GEORGETOWN UNIVERSITY
Center
on Education
and the Workforce

College is Still the Best Option

Real Wages of College Educated Workers are on the Decline

A lot of emphasis has been placed on the most recent decline in the growth rate of real wages for holders of bachelor's degrees and above. Pundits have erroneously taken this statistical detail to imply that there are no longer advantages to a college diploma. The essential error in the current discussion of declining college wages is the failure to understand the differences between the supply and demand for college workers and the wage premium for college. The demand for college can be rising dramatically, but if the supply keeps up with the demand, college wages will not increase.

The real question for individuals trying to decide whether or not to go to college is the relative wage advantages of college degrees over low attainment levels.

As we show below, while the absolute real wages of college educated workers has declined since 2002, these types of wage fluctuations are not unusual and the relative advantages of college degrees have grown dramatically since the 1980s and have only declined slightly since 2000.

We therefore start this discussion with a candid look at the greatest source of concern for middle class America: that of the declining real wage of college educated workers since 2002. Figures 1a and 1b represent the average real wages of American prime age workers from 1992 to 2008. Figure 1a shows the trend unadjusted for topcoded data. Figure 1b removes the topcode and results in an upward shift in the college wage data.[1] But in both cases, the downward trend in real wages for college educated Americans during the last 5-8 years is apparent, thus implying that the purchasing power of these workers have declined most recently.

[1] For privacy purposes, anyone today who earns an annual salary of $200,000 and above is recorded as having earned the mean amount of persons with similar socioeconomic characteristics in the CPS public use file. This practice is called topcoding and amounts to a censoring of information on wage data for the small portion of people at this level of the earnings distribution. How we treat with top coded data is important particularly important for relative earnings analysis between disparate groups of people. 1-2% of Americans are topcoded in the CPS surveys. 83% are male, 45 years old on average and predominantly white while 73% have a Bachelor's degree and above. According to the IRS, the top 1% of earners in the nation made $388,806 on average, and the top 10% made $108,904 in 2006.

Figure 1: Real wages of prime age college educated American workers since 2002 (raw and corrected)

Figure 1a*

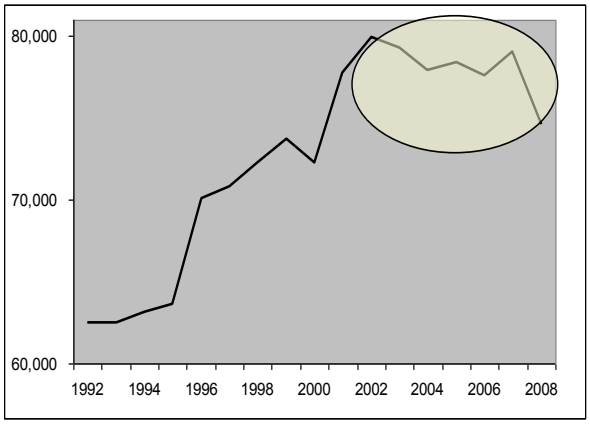
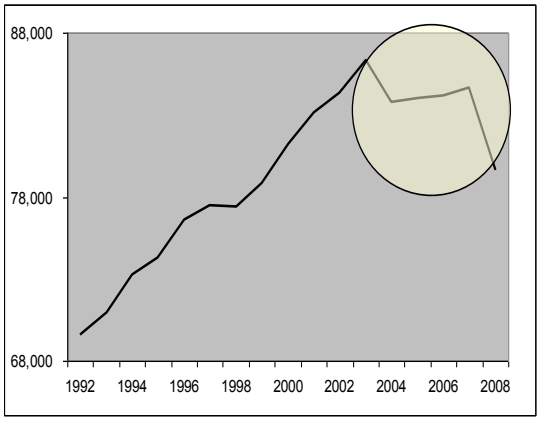


Figure 1b†



Source: Author's calculations using March CPS data

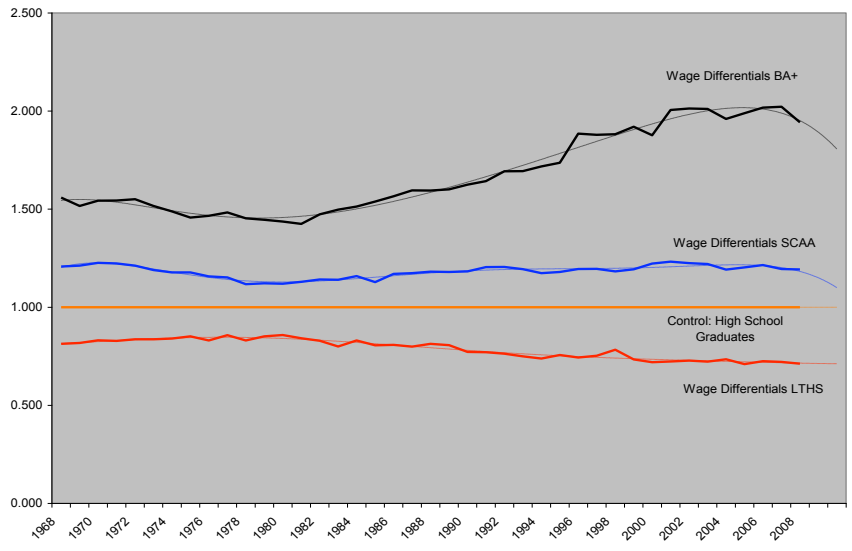
* Trend using raw CPS data
† Trend after topcodes removed.

Note that college wages peaked in 2002 and declined thereafter through 2003, but college wages began rising again after 2003, before they declined dramatically with the 2007 recession.

In a perfectly competitive labor market, wages act to equilibrate relative demand and supply of labor. We should, however, be careful not to deduce that the declining wages of college workers, in the absence of comparative data on the wages of non-college workers, implies that people are better off without college degrees. If we consider the labor market to consist of two largely independent categories of skilled and unskilled labor that are imperfect substitutes for each other, a relative wage premium for skilled workers is suggestive of relatively greater demand for skilled over unskilled labor, irrespective of whether one or both are independently declining in value relative to past values of themselves.

Although Real Wages of BA plus workers are on the decline, the wage premium between BA plus and high school workers has declined very little.

Figure 2: Wage differentials by education level relative to high school graduates



Source: Author's analysis of March CPS data, various years

The average earnings of prime age (25-54 years old) Americans with a bachelor's degree or better fell from the early 1970s up to the 1980s and rose dramatically for most of the 1990s.

In figure 2, we present the wage differentials by education level. Since 2000, the wages of BA plus degrees have declined but the relative wage differentials between BA plus and relatively lower levels of attainment have remained stable. The value of some college and Associate degrees over high school has been relatively stable as well, while the relative advantage of high school dropouts have continued to decline.

That is, on average, high school graduates earned 68% more than high school dropouts, some college and associate degree holders earned 26% more than high school graduates, bachelor degree holders earned 45% more than associates, and master's degree holders earned 37% more than bachelors. Figure 2 shows that holders of college degrees earn on average twice as much as high school graduates in 2008 even as the real wages of college degree holders declined in the past few years.

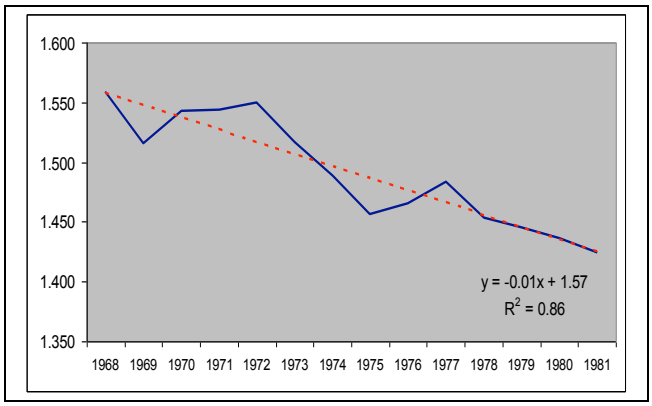
We use the relative wage premium between those with BA degrees and above and those with less than a BA degree as an indicator of the relative demand for skilled versus unskilled labor.[2] Wages by education level traditionally behave as human capital theory predicts: higher education levels are met with higher wages, a regularity that has not changed in the past eight years.

[2] This argument is fully developed in Goldin and Katz (2008).

There is no evidence that the decline is permanent

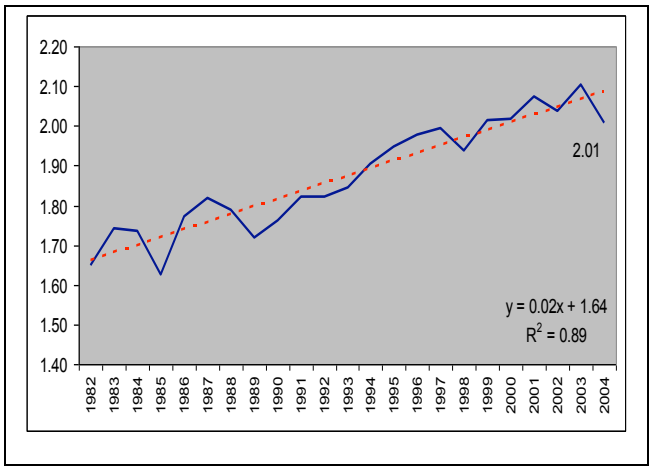
Even with a decline in the growth rate of the wage premium, the difference in earnings potential between both groups is large. Closer inspection of the wage differential in BA plus workers reveals three separate turning points in the data that correspond to the time periods 1968-1981, 1982-2003 and 2004-2008. In Panels 1-3 below, we more closely examine the wage premium for college educated Americans during these three time periods.

Panel 1 (College Wage premium 1968 to 1981)



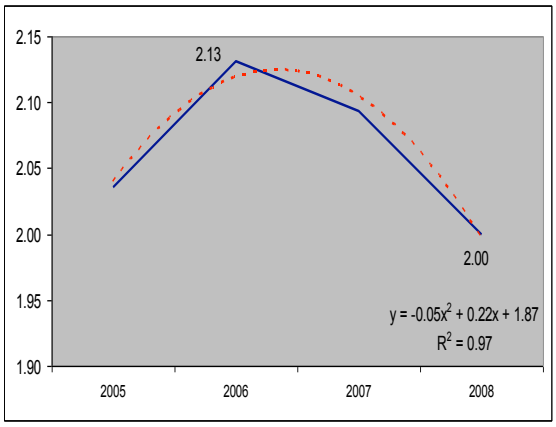
Panel 1 shows an early decline in the relative real wage premium of holders of college degrees for most of the 1970s. Goldin and Katz (2008) explain this decline in the wage premium by the sudden surge in college educated baby boomers that created a temporary oversupply of college graduates and reduced the wage premium. They find that the demand for college graduates grew at an average rate of 2.16 to 2.14 percent per year while the supply grew at a faster rate of 3.19 percent per year resulting in an over supply of college workers and a resultant decline in their wage premium relative to high school graduates.

Panel 2 (College Wage premium 1982 to 2004)



Panel 2 shows a steep increase in the relative real wage premium of holders of college degrees for most of the 1980s up to the early 2000s. Here, Goldin and Katz (2008) show that a supply slow-down in college graduates dramatically increased the wage premium of BA and above workers to high school graduates. The supply of college graduates increased by 3.19 percent per year in the 1970s but fell to 2.00 percent per year in the 1980s and 1990s. In the 1970s, demand increased by an average of 2.15 percent but demand accelerated in the 1980s to between 3.27 and 3.66 percent per year. Increasing demand and declining supply guaranteed a rise in the college wage premium. The relative increase in the wage premium during this period was quite remarkable and increased at far greater rates than did the decline in the previous decade. A gradient of 2 percent in panel 2 compared to a gradient of 1 percent in panel 1 shows that the rate of increase in the 1980s through early 2000s was twice the rate of decline in the 1970s. At its peak, college graduates earned twice as much on average, compared to high school graduates over two decades.

Panel 3 (College Wage premium 2005 to 2008)

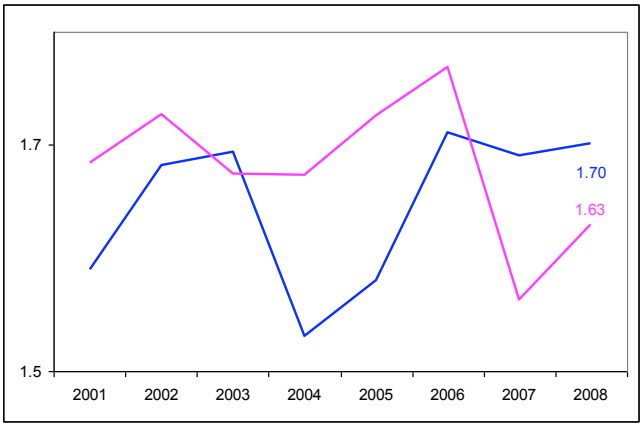


Panel 3 is the real source of the hullabaloo. While this most recent decline in the wage premium for college educated workers is apparent, in 2008 college graduates of all ages still earned 1.94 times as much as high school graduates, down from a peak of 2.13 in 2006. The economy is in a recession and all economic actors bear some amount of the burden. Less educated workers, however, shoulder a relatively greater share. In September 2009, 4.9% of the unemployed had a bachelor's degree or better --- 10.8 percent were high school graduates and 15.5% high school dropouts.[3]

What does this mean for recent college graduates (by sex)?

When we limit the sample of observations to recent college graduates between the ages of 25-34, real wages of males and females fell by 7% and 1% respectively from 2001 to 2008. Although young women earn less on average, they are still better off relative to other young women without a college degree, earning 1.63 times as much as their less educated counterparts (see Figure 4). Young college educated men earned 1.7 times as much as young high school educated men.

Figure 4: Wage premia by sex for recent college graduates *BA only fulltime, full year (25-34)*



Source: Authors calculations using March CPS data, various years

Given trends in wage premia for the last three decades, it is irresponsible to argue against the pursuit of a college degree based solely on the fact that real returns have fallen relative to the most recent past.

What these alarmists fail to point out is that even given the decline in wages of college graduates, they can still expect to earn almost twice as much as their non-college competitors.

Further, jobs in occupations that are predominately college level continue to grow at faster rates than middle skill or lower skill level jobs. Our forecasts of education demand through 2018 estimate that 63% of new and replacement jobs in the

[3] The unemployment rate overall is 9.8%.

future will require some college or better, while 72% of this subset will require a bachelor's degree or better.

If we take this alarmist approach to its logical conclusion, thus discouraging young Americans from pursuing college degrees since their real value has declined relative to its peak in 2000, then these American workers 10 years in the future will be relegated to low-skill, low-wage work. Those who decide not to attend college over the next few years are unlikely to get a real second chance. Enrollment and graduation rates in postsecondary institutions decline geometrically with age from 70% (under age 23) to 16% (for those over 30) in four-year institutions.[4] A decision now to forego or postpone a college degree results in greater hardship in the future to attain these goals at a later date.

Finally, is a college degree still worth it?

In the spirit of the Census Bureau's report on the value of a college degree, we find that the average value of a college degree over one's lifetime compared to a high school degree is about $960,000 in additional earnings.[5] This figure is based on 2008 earnings projected over a typical work life (25 through 64-year-olds) for full-time, full-year workers. Of course, the real payoff today of this total benefit over 40 years is much lower. We therefore calculate the net present value, which shows a hypothetical cost benefit analysis of attending college in light of recent reductions in the wage premium. If we start today and look forward to $960,000 additional in forty years, then the present value tells us today how much money is required at an assumed interest rate to yield that amount in the future. Assuming an interest rate of 1% (Average Federal Funds rate in 2008), then a very conservative estimate of the net present value of the lifetime average marginal return from a bachelor's degree over a high school diploma is $645,790. To determine if a college degree is worth it, we must simply ensure that the discounted cost of the degree is at most $645,790 expressed in today's dollars.[6]

The economic costs of attending college should include the indirect cost of income foregone plus the direct costs of providing the student with tuition, books and other necessities.[7] According to the College Board "..about 56 percent of students enrolled at four-year colleges or universities attend institutions that charge tuition and fees of less than $9,000 per year." Also, the average annual tuition at public four-year colleges and universities was about $5,685 for in-state residents during 2006-2007 according to the National Center for Education Statistics, U.S. Department of Education. For argument's sake, let's take the larger of these estimates into consideration for our calculations. Over the length of a four-year degree, we have estimated close to $50,000 as the cost of the college degree.

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[4] Enrollment by students under 23 years old and over 30 years old was 70% and 16% respectively in 2004. Source: U.S. Department of Education, National Center for Education Statistics, 2003–04 National Postsecondary Student Aid Study (NPSAS:04).

[5] The Census Bureau 2002 report on the average value of a college degree over one's lifetime estimates that high school graduates can expect to earn $1.2 million; holders of bachelor's degree, $2.1 million; and holders of master's degree, $2.5 million. This implies that the average value of a 4-year degree is increased earnings income of $900,000 over a period of about 40 years.

[6] At the following interest rates, the NPV of 960,000 today, 40 years into the future is: 645,794 (1%), 435,454 (2%), 294,754 (3%), 200,270 (4%), 136,577 (5%).

[7] Tuition and fees, 9,000 per year; books, 1,500 per year; trips and extra costs, 1,500 per month. Rent and food are excluded from these calculations since these are costs that you would have incurred whether or not one chose college over working.

References

Goldin, Claudia and Lawrence F. Katz. The Race Between Education and Technology. The Belknap Press of Harvard University Press. 2008.

US Census Bureau. The Big Payoff: Educational Attainment and Synthetic Estimates of Work-Life Earnings. July 2002.