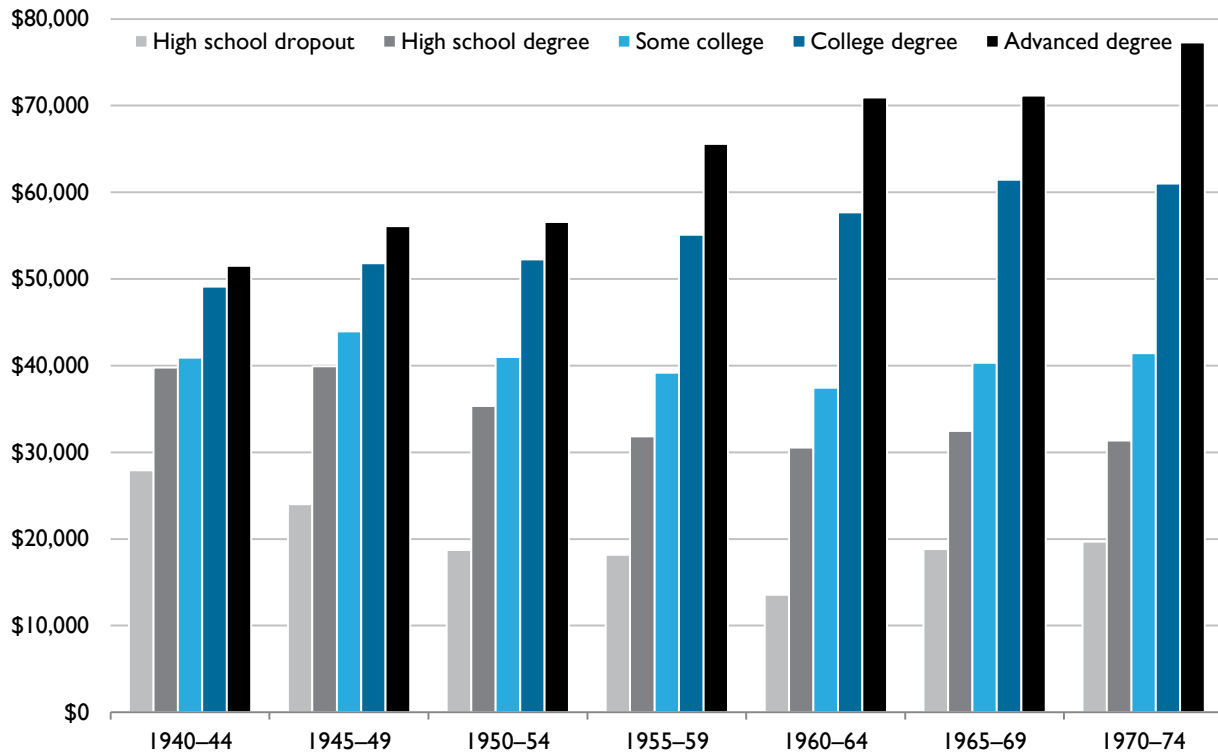
Many studies use a cross-section of annual earnings data to infer the lifetime earnings advantage of college graduates. Figure 1 suggests that calculating the premium in a cross-section potentially understates the lifetime advantage for typical college workers because it mixes age effects with cohort effects. For recent cohorts, the earnings premium is on a much steeper trajectory—it is higher at every age.<sup>9</sup>

## Annual Earnings across Education Groups

The dramatic transformation in the structure of earnings is not limited to high school and college graduates; it can be seen across the entire education spectrum. Figure 2 shows the median level of earnings for each of the five education groups across birth cohorts when workers are in their mid 30s. Consistent with figure 1, the most dramatic changes in between-group earnings inequality begin for cohorts born in the latter half of the 1950s. However, the patterns for each education group are instructive. High school dropouts see steady declines in the absolute level of earnings from the oldest cohort onward, with a modest rebound for the youngest two cohorts. Overall, earnings fall from \$27,000 for the oldest cohort to \$20,000 for the youngest cohort. High school graduates also see absolute declines beginning with the early 1950s cohort, followed again by a slight rebound for the two youngest cohorts. The overall decline is from \$40,000 to \$31,000. For those with some college, the story is one of stagnation—there is little movement in earnings, with both the oldest and youngest cohort earning about \$41,000. College graduates do experience significant absolute gains, rising from \$49,000 for the oldest cohort to \$61,000 for the youngest cohort. The most impressive gains accrued to those with an advanced degree, which rose from \$52,000 to \$77,000, with the largest increase occurring for the 1955–59 cohort.

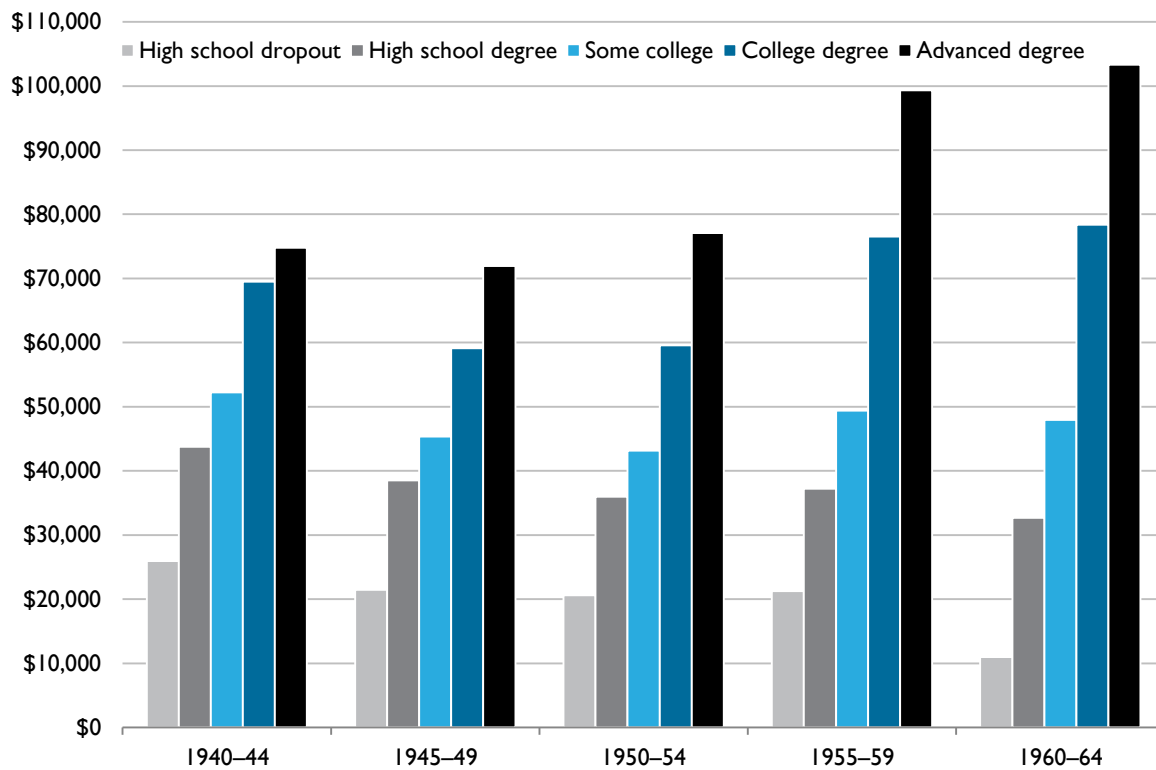
To examine the sensitivity of the above patterns to the age at which they are measured, we examine median earnings across education and birth cohort groups, but this time when workers are in their mid 40s, ten years further into their careers (figure 3). We again see that the absolute level of earnings for both high school dropouts and high school graduates has declined and the earnings for those with some college have stagnated. There is a temporary contraction of college graduate earnings at older ages, as was demonstrated in figure 1, but an overall increase from the 1940–44 to the 1960–64 birth cohort group. The largest gains are again for those with an advanced degree, rising from \$75,000 to \$103,000. The increases in earnings inequality across cohorts are evident regardless of the age at which they are measured.

**Figure 2. Male Median Earnings by Birth Cohort and Educational Attainment, Age 33–37**



Note: Data from matched SIPP-SSA panels 1990–93, 1996, 2001, and 2004. See appendix for more details.

**Figure 3. Male Median Earnings by Birth Cohort and Educational Attainment, Age 43–47**



Note: Data from matched SIPP-SSA panels 1990–93, 1996, 2001, and 2004. See appendix for more details.

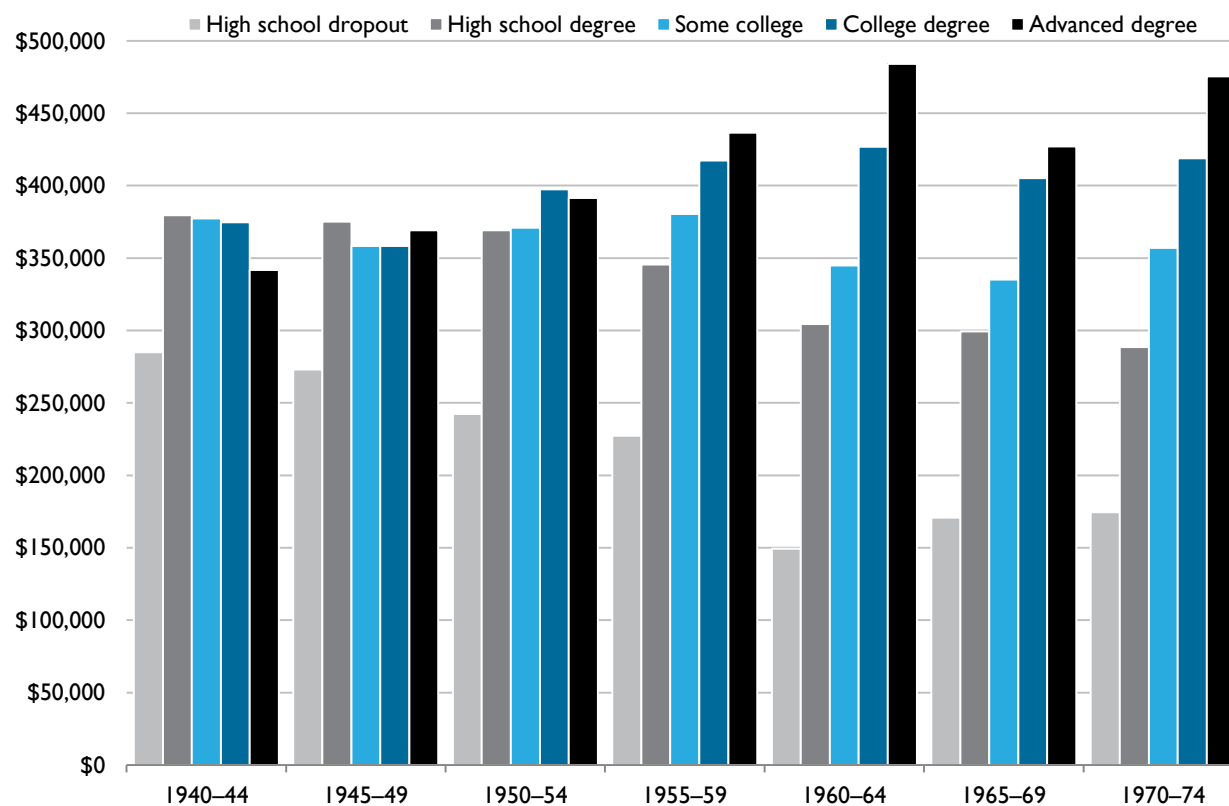
## Cumulative Earnings across Education Groups

The results so far have described earnings inequality trends on an annual basis. Given that individuals do not stay in the same earnings position year after year, it is arguably more relevant to look at cumulative earnings as a better proxy for well-being (Kopczuk, Saez, and Song 2010). We take advantage of our panel data and compute for each individual a measure of *cumulative earnings* up through a given age.

Cumulative earnings are defined as the present-discounted value of annual earnings starting from age 18 up through a given age, using a 3 percent real discount rate.<sup>10</sup> We then calculate various statistics, such as the median level of cumulative earnings for each birth cohort and education group.

Figure 4 shows median cumulative earnings for workers up through their mid 30s. For the earliest cohorts, cumulative earnings do not rise with increasing educational attainment. This is not surprising given that high school graduates typically have the ability to work full-time for an additional four years compared with college graduates. Earnings from these early years make up a significant portion of cumulative earnings for workers up through their mid 30s. Despite the additional years of potential work experience, the cumulative earnings advantage of high school graduates has disappeared for cohorts born in the 1950s, and a positive relationship between the level of education and cumulative earnings emerges for the 1955–59 birth cohort group. Across all birth cohorts, median cumulative earnings for high school dropouts falls from \$285,000 to \$175,000, in spite of a small rebound for the youngest cohorts. For high school graduates, cumulative earnings fall from \$380,000 to \$288,000. For those with some college, there is also a small drop in cumulative earnings from \$377,000 to \$357,000 although this may reflect the timing and duration of school attendance. College graduates do experience an increase in cumulative earnings from \$375,000 to \$419,000. Those with advanced degrees experience the largest gains in cumulative earnings, rising from \$342,000 to \$475,000.

**Figure 4. Male Median Cumulative Earnings by Birth Cohort and Educational Attainment, Age 33–37**

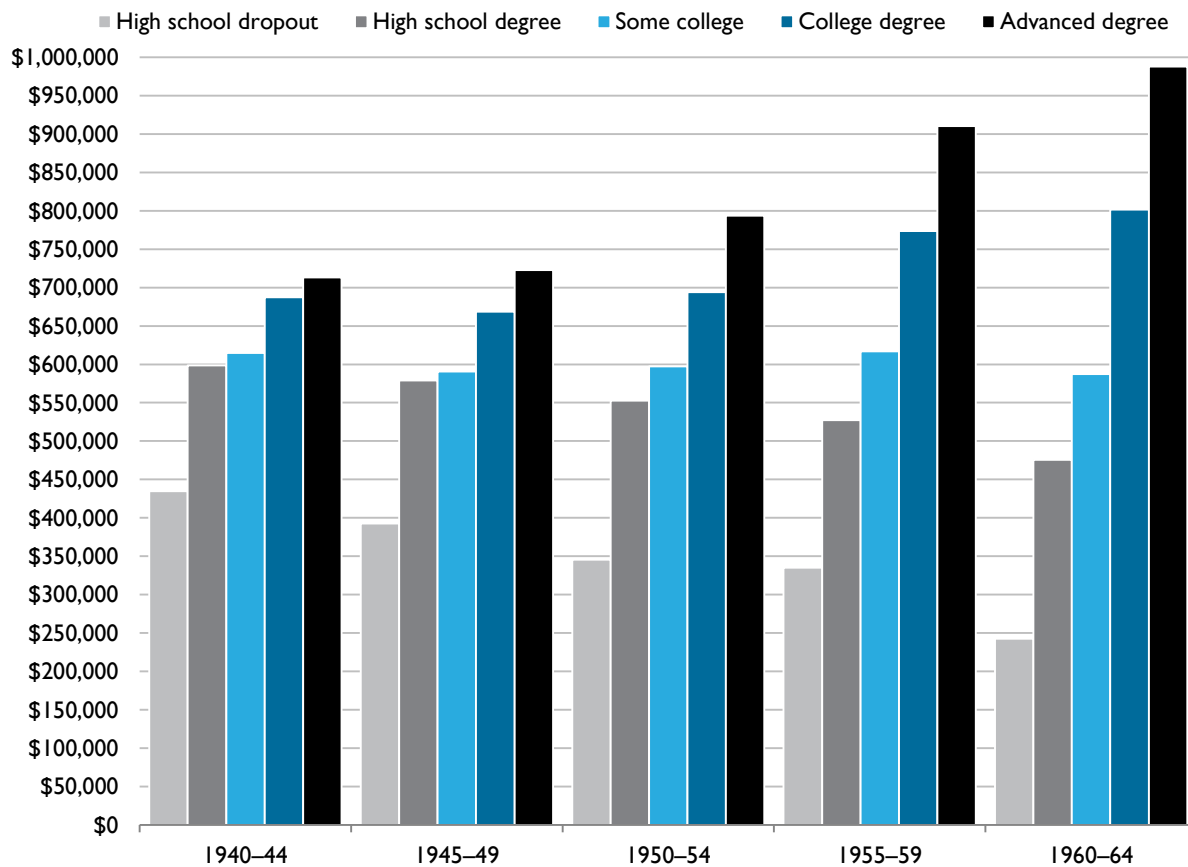


Note: Data from matched SIPP-SSA panels 1990–93, 1996, 2001, and 2004. See appendix for more details.



The above patterns in cumulative earnings persist as workers advance into their careers. Figure 5 displays cumulative earnings for workers up through their mid 40s. Here, the positive relationship between cumulative earnings and education is present across all birth cohorts because high school graduates' early career advantage in labor market experience is overwhelmed by many years of an earnings premium for those with at least some college. Otherwise, trends in cumulative earnings look similar to those displayed in figure 4. High school dropouts see their cumulative earnings from the oldest to the youngest birth cohort fall from \$368,000 to \$215,000. For high school graduates, median cumulative earnings fall from \$435,000 to \$243,000. For those with some college, there is little change in cumulative earnings. College graduates experience an increase in cumulative earnings from \$687,000 to \$802,000. The largest gains again accrue to those with an advanced degree, with cumulative earnings rising from \$713,000 to \$988,000.

**Figure 5. Male Median Cumulative Earnings by Birth Cohort and Educational Attainment, Age 43–47**



Note: Data from matched SIPP-SSA panels 1990–93, 1996, 2001, and 2004. See appendix for more details.

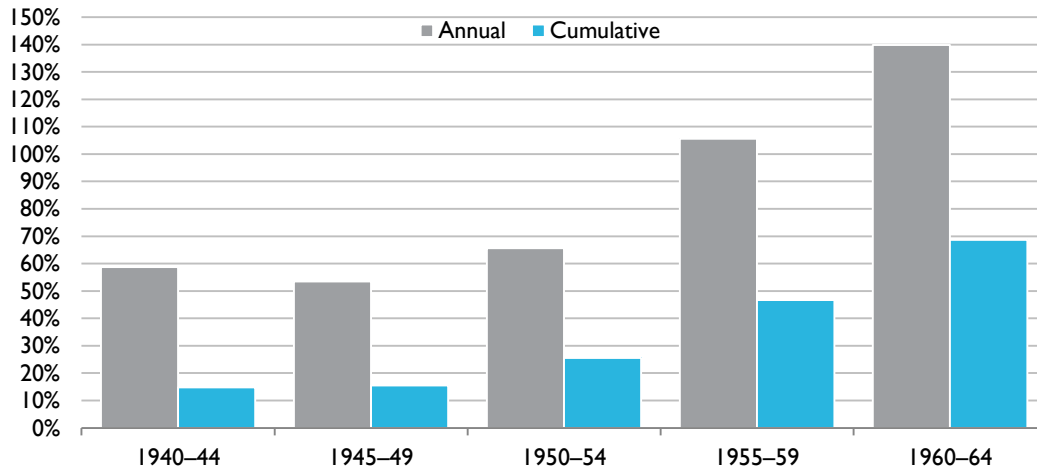
### Comparison of Annual and Cumulative College Earnings Premiums

Figure 6 compares the percent median annual and cumulative college earnings premium for each cohort when workers are in their mid 40s. For example, for those born between 1940 and 1944, the median annual earnings for college graduates were 59 percent higher than they were for high school graduates. The median cumulative earnings for college graduates were 15 percent higher than they were for a high school graduate. Given that the annual premium is measured midway through workers' careers, it is no surprise that the percent annual premium is larger than the cumulative premium, which incorporates earnings from younger ages. Turning to the 1960–64 birth cohort group, the annual college earnings

premium has more than doubled to 140 percent, while the cumulative premium has more than quadrupled to 69 percent.

The full set of annual and cumulative earnings comparisons are shown in table 2. Both the annual and cumulative earnings premiums rise with age for each birth cohort. Moving down along columns we see strong birth cohort effects for each age, particularly for the 1955–59 and 1960–64 groups. Overall, the results in figure 6 demonstrate that the rise in inequality is not simply a transitory phenomenon—it is reflected in both annual and cumulative earnings measures.

**Figure 6. Male Annual and Cumulative College Earnings Premium by Birth Cohort, Age 43–47 (percent)**



Note: Data from matched SIPP-SSA panels 1990–93, 1996, 2001, and 2004. See appendix for more details.

**Table 2. College Percentage Earnings Premium over High School by Age and Birth Cohort**

Cohort	Age					
	33–37	38–42	43–47	48–52	53–57	58–62
<b>Annual</b>						
1940–44	23	42	59	73	86	90
1945–49	30	43	54	56	72	124
1950–54	48	63	66	83	99	
1955–59	73	86	106	125		
1960–64	88	118	140			
1965–69	89	115				
1970–74	95					
<b>Cumulative</b>						
1940–44	-1	7	15	21	25	28
1945–49	-2	9	16	19	24	28
1950–54	8	19	26	32	38	
1955–59	20	36	47	54		
1960–64	40	56	69			
1965–69	35	57				
1970–74	45					

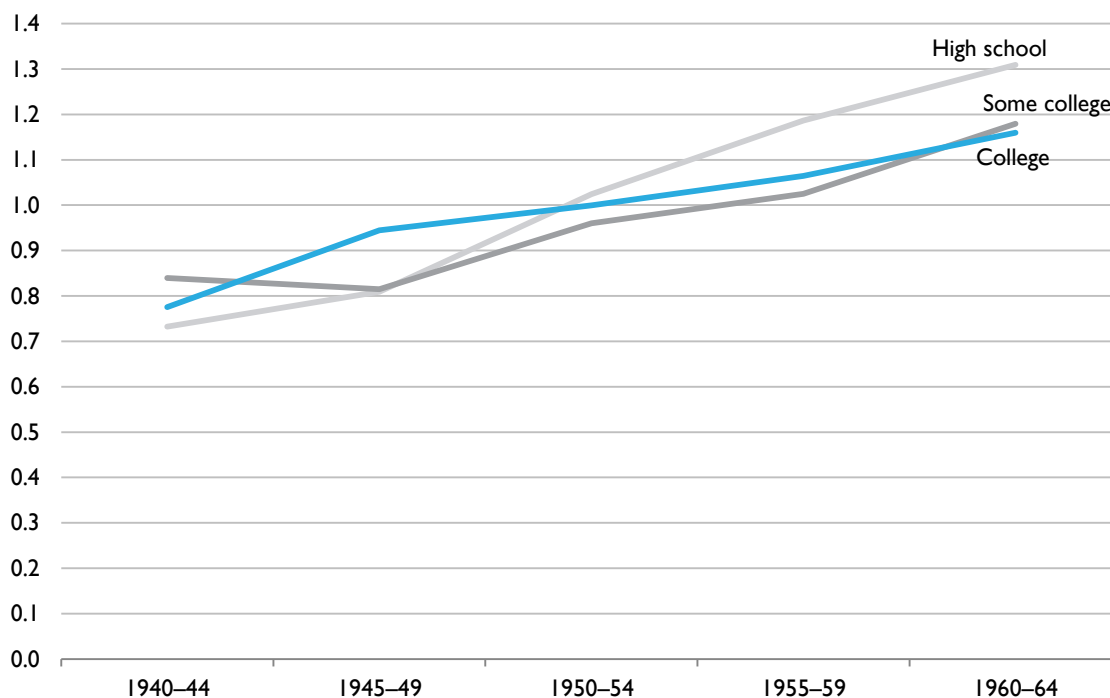
Note: Data from matched SIPP-SSA panels 1990–93, 1996, 2001, and 2004. See appendix for more details.

## Within Group Inequality

The analysis has so far examined changes in inequality between groups—that is, the difference in earnings of typical workers across varying levels of educational attainment. We now discuss changes in within-group inequality—that is, the difference in earnings among workers with the same level of educational attainment.

Figure 7 shows within-group cumulative earnings inequality across birth cohorts for men in their mid 40s. The figure features those who have completed high school, some college, or all of a four-year college degree because these groups are the most relevant for policy discussions concerning increasing access to higher education. Within-group inequality is measured as the percentage advantage that a worker in the 75th percentile of cumulative earnings has compared with a worker in the 25th percentile cumulative earnings, for each education group.

**Figure 7. Male Within-Group Cumulative Earnings Inequality by Birth Cohort, Age 43-47**



Notes: Data from matched SIPP-SSA panels 1990-93, 1996, 2001, and 2004. See appendix for more details. The percentage advantage compares 75th percentile relative with 25th percentile.

The timing and magnitude of within-group inequality trends are quite different from between-group trends. While the levels of within-group inequality for each education group are relatively similar among the oldest cohort, the growth in the within-group measure across cohorts is considerably larger for high school graduates than for those with higher levels of education. The earnings gap among high school graduates rises from 73 to 131 percent. Inequality among those with some college rises less dramatically from 84 to 118 percent. Inequality among those who have completed college also rises from 77 to 116 percent. Unlike the between-group measure, there is no noticeable uptick for the within-group measure for any education group coinciding with the 1955-59 birth cohort.

Table 3 contains the within-group inequality measure for all cohorts and ages. The data show that high school graduates see virtually no increase in cumulative earnings inequality as they age past their mid 30s—the entire increase in within-group inequality is due to cohort effects. For those with some college and those with a college degree, there is some evidence that aging also raises within-group inequality, particularly for the 1950s cohorts onwards. However, cohort effects remain the most important factor for these groups as well.

**Table 3. 75th–25th Percentile Cumulative Earnings Advantage (percent)**

Cohort	Age					
	33–37	38–42	43–47	48–52	53–57	58–62
High school degree						
1940–44	75	72	73	74	78	79
1945–49	89	83	81	84	86	88
1950–54	101	99	102	105	108	
1955–59	114	117	119	124		
1960–64	137	130	131			
1965–69	135	138				
1970–74	164					
Some college						
1940–44	81	82	84	82	82	83
1945–49	91	83	81	83	87	91
1950–54	87	89	96	100	104	
1955–59	99	99	103	106		
1960–64	106	109	118			
1965–69	99	99				
1970–74	108					
College degree						
1940–44	87	78	78	77	79	85
1945–49	106	99	94	94	93	92
1950–54	93	93	100	105	111	
1955–59	101	102	106	115		
1960–64	108	111	116			
1965–69	101	100				
1970–74	102					

Note: Data from matched SIPP-SSA panels 1990–93, 1996, 2001, and 2004. See appendix for more details.

## Comparison of Between and Within-Group Inequality

Our measure of within-group cumulative earnings inequality is larger than our measure of between-group cumulative earnings inequality across every age and birth cohort group. For example, when workers are in their mid 40s, the college cumulative earnings premium for those born between 1940 and 1944 is 15 percent, while the within-inequality measure is 73 percent for high school graduates and 78 percent for college graduates. However, moving from older to younger cohorts, the growth in between-group inequality is larger than the growth in within-group inequality: the college cumulative premium grew roughly 400 percent from the 1940–44 cohorts to the 1960–64 cohorts, while the within-group premium grew 75 percent for high school graduates and 50 percent for college graduates. Overall, the distinct timing and magnitude of between- and within-group inequality suggest a monocausal explanation of rising inequality is insufficient.

## High-Earning High School Graduates and the Decision to Go to College

The historic growth in both between- and within-group inequality can affect a person's decision to pursue higher education today. As discussed earlier, standard analyses infer lifetime earnings of the typical high school and college graduate from annual earnings cross-sectional data and conclude that college is an attractive investment.<sup>11</sup> Figures 4 and 5 improve upon previous calculations because they are based on actual cumulative earnings histories and examine differences by birth cohort. When comparing typical high school and college graduates, our results suggest standard calculations may understate the value of a college degree. However, these calculations assume that the high school graduates who decide to attend college can expect to earn what the typical college graduate earns. If those at the margin of attending college would be higher-than-average earning high school graduates but lower-than-average earning college graduates, then the gains to a college degree will be overstated by the standard calculations.

To illustrate this point, table 4 shows the cumulative earnings for high school graduates earning at the 75th percentile of the high school distribution across age and birth cohort groups. Also displayed is the corresponding percentile rank for this level of cumulative earnings in the some college and college graduate distributions. We report what fraction of some college and college graduates earn less than the high-earning high school graduate. Among workers in their mid 40s, the 75th percentile high school graduate has accumulated around \$750,000 which holds stable for those born between 1940 and 1959. For those born between 1960 and 1964, cumulative earnings fall to \$660,000. Despite the significant decrease, the high-earning high school graduate still earned more than 58 percent of those with some college and more than 37 percent of those with a college degree. While older cohorts of high-earning high school graduates compared even more favorably to college graduates, evidence at earlier ages suggests that the youngest cohorts examined have continued to perform at about the same pace as the 1960–64 cohort. With between-group inequality no longer rising among the most recent cohorts, the share of college graduates that high-earning high school graduates out-earn has stabilized. At the very least, the payoff to additional schooling remains uncertain for many high school graduates, especially when so many students start but fail to complete college. Together with rising tuition, the continued growth in within-group inequality may help explain why the sizeable median college premium has not led to a large increase in the supply of male college graduates.<sup>12</sup>

**Table 4. Cumulative Earnings Rank for Male High-Earning High School Graduates in College Distribution**

Cohort	High school cumulative earnings 75th percentile	Percentile rank in some college distribution	Percentile rank in college distribution
<b>Age 33–37</b>			
1940–44	\$470,145	75	77
1945–49	\$498,367	77	73
1950–54	\$491,402	73	67
1955–59	\$486,018	70	62
1960–64	\$434,956	68	51
1965–69	\$412,146	67	51
1970–74	\$417,983	64	50
<b>Age 38–42</b>			
1940–44	\$618,331	70	65
1945–49	\$633,986	74	66
1950–54	\$621,084	70	59
1955–59	\$620,827	67	53
1960–64	\$563,287	63	43
1965–69	\$538,202	66	43
<b>Age 43–47</b>			
1940–44	\$748,464	68	58
1945–49	\$756,860	72	61
1950–54	\$741,748	68	55
1955–59	\$744,789	65	47
1960–64	\$661,112	58	37
<b>Age 48–52</b>			
1940–44	\$858,488	67	54
1945–49	\$870,637	71	58
1950–54	\$849,311	67	52
1955–59	\$842,405	63	43
<b>Age 53–57</b>			
1940–44	\$946,210	67	51
1945–49	\$958,920	70	55
1950–54	\$929,023	66	49
<b>Age 58–62</b>			
1940–44	\$1,007,264	66	49
1945–49	\$1,012,900	69	52

Note: Data from matched SIPP-SSA panels 1990–93, 1996, 2001, and 2004. See appendix for more details.

## Conclusion

Not only has the gap in earnings between more educated and less educated workers widened over time, but the gaps are also wider among younger men as compared with older men. These differences are long-lasting and are evident even when inequality is measured on a lifetime basis. We further show that those with a high school diploma or less experienced absolute decreases in both annual and cumulative earnings, while those with some college but less than a four-year degree experienced stagnated earnings. The largest gains went to those with advanced degrees. Analyses that group workers with four-year college and advanced degrees together exaggerate the gains to a four-year degree alone.

We also document rising within-group inequality, which is largest for high school graduates and appears mostly to be driven by changes across cohorts rather than aging. The magnitude and timing of within-group inequality is distinct from between-group inequality.

Future work should explore whether standard explanations for rising inequality fit the above cohort patterns both between and within education groups. For example, it is difficult to imagine that skill-biased technological change alone can explain why cohorts born five years apart experienced such different earnings trajectories. By examining whether popular explanations are consistent with more finely documented cohort patterns, researchers can better understand the underlying drivers of inequality and point policymakers toward solutions best tailored to boost earnings of the least advantaged.

Our results also suggest that the analysis of the lifetime returns to a college degree is more complicated than typically understood. On the one hand, the cohort patterns suggest that simple cross-sectional analysis may understate the returns to a college degree. On the other hand, in examining the variety in cumulative earnings outcomes, we see that the highest-earning quartile of high school graduate men continue to out-earn a sizeable share of those with some college and four-year degrees. Together with rising tuition, this may help explain why college completion rates have not risen very rapidly.

## Note

1. We focus on men because it is easier to interpret their earnings trajectories, since they are more consistently attached to the labor force throughout this time period. We also limit our analysis to the US-born population because we are interested in earnings differences among those who attended school within the US context.
2. All earnings numbers in this report are adjusted for inflation using the personal consumption expenditures deflator and are expressed in 2010 dollars, the latest year available inside the Census RDC. Since then, inflation has been quite modest.
3. See Pikety and Saez (2003) for analysis of top incomes.
4. Common explanations for rising inequality include skill-biased technological change, a slowdown in educational attainment, globalization, de-unionization, a falling minimum wage, slack labor markets, changing social norms, and rent-seeking. Autor, Katz, and Kearney (2008), Katz and Autor (1999), and Lemieux (2008) review the evidence on the causes of rising inequality.
5. For a review of studies that estimate causal effects of education see Card (1999). See Carneiro, Heckman, and Vytlačil (2011) for a contrasting view.
6. These shares are similar to those found in other data sources such as the American Community Survey.
7. This report uses median rather than mean differences in earnings to reduce the influence of outliers.
8. See Card and Lemieux (2001) for further discussion of this point.
9. Heckman, Lochner, and Todd (2006) discuss the changing relationship among earnings, education, and age.
10. As with annual earnings, all cumulative earnings figures are adjusted for inflation and expressed in 2010 dollars.
11. Recent examples include Greenstone and Looney (2011) and Carnevale, Rose, and Ban Cheah (2011).
12. Schmitt and Boushey (2010) discuss this hypothesis in depth.

## References

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## Data Appendix

Our sample is drawn for the Census Survey of Income and Program Participation (SIPP) panels 1990–93, 1996, 2001, and 2004. We use the Wave 2 topical module within each panel, which measures educational attainment consistently in terms of highest degree received. The topical module also includes place of birth, allowing us to identify US born men.

We select individuals from birth cohorts by SIPP panel so that they are old enough to have likely completed their highest eventual level of educational attainment but young enough to mitigate mortality bias. These birth cohorts are then divided into seven five-year groupings and are selected from the SIPP panels as shown in table A.1

**Table A.1. Birth Cohorts by SIPP Panel**

Cohort	SIPP panel
1940–44	1990–93
1945–49	
1950–54	
1955–59	
1960–64	1996 and 2001
1965–69	2001 and 2004
1970–74	2004

Note: Data from matched SIPP-SSA panels 1990–93, 1996, 2001, and 2004.

Educational attainment is measured as highest degree ever received and is divided into five categories: high school dropout, high school diploma or GED, some college but less than a four-year degree, college degree, and advanced degree.

Each SIPP panel is merged to social security summary earnings records and detailed earnings records. The summary earnings records span 1951–2007, but only include social security earnings up to the taxable maximum. The detailed earnings records span 1978–2007 and include full-coverage of uncapped earnings. To track the oldest cohort from age 18 onward, we use the summary earnings records for 1958–77 and follow the procedure of Kopczuk, Saez, and Song (2010) for imputing earnings above the taxable maximum. Our focus on the 25th, 50th, and 75th percentiles ensures outliers are not driving our results.

Match rates between the SIPP panels and administrative earnings records are nearly 90 percent. SIPP sample weights, adjusted to account for matching, are used throughout.

All earnings calculations include both wage and salary as well as self-employment income. We include zeros for calendar years where no work is done. Earnings are adjusted for inflation using the personal consumption expenditures deflator and are expressed in 2010 dollars.

Cumulative earnings through any given age are defined as the present-discounted value of annual earnings from age 18 up through that age using a real discount rate of 3 percent.