

Earnings differences between men and women: an introductory note

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On average, women earn less than two-thirds as much as men. Depending upon which median earnings data set is used, estimates range from 60 to 65 percent, a differential that has persisted at approximately the same level over several decades. Survey data on specific occupations in establishments show a smaller, but nevertheless persistent, gap as well.

What accounts for this earnings gap? Three explanations have been proposed in the literature: (1) differences in the productive or labor market characteristics of men and women, (2) differences in the distribution of men and women among different jobs, and (3) discrimination in the labor market.

Variations in characteristics

Women may earn less than men because they bring to the labor market different productive capacities than men. For example, they may not have invested as heavily in education and training to develop labor market skills and thus may be less productive in the labor market.

Empirical studies exploring the productiveness hypothesis have generally been able to explain only a small proportion—usually less than 20 percent—of the earnings differential by controlling for a variety of individual productive characteristics, such as education and age. They also control for personal characteristics such as marital status and race.¹ Thus, a substantial proportion of the earnings gap between men and women remains unexplained.

For purposes of explaining the gap, one problem with most data sets on individual earnings is the absence of work histories for individuals (or their actual labor force experience). It is well known that experience is positively related to earnings. Because of family responsibilities, many women interrupt their careers, and it is important to quantify the effect of interruptions on earnings paths. Using data on actual years of labor force experience and on occupational and vocational training, Mary Corcoran and George Duncan were able to explain 44 percent of the earnings disparity between men and women, one of the highest proportions of any study.² To the extent that the most ambitious studies using individual characteristics still leave a substantial earnings gap unexplained, there are certainly other factors at work.

Differences in jobs held

The earnings gap may also arise from the types of jobs men and women hold. A number of studies have supplemented data on individual characteristics with data on occupation, industry, and type of employer (for example, government versus private, or large versus small firm). These studies have been able to explain a substantially larger portion (as much as 88 percent) of the earnings gap than those using only individual characteristics.³

The explanatory power of such models increases with the level of detail used to describe jobs. In other words, studies using only information on broad occupational groups—such as laborers, professionals, and clerical workers—are less successful in exploring the earnings gap than those using more detailed occupational classifications, such as physicians, nurses, bank managers, and tellers. However, there is usually a tradeoff involved in choosing a data source for analytic studies. Data sets on individuals most frequently use only broad occupational classifications. A few studies carried out within individual firms have been able to obtain data on very detailed occupational specifications. Typically, such studies have shown smaller earnings gaps within job categories, suggesting that wage differentials for identical jobs in the same firm are negligible. However, results of these studies pertain only to single-firm settings.

Discrimination in the labor market

Most of the studies of the pay disparity between men and women have been motivated by a desire to quantify the effects of discrimination in the labor market on women's earnings. For example, regression analysis has been used on data sets containing individual earnings records and the variables described above. These studies have asked what women would earn, on average, if they had the same education, training, and other productive characteristics as men.⁴ The earnings gap remaining (that is, the differential that is left "unexplained" by education, experience, and so forth) has often been interpreted as a measure of discrimination.

Using the residual as a measure of discrimination requires that a number of conditions be met. First, the regressions must control for all variables that are relevant. Alternatively, whatever variables are omitted from the equation must be distributed similarly for both men and women. Data sets are limited, however, and variables are never measured with ab-

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solute precision. Thus, an unknown fraction of the residual really amounts to the effects of omitted productive characteristics and of errors of measurement.

When occupational controls are added to the analysis, another problem arises. It is well known that occupational earnings carry with them differentials that may be attributable to skill requirements, difficulty of entry into the occupation, and working conditions associated with a job (factors such as riskiness, dirtiness, unpleasantness, and so forth). Thus, occupational variables can, in part, be interpreted as controlling for some of these other factors that influence earnings but that usually cannot be controlled directly in the analysis.

However, the introduction of occupational controls simply changes the question from one of earnings differences between men and women to the puzzle of differences in occupational employment patterns by sex. That is, if women's earnings are lower than men's because they are employed in lower paying jobs, occupational controls in themselves explain nothing. The question then becomes: Why are women in lower paying jobs? Labor market discrimination—that is, unequal access to high-paying occupations—may be only one answer. The question goes beyond earnings differentials and also requires study of pre-labor market forces that can affect young men and women. For example, parents or schools may encourage young women to pursue educational programs different from those that young men pursue. Thus, differences in skill acquisition or social conditioning may partly explain differences in the occupational distribution of men and women.

To sum up, analysis of individual earnings data carries with it one set of problems. Not enough is known about the determinants of individual earnings to be confident that all the labor market variables in which men and women may differ have been isolated. It is probably true that the inability to include all variables increases the estimated gap, leaving it larger than the true earnings gap, other things equal. Looking at earnings by sex within narrowly defined occupations also has its limitations. Unequal pay for identical work is only part of the explanation for the pay disparity; the reasons why occupational employment patterns of men and women differ require independent explanation.

BLS data on differentials

The BLS publishes two types of data sets useful for examining male-female earnings differentials: one that provides substantial detail about individuals (the Current Population Survey), and another that provides substantial detail about jobs—occupational wage surveys. In the two articles that follow, Earl Mellor emphasizes individual characteristics using the Current Population Survey, while Mark Sieling focuses on differences in the jobs men and women hold using occupational wage data—in this case, the Survey of Professional, Administrative, Technical, and Clerical Pay.

The Current Population Survey (CPS) is a national sample of the U.S. population. Data are collected from respondents who provide detailed information about members of their

households, including sex, age, and education, as well as some general information about occupations and earnings. Mellor uses the weekly earnings (only recently available on a quarterly basis) of full-time wage and salary workers at the macro, or aggregate, level to demonstrate that, on average, women earn approximately 65 percent as much as men. He employs standardization techniques to examine characteristics of workers (age, years of schooling, major occupation, major industry, and hours worked) one at a time, and estimates what women's earnings would have been if their characteristics were distributed the same as men's. In his analysis, occupation (at the two-digit Census Occupational Classification level) explains more of the gap (5 percentage points) than any other characteristic. His findings are consistent with earlier work by other analysts.⁵

Two important limitations of Mellor's study are the use of CPS macrodata (or aggregate information) rather than microdata (or information from individual records), and the technique of standardization, which allows him to control for only one characteristic at a time. The CPS data also impose limitations on the type of study that can be conducted. For example, the database includes only total years of education, not information on the type of education, which is important for studying occupational choice. (Years of education is not necessarily a good proxy for the amount and applicability of job-specific skills learned in school.) Perhaps more importantly, the CPS does not provide information on the work history of respondents, which is crucial in controlling for the labor force interruptions that characterize many women's labor force experiences. On the positive side, however, the study emphasizes the importance of the types of jobs men and women hold in analyzing the earnings differential.

Sieling uses a less comprehensive data set than the CPS to explore the pay gap. The BLS Survey of Professional, Administrative, Technical, and Clerical Pay covers only white-collar occupations in medium and large firms. The data are collected from the establishment, not from the employees. This data set, although quite specific, allows Sieling to look at very narrowly defined skill levels within occupations.

He finds that the average pay of men in narrowly defined white-collar occupational skill levels generally exceeds earnings of their female counterparts, but the differences (0–16 percentage points) are much smaller than those found in studies using data on less detailed occupations and skill levels. If one considers only data from within the same establishment, women's earnings are even closer to men's, although some sizable differences are found. However, the data are limited to white-collar occupations in medium and large establishments, and the findings may not be broadly applicable to other occupations.

THESE ARTICLES ILLUSTRATE two approaches to the analysis of earnings differentials. It is readily apparent that more research is necessary to separate the effects of differences in men's and women's human capital and of the distribution of the sexes across occupations in the measurement of the earnings gap. □

—FOOTNOTES—

¹For a summary of these studies, see Donald J. Treiman and Heidi I. Hartmann, eds., *Women, Work and Wages: Equal Pay For Jobs of Equal Value* (Washington, National Academy Press, 1981).

²Mary Corcoran and George J. Duncan, "Work History, Labor Force Attachment, and Earnings Differences Between the Races and Sexes," *Journal of Human Resources*, Winter 1979, pp. 3–20.

³Treiman and Hartmann, *Women, Work and Wages*.

⁴For a description of this method of estimating the earnings gap, controlling for both productive characteristics and occupational distributions by sex, see Ronald Oaxaca, "Male-Female Wage Differentials in Urban Labor Markets," *International Economic Review*, October 1973, pp. 693–709.

⁵See Treiman and Hartmann, *Women, Work and Wages*.