



The Growing Difference in College Attainment between Women and Men

By Dionissi Aliprantis, Timothy Dunne, and Kyle Fee

Workers with more education typically earn more than those with less education, and the difference has been growing in recent decades. Not surprisingly, the percentage of the population going after and getting a college degree has been rising as well. Since the late 1970s, though, the increase in college attainment has stalled for men and gathered steam for women. Among college-age individuals, more women now graduate than men. Changes in labor market incentives appear to explain the increased investment in education made by women. But men's investments in education have been much less responsive to the same incentives.

One major trend taking shape in the U.S. labor force over the past 30 years is a growing gap in wages between skilled and unskilled workers. In the late 1970s, college graduates earned about 40 percent more than high school graduates, and today that differential stands at 90 percent. Not surprisingly, workers have responded to this growing wage premium for educated workers by getting more education. The proportion of the adult population with a four-year college degree has risen from 10 percent to 30 percent over the past 45 years.

However, this rise in college attainment has not been uniform across all demographic groups. In particular, women have graduated from college at a much higher rate than men for recent cohorts, accounting for almost all of the growth in the college attainment rate observed in the United States since 1980.

In this *Commentary*, we look at these shifts in the educational attainment patterns of men and women in more detail and explore what is behind them. The differences start early—women's educational achievement outpaces men's prior to and during college. Changes in labor market incentives appear to explain the increased investment in education made by women. Many of these same factors are at work for men, but men's investments in education have been much less responsive to these rising incentives.

Women Close the Gap and Move Ahead

When economists look at educational attainment, they think about it in terms of an investment that individuals or societies make in human capital. Like improvements in physical capital, which make factories and equipment more efficient, improvements in human capital make workers more efficient. Improvements in human capital allow a unit of labor (such as an hour of work) to produce more or higher quality output. This higher productivity leads to higher compensation, in general.

Investments in human capital also have broader implications for economic growth. It is well documented that states and metropolitan areas in the United States with higher educational attainment have experienced faster income growth than less educated regions.

A key barometer used to measure the level of human capital in an economy is the percent of the adult population that has earned a four-year college degree. Since the 1960s, that percentage has risen steadily in the United States (figure 1). However, as mentioned above, this rise has not been uniform across genders.

Focusing on the college attainment rates of young adults (ages 25–34), we see different patterns for men and women over time (figure 2). A higher percentage of young men graduated from college in the late 1960s, and the percentage rose relatively quickly through the mid-1970s. After that the rise stalled out, gaining little over the next 30 years. Part of the trend for men can be explained by the effects of the Vietnam War on the schooling decisions of men who were eligible for the draft. In the 1960s and 1970s men could obtain a deferment from military duty by attending college. The end of the draft removed the deferment incentive to attend college, helping to stem the rise in male college attainment.

Women’s rate of college attainment also rose during the 1960s and 1970s at a relatively quick pace, but unlike the male rate, it continued to increase during the 1980s. By the mid-1990s, women had closed the gap on men, and by 2010, their college attainment rate exceeded men’s by 8 percentage points (or by 29 percent) in this age cohort.

Different Approaches to Educational Achievement

We can explain the lower rate of male college attainment at least in a mechanical sense. It comes about because males have a lower level of achievement at a number of stages in the educational process. Males graduate high school at lower rates, attend college right out of high school at lower rates, and complete college if they do go at lower rates than females.

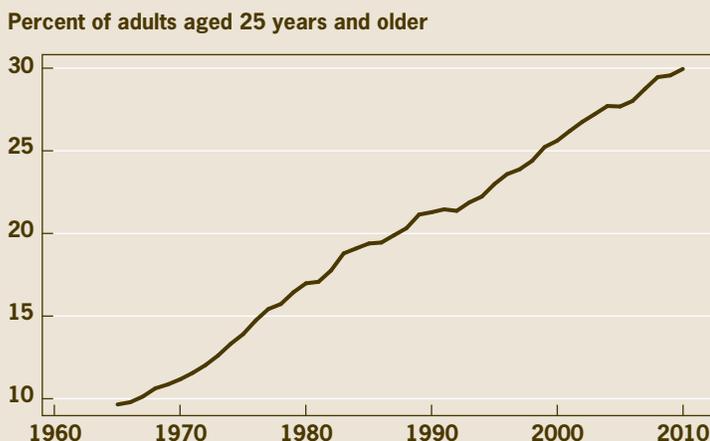
While there is considerable disagreement across studies about high school graduation rates and how they are measured, no one disputes the finding that males have lower

high school graduation rates than females. According to recent research by economists James Heckman and Paul Lafontaine, male high school graduation rates averaged 3 to 5 percentage points lower than females for recent cohorts. Males also rely more on GED (graduate equivalency diploma) certification to complete high school than females. GED certification and high school graduation should not be viewed as identical credentials. Both social and economic outcomes differ markedly for individuals who receive high school degrees and those who obtain GEDs. For example, GED recipients earn significantly lower wages than traditional high school graduates.

Females appear to exert more effort in educational endeavors than males during high school, as well. A look at recent Advanced Placement (AP) courses shows that 25 percent more females took AP tests in high school in 2010 than males. This differential has been expanding over the last decade (figure 3). The 2003–2007 American Time Use Surveys indicate that female high school students were also more likely to do homework on a given day than their male counterparts—50 percent versus 37 percent.

Given the differences in high school performance, it is not surprising that more women enter college than men. In 2009, 57 percent of the students enrolled in two- and four-year colleges were women. Among recent high school graduates, 74 percent of the women went on to attend two- and four-year colleges, whereas only 66 percent of the men did (National Center for Education Statistics). The difference in enrollment rates between men and women has widened over the last several decades.

Figure 1. College Attainment Rate



Source: IPUMS CPS.

Figure 2. College Attainment Rate, Young Cohort



Source: IPUMS CPS.

Finally, women have more success in graduating from college than men. For example, 60 percent of women in the 2003 freshman class at four-year colleges graduated within six years. The rate for men was 55 percent (National Center for Education Statistics). These statistics track only non-transferring students, so the overall graduation rate of the entering cohort will be somewhat higher.

These differences in educational achievement are reflected in the overall attainment rates of men and women near the end of the traditional schooling process (24-25 years of age). In 2009, 43 percent of the men in this age group had gone no further than high school (they had graduated high school, earned their GED certificates, or dropped out). This compares to 32 percent of women.

While the percentages of men and women in this age group that have attended college but have not yet graduated are similar, the share of women who have gotten a degree is higher. Women have higher educational attainment rates across all three higher-education categories—associate’s, bachelor’s and graduate degrees (figure 4).

Still, many individuals will obtain their college degrees at ages well above the traditional college graduation window. For both men and women, the four-year college degree attainment rates for 24–25 year olds are still well below those for the 25–34 age cohort. In fact, roughly 40 percent of individuals reporting they have attended college but do not have a degree are still enrolled in school. But even in this group, men still have somewhat lower attendance rates than women. So, one shouldn’t expect much of a “late bloomer” catch-up effect for men.

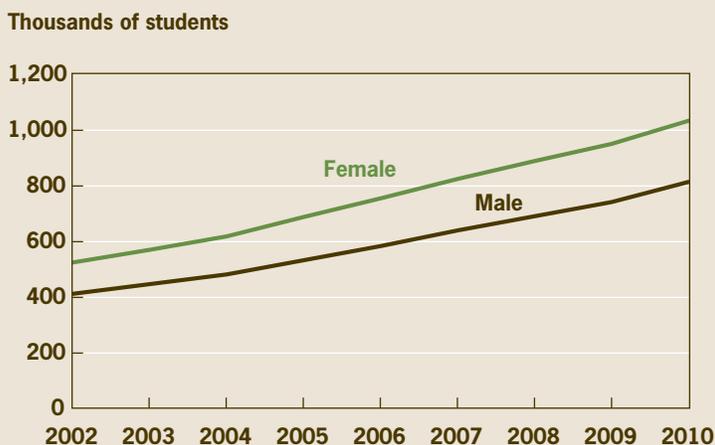
The differences in college attainment rates seen for the U.S. economy as a whole are also evident for most racial groups across the country. In 2009, the gap in college attainment between men and women for African Americans, non-Hispanic whites, and Hispanics averaged between 25 percent and 40 percent (American Community Survey). The only group with a relatively small difference was Asians (5 percent). In addition, the shift toward higher attainment rates for women occurs across all 50 states and in almost all large metropolitan areas.

Labor Market Trends

From an economic viewpoint, the trend in college attainment for women is consistent with labor market fundamentals. The wage rates of college-educated women have risen substantially relative to the wages of high-school-educated women—increasing the expected benefits of a college degree. The gap has widened further over the past two decades but at a more gradual pace. In 2007 (prior to the recession), college-educated women earned roughly 90 percent more than women with just a high school degree (figure 5).

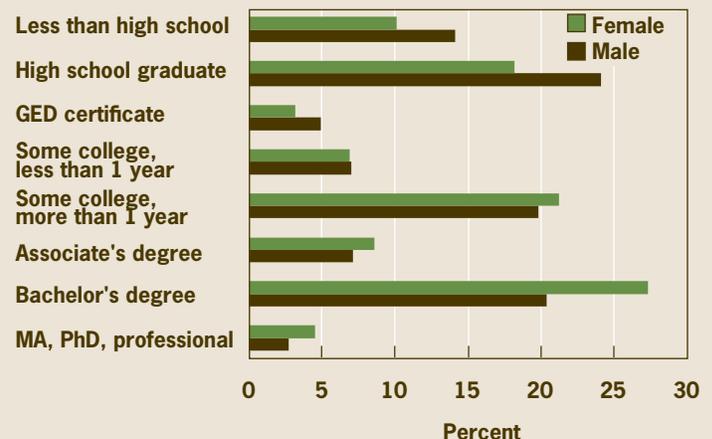
Another trend that affects women’s schooling decisions is women’s growing participation in the labor force. Higher labor force participation rates reinforce the effects of growing wage incentives, as women are more likely to reap the wage benefits of investments in education. The labor force participation rate for women aged 25–34 with a college degree rose to above 80 percent in 1982 and has remained between 80 percent and 85 percent ever since (figure 6). This represents a rate of labor force participation that has typically been 18 percentage points higher than for women with a high school degree or less.

Figure 3. Students Taking Advanced Placement Tests



Source: College Board.

Figure 4. Educational Attainment, 24–25 Year-Olds



Source: 2009 American Community Survey.

Some of this rise in participation has been due to changes in the labor market, such as increased wages and access to a wider variety of occupations. Some was also due to changes in institutions, such as the postponement of marriage and the expansion of child care alternatives. In short, the benefits of investing in a college education may have increased for women.

It is important to note that even as the supply of women with college degrees in the labor force has been rising over time, the wage differential between workers with college and high school degrees has continued to expand, albeit somewhat more slowly in recent decades. This reflects the fact that the increase in the demand for skilled women outpaced the increase in the supply of skilled women, allowing the relative and absolute wages of skill to rise.

While women have increased their educational investment steadily over time, men have not. From 1980 to 2010, college attainment for males aged 25 to 34 increased by only 1 percentage point (figure 2). It has been essentially flat over the last decade.

For males, the labor market incentives to invest in a college education have moved in the same general direction as those for females. The college–high school wage differential for men has continued to expand over time, generally tracking the rise seen for women (figure 5). There has also been a growing gap in the rate of labor force participation between males with a college degree and those with a high school degree or less (figure 6). In 2007 (prior to the last recession), the difference was 7 percentage points, 96 percent versus 89 percent, for men in the 25 to 34 age bracket. Such

differences in labor force participation between college- and high-school-educated males only expand as cohorts become older. In the end, there seems to be no clear-cut difference in the traditional labor market benefits of a college degree for men and women. Economists Gary Becker, William Hubbard, and Kevin Murphy recently argued this point in a research study.

The net result of these shifts in educational attainment and labor force participation rates is that women now supply a little more than half of the overall college-educated hours of labor for the young working cohort. The rise in the share of skilled women in the workforce is reflected in changes in the demographics of many skilled occupations. Back in 1970, 12 percent of women aged 25 to 34 had college degrees, and of those with college degrees about half were primary- and secondary-school teachers (Census data). Women in the young working cohort with college degrees made up only 11 percent of physicians, 9 percent of degreed accountants and auditors, and 1 percent of degreed engineers. By 2009, these patterns had shifted markedly, with 50 percent of physicians, 57 percent of degreed accountants and auditors, and 19 percent of degreed engineers being women.

Basic Differences

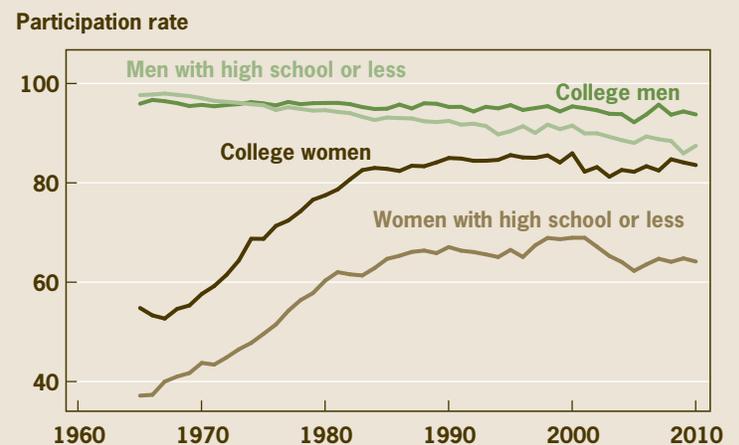
While expanding opportunities and economic benefits for women can explain women’s increased college attainment rates, the stagnation of male college attainment rates (at rates well below women) is harder to explain on purely economic grounds. Analysts have begun to stress differences in young males and females (such as maturation rates, behavioral problems, and noncognitive skill acquisition) that

Figure 5. Hourly Wage Rate, College vs. High School



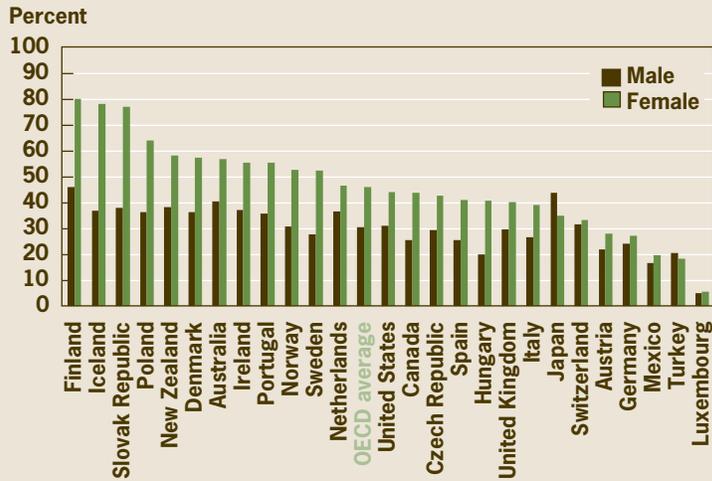
Source: CEPR, Outgoing Rotation Group.

Figure 6. Labor Force Participation Rates, Young Cohort



Source: IPUMS CPS.

Figure 7. Tertiary-Type A Graduation Rates (2008)



Source: Organization of Economic Cooperation and Development, *Education at a Glance 2010*.

may make college, and schooling in general, more costly for males to invest in than females. As the economists Claudia Goldin, Lawrence Katz, and Ilyana Kuzeimko put it—men may have higher “effort costs” to engage in schooling than women, and thus, everything else equal, educational investment looks less attractive to males.

Perhaps somewhat surprisingly, this observed difference in college attainment rates between males and females is not unique to the United States, as OECD data show (figure 7). In almost all countries, except for Japan and Turkey, women have overtaken men in college attainment rates, with women making up an increasingly important fraction of the skilled workforce.

These shifts in skill acquisition across the genders have reshaped labor markets over the past 30 years, altering the demographics of occupations and industries. Moreover, given current enrollment and completion trends in high school and college, it is unlikely that the male–female college attainment gap will be closed anytime soon.

Recommended Reading

“How High School Students Use Time: A Visual Essay,” Mary D. Allard, 2008. *Monthly Labor Review*.

“The Polarization of Job Opportunities in the U.S. Labor Market: Implications for Employment and Earnings,” David Autor, 2010. Center for American Progress and The Hamilton Project, working paper.

“Explaining the Worldwide Boom in Higher Education of Women,” Gary S. Becker, William H. Hubbard, and Kevin M. Murphy, 2010. Milton Friedman Institute, working paper no. 2010-09.

Center for Economic and Policy Research, 2011. CPS ORG Uniform Extracts Version 1.6, Washington, D.C.

“The Homecoming of American College Women: The Reversal of the College Gender Gap,” Claudia Goldin, Lawrence F. Katz, and Ilyana Kuziemko, 2006. *Journal of Economic Perspectives*.

“The American High School Graduation Rate: Trends and Levels,” James J. Heckman and Paul A. LaFontaine, 2010. *The Review of Economics and Statistics*.

“Equally Prepared for Life? How 15-year-old Boys and Girls Perform in School,” Organization of Economic Cooperation and Development, 2009. Program for International Student Assessment.

Integrated Public Use Microdata Series: Version 5.0 [Machine-readable database], Steven Ruggles, J. Trent Alexander, Katie Genadek, Ronald Goeken, Matthew B. Schroeder, and Matthew Sobek, 2010. Minneapolis, Minn.: Minnesota Population Center [producer and distributor].

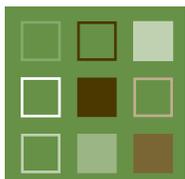


Federal Reserve Bank of Cleveland
Research Department
P.O. Box 6387
Cleveland, OH 44101

PRSR STD
U.S. Postage Paid
Cleveland, OH
Permit No. 385

Return Service Requested:
Please send corrected mailing label to the
above address.

Material may be reprinted if the source is
credited. Please send copies of reprinted
material to the editor at the address above.



Dionissi Aliprantis is a research economist at the Federal Reserve Bank of Cleveland, Timothy Dunne is a vice president and economist at the Bank, and Kyle Fee is a research analyst at the Bank. The views they express here are theirs and not necessarily those of the Federal Reserve Bank of Cleveland or the Board of Governors of the Federal Reserve System or its staff.

Economic Commentary is published by the Research Department of the Federal Reserve Bank of Cleveland. To receive copies or be placed on the mailing list, e-mail your request to 4d.subscriptions@clev.frb.org or fax it to 216.579.3050. *Economic Commentary* is also available on the Cleveland Fed's Web site at www.clevelandfed.org/research.