OPPORTUNITIES AND GENDER PAY EQUITY IN NEW ECONOMY OCCUPATIONS

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EXECUTIVE SUMMARY

- The field of Information Technology (IT) has provided extraordinary job growth in the United States. Since 1983, employment in five core IT-related occupations has grown by 81 percent—an increase that greatly exceeded the 32 percent employment growth for the general economy.

- Employment in the five IT-related occupations provides excellent pay for both men and women. For example, the median annual earnings of women employed full-time in IT is over $38,000—about 60 percent higher than the $23,900 earned by women working outside of IT.

- However, an important gender employment gap exists in these IT occupations. Women are currently underrepresented, making up only 29 percent of these occupations, compared with 47 percent of the workforce in the general economy.

- Furthermore, women are most underrepresented in the IT occupations where pay is the highest—for example, in electrical engineering, which is just 10 percent female. This occupational disparity contributes to a lack of women in the highest paid jobs. While 18 percent of men employed in IT earn $70,000 or more, only 8 percent of women earn this much.

- There is also a gender pay gap within IT occupations. A woman with median earnings in IT earns about 22 percent less than a man with median earnings. Part of this gap stems from differences in age, education, race, and occupational composition. Taking these factors into account lowers the gap to 12 percent—a gap similar to that estimated for the labor market more generally.

- The gender pay gap narrows sharply for women in IT who have higher levels of education. Women who do not have bachelor's degrees face a pay gap of 15 to 21 percent, after adjusting for demographics and occupation. By contrast, women with a bachelor's degree or more face a 9 to 11 percent gap. In IT jobs, education plays an even more important role in narrowing the pay gap than in the economy at large.

- Reducing the pay gap in IT will require a relative increase in the proportion of young women who choose educational programs that prepare them for the higher-paying occupations in IT. Policies that assist women in their career development, such as on-the-job training and mentoring, can also enhance women's investment in these occupational skills and their retention rates, and can thus be expected to help close the gender wage gap.

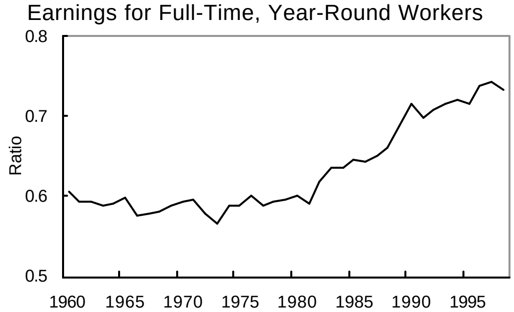
Opportunities and Gender Pay Equity in New Economy Occupations

1. Introduction

The progress made by women in the paid labor market has been one of the most important economic changes of the 20th century. The past century has seen an enormous increase in the proportion of women who work for pay. In 1999 about three-fifths of the adult female population were in the labor force (either employed or looking for work), a rate three times as high as the rate in 1900. And far more women today enter previously male-dominated professions.

The opening of opportunities in the labor market for women has gone hand in hand with improvements in their labor market outcomes. One way of assessing this progress is in the earnings of women relative to men (see Chart 1). In 1960 a woman with median earnings was paid about 40 percent less than a man with median earnings (based on annual earnings of full-time, full-year workers). This pay gap, which resulted in an earnings ratio of about 0.60, remained little changed over the 1960s and 1970s, but subsequently narrowed, so that the earnings ratio was 0.73 for 1998 (the last year for which data on full-year workers is available). In 1999 a slightly different measure of pay equity—the median weekly earnings—indicated that the median full-time female worker earned about 77 percent of a man's earnings.

Chart 1. Ratio of Female to Male Median Annual Earnings for Full-Time, Year-Round Workers



Source: Department of Commerce (Bureau of the Census).

This report provides evidence about the source of this pay gap by focusing on a narrow, but increasingly important, subset of occupations in the labor market—occupations related to Information Technology (IT). The report's focus on IT stems from the particularly visible role IT has played in the new economy. IT is a highly paid, dynamic, and rapidly growing sector of the labor market. In fact, employment in the five core IT occupations grew 81 percent since 1983, dwarfing the 32 percent growth in the economy at large. Women in this sector have earnings that considerably exceed those outside IT. For example, a typical woman working full-time in the IT occupations we study earns \$38,000 annually, compared to \$23,900 in other occupations.[1]

However, challenges still remain to enable women to share fully in the benefits of IT jobs. Currently, women are significantly underrepresented in IT, especially in the higher-paid occupations. In addition, much like in the economy at large, a gender earnings gap exists within IT jobs; weekly pay in the IT occupations is 23 percent less for women than for men—about the same as in the rest of the labor market. The pay gap for women with college education is significantly smaller than for women with less education. A distinctive feature of the IT sector is that education plays an even more important role in narrowing the pay gap than in the economy at large. Policies that encourage greater numbers of college-educated women to choose IT-related fields of study, and firm practices that encourage these women to remain in IT occupations, can be expected to help reduce the gender pay gap in IT.

[1] All annual earnings figures in this report are based on hourly earnings calculated from the CPS (described later in the text) translated into yearly earnings for a full-year worker employed 40 hours per week.

Studying the sources of this pay gap in IT is useful as a means of understanding the pay structure in this rapidly growing sector, and is instructive for illuminating gender differences in pay in the labor market more generally. Section 2 provides a brief background on the IT sector, and Section 3 reports a statistical analysis of the gender wage gap in IT. Section 4 provides a discussion placing results in a broader context. Section 5 concludes.

2. THE IT WORKFORCE

By most accounts the U.S. economy is experiencing a technological transformation that has changed the nature of work and placed a premium on a new set of skills. While this transformation has affected many jobs in the economy, there is a core set of occupations at the forefront of the revolution—occupations in information technology. Although there is no exact definition of an IT worker, there are a number of occupations that quite clearly fall into the general domain of IT.[2] The analysis in this report considers a number of core IT occupations for which data are available from the Current Population Survey (CPS), a large nationally representative sample with information on workers' weekly earnings, demographic characteristics, and occupation. These core IT occupations are:

- electrical and electronic engineers;
- computer systems analysts and scientists;
- operations and systems researchers and analysts;
- computer programmers; and
- computer operators.

Definitions of these occupations are provided in Box 1.

Box 1. Descriptions of IT Occupations

Electrical and Electronic Engineers design, develop, test, and supervise the manufacturing of electrical and electronic equipment. These engineers specialize in different areas such as power generation, transmission, and distribution; communications; computer electronics; and electrical equipment manufacturing — or a subdivision of these areas. They design new products, write performance requirements, and develop maintenance schedules. They also test equipment, solve operating problems, and estimate the time and cost of engineering projects.

Computer Systems Analysts, Engineers, and Scientists is a category which includes a wide range of computer-related occupations. Systems analysts solve computer problems and enable computer technology to meet the individual needs of an organization. Computer engineers work with hardware and software aspects of systems design and development. Computer scientists include a wide range of computer professionals who design computers and the software that runs them, develop information technologies, and develop and adapt principles for applying computers to new uses.

Operations Researchers and Analysts conduct research and perform analyses to support management in increasing the performance of an organization. Managers begin the process by presenting the symptoms of an operations-related problem to the analyst, who then formally defines the problem

[2] For a further discussion of these and related issues see Carol Ann Meares et al., "The Digital Workforce: Building Infotech Skills at the Speed of Innovation," U.S. Department of Commerce, Office of Technology Policy, June 1999.

and selects the most appropriate analytical technique to examine it. Upon completion of the analysis, the analyst presents management with recommendations based on the results of the analysis.

Computer Programmers write, test, and maintain the detailed instructions, called programs or software, that computers must follow to perform their functions. In many larger organizations, programmers follow descriptions that have been prepared by software engineers or systems analysts. The transition from mainframe to personal computers has blurred the once rigid distinction between the programmer and the user. Increasingly, adept users are taking over many of the tasks previously performed by programmers, such as writing simple programs to assess data or perform calculations.

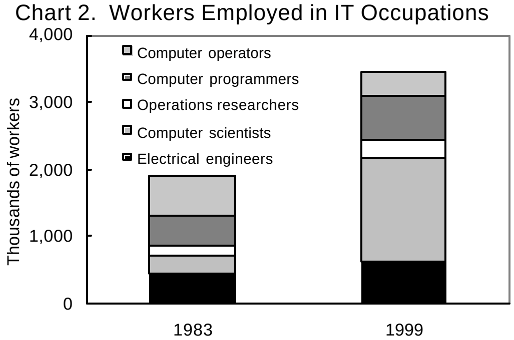
Computer Operators oversee the operation of computer hardware systems to ensure that they are being used most efficiently. These systems include mainframes, minicomputers, or networks of personal computers. Computer operators must anticipate problems and take preventative action, as well as solve problems that occur during operations. Increased automation and other technological advances are shifting the responsibilities of many computer operators to areas such as network operations, user support, and database maintenance.

Source: Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2000-01 Edition,* 2000.

IT Occupations: High Wages and Rapid Growth

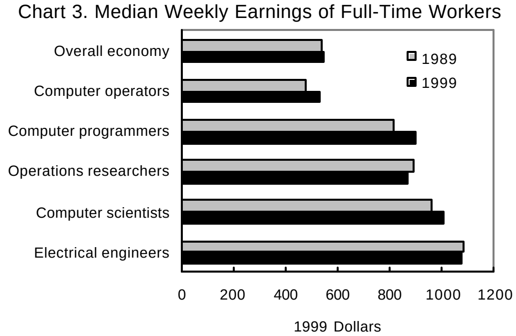
The combined employment level in these five occupations has grown by almost 81 percent since 1983 (Chart 2), with particularly strong growth in the last five years. In contrast, total employment in the overall economy grew by just 32 percent since 1983. Today these five IT occupations comprise approximately 3.4 million workers (about 2.6 percent of all employed workers). Employment projections by the Bureau of Labor Statistics suggest that rapid growth for computer-related occupations is expected to continue well into the 21st century.

Chart 2. Workers Employed in IT Occupations



Source: Department of Labor (Bureau of Labor Statistics).

Chart 3. Median Weekly Earnings of Full-Time Workers



Source: Department of Labor (Bureau of Labor Statistics).

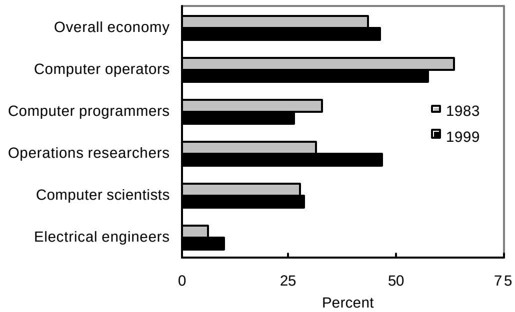
Looking at specific occupations, the most notable feature is the strong and steady growth of computer systems analysts and scientists. In 1983, this occupation had just over a quarter of a million workers, or 14 percent of the total IT workforce. By 1999, there were 1.5 million workers in this occupation, or 45 percent of the total. Also notable is the decline in the number of computer operators, perhaps stemming from changes in computing technology.

In addition to experiencing high employment growth, these occupations are also characterized by high wages. Median weekly earnings for four of the five IT occupations—all but computer operators—easily exceeded median weekly earnings for all workers in 1999 as well as in 1989 (Chart 3). The median earnings for the highest-paid IT occupation—electrical and electronic engineers—were almost twice that of all workers ($1,073 vs. $549 in 1999).

Female Representation in IT

As in many other highly technical occupations, women are underrepresented in IT. In 1999, women represented 46.5 percent of all employed workers, but only 28.9 percent of the IT workforce (Chart 4). The percentage of women in these occupations has actually been declining since 1986, when it was 40.2 percent. These aggregate percentages, moreover, mask considerable variation across the five IT occupations. In 1999, women were particularly underrepresented in the higher-paying IT occupations. For example, in electrical and electronic engineering—the highest-paid of these IT occupations—women made up just 10.1 percent. In comparison, women made up 57.3 percent of computer operators—the lowest paid IT occupation. Part of the overall downward trend in female representation in IT can be accounted for by the general shift in employment away from computer operators towards occupations in which women are less well represented. Programs geared towards increasing the role of women in technical fields are discussed below.

Chart 4. Females as a Percent of Total Workers



Source: Department of Labor (Bureau of Labor Statistics).

3. AN ANALYSIS OF THE GENDER WAGE GAP IN IT

Although women in IT earn far more than women in other sectors, the median weekly earnings of women who work full time in IT is about 23 percent less than men's—about the same pay gap as is experienced in the labor market generally. A small part of this difference is plausibly due to women in the sample working fewer hours than men, but use of a measure of earnings per hour changes the gender pay gap only modestly—to about 22 percent.

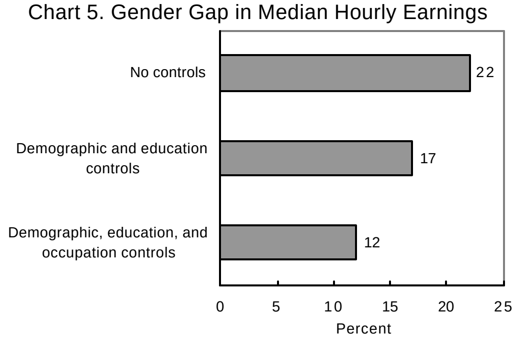
The objective of this analysis is to explore the factors that underlie this hourly pay gap. A portion of the gap is due to differences in the characteristics of men and women, such as education and age. Regression analysis can control for these differences, and thus compare the wages of similar men and women—of those with comparable education and age.[3]

The basic pay difference between women and men—the 22 percent pay gap—diminishes to 17 percent after controlling for educational attainment, age, and race (see Chart 5 and the Appendix Table).[4] Women tend to be less well educated and slightly younger than men in IT, thus controlling for these differences narrows the gap slightly. This gap might also narrow further if data were available on women's labor force experience (rather than age), since lower levels of experience at each age level could limit women's pay growth relative to men's.

[3] In particular, a series of earnings regression models are estimated using a pooled sample of the 1997, 1998, and 1999 monthly CPS data (with respondents in 1997 and 1998 included only in their last survey months). The dependent variable is the log of individuals' per hour earnings, and explanatory variables control for individual characteristics. The analysis focuses on full-time workers aged 20 or older who are not self-employed. Earnings are converted to December 1999 dollars using the monthly CPI-U. The sample size is 6,650. All coefficients have been standardized so that they can be interpreted as the *percent difference in earnings* associated with the explanatory variable. (That is, $e^{b}-1$ is reported, where b is the estimated coefficient from the regressions.)

[4] The results reported in the Appendix Table were estimated using median regression, rather than ordinary least squares (OLS). One advantage of median regression is that it allows one to safely ignore earnings top-coding of the CPS data (about 1.7 percent of the sample are top-coded). A second advantage is that this allows easy comparison to the other quantile regressions discussed below. Differences in "average" or "typical" individuals, described in the text, always refer to differences in the median. The same regressions were estimated using OLS, leading to similar inferences.

Chart 5. Gender Gap in Median Hourly Earnings



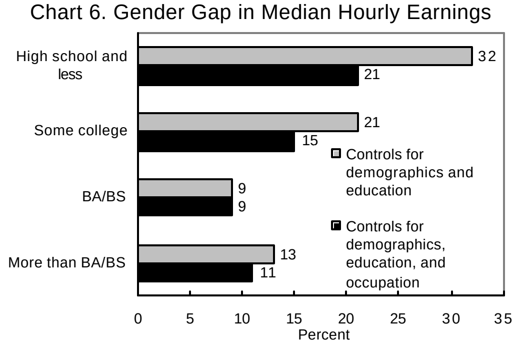
Source: CEA tabulation of monthly CPS data.

Another factor affecting the differential pay of men and women in IT is that women tend to be employed in IT occupations that are lower paying. For example, women are more likely to be computer operators than men are, and women are less likely to be electrical and electronic engineers. Controlling for these occupational differences within the IT sector explains a significant portion of the pay gap—the gap falls to 12 percent after adding controls for occupational composition.[5] It may be tempting to conclude that this estimated 12 percent pay gap is therefore a rough measure of the extent of gender discrimination in the IT labor market. However, this measure may underestimate the true extent of pay discrimination. If capable women are promoted into higher-paying computer-related occupations at lower rates than men, then looking at the pay differentials between men and women within each occupation doesn't reveal the extent of pay discrimination—the glass ceiling limits women's promotions and thus elevates the pay disparity between women and men overall.[6]

Differences in the Pay Gap Across Educational Levels

The average gender pay gap at the median—22 percent—masks striking differences in the gap between men and women at varying levels of education. Among women and men who have a high school degree or less, the pay gap is 21 percent even after accounting for differences in demographics and occupation. The comparable gap for workers with some college education is 15 percent. Since 16 percent of all women in IT have a high-school degree or less, and an additional 30 percent have some college (but no bachelor's degree), the persistently large pay gap between these women and men is certainly noteworthy. For women with higher levels of education, in contrast, the gender pay gap is lower—about 9 to 11 percent (Chart 6). This demonstrates the potential for education to promote greater pay equity for women. In this regard, education is particularly important in IT occupations. Our analysis suggests that education plays a more important role in narrowing the pay gap in IT jobs than in the economy at large.

Chart 6. Gender Gap in Median Hourly Earnings



Source: CEA tabulation of monthly CPS data.

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[5] This 12 percent "unexplained" pay gap is the same as one study featured in the Council of Economic Advisers report, "Explaining Trends in the Gender Wage Gap," 1998.

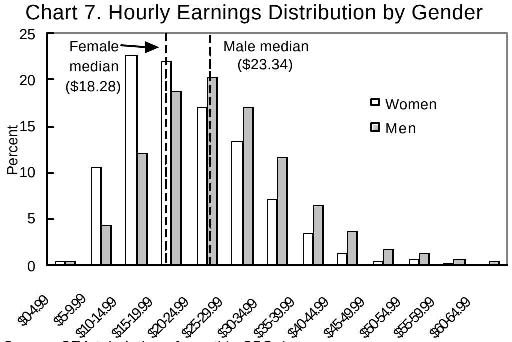
[6] To illustrate this point, consider a hypothetical example. Suppose that a firm pays all of its programmers—men and women alike—the same wage. This firm also pays all systems analysts—again, men and women alike—a higher wage. Suppose further that this firm discriminates against women in promotion, so that a higher fraction of men than women are promoted from the programming positions into the higher-paying systems analyst positions. Using a regression approach that looks at pay only within occupations (as we did to calculate the 12 percent reported above), there would be no evidence of pay discrimination within occupations in this hypothetical firm, even though in fact pay discrimination exists—operating through lower promotion rates for women.

The Pay Gap Across the Pay Distribution

The IT sector is well known for its high average pay rates, but also for paying exceptionally high wages to a substantial number of people, such as people in jobs with successful start-up companies. In fact, in the IT occupations evaluated here, 18 percent of men and 8 percent of women have earnings that translate to more than $70,000 annually. Outside the IT sector far fewer people earn these high income levels—only 7 percent of men and 2½ percent of women. Similarly, 10 percent of men and 4 percent of women in IT earn more than $80,000, compared with 4 percent of men and 1½ percent of women working outside the IT sector.

However, these same numbers indicate that in IT, as in the rest of the labor market, women do not fully share in high-earnings jobs. Women, in fact, are concentrated at the other end of the distribution; 20 percent of all women in IT have earnings that translate to $24,900 or less per year, but only 9 percent of men fall in this earnings category. (Chart 7 shows the earnings distributions for men and women.)

Chart 7. Hourly Earnings Distribution by Gender



Source: CEA tabulation of monthly CPS data.

Sources of Pay Disparity at the Low and High Earnings Levels. At every point of the earnings distribution, women earn less than men. Among low-earning workers there is a large gap of 24 percent, while among high-earning workers the gap is a somewhat smaller 17 percent. Intriguingly, however, once demographics, education, and occupation are taken into account, there is a persistent "unexplained" 12 to 13 percent gender pay gap at the low end of the earnings distribution, as well as at the median, and high end. The fact that the same gap persists at the upper end of the earnings distribution indicates that occupational choice can only partially explain why even highly-compensated women earn less than men.[7]

Summary of Statistical Results

Analysis indicates that at the median, the gender pay gap in IT of 22 percent narrows to 17 percent among individuals with similar age, race, and education, and to 12 percent when also accounting for gender differences in occupation. Other notable findings that emerge from the statistical analysis are:

- While women in IT generally earn considerably less than men, this gap is much smaller for women who are college educated. Among IT workers with no college education, women earn about 21 percent less than men with similar demographics and occupations. In contrast, the gap for those with a bachelor's degree or graduate degree is 9 to 11 percent.

- Much of the wage gap in IT is the consequence of differences in occupational composition by gender. Accounting for occupation differences (along with demographics and education) the wage gap closes to 12-13 percent for workers receiving low earnings, median earnings, and high earnings.

[7] These results are based on quantile regression results that compare women at the 80th percentile of their distribution to men at the 80th percentile of their earnings distribution, introducing controls for age, education, race, and occupation, and on a similar quantile regression at the 20th percentile. See the Appendix table.

4. LOWER REPRESENTATION OF WOMEN IN TECHNICAL FIELDS

The results above indicate that women are paid less than men in IT occupations, even after accounting for observed factors that influence pay. As noted, this gap is not by any means unique to the IT sector. It largely mirrors what happens in the economy at large and is similar to trends in the broad fields of science and engineering, where women are also greatly underrepresented, particularly in the highest paying jobs. A portion of the difference in pay in technical fields is a consequence of this underrepresentation, so it is important to understand why this disparity occurs.

Some of the gender differences in representation in scientific or IT occupations are due to the differences in the proportion of men and women who prepare for technically-oriented careers. While the evidence suggests that men and women are receiving the same level of science and math preparation in high school, among those earning bachelor's degrees women were much less likely than men to earn a degree in science and engineering. In 1996, 41 percent of men and 29 percent of women selected degrees in this area. The percentage differences are even larger when focussing specifically on engineering (9.4 percent versus 1.7 percent). A recent study by the Department of Commerce concluded that "increasing women's participation in the education pipeline that leads to many IT jobs may require efforts to get more college-bound women to choose science and engineering as a field of study, especially computer science and engineering disciplines."[8] A number of federal programs are now in place to facilitate the entry of women into these fields (see Box 2).

Box 2. Federal Programs to Increase Participation by Women in Science, Technology, and Engineering

The federal government has developed a range of programs aimed at promoting increased participation of women in science, technology and engineering. Some of these programs are national in scope, while others encourage greater participation by women within specific agencies. Examples include:

National Aeronautical and Space Administration WISE program. The WISE (Women in Science and Engineering) program at NASA is an undergraduate academic and research program whose goal is increasing the number of highly qualified minority and disadvantaged women in scientific and technical careers. Its strong mentoring and research components are designed to encourage students to pursue graduate studies and/or advanced degrees. Participants are provided opportunities for research experiences at all NASA Centers, the Jet Propulsion Laboratory, universities, and other federal laboratories.

Environmental Protection Agency WISE council. The goals of the WISE council are to increase the number of female scientists and engineers at EPA through recruitment and community outreach; to update and expand their skills; to enhance their careers and work environment; and identify barriers to professional advancement and take action to correct inequities that may exist. The council represents the concerns of all of EPA's women scientists and engineers.

National Science Foundation Program for Gender Equity in Science, Mathematics, Engineering and Technology. This program funds education research in factors that encourage or discourage young women's interest, knowledge, and involvement in science and technology, from kindergarten through college. At the undergraduate level, for example, research may look at strategies for recruitment and retention of young women in engineering and computer science. Research grants

[8] Carol Ann Meares et al., "The Digital Workforce: Building Infotech skills at the Speed of Innovation," U.S. Department of Commerce, Technology Administration, Office of Technology Policy, June 1999. See p. 95.

are awarded through a national competition, with most grantees being educational institutions and non-profit research organizations.

National Science Foundation POWRE program. The Professional Opportunities for Women in Research and Education (POWRE) program helps women who want to re-enter science careers improve their academic standing or advance to tenure track positions. The program supports more than 200 women in science and engineering by providing funding for visiting researchers, research and educational enhancement. It also supplements existing NSF-funded activities that promote academic career advancement of women in science, technology and engineering.

National Institutes of Health Re-entry program. The Re-entry program focuses on workers who had to withdraw from their careers because of family responsibilities such as caring for children or an ill family member. Supplements to existing research grants provide salary support and some research costs to assist the re-entering scientist in the transition back to the laboratory, under the sponsorship of a mentor. For more senior re-entering scientists, the mentored Research Scientist Development Award allows scientists to apply for support for a period of supervised training to update their skills and knowledge.

Sources: National Science and Technology Council, "Ensuring a Strong U.S. Scientific, Technical, and Engineering Workforce in the 21st Century," April 2000. National Science Foundation, "Program for Gender Equity in Science, Mathematics, Engineering, and Technology," October 1998.

Among those women who do prepare for and enter technically-oriented occupations, exit rates are often high, further reducing the overall representation of women working in these occupations. In general both male and female exit rates from the science and engineering occupations are higher than for other similar professional occupations (such as law and health professions), but women exit from science and engineering at twice the rate of men. One reason that is cited by women for their higher exit rate is the greater responsibilities of women for family care. Women were also roughly twice as likely as men to have made location decisions and sacrificed career opportunities to satisfy a spouse's career. Thus, some women make the choice to compromise their careers by choosing occupations that are more family-friendly.[9] The results in this report—that pay disparity persists broadly across occupations, educational attainment and pay levels—suggests that there are many factors aside from personal choices that contribute to pay inequity. Nonetheless, policies that address these family needs are likely to raise retention rates, thereby improving career prospects for women.

Women also cite differential treatment as a primary reason for their higher exit rates relative to men. Of college-educated women who leave science, 19 percent state that they left in part because "science and engineering are unfriendly to women." To explore this general response more fully, 52 women in science and engineering were interviewed at length.[10] Based on these interviews, the study concludes that successful women who remain in science and engineering almost always have important mentors supporting them, whereas those lacking mentors are more likely to exit the field. More than half of women in the study also said they perceived that the performance standards were more stringent for women than for men. These perceptions, whether accurate or not, influence their desire to stay and to invest in the ongoing development that is necessary in science-related fields.[11]

[9] Anne Preston, "Sex, Kids, and Commitment to the Workplace: Employers, Employees and the Mommy Track," working paper, 1999.

[10] Anne Preston, "Occupational Exit of Men and Women from Science and Engineering Jobs: A Comprehensive Study," working paper, 1997. Evidence is from a sample of college-educated men and women who graduated from a large state college from 1960-1991.

[11] Although direct evidence of discrimination in hiring and promotion is generally hard to come by, such evidence does exist for some skilled occupations. In auditions for symphony orchestras, females' chances of

If women have been passed over for promotion or perceive that their future professional opportunities are poorer than those of men, they may rationally choose to focus more on their family responsibilities. As a result, they may be further underrepresented in the higher paying occupations.

In general, reduction of the pay gap in IT will require a relative increase in the proportion of young women who choose educational programs that prepare them for the higher-paying occupations in IT. Because the gender pay gap tends to be lower for individuals with higher levels of education, an increase in the education of women entering IT might prove an especially effective means of narrowing the pay gap. In addition, policies that open greater possibilities for promotion and that assist women in their career development, such as on-the-job training and mentoring, can also enhance women's investment in these occupational skills and their retention rates. This in turn could contribute to a further reduction in the gender pay gap in IT.

5. CONCLUSION

Women in IT occupations earn more than those women who hold other types of jobs: the median earnings of women in IT is $38,000 compared to $23,900 for women in other occupations. However, the median pay for women within IT is considerably less than that of men within IT; women earn 22 percent less than men. Part of this pay differential is associated with lower education for women, so that after controlling for this factor, along with demographics, women earn 17 percent less than men. An additional part of the gap occurs because women are underrepresented in the highest-paid IT occupations. When controls for occupational differences are introduced, women earn 12 percent less than men. This 12 percent may underestimate the true earnings gap if there is, for example, a "glass ceiling" that limits women's access to the higher paying occupations.

Women's underrepresentation in IT occupations remains pronounced, particularly in the higher paying occupations such as computer systems analysts and electrical and electronic engineers. Part of this differential is associated with less preparation among women for technical fields. But if the evidence from scientific fields as a whole is representative of IT conditions for women, women also have higher exit rates for IT jobs than do men. Employers can address this gap in exit rates with improved mentoring and training for women. The data show that more highly educated women earn wages that are more comparable to men's, so the hiring and retention of these well-educated women is a potential key for reducing the pay gap between men and women in IT.

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successful entry are considerably higher when the jury listening to the audition cannot see the gender of the applicants (Claudia Goldin and Cecilia Rouse, "Orchestrating Impartiality: The Impact of 'Blind' Auditions on Female Musicians," National Bureau of Economic Research Working Paper, 1997). Similarly, in high-paying restaurants, where the wait staff tend to contain more men, when a man and woman submit identical resumes, the man is more likely to be hired (David Neumark, Roy Blank and Kyle An Nort, "Sex Discrimination in Restaurant Hiring: An Audit Study," *Quarterly Journal of Economics,* August 1996).

Appendix Table
Estimated Percentage Wage Gap in Hourly Earnings

	Median						20th Percentile			80th Percentile		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(1)**	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Overall Pay Gap	-0.22	-0.17	-0.12				-0.24	-0.20	-0.13	-0.17	-0.13	-0.12
PAY GAP BY EDUCATION												
High School and Less				-0.31	-0.32	-0.21						
Some College				-0.20	-0.21	-0.15						
College (BA, BS)				-0.13	-0.09	-0.09						
More than BA, BS				-0.14	-0.13	-0.11						
Controls for education, race/ethnicity and age	No	Yes	Yes	No [a]	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Controls for education, race/ethnicity, age and occupation	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes

Note: Each model is based on a quantile regression at either the 20th, 50th, or 80th percentile. The dependent variable is the log of hourly earnings. All coefficients presented are statistically significant at the 1 percent level.
[a] Controls for education only.