

# Chapter 1

## Introduction

**W**OMEN TYPICALLY make less money than men. They seldom occupy the most powerful offices in government or corporate America. And they still do the bulk of the child care and routine housework in the home. These and other features of gender inequality have led some observers to write of the “stalled gender revolution” (England 2010; Carlson 2011). Not long ago, women also lagged considerably behind men in their educational attainment. In the United States and most industrialized societies, however, the days when gender inequality in education meant female disadvantage are now more than twenty years in the past. In fact, women have made substantial gains in all realms of education and now generally outperform men on several key educational benchmarks. In 1970, 58 percent of college students were men, but by the 1980s the gender gap in college enrollment favored women, and in 2010, 57 percent of all college students were women (Snyder and Dillow 2012). Women are also more likely than men to persist in college, obtain degrees, and enroll in graduate school. This growing female advantage in higher education has attracted the attention of college administrators, policymakers, and the media, and researchers are trying to make sense of this reversal from a male advantage to a female advantage in educational attainment as it has unfolded not only in the United States but also in most industrialized societies.<sup>1</sup>

The striking gains by women in the educational arena have multiple causes. Certainly, their gains in education are part of a larger story about the changing place of women in the labor market and in society more generally. But three important features of the trend favoring females in education suggest that women’s educational gains do not follow solely from their changing status in society. First, women have not merely gained educational equality with men; on many fronts they have surpassed men by a large and growing margin. Second, women have overtaken men in the total number of college degrees earned even as gender

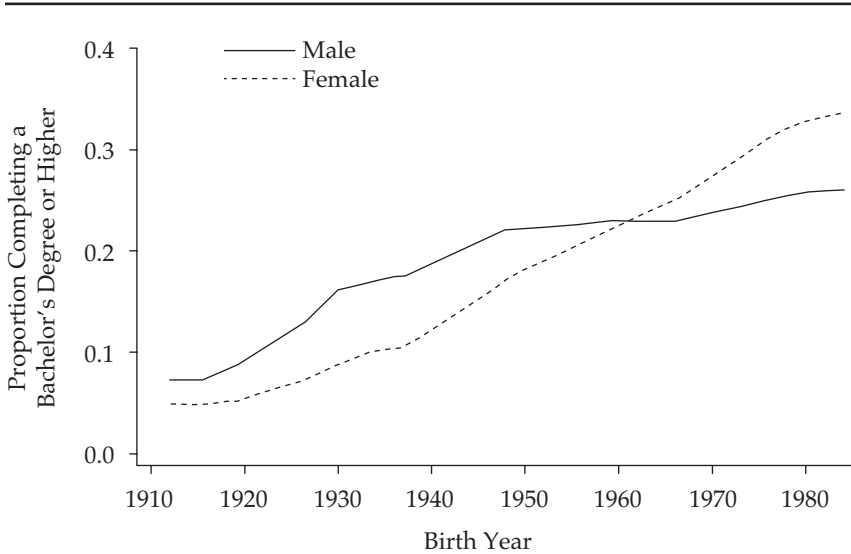
segregation in fields of study has persisted. Third, trends in the size of the gender gap have differed considerably by race and ethnicity. These three features of the gender gap in education have far-reaching implications for American society and raise important policy questions. This book examines the rise of women in education with a focus on these three complex aspects of the phenomenon.

Let's dig a bit deeper into the story of the reversal of the gender gap in college completion. It is a story about females' real gains, but also about stagnation in education for males that raises daunting challenges for American society. Just fifteen years ago, the United States boasted the highest rate of tertiary education completion in the world. Today it lags behind many other industrialized countries on this front (Organization for Economic Cooperation and Development 2010a). In light of the importance of college completion rates for national wealth, quality of life, and international competitiveness, the Obama administration has expressed concern about the stagnant rates of college degree receipt in the United States and has set regaining international leadership in higher education as a national goal. It is important to understand, however, that America's stagnation in college completion is largely due to the stagnation of men's college completion rates.

Trends in bachelor's degree completion for males and females are shown in figure 1.1. This figure is based on U.S. census data from 1940 to 2000 and on American Community Survey (ACS) data from 2010. Males from the birth cohorts of 1912 through about 1950 had a lead over females. Among cohorts born after 1940, females began closing the gap with males; their gains accelerated as women born in the late 1950s and early 1960s (who were of college age during the 1980s) overtook men in their rates of completing bachelor's degrees.<sup>2</sup> Women continue to increase their educational attainment along roughly the same trajectory they have followed since the 1960s. On a cohort-by-cohort basis, the male college graduation rate peaked around the birth cohort of 1950 and then remained essentially flat for about fifteen birth cohorts (DiPrete and Buchmann 2006). Thereafter, male cohorts gradually increased their rate of college completion, but these gains lagged behind the contemporaneous gains for women and the gains for male cohorts born before 1950. By 2010, twenty-six- to twenty-eight-year-old females had a more than eight-percentage-point lead in college degree receipt over their male counterparts. This constitutes an enormous change in the relative position of men and women in a very short period of time.

Women's now-sizable lead in college completion has occurred despite the scientific consensus that girls and boys have similar levels of academic aptitude. It is true that girls generally outperform boys on verbal tests and lag behind boys on math tests, especially in the population at the lower end of the test score distribution. But gender differences in mental ability as measured by test scores are simply too small to account

**Figure 1.1** Proportion of Twenty-Six- to Twenty-Eight-Year-Olds with a Bachelor's Degree, Birth Cohorts 1912 to 1984, by Birth Year



Source: Authors' compilation based on IPUMS census data, 1940 to 2000 (Ruggles et al. 2010); American Community Survey (U.S. Census Bureau 2010).

for the current gender gap in college completion. Moreover, these small gender differences in mental ability have remained fairly stable, while the gender gap in educational attainment has reversed from a male advantage to a female advantage that continues to grow in magnitude.

Women's rapid educational gains are certainly linked with gains in women's real wages as well as their wages relative to men. Although a gender gap in wages still exists—in 2010 the ratio of women's earnings to men's earnings was 0.81 (U.S. Department of Labor 2010a)—Francine Blau and Lawrence Kahn (2007b) show that the gender wage gap has shrunk to roughly half the size it was in 1978, when the ratio of women's earnings to men's earnings was only 0.61. Indeed, one important consequence of women's rising educational attainment is a reduction in their earnings disadvantage relative to men. As Blau and Kahn (2007b) note, women's earnings gains are particularly remarkable in light of the fact that they have occurred during a period of rising overall wage inequality.<sup>3</sup> In fact, in many metropolitan labor markets today, because women's quantitative advantage in education outweighs their disadvantage from continuing gender segregation in the labor market, young women are actually earning more on average than their male counterparts.<sup>4</sup>

This reversal of the gender wage gap in some labor market sectors highlights men's lack of progress in increasing their "supply" of college-

educated workers in an era when economic inequality has risen to levels not seen since the 1920s and economic returns to education have risen sharply. Ironically, the stagnation in men's college completion rates occurred during a period when wages for high school-educated males declined, as a result of both technological change and the decline of the unions that had boosted the earnings of blue-collar workers. It is unclear why, in the face of these changes, more males did not complete college. Moreover, men's stagnant college completion rates exacerbated the wage decline for high school-educated workers and stimulated strong growth in the returns to a college degree (Goldin and Katz 2008). Also striking is the fact that during the period when real wages for high school-educated males were falling, the wages for high school-educated females remained stable (Appelbaum, Bernhardt, and Murnane 2003), and yet females, not males, rapidly increased their rates of college enrollment and receipt of bachelor's degrees. Men's failure to respond, as women have, to the economic incentives arising from the stagnant wages of high school-educated workers and the rising relative wages of college-educated workers is certainly puzzling and demands examination.

### **The Cost of the Male Shortfall in Education**

As time passes, the American adult population increasingly comprises cohorts of women who lead men in educational attainment. In the 2010 American Community Survey, among fifty-five- to sixty-four-year-olds, men still lead women in bachelor's degrees (18.3 percent to 15.5 percent) and advanced degrees (13.5 percent to 11.6 percent). For forty-five- to fifty-four-year-olds, however, men trail women in bachelor's degrees by 1.4 percentage points, and they lead women in advanced degrees by less than half a percentage point. Among thirty-five- to forty-four-year-olds, the female lead in bachelor's and advanced degrees combined is over four percentage points. Among twenty-five- to thirty-four-year-olds, 11 percent of women versus 7.5 percent of men have advanced degrees; another 24.3 percent of women have bachelor's degrees compared with 20 percent of men, for a combined advantage of over ten percentage points.

Such a large gender gap in educational attainment has potentially large implications for economic outcomes as well as for other aspects of life that are enhanced by education. Here we carry out several "what if" scenarios using ACS data and simple statistical models in order to get a sense of the implications of the male shortfall in education. For example, it is well known that the likelihood of unemployment declines with level of education. Nine percent of twenty-five- to sixty-four-year-old men in the labor force were unemployed in 2010. If men had the same educa-

tional distribution as women, their unemployment rate would be half a percentage point lower. For twenty-four- to thirty-four-year-olds, among whom the male shortfall is the largest, men's unemployment rate would be one full percentage point lower if their educational attainment matched that of their female counterparts.

What about income? The median personal income for twenty-five- to sixty-four-year-old employed men in 2010 was \$40,000. The gradient with education was very large: median income for men with less than a high school degree was \$22,000, for men with a bachelor's degree it was \$60,000, and for men with graduate degrees the median was \$82,000. This steep gradient with education implies that both individual men and American society as a whole pay a heavy price for their failure to attain as much education as women. If men had women's educational distribution, their personal income would be 3.7 percent higher.<sup>5</sup> If the shortfall between all men and women was as large as the shortfall for the twenty-five- to thirty-four-year-old population, the missing income rises to 9.4 percent. This is a substantial sum of money to be missing from the pockets of American workers and their families.<sup>6</sup>

Of course, beyond economic outcomes, other aspects of life are strongly altered by education. The better-educated have better health and more stable marriages and family lives. The benefits of education can also be passed down from one generation to the next, since educated parents have more resources, financial and otherwise, to invest in their children. Failing to finish high school or obtaining only a high school diploma or GED (General Educational Development) certificate puts individuals' quality of life and that of their children at substantial risk. But some scholars maintain that the goal of "better-educated" adults should not mean "college for all." In *Beyond College for All: Career Paths for the Forgotten Half* (2001), James Rosenbaum argues that college is not an appropriate goal for all students and that there are better ways to improve the job skills of marginal students. According to the October Current Population Survey (CPS), 68 percent of high school graduates from the previous year were enrolled in college or university in 2010, and 60 percent of those were enrolled in four-year colleges (Goldin 1990). But the failure to complete college is a major problem in the United States. In earlier work (Buchmann and DiPrete 2006), we found that only 39 percent of males and 47 percent of females who attended both two-year and four-year colleges had graduated from a four-year college by the time they were about twenty-six years old (see also Bowen, Chingos, and McPherson 2009).<sup>7</sup>

Today about two-thirds of high school graduates pursue higher education, and about half of these students obtain a bachelor's degree by their late twenties. Thus, instead of talking about college-capable students as comprising a "top half" and a "bottom half," as Rosenbaum

(2001) has done, the data suggest that we think instead in terms of thirds. At present, nearly one-third of American cohorts (but more than one-third of American females) complete a bachelor's or advanced degree. Another third get some postsecondary education, but the great majority of this "middle" third leave the world of higher education with no degree. The bottom third of this distribution do not enroll in college and have limited prospects for doing so. In 2010, 6 percent of males age twenty-five to thirty-four received less than a year of postsecondary education, 17 percent had one year or more, and 7 percent earned an associate's degree. (The corresponding numbers for females are 6 percent, 17 percent, and 9 percent.) We do not know why so few in this middle third complete college; perhaps it has something to do with the relatively low levels of resources that typical colleges expend on their students in comparison to highly selective universities (Bowen et al. 1998; Black and Smith 2004; Hoekstra 2009; Hoxby 2009); perhaps it has to do with the skill deficits these students have as they enter college. But research suggests that at least some students with a low observed propensity to graduate from college are nonetheless better off if they do graduate (Attewell and Lavin 2007; Maurin and McNally 2008; Brand and Xie 2010). This research suggests a disconnect between the value of higher educational degrees and the failure of college-capable students to complete these degrees, even as it begs the question of why this disconnect exists—and apparently more strongly for males than for females.

Largely because of the failure of this middle third to complete college, the United States has fallen behind several other industrialized countries in the rate at which students complete tertiary education. In Japan, Australia, and Finland about 40 percent of young adults complete college.<sup>8</sup> The experiences of other countries and the continued strong upward trend in U.S. women's college completion rates suggest that the United States could increase its college completion rate considerably before exhausting the stock of college-capable students in each cohort. These gains could be made near the top of the middle third who have some college but do not complete college. Currently, in the United States females are achieving the most rapid increases in college completion. A deeper understanding of how they have accomplished this feat may provide insights into the causes of the current gender gap in higher education, as well as suggest strategies to increase overall rates of educational attainment in the United States.

## **The Goals of This Book**

The rising gender gap in college completion raises some key questions. How did women manage to increase their level of educational attain-

ment so robustly over the past twenty years? Why did the male college graduation rate stall around the 1950 birth cohort and never resume its earlier rate of increase? This slowdown in men's educational attainment is puzzling for two reasons. First, why did sons born in the last half of the twentieth century fail to benefit from their parents' human capital resources to the extent enjoyed by earlier cohorts? Across these many birth cohorts, the fraction of parents who had a college education continued to increase. The strong upward trend in parental education predicted a similarly strong upward trend in the proportion of children finishing college if the "rate of return" to parental education remained as high as it was in earlier years (Buchmann and DiPrete 2006). This predicted upward trend was realized for women but not for men. In fact, the average rate of return to parental human capital fell substantially for men born after 1950.

The second reason the slowdown in men's educational attainment is puzzling is that it occurred when the value of education for males was rising. Labor market returns to educational attainment have been rising since the mid-1970s. Returns to education in the marriage market for males also rose over this period of time, because of marital educational homogamy and because educated women earned increasing wages. Men have been less likely than women to respond to these rising incentives to get more education.

In pondering these puzzles, we must of course keep in mind the heterogeneity of both males and females. Nearly one-third of all males do graduate from a four-year college. They have taken advantage of the human capital in their home and school environments, and generally they will earn more money as a consequence of their college investment. But what about the young men in the top and middle thirds of the academic distribution who fail to graduate from college? These males share the same level of parental human and cultural capital as their sisters, and overall they have roughly the same academic ability as females (albeit with lower average grades in school). These young men generally finish high school and attain some postsecondary education, but they are less likely than females to earn a BA, despite the apparent incentives for them to do so. It is the low college completion rates of these young men that we aim to understand.

This book seeks to accomplish two goals. First, we describe the changes in the relative educational attainment of females and males in the United States over the twentieth and early twenty-first centuries and consider explanations for the reversal of the gender gap during these years. Changing college completion rates can be accounted for in terms of changes in high school completion rates, rates of transition between high school and college, and rates of college completion for students who enroll in college. As we describe these changes, we attend to the

experiences of different racial and ethnic groups, especially the notably different trends in the educational gender gap for whites and blacks. These trends occurred within the context of massive expansion of the U.S. higher education system and other important societal changes, and we place the gender trends within this broader context. Part I focuses on several macro social changes during the years when the gender gap declined and then reversed. The most obvious change concerns the place of women in American society. At the beginning of the twentieth century, patriarchal culture ensured an incompatibility between higher education, marriage, and fertility for American women (Goldin 1990), who were forced to choose between having a career and having a family (Epstein 1970; Walby 1986). This patriarchal system kept the perception that women's place was in the home firmly entrenched for several decades of the twentieth century. Patriarchal culture also shaped the socialization and investment practices of families. When faced with labor markets and family systems that privilege males, a "rational" family prioritizes the education of sons (Becker 1981; Papanek 1985; Rosenzweig and Schultz 1982).<sup>9</sup> Over the course of the twentieth century, this patriarchal system eroded and was gradually replaced with more gender-egalitarian norms and social institutions.<sup>10</sup> While by no means do we maintain that women have attained equality in most realms of society, we do believe that the reduction in gender inequality in the American labor market and the shift toward greater gender-egalitarian attitudes among Americans (Brewster and Padavic 2000) have reduced parents' incentives to favor sons with educational investments.

Other important macro social changes were the growth in labor market opportunities for college-educated workers and the growing accessibility of college education for America's middle class. In the late nineteenth and early twentieth centuries, when the proportion of Americans who went to college was very small, women's rates of college completion actually slightly surpassed those of men (Goldin 1992), owing to patterns of gender segregation in the workforce. Women went to college for essentially only two careers—teaching and nursing—and these two occupations were much larger than the male-dominated careers that required a college degree, such as medicine, law, engineering, and management. The subsequent acceleration in the demand for college-educated workers was directed largely at men. The costs of higher education dropped across much of the twentieth century, especially in the twenty-five years after World War II (Goldin and Katz 2008).

Children of middle- and upper-class parents have always had an advantage in completing college, stemming partly from their higher academic performance and partly from their financial advantages. By raising the number of available places and reducing costs, educational



expansion can reduce these socioeconomic advantages, but it is unlikely to eliminate them until the point at which educational attainment becomes nearly universal, which is not foreseeable for the case of college completion (Raftery and Hout 1993). At any rate, class advantages do not directly affect gender differences, because sons and daughters are equally distributed across the socioeconomic status distribution. Families' socioeconomic resources do, however, play a role in the size of the contemporary gender gap, as we discuss later.

Finally, changes in American families—specifically, changes in marriage patterns, the rise in family instability, and the changing educational incentives for both women and men that emerged as a consequence of these changes in family structure—are all related to contemporary educational gender gaps. In the first half of the twentieth century, marriage markets were defined more by class than by education. When more men than women completed college, women “married up” in educational terms. In fact, higher education was an impediment to marriage for women, because it was associated with a career orientation seen as incompatible with the roles of middle-class wife and mother (Goldin 1992). But in the second half of the twentieth century, education gradually became an important asset in the marriage market for both women and men. A college education increased the chances that a woman would ever marry and that she would have children within marriage (Qian and Preston 1993; Ellwood and Jencks 2004). Educational homogamy also increased in recent decades, as highly educated women were more likely to marry highly educated men (Schwartz and Mare 2005). College-educated women also have lower divorce rates and have experienced a stronger downward trend in divorce rates than women without a college education (Isen and Stevenson 2010).

The second goal of this book is to examine gender differences in educational performance and attainment over the life course. Parts II and III focus on families, peers, and schools as they relate to gender differences in educational attainment and performance in the contemporary era. We are especially interested in the contemporary period because the shortfall in male educational attainment is a major component of the slowdown in American educational progress, and we seek to provide insights into how the United States could raise its educational attainment rates in the future. In response to the gender revolution that occurred in American society, the educational life course of girls and boys has changed in some important respects but has remained relatively stable in others. Although managing to complete high school and then enroll in and complete college depends partly on students' plans for the future, it depends even more on their academic performance. The relative educational and occupational aspirations of boys and girls have changed over time, but

as we document, there has been a high degree of stability in the gender gap in academic performance over many decades, with girls outperforming boys in one central measure: course grades.

High school course-taking patterns, however, have changed considerably over time. Early in the twentieth century, girls and boys tended to take different high school courses as soon as they reached the level where choices were possible. Girls took courses oriented toward their future status as homemakers, while boys took courses that would prepare them for the labor market. Boys also generally took more college preparatory courses than did girls, especially more math and science courses. These gender differences in course-taking exacerbated gender differences in math and science scores on standardized college entrance examinations. With the expansion of college enrollment after World War II, the fraction of students taking college preparatory courses rose, and by the 1970s the gender gap in college preparatory courses began to close. By the late 1980s girls and boys took similar courses, and girls had largely closed the performance gap in math and science courses while maintaining their performance advantage in the rest of the curriculum (Hyde et al. 2008).<sup>11</sup> Through the 1980s and 1990s, high schools continued to elaborate the menu of college preparatory courses and students in the top decile of the academic distribution were going noticeably further in math and science than college preparatory students had done in the 1960s and 1970s (Dalton et al. 2007).

Why do girls perform better in the classroom? We document a performance gap that begins at the start of elementary school. Girls begin school with a clear advantage in reading and rough parity with boys in math performance. Over time, boys catch up somewhat in reading and gain an advantage in mathematics, at least as measured by standardized test scores. However, teachers consistently rate girls as having stronger academic performance than predicted from their test scores alone. Early in elementary school, girls also demonstrate better social and behavioral skills than do boys, and this advantage grows over the first few years of elementary school. Moreover, higher social and behavioral skills are correlated with higher rates of cognitive learning (as documented by standardized test scores) and higher levels of academic investment (as measured by homework). Girls' greater attention to homework and stronger academic orientation translate into their higher grades in middle school. Girls predominate among students getting mostly A's in middle school, while boys predominate among students getting C's or lower. Girls' higher grades in middle school lead to their higher grades in high school and college.

As noted earlier, college completion requires a series of successful educational transitions. A college graduate must first graduate from high school, then make the transition either directly into a four-year col-

lege or indirectly through enrollment in a two-year college. The final step is the achievement of a bachelor's degree. Throughout the 1950s, 1960s, and 1970s, white males and females transitioned into college at roughly equal rates, even though males had poorer average high school grades than did females. Males were more likely to graduate from college than females, essentially because women were less likely to pursue four-year college degrees. In the 1980s, female college enrollment surpassed male enrollment, and their increasing enrollment proved to be a decisive advantage. Because there is a strong relationship between academic performance and the likelihood of graduation, and because females earn higher grades in college than males, as they increased their enrollment advantage over males, women also graduated from college in higher numbers. Understanding the female advantage in college completion, therefore, is largely a matter of understanding the female advantage in academic performance at all stages of education.

The female advantage in academic achievement may account, in part, for the irony of stagnating male rates of college completion at a time when education's value on the labor market is historically high. Boys and girls both act as though they understand the value of higher education; three-quarters of middle school boys and 80 percent of middle school girls say that they intend to get a college degree. Seventy percent of students who graduate from high school make the transition to college, but many drop out of college before they complete a degree. This pattern suggests that the problem is not due to young Americans' failure to recognize the value of college, but their failure to adequately prepare for college during the elementary and secondary school years.<sup>12</sup>

## Alternative Perspectives

Scholars have long been interested in how and why males and females differ in their educational achievement and attainment, though perspectives and theories have changed sharply as awareness of the female advantage in education has become more widespread. Some scholars focus on sex-based biological differences, maintaining either that female brains are better suited to academic work or that males and females have different biologically based incentives that lead to educational performance and attainment differences. For example, Susan Pinker (2008) argues that females are biologically superior to males. The irony of the female biological superiority argument is that it follows a larger literature that viewed females as biologically inferior to males in cognitive ability. Research continues to search for biological explanations for the persisting gender gap in favor of boys in performance on mathematics tests (for a review, see Ceci et al. 2009). But in light of the recent gender reversal in many educational outcomes, more recent research has focused on gen-

der identity and the ways in which environments link gender to educational outcomes.

For several decades, psychologists debated the relative importance of internal “cognitive” mechanisms and the external environment in shaping gendered development. Early on, Walter Mischel (1966) promoted a social-learning view of gender differences in which behaviors precede cognitions, such that if one is rewarded for doing boy things, one must be a boy. In contrast, Lawrence Kohlberg (1966) proposed a cognitive model organized around the ideas of gender constancy and gender identity. In his view, young children gain an understanding of gender categories through cognitive processes and their permanent placement within these categories, such that one learns that one is a boy and therefore likes to do boy things. Kohlberg’s approach was advanced by Carol Lynn Martin and Charles Halverson (1981) and Sandra Bem (1981) through the development of gender-schema theory, which maintains that children form “organized networks of mental associations representing information about themselves and the sexes” (Martin, Ruble, and Szkrybalo 2002, 911). Children are motivated to behave in accordance with gender norms “as a means of defining themselves and attaining cognitive consistency” (911). All of these cognitive views embody the principle that “basic gender identity guides behavior” (913). At the same time, relative to cognitive development theory, gender schema pays more attention to the role of the environment, such that children develop schema about how to reinforce their gender identity via interaction with the environment. Some of this knowledge takes the form of gender stereotypes—learned behaviors that are “boy-like” or “girl-like” even if they do not characterize the actual behavior of most boys or most girls—that are used to evaluate behaviors positively or negatively according to one’s own gender. Gender-schema theory raises two questions regarding current gendered educational outcomes. First, how do gender differences in educational outcomes derive from the gendered behavior of children or society’s response to such gendered behavior? Second, how do families, peers, and schools shape gendered educational outcomes?

Sociologists have long favored the socialization model for explaining educational attainment. The Wisconsin model of status attainment argues that adolescents form their educational and occupational aspirations through socialization, with the major influence coming from parents, peers, and teachers (Hauser, Tsai, and Sewell 1983; Sewell and Hauser 1975; Sewell, Haller, and Portes 1969). Teachers influence educational ambitions and expectations, while parents influence both educational and occupational aspirations and function as role models with respect to both domains. Although this literature was not developed to explain gender differences in educational outcomes, it implies that these differences are a consequence of gender socialization. Likewise, in the

1960s and 1970s the field of psychology was dominated by a socialization perspective that saw gender as constructed by parents (Maccoby 1998). This “traditional” view was replaced with a recognition that children shape the environment within which they live and play and are thus key actors in constructing their own gender identities. In this respect, the modern psychological view of gender identity follows the recent literature that sees intelligence as produced by a mixture of biological tendencies reinforced through environmental selection. This view places less weight on parents as actors and more weight on children’s hormonal drives reinforced by dyadic and group play. But it cannot account for the striking change in the gender gap in educational outcomes.

When girls had lower educational attainment than boys, the liberal sociocultural view was that the environment was to blame; girls faced discrimination in the labor market and also within their families and schools (see, for example, Bailey et al. 1992). In contrast, the conservative view was rooted in the idea that women’s and men’s lives constituted separate spheres, each having its own values, life goals, and dominant personality characteristics. The conservative perspective was based on a biologically driven gender essentialism. As women have attained parity and surpassed men in educational attainment, the question has become “what is wrong with boys?” and conservative commentators have shifted from biological explanations to sociocultural ones. For example, some maintain that feminists are waging a “war against boys” in schools (Sommers 2001). In this view, schools have become dominated by a feminine culture that is not supportive of the way boys behave and learn. Even some mainstream scholars allege that schools use conduct-based grading that evaluates typically feminine behavior more favorably than typically masculine behavior (Entwisle, Alexander, and Olson 2007).

With the growing realization of the “boy problem” in school, it is not just conservative commentators who claim that contemporary society promotes a masculine identity incompatible with the social and psychological needs of boys. Some critics fault parents and schools for linking a stereotypical masculine identity with emotional distance from adults. William Pollack (1999) argues that a “boy code” reinforced by mothers and schools leaves boys lonely and trapped behind a “mask” of masculine power and autonomy. Michael Kimmel (2008, 73) argues that the boy problem “has to do with the ways in which boys and girls experience masculinity and femininity. Again, it’s about gender—about the *guy code*.” Dan Kindlon and Michael Thompson (2000) agree that the problem stems from gender stereotypes that steer boys away from emotional connectedness as well as schools that are insensitive toward the special needs of elementary school-age boys. David Anderegg (2007) argues that the problem is anti-intellectualism, manifested in American culture as being against “nerds,” who are always gendered as mascu-

line. Thus, the development of masculine self-identity produces detachment from school. In short, all of these authors see the emergence of an “oppositional culture” among boys as linked to misunderstandings by parents, schools, and the broader society about the nature of masculinity during childhood and adolescence. Others elaborate this critique to explain the especially large disadvantage of African American males that is produced by the power imbalance between racially stigmatized youth and the dominant society (Lopez 2003; Noguera 2008). We revisit the important issue of masculine identity as it relates to educational outcomes in later chapters.

## Our Approach

It certainly is plausible that biology plays a role in producing the educational gender gap, but our focus is sociological and empirical, and we resist explanatory frames that overly homogenize the genders or that cast the problem in a zero-sum “war against boys.” Instead, we emphasize the need to study heterogeneity within genders as a basis for understanding why average differences between males and females have become so prominent. We examine the global environment that shapes gender-specific constraints, opportunities, and incentives for education. We also examine the local environments of families, peers, and schools that shape how individual girls and boys respond to the global environment. Because the society has changed over time in ways that affect the relative performance of boys and girls, we address the question of gender differences in the context of widespread social changes that have created changing opportunities for women and men to utilize their skills. Then we seek to establish how family context might affect gender gaps in academic achievement and attainment. We similarly ask whether and how school and classroom environments have an impact on the gender gap in achievement and attainment.

Our focus on local environments corresponds to our emphasis on heterogeneity of experience—including but not limited to social class, race, and ethnicity—as the best way to understand why the average gender gap has grown so large. We seek to identify both the environmental characteristics that have the biggest effects on the gender gap and the students who are most sensitive to environmental effects. The current landscape suggests a perspective that divides student populations into thirds based on their likelihood of completing four-year college. Most of those in the top third of this population are already getting a college degree. Those in the bottom third of the population of students are very unlikely to be in a position to complete college. Roughly half do not graduate from high school, while most of the rest complete high school by means of a GED. Although some students in this bottom third get

some postsecondary education, their poor academic performance limits how far they can go in school. Therefore, the best potential for raising college graduation rates is found within the middle third of this population. Almost all of these students graduate from high school and attain some postsecondary education, and most assert that they expect to obtain a four-year college degree. But the majority of this middle third fails to complete four years of college, and the shortfall is significantly greater for males than females.

Whether these students would benefit from additional education and what form this education should take remain contentious issues. As noted earlier, James Rosenbaum (2001) argues that American schools need to prepare the “forgotten half”—those who do not complete college—for other careers. In contrast, Paul Attewell and David Lavin (2007) maintain that open education in the City University of New York (CUNY) system produced many more people with college degrees and benefits that included higher earnings, better marriage prospects, and enriched environments for their children. In his critique of Attewell and Lavin, Steven Brint (2008) argues that the additional education attributable to the open education policy largely resulted in a new credential, not in the enhancement of skills. Jennie Brand and Yu Xie (2010) argue that marginal students actually gain more from college graduation than do typical college graduates, while Pedro Carneiro, James Heckman, and Edward Vytlačil (2011) maintain that this would be true only for the small subset of students with a low propensity to go to college who have unobservable characteristics that greatly raise the value of college for them. (In other words, selection into college on unobservable characteristics is strong.) We do not need to resolve the question about who benefits most from additional education in order to argue for policies that raise college graduation rates for those students in the middle third who realistically could complete college but currently do not. Any such policies should be responsive to the fact that this population is predominantly male.

We synthesize the existing literature and combine it with numerous analyses we have undertaken for this book or previously published articles and conference papers in collaboration with several current and former graduate students: Jill Bowdon, Jennifer Jennings, Joscha Legewie, Anne McDaniel, Allison Mann, and Uri Shwed.<sup>13</sup> In examining trends in the macro environment, we employed data from the decennial censuses back to 1940, using the Integrated Public Use Microdata Samples (IPUMS), monthly data from the Current Population Surveys (CPS), annual data from the October education supplement to the Current Population Survey, annual data for the most recent decade from the American Community Survey (ACS), and administrative data from the Cooperative Institutional Research Program (CIRP) Freshman Survey, the

Integrated Postsecondary Education Data System (IPEDS), the National Assessment of Educational Progress (NAEP), the cumulative General Social Surveys (GSS), and the WebCASPAR database maintained by the National Science Foundation (NSF). Data for the international comparisons were drawn from published reports of the Organization for Economic Cooperation and Development (OECD).

We also analyzed several panel data sets, including studies in which samples of children, adolescents, or young adults are surveyed periodically over a number of years. Four of these data sets were collected by the National Center for Education Statistics (NCES) of the U.S. Department of Education, spaced about ten years apart, and focused on students in middle school, high school, or college. The National Longitudinal Survey of the High School Class of 1972 (NLSHS72) began in 1972 with interviews of a national sample of high school seniors. High School and Beyond (HSB) began in 1980 with interviews of a national sample of high school sophomores and high school seniors and followed a subset of these students through 1992. The National Education Longitudinal Study (NELS) collected data on a sample of students who were in eighth grade in 1988 and followed a subset of them until 2000. The Education Longitudinal Study (ELS) of 2002 began with a sample of high school sophomores in 2002 and will continue to survey them through their early twenties. We also used a fifth NCES panel study, the Early Child Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), which follows a national sample of students from kindergarten through eighth grade and collects data from them, their parents, and their teachers. All of the NCES panel data sets provide rich information about the school experiences of students through designs that sample clusters of students in the same school and through supplementary surveys of school teachers or administrators as well as school-based administrative data.

In addition to the NCES panel studies, we utilized three panel studies collected under the supervision of the National Longitudinal Studies program of the U.S. Department of Labor. The National Longitudinal Survey of Youth: 1979 (NLSY79) has been collecting information about a sample of young people who were fourteen to twenty-two years old when first surveyed in 1979. Starting in 1986, the National Longitudinal Studies program began fielding supplementary surveys to follow all children of the female members of the NLSY79 sample. These children are still being surveyed. Finally, the National Longitudinal Survey of Youth: 1997 (NLSY97) follows a sample of U.S. residents born between 1980 and 1984. The National Longitudinal Studies provide particularly good information about respondents' family environments, sometimes through the collection of information from both parents and children or information on more than one sibling in the same family.



In this book, we largely focus on the United States, but we bring in international evidence when it gives a useful perspective on the American experience. The fact that women are overtaking men in educational attainment across much of the industrialized world belies the validity of any answer that rests too heavily on the cultural or social structure of any one country, including the United States. International comparisons of the school performance of girls and boys reinforce the idea of a common pattern: girls perform better in realms that emphasize verbal skills, while boys have an advantage in realms that emphasize mathematical performance. At the same time, careful studies of cross-national variation in educational performance and attainment (for example, Penner 2008; Guiso et al. 2008; McDaniel 2011) reinforce other evidence (for example, Ceci et al. 2009) pointing to important social and cultural explanations for the current gender gap in education. We specifically cite collaborative studies that we have undertaken with data from the Program for International Student Assessment (PISA), including two extensions of the PISA in Germany—the PISA-I-Plus and the PISA-E—and a panel study of elementary school students in Berlin, the ELEMENT data. This international perspective provides a fuller picture of the growing gender gap in education.

Historically, many American men have tended to work in well-paid, blue-collar jobs. Some of these jobs involved apprenticeship training as an entry into construction or a trade; others involved semiskilled factory work or truck driving. Thanks in part to the once-countervailing power of labor unions (Galbraith 1956), these jobs generally paid better than the jobs available to women without a college degree and even better than many professional jobs held by women college graduates. This world flourished in the late 1950s through the 1970s, and it gradually faded away during the 1980s and 1990s as the baby boomers worked through their prime years and had children of their own. In some respects (especially for younger Americans), this world now seems remote. But in generational terms, it is not far in the past. Now, in an era of deindustrialization, globalization, and the decline of union-supported blue-collar employment, less-educated baby boomers have increasingly struggled to achieve an acceptable standard of living. High school-educated boomers could see that the jobs in the United States that paid extremely well were mostly reserved for college graduates. But they saw no “bright line” difference between the standard of living of those who had only a high school diploma and those who had a college degree, especially a degree from a local or state college or university. When their own wages failed to keep pace, less-educated male workers often managed to forestall a decline in their household standard of living through increased

work hours by their wives, even as they held out hope that their future prospects would brighten through improvements in the broader economy.

Americans have been taught to be optimistic about the future. One of us recently published a paper titled “Is This a Great Country? Upward Mobility and the Chance for Riches in Contemporary America” (DiPrete 2007). This paper analyzes survey data collected in 2003, which is more than two decades after the onset of deindustrialization and the decline of union power, the decline of real wages for high school–educated men, and the stagnation of market income for households at the median of the American income distribution (Burkhauser 2012). A generation of young people had grown up during this transformative period for the American economy. Such events should have engendered pessimism about one’s future standard of living for many young Americans, especially those without a college degree. Gallup interviewers asked: “Looking ahead, how likely is it that you will ever be rich?” and the answers were surprising. Even though fewer than 30 percent of young American males would have earned a bachelor’s or advanced degree by age twenty-five, 58 percent of eighteen- to twenty-nine-year-old males thought it was somewhat or very likely that they would someday be rich. The extent of men’s over-optimism (quantified in DiPrete 2007) was striking especially with respect to their female counterparts. Only 43 percent of eighteen- to twenty-nine-year-old women expected to ever be rich, even though, as a group, they were better educated and had a greater chance than men of improving their standard of living through marriage (because husbands make more money on average than do wives).<sup>14</sup> Clearly, many young men with only a high school diploma who grew up during the decades when the wage returns to a high school diploma were falling nonetheless believed that they had a good chance of earning a lot of money in the labor market. Their optimism mirrors that of autoworkers in the 1950s who dreamed of saving enough of their earnings to start their own business (Chinoy 1955). Many of today’s young men are optimistic about achieving economic success without a college degree, despite the fact that in the aftermath of the recession that began in 2007, young blue-collar workers in large manufacturing industries are paid on a shrunken scale relative to that of older workers.<sup>15</sup>

These poll data underscore that it can take more than one generation of durable change in the environment before parents absorb its implications and communicate them to children effectively. Why do attitudes take such a long time to catch up to reality? First, ordinary people know less about labor markets and the connection between labor markets and education than do specialists. Second, Americans know that individual outcomes can be quite variable and that they depend on many factors beyond education. Their awareness of this variance causes them to over-

predict the mean, such that they are overly optimistic. Compounding this inertia is the arguably tight connection between gender stereotypes in the workplace and the process of gender socialization in the family. Many blue-collar jobs in construction, transportation, and manufacturing have a strongly masculine identity. Fathers in these jobs convey their masculinity to their sons in part through the physical aspects of their work lives. Sons internalize particular stereotypes as they develop their own masculine identity. This process can strengthen a boy's attachment to the career path of his blue-collar father and thereby slow the rate of generational adaptation to a changing labor market that has increasingly devalued blue-collar work.

This book is less concerned with the broader issue of gender identity and more focused on the question of why and how gender is linked to educational attainment. We show that making sense of this question requires that we recognize the importance of the family, not only for its ability to socialize children but also for its ability to invest resources in them. We argue that the sociocultural resources of middle-class families provide distinctive advantages to males. This does not mean that a boy must be born in a middle-class family to achieve the same potential as his sister, but rather that middle-class boys have a special advantage in light of the sex-typed culture in which children grow up. School environments and the student cultures within them also play a role. Boys are especially sensitive to their local environments, and this sensitivity may produce greater variation in their behavior. In short, the global gender gap hides substantial variations that can be found when we focus on specific class, race, school, or family environments. Understanding the sources of these local variations is important for enhancing the educational performance and attainment of males. Needless to say, we do not attempt to evaluate every explanation put forward for the growing educational gender gap. We do not attempt to assess the value of single-sex schools, though we are skeptical about their value for closing the gender gap in academic performance. We do not evaluate the extent to which schools have "feminized" cultures, though again, we are skeptical. We do, however, extend current empirical evidence and synthesize what is known in order to gain insights into the causes of the male shortfall in education and what can be done about it.

Our fundamental orientation is pro-education. We care about the gender gap and want to reduce it, not because inequality per se is bad (though we have a pro-equality bias), and certainly not because girls have unfairly gained an advantage from a "war on boys," but because greater insight into the reasons for the male shortfall can help develop policies that improve educational outcomes for both girls and boys. It is telling that, in the aggregate, neither females nor males come anywhere close to realizing the educational aspirations they express in adoles-

cence. Rates of college graduation would need to more than double for the gap between adolescent aspirations and educational attainment to close. Skeptical observers (Murray 2009) believe that this goal would be incompatible with the distribution of IQ in the population. We believe that this goal is currently infeasible, not for genetic reasons but because of financial barriers coupled with family and school environments that do not adequately promote development of the learning skills that would enable more students to successfully complete college if they are motivated to do so.

The problem of insufficient motivation among American youth is a large one. Gender shapes motivation in ways that give girls an advantage in school because—as we show—they typically derive more intrinsic gratification from performing well on a day-to-day basis. Daily performance builds knowledge and skills and makes it easier to achieve at higher stages of the education process. If boys gained more short-term gratification from academic effort, they would also work harder; this effort would enable them to perform better and go further in school than they typically do now. Short-term gratification is especially important at younger ages, but as children enter adolescence and young adulthood, the intrinsic appeal of school must be supplemented by occupational goals that can be realized via specific courses of study. Perhaps more women than men see recognizable pathways through college to desirable jobs, or perhaps females can stay the course because they have better academic work habits than do males. These are questions to which we return to later.

The growing fraction of women completing a college degree suggests that there is not a strong cognitive constraint on the fraction of a cohort who are capable of doing college work. Thus, the study of the gender gap in college completion is important in its own right and can provide a lens for viewing the broader question of how to enhance the educational attainment of both women and men.

## **Outline of the Book**

Chapters 2 and 3 focus on educational trends and address the reversal of the gender gap in college completion from a macro perspective. Chapter 2 provides a descriptive overview of college completion trends for males and females in the United States and other OECD countries and shows how women's share of tertiary education has risen rapidly throughout the industrialized world during the past thirty years. We then describe gender-specific trends in the completion of bachelor's degrees, master's degrees, and doctoral and professional degrees to show the full picture of women's rise over men in educational attainment. Chapter 2 next examines the pathways to college completion, including high school com-

pletion and college enrollment. We compare males' and females' rates of college enrollment and completion for whites, African Americans, and Hispanics. We also address the extent to which age-specific transition rates vary by gender.

Chapter 3 examines the broader societal context in which the reversal of the gender gap in education has occurred. Women's labor market opportunities have grown dramatically since the early part of the twentieth century. The chapter explores the implications of rapid changes in labor market opportunities and considers how these opportunities varied for men and women by race and ethnicity. It also considers how changing returns to a college degree in terms of various aspects of well-being, including earnings, standard of living, marriage, and marital dissolution, are related to trends in college completion for men and women. We also consider the potential obstacles to college completion posed by military service, incarceration, and supply constraints in the available number of places in colleges in light of what can reasonably be viewed as a competition (both between and within genders) for college admission and high college grades.

In parts II and III, we shift to a life-course perspective and seek answers to the question of why males now lag so far behind females in rates of college completion in the contemporary United States. Part II (chapters 4 to 6) considers academic performance, social and behavioral skills, and the roles of parents, peers, and adolescent culture. Chapter 4 focuses on the gap in academic performance between boys and girls in elementary school, middle school, and high school. It documents the long-standing female advantage in school grades even when accounting for gender differences in curriculum. It also documents the gradual female gains in mathematics and science test scores over the past thirty years and the dramatic gains in math and science course-taking among females; in 1972 male high school students took more math and more science courses than did females, but by 2004 females led males in the overall number of math and science courses they took as well as in enrollment in middle-level to advanced-level high school math and science courses. Chapter 4 demonstrates the strong connection between academic performance in middle and high school and the probability of college completion. Most of the gender difference in college completion rates is due to the gender gap in academic performance that emerges as early as middle school. The gender difference in grades in eighth grade is reproduced in high school and then, for the subset of high school students who enroll in college, in college grades, which in turn are strongly predictive of whether a student will earn a bachelor's degree.

The academic performance gap is the proximate cause for the gender gap in college completion, and chapters 5 and 6 examine the causes of this gap in detail. Chapter 5 reports on the research on how much of the

academic performance gender gap is due to gender gaps in social and behavioral skills and effort. Social and behavioral skills include orientations to learning, attentiveness, task persistence, and self-control. In general, girls have higher levels of social and behavioral skills than boys as early as kindergarten, and this advantage grows during the early years of elementary school. Social and behavioral skills are also related to gains in reading and math competence during elementary school. Analyses of young children find that a significant component of the gender gap in reading can be explained by the female advantage in social and behavioral skills. Boys have an advantage over girls in math test scores by the middle of elementary school, but girls' advantage in social and behavioral skills reduces the size of their deficit in math tests. Social and behavioral skills play an even greater role in teacher ratings of academic outcomes, such that girls get higher teaching ratings on average. This advantage comes about primarily through the cumulative benefits provided by social and behavioral skills for the learning process rather than through conduct-based grading by teachers. Effort also matters for academic performance, and chapter 5 considers the extent of the gender gap in academic performance that can be attributed to differences in average effort expended by girls and boys.

Chapter 6 examines the impact of parents, peers, and the preadolescent and adolescent subculture. While parents' human and cultural capital is strongly related to their children's educational outcomes, we explore whether some parental characteristics are differentially related to sons' and daughters' educational outcomes. Psychologists have argued that parents have limited influence on the gender differentiation of their children and that gender differentiation occurs instead largely through interaction among peers. Our central interest is in the specific issue of gender differentiation in academic performance. We believe that two corrections to the psychological model should be made. First, the model needs to recognize that peer effects on academic performance are far from uniform. Some peer cultures value and reward academic performance, while others denigrate academic performance, especially for boys in working-class cultures. Second, the model needs to consider that parents can affect not only the academic performance of their children but also the gender gap in performance between their sons and their daughters. We demonstrate how the relationship between parental socioeconomic status and the gap in educational attainment between sons and daughters has changed dramatically over the past sixty years: at one time, boys got more education in families with less-educated parents, but now they get less education relative to girls in those families.

We argue that the educational disadvantages facing many boys today can be alleviated by family resources. Chapter 6 shows that the gender gap in educational attainment between children in the same families

tends to be lower when the father is present and when he is more highly educated. We believe this to be due to the ability of higher-educated parents, and fathers in particular, to instill in sons an “adult” conception of masculinity and an understanding of the instrumental role that academic achievement plays in masculine success in adulthood. This fosters an instrumental attachment to school for sons that offsets the expressive coolness toward school that is central to common preadolescent and adolescent conceptions of masculinity.

What does all of this mean for American schools? Chapter 7 explains how school environments influence the gender gap in educational performance. Schools with strong academic climates typically shrink the size of the educational gender gap by raising the academic performance of boys without harming the academic performance of girls. We address three common propositions about schools and the gender gap. We argue against the notion that the female advantage is a consequence of biased grading that favors girls, as well as the idea that the male disadvantage has emerged because schools have created a “feminine” environment that is detrimental to boys. And there is little evidence that the educational gender gap can be attributed to coeducation or that single-sex schools and classrooms provide general educational benefits to boys. But school environments can play important roles in improving academic performance overall while reducing the typical performance disadvantage of boys. We argue that much of the male disadvantage can be traced to a peer culture that often provides status rewards for an oppositional attitude toward school, and we present evidence from the United States and Europe suggesting that academically oriented classroom climates differentially raise the academic performance of boys in elementary and secondary school.

Schools also can play a role in reducing the large remaining degree of gender segregation in fields of study even as women have come to outpace men in educational attainment. Specifically, women continue to lag behind men in engineering and physical science degrees even as they have achieved parity or advantages in other elite fields such as medicine, law, and the biological and life sciences. Chapter 8 addresses gender differences in high school intentions to major in the science, technology, engineering, and mathematics (STEM) fields and gender differences in college majors and bachelor’s and post-bachelor’s degrees. We report on trends in both bachelor’s and advanced degrees using survey and administrative data from the National Center for Education Statistics and other sources. We also present research that addresses the dominant theories proposed to account for this gap and that shows that such gaps arise neither from gender differences in mathematical skills nor from gender differences in adolescent values concerning career and family. One important source of gender differences in fields of study is the im-

pact of the local environment on the development of stereotypes concerning gender and STEM fields during middle and high school. College-bound girls largely form their orientations toward physical science, engineering, and mathematical fields of study by the end of high school. Girls who have signaled an intent to major in one of these fields by the end of high school are just as likely as boys to follow through on their plans and graduate from college with a degree in a STEM field. But they are much less likely than boys to transition into these college majors if they have not already declared an interest by high school. In contrast, the expressed orientations of middle school girls and boys toward the sciences are only moderately predictive of the orientations they will express at the end of high school. Thus, high school is a very important period for the formation of a science or nonscience orientation, particularly for girls. School environments differ in the extent to which they support the idea that majoring in a STEM field can be an attractive choice for women. Some schools do an especially good job of providing this support by undermining common stereotypes that link majoring in a STEM field with a masculine identity. Recent evidence suggests that schools with strong science and math curricula are particularly good at delinking STEM fields from masculine stereotypes.

The final chapter (chapter 9) recapitulates the arguments developed in the preceding chapters. As should be clear by now, we believe that the cause of the educational stagnation in the United States is environmental and that changes in the environment can spur continuing advances in rates of college completion in this country to rival those achieved in other industrialized societies. Some aspects of the environment, such as the rising cost of higher education, have created challenges for all students, male and female, who aspire to get a college degree. But other environmental conditions have created specific challenges for males. We propose strategies for tackling these environmental challenges, with the goal of increasing the educational attainment of both men and women.