

Gender Inequality in Educational Attainment¹

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Abstract

Just a few decades ago in most nations in the world, women completed far less schooling than men. Today, throughout much of the world, the reverse is true, and on average, women complete more years of schooling than men. This essay identifies important cross-national trends in gender inequalities in educational attainment, outlines foundational and cutting-edge research on the topic and suggests directions for future research. We examine US-based explanations for the female-favorable gender gap in educational attainment, and argue that the gender gap must be studied from a comparative and international perspective. While little is known about why women outpace men in education throughout the world, we recommend three potential avenues for future research: (i) the sources of girls' better average academic performance in school, (ii) boys' apparent greater vulnerability to resource deficits within families, and (iii) changing incentives for women and men to complete higher education. We conclude by discussing the potential consequences of the female advantage in educational attainment and the challenges of conducting cross-national educational research.

INTRODUCTION

Just a few decades ago in most nations in the world, women completed far less schooling than men. Today, the reverse is true and on average women complete more years of schooling than men. In most industrialized societies, women enjoy a growing advantage in college completion. This essay describes gender differences in educational attainment on a global level—that is, how much education males and females complete measured either as years of schooling or degrees earned. It discusses recent developments in the literature focusing on international similarities and differences in the female advantage in educational attainment, the sources of this trend and its possible consequences. After outlining foundational research on

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explanations for the female favorable gap in educational attainment, much of which is US-based, the essay highlights cutting-edge international research on the issue. Because little is known about why women's educational attainment now exceeds men's throughout much of the world, the essay considers important questions for future research and promising avenues to advance understanding of gender inequalities in educational attainment in the current era: (i) the sources of girls' better average academic performance in school, (ii) boys' apparent greater vulnerability to resource deficits within families, (iii) changing incentives for women and men to complete higher education, and (iv) the potential consequences of the female advantage in educational attainment for societies and individuals.

FOUNDATIONAL RESEARCH

CROSS-NATIONAL TRENDS IN THE GENDER GAP IN EDUCATIONAL ATTAINMENT

During the 1970s in most nations in the world, women completed far fewer college and university degrees than men. But today, women comprise more than 50% of tertiary students in a majority of countries throughout the world. The female advantage is most striking in industrialized societies. For example, in the 27 member-nations of the European Union, 55% of all students graduating from higher education are women (UNESCO, 2010). In the United States, women now comprise 57% of students enrolled in college (Snyder & Dillow, 2012). These high rates of college enrollment and completion are especially striking when we consider that just 30 years ago, women comprised less than half of the students earning college degrees in Europe and the United States. Beginning in the 1980s, women's enrollment in higher education surpassed men's in North America and Western Europe. In the 1990s, women's enrollment surpassed men's in Latin America and the Caribbean. In the past decade, women surpassed men in tertiary enrollment in Central Asia. Currently, men's and women's tertiary enrollment rates are roughly equal in East Asia and the Pacific as well as Middle Eastern countries.

It is also noteworthy that the trend in rising female educational attainment extends to most developing nations, where males once had substantial enrollment and attainment advantages over females. In these world regions, where the proportion of students going on to higher education is very low, the female advantage is typically measured in years of primary and secondary schooling completed. According to Grant and Behrman (2010), in less developed countries there is a widespread female advantage in educational attainment among those who ever enrolled in school and "girls ... progress through school on pace with or faster than boys and have

equal or greater schooling attainment than boys" (pp. 85–86). Furthermore, women are expected to widen their lead in educational attainment over men well into the future. The OECD projects that by 2025 the share of women enrolled in higher education will reach 60% in many nations, and over 70% in the United Kingdom and Austria (Vincent-Lancrin 2008). In developing countries, female advantages in schooling attainment among ever-enrolled students are also expected to increase (Grant & Behrman, 2010).

On a global level, not only are women more likely to enroll in higher education and complete university degrees than men, they have made impressive gains relative to men in earning graduate and professional degrees. In 2010, women were awarded 60% of master's degrees and 51% of doctoral degrees in the United States (Snyder & Dillow, 2012). On a global level, women comprise 56% of all students enrolled in master's degree programs and 44% of all PhD-level students (UNESCO, 2010). Trends suggest that in the coming decades women will reach parity with men or surpass them in doctoral programs globally.

US-BASED EXPLANATIONS FOR THE FEMALE ADVANTAGE IN EDUCATIONAL ATTAINMENT

Because the female advantage in higher education on a global scale is such a new phenomenon, there is little research on it to date. Most prior international research on gender inequalities in education has focused on how the spread of mass schooling, support for women's rights and more egalitarian gender norms increased women's participation in higher education (Bradley & Ramirez, 1996; Schofer & Meyer, 2005). Because most of this research was conducted before the reversal of the gender gap in educational attainment, it does not examine the forces behind women surpassing men in educational attainment cross-nationally. At the same time, a small but growing body of literature on the female advantage in college completion in the United States has emerged. This research on why women have come to outpace men in higher education suggests fruitful areas for exploration including girls' better average academic performance in school, boys' apparent greater vulnerability to resource deficits within families, and changing incentives for women and men to complete higher education.

GENDER INEQUALITIES IN ACADEMIC PERFORMANCE

Research in the United States demonstrates that females outperform and outpace males at almost every point in the educational career. Girls have long obtained better grades in schools in all subjects. Today, girls also take more rigorous high school courses than boys. They have fewer behavioral

problems and learning disabilities, better social skills and classroom behavior, and higher educational expectations than boys (Buchmann, DiPrete, & McDaniel, 2008). While males continue to outperform females on standardized math tests and females outperform males on reading tests (Hedges & Nowell, 1995), most scholars agree that gender differences in mental abilities measured by test scores are too small to account for the growing female advantage in college completion (DiPrete & Buchmann, 2013). Grades are a far better predictor than test scores of the likelihood of completing college and females' superior academic performance in elementary and secondary school is one important factor behind women's higher college completion rates (Buchmann & DiPrete, 2006).

MALE VULNERABILITY TO RESOURCE DEFICITS

An emerging line of research on educational outcomes suggests that males may be more vulnerable than females to resource deficits. For example, evidence indicates that growing up in homes with absent fathers or less-educated parents is more detrimental to males' than females' educational outcomes (Buchmann & DiPrete, 2006). If, as gender role socialization theories maintain, girls look more to their mothers and boys look more to their fathers when developing educational aspirations and role models, it makes sense that boys may suffer differentially from the absence of a father in the household. Evidence from the United States suggest that men's disadvantage in college completion emerged over time, in part due to the fact that men from homes with absent fathers are less likely to complete college than their similarly situated female counterparts (Buchmann & DiPrete, 2006). Moreover, adolescent boys with no father present in the home have lower achievement scores and more behavioral problems compared to boys with two parents in the home (DiPrete & Buchmann, 2013). US-based evidence also indicates that parents' education and social class differently affect the educational outcomes of sons and daughters. The female-favorable gender gap in education is largest among those from working class and less educated families (DiPrete & Buchmann, 2013).

RISING INCENTIVES TO COMPLETE MORE EDUCATION

Education is often thought of as an investment decision, both for individuals and countries. For countries, investing in education is believed to promote economic and cultural development, especially in terms of worker productivity and economic output, but also in terms of health and political stability (Hannum & Buchmann, 2005). For individuals, investing in education increases human capital, and the decision to invest in education is based on

perceived returns to education (Becker, 1991). Yet, men's and women's incentives to pursue higher education differ, and these differences are related to men's and women's rates of college completion.

Economic and societal changes during the twentieth century transformed women's labor market opportunities in the United States and other industrialized societies. Today, in the United States, nearly as many women as men are represented in the workforce. Moreover, women have made substantial gains in high-skill sectors of the economy, due both to the expansion of sectors such as health care and education which have been female dominated, but also to their growing representation in previously male-dominated occupations in fields such as business, law, and science. These changes in the labor market experiences of women, coupled with changes in marriage and family life, have influenced their decisions acquire ever higher levels of education (DiPrete & Buchmann, 2013).

Women's wage returns to higher education have risen in the United States in recent decades, but men's returns have risen at a very similar rate. Therefore, wage returns alone cannot explain women's advantage in college completion over men in the United States (Hubbard, 2011). At the same time, one puzzling aspect of the reversal of the gender gap in college completion is the slow pace of growth in men's rates of college completion in the face of rising returns to college for men. Of course, returns to education are not limited to financial returns or labor market opportunities, and this is especially true for women. Women with a college degree in the United States are more likely to marry, less likely to divorce, have fewer children, and are less likely to be single parents than women without a college degree. These incentives may partly explain women's rising rates of educational attainment (DiPrete & Buchmann, 2006).

CUTTING-EDGE RESEARCH

Little is known about shifting gender inequalities in educational attainment in countries other than the United States or cross-nationally. The majority of cross-national research on gender gaps in higher education was conducted during the period when men outpaced women in educational attainment, and is therefore out of date for most regions of the world (Kelly & Slaughter, 1991). Other cross-national research has examined why women and men tend to complete different fields of study or the underrepresentation of women in science related fields (Charles & Bradley, 2002, 2009), and has paid less attention to the fact that on average, women now lead men in how much schooling they complete. Growing interest in the female advantage in educational attainment in the United States has spurred some research on shifting gender gaps in educational attainment in other countries. Cutting-edge

research on this issue examines female academic performance advantages in secondary schools. Other research has begun to examine that factors that might explain cross-national variations in gender gaps in educational attainment. A few important country-specific case studies examine the sources of women's advantage in higher education.

Research has begun to examine gender differences in academic performance, educational expectations, and other school-related behaviors from a cross-national perspective, thanks to the growing availability of high-quality, comparative cross-national datasets on secondary school students, such as the Program of International Student Assessment (PISA) and Trends in International Math and Science Study (TIMSS). These studies provide insights into processes earlier in the life course that lead to gender inequalities in educational attainment later in life. For example, recent research finds that boys outscore girls on math tests and girls outscore boys on reading tests across countries (Marks, 2008), but there are important variations in the size of the gender gaps on achievement tests. In countries with higher levels of gender equality, the male advantage on standardized math tests is smaller among high achieving secondary school students (Penner, 2008). Cross-national research also suggests that females outperform males on other educational measures. Females have more positive attitudes toward school, spend more time on homework, and have higher educational expectations (McDaniel, 2010). Among students who graduate from secondary school, females are more likely to continue on to higher education than males in many countries (Ortega, 2008).

Other recent research examines broad trends and patterns in how structural and institutional features of countries shape the gender gap in higher education enrollment and completion. McDaniel's research on the gender gap in tertiary enrollment in 75 countries finds that countries that have historically supported women's rights, experienced more rapid educational expansion, and have low fertility rates tend to have larger shares of women than men enrolled in tertiary education (McDaniel, 2014). In a study of 37 European countries, McDaniel (2011) finds that women's university completion is influenced by the size and expansion of the tertiary system and fertility norms, while men's university completion is influenced by labor market opportunities within countries. Men's likelihood of completion is lower in nations where men have alternative job opportunities, such as working in the industrial sector or in a trade union, and with high unemployment rates.

Other cutting-edge research tests the reach of the US-based finding that men are more vulnerable to growing up in households with fewer resources and low-educated parents. In England, Glaesser and Cooper (2012) find that boys without highly educated parents are less likely to obtain secondary school qualifications compared to similar girls. In Germany, Legewie and

DiPrete (2009) find that among the cohort born between 1960 and 1982, females either caught up with or overtook males in educational attainment in families with low-educated fathers. In Norway, daughters earn a greater benefit in terms of education than sons from having more educated mothers (Ermisch & Pronzato, 2009). In seven European countries, Breen, Luijkx, Muller, and Pollack (2009) demonstrate that women's disadvantage in the completion of higher education declined over the course of the twentieth century, and this holds true for all social classes. Furthermore, in Italy and Poland, daughters attained more education than sons whose fathers work in middle-class occupations. McDaniel (2011) finds across 37 European countries that men are less likely to complete university than women if their parents had low levels of education.

KEY ISSUES FOR FUTURE RESEARCH

Gender inequalities in educational attainment have been in flux in recent decades, with women gaining advantages over men throughout much of the world in ways that could not have been anticipated just two decades ago. In light of these striking changes, the future promises to bring more change than stability in this field of research. Here we discuss four areas of inquiry that may prove particularly useful in advancing understanding of gender inequalities in educational attainment. (i) How do gender inequalities in education develop earlier in the life course and how they are related to inequalities in educational attainment? (ii) Why do males' educational outcomes seem particularly vulnerable to resource deficits? (iii) How do the incentives to complete more education shape males' and females' educational attainment rates? How might these incentives be changing throughout the world, and across different countries? (iv) What are the broader societal level consequences of the growing female advantage in educational attainment?

First, because gender inequalities in educational attainment are due, in part, to gender differences in earlier behaviors and experiences, more research needs to examine how gender shapes children and adolescents' educational experiences, orientations, performance, and achievement early in the life course. The study of gender differences in early childhood must be an interdisciplinary enterprise, with connected efforts in sociology, psychology, biology, neuroscience, genetics, and other disciplines.

Second, while some evidence suggests that males' educational outcomes are more negatively affected than females by growing up in a resource-poor environment, we do not have a clear understanding of why this occurs. Families play a crucial role in a child's educational success. Parents interact with sons and daughters in different ways and children are socialized according to their gender, and there is evidence that this varies by class background (Raley

& Bianchi, 2006). It is less clear whether families with fewer resources or single-parent families socialize, support, or invest in sons and daughters differently or how such differences would affect educational outcomes. Future research should examine how family environments and processes are related to gender differences in educational attainment. Comparative research could shed light on the degree to which patterns of male vulnerability to resource deficits are similar across countries, or whether some countries or cultures are better able to protect males from the negative effects of growing up in resource-poor environments. Whenever possible, this research should attend to vulnerable segments of the population and to males who may be at particular risk for poor performance and low educational attainment, including immigrants, racial and ethnic minorities, and those from disadvantaged families.

Third, little is known about how incentives to attain high levels of education are related to gender inequalities in educational attainment across a wide range of countries or how country-level variations in labor market structures and educational systems as well as variations in marriage and family norms shape the educational decisions of men and women. For example, in European countries where larger proportions of workers are found in the industrial sector and belong to unions, men are less likely to complete higher education than women (McDaniel, 2011). Countries with large industrial sectors provide high-paying manufacturing jobs that do not require a college education, and men dominate these jobs. In addition, these occupations are often part of male-dominated trade unions that not only provide high wages and stable employment but also collectively organize and bargain. By providing well-compensated alternatives to jobs that require a college degree, labor markets may provide disincentives for men to pursue higher education; women may be less likely to have access to such alternatives. Instead, women are more likely to earn tertiary degrees and enter the service sector in clerical or professional occupations (Charles & Grusky, 2004; McDaniel, 2011).

In most countries, women who pursue higher education often delay their age of marriage and childbirth because completing a university degree interferes with the prime stage in the life course for beginning a family (Corijn & Klijzing, 2001). As the average age of marriage for women rises and fertility rates fall—due to contraceptive technologies and changing norms regarding family formation and childbearing—women are able to devote more time attaining higher education. Rising rates of divorce and the desire or necessity for women to be economically independent has also provided them with greater incentives to complete a college degree. These changes are no doubt related to women's rising educational attainment. However, research has yet to disentangle the causality behind these processes; that is, whether changes

in marriage and family roles caused women to pursue higher education at higher rates or if women pursued higher education causing marriage and family roles to shift. The relationships between these factors are complex and likely reciprocal. Future research should aim to parse out these relationships and elucidate if wage and nonwage returns to education have risen in other countries for women as they have in the United States. Similar processes may be occurring in other countries, as dramatic changes in marriage and family relationships could provide women with greater incentives to complete higher education. The female-favorable trend in college completion may derive at least in part from responses to gender-specific changes in the value of higher education.

Fourth, because the reversal of the gender gap in educational attainment from a favoring of males to a favoring of females is so recent, little scholarship has considered or analyzed its potentially far-reaching consequences. Shifting educational attainment rates for men and women could affect gender gaps in wages, labor force participation, and a host of other outcomes. As women outpace men in the amount of education they receive, their representation in politics, business, and other powerful realms may rise as well (Pettit & Hook, 2005; Paxton & Kunovich, 2003). The rising proportion of college-educated women relative to men could alter trends in marriage as more women marry men with less education, delay marriage, or forego marriage altogether. These changes, in turn, may have an impact on family formation and parenting. The coming decades should prove informative as to whether women will be able to translate their advantage in higher education to greater equality more generally. It will also be important to pay attention to how men's lower rates of college completion affect their life outcomes. Clearly, understanding the causes and consequences of the growing female advantage in college completion is an important task for social scientists.

The dearth of high-quality, comparative data poses an important challenge to researchers studying gender inequalities in higher education from an international perspective. While cross-national datasets for students in elementary and secondary schools (e.g., TIMSS and PISA) are widely available, to the best of our knowledge, little comparative data exists for students in higher education for a large sample of countries. This makes it difficult for researchers to study the educational experiences of college and university students cross-nationally or the pathways students take in and out of higher education. This means that scholars interested in studying cross-national variations in gender disparities in educational attainment will need to compile such data from individual country-level sources or international organizations such as UNESCO. Further complicating this goal is the fact that reliable, valid, and harmonized measures of educational attainment are difficult to assemble because education systems vary widely across countries. In

1976, UNESCO introduced the International Standard Classification of Education (ISCED) with the goal of harmonizing countries' coding of their educational data (UNESCO, 1997). Today, many cross-national surveys code their educational data using ISCED, including the European Social Survey, the European Labor Force Survey, and the PISA studies. But there are variations in how countries translate educational outcomes the ISCED scale, which in turn can reduce the explanatory power of education in statistical analysis (Schneider, 2009). This poses a challenge to researchers trying to understand broader patterns of gender inequalities in educational attainment.

As we move forward, scholars should adopt a more holistic view of gender inequality—one that does not exclusively focus on women or men, but both. In doing so, we can improve our understanding of the gender inequalities in education more generally. Comparative research provides a useful lens from which to view the impact of individuals' decisions within structural contexts or institutions as well as refine theories developed in a single context, such as the United States (Buchmann, 2010). Therefore, future research should interrogate gender gaps in higher education globally by focusing on both individuals' decisions and national characteristics that shape or constrain those decisions in order understand the forces behind gender disparities in educational attainment. We have much to learn about the nature, causes, and consequences of the changing gender gaps in education across the life course. The rapidly shifting terrain of gender inequalities in educational attainment raises important questions for researchers, policy makers, and educators who want to understand how to improve the educational performance and attainment of all youth.

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