

# The Black Gender Gap in Educational Attainment: Historical Trends and Racial Comparisons

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**Abstract** It is often asserted that the gender gap in educational attainment is larger for blacks than whites, but historical trends comparing the black and white gender gap have received surprisingly little attention. Analysis of historical data from the U.S. census IPUMS samples shows that the gender gap in college completion has evolved differently for whites and blacks. Historically, the female advantage in educational attainment among blacks is linked to more favorable labor market opportunities and stronger incentives for employment for educated black women. Blacks, particularly black males, still lag far behind whites in their rates of college completion, but the striking educational gains of white women have caused the racial patterns of gender differences in college completion rates to grow more similar over time. While some have linked the disadvantaged position of black males to their high risk of incarceration, our estimates suggest that incarceration has a relatively small impact on the black gender gap and the racial gap in college completion rates for males in the United States.

**Keywords** Gender · Educational attainment · Black/African American · Race

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“We have more work to do when more young black men languish in prison than attend colleges and universities across America.”

In June 2007, then-U.S. Presidential candidate Barack Obama made this comment at an NAACP Democratic Candidate Forum (Dobbs 2007). The statement was incorrect; in fact, the latest data available at the time indicated that two-and-one-half times as many young black men aged 18–24 were enrolled in college than in prison,<sup>1</sup> but this misstatement is a prime example of the prevalent perception of a crisis in the education of black males in America. These concerns are echoed in a growing literature on black males’ education (Davis 2003; Downey 2008; Lopez 2003; Mandara 2006; Ogbu 2003; Reynolds and Burge 2008), including a recent issue of the *American Behavioral Scientist* devoted to the African American male crisis in education (Jackson and Moore 2008). According to a special report on “The Ominous Gender Gap in African American Higher Education” in the *Journal of Blacks in Higher Education*, “if we project into the future the losses that black men have consistently logged over the past twenty years, by the year 2097, women will earn all the bachelor’s degrees awarded to blacks in the United States” (Cross 1999:6).

On the issue of black males’ education in the United States, sorting out hyperbole from reality is difficult. It is hindered by the lack of knowledge of trends in college completion and the educational milestones that contribute to college completion over time for different race/gender groups. It is well known that black males trail black females on a range of key educational outcomes, including high school graduation, college enrollment, and college completion. In every year since 2000, no less than 66% of black college degree recipients are women (Snyder and Dillow 2009: Table 284). Such facts appropriately spark concern about the educational progress of black men relative to other groups. But they also raise important questions: How long-standing is the black female advantage in college completion? How has the size of gender gap in college completion among blacks compared with that among whites over the past century? When we consider a broader age range, say young adults in their 20s, does the picture change? Do black men take longer to earn their degrees but catch up to black women as they age? How do patterns of delay in college completion compare for blacks and whites and men and women?

The current study answers these questions by describing how black men’s and women’s college completion evolved over the past 70 years and comparing these trends with those for whites. Some prior research has examined race and gender differences in college enrollment over short periods of recent history. Hauser (1993) analyzed rates of college entry by gender and race from 1972 to 1988. Cohen and Nee (2000) examined enrollments by gender and race from the mid-1970s to the mid-1990s. In contrast, this is the first study to use U.S. census data from 1940–2000 along with American Community Survey data through 2007 to assess historical trends in gender gaps in college completion for blacks and compare them with those for whites. Thus, it illuminates racial differences in the gender gap prior to the 1970s, when white women began the process of overtaking white men in college

<sup>1</sup> In 2005, 193,000 black males aged 18–24 (slightly more than 10% of the total population of this age group) were incarcerated in federal and state prisons and local jails (Harrison and Beck 2006). More than one-half million (530,000) 18- to 24-year-old black males (28% of the total population of black males of this age group) were enrolled in colleges and universities that same year.

completion, as well as in more recent decades. In addition, we examine several of the forces that are likely shaping these trends. We compare college completion rates for black and white women and men against varying incentives and resources to attend college. We show how differing incentives for higher education for each group are consistent with race-specific trends in the gender gap in college completion attributable to racial- and gender-segregated labor markets and differential access to employment and high-status occupations.

Then, to understand how and when men fall behind women in college completion and how the process has changed for different groups over time, we examine historical trends in gender differences in the educational transitions that lead to a college degree (i.e., enrolling in college) and age delay in completing college. Little is known about gender- or race-specific trends in delay that affect the age of college completion or historical trends in delaying college enrollment and completion.

Finally, we consider the degree to which rising incarceration rates among black men may have affected the gender gap in college completion among blacks. Since the 1970s, a disproportionate number of black men are in prison and jail (Langan 1991; Pettit and Western 2004). To the best of our knowledge, no research estimates the effect of incarceration on the black gender gap in college completion. We use the Current Population Survey coupled with data from the Surveys of Inmates in State and Federal Correctional Facilities to illustrate the potential effect of incarceration. Then we use data from the National Educational Longitudinal Study of 1988 along with published results from prior research to argue that incarceration is more consequential for earlier educational transitions than for college completion.

Taken together, the examination of historical trends in college completion, along with the occupational opportunities for college graduates, the trends in educational transitions, the pattern of age delay in college completion, and the potential impact of incarceration on these trends provides insights into how and why gender gaps in college completion for blacks and whites evolved from the 1940s to the present.

## Historical Trends in College Completion by Gender and Race

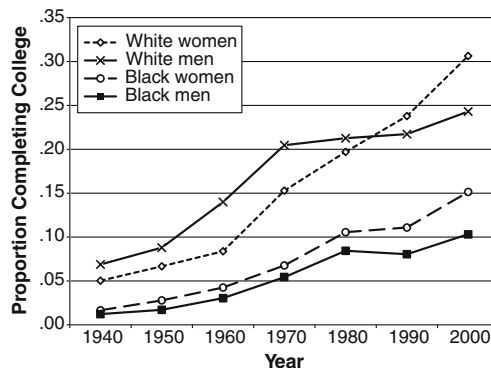
Among whites, women surpassed men in bachelor degree completion for the first time in the mid-1980s. As early as 1954, however, women made up 58% of the students enrolled in historically black college and universities, where the majority of black college students were enrolled (Cross 1999). When the Census Bureau began tracking bachelor's degrees by race and gender in 1974, women earned 57% of all degrees awarded to blacks (Cohen and Nee 2000). These statistics suggest that the historical trend in college completion for blacks is not marked by the reversal of a gender gap that once favored males, as it is for whites, but rather entails a long-standing female advantage. To determine whether this is the case, we examine historical trends in the college completion by race and gender. We are not able to determine empirically the complex sources of these trends. Rather, we draw from the literature on historical changes regarding incentives and resources related to college completion and analyze trends in labor force participation and occupational attainment by race and gender to develop plausible explanations for the trends in college completion.

We analyze trends in college completion using decennial census data from 1940 to 2000 from the Integrated Public Use Microdata Series (IPUMS). The IPUMS provides information for both the noninstitutionalized and the institutionalized population, which includes people in jails, prisons, and other group quarters (Ruggles et al. 2010). With these data, we also analyze how trends in gender differences in rates of college completion vary over time by both age and cohort. The sample is limited to blacks and non-Hispanic whites. Because of changes in how the census coded race over time, prior to 2000, the “black” group includes individuals who self-identify as African American or black (including Hispanics). In 2000, the “black” group includes any individual who identified as black plus any individual who identified as biracial or multiracial, with one of their races being black or African American. We generally limit our sample to 22- to 28-year-olds to estimate college completion rates among individuals who should have completed a college degree in the recent past—relative to the time of data collection—and thereby exclude consideration of degree attainment in later adulthood. Figure 1 displays trends in the proportion of 22- to 28-year-olds completing college since 1940. Notably, trends in the gender gap are markedly different for blacks and whites. The pattern for whites is marked by a reversal of the gender gap. A larger portion of white men completed college than women from 1940 until about 1980. White women’s rates of college completion increased in every decade since 1940 and especially from 1960 onward. The percentage of white women earning a bachelor’s degree nearly quadrupled from 8% in 1960 to 31% in 2000, and women surpassed men in college completion in the mid-1980s.

The trend for blacks is quite different. At no point did a larger proportion of black men complete college than black women. Less than 1% of black men earned a college degree in 1940, compared with less than 2% of black women. By 2000, approximately 10% of black men and 15% of black women completed college. Blacks’ rates of college completion have steadily risen over time, but more rapidly for women than for men. For blacks, women have held a consistent advantage in college completion over men for more than 70 years; for whites, women’s advantage in college completion emerged in recent decades.

Greater insights are gained when we examine this 60-year period in three phases: prior to 1950, 1950–1980, and 1980 onward. The early 1900s through about 1950

**Fig. 1** Proportion of 22- to 28-year olds completing college, by race and gender



was marked by gender similarity for blacks and whites, with higher rates of college completion for whites than blacks. Evidence indicates that during the first three decades of the twentieth century, when very few people completed college, men and women graduated from college at roughly equal rates (Fischer and Hout 2006; Rury 2009). Even by 1950, gender gaps in college completion remained small; white females trailed white males by only 2 percentage points, and black males trailed females by 1 percentage point.

From 1950 onward, a sustained period of economic growth and expansion of higher education raised the college completion rates of all groups, albeit at very different velocities. Between 1950 and 1980, the gender pattern for whites was one of divergence and then convergence. Males pulled well ahead of females between 1950 and 1960 and maintained this advantage until 1970. Reasons for the upward trend in white men's rates of attaining a bachelor's degree between 1950 and 1970 are complex, but one factor may have been the Servicemen's Readjustment Act of 1944, or "G.I. Bill of Rights" (hereafter referred to as the "G.I. Bill"), which from 1944 onward offered educational benefits to veterans of World War II and later the Korean War (Bound and Turner 2002; Stanley 2003). Indeed, Stanley (2003) showed that the trend in BAs for males after WWII was along the same trajectory established in the 1936–1940 period. This finding is consistent with an interpretation that the G.I. Bill offset the direct negative effect on educational attainment that would have been produced by military service during the years when some GIs otherwise would have been in college. Beginning in the 1960s, college draft deferments during the Vietnam War (Goldin and Katz 2008), along with the growing capacity in the American university system and rising demand for college-educated workers in the American labor market (Fischer and Hout 2006), were factors underlying the steady increase in men's college completion rates.

White women's gains were also substantial during this period. One source of rising rates of college completion among white women was their rising labor force participation, particularly in professions requiring higher education. Women increased their labor force participation rate from 20% in 1900 to 60% in 2000 (Fischer and Hout 2006). The sources of this remarkable trend are well documented elsewhere (Goldin 1990; Matthaei 1982). Women's movement into occupations requiring some form of higher education—teaching, nursing, and white-collar clerical work—increased their incentives to earn a college degree. In the early decades of the twentieth century, the teaching profession became rapidly feminized, and school administrators' preferences for unmarried female teachers created an almost constant demand for new teachers; as women left the profession upon marriage, younger women stepped in to fill their ranks (Rury 2009:110). By the early 1940s, the pervasive marriage bars that excluded the employment of married women were almost completely eliminated and married women entered the labor force in greater numbers (Goldin 2006). Later, the Civil Rights and women's liberation movements (which brought legislative and cultural changes), coupled with contraceptive technologies that enabled women to control their fertility, led to increased incentives and reduced barriers for women to go to college and pursue careers (Goldin and Katz 2001). Between 1970 and 1980, college completion rates for white males and females converged as male enrollments stagnated, but female enrollments continued to rise.

For blacks, the period from 1950 to 1980 was one of continued gender similarity, with both males' and females' college enrollment rates growing very slowly. The much lower rate of college completion for blacks than whites was due in part to the lack of educational resources devoted to blacks, especially in southern states, where the majority of blacks resided (Rury 2009). Black men in the South also benefited less from the G.I. Bill. While the G.I. Bill was race-neutral in statutory terms, in southern states, segregation and severely limited state investment in the colleges accessible to blacks restricted the extent to which southern black veterans could use G.I. benefits to obtain a college degree (Turner and Bound 2003). Thus, throughout much of the mid-twentieth century, college completion rates of blacks—especially those of black males—were constrained by lack of resources, including access to education and sources of funding to pay for it. At the same time, very different structures of occupational opportunities for blacks and whites and men and women likely created different incentive structures for each group.

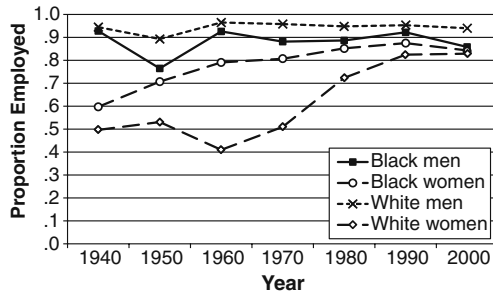
To compare how college completion rates may be related to employment and occupational opportunities, we examine the percentage of individuals aged 28 to 32 (the age group most likely to have completed a college degree and be employed) with a bachelor's degree who are currently employed during each census year. Additionally, we examine gender and racial differences in the proportion of individuals employed in high-status (doctors, lawyers, managers, and engineers) or female-dominated (teachers and nurses) occupations that historically required a bachelor's degree.

Having a bachelor's degree increases the likelihood of employment for all groups in all decades (results not shown).<sup>2</sup> Figure 2 shows the proportion of black and white male and female 28- to 32-year-olds with a bachelor's degree who were employed. The fact that black men with bachelor's degrees had lower employment rates than white men with bachelor's degrees in all decades suggests that even highly educated black males faced barriers to employment commensurate with their level of education. As Rury (2009:122) explained, "even in the North, African Americans encountered great trouble in gaining employment commensurate with their credentials. Racism permeated the job market and served to dramatically counteract the benefits of schooling for African Americans."

The small but prolonged female advantage in college completion for blacks prior to 1980 may also be related to the high labor force participation rates of black educated women. Black college-educated women were far more likely to be employed than white college-educated women until the 1980s. In 1930, black women were three times more likely to work than white women. By 1970, black women worked 1.3 times more than white women (Goldin 1990). In fact, Fig. 2 indicates that employment rates were higher for college-educated black than white

<sup>2</sup> Between 1940 and 2000, the proportion of white men without a BA who were working varied between .85 and .89, compared with .89 and .95 for those with a BA (results available from authors upon request). For black men without a BA, the proportion employed has steadily declined from 1940 to 2000, from .84 to .62, and has remained steady for those with a BA (between .86 and .93). Black and white women's employment rates increased over time, but women with a BA were more likely to be employed at all time points. In 1940, the proportion of white and black women with a BA who were employed was .50 and .60, respectively, compared with .28 and .43 without a BA. By 2000, these proportions were, respectively, .83 and .84 with a BA compared with .68 and .64 without a BA.

**Fig. 2** Proportion of 28- to 32-year-olds with a bachelor's degree that are employed, by race and gender



women at all time points. Historically, black women worked more because black families had lower incomes, owing in part to black men's higher unemployment rates and lower education levels than white men. However, family and individual characteristics are not the only reason for black women's high labor force participation. Goldin (1977) found that black women worked more than white women even if they had the same education level, family income, and number of children. One legacy of slavery was that paid work was less socially stigmatized for black women than white women throughout the twentieth century (Goldin 1977). As a consequence, the employment gap among college-educated women and men was much smaller for blacks than for whites. Historical differences in labor force participation rates of black and white women arguably contributed to the higher rate of college completion of black women relative to black men.

While large racial differences in college completion have persisted throughout the period under study, the gender trend for blacks and whites became similar because of changes in the impact of gender as well as race on labor market opportunities. In the 1980s, a large female advantage in college completion emerged for both racial groups (see Fig. 1). The stagnation in the proportion of male BA holders in the 1980s for both blacks and whites is also striking. Between 1980 and 1990, black women's BA receipt rose more slowly than white women's, but their rapid gains between 1990 and 2000 meant that by 2000, the gender gap in college completion among blacks (.48) was approaching that for whites (.63).

To understand further the changing incentives for higher education, we examine differences in the types of occupations held by race and gender groups. Table 1 presents the percentage of employed 28- to 32-year-olds with a bachelor's degree in various occupations by gender and race for five main occupational groups: doctors, dentists, and lawyers; engineers; managers and other proprietors; teachers; and nurses. These five occupational categories represent some of the most prestigious and high-paying occupations that require at least a bachelor's degree and traditionally female-dominated occupations that require a college degree. All other occupations are grouped into a sixth category.<sup>3</sup>

Of the five major occupational groups, the majority of college-educated black and white women worked as teachers from the 1940s through the 1970s. The second

<sup>3</sup> The grouping "doctors, dentists, and lawyers" includes all types of doctors as well as veterinarians and judges. "Teachers" does not include college instructors or professors. "Nurses" includes professional and practical nurses.

**Table 1** Percentage of employed 28- to 32-year-olds with a bachelor's degree working in various occupations

	1940	1950	1960	1970	1980	1990	2000
<b>Black Women</b>							
Doctors, dentists, or lawyers	0.0	0.0	0.8	0.6	2.0	3.1	3.3
Engineers	0.0	0.0	0.0	0.0	0.9	1.5	2.1
Managers and other proprietors	0.0	0.0	0.8	0.6	5.6	9.2	10.3
Teachers	56.9	65.1	61.2	64.5	35.1	15.7	14.8
Nurses	3.5	0.0	3.7	3.3	3.6	6.5	5.1
Other	39.7	34.9	33.5	31.1	52.9	64.0	64.4
<b>White Women</b>							
Doctors, dentists, or lawyers	0.9	2.2	1.5	1.1	2.4	4.1	3.8
Engineers	0.2	0.0	0.4	0.3	0.7	2.0	2.0
Managers and other proprietors	1.5	1.8	2.1	2.1	6.6	11.3	11.4
Teachers	53.3	33.9	45.4	50.7	33.9	17.5	19.5
Nurses	2.7	12.1	5.3	3.9	5.6	7.5	5.3
Other	41.4	50.0	45.2	41.9	50.8	57.6	58.1
<b>Black Men</b>							
Doctors, dentists, or lawyers	5.1	5.7	5.0	2.2	4.3	4.3	3.5
Engineers	0.0	0.0	2.5	4.3	4.7	4.8	4.8
Managers and other proprietors	2.6	5.7	2.5	5.2	8.9	12.2	13.8
Teachers	35.9	28.6	31.5	29.2	12.4	7.6	10.3
Nurses	0.0	0.0	0.5	0.3	0.6	0.5	1.7
Other	56.4	60.0	58.0	58.8	69.1	70.6	65.8
<b>White Men</b>							
Doctors, dentists, or lawyers	15.7	10.4	8.4	6.9	7.9	6.8	5.4
Engineers	7.5	11.1	12.5	11.3	6.8	9.1	7.7
Managers and other proprietors	9.4	11.6	11.3	10.5	15.4	17.7	17.6
Teachers	11.4	7.2	11.1	12.9	9.7	5.7	7.3
Nurses	0.2	0.1	0.1	0.3	0.7	0.7	0.9
Other	55.9	59.7	56.7	58.2	59.5	60.0	61.2

Source: 1940–2000 IPUMS.

most common occupation for college-educated women in those years, nursing, was far less common than was teaching. In the 1970s, women moved into other occupations, including management, medicine, law, and engineering. It is no surprise that white men were the most likely to occupy the most prestigious jobs over time in both the professions and the corporate world. College-educated black men, in contrast, were largely shut out of high-status occupations. In 1940 and 1950, there were almost no college-educated black male engineers, and less than 6% of black males with a degree worked as doctors, dentists, and lawyers, or managers—compared with at least 7% to 16% of white men working in each of these fields. Instead, black men were more likely to be working as teachers than in any other



occupation. Women's access to jobs as teachers was a likely incentive for them to complete a college degree. Because black men could not gain access to the high-paying jobs that white men with college degrees held, their incentives to complete a college degree were lower.

### **Educational Transitions and Delay in College Completion**

The pathways that American students take from high school to the completion of a college degree are punctuated by necessary transitions (Carbonaro et al. 2011; Goldrick-Rab 2006; Mare 1981; Pallas 2003). In the United States, many youth are not eligible to become college students because they have not earned a high school diploma or completed a GED. High school graduates must navigate several more steps (e.g., applying to college, being admitted into college, and matriculating) before they become college students. Of course, only individuals who enroll in college can graduate from college. Therefore, group differences in college completion rates can be decomposed into differences in the high school completion rate; the transition to college rate; and the conditional probability of completing four year college, given college entry.

Evidence indicates that the current female advantage in college completion in the United States is due to female advantages at various transition points. For example, among blacks and whites, females have been less likely to drop out of high school than males since the mid-1990s. In 2005, almost 11% of males aged 16–24 were dropouts, compared with 8% of females (Snyder et al. 2008). Furthermore, male high school graduates are more likely to have completed this transition with a GED, which reduces future educational and labor market prospects compared with high school diploma recipients (Cameron and Heckman 1993; Mishel and Roy 2006). Today, females are also more likely to enroll in four-year colleges than males. Together, the female advantage in high school completion and college enrollment explain, in part, the higher college completion rates of females relative to males.

In recent years, males have been more likely than females to delay college enrollment. Prior research finds that students who enroll in college directly after high school have higher rates of persistence in college and college completion (Bozick and DeLuca 2005; Horn et al. 1995). Carbonaro et al. (2011) found that females who make an on-time transition into college have an advantage over males in college completion. Of those who enrolled in college in the year 2000, 60% of men compared with 66% of women enrolled immediately after high school (Freeman 2004). This gender gap in timing of college enrollment is likely due to male delays in high school completion resulting from factors such as the growing tendency for boys to begin elementary school at older ages (Graue and DiPerna 2000; Malone et al. 2006), boys' higher rates of grade retention in elementary school (Dauber et al. 1993; McCoy and Reynolds 1999), and their higher high school drop-out rates and reliance on the GED to complete secondary school, relative to girls (Snyder et al. 2008).

Once enrolled in college, women attain a degree more quickly than men. For example, of all students who entered college in the fall of 1995, 66% of women and 59% of men had completed a bachelor's degree by 2001. Men were more likely to

have no degree or to not be enrolled as of 2001, but they were also more likely to still be enrolled in college than women. Gender gaps in time to degree also vary by race. Although 71% of white women and 50% of black women had completed a bachelor's degree in this period, only 62% of white men and 37% of black men had done so (Freeman 2004). To gain insights into when and how men fall behind women in the educational pathways to college completion and how the process has changed over time, we first examine historical trends in gender differences in age delay in college completion. Then we analyze gender differences in two key transitions: enrolling in college and completing college, conditional on college enrollment.

### Age-Specific Delay in College Completion

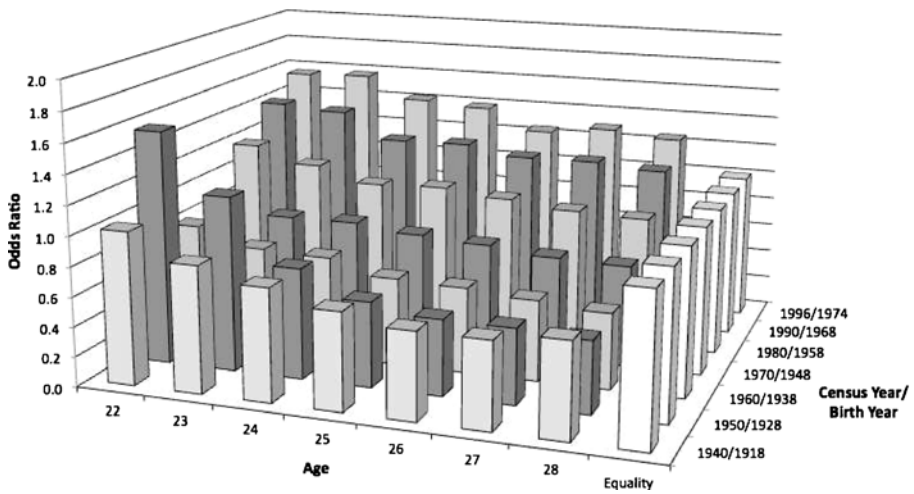
With 1940–2000 IPUMS data, we examine when individuals complete college and whether they delay earning a bachelor's degree. We estimate age effects that control for cohort by linearly interpolating rates of college completion at each age from 22 to 28 for all birth cohorts and report simulated age-specific rates of college completion for cohorts that were 22 years of age each census year.<sup>4</sup> In other words, we report results for the 1918, 1928, 1938, 1948, 1958, and 1968 birth cohorts, which correspond to individuals who were 22 years old in 1940, 1950, 1960, 1970, 1980, and 1990, and interpolate their experience through age 28. For the 2000 census, we report results for the 1974 birth cohort, using interpolated rates for ages 21–25, exact rates for age 26 from the 2000 census, and extrapolated rates for ages 27 and 28.<sup>5</sup> Table 3 in Online Resource 1 provides the raw census data table that includes the age-, gender-, race-, and census year-specific proportions completing college and sample size.

Figures 3 and 4 report the female-to-male odds ratios of completing college, using simulated cohorts as described earlier for whites and blacks. The white bars on the right side of each figure show equal odds as a reference point. Each bar provides a snapshot of the gender gap in college completion at each age for each birth cohort. Following the horizontal axis, from ages 22 to 28, we can observe delay in college completion within each birth cohort. For example, bars for the most recent birth cohort (1974) of whites (see Fig. 3) show that women were more likely to complete college at age 22 than men (odds ratio=1.56), but this advantage decreased by age 28 (odds ratio=1.25). This suggests that men delayed finishing college such that by age 28, they had closed some of the gender gap in college completion.

In Fig. 3 for the 1918 cohort, white male and female completion rates at age 22 are at parity, but by age 28, white females have only two-thirds the odds of

<sup>4</sup> Ideally, we would use longitudinal data to track successive cohorts across different ages, but such information is not available in IPUMS, which provides only a snapshot of educational attainment at the point when the census data are collected. In the 1980 census, for example, individuals who were age 22 were born in 1958, and individuals who were age 23 were born in 1959. If the rate of completing college rises across cohorts, then we would expect college completion rates for 23-year-olds in 1980 to be higher than for 22-year-olds by virtue of being older. At the same time, we would expect college completion rates of 23-year-olds in 1980 to be lower than those of the 22-year-olds after they age another year (e.g., 23-year-olds in 1981) by virtue of the fact that the 23-year-olds in 1980 are from an earlier cohort.

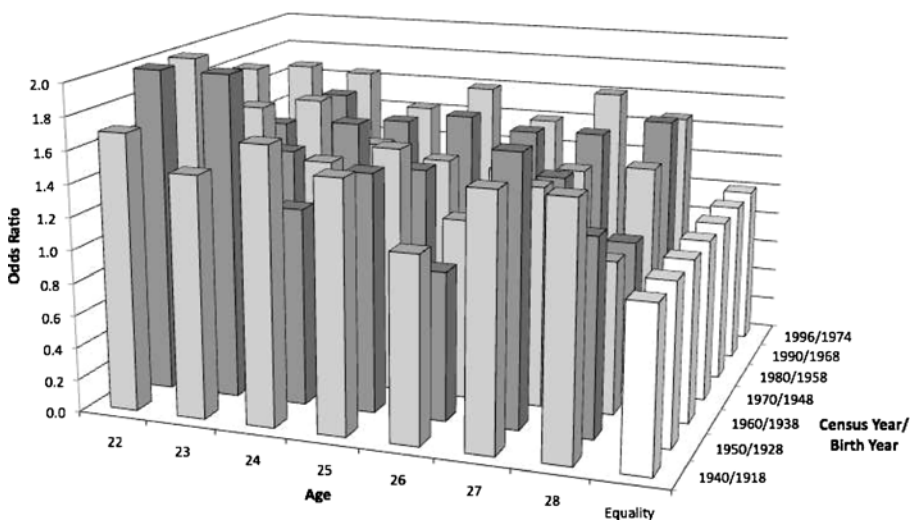
<sup>5</sup> To avoid excess extrapolation, we simulate using the 1974 instead of the 1978 birth cohort.



**Fig. 3** Changing odds ratios of completing college, white females to white males. Data are from the 1940–2000 IPUMS, interpolated age-specific rates by cohort (extrapolated for the 1974 cohort)

completing college as do white males. The initial male disadvantage is even stronger in the 1928 cohort, but the white male catch-up is stronger, too, such that the female odds of completing college are only one-half (.48) of the male odds by age 28. The relative low point for white females occurs for the 1938 cohort; white females lag behind males at age 22, and they continue to fall behind, having only .46 the odds of completing college as white males by age 28.

Thereafter, white women began a steady advance in college completion that produced the current female-favorable gender gap. Women in the 1958 cohort have



**Fig. 4** Changing odds ratios of completing college, black females to black males. Data are from the 1940–2000 IPUMS, interpolated age-specific rates by cohort (extrapolated for the 1974 cohort)

higher odds than white males of completing college at both age 22 and 23. As with the earlier cohorts, the 1958 female birth cohort gradually falls behind males with age, but by age 28, they still have 89% of men's odds of completing college. By the 1968 cohort, women surpassed their male counterparts in college completion at all ages, although their lead diminishes with age, from 41% greater odds of completing a BA at age 22 to 12% greater odds by age 28. For the most recent cohort (the 1974 cohort), the white female advantage is very large: they have 56% greater odds of obtaining a BA by age 22, and 25% greater odds at age 28.

Figure 4 shows that the results for blacks are not as stable as for whites, both because the total sample size across the seven IPUMS samples is smaller (154,998 vs. 1,048,448 for whites) and because their rates of college completion are so much lower: in 2000, approximately 12% of blacks completed college compared with 25% of whites. Nonetheless, black women clearly have higher odds of completing college than black men across all time points and most ages. Like white males, black males delayed college completion, and this pattern persisted for many decades. Unlike white males, however, black men typically did not make up their educational deficit with women by the age of 28. Black men reached parity by age 28 in the 1938 and 1948 birth cohorts (.95 and .95) but fell further behind black women in the three most recent birth cohorts.

To obtain a clearer, more stable comparison of the educational experiences of whites and blacks, Table 2 displays the results of a logistic regression trend analysis predicting college completion of the census data from Table 3 in Online Resource 1. Here, we specify age and census year to have linear effects and centered both variables (age 25 and census year 1970 were set to zero). Year is divided by 10 to represent changes in decades. Columns A and B report separate analyses for blacks and whites. Column C reports analyses for the combined samples of blacks and whites with all two-way interactions between age, year, gender, and race specified. Column D contains the model with all three-way interactions present. (The four-way interaction term was not statistically significant, so it was not included in the specification.) In all cases, we report odds ratios, where unity implies no effect.

The coefficients in columns A and B parallel the trends visible in Figs. 3 and 4; rates of college completion rose with age and over time, in particular for older individuals (represented by the positive coefficients for age and year). Within a cohort, males delayed college completion relative to females (female  $\times$  age), and the female rate of completion rose across cohorts relative to that of males (female  $\times$  year). The main effect of female (which applies to individuals at age 25 in 1970) is much larger for blacks (1.355) than whites (0.822), and the female trend term (female  $\times$  year) is much stronger for whites (1.157) than for blacks (1.033). The educational delay was larger for black males than for white males (main effect of age: 1.128 for blacks and 1.115 for whites) and also for black females (1.128  $\times$  0.961 = 1.084) than for white females (1.115  $\times$  0.939 = 1.047).

Columns C and D assess trend differences between whites and blacks by combining blacks and whites into a single sample. Column C shows that the greater educational delay for blacks (black  $\times$  age = 1.015) is statistically significant and that the advantage in college completion is greater for black females than for white females (black  $\times$  female = 1.409) and highly statistically significant. Column C also shows that blacks were gaining educationally across this entire period relative to

**Table 2** Logistic Regression for the probability of completing college by age, year, gender, and race

	A: Blacks	B: Whites	C: Total	D: Total
Age	1.128*** (0.01)	1.115*** (0.00)	1.115*** (0.00)	1.119*** (0.00)
Year	1.350*** (0.01)	1.225*** (0.00)	1.228*** (0.00)	1.227*** (0.00)
Age × Year	1.011*** (0.00)	1.018*** (0.00)	1.017*** (0.00)	1.014*** (0.00)
Female	1.355*** (0.04)	0.822*** (0.01)	0.827*** (0.01)	0.822*** (0.01)
Female × Year	1.033** (0.01)	1.157*** (0.00)	1.149*** (0.00)	1.155*** (0.00)
Female × Age	0.961*** (0.01)	0.939*** (0.00)	0.941*** (0.00)	0.931*** (0.00)
Black			0.283*** (0.01)	0.259*** (0.01)
Black × Female			1.409*** (0.03)	1.654*** (0.05)
Black × Age			1.015** (0.01)	1.016 (0.01)
Black × Year			1.032*** (0.01)	1.103*** (0.01)
Black × Age × Year				0.992* (0.00)
Female × Age × Year				1.009*** (0.00)
Female × Black				1.019 (0.01)
Female × Black × Year				0.892*** (0.01)
<i>N</i>	154,998	1,048,478	1,203,466	1,203,466

Notes: Exponentiated coefficients. Standard errors are in parentheses.

Source: 1940–2000 IPUMS.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

whites (black × year = 1.032). Column D adds three-way interaction effects. The relatively high white educational delay diminishes somewhat over time (black × age × year = 0.992) as does the overall level of male delay (female × age × year = 1.009). The last coefficient (female × black × year = 0.892) confirms the pattern in Figs. 3 and 4; black females' large advantage over black males in earlier years relative to white females' advantage over white males diminished substantially during the past 30 years, as white females made dramatic gains in college completion relative to white men. In other words, over time, whites began to resemble blacks in their pattern of gender

difference; the age-specific odds ratios of completing college for blacks and whites for the 1974 birth cohorts are much more similar than are the odds ratios for the 1918 cohort.

### Educational Transitions

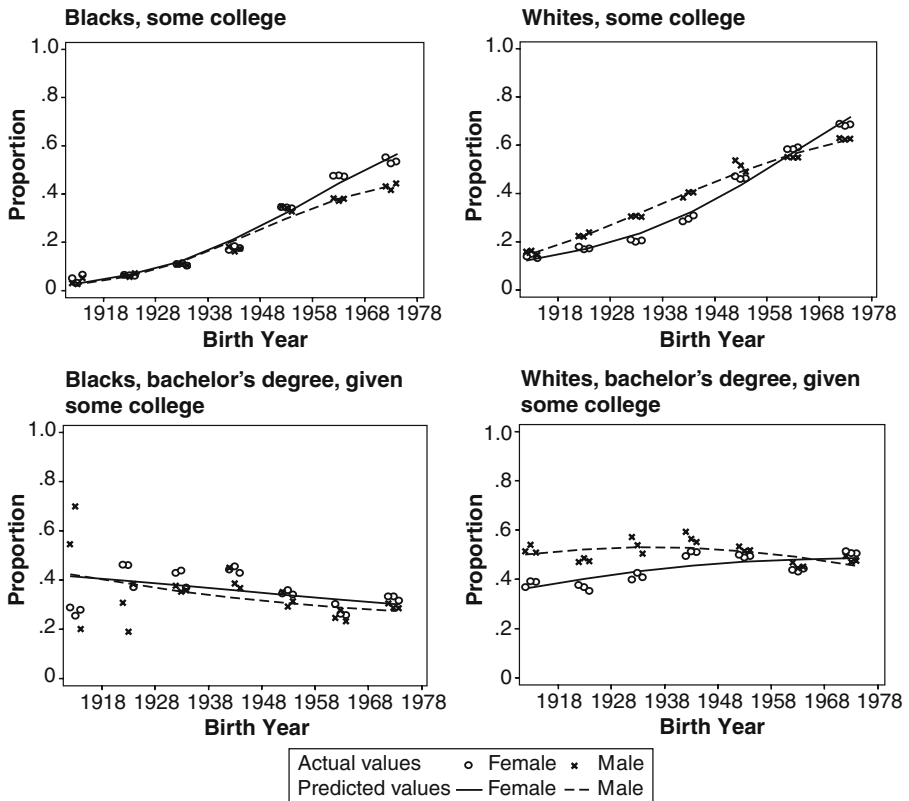
Results of the previous analyses suggest that men delay college completion compared with women. To determine when in the educational process this delay occurs, we analyze gender and race differences in key educational transitions. Using the 1940–2000 IPUMS data, we compute the probabilities of enrolling in postsecondary education and completing college, given enrollment, for all observable birth cohorts of individuals aged 22 to 28. Because completed education at every age is known, we can compute the proportion of a group that has completed a specific number of years of education conditional on having completed a particular educational level. Thus, we can analyze differences in the rate of college completion between men and women, for whites and blacks, at any specific age, and for a particular birth cohort in terms of their relative probabilities of completing each of the transitions necessary to complete college.

Figure 5 presents the decompositions in terms of two transitions by gender and race: first, the unconditional probability of obtaining some college (e.g., college enrollment), and second, the probability of obtaining a bachelor's degree, conditional on college enrollment. The figure shows actual data points for each cohort as well as fitted proportions completing each of the transitions by birth cohort from a second-degree fractional polynomial regression. We analyzed trends in educational transitions for both younger (aged 22–24) and older (aged 26–28) respondents, and results look very similar. To conserve space, we present only the older age group (results for younger age group available upon request from authors).

Figure 5 demonstrates that the rising gender gap among blacks is largely attributable to the different unconditional rates of enrolling in college. The top left panel of the figure shows that the rates of college enrollment rose for both genders over this period, but the rise was faster for women than men. This rise in college enrollment involved both increased rates of enrollment in community colleges (Snyder et al. 2006) and a more academically diverse population opting to enroll in higher education.<sup>6</sup> Both of these processes probably contributed to the declining odds of completing college, given college entry, for black men and women, which is evident in the bottom left panel of Fig. 5. The fitted decline in the odds of completing a bachelor's degree, given college entry, was somewhat steeper for black men than for black women, but the main female advantage stemmed from women's more rapid rise in college enrollment.

The right column of Fig. 5 portrays the corresponding graphs for whites. The top panel shows that, like blacks, whites experienced rising unconditional rates of college entry. The white male rate of completing a bachelor's degree, conditional on college enrollment, was constant or declining over the past 30 years. This pattern is

<sup>6</sup> Buchmann and DiPrete (2006) found that students who begin in community college are significantly less likely to earn a four-year degree than students who begin in a four-year college even though a considerable fraction of community college students do eventually transfer to four-year institutions.



**Fig. 5** Proportion of 26- to 28-year-olds completing some college and college, given some college, by race. Data are from the 1940–2000 IPUMS

similar to that for blacks and probably arises for the same reasons: the rising share of postsecondary students in community college and the broadening self-selection into postsecondary education. Just as for blacks, the rising female advantage in college completion for whites is largely due to rising unconditional rates of college entry. However, the gender gap in completing college, given some postsecondary education, is larger for whites than for blacks; and whereas the black female line trends slightly downward, the white female line trends upward. In combination with the strong gender gap among whites in trends in college entry, the gender gap for whites in trends in college completion contributes to the strong female-favorable trend in the unconditional probability of completing college by ages 26–28 for whites.

Because the census data do not distinguish whether individuals earned a high school diploma or received a GED, educational transitions—such as high school graduation or college enrollment conditional on high school graduation—cannot be examined with much precision. This is problematic for three reasons. First, the proportions of successive cohorts completing high school with a GED have changed over time. Second, the proportion earning a GED varies by gender. Third, diplomas and GEDs imply different future prospects at least partly because of nonrandom selection into the GED route (Cameron and Heckman 1993; Heckman and La

Fontaine 2007). With these caveats noted, we present the trends in high school completion (whether by diploma or by GED) and the probability of completing at least some college, given high school completion (either by diploma or by GED) in Fig. 8 in Online Resource 2. For both blacks and whites, high school completion rates have risen substantially from 1940 to 2000, but these trends moved in parallel for males and females. Similar to the trends in the unconditional probability of college entry, the trends in the conditional probability of college entry, given high school completion, rose for both blacks and whites over time, but it rose at a higher rate for black or white women than for black or white men.<sup>7</sup> In sum, for both blacks and whites, the female advantage in college completion is largely due to women's greater likelihood of enrolling in college, in addition to their small advantage over men in completing college once enrolled.

The comparisons discussed to this point focus on gender differences within racial groups, but it is also illuminating to focus on racial differences for males and females. Figures 9 and 10 (Online Resource 2) reexpress the information presented, respectively, in Figs. 3 and 4 as racial comparisons that control for gender (the census years are reordered relative to Figs. 3 and 4, and the odds-ratio reference bars are set to 2.0 for greater clarity). These figures show that progress in closing the black-white gap in college completion appears to be greater for males than for females, but in light of the trends portrayed in Fig. 1, this is likely due to the lack of gains that white males have made over time. The odds of completing college for white males were typically at least four times those of black males for all age groups from 1940 to 1960. However, black males made substantial gains *relative* to white males, such that by 2000, white males' odds of completing college were only slightly more than twice as high as black males' odds for all age groups. In contrast, black females have not been able to gain in relative terms on white females because both groups of women, but especially white women, have increased their rates of college completion.

## Incarceration and the Racial Gender Gap

Both research and conventional wisdom often assume that more young black men are currently in jail or prison than in college. A 2002 report produced by the *Justice Policy Institute* stated that 678,300 black men were incarcerated in 1994, while only 549,600 were enrolled in college (Schiraldi and Ziedenberg 2002). However, this figure is misleading because it includes the total population of incarcerated blacks, not college-aged males. More recent figures show that in 2005, 193,000 black males aged 18–24 (slightly more than 10% of the total population of this age group) were incarcerated in federal and state prisons and local jails (Harrison and Beck 2006). More than one-half million (530,000) 18- to 24-year-old black males (28% of the total population of black males of this age group) were enrolled in college that same

<sup>7</sup> Black males are more likely than black females to complete high school via a GED than via earning a diploma (Dynarski 2007), and this difference may be important in accounting for the gender gap in the transition to postsecondary education, especially if the gender gap in high school completion via the GED is itself a rising trend.



year. Even though more young black men are in college than prison, the risk of incarceration for black men is much higher than any other group. Black men are about seven times more likely to have a prison record than white men, and among the 1965–1969 birth cohorts of black men, more are likely to have a prison record (22%) than a bachelor's degree (almost 13%) (Pettit and Western 2004). These findings, coupled with the fact that incarceration rates have risen substantially in recent decades, beg the question, is the black gender gap due, in part, to black men's high rates of incarceration?

Between 1925 and 1975, incarceration rates in the United States held stable at roughly 100 per 100,000 of the resident population; but after 1975, the incarceration rate increased rapidly; and by 2001, it was 472 per 100,000, nearly five times its historical average (Langan 1991; Pettit and Western 2004). Black men are overrepresented in prisons and jails in the United States, accounting for 46% of the state and 38% of the federal prison populations. Black men also have a much higher risk of imprisonment over their lifetime (29%) than white men (4%) (Pettit and Western 2004). The numbers are even more striking among black men without a college education. Of the 1965–1969 birth cohorts, almost 32% of non-college-educated black men experienced incarceration by the ages of 30 to 34, and a staggering 52% of black high-school dropouts had a prison record (compared with 6% and 13% of white men, respectively) (Pettit and Western 2004; Western et al. 2002). It should not be surprising, then, that incarcerated men have much lower levels of education than the general population. Only 2% and 8% of the state and federal prison populations, respectively, hold a college degree, compared with 22% of the general population (Harlow 2003; Lochner and Moretti 2004). Black men are more likely to be incarcerated than white men, and incarcerated men are less likely to have a bachelor's degree—but what does this mean for the black gender gap in college completion?

If incarcerated black males were otherwise similar to nonincarcerated black males, an extreme estimate of the potential impact of incarceration would come from comparing the college completion rate of the noninstitutionalized population with that of the total population. The Current Population Surveys (CPS) provide estimates of the noninstitutionalized population (U.S. Department of Labor 2006). Meanwhile, estimates of the number of inmates in state prisons and federal correctional facilities by race, gender, education, and age can be obtained from the Surveys of Inmates in State and Federal Correctional Facilities (U.S. Department of Justice 2004). Using these survey data for the years 1974, 1979, 1986, 1991, 1997, and 2004, we computed the number of individuals in each race, gender, education, and age subgroup, and then interpolated the results for the intermediate years. Available information for the jail population from the various National Surveys of Jails (recently renamed the Annual Survey of Jails) conducted during this period by the Bureau of Justice Statistics is less complete and does not allow a joint breakdown across race, gender, education and age (U.S. Department of Justice 1997). Therefore, we simply assumed that the jail population matched the prison population in its race, gender, education, and age composition, and scaled up the size of the prison samples to correspond to the size of the combined prison and jail population in each year. Finally, we rescaled the combined prison and jail samples so that they were the same proportion of the population as that of the CPS samples and then combined the data sets to estimate rates for the total population.

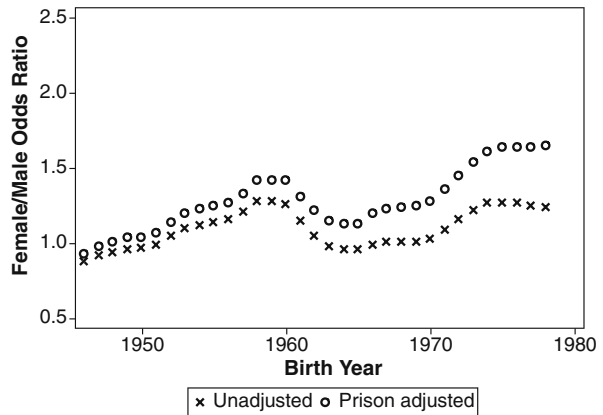
The addition of the prison and jail data to the CPS data has a noticeable effect on college completion for black males, both because a considerable proportion of the population of young black males was in prison or jail in these years and because the incarcerated population had relatively low levels of education. Figure 6 shows that the black gender gap is noticeably larger when we account for the incarcerated population. Moreover, the impact of the incarceration adjustment grows larger for blacks over time because the size of the incarcerated black population as a fraction of the total black population has grown over time.<sup>8</sup>

This accounting exercise, however, almost certainly overstates the causal effect of incarceration on the college completion rates of black males, even when recognizing that the prison and jail data account only for the cross-sectional incarcerated population and therefore understate the number of black males who were *ever* in jail or prison. The reason is simple: the typical youth who has experienced incarceration would have been much less likely to complete college than the average youth because the risk factors for incarceration imply a low probability of college completion even in the absence of incarceration. Researchers have long known that youth who experience arrest are drawn disproportionately from the bottom of the educational achievement distribution (Arum and Beattie 1999; Sampson and Laub 1993). More recent research confirms this and shows that youth at high risk for incarceration also have poor noncognitive skills and are more likely to engage in risky behaviors that correlate negatively with educational attainment (Heckman et al. 2006; Hjalmarsson 2008).

A more plausible calculation considers the strong connection between incarceration and academic performance along with the very strong connection between academic performance and college completion (Buchmann and DiPrete 2006; Rosenbaum 2001). We used data from National Education Longitudinal Study of 1988 (NELS88), a nationally representative survey of 8th graders in 1988 who were followed to the age of 25 or 26 in 1992. We compute the proportion of sample members who had graduated from college by age 25 or 26 as a function of their (race-specific) quartile of academic performance in the eighth grade. Because incarcerated youth are heavily drawn from the bottom of the academic performance distribution, we corrected the empirically observed proportion of black males who had graduated from college by ages 25–26 by substituting the observed female graduation rate in the bottom quartile for the observed male rate. (Recall that Pettit and Western estimated a lifetime incarceration risk of 0.29 for black males.) The rationale for using the female rate is simple: black females are rarely incarcerated, and so the use of their graduation rate for males in these quartiles will likely overcorrect for any negative effect of incarceration on college completion and thus provide an upper bound for the impact of incarceration on educational outcomes. Our adjustment increased the estimated black male college graduation rate in the NELS88 data from 0.14 to 0.15. As a more extreme adjustment, we then assigned the observed black female college graduation rate to black males in the bottom half of the eighth grade academic

<sup>8</sup> We do not show comparable graphs for whites only because the magnitude of the correction for the white population is small. Graphs for younger black males look generally similar to the graph for black males in the 26–28 age range.

**Fig. 6** Odds ratios of bachelor's degree completion for blacks aged 25–28. Values are mean and median smoothed. Data are from the October CPS 1974–2005

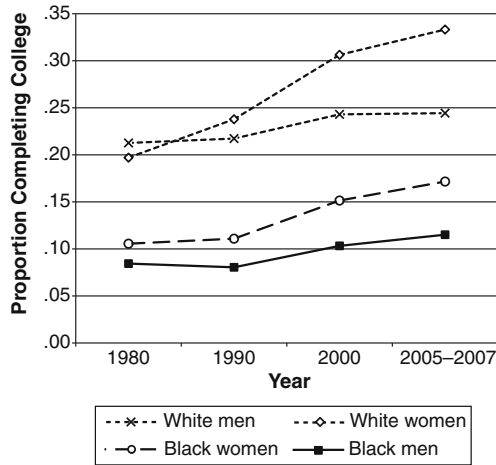


performance distribution, and this increased the estimated black male college graduation rate from 0.14 to 0.16.<sup>9</sup> Of course, an adjustment of even a single percentage point would be substantively important, but neither the plausible adjustment of 1 percentage point nor the extreme adjustment of 2 percentage points is large enough to close the gap between the black male and female college graduation rates (see Table 3 in Online Resource 1). Clearly, the causal effect of incarceration on black male graduation rates is smaller than the accounting adjustment shown in Fig. 6.

Further indirect evidence that the rise in incarceration has not had a decisive impact on the changing gender gap in college completion for blacks comes from a comparison of Figs. 3 and 4. As noted earlier, the gender gap for blacks is now more similar to that for whites than it was in the 1950s and 1960s, even as the incarceration experience for young black males diverged from that of young white males. Census data show that black males reduced their disadvantage against black females in the 1960–1980 period relative to the earlier census data but then fell further behind after 1980. This pattern may be due to the forces that have propelled women through higher education in greater numbers, or they could be connected with the social problems that have increased the incarceration rate for black males during this period. This important question cannot be addressed by census data and clearly requires further research.

<sup>9</sup> As with any panel, there is some sample attrition in NELS88 between the first and fourth waves, and it is possible that lost cases are disproportionately males with prison records. Arguing against this is the fact that the attrition pattern by the eighth grade quartile is relatively flat for black males (11%, 9%, 10%, and 9%). At the same time, sample attrition is greater for black males than for black females, and some of this may be related to incarceration. To take into account the possibility that the panel weights are not fully correcting for attrition attributable to incarceration, we adjusted the reported proportion of males in each academic quartile by the difference in attrition rates for black males and black females and assumed that none of the added black males completed college. Adjusting the bottom quartile in this way increases the adjustment for incarceration from 0.9 percentage points to 1.1 percentage points. Adjusting both the first and the second quartiles in this way increases the adjustment for incarceration from 1.7 percentage points to 2.1 percentage points. These adjustments are not large enough to affect the rounded adjustment figures reported in the text, and they do not affect our substantive conclusion.

**Fig. 7** Proportion of 22- to 28-year-olds completing college, by race and gender. Data are from the 1980–2000 IPUMS, 2005–2007 ACS



## Current Trends

Finally, we examine the most recent trends in the black and white gender gap in college completion by supplementing the findings from the last three available decades of IPUMS data with the most recent data available from the American Community Survey for the years 2005–2007. The ACS is a nationally representative survey of both the noninstitutionalized and the institutionalized population, collected annually by the U.S. Census Bureau (2009). To provide a more robust estimate of recent trends, we use pooled data from 2005–2007. Figure 7 reproduces the findings for the years 1980 to 2000 from Table 1 in addition to the findings for 2005–2007.

From 2000 to 2005–2007, black and white women's advantage over men continued to grow albeit at a slower rate than the previous decade. During 2005–2007, 33% of white women aged 22–28 had completed a bachelor's degree, compared with 24% of white men in this age group. The corresponding numbers for blacks are 17% for women compared with nearly 12% for men. Each group except white men increased its rate of college completion from 2000 to the current period (although black men experienced slower growth than black or white women). More refined plots that focus on narrower age ranges (namely, 22–24 and 26–28) show the same pattern (figures available upon request).<sup>10</sup> If these trends continue at similar rates in the future, it appears that the female-favorable gender gap in college completion will continue to grow for blacks and whites, but the gap will remain

<sup>10</sup> We extended our analysis to include individuals aged 29–31 to see whether men close some of the gender gap in college completion if given a few more years to complete their degree. Comparing 26- to 28-year-olds with 29- to 31-year-olds in 2005–2007, we find that the black gender gap does not close among older ages: the difference between men and women is 4 percentage points in the younger age group and 5 percentage points in the older age group. However, white men are able to close some of the gender gap: from 8 percentage points in the younger age group to 5 percentage points in the older age group. This is partially due to the age when the proportion of each group completing college peaks. For black and white women and black men, college completion peaks at age 30. For white men, completion peaks at age 31. Extending the analysis to older ages does not substantially change the overall trends in college completion (calculations available from the authors upon request).

larger for whites than blacks in arithmetic terms, and the odds ratio advantage for white women will overtake the odds ratio advantage for black women.

## Discussion

Much has been written about women's advantage over men in educational attainment, but little is known about how and why these trends evolved differently by race over time. Using census data from 1940 to the present, we show that black women have long held an advantage over black men in college completion, which differs sharply from the changing gap in college completion among white men and women. The difference in the black and white gender gap in college completion arguably is due to black men's lack of access to educational resources and high-status occupations and black women's higher incentives for education. Historically, black men had differential access to educational resources, notably the G.I. Bill, and educated black men were largely barred from many of the high-status male-dominated occupations that were available to white men. Black women had greater incentives to work compared with white women, due to lower incomes of black families, high black male unemployment, and the fact that working was more socially acceptable for black women than white women.

Although white women's advantage in college completion is a more recent trend, their advantage over white men is growing more rapidly than black women's advantage over black men. Much of men's disadvantage in college completion is located at the transition to postsecondary education, although white males are also disadvantaged in the trend in college completion, given postsecondary enrollment. Finally, it appears that the rising rates of incarceration have contributed only modestly to the gender gap in college completion for blacks. In light of the sharp increase in incarceration rates for black males, it is remarkable that the female favorable gender gap in college completion among blacks has been relatively small in comparison with the tremendous relative gains made by white females. This fact, however, arises mostly from the tremendous educational advance of white women against relatively stagnant gains for white males.

Clearly, black males are the most disadvantaged of the four population groups studied here. Despite the converging trends between blacks and whites, black men still lag behind black women more than white men lag behind white women in terms of odds ratios for completing college. Moreover, the overall black-white gap remains very large and shows no signs of closing in the foreseeable future. The 13% college completion rate of 28-year-old black men in 2000 is three times as high as was the 4% completion of 28-year-old black men in 1960, but it is much less than one-half of the 33% college completion rate of 28-year-old white women in 2000 (see Online Resource 1). To reach the current educational level of white women would require additional gains by black men that are as dramatic as the 40 years of progress stemming from the Civil Rights movement and its aftermath. The perception that there is a crisis in black men's education in the United States is, therefore, not unwarranted.

A similar statement could be made about the educational situation of white males despite their higher rates of college completion. The educational attainment of white

males has been surprisingly stagnant for 20 years, while white women increased their educational attainment at an even faster rate than that of black women. White men certainly had strong incentives during these years to increase their educational levels; between 1973 and 1995, the average hourly wage of male high school graduates fell in real terms by 17% even as the average hourly wage of male college graduates was generally rising (Appelbaum et al. 2003). Despite these sharply rising incentives, white males failed to increase their rate of transitioning from secondary school to college in sufficient numbers, and those who made this transition failed to complete four-year college in sufficient numbers to match the upward trajectory of any of the other three groups.

This article has focused attention on the quantity of college completion, but educational experience differs on a variety of dimensions that are in some cases correlated with race and gender. Women generally earn higher grades in college than men (Buchmann and DiPrete 2006), and white college students generally earn higher grades than black or Hispanic students (Espenshade and Radford 2009). These differences in performance certainly affect the probability of completing college and the time that it takes to complete college, and may affect prospects for graduate study and subsequent labor market earnings. Returns to college completion also vary by field of study. It is well known that fields of study are highly sex-segregated and that men and women of both races major in different fields, impacting their labor market returns (Bradley 2000; Davies and Guppy 1997). Recent research suggests that racial differences in field of study are also strong (Espenshade and Radford 2009), with black students overrepresented in the social sciences and underrepresented in engineering and the natural sciences (Espenshade and Radford 2009; NCES 2007). Differences by gender and race (and changes over time in these differences) in fields of study and their implications for earnings in the labor market are beyond the scope of this article, but they should be the subject of ongoing research.

Our findings underscore the importance of considering age in any comparison of educational attainment rates. They also raise the question of why the historical female advantage in college completion at early ages has diminished even as the age-specific female advantage grows stronger over time. Three probable reasons for taking longer to complete college are that college is costly (an economic reason), college academic work is difficult (an academic reason), and the labor market and the military provide alternative opportunities to college (an environmental reason). On average, women and men come from similar socioeconomic backgrounds and receive similar levels of financial support for education from their families (Jacobs 1999), but women and men have historically had very different experiences with regard to academic preparation.

Women of comparable academic performance were much less likely to attend college than males as recently as the 1970s (Alexander and Eckland 1974), but this pattern essentially disappeared by the early 1990s (Buchmann and DiPrete 2006). Women's preparation for college in terms of courses taken has converged with men. In the 1950s, boys took far more math and science courses than did girls, but by 1992, girls and boys took roughly equal numbers of math and science courses (Goldin et al. 2006). Over time, it appears that women and men are converging at the margin of college attendance in terms of academic preparation, and this may play a

role in the convergence of the age pattern of completing college. It is important to note that once they are enrolled in college, women's advantage in completing a bachelor's degree is largely due to superior academic performance in college courses, although these results are stronger for whites than blacks (Buchmann and DiPrete 2006).

The final plausible explanation lies in the environment. Historically, compared with women, men have had very different opportunities in the labor market and the military, which would likely explain a considerable part of the greater time to completion for men. The convergence of labor market opportunities for men and women may therefore be a cause of the convergence of the age pattern for college completion. The military provides an alternative to higher education for men, but on the whole, men in the military receive less education than those who do not enlist (MacLean 2005). Enlisting in the military delays college completion and may interrupt the normal sequence of the life course (Teachman 2007). Completing life course transitions in a specific, normative order and time frame is important for the timely completion of a bachelor's degree. Additional research is needed to determine the impact of each of these factors on the pace as well as the rate of college completion for those who make the transition to college.

Currently, the gender gap in educational attainment is larger for blacks than whites. This is the result of different historical trends in black and white men's and women's college completion. Black women's large advantage in higher education relative to black men has significant social, economic, and demographic consequences for the black population. It portends low marriage rates among blacks, which in turn impact family formation and parenting (Bianchi and Casper 2000) as well as persistent low employment prospects for a growing proportion of black men. For these reasons, future research must focus on the causes and consequences of the black gender gap in college completion as well as the broader racial gap in higher education.

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