Gender Differences in Promotions and Wages

JONI HERSCH and W. KIP VISCUSI*

Results using an original data set indicate women receive more promotions than men. The frequency of promotions is linked to whether the woman had previously quit a job because of her husband’s job move. Promotions significantly increase wages for men but not for women. These findings are consistent with the hypothesis that joint job search constrains women to starting jobs at lower levels, providing more scope for promotions.

Introduction

Women earn less than men. This discrepancy is due both to hiring patterns and to subsequent employment practices, including promotions. If women are less likely to be promoted than comparable men, these differences in promotion patterns may contribute to gender inequality in earnings.¹ Notwithstanding the potential role of promotion patterns in explaining gender differences and earnings, there have only been a few empirical studies of this relationship, and the findings in the literature are mixed.²

To assess the role of gender differences in promotions, one must assess not only differences in the frequency of promotions but also their average wage effects. The two studies that examine both promotion rates by gen-

*The authors’ affiliations are, respectively, Department of Economics and Finance, University of Wyoming, and Harvard Law School, Harvard University. Hersch’s work on this article was funded by NSF Grant #HRD-9250117.

¹ The only theoretical model that predicts lower promotion rates for women than men is that of Lazear and Rosen (1990). In this model, if women have a higher expected value of home time, it is efficient to promote lesser-qualified men over women.

² Some studies have found that women have a lower probability than comparable men of receiving a promotion (e.g., see Cabral, Ferber, and Green, 1981; Olson and Becker, 1983; and Cannings, 1988). In other studies, such as Stewart and Gudykunst (1982) and Gerhart and Milkovich (1989), women receive more promotions on average than men. Lewis (1986) found no difference by gender in promotions among comparable federal white-collar employees.
der and the wage effects of promotions found conflicting effects for the rate of promotion but not for the economic rewards associated with promotions. Olson and Becker (1983) found no gender differences in the estimated return to promotion, although women did receive fewer promotions in their sample.3 Gerhart and Milkovich (1989) also found that promotions had a similar effect by gender on salary growth, but in their sample women had more promotions.4

One factor that may explain differential promotions patterns by gender is employment restrictions caused by spousal employment. If women are more likely to move to further their husband's careers than to move to further their own, their opportunity to find the best initial job match, or to quit a bad match, may be restricted. Past mobility decisions may affect wages and the number of promotions by influencing one's labor market skills and the employer's assessment of the worker's labor market attachment. Information on whether an individual quit a job for their spouse's job move is not available on any national data set, and there has been no direct investigation of gender differences in this factor on wages and promotions. The data set used here includes this information and addresses this concern as well.

The next section introduces the original data set, which consists of a sample of 445 employees from a public utility. We then examine whether gender differences exist in the frequency of promotions. This analysis indicates that, on average, women are promoted more often than men. The frequency of promotions, however, is linked to whether a woman had previously quit a job because of her husband's job move. We show that promoted men receive higher wages, but the number of promotions does not affect women's wages. The implication of these results is that joint job search constrains women to starting jobs at lower levels, providing more scope for promotions. These promotions, however, do not advance women through the wage hierarchy in the same fashion as for men.

Database and Sample Characteristics

Ideally, to assess the character of promotion patterns, one would want information on the nature of the job match and the frequency of promo-

---
3 As they point out, however, the number of promoted workers in their sample was quite small (fifty-seven men and twenty-four women), so their results may be sensitive to the presence of outliers.
4 The difference in the findings of their two studies may stem in part from the difference in the character of their samples. Olson and Becker (1983) used panel data from a national survey (the Quality of Employment Survey), whereas Gerhart and Milkovich (1989) used a sample for a single private firm.
tions, holding constant the general workplace environment and job structure at the firm. Unfortunately, most existing national data sets have limited information on the number of promotions, and in general lack information on job match quality. Moreover, no data typically exist to control for firm-specific aspects of job quality.

To better understand the nature of promotion policies, this article utilizes an original data set based on a survey of employees of a public utility. By using a database specific to a particular firm, across-firm differences in promotion practices will not be of consequence. Workers in a single firm face the same internal labor market rules and growth rate of the firm. ⁵ One consequently can avoid making comparisons of employees from firms with different “ladder lengths” for upward mobility, as well as comparisons among employees of firms with different growth rates and therefore different promotion opportunities. Because of the advantages of within-firm data in controlling for such influences, most empirical research examining promotions has used data from a single firm. ⁶

One caveat, however, is that results based on data from one firm may not generalize to other firms with different internal labor market structures. Within-firm data also do not provide information on individuals who have left the firm. This study is not an exception to these two limitations.

One of the authors generated the data set in 1991 by distributing a four-page questionnaire through the company’s mail system. The survey was accompanied by a cover letter from the researcher that assured the employees that their responses would be confidential and would be seen only by the researcher. No names were requested on the survey. The questionnaires were accompanied by a stamped return envelope and a “lottery ticket” that was returned in a sealed envelope separate from the questionnaire. The lottery awarded three prizes ($100, $50, and $25) randomly from the survey respondents. This payoff served as an effective inducement to participation, as the response rate of 62 percent is extremely high for a mail survey. The sample used in this article consists of 230 male and 215 female workers. ⁷

Table 1 provides variable definitions and descriptive statistics by gender.

---

⁵ Internal labor market analysis has long played a central role in the labor economics literature. See Doeringer and Piore (1971).

⁶ A number of authors argue that such data are preferable for studies of promotions (e.g., Abraham and Medoff, 1985 and Cabral, Ferber, and Green, 1981). McCue (1996) uses panel data from the Panel Study of Income Dynamics to examine positional changes relevant to the average worker within a nationally representative sample.

⁷ Overall there were 471 respondents, but only 445 gave valid responses to questions about earnings, experience, and tenure with the employer.
### TABLE 1

**Variables and Descriptive Statistics***

<table>
<thead>
<tr>
<th>Human Capital and Individual Characteristics</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous Experience</td>
<td>5.31*</td>
<td>3.52</td>
</tr>
<tr>
<td></td>
<td>(5.94)</td>
<td>(4.96)</td>
</tr>
<tr>
<td>Tenure with Employer</td>
<td>18.85*</td>
<td>15.57</td>
</tr>
<tr>
<td></td>
<td>(7.11)</td>
<td>(5.67)</td>
</tr>
<tr>
<td>Tenure on Job</td>
<td>10.52*</td>
<td>6.96</td>
</tr>
<tr>
<td></td>
<td>(6.46)</td>
<td>(4.31)</td>
</tr>
<tr>
<td>Education</td>
<td>13.54</td>
<td>13.26</td>
</tr>
<tr>
<td></td>
<td>(1.69)</td>
<td>(1.59)</td>
</tr>
<tr>
<td>White Collar</td>
<td>0.35*</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td>(0.48)</td>
<td>(0.31)</td>
</tr>
<tr>
<td>Physical Condition Limits Work</td>
<td>0.04</td>
<td>0.07</td>
</tr>
<tr>
<td></td>
<td>(0.19)</td>
<td>(0.25)</td>
</tr>
<tr>
<td>Job Covered by Union Contract</td>
<td>0.77*</td>
<td>0.85</td>
</tr>
<tr>
<td></td>
<td>(0.42)</td>
<td>(0.36)</td>
</tr>
<tr>
<td>White</td>
<td>0.93</td>
<td>0.88</td>
</tr>
<tr>
<td></td>
<td>(0.26)</td>
<td>(0.32)</td>
</tr>
<tr>
<td>Age</td>
<td>43.28*</td>
<td>39.66</td>
</tr>
<tr>
<td></td>
<td>(7.14)</td>
<td>(6.69)</td>
</tr>
<tr>
<td>Hourly Wage</td>
<td>16.21*</td>
<td>13.71</td>
</tr>
<tr>
<td></td>
<td>(3.15)</td>
<td>(2.94)</td>
</tr>
<tr>
<td>Number of Promotions</td>
<td>1.18</td>
<td>1.41</td>
</tr>
<tr>
<td></td>
<td>(1.41)</td>
<td>(1.71)</td>
</tr>
<tr>
<td>Proportion Receiving at Least One Promotion</td>
<td>0.57</td>
<td>0.56</td>
</tr>
<tr>
<td></td>
<td>(0.50)</td>
<td>(0.50)</td>
</tr>
<tr>
<td>Number of Different Jobs with Employer</td>
<td>4.00</td>
<td>4.13</td>
</tr>
<tr>
<td></td>
<td>(2.52)</td>
<td>(2.61)</td>
</tr>
<tr>
<td>Mobility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moved to a Different City to Get a Better Job</td>
<td>0.53*</td>
<td>0.29</td>
</tr>
<tr>
<td></td>
<td>(0.50)</td>
<td>(0.46)</td>
</tr>
<tr>
<td>Quit a Job Because of Spouse Job Move</td>
<td>0.004*</td>
<td>0.17</td>
</tr>
<tr>
<td></td>
<td>(0.06)</td>
<td>(0.37)</td>
</tr>
</tbody>
</table>

*Standard deviations are in parentheses. Sample consists of 230 male and 215 female respondents to survey administered by the lead author.

*Indicates significantly different means at the .05 level.

Compared to the national labor market, the workers in this sample are older, better educated, have longer average tenure and years of work experience, and higher wages.\(^8\) Since all nonexempt workers were covered by a union contract, the unionization rate is also high.\(^9\) The sample at this public utility, however, is more similar to workers employed in the same industry

\(^8\) Wages are reported hourly wages (72 percent of the sample) or are constructed by dividing weekly or annual salary by the appropriate hours measure.

\(^9\) The sample did not include any individuals above the level of middle manager, so there are no comparisons of, for example, vice-presidents to clerical workers.
(transportation, communications, and public utilities). The findings of this article may generalize to employees of regulated or highly unionized industries, as well as to firms with similar employment policies.\textsuperscript{10}

Variable means that differ significantly by gender at the 5 percent level are indicated in Table 1 by an asterisk in column 1. The men in the sample have significantly more years of experience and tenure. A greater proportion of the women are in jobs covered by a union contract. Most of the women (89 percent) work in white-collar jobs, although inspection of narrow job classifications indicates that there is not complete gender segregation within any narrow job classification with more than fifteen employees.

The female-male wage ratio in this sample is .85, higher than observed in a national sample, such as the Current Population Survey. This relatively narrow wage gap may be a result of high tenure of female employees combined with the flattening of the wage-tenure profile typically observed for unionized workers.

The survey elicited information on the number of different jobs and the number of promotions with the worker's employer through the following questions: "How many different positions/job titles have you held with your current employer since you began working there?" followed by "How many promotions have you received since you began working for your current employer?"\textsuperscript{11} On average, the women in the sample received more promotions than the men—1.41 for the women, 1.18 for the men. This difference, however, is not significant at the 5 percent level ($t = 1.54$). These unadjusted results do not account for important differences such as tenure at the firm. There is virtually no difference by gender between the average number of different jobs held and the proportion of workers receiving at least one promotion. On average, workers held about four different jobs with their employer, and slightly over half of the sample had received at least one promotion.

\textsuperscript{10} Calculations from the 1988 May Current Population Survey yield average values of tenure, age, and hourly wage that are significantly greater for workers in transportation, communications, and public utilities than in other industries. In transportation, communications, and public utilities, the average values of hourly wage (in 1988 $\), tenure, and age are $11.93, 9.55, and 38.65, respectively. The corresponding values for all other industries are $9.69, 6.53, and 36.93.

\textsuperscript{11} Firm representatives provided assurance that by asking questions on both job titles and promotions, workers were less likely to report a lateral job change as a promotion. Nearly 8 percent of the full sample of 471 workers, however, reported the same value for number of promotions and number of jobs. It is possible that these workers considered their initial job with this employer as a promotion, if this initial job was at a higher level than the job they previously held (which is in fact what we would expect because workers tend to move for better jobs). Given that the interest here is in within-firm promotion, the reported number of promotions was reduced by one for those reporting number of promotions equal to number of jobs.
The common perception that men move to advance their own careers and women move to advance their husband's is borne out in this sample. The men are nearly twice as likely as the women to have quit a job to move to a different city to get a better job, with over half of the men reporting moving for a better job. Further, only one of the men in the sample has quit a job because of his wife's job move, whereas this was fairly common for the women. Overall, 17 percent of the women have quit a job for their husband's job move.

Gender Differences in Promotions

The descriptive statistics in Table 1 indicate that the women receive more promotions on average than the men, although the difference is not significant at the 5 percent level. Moreover, these average values of promotions do not take into account either worker qualifications or the period of time over which the promotions are observed.

The empirical analysis in this section examines regression estimates of an equation in which the dependent variable is the number of promotions the worker has received since joining the firm. The usual human capital and job-related variables are the explanatory variables. Because of the discrete count nature of the dependent variable, ordinary least squares is inappropriate. We use the negative binomial regression model to estimate the promotions equation.12

Table 2 presents the promotions equation results. Column 1 presents the results of a basic specification which includes only the standard variables. Column 2 adds past mobility variables to the basic specification. Dummy variables for five occupational categories are included to capture differences in ladder lengths associated with different types of jobs. (The omitted category is skilled technicians.) Tests indicated that in all specifications, the hypothesis of equal coefficients for men and women of all variables (but the male d.v.) in equation (1) could not be rejected at the 5 percent level.

Tenure is positively related to the number of promotions, because promotions are necessarily a nondecreasing function of time on the job. Surprisingly, evidence suggests that having a physical condition that limits work is positively related to the number of promotions. The only occupations with significantly higher promotion rates are technical support and clerical.

---

12 The Poisson regression model assumes equal mean and variance of number of promotions. In all of the estimated specifications, this assumption was rejected at the 1 percent level, using the test for overdispersion presented in Cameron and Trivedi (1990).
The most important finding of the basic promotions specification in column 1 of Table 2 is the differential promotion frequency by gender. Controlling for individual characteristics and for occupational category, men receive significantly fewer promotions than women.

To understand the underlying mechanism leading to higher promotion rates for women, equation (2) in Table 2 includes variables indicating whether the individual had moved in the past for a better job, or quit a job
because of their spouse’s job move, where their own move variable is interacted with gender. Given that only one man in the sample had quit his job for his spouse’s move, no role is played by a gender-spousal job move interaction term. For that reason the “moved for spouse’s better job” variable is predominantly a female-specific variable.

The results indicate that individuals who had quit their jobs (mostly women) because of their spouse’s move received significantly more promotions. The positive effect of past mobility for one’s spouse may reflect lower starting levels for spouses constrained to a limited geographic area, which provides more scope for promotions.\(^{13}\) It also provides evidence that, contrary to popular belief, past mobility for a spouse does not seem to permanently inhibit upward job mobility. The coefficients on the variables indicating moving for one’s own job are not significant with or without the gender interactions. The coefficient on the male intercept is no longer significant, indicating that inclusion of previous mobility variables explains all of the gender difference in promotions in the basic promotions equations.

Although our results have strong implications for the role of gender in influencing promotions, they nevertheless should be treated with caution. Our findings are based on cross-sectional evidence for workers currently at a firm. Because we do not have information on workers who have left the firm, selection bias is a potential problem. In particular, if men are more likely than women to leave the firm after being promoted, gender differences in promotions will be overstated. The problem of selection bias is mitigated, however, by the high wages paid by this firm relative to other employers in the region, and indeed relative to other employers within the industry (see footnote 9).\(^{14}\) Thus, even workers disappointed by promotion decisions are not likely to improve their wages by moving to another firm. However, it is not possible to test and correct for possible selection bias with the available data.

Promotions and Wages of Men and Women

Despite the evidence that women receive more promotions than men, the average earnings of women are still lower than men’s, which suggests that the character of men’s and women’s promotions may not be the same. We now examine gender differences in the effect of promotions on wages.

\(^{13}\) This interpretation is consistent with Stewart and Gudykunst (1982), who found that women start at lower job grades and receive more promotions than men, but have lower overall occupational advancement.

\(^{14}\) A national labor market is not relevant for the vast majority of these workers.
Table 3 presents estimates of wage equations, estimated separately by gender.\textsuperscript{15}

The wage equation estimates reflect many of the usual patterns of influence. Wages rise with tenure, at a decreasing rate. Note that the wage-tenure profile for women is substantially steeper than for men.\textsuperscript{16} Work

\textsuperscript{15}In our model, the history of promotions affects wages, so we have assumed a recursive model structure. Gerhart and Milkovich (1989) also treat the number of promotions as exogenous in their estimates of salary growth equations.

\textsuperscript{16}Hersch and Reagan (in press) provide an agency model to explain the widely observed empirical finding of steeper wage-tenure profiles for women.
experience before joining the firm is not a significant determinant of wages, because it is swamped by time spent with the firm. Within the overall sample, white-collar and union workers of both genders earn significantly lower wages. The strong negative impact of unions on wages is apparently because of the higher wages of the managerial and professional employees who are not covered by a union contract. This may also be the result of the within-firm character of the sample. One would expect the main effect of unions to generate a wage premium for comparable occupations across firms. Men whose physical condition limits work earn significantly less, but physical condition is not a significant determinant of women’s wages, possibly because of the less physically demanding character of their jobs.

The most striking finding in these equations is the gender difference in the impact of number of promotions on wages. The coefficient on number of promotions for men is 50 percent higher than that for women. The coefficient is significant at the 5 percent level (one-tailed test) for men, but the effect of promotions, while positive, is not significant for women. Overall, promotions have a stronger influence in increasing wages for men than for women.

To examine whether it is job changing of any kind, rather than only promotions that affect wages, we estimated the wage equations replacing the variable for the number of promotions with the number of different jobs the worker had with the employer (not reported). The number of jobs held by a worker may affect wages in either direction. There may be a positive effect on wages of number of jobs if workers enhance their productivity by acquiring a variety of skills through job changing, or if only the most skilled employees are frequently moved among jobs. On the other hand, workers who have held a number of different jobs may have lower wages if, for instance, it takes more trials for lower-quality workers to achieve a good match. The results, however, indicate that for both men and women, the number of different jobs is not significantly related to wages.

The two equations in Table 3 also include variables to examine whether previous job mobility affects wage levels, after controlling for job-related and human capital characteristics and number of promotions. The effect on wages of moving for one’s own better job is expected to be positive, whereas quitting a job to move for one’s spouse’s job is expected to have a negative effect on wages. Overall, in contrast to the findings for promotions, neither of these two mobility variables is pertinent in explaining wages for either men or women. Although job-related moves may affect initial wages, the effect dissipates over time and has no continuing impact on wages.
Conclusions

Gender differences in mobility and promotion patterns are important determinants of gender differences in labor market experience. First, there is evidence of gender differences in the number of promotions, with the gender difference favoring women. This may be the result of women starting lower on the job ladder so that they face longer career paths or the promotion paths for women may involve smaller incremental advancements so that the promotions are of less economic consequence. Second, there appears to be a gender difference in the payoff to promotion, which favors men. Controlling for other factors, promotions contribute to higher wage levels for men but have no significant effect on wage levels of women.

Third, support for the hypothesis that women fare worse in the labor market because they move to advance their husband’s careers is apparently limited to the effect on initial job placement. Women who have moved for their husband’s job move receive more promotions, but quitting a job in the past because of a husband’s job move does not appear to have a lasting effect on wages.

Several possible explanations exist for the disparity in the monetary returns by gender to promotion. One possibility, of course, is discrimination. There are other possibilities, however. The mix of rewards associated with promotions is composed of both monetary and nonmonetary components. Although men benefit more from the monetary return to promotions, promotions may offer women highly valued nonmonetary rewards such as greater flexibility in work scheduling. Second, women may be more likely than men to be in jobs for which promotion is not associated with a large productivity increase.

Because these results are based on data from a single firm, caution should be taken in generalizing beyond the sample considered here. These results, however, add to the accumulating evidence from other studies using firm-level data that find that women receive more promotions than men. The findings also help explain why the net consequence of these promotions is not to place women in a superior position economically. The wage payoff for promotions is greater for men and indeed is not statistically significant for women.

These findings provide a somewhat different perspective than previous studies in the literature. Whereas Olson and Becker’s (1983) national sample indicated that women were less likely to be promoted, the Gerhart and Milkovich (1989) within-firm study suggested that women are more likely to be promoted—the effect we found here. Neither of these studies,
however, found any significant gender differences in the effect of promotions or wages, whereas our study found that men receive a higher payoff from promotions. A distinctive feature in our analysis is that the greater promotion rate for women can be attributed to their mobility for their husband’s job moves. Although such moves do not appear to have a lasting effect on wages, we cannot rule out the possibility of such effects in the short run.

REFERENCES


