

Female College Completion: An Analysis By Economists

Goldin, Katz & Kuziemko (GKK) recently analyzed the difference in college achievement between females and males in the United States. They reported the following notable points, among others:

1. "...In 1960, there were 1.60 males for every female graduating from a U.S. four-year college and 1.55 males for every female undergraduate...By 1980, the college gender gap in enrollments had evaporated...In 2003, there were 1.35 females for every male who graduated from a four-year college and 1.30 females for every male undergraduate..." [pp. 133-134]
2. "The decline in the male-to-female ratio of undergraduates during the past 35 years is not due primarily to changes in the ethnic mix of the college-aged population, nor to the types of postsecondary institutions they attend. The substantial decrease in the ratio of male-to-female undergraduates is apparent for all types of institutions including research universities, liberal arts colleges, public institutions, and private institutions; for both full-time and part-time enrollment; and for all ethnic and racial subgroups...The female advantage in college enrollment and graduation is now substantially larger for Hispanics and black non-Hispanics than for white non-Hispanics..." [p.138]
3. "Youth must plan for college in high school. Thus we start with a set of proximate changes in college preparation, which are high school grades (rank), aptitude (or achievement) test scores, and courses taken. We use three longitudinal surveys of high school pupils, but we limit the samples to graduating seniors. Two of the surveys are nationally-representative: the 1972 National Longitudinal Survey (NLS), a sample of high school seniors in the spring of 1972, and the 1988 National Educational Longitudinal Survey (NELS), a sample of eighth-graders in the spring of 1988 who were seniors in 1992. We also use the less familiar Wisconsin Longitudinal Survey (WLS), which commenced in 1957 with one-third of all graduating seniors in the state of Wisconsin. We will mainly use the receipt of a bachelor's degree (four-year college degree) within seven to eight years of high school graduation as the outcome measure, for the sake of convenience across the three samples..." [pp. 139-140]
4. "In all three surveys, girls achieved considerably higher grades in high school than did boys [the female advantages were 27 percentile points; 17 percentile points; and 16 percentile points for the WLS; the NLS; and the NELLS, respectively]..." [p.140]
5. "Whereas girls always achieved higher class-rank than boys, aptitude and achievement tests show a different pattern. For 1957 graduates, junior-year IQ scores—the only cognitive test score measure available in the Wisconsin data—display almost identical distributions by sex. Twelfth-grade math and reading achievement test scores available for the 1972 graduates show that boys did far better in math, whereas girls did better in reading. Boys were more than one-quarter of a standard deviation ahead of girls in math at the mean but trailed by 0.035 of a standard deviation in reading. By 1992, however, girls had widened their lead in reading and narrowed the gap with boys in math..." [p.140]
6. "...in the 1957 Wisconsin data...the average boy took 1.01 semesters of physics, and the average girl took just 0.30 of a semester of physics. By 1992 there was virtual parity in

- almost all science and math courses, and girls remained considerably ahead of boys in foreign languages. In 2000, the male-to-female ratio for overall science courses was 0.97; for physics courses it was 1.21...Although the trend was continuous over the period examined, the greatest advances for girls relative to boys occurred between 1972 and 1982..." [pp. 140-141]
7. "...The enormous catch-up in college outcomes and leapfrogging for females are found in *all* portions of the ability distribution. From the 1957 class to the 1972 class, as college going and graduation rates increased among women relative to men, the greatest changes were initially among the brightest and highest-achieving women and reflected increased sorting on the basis of ability. From 1972 to 1992, relative increases in female graduation rates were found throughout the achievement distribution, although the growth was somewhat larger at the center..." [p. 142]
 8. "...the new gender gap favoring females is found throughout the socioeconomic status distribution. In contrast to the traditional pattern, the female advantage has become greatest (at least in proportional terms) for the families with low socioeconomic status..." [p. 148]
 9. "...three factors that differ by sex and can help explain why females caught up and then surged ahead in college enrollment: changing expectations of future labor force participation; the age at first marriage; and behavioral problems at younger ages..." [p. 148]
 10. "...from the National Survey of Young Women...and the National Longitudinal Survey of Youth...the change in attitudes towards women's employment after marriage changed substantially between the late 1960s and the early 1970s..." [pp.149-150]
 11. "...The median age at first marriage among female college graduates increased by 2.6 years, from 22.4 to 25 years old, for cohorts born 1947-57 (and graduating college around 1969-79). The marriage age continued to increase, so that by the 1968 cohort (which would finish college around 1990) the median age at first marriage was 26.4 years. One important contributing factor was access to reliable contraception through birth control pills. Research indicates this factor positively impacted women's college-going and graduation..., post-college education, chances of having a high-powered professional career, age at first marriage...labor force participation, and age at first birth..." [p. 150]
 12. "...Rising expectations led to the better preparation of young women for college and the world of work. The largest narrowing in the gender gap in high school math and science courses occurred between 1972 and 1982, even though there was convergence during the entire period from 1957 to 2000. Better preparation eventually paid off as girls advanced greatly in math and reading test scores, relative to boys, from around 1980 to 1992. Not only did girls advance to college at greater rates and eventually at rates exceeding those of boys, but they also began to take courses and major in fields that were more career-oriented, especially since the mid-1970s..." [pp. 152-153]
 13. "...Boys have a much higher incidence than do girls of school disciplinary and behavior problems, and spend far fewer hours doing homework...Controlling for these noncognitive behavioral factors can explain virtually the entire female advantage in college attendance for the high school graduation class of 1992, after adjusting for family background, test scores, and high school achievement...our own analysis of the 1979 and

1997 NLSY samples shows that teenage boys, both in the early 1980s and the late 1990s, had a higher (self-reported) incidence of arrests and school suspension than teenage girls and controls for such measures of behavioral problems significantly attenuate the female college advantage. Boys have two to three times the rate of Attention Deficit Hyperactivity Disorder (ADHD) than girls and much higher rates of criminal activity...” [pp. 153-154]

This study has relevance for researchers and policy makers in education including those in the community college domain. Although GKK base their findings upon non-experimental (observational) data, their use of multiple data sources and a cohesive theoretical approach provide a credible explanation for the “new” gender gap in college outcomes in the United States. In terms of policy, readers may want to see how this gender gap manifests within regions or states in terms of differences in postsecondary education participation rates. GKK also demonstrate how researchers will usually need to examine a universe of theoretical social factors over a broad span of time in order to understand the causal nature of a social trend such as differences in college achievement. If a broad set of factors causes an observed social trend, then policy makers will need to understand that a single, limited intervention will have a relatively small effect upon (that is, stopping or reversing) a trend that the policy makers may consider as undesirable.

Claudia Goldin (Professor of economics, Harvard U.), Lawrence F. Katz (Professor of economics, Harvard U.), and Ilyana Kuziemko (Ph.D. student, Harvard U.) document their study in an article (“The Homecoming of American College Women: The Reversal of the College Gender Gap”) in the peer-reviewed *Journal of Economic Perspectives* (Fall 2006, Vol.20, No.4, pp.133-156). Their article includes 31 references, five tables, and six figures.

[Abstract done by Willard Hom, Director, Research & Planning Unit, System Office, California Community Colleges, 7/28/07]