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Education is thought to be the pathway to success for disadvantaged groups. Given that young women now match or surpass men's educational achievements on many measures, how do they fare in terms of equal earnings? Would further educational changes matter for closing any existing gap? Analyzing data from the National Educational Longitudinal Survey, the author found that college-educated men in their mid-20s already earn, on average, about $7,000 more per year than do college-educated women. The findings suggest that this gap would still be substantial--about $4,400 per year--if women and men had similar educational credentials, scores on standardized tests, fields of study, and degrees from colleges of similar selectivity. Although women's gains in education may have been central to narrowing the gender gap in income historically, gender differences in fields of study continue to disadvantage women. Moreover, gender differences in work-related factors are more important than are educational differences for understanding contemporary income inequality among young workers.

Given the obvious connection between educational success and labor market outcomes, many consider education to be key to reducing group inequalities. In particular, schooling is thought to play a pivotal role in the success of racial/ethnic groups, such as Asian Americans, and the continuing struggles of others (e.g., blacks, Native Americans, and Hispanics). But what role does education play in lessening gender disparities in the larger society? With women's educational attainment and achievement patterns now matching or surpassing those of men on many measures, are women on their way toward gender equality more broadly?

The literature has documented the unprecedented success of women in the classroom (e.g., National Center for Education Statistics, NCES 2005) and has suggested that education may have played an important role in reducing gender wage gaps over the past few decades (e.g., Gill and Leigh 2000; Loury 1997). Some studies have isolated educational influences on persisting gender wage gaps, most notably gender differences in skills (e.g., Farkas et al. 1997), college majors (e.g., Bradley 2000), and college selectivity (e.g., Davies and Guppy 1997), while others have concentrated on noneducational influences on wage disparities, such as family formation and patterns of labor market participation (e.g., Kilbourne, England, and Beron 1994; Marini and Fan 1997). Yet few studies have systematically analyzed the mediating role of education in gender disparities in earnings, along with the potentially confounding family and employment factors. In addition, little attention has been paid to the current level of gender disparities in earnings among the beneficiaries of these changing patterns of educational

accomplishment or to the prospects of education contributing to further reductions in such inequalities should the patterns of women's educational success persist.

This article, drawing from and extending prior work, addresses the role of education in mediating gender inequality in earnings for young college-educated workers today. Such analyses are important because they empirically test both the level of contemporary gender disparities in earnings and the potentially equalizing influence of education among those who are the most likely to benefit from recent educational changes. I begin by discussing changing educational patterns for women and their potential implications for gender inequality in the contemporary labor market. I then turn to the potentially confounding role of family responsibilities and workplace stratification. The analyses, which draw from the National Educational Longitudinal Survey of 1988 (hereafter NELS), assess the degree to which education mediates gender inequality in income for young college-educated workers. I conclude by discussing the implications of the important but limited role of education in reducing earnings inequality for the prospects of broader gender equality.

BACKGROUND

Consequences of Changing Educational Patterns

While scholars in the 1970s and 1980s highlighted ways in which schools shortchanged girls (e.g., Sadker and Sadker 1994), the focus has shifted in the past decade because young women now outperform young men on many indicators of educational achievement (see NCES 2005; Riordan 2003). Not only are women enrolling in college in greater numbers than men, they are also outpacing men in graduating from high school, attending college, and attaining college degrees (NCES 2004; Sum, Fogg, and Harrington 2003). In addition, gender gaps in enrollment and degree attainment favoring women are expected to widen further in the next decade (NCES 2003a:6; Sum et al. 2003).

These dramatic and well-documented educational changes have been fodder for much public debate regarding a "war against boys" (see Riordan 2003); however, the pressing issue that has been overlooked in the literature is the degree to which the educational success of young women today leads to gender equality later in life. In particular, there has been little research on the implications of changing patterns in higher education for gender equality in labor market outcomes. A notable exception is Loury's (1997) work, which suggested that women's educational success had a direct effect on the narrowing gender gap in earnings in the early to mid-1980s. In particular, Loury concluded that gendered changes related to college grades and fields of study explain virtually all the 6-percentage-point decrease in the gender gap in earnings for college graduates from 1979 to 1986.[1]

Such work connecting women's educational accomplishments to the declining gender gap in income suggests an optimistic picture for young, college-educated women at the time of their entry into careers. In particular, the pattern of women's increasing participation in higher education, given the increasing importance of a college education for labor market success (Cappelli et al. 1997; Farley 1995), suggests that young women who are entering careers may be well positioned, finally, for gender equity in pay.

However, to what extent do young college-educated women reap equal returns in the labor market? The weight of the empirical evidence suggests lingering inequality, with women earning about 15 percent less than men early in their careers (e.g., Blau 1998:129; Marini and Fan 1997). Yet other research has suggested no gender gap in wages for young engineers (Morgan 1998). Understanding the degree of gender inequality in earnings in the early years of careers is important because initial income disparities tend to grow over time (see Marini 1989). And for those who are interested in examining the equalizing effects of education, it is during these early years of a career—when differences in employment histories, life experiences, and accumulated skills are minimized—that educational credentials and school experiences are likely to matter the most.

In addition to the need to determine the magnitude of the income differences for college-educated men and women early in their careers, a second question also looms large: Given the changing gendered patterns of educational success, to what extent do educational factors contribute to any gender disparities in earnings for young workers today? I turn now to this question.

Educational Explanations for the Gender Income Gap

The recent focus on women's educational advances, which are both impressive and deserving of scholarly attention, tends to obscure the ways in which women remain disadvantaged on several educational measures. Gender differences on four of these measures, in particular, are implicated in the gender income gap: (1) choice of a college major, (2) skills as measured by standardized tests, (3) amount of education, and (4) selectivity of the college attended.

The most persuasive educational explanation of gender income inequality is that *women major in fields* that lead to jobs that are not rewarded with higher incomes (Bradley 2000; Davies and Guppy 1997; Gerber and Schaefer 2004). Individuals who major in such fields as engineering and computer science tend to earn more than do those who major in education and the humanities (Daymont and Andrisani 1984; Gerber and Schaefer 2004). However, in spite of the trend toward the integration of fields of study, college majors are still quite gender segregated (see Bradley 2000; Charles and Bradley 2002; Jacobs 1995, 1996). For example, women received 20 percent of the engineering degrees and 77 percent of the education degrees in 2000–01 (NCES 2004:78). Given that men are more concentrated in the higher-earning fields and women are more concentrated in the less rewarded ones, gender segregation in fields of study appears to contribute to gender differences in income.

Indeed, studies that have considered fields of study have found that the choice of college majors explains between roughly one-quarter to one-half of the gender gap in wages for college graduates (Brown and Corcoran 1997; Daymont and Andrisani 1984). Bradley (2000) concluded that this horizontal dimension of gender segregation is pivotal in understanding gender inequality in wages globally.

But what is it about some fields that lead to their being better compensated than others? Is it the content of the field or the gender composition that suggests its worth? It is possible that "certain majors and courses may develop more valuable job-related human capital than do other majors and courses" (Brown and Corcoran 1997:432, citing Paglin and Rufolo 1990). In this view, the labor market rewards this investment in human capital with higher earnings. Alternatively, the gender dominance of the major (i.e., percentage female) may be the most salient difference in field of study, since traditionally male fields have been rewarded more than have traditionally female ones. While most studies have tested the impact of fields of study by using dummy variables for majors, making it hard to know what about the majors is leading to the earnings disparities, NCES (1998; see also Joy 2000) considered women's proportional representation in each field. It found that among the college educated, workers with female-dominated majors averaged 20 percent less in annual earnings in the first year after graduation than did workers with male-dominated majors. Such research suggests that the gender composition of fields should not be overlooked when considering why college majors matter for gender disparities in income.

Another education-related explanation for income inequalities concerns *gender differences in cognitive skills.* Measured using standardized test scores, cognitive skills are thought to affect the gender gap directly as well as indirectly through the choice of college major and access to jobs (Farkas et al. 1997; Paglin and Rufolo 1990). Research has suggested that as the U.S. economy has transformed since the 1970s, math and science abilities have become more predictive of salaries (Murnane, Willett, and Levy 1995), and math skills translate into higher earnings for all types of workers (Mitra 2002). Indeed, Mitra's (2002) study found that the gender gap in income disappears among professional men and women with the highest math

skills. Thus, the gender income differential is a result of differences in highly valued skills—generally math skills—which lead to lower-paying jobs for women. Although evidence suggests that differences in boys' and girls' performance on standardized math and science tests are shrinking (Willingham and Cole 1997), persistent differences on standardized tests, including the SAT, favoring men (College Board 2003; NCES 2004) may continue to play a role in gender disparities in income, particularly in today's economy, in which skills are increasingly predictive of salaries (Murnane et al. 1995).

While the strongest educational influences on gender disparities in income are likely to be gender segregation in college majors and differences in standardized test scores, two additional schooling-related factors may contribute to these disparities to a lesser extent. The first is the vertical dimension of gender segregation,[2] or the *level of degree attainment*. Although women now surpass men in undergraduate degrees that are awarded (NCES 2005), gender parity in the highest degrees has yet to be realized. Women receive approximately 45 percent of all professional and doctoral degrees (NCES 2004:82). Although this is not a large difference, the reality that greater educational attainment leads to higher wages for both women and men (Blau 1998; Kilbourne et al. 1994) suggests that men's advantage in receiving the highest degrees may contribute in a small way to women's lower average earnings.

In addition, some scholars have suggested that *women's attendance at less selective schools* contributes to women's disadvantaged position in the labor market. College prestige has a positive relationship with earnings later in life (Jacobs 1999), and men are significantly more likely to attend selective postsecondary institutions than are women, net of background and academic factors (Davies and Guppy 1997, replicating the findings of Hearn 1991). Women's attendance at less selective postsecondary educational institutions may be the result of institutional bias favoring men, more selective schools tending not to offer traditionally female-dominated programs, and/or parental choices to invest more financially in sons (Davies and Guppy 1997; see also Jacobs 1999). Although there have been declines in gender differences in the selectivity of postsecondary institution attended (see Jacobs 1999; Karen 1991), institutional selectivity remains a potentially salient influence on gender disparities in income for today's college graduates.

With regard to young adults graduating from college and entering the labor market today, these findings suggest that lingering gender differences in schooling (e.g., fields of study, measured cognitive skills, and college selectivity) may explain persistent gender disparities in earnings. With women's postsecondary education rates surpassing men's, participation in higher education is not likely to contribute to earnings disparities, except at the highest levels, where men's degree attainment continues to surpass that of women.

Education's Limited Role in the Gender Income Gap

The literature just discussed has indicated that educational forces contribute to gender disparities in earnings. However, noneducational factors related to family, employment, and aspirations—generally in the periphery of studies on the effects of education on income differentials—also play a part in gender income inequality. The effects of family formation, particularly marriage and parenthood and their impact on participation in paid labor, are implicated in gender income disparities. For example, net of other factors, such as education, women with children make 10 percent to 15 percent less than do women without children (Korenman and Neumark 1992; Waldfogel 1998), and there is a 7 percent wage penalty for each child that a young woman has (Budig and England 2001). The penalty for having children is greater for married women than for nonmarried women (Budig and England 2001:218). The same patterns do not hold for men; fathers experience no comparable wage penalty for their parental status (Waldfogel 1998). Furthermore, married men receive higher pay than do unmarried men, while there is some evidence of a wage disadvantage for married women (Kilbourne et al.

1994; see, however, Budig and England 2001 for evidence challenging a marriage penalty for women).

The impact of family formation on gender differences in earnings appears to operate through women's decreased labor force participation (Korenman and Neumark 1992). Both length of job experience and part-time employment contribute to lower earnings (Budig and England 2001; Shelton and Firestone 1989). And women historically have had less job experience and have engaged in part-time work more often than have men (Blau and Kahn 1997; Rosenfeld and Birkelund 1995).

Indeed, much research has suggested that the conditions of employment for men versus women contribute to income inequality. Perhaps the most thoroughly discussed explanations for the gender income gap are occupational sex segregation and women's concentration in female-dominated occupations (e.g., Blau and Kahn 2000; England 1992; Huffman 2004; Kilbourne et al. 1994; Macpherson and Hirsch 1995). England (1992:181) found that "the sex composition of an occupation affects the pay it offers, such that both men and women earn less if they work in a predominantly female occupation." Given that women are concentrated in traditionally female occupations, the gender gap in wages can be partially explained by women's overrepresentation in jobs that pay less.

Similarly, the content of women's jobs seems to matter, in that women are concentrated in jobs that are devalued as a result of their nurturing character (England 1992; England et al. 1994; Kilbourne et al. 1994). These jobs pay less, and women's greater representation in them contributes to the wage gap (England 1992; Kilbourne et al. 1994). Given the large degree of occupational sex segregation—half the women would have to switch occupations for gender integration to occur (Padavic and Reskin 2002:67)—and that women's jobs tend to pay less and offer fewer other rewards like benefits and promotional opportunities (see Reskin 1993), Tomaskovic-Devey (1993:10) concluded that "employment segregation is currently one of the central rules by which male employment advantage is created and maintained."[3]

In addition to occupational sex segregation, other work-related factors contribute to inequality in earnings. Men tend to have longer tenure with their employers, greater full-time work experience, and more training, all of which contribute to their higher earnings relative to women (Blau and Kahn 1997; Marini 1989; Wellington 1994). Similar trends hold true for young workers: Women's first jobs tend to be of a lesser quality than men's, and women are more likely than men to be employed part time (Joy 2000). While occupations have received the most attention in studies of income disparities, research on wage differentials across sectors (Moulton 1990) and industries (Fields and Wolff 1995; Groshen 1991), along with gendered patterns of labor force participation, suggest the need to consider gender variations at these broader levels when explaining gender differences in income (see Fields and Wolff 1995; Macpherson and Hirsch 1995; Marini 1989).

Furthermore, as a result of gender socialization, young men and women have different values and occupational aspirations, and these gender differences appear to influence the gender income gap via occupational choices (Daymont and Andrisani 1984; Wilson and Boldizar 1990; see also Corcoran and Courant 1985; Reskin 1993; Shu and Marini 1998). By their last year of high school,

> men were more likely than women to feel that making a lot of money is very important in selecting a job or career. Consistent with societal expectations that men be assertive and dominant, they were also more likely to feel the importance of choosing a job or career that provides an opportunity to be a leader. Women, on the other hand, were more likely to feel the importance of opportunities to be helpful to others or to society, and of opportunities to work with people rather than things. (Daymont and Andrisani 1984:414)

These different occupational aspirations affect decisions regarding higher education, which, in turn, affect the occupations that these young adults enter (Wilson and Boldizar 1990).

Taking all these patterns into consideration, then, the question is this: How much do education-related factors—particularly field of study and standardized test scores—contribute to gender disparities in earnings early in young workers' careers, relative to family, work, and aspiration influences? Much of the research on educational contributions to earnings disparities has not rigorously considered work and family factors, while much of the work and family literature has deemphasized the role of education, which makes it difficult to understand the weight of the two sets of influences relative to one another. Also, much of this literature has focused on women as a whole and has offered little insight into women and men in the early years of their careers.

Yet, a focus on young workers is important for understanding the salience of educational, work, and family factors for gender equality in the contemporary social context. Gender differences in family responsibilities, labor market participation, and other human capital-related characteristics that grow over time are greatly minimized for this group of workers. However, little empirical work has examined the impact of such factors specifically on young workers.

The most compelling research on workers at their entry into adult careers comes from Marini and Fan (1997). Using data from the National Longitudinal Survey of Youth (NLSY), Marini and Fan found that on entry into careers, women earn 84 percent of what men earn. Their findings suggest little reason to believe that differences in educational characteristics drive gender inequality in income for workers at career entry. Years of education and field of study explain only 2.8 percent of this gender wage differential and other educational factors have only "negligible effects" (p. 600).[4]

Marini and Fan (1997) found greater explanatory power in factors that are related to work and aspirations. Indeed, they concluded that 22 percent of the gender wage gap is attributable to differences in men's and women's occupations, and another 28 percent is due to differences in industrial placement. Part-time employment experience explains 9 percent of the gender wage gap, while gender differences in occupational aspirations account for 10 percent. At career entry, family obligations do not seem to affect the gender wage gap directly.

Building on the lessons learned from this past research, this study extends this line of inquiry by overcoming some of the data limitations of past studies and by giving greater consideration to academic factors that are thought to influence the gender gap in earnings for young workers. While Marini and Fan (1997) focused on early career entry, their design used data on first jobs begun at various times over a period of 12 years. Although this approach has the advantage of capturing the gender wage gap for younger workers at a similar place in their career development, it has the disadvantage of including workers at various ages and in different periods. This trade-off makes it hard to know if the patterns are consistent across age cohorts and over time. By following a cohort of young adults through their educational and early labor market experiences, as my study does, I can speak more specifically to the gender income gap for young workers who are experiencing the same historical labor market conditions.

Furthermore, because of the expansive set of indicators of educational characteristics available in NELS, this study is well positioned to provide a more comprehensive assessment of the educational factors that shape the gender gap in earnings. Although Marini and Fan (1997) explored the effects of several academic characteristics on income disparities, their analysis was limited by the data. For example, they considered broad fields of study but did not explicitly test the gender composition of the field, which other research has suggested is important. They also had no measure of level of education or school selectivity and limited indicators of math and reading skills. With better measures of all these educational factors, the study design I used can provide a more in-depth assessment of the importance of educational characteristics (i.e., college major, skills as captured by standardized test scores, graduate and professional education, and institutional selectivity) for income equality at the point in one's career when education is likely to matter most.

Moreover, given the remarkable report that young female engineers now enjoy no gender wage gap (Morgan 1998), a fresh look at the factors that influence the gender income gap is merited with more recent data for workers in all types of academic fields. As we move toward a more highly educated society with fewer educational factors disadvantaging young women, assessing claims about the educational arena's impact on the gender income gap with contemporary young workers provides an especially compelling test.

DATA AND METHODS

Data

NELS offers a rich database for exploring the relationships between educational factors and the earnings gap between young working men and women. It followed students who were eighth graders in 1988 through high school and into their early adult lives.[5] The baseline data are nationally representative, based on a sample of almost 25,000 students from 1,052 public and private schools. The 2000 data contain interviews with 12,144 of these individuals.[6]

This data set is particularly well suited for addressing my research question because it includes information from the students' transcripts for both secondary schools and any postsecondary institutions attended, family formation history, and labor market participation and earnings.[7] NELS offers the opportunity to explore potential explanations for a gender gap in income in the early years of men's and women's careers, since the respondents had been out of high school for approximately eight years, had often completed bachelor's degrees and some graduate degrees as well, and were frequently in the labor force by the fourth follow-up in 2000.

For comparison with national data from the Current Population Survey on the gender wage gap and to avoid part-time and inconsistent workers from biasing the analysis, I limited my analysis to college graduates who were full-time, year-round workers (that is, those with four-year degrees who were working 35 or more hours per week for all 52 weeks in 1999) and had annual income data available for 1999 (N = 1,946).[8] I focused on college graduates for two reasons. First, postsecondary educational attainment is one area in which women have made the greatest gains. Given the relationship between postsecondary educational success and labor market outcomes, it is especially important to know to what degree college-educated women enjoy income equity with their male counterparts. Second, many educational characteristics, such as institutional selectivity, are meaningful or applicable only to the college educated. In supplementary analyses, I found that the gender gap in income is *larger* among those without a college degree.[9] By focusing on college graduates, therefore, I deliberately concentrated on a group for which educational characteristics arguably have the greatest chance of explaining gender gaps in earnings.[10] Missing values were handled through multiple imputation[11] (Allison 2002).

Measures

In all the analyses, the dependent variable is *income,* measured by the respondent's reported annual income in 1999.[12] This variable captures the respondents' answers to the following question: "Including all of the wages, salaries, and commissions you earned in 1999, about how much did you earn from employment before taxes and all other deductions?"

Education-Related Variables The independent variables correspond to the possible causal factors discussed in the literature review. As a measure of cognitive skills, I used *standardized test scores* from the students' college entrance examinations. This measure of the composite SAT score captures math and verbal scores on the SAT, as well as scores on the ACT, converted to the same scale as the SAT. As an alternate measure of skills,[13] I also tested undergraduate grade point average (*GPA)* a self-reported measure of the student's GPA.

Factors related to educational field,

degree, and institution were also considered. *College major* was measured in two ways. First, consistent with Marini and Fan (1997), the general field of study is captured with four dummy variables for the type of major: business; math, natural science, and engineering; social sciences and humanities; and education (with education majors the reference category).[14] Second, to test gender composition effects specifically, I measured the percentage female of each field in a manner that was consistent with NCES (1998). I calculated the percentage female for each major in the data set using national data on the percentage of degrees awarded in each field of study to men versus women.[15]

Although the sample was limited to those with four-year degrees, I also considered *graduate and professional degrees*. Three dummy variables captured the highest degree attained—bachelor's degree, master's degree, and doctoral or professional degree (with the bachelor's degree as the reference category).

In addition, I included measures of the selectivity of the higher education institution attended. The NCES, using methodology from the Cooperative Institutional Research Project (see NCES 2003b:72 for further information on this classification scheme) ranked each institution that the NELS respondents' attended. Selectivity was measured in an interval fashion ranging from not selective (1) to highly selective (4).

Background, Family, Work, and Values Variables While my primary interest was to understand the contribution of educational factors to the gender gap in earnings for young workers, I also considered nonacademic characteristics suggested in the literature. In regard to family formation characteristics, the variables included marital status, single-parent status, and the number of hours worked per week. Three dummy variables—married, divorced, and single—were used to capture a respondent's *marital status* (the reference group was those who are single). I also considered *single-parent status*, a dummy variable (1 = a single parent, 0 = not a single parent) and the *number of dependents who are children*, measured in a continuous fashion. *Number of hours worked* was a continuous variable capturing the total number of hours the respondent worked at all jobs in an average week in 1999, which was also the year for the income variable.

I used several job characteristics in the analysis. A dummy variable for *for-profit sector* gauged the type of employer for whom the respondent worked at a private, for-profit company. Not-for-profit, governmental, and military employers were the reference category for sector. The NELS data also contain codes for the *industry* in which the respondent was employed in 1999. I created dichotomous dummy variables for each of the 17 industries represented in the sample. See the Appendix for the list of industries. Retail trades is the reference category in all the analyses.

To capture the respondents' *occupations*, NELS aggregated the subjects' responses to the question of their current or previous job title into broad occupational categories. I then created dichotomous dummy variables for each of the 31 occupational categories that were represented in the sample. By sample design, all unemployed persons were excluded. See the Appendix for a list of all the occupations. The regression models used the criminal justice/military category as the reference group.

To gain a better understanding of the relationship between job quality and income equality noted by Reskin (1993) and Wellington (1994), I included job training and job autonomy in the analysis. *Job training* is a dichotomous variable in which 1 indicates that the respondent received job training in the previous 12 months and 0 indicates that the respondent received none. *Job autonomy* measures the level of autonomy the respondents perceived they had on their jobs, with values of 1 to 4; higher values signify higher levels of autonomy.

Furthermore, corresponding to Daymont and Andrisani's (1984) study, I used a measure of values, the *importance of having lots of money*. This is an ordinal variable with ranges of 1 (not important) to 3 (very important) that was measured during the students' 12th-grade year.

In addition to these theoretically guided independent variables, I included measures of

the *socioeconomic status of the family of origin* (SES) and the respondent's race as controls. SES is NELS's socioeconomic composite score, constructed from information on parents' education, income, and occupation. *Race* is measured with dichotomous dummy variables for white, black, Latino, Asian American, and other race; the reference category in all the analyses is white.

ANALYTIC STRATEGY AND RESULTS

I used two regression strategies in the analysis. First, I used estimated generalized least-squares (EGLS) regression to ascertain the effects of the independent variables of interest on income. Because of NELS's clustered sampling design, EGLS is an appropriate analytic approach to correct for estimates of standard errors.[16] In these equations, the interest for interpretative purposes is on the coefficient for the binary variable *female* (1 = female, 0 = male) in each model. This coefficient represents the effect of being female versus being male on income, net of the other variables in the model. A negative coefficient for female indicates an income gap advantaging men. The coefficient for female in the bivariate baseline model may be compared with the coefficient for female in each additional model. I was especially interested in the extent to which the coefficient for female changed across the various model specifications, which allowed me to assess the extent to which each of the possible explanations offered earlier contributes to an understanding of the gender income gap. I began by testing the individual effects of the education-related variables of interest. These individual tests suggest which educational variables merit further consideration. I then tested a series of additive models that capture young workers' typical life course trajectory—moving from ascriptive qualities of race and social class through socialization of values and higher education to the formation of families and entry into careers.

Second, I used regression decompositions to enhance my capacity to capture the influence of each individual factor in the comprehensive regression model. A standard technique among scholars of wage inequality, regression decomposition suggests the amount of the total gender income gap that can be attributed to a given variable. The technique does so by partitioning the influence of gender differences in the characteristics (i.e., the mean differences between men and women on each independent variable) while considering the return for a one-unit increase in that characteristic (i.e., the slope for the independent variable for women and men) (see, e.g., England 1992). To get the necessary information, I ran the equation from the best regression model separately for women and men in the sample. I calculated the decompositions using, alternatively, men's and women's coefficients as the standard, since the choice of standard may influence the effects that are found (see, e.g., Daymont and Andrisani 1984; Marini and Fan 1997). Following Marini and Fan, I took the average of the estimates from these alternate specifications. The amount of the income gap not explained by the attributes of the gender differences in observed characteristics is considered the unexplained portion of the income gap. The gender income differential, then, can be represented by the following formula:

using the male standard,

$$\overline{X}_{mi} - \overline{X}_{fi} = \Sigma b_m(\overline{X}_m - \overline{X}_f) + \varepsilon;$$

using the female standard,

$$\overline{X}_{mi} - \overline{X}_{fi} = \Sigma b_f(\overline{X}_m - \overline{X}_f) + \varepsilon;$$

where the left-hand side represents the mean difference in income between men and women and the right-hand side captures the difference in men's and women's means multiplied by the slope from the male (b_m) or female (b_f) model, respectively, plus the differences in income left unexplained.

Table 1 presents descriptive statistics for income and educational measures for men and women. As expected, the patterns suggest some gender differences in educational outcomes, with women generally garnering better grades and men scoring better on standardized tests in math and science. While

patterns of course taking in high school suggest some statistically significant gender differences, these gaps are small in magnitude. However, at the collegiate level, there are significant differences in the majors that men and women choose. Men are significantly more likely to major in business, math, natural science, and engineering, whereas women are significantly more likely to major in social sciences, humanities, and education. The average college major for women is 63 percent female, while the average college major for men is 48 percent female.

These patterns suggest considerable gender segregation of college majors; yet, it is also clear that a large number of men and women choose fields that are neither male- nor female dominated. Although few men and women have completed graduate or professional degrees (8 percent of the sample), women are significantly more likely to have attained a master's, doctorate, or professional degree. There are no significant gender differences in the selectivity of the bachelor's degree institutions that women and men attend.

The Appendix presents descriptive statistics for noneducational conditions and suggests several significant differences by gender. Women, on average, are more likely than are men to be married or in a marriagelike relationship and to be single parents. Although all the workers are full-time employees, men average more hours worked in a typical week. Also, men and women are going into different occupations and industries, and women are significantly more likely to work in the public sector.[17]

By the time these college graduates were working full time in 1999, there were sizable gender differences in average income. In fact, the women earned $6,938 less than similarly aged, college-educated male workers. Stated another way, in the years immediately following college graduation, full-time working women with a bachelor's degree earn, on average, 83 percent of what their male counterparts earn. This pattern is in line with national data on the earnings' ratios of young adults (U.S. Department of Labor, Bureau of Labor Statistics 2004) and suggests a substantial gender gap in income in contemporary American society among young workers with college degrees.

Given that women are making significantly less money than are men, I now turn to regression analysis to explore which factors explain the gender income gap for young college graduates. Table 2 presents the results of EGLS regressions of income on the various education-related independent variables.[18] The baseline model (1) shows that women average $6,938 less than do men per year when no factors are controlled. Given that gender, race, and social class are all ascribed statuses that significantly influence income, I use controls for race and parental SES in all the models, although race and background SES have little direct influence on the gender gap in earnings[19] (see Model 2).

The additional models suggest that the gender composition of college majors is the primary educational influence on gender disparities in earnings. When general fields are measured (Model 3), the income gap decreases 22 percent. More robust, however, is the measure of the gender composition of fields of study; the percentage female of the major accounts for 39 percent of the income differential between men and women when race and background SES are controlled.

The other educational factors considered—cognitive skills, higher degrees, and college selectivity—have modest or little effect on the gender gap in income. When men and women have the same SAT/ACT scores (Model 5), the female coefficient is reduced to -$6,247, suggesting that differences in cognitive skills explain 10 percent of the income gap among the college educated.[20] An alternate measure of skills, undergraduate GPA (Model 6), accounts for none of the gender income gap and suggests that women's higher grades suppress the gap from being even larger than it is. Selectivity of the bachelor's degree institution (Model 7) has a small effect on the income gap, explaining 4 percent when only race and background SES are controlled. Most important, when college-educated workers have the same fields of study, same test scores, and same levels of graduate education and attend the same types of educational institutions, women still earn *$4,436* less per year than their male counterparts do.

Although this look at the individual, direct

Table 1. Means for Income and Education Variables, including Significance Tests of the Means for Women versus Men, from Imputation 3

Variable	Sample Mean (N = 1,946)	Women's Mean (N = 1,053)	Men's Mean (N = 893)	t-Test of Mean Difference
Income in 1999	36,137	32,953	39,891	11.08***
Standardized Test Scores				
Reading (12th grade)	55.98	56.98	54.81	-5.83***
Math (12th grade)	58.17	57.30	59.19	5.52***
Science (12th grade)	56.14	54.48	58.11	9.47***
SAT math	510.03	492.42	530.80	7.69***
SAT verbal	445.10	445.18	445.01	-0.04
SAT/ACT combined	974.93	956.52	996.63	4.36***
Grades				
English (12th grade)	8.04	8.48	7.53	-11.07***
Math (12th grade)	7.30	7.40	7.17	-2.18*
Science (12th grade)	7.62	7.74	7.49	-2.49*
Undergraduate GPA	2.99	3.06	2.91	-7.05***
Course Work (High School)				
Units in English	4.20	4.27	4.11	-4.38***
Units in math	3.75	3.71	3.81	2.99**
Units in science	3.47	3.41	3.53	2.54*
College Major				
Business major	.22	.20	.24	1.99*
Math, natural science, or engineering major	.28	.22	.36	6.89***
Social science or humanities major	.42	.48	.36	-5.15***
Education major	.07	.10	.04	-5.53***
Percentage female of major	56.09	62.98	47.96	-17.66***
Highest Degree				
Bachelor's degree	.92	.90	.94	3.25**
Master's degree	.07	.09	.06	-2.63**
Professional or doctoral degree	.01	.01	.00	-2.62**
Institutional Selectivity	2.29	2.28	2.31	0.84

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed tests).

Table 2. EGLS Regression Coefficients for Female and Percentage of the Gender Income Gap Explained with Alternate Models, including Education[a]

Model Number	Model Description	Income Gap (b_{female})	Percentage of Gap Explained
1	Female	-6,938	—
2	Female, background	-6,643	4.2
3	Female, background, field of college major	-5,418	21.9
4	Female, background, percentage female of college major	-4,244	38.8
5	Female, background, SAT/ACT score	-6,247	10.0
6	Female, background, undergraduate GPA	-7,215	0
7	Female, background, graduate degree	-6,815	1.8
8	Female, background, college selectivity	-6,634	4.4
9	Female, background, percentage female of college major, SAT/ACT score, graduate degree, college selectivity	-4,436	36.1

[a] Background factors are controls for race and parental SES.

influences of education on the gender gap in income suggests a substantial effect of schooling on earnings' inequality, these models do not consider confounding influences of values, family formation, and work. Table 3 begins with the average difference in income between men and women and adds clusters of independent variables, following the general life-course sequence. These findings suggest that when schooling is considered alongside background factors and values regarding the importance of earning lots of money expressed during junior high school (Model 4), the gender earnings gap decreases 44 percent. The addition of family-formation factors yields little reduction in the income gap (Model 5); however, consideration of work factors appears to add greatly to an understanding of the income disparities. This best model (Model 6) explains 69 percent of the total gap in earnings.

Given that this best model explains more than two-thirds of the income disparity between these young men and women, I performed a regression decomposition on this model. Presented in Table 4, the regression decomposition suggests how much of the total difference in men's and women's earnings can be attributed to differences in the characteristics of the two groups. The contribution of the educational qualities is substantially smaller than indicated by the regression

Table 3. EGLS Regression Coefficients for Female and Percentage of the Gender Income Gap Explained with Alternate Models, including Background, Values, Education, Family Formation, and Work Factors

Model Number	Model Description	Income Gap (b_{female})	Percentage of Gap Explained
1	Female	-6,938	—
2	Female and background	-6,643	4.2
3	Female, background, and values	-6,166	11.1
4	Female, background, values, and education	-3,903	43.7
5	Female, background, values, education, and family formation	-3,854	44.4
6	Female, background, values, education, family formation, and work	-2,132	69.3

Note: Background factors are controls for race and parental SES. Values are measured by the importance of having lots of money. Education factors are the percentage female of the field of study, SAT/ACT scores, highest degree earned, and selectivity of degree granting institution. Family formation factors are marital status and single-parent status. Work factors are the number of hours worked per week, occupation, industry, sector, job autonomy, and job training.

models that did not control for nonschooling effects. The percentage female of the college major explains 14 percent of the income gap, while scores on standardized tests explain another 5 percent. However, almost half the differences in men's and women's earnings can be attributed to work-related characteristics, especially occupation, sector, industry, and hours worked per week. Values appear to matter only modestly, while family formation has virtually no effect on the income gap for this sample of young workers.

Taking into consideration the results from the EGLS regression models presented in Tables 2 and 3, along with the decomposition findings from Table 4, it appears that the gender composition of college majors has a considerable direct effect on the gender gap in earnings. However, employment-related factors are more salient for understanding the income disparities.

DISCUSSION

Girls' success in school is a hot topic among both academics and the general public. Generally absent from this dialogue, however, has been the key question of the consequences of these patterns for the gender equality of young adults as they transition from educational institutions to the workforce. Now that young women's educational performance is so strong relative to men's, how does this newfound "advantage" matter? Given the long-standing debate over the role of education in mediating group inequalities, this discussion is overdue.

The findings of this study suggest that education continues to contribute to gender stratification in a meaningful way despite women's overall success in educational realms. The educational factor that appears to matter most is college major, and college

Table 4: Regression Decompositions Showing Contributions of Background, Values, Education, Family Formation, and Work Characteristics to the Gender Income Gap

Characteristic	Men's Slope[a]	Women's Slope[b]	Average Slope	Percentage of Total Gap Explained	Rank of Influence
Background SES and Race	124	33	78	1.1	9
Importance of Having Lots of Money	472	294	383	5.5	6
Education Related					
SAT/ACT scores	434	226	330	4.8	7
Percentage female of college major	1,087	842	964	13.9	2
Institutional selectivity	18	59	39	0.6	10
Graduate/professional degree	57	-244	-93	-1.3	12
Family Formation	15	3	9	0.1	11
Work Related					
Hours worked per week	613	816	715	10.3	3
Occupation	1,544	1,319	1,431	20.6	1
Industry	497	492	495	7.1	5
Sector	770	453	611	8.8	4
Other work factors	145	135	140	2.0	8
Total Explained with These Factors	5,776	4,428	5,102	73.5	
Total Unexplained	1,162	2,510	1,836	26.5	
Total Income Gap	6,938	6,938	6,938		

[a] $\Sigma b_m (\overline{X}_m - \overline{X}_f)$.

[b] $\Sigma b_f (\overline{X}_m - \overline{X}_f)$.

major appears to affect inequality in earnings in two ways. As one may expect, field of study contributes to earnings inequality via occupational choices: People tend to work in jobs that are related to their fields of study, and some occupations are better rewarded than are others. Yet, the regression decomposition presented here suggests that college majors play a meaningful role in women's lesser income *independent* of later work factors. Indeed, even when work-, family-, and values-related factors are considered alongside education, 14 percent of the gender gap in income is still attributable to field of study.

What is it about college majors, and why do they matter for the gender gap in earnings beyond their relationship to occupations? It is often argued that some fields are more high-

ly compensated because they develop skills that are more valued in the labor market. Although the content of the field of study seems to have an important relationship with earnings inequality, the gender composition of the field appears to be much more salient[21] (see Table 2). This devaluation of majors associated with women is consistent with the finding of a general devaluation of jobs associated with women (see, e.g., England 1992). And it appears that the lesser value assigned to majors in which women are more heavily concentrated continues to affect one's earnings even when young workers enter comparable occupations. This pattern indicates that educational sex segregation by field of study continues to be an impediment to gender equality beyond its relationship to occupational sex segregation and will have to be addressed directly if gender disparities are to be eliminated.

While the analysis suggests that segregation of college majors plays an important role in earnings inequality early in young workers' careers, its contribution should not be overstated. In their mid-20s, college-educated women make about $4,400 less per year than do men even when they have the same level of education, college major, cognitive skills, and selectivity of the college from which they graduated. The regression decomposition shows that work-related factors explain about half the contemporary gender difference in earnings. Here, it seems that gender differences in types of employment—occupations, industries, and sectors—are especially important.[22] For this group of workers, aspirations for earning lots of money appear to matter only modestly for the income gap, and family formation matters not much at all.[23]

Research on contemporary gender stratification provides a useful framework for understanding these findings and their implications for gender equity (see Charles and Bradley 2002; Charles and Grusky 2004). The denial of opportunities for women to attend college and attain a degree on the basis of their sex is inconsistent with the contemporary gender ideology of equality of opportunity. Yet, as this vertical dimension of segregation has declined, fields of study—the horizontal dimension—remain resistant to integration. Because gender differences in college majors are viewed more as differences than as inequality, the segregation of fields of study can persist despite a more egalitarian gender ideology and the decline of vertical segregation (Charles and Bradley 2002). Thus, the overall positive picture of women's educational patterns can mask lingering gender differences that have important consequences for gender inequality later in life. Similarly, occupational sex segregation persists and may increase despite the greater presence of women in the labor market (Charles and Grusky 2004).

Unfortunately, the ongoing debate over women's growing "advantage" in schooling has, by and large, overlooked the consequences of these patterns of educational attainment and performance. A look at one important outcome—the earnings of young women and men—should temper the optimism that is generally generated by trends toward girls' educational success. On the whole, the findings of this study suggest little reason to be optimistic that further educational changes will lead to large declines in gender inequality in income. If women maintain their current trajectory of improving their educational credentials relative to men, they will still face the barrier of sex segregation in college majors. And while the integration of majors could generate important reductions in the gender gap in income, research has found a general stagnation of integration of fields of study since the mid-1980s (see Jacobs 1995). Even larger barriers to income equity are related to gendered patterns of employment, and today's young college-educated adults continue to confront these obstacles. Indeed, in spite of women's educational progress, the gendered organization of both higher education and employment remain substantial impediments to equality in earnings.

NOTES

1. Gill and Leigh (2000) also considered the effect of changes in participation in higher education on declines in the gender gap in wages in the late 1980s and early to mid-

1990s. Although they did not consider educational performance (i.e., grades), they concluded that gendered changes related to field of study played a part in the reduction of the gender gap in wages.

2. For a discussion of horizontal and vertical gender segregation in higher education, see Charles and Grusky (2004) or Gerber and Schaefer (2004).

3. See England (1992), Jacobs (2001), Reskin (1993), and Tomaskovic-Devey (1993) for a more thorough overview of occupational sex segregation and its causes and consequences.

4. Note that Marini and Fan (1997) considered the following education-related factors: years of education and field of study (considered together), high school GPA, score on the Armed Forces Qualifications Test as a measure of verbal and math skills, and parents' education.

5. Waves of data were collected in 1988, 1990, 1994, and 2000, providing information on these young adults from roughly age 14 to age 26.

6. Patterns of sample attrition between 1988 and 2000 resulted in a more socioeconomically privileged group of young adults than would be found at random. However, a preliminary analysis of attrition patterns did not suggest large gender differences in continuation in NELS.

7. NELS includes information from the students, as well as supplemental information from their parents, teachers, and school administrators. See NCES (2002) for further information on this data set.

8. To correct for skew, I eliminated respondents whose income was four or more standard deviations above the mean (N = 13) for full-time, year-round workers. I also eliminated those who reported $2,000 or less in earnings that year (N = 5), since it is illogical that working full time for the entire year would yield earnings that low. Including these workers would suggest a slightly larger gender income gap.

9. While some scholars (e.g., Blau 1998) have found a similar pattern of larger wage gaps among those with less education, there is not a clear consensus on this issue.

10. Limiting the sample as I did to college graduates who were full-time, nonseasonal workers captured the most privileged workers. For example, these workers tended to come from families with higher SES scores, to have performed better in school, and to have fewer children of their own than did the general sample of NELS participants. Accordingly, I limit the generalizability of these findings to full-time college-educated workers. In a supplemental analysis noted in the Discussion section and discussed in note 23, I discuss the gender income gap among those with less education.

11. Using multiple imputation allows the analyst to retain cases that have missing values on some variables. By using information on the relationships among the variables in the data set, multiple imputation creates estimates of what the missing values would most likely be if they were not missing. The imputation process is repeated multiple times at random to allow for the correction of estimates of standard errors. Thus, instead of dropping cases with missing values, as in listwise deletion, multiple imputation preserves for analysis cases with useful information, thereby reducing potential biases that would result from systematic differences in complete cases and cases with missing information. Furthermore, this method of handing missing data "produces estimates that are consistent, asymptotically efficient, and asymptotically normal when the data are [missing at random]" (Allison 2002:27). A supplemental analysis of the missing data suggested that these assumptions are valid with these data, and the findings reported here were not substantially altered when I used listwise deletion of missing cases.

12. As I noted in the Data section, I handled potential skewing by excluding extreme cases (those more than 4 standard deviations above the mean). Doing so eliminated the need to transform the income variable by eliminating skew at the highest income levels and allowed for a more intuitive presentation of results.

13. Loury (1997) suggested that grades influence wage gaps, and the use of GPA is consistent with the approach of Marini and Fan (1997), who tested high school GPA.

14. In a supplemental analysis, I tested a more nuanced measure of field of studies using 18 dummy variables for the various

fields represented in the data. I found that the gender gap in income was consistent whether I used this more refined measure or the more general four-category classification. See note 21 for the same issue.

15. The NCES Integrated Postsecondary Education Data System (IPEDS) Completions Survey provides data on the number of degrees awarded by gender and field of study in 2000–01. The national data on degrees aligns rather consistently with the categories used to code majors in the NELS data.

16. NELS used a two-stage, stratified sampling design, sampling on schools (by type, region, and size of enrollment) and then individuals in schools. The complex sample design leads to less variation than a simple random sample would produce (i.e., students in the same schools are more similar than would be expected if students were sampled randomly from the population at large). To adjust for this sampling issue, I used EGLS regression because EGLS yields unbiased estimates of the standard errors in such instances (see NCES 2002:97).

17. While on the whole, the gender patterns found here are consistent with general patterns in education and employment, the findings related to work experience and graduate degrees suggest that the women in this sample were likely the more privileged workers—perhaps a bit more so than the male workers. This gendered pattern in the sample, then, would suggest a smaller income gap than would be expected if the respondents' work-history patterns and graduate or professional school participation matched the national averages. However, given that the earnings differential found here is consistent with that found with federal data, as well as the one found by Marini and Fan (1997) in their study of young workers in their first jobs, I do not consider that these patterns reflect large biases in the sampling design.

18. For brevity, the results of all models are not shown. Full results are available on request.

19. In supplemental analyses, I tested for interaction effects of race and gender and found no significant interactions. Therefore, the models presented here treat race and gender as additive rather than interactive.

20. I tested 12th-grade math and reading scores as well. Reading scores explain none of the earnings gap, while math scores have an effect similar to that of the SAT/ACT scores.

21. Given that the percentage female of the field is a much more refined measure than is the four-category classification of majors by content area, I also tested a much more nuanced measure of content areas using 18 dummy variables for fields of study. The regression results differed only negligibly. This finding supports the contention made here that the most important difference in fields of study is gender composition.

22. The study attempted to understand gender inequality in income among full-time, year-round workers with bachelor's degrees. Whether the explanatory factors studied here operate similarly among those who work fewer hours per week and/or seasonally remains to be seen. Arguably, full-time, year-round workers are the most advantaged financially and experience less gender inequality in income, given that past research indicated that part-time and intermittent work contributes to the gender gap in wages (see Budig and England 2001). Further research should consider the prevalence, causes, and consequences of gender differences in earnings for workers with various degrees of employment (e.g., workers who are employed full time, part time voluntarily, or underemployed).

23. In these analyses, I focused on individuals with college degrees because I wanted to explore characteristics of education that are applicable only to this group (e.g., field of study, selectivity of institution, and graduate degrees). But, what about those without college degrees? My supplemental analysis of workers with less than a four-year degree suggests that these workers in their mid-20s endure an even larger gender gap in income: Women who work full time earn about 75 percent of what their male counterparts make. The results suggest that education will matter even less for workers without a college degree: Educational factors (e.g., highest level of education, scores on standardized tests in high school, and grades in high school) explain virtually none of the gender gap in earnings for this group. As with those with college degrees, a big part of

the gender gap-in-income puzzle is understood in terms of work characteristics. Gendered patterns of occupational and industrial placement and number of hours worked per week seem critical. However, unlike the situation for college graduates, family-formation factors, particularly being a single parent, appear to explain more of the gender gap in earnings. Furthermore, it is harder to pinpoint the root of the earnings differential for this group, since my best model explains only about half the income disparity for these workers.

APPENDIX

Means for Background, Values, Family, and Work Variables, including Significance Tests of Women's versus Men's Means, from Imputation 3

Variable	Sample Mean (N = 1,946)	Women's Mean (N = 1,053)	Men's Mean (N = 893)	t-Test of Mean Difference
Income in 1999	36,137	32,953	39,891	11.08***
SES of Family of Origin	0.35	0.30	0.40	3.15**
Race of Respondent				
White	0.76	0.74	0.79	2.30*
Black	0.06	0.07	0.05	-1.40
Latino	0.07	0.08	0.06	-1.24
Asian American	0.09	0.09	0.08	-0.93
Other race	0.02	0.02	0.02	-0.46
Importance of Having Lots of Money	2.24	2.14	2.36	8.40***
Family Characteristics				
Single	0.63	0.59	0.68	4.13***
Married or marriage-like relationship	0.35	0.38	0.31	-3.64***
Divorced	0.02	0.02	0.01	-1.97*
Single parent	0.01	0.02	0.01	-1.74
Number of children	0.12	0.11	0.14	1.20
Number of Hours Worked, Typical Week	45.78	44.37	47.46	7.95***
Sector				
For profit	0.70	0.63	0.78	7.28***
Not for profit, government, military	0.30	0.37	0.22	-7.28***
Industry				
Agriculture, forestry, fisheries, mining	0.01	0.00	0.02	2.92**
Construction and allied	0.03	0.01	0.05	5.36***
Manufacturing: Durable goods	0.07	0.06	0.09	2.69**
Manufacturing: Nondurable goods	0.03	0.02	0.04	1.30
Utilities	0.01	0.01	0.01	1.59
Wholesale distribution	0.01	0.00	0.02	3.59***
Retail trades	0.06	0.07	0.05	-1.35
Finance, insurance, real estate	0.13	0.10	0.17	4.17***
Business, personal services	0.08	0.07	0.08	0.81
Entertainment, recreation	0.02	0.01	0.02	0.50
Professional services	0.17	0.18	0.15	-1.45
Public administration, safety, military	0.04	0.03	0.05	2.47*

APPENDIX
continued

Variable	Sample Mean (*N* = 1,946)	Women's Mean (*N* = 1,053)	Men's Mean (*N* = 893)	*t*-Test of Mean Difference
Health care	0.11	0.15	0.06	-7.35***
Communications	0.06	0.06	0.07	0.45
Transportation	0.01	0.01	0.02	1.79
Hospitality	0.01	0.01	0.02	0.75
Education	0.14	0.19	0.08	-7.37***
Occupation				
Secretary, receptionist	0.01	0.02	0.00	-3.75***
Cashier, teller, clerk, data entry	0.00	0.00	0.00	-0.68
Other clerical	0.01	0.02	0.01	-1.91
Farmer, forester, farm laborer	0.00	0.00	0.01	3.21**
Personal service, cook, chef, baker	0.01	0.01	0.00	-2.94**
Nonfarm laborer	0.01	0.00	0.02	3.54***
Mechanic, repairer, service technician	0.00	0.00	0.01	1.71
Craftsman, skilled operative	0.01	0.01	0.01	1.69
Protective service, criminal justice, military	0.04	0.03	0.05	2.80**
Business and financial support services	0.06	0.07	0.05	-1.73
Financial service professional	0.11	0.09	0.13	2.42*
Sales, purchasing	0.10	0.10	0.10	-0.33
Customer service	0.01	0.02	0.00	-2.88**
Legal support	0.00	0.00	0.00	-0.42
Medical practice professional, services	0.02	0.03	0.01	-3.35***
Medical licensed professional	0.04	0.06	0.02	-4.55***
Educators (K–12 teachers)	0.09	0.12	0.04	-6.60***
Educators, instructors (non-K–12)	0.03	0.04	0.02	-2.88**
Human service professional	0.03	0.05	0.02	-4.13***
Engineer, architect, software engineer	0.07	0.03	0.11	7.33***
Scientist, statistician professional	0.01	0.01	0.01	-0.89
Research assistant, lab technician	0.01	0.02	0.01	-0.94
Technical, professional worker	0.02	0.02	0.03	1.82
Computer systems, related professional	0.07	0.04	0.10	5.79***
Computer programmer, other computer	0.02	0.02	0.04	2.79**
Editor, writer, reporter	0.03	0.04	0.02	-1.74
Performer, artist	0.01	0.01	0.01	1.01
Manager, executive	0.01	0.01	0.02	1.96
Manager, midlevel	0.04	0.03	0.05	2.36*
Manager, supervisory, office	0.10	0.11	0.08	-2.21*
Health, recreational services	0.01	0.01	0.01	0.30
Job Training	0.76	0.75	0.78	1.35
Job Autonomy	2.78	2.76	2.81	1.45
Work Experience--Full Time in 1998	0.87	0.86	0.87	0.61
Work Experience--Part Time in 1998	0.10	0.10	0.09	-0.92

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed tests).

REFERENCES

Allison, Paul D. 2002. *Missing Data*. Thousand Oaks, CA: Sage.

Blau, Francine D. 1998. "Trends in the Well-Being of American Women, 1970–1995." *Journal of Economic Literature* 36:112–65.

Blau, Francine D., and Lawrence M. Kahn. 1997. "Swimming Upstream: Trends in the Gender Wage Differential in the 1980s." *Journal of Labor Economics* 15:1–42.

Bradley, Karen. 2000. "The Incorporation of Women into Higher Education: Paradoxical Outcomes" *Sociology of Education* 73:1–18.

Brown, Charles, and Mary Corcoran. 1997. "Sex-Based Differences in School Content and the Male-Female Wage Gap." *Journal of Labor Economics* 15:431–65.

Budig, Michelle J., and Paula England. 2001. "The Wage Penalty for Motherhood." *American Sociological Review* 66:204–25.

Cappelli, Peter, Laurie Bassi, Harry Katz, David Knoke, Paul Osterman, and Michael Useem. 1997. *Change at Work*. New York: Oxford University Press.

Charles, Maria, and Karen Bradley. 2002. "Equal but Separate? A Cross-National Study of Sex Segregation in Higher Education." *American Sociological Review* 67:573–99.

Charles, Maria, and David B. Grusky. 2004. *Occupational Ghettos: The Worldwide Segregation of Women and Men.* Stanford, CA: Stanford University Press.

College Board. 2003, August 26. "SAT Verbal and Math Scores Up Significantly as a Record-Breading Number of Students Take the Test: Average Math Score at Highest Level in More than 35 Years." Press release. Available online at http://www.collegeboard.com/press/article/0,,26858,00.html

Corcoran, Mary E., and Paul N. Courant. 1985. "Sex Role Socialization and Labor Market Outcomes." *American Economic Review* 75:275–78.

Davies, Scott, and Neil Guppy. 1997. "Fields of Study, College Selectivity, and Student Inequalities in Higher Education." *Social Forces* 75:1417–38.

Daymont, Thomas N., and Paul J. Andrisani. 1984. "Job Preferences, College Major, and the Gender Gap in Earnings." *Journal of Human Resources* 19:408–28.

England, Paula. 1992. *Comparable Worth: Theories and Evidence*. New York: Aldine De Gruyter.

England, Paula, Melissa S. Herbert, Barbara Stanek Kilbourne, Lori L. Reid, and Lori McCreary Megdal. 1994. "The Gendered Valuation of Occupations and Skills: Earnings in 1980 Census Occupations." *Social Forces* 73:65–100.

Farkas, George, Paula England, Keven Vicknair, and Barbara Stanek Kilbourne. 1997. "Cognitive Skill, Skill Demands of Jobs, and Earnings among Young European American, African American, and Mexican American Workers." *Social Forces*, 75:913–38.

Farley, Reynolds. 1995. *State of the Union: America in the 1990s: Volume One. Economic Trends*. New York: Russell Sage Foundation.

Fields, Judith, and Edward N. Wolff. 1995. "Interindustry Wage Differentials and the Gender Wage Gap." *Industrial and Labor Relations Review*, 49(1):105-120.

Gerber, Theodore P., and David R. Schaefer. 2004. "Horizontal Stratification of Higher Education in Russia: Trends, Gender Differences, and Labor Market Outcomes." *Sociology of Education* 77:32–59.

Gill, Andrew M., and Duane E. Leigh. 2000. "Community College Enrollment, College Major, and the Gender Wage Gap." *Industrial and Labor Relations Review* 54:163–81.

Groshen, Erica L. 1991. "The Structure of the Female/Male Wage Differential: Is It Who You Are, What You Do, or Where You Work?" *Journal of Human Resources* 23:457–72.

Hearn, James C. 1991. "Academic and Nonacademic Influences on College Destinations of 1980 High School Graduates." *Sociology of Education* 64:158–71.

Huffman, Matt L. 2004. "Gender Inequality Across Local Wage Hierarchies." *Work and Occupations* 31:323–44.

Jacobs, Jerry. 1995. "Gender and Academic Specialties: Trends Among College Degree Recipients During the 1980s. *Sociology of Education* 68:81–98.

——. 1996. "Gender Inequality and Higher Education." *Annual Review of Sociology* 22:153–85.

——. 1999. "Gender and the Stratification of Colleges." *The Journal of Higher Education* 70:161–87.

——. 2001. "Evolving Patterns of Sex Segregation." Pp. 535–50 in *Sourcebook of Labor Markets: Evolving Structures and Processes*, edited by Ivar Berg and Arne L. Kalleberg. New York: Kluwer Academic/Plenum.

Joy, Lois. 2000. "Do Colleges Shortchange Women? Gender Differences in the Transition from College to Work." *American Economic Review* 90:471–75.

Karen, David. 1991. "The Politics of Class, Race, and Gender: Access to Higher Education in the

United States, 1960–1986." *American Journal of Education* 99:208–37.

Kilbourne, Barbara, Paula England, and Kurt Beron. 1994. "Effects of Individual, Occupational, and Industrial Characteristics on Earnings: Intersections of Race and Gender." *Social Forces* 72:1149–76.

Korenman, Sanders, and David Neumark. 1992. "Marriage, Motherhood, and Wages." *Journal of Human Resources* 27:233–55.

Loury, Linda Datcher. 1997. "The Gender Earnings Gap among College-Educated Workers." *Industrial and Labor Relations Review* 50:580–93.

Macpherson, David A., and Barry T. Hirsch. 1995. "Wages and Gender Composition: Why Do Women's Jobs Pay Less?" *Journal of Labor Economics* 13:426–71.

Marini, Margaret Mooney. 1989. "Sex Differences in Earnings in the United States." *Annual Review of Sociology* 15:343–80.

Marini, Margaret Mooney, and Pi-Ling Fan. 1997. "The Gender Gap in Earnings at Career Entry." *American Sociological Review* 62:588–604.

Mitra, Aparna. 2002. "Mathematics Skill and Male-Female Wages." *Journal of Socio-Economics* 31:443–56.

Morgan, Laurie A. 1998. "The Earnings Gap for Women Engineers, 1982 to 1989." *American Sociological Review* 63:479–93.

Moulton, Brent R. 1990. "A Reexamination of the Federal-Private Wage Differential in the United States." *Journal of Labor Economics* 8:270–93.

Murnane, Richard J., John B. Willett, and Frank Levy. 1995. "The Growing Importance of Cognitive Skills in Wage Determination." *Review of Economics and Statistics* 77:251–66.

National Center for Education Statistics. 1998. *Gender Differences in Earnings Among Young Adults Entering the Labor Market* (NCES 98-086). By Suzanne B. Clery, John B. Lee, and Laura G. Knapp. Washington, DC: U.S. Government Printing Office.

——. 2002. *National Education Longitudinal Study of 1988: Base-Year to Fourth Follow-Up Data File User's Manuel* (NCES 2002-323). By Thomas R. Curtin, Steven J. Ingels, Shiying Wu, and Ruth Heuer. Washington, DC: U.S. Government Printing Office.

——. 2003a. *The Condition of Education 2003 in Brief* (NCES 2003-068). By Andrea Livingston and John Wirt. Washington, DC: U.S. Government Printing Office.

——. 2003b. *Postsecondary Attainment, Attendance, Curriculum, and Performance: Selected Results from the NELS:88/2000 Postsecondary Education Transcript Study (PETS), 2000* (NCES 2003-394). By Clifford Adelman, Bruce Daniel, Ilona Berkovits. Washington, DC: U.S. Government Printing Office.

——. 2004. *Trends in Educational Equity of Girls and Women: 2004* (NCES 2005-016). By Catherine E. Freeman. Washington, DC: U.S. Government Printing Office.

——. 2005. *Gender Differences in Participation and Completion of Undergraduate Education and How They Have Changed Over Time*. NCES 2005-169 by Katharin Peter and Laura Horn. Washington DC: US Government Printing Office.

Padavic, Irene, and Barbara Reskin. 2002. *Women and Men at Work* (2nd ed.) Thousand Oaks, CA: Pine Forge Press.

Paglin, Morton, and Anthony M. Rufolo. 1990. "Heterogeneous Human Capital, Occupational Choice, and Male-Female Earnings Differences." *Journal of Labor Economics* 8:123–44.

Reskin, Barbara. 1993. "Sex Segregation in the Workplace." *Annual Review of Sociology* 19:241–70.

Riordan, Cornelius. 2003. "Failing in School? Yes; Victims of War? No." *Sociology of Education* 76:369–72.

Rosenfeld, Rachel A., and Gunn Elisabeth Birkelund. 1995. "Women's Part-Time Work: A Cross-National Comparison." *European Sociological Review* 11:111–34.

Sadker, Myra, and David Sadker. 1994. *Failing at Fairness: How Our Schools Cheat Girls*. New York: Simon & Schuster.

Shelton, Beth Anne, and Juanita Firestone. 1989. "Household Labor Time and the Gender Gap in Earnings." *Gender and Society* 3:105–12.

Shu, Xiaoling, and Margaret Mooney Marini. 1998. "Gender Related Change in Occupational Aspirations." *Sociology of Education* 71:43–67.

Sum, Andrew, Neeta Fogg, and Paul Harrington with Ishwar Khatiwada, Shelia Palma, Nathan Pond, and Paulo Tobar. 2003. "The Growing Gender Gaps in College Enrollment and Degree Attainment in the U.S. and Their Potential Economic and Social Consequences." Prepared for the Business Roundtable, Washington, DC. Boston: Center for Labor Market Studies. Available online at http://www.brtable.org/pdf/943.pdf

Tomaskovic-Devey, Donald. 1993. *Gender and Racial Inequality at Work: The Sources and Consequences of Job Segregation.* Ithaca, NY: ILR Press.

U.S. Department of Labor, Bureau of Labor Statistics. 2004, September. *Highlights of Women's Earnings in 2003.* Report 978. Available on-line at http://www.bls.gov/cps/cpswom2003.pdf

Waldfogel, Jane. 1998. "Understanding the 'Family Gap' in Pay for Women with Children." *Journal of Economic Perspectives* 12:137–56.

Wellington, Alison J. 1994. "Accounting for the Male/Female Wage Gap Among Whites: 1976 and 1985." *American Sociological Review* 59:839–48.

Willingham, Warren W., and Nancy S. Cole. 1997. *Gender and Fair Assessment*. Mahwah, NJ: Lawrence Erlbaum.

Wilson, Kenneth L., Janet P. Boldizar. 1990. "Gender Segregation in Higher Education: Effects of Aspirations, Mathematics Achievement, and Income." *Sociology of Education* 63:62–74.

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