Trends in the earnings gender gap among dentists, physicians, and lawyers

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ABSTRACT

Background. The authors examined the factors associated with sex differences in earnings for 3 professional occupations.

Methods. The authors used a multivariate Blinder-Oaxaca method to decompose the differences in mean earnings across sex.

Results. Although mean differences in earnings between men and women narrowed over time, there remained large, unaccountable earnings differences between men and women among all professions after multivariate adjustments. For dentists, the unexplained difference in earnings for women was approximately constant at 62% to 66%. For physicians, the unexplained difference in earnings for women ranged from 52% to 57%. For lawyers, the unexplained difference in earnings for women was the smallest of the 3 professions but also exhibited the most growth, increasing from 34% in 1990 to 45% in 2010.

Conclusions. The reduction in the earnings gap is driven largely by a general convergence between men and women in some, but not all, observable characteristics over time. Nevertheless, large unexplained gender gaps in earnings remain for all 3 professions.

Practical Implications. Policy makers must use care in efforts to alleviate earnings differences for men and women because measures could make matters worse without a clear understanding of the nature of the factors driving the differences.

Key Words. Salary; earnings disparities; professionals; Blinder-Oaxaca decomposition.

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Among the many dramatic changes in the labor market over the last several decades, perhaps none has been more important than the increase in women's labor force participation, particularly in the professional ranks. Women constituted only 3% of dentists in 1982. The percentage of female dentists increased to 22% in 2004 and is projected to be 28% to 30% by 2020.[1-4] In 1985, women made up 24% of dental students; the number increased to 42% in 2004 and 47% in 2014.[5] A similar pattern has occurred in medical schools. In 1975, women represented 22.7% of all medical school applicants; by 2011, women represented 47.3% of all medical school applicants.[6] Similarly, among first-year law students in 1975, women represented 27% of the total; by 2012, women represented 47% of the total.[7]

Supplemental material is available online.

However, sex differences in earnings are still apparent in these professions. Despite the larger role of women in dentistry, female dentists consistently earn less than do their male colleagues.[8,9] For physicians, the earnings gap between men and women has been documented since the mid-1970s,[10] and a rich literature has developed since. A goal of this line of research has been the effort to explain the observed differences in earnings between women and men in the same profession. Differences in professional characteristics including choice of specialty, choice of

entrepreneurial or salaried practice, working hours, productivity, and experience have been identified as contributing explanations for the gender gap in professional earnings. However, results still are mixed as to whether such observable characteristics fully account for differential earnings. For physicians, Baker[11] concluded that earnings of female and male physicians converge after controlling for observable characteristics, though investigators in other studies found an unexplained gap varying from 12% to 21%.[12-15]

The aim of this study is to further the understanding of the gender gap in earnings by studying dentist earnings in relation to earnings of other high-skill occupations with large fractions of women: physicians and lawyers. Legal, dental, and medical professions are useful to compare and contrast because all 3 fields have experienced a striking influx of women during the past few decades and at least at a broad level they represent alternative career paths for high-achieving young adults. We examine the extent to which the gender gap in earnings is linked to changes in characteristics of male and female professionals over a 20-year period and how these changes differ across dentists, physicians, and lawyers. We use an approach common in labor economics to decompose the earnings gap over time. In particular, we explore the extent to which sex differences in earnings can be accounted for by observable factors such as age, hours worked per week, weeks worked per year, and self-employment and the extent to which the remaining unexplained portion of the salary difference changes over time.

METHODS

Data source. We used data from the Integrated Public Use Microdata Series census microdata for 1990 and 2000 and the 5-year American Community Survey sample for 2007-2011 (hereafter referred to as *2010*).[16] We identify physicians, lawyers, and dentists in the data on the basis of reported occupation. In addition to having large numbers of observations, allowing us to identify a sufficient sample of men and women in the 3 occupations of interest, census data contain a number of important characteristics that likely are related to salary. Among the variables available in the census in addition to income, sex, and occupation are age, race or ethnicity, marital status, number of children, hours worked per week, weeks worked per year, and whether the respondent is a business owner. With these variables, we constructed a basic model of earnings for the purposes of decomposing sex differences by using the techniques described here.

Analysis. A common method to study outcomes differences across groups is the Blinder-Oaxaca decomposition method by Blinder[17] and Oaxaca.[18] Broadly speaking, the Blinder-Oaxaca approach allows identification of the difference in earnings of men and women that is attributable to differences in their respective characteristics, including age, work hours, and other factors—that is, how much of the observed difference in earnings can be explained if women and men have the same characteristics? Any remaining difference in earnings is considered the residual or unexplained portion. The unexplained portion is always conditional on the characteristics observable to the analyst; however, it could be the case that other important characteristics not available to the analyst, such as family commitments, preferences, and other job characteristics, could account for the difference.

The Blinder-Oaxaca method uses a simple earnings model and is assumed to be linear and separable by observable and unobservable characteristics:

$$Y_g = X\beta_g + \varepsilon_g \quad [1]$$

in which Y_g represents annual (log) earnings of the 2 groups (g), men and women, and X is a vector of observable characteristics that are likely to be related to earnings. The β terms represent the coefficient estimates that express the relationship between the characteristics, X, and the outcome, Y. Separate regressions are run for male (M) and female (F) professionals. The difference in mean earnings between men and women can be written as:

$$\overline{Y}_F - \overline{Y}_M = \left(\overline{X}_F - \overline{X}_M\right)\widehat{\beta}_F + \left(\widehat{\beta}_F - \widehat{\beta}_M\right)\overline{X}_M \quad [2]$$

Variables with bars over them represent means, and variables with hats on them represent regression estimates. The first term on the right-hand side of equation [2] is the explained component of differential earnings that is due to the average differences in observable characteristics of women and men; the difference in earnings that might result, for example, from men being older (thus more experienced and earning more) on average than women. The second term is the unexplained component, which represents the differences in the relationship between a given characteristic (such as age or work hours) and women's and men's earnings; for example, an additional year of age might be associated with a greater increase in earnings for men than for women, all else constant. Hence, the second term on the right-hand side of equation [2] shows differences in the coefficient estimates, which in an earnings regression represent how each variable affects earnings. For presentation purposes, the explained difference and the unexplained difference are each summed and presented as a percentage of the total difference. We conducted the Blinder-Oaxaca decomposition by using the *Oaxaca* command in Stata 13.1 (StataCorp).[19]

RESULTS

Unadjusted sex differences among dentists, physicians, and lawyers. Tables 1 through 3 display unadjusted differences in mean earnings over the 3 periods for