Gender Differences in Wage Growth and Job Mobility

By PAMELA J. LOPREST*

The male–female wage differential increases with workers' time in the labor force. Lower wage growth of older female workers may be explained by lower levels of labor-market experience due to time out of the labor force. However, the female-to-male ratio of earnings falls over time even for young full-time workers just entering the labor market. Data from the National Longitudinal Survey of Youth show that real wage growth over the first four years after labor-market entry for full-time workers is 35.6 percent for men and only 29.1 percent for women. This paper focuses on the job mobility of young male and female workers to try to explain this differential.

The question of why wage growth is lower for young women than for young men is important in light of evidence showing that the early period of young men's careers is one of high wage growth. Fully two-thirds of men's lifetime wage growth occurs during the first ten years of experience (Kevin M. Murphy and Finis Welch, 1990). If women's wage growth is low during this period it may have large effects on their lifetime earnings and on labor-market behavior.

In this paper, I use data from the National Longitudinal Survey of Youth to try to explain this increasing differential. I focus on the differences between men's and women's patterns of job mobility and wage growth in their first four years of working full-time in the labor market. There is much evidence that job-changing plays an important role in the wage growth of young men. Robert Topel and Michael Ward (1988) find that young men are very mobile with a large percentage of wage growth, 40 percent over the first ten years in the labor market, coming with job changes. This paper explores to what extent differences in job mobility, returns to job mobility, and the characteristics of the jobs men and women hold can account for the differences between men's and women's wage growth.

*The Urban Institute, 2100 M Street, N.W., Washington, DC 20037.

I. Data

This paper focuses on the wage growth of male and female full-time new entrants to the labor force. Although it is important to understand wage differentials for all segments of the work force, differences between male and female labor-force participation over time complicate wage comparisons. Women on average work fewer hours and spend more time out of the labor force over their lives than do men. Studying new entrants who work full time allows for an initial comparison of groups of men and women who have similar labor supply characteristics and limits differences directly attributable to less time worked during the period being studied.

The data I use are from the National Longitudinal Survey of Youth (NLSY), a survey of 12,686 young people who were 14–21 years old in 1978. The survey contains detailed work-history information important for identifying full-time workers and the timing of labor-market entry. I identify full-time workers as those who work three consecutive years for more than 26 weeks each year and an average of at least 30 hours per week worked. Labor-market entry is defined as the first of these three years. The sample consists of 1,597 individuals from the 1979 representative subsample who are full-time workers and entered the labor market after the first interview date. Individuals included must have four years of data available after entry. All of these workers entered the labor market between 1979 and 1983. In the analysis that follows, I stack the four observations per individual to

create a pooled sample of 6,388 individual-year observations. Throughout the paper, job change refers to changing employers.

The sample is 52-percent men and 48-percent women. By construction, this sample consists of workers who are very "attached" to the labor market. Approximately 85 percent of both men and women work at least 85 percent of the weeks in the four years after entering the labor force. Approximately 67 percent of men and women have a job in every week of this four-year sample. This sample is, therefore, not representative of young workers in general. It is a sample of men and women who are similar in their high levels of labor-force participation.

TABLE 1—DIFFERENCES IN JOB-MOBILITY CHARACTERISTICS

Characteristic	Men	Women
Average four-year total log wage growth	0.276 (0.018)	0.225 (0.017)
Average annual wage growth with job change	0.087 (0.015)	0.041 (0.016)
Average annual wage growth with no job change	0.059 (0.007)	0.064 (0.007)
All job changes as percentage of individual-year observations	36	33
Voluntary job changes as percentage of individual-year observations	22	24

Note: The pooled sample of 6,388 individual-year observations is used. Numbers in parentheses are standard errors

II. Mobility

Men's wage growth in the first four years after labor-market entry is significantly higher than women's wage growth in this sample. The female/male wage ratio at labor-market entry is 0.89. By the fourth year in the labor market, the wage ratio has fallen to 0.85. Real wage growth over the four years is 35.6 percent for men and 29.1 percent for women, a difference of 1.6 percent per year.

As discussed above, mobility plays an important role in the wage growth of young men. However, this is not the case for young women. Differences between men and women in job mobility and returns to job mobility can largely account for the difference in men's and women's wage growth. I decompose the relationship between job mobility and wage growth into two parts: the wage growth associated with a job change and the probability of job change.

Wage growth associated with job change is significantly higher for young men than for young women. Because wages here are for the job at the interview date, the precise wage change at the job transition is not available. Therefore, it is impossible to separate wage growth when changing jobs from wage growth on the new job up to the interview date. I use here the annual wage growth in years with a job change, calculated as the difference in log real wages at consecutive interview dates for periods in which at least one job change occurred. The average of these annual wage changes for men and women is reported in Table 1. Young men's average annual wage growth with job change is 0.087. Young women experience wage growth of 0.041 on average in years with job changes. When changing jobs, women have less than 50 percent of the wage growth of young men. In comparison, wage growth when not changing jobs is similar for men and women. Average annual wage growth without job change is 0.059 for young men and 0.064 for young women. The difference is not statistically significant.

Despite significant differences between men and women in wage growth with job change, rates of job mobility are similar. Table 1 lists the number of all job changes as a percentage of the entire pooled sample. Of all individual-year observations in the pooled sample of women, 33 percent had changed jobs at least once over the year, while 36 percent of men had changed jobs. Restricting job changes only to voluntary changes leads to similar results: 22 percent of men and 24 percent of women voluntarily change jobs between interview years. This suggests that men and women have on average similar rates of job-changing during their first four years in the labor market.

Given similar rates of job change and wage growth when staying on the same job,

the difference in total wage growth between men and women is largely accounted for by differences in wage growth when changing jobs. To illustrate this point further, if one calculates women's total average annual wage growth using women's rates of job change, but assumes that men and women have the same average wage growth with and without job change, total annual log wage growth for women would be 0.068 compared to 0.069 for men. Women have on average 19-percent lower annual total wage growth than men, but more than 50-percent lower annual average wage growth when changing jobs.

III. Job Characteristics

Significant differences exist between men's and women's wage growth when changing jobs. Why do these differences exist? A standard model of job search such as that of Kenneth Burdett (1978) that allows for search while holding a job gives an explanation for job mobility. Such a model suggests that individuals remain on their current job unless they receive a wage offer whose present discounted value is greater than the present discounted value of their current wages. In this framework, if men and women had similar characteristics and faced similar wage distributions and offer rates, they would change jobs with the same frequency and receive the same wage growth with job change on average. However, there are several reasons why this may not hold.

First, if men and women on average have different job "preferences" which involve different trade-offs between wages and nonpecuniary aspects of the job, this could lead to lower wage growth for women. Women may on average switch to jobs that have more flexible schedules or lower hours than men because of different household responsibilities. Also, as noted by Solomon William Polachek (1981), women may choose jobs or occupations that involve lower skill atrophy if they plan to be out of the labor force for some period of time in the future. Because such jobs or occupations have desirable characteristics, some women may make the trade-off between these characteristics and wages leading to lower wage growth with job change.

Second, women may not have access to certain higher-paying jobs because of discrimination. If employers perceive women in general as more likely to leave a job, then jobs involving training that is costly to the employer will be less accessible to women on average, even if an individual woman is not planning to leave the job. Women also may not be hired for certain traditionally male jobs which may be higher-paying.

Both of these sets of reasons may result in lower wage growth with job change for women. It is difficult to distinguish between these reasons for women's lower wage growth given the data available. However, both suggest that men and women on average switch to different jobs. As a first step in understanding the differences in wage growth with job changes, I study the differences in the characteristics of the jobs men and women change to. I concentrate here on two possible differences in the jobs men and women change to: hours worked and occupation.

Individuals may be willing to trade off lower wages per hour to be able to work fewer hours. Joseph G. Altonji and Christina Paxson (1988) find some evidence using PSID data that relaxing overemployment constraints is associated with a reduction in the wage gain the worker requires to quit the current job. In my sample, women change from full-time to part-time jobs more often than men. Of all years with job changes, 12.7 percent of women's changes are from full-time to part-time jobs and 7.9 percent of men's changes are from full-time to part-time jobs. The average wage change for both men and women is negative when making this transition, which may indicate that there is a wage trade-off for being able to have a more flexible schedule. Women's average wage change when changing from a full-time to part-time job in the sample is -0.086, while men's is -0.016. The average decrease in wages is significantly greater for women than for men.

There are also large differences between men and women in the occupations of the jobs they change to. An extensive literature

exists on the occupational segregation of men and women (see Barbara Reskin and Heidi Hartmann, 1986). Studies have attributed differing percentages of the male–female wage gap to occupational segregation and have shown that occupations with a higher percentage of women pay on average significantly lower wages than other occupations (Donald Treiman and Hartmann, 1981).

At entry, men and women are concentrated in relatively few but different occupations. By far the largest occupation at full-time entry for women is clerical, with 41 percent of women entering into this occupation, and 22 percent entering into service jobs. Men's initial occupations are somewhat more varied. Operatives are the largest group at 23 percent and craftsmen, laborers, and service workers each have from 15 percent to 18 percent of male entrants.

Despite the relatively concentrated distribution of occupation at entry, occupational change is frequent in this sample. Using the ten 1-digit Census-level occupation codes, 66 percent of men and 54 percent of women change occupations when changing jobs. On this aggregate level, women are less likely to change occupations. Of all job changes, 25.5 percent of women remained in clerical occupations. The occupational changes men and women make are different as well. The largest occupational transition for women is service to clerical, accounting for 6.7 percent of women's job changes. For men, the largest category of occupational change is laborer to operator, representing 4.2 percent of men's job changes.

There are large differences in the hours and occupations of the jobs men and women are changing to. In the next section, I test whether these differences can account for any of the difference in wage growth with job changes.

IV. Estimation

How much of the male–female differential in wage growth with job change can be accounted for by differences in job characteristics? To address this question, I estimate a log-wage-growth equation for all job changes, controlling for individual, human-capital, and labor-market factors. My empirical specification is a standard wage equation in logarithmic first differences. In most standard specifications, differencing removes all non-time-varying characteristics from the equation. However, I include some of these non-time-varying characteristics in the estimation because they may influence wage growth as well as wage levels. The non-time-varying variables include indicators for race, schooling level, and gender. The specification estimated is as follows:

$$\Delta(w_t) = f(\mathbf{X}\beta)$$

where $\mathbf{X} = (\text{tenure}_t, \text{tenure}_{t+1}$, married, divorced, birth, Δ unemployment, Δ union status, black, female, education level, year of entry).

To estimate this equation, I use the pooled sample of individual-year observations that include a job change within the year. Using the pooled sample introduces bias into the estimates of the standard errors of the coefficients. Differencing eliminates time-invariant individual-specific unobservables. However, there is still correlation of the error terms across observations, because a disturbance at one time period, ε_t, is part of two consecutive wage-change observations, $(w_{t+1} - w_t)$ and $(w_t - w_{t-1})$. To correct for this bias, I estimate the equation for change in log wage using generalized least squares (GLS).[1] All estimations use the GLS correction.

I estimate this equation including controls for differences in hours transition and occupation transitions separately. Despite the relative homogeneity of the sample on labor-supply characteristics by construction, there are individual differences in the sample that may be able to account for some of the differences in wage growth. Therefore, I first estimate the equation without control-

[1]The method I use to estimate the covariance matrix of the equation is described fully in Loprest (1992).

TABLE 2—DETERMINANTS OF LOG WAGE GROWTH WITH JOB CHANGE

Variable	Equation (i)	(ii)	(iii)
Tenure at t	0.018	0.016	0.016
	(6.26)	(6.41)	(6.31)
Tenure at $t-1$	−0.002	−0.002	−0.002
	(3.04)	(3.06)	(2.91)
Married	−0.034	−0.034	−0.040
	(1.08)	(1.11)	(1.29)
Divorced	−0.293	−0.153	−0.156
	(2.52)	(2.48)	(2.54)
Birth	0.059	0.058	0.064
	(1.54)	(1.50)	(1.67)
Increase in unemployment	−0.018	−0.023	−0.020
	(0.76)	(0.95)	(0.84)
Decrease in unemployment	0.018	0.016	0.013
	(0.78)	(0.67)	(0.58)
Nonunion to union	0.012	0.003	0.009
	(0.36)	(0.10)	(0.26)
Union to nonunion	−0.014	−0.112	−0.096
	(2.89)	(3.11)	(2.67)
Black	−0.043	−0.039	−0.041
	(1.79)	(1.64)	(1.72)
Female	−0.031	−0.024	−0.031
	(2.19)	(1.39)	(2.23)
Full-time to part-time		−0.040	
		(0.87)	
Full-time to part-time × female		−0.099	
		(1.60)	
OCC-index			0.723
			(5.38)
OCC-index × female			−0.031
			(0.15)
Constant	0.034	0.050	0.035
	(1.10)	(1.55)	(1.11)
R^2	0.03	0.04	0.05

Note: t statistics are in parentheses. Indicator variables for the year of labor-market entry and education level are included but not reported here.

ling for either the hours or occupations-transition characteristics.

The results of this estimation are presented in the first column of Table 2. I report here only the combined male–female equation including a female constant term. The equation was also estimated separately for men and women. A test of whether these two equations differed only by a constant could not be rejected, despite differences in some of the coefficients in the separate equations.

After controlling for human-capital, demographic, and labor-market characteristics, a significant portion of the difference in wage growth between men and women remains unexplained. The average male–female difference in log wage growth is 0.046. The characteristics controlled for account for only 33 percent of the difference in average log wage growth, leaving a large percentage unexplained.

Additional differences in the characteristics of the jobs men and women change to may be able to account for some of this "unexplained" differential. To ascertain the effect of movements from full-time to part-time work, I reestimate the log-wage-change equation and include indicator variables for changing from full-time to part-time work and the interaction with being female. I also include indicator variables for changing from part-time to full-time, remaining part-time, and the respective interactions with female. These results are listed in column (ii) of Table 2. There is a decrease in annual wage growth associated with changing from a full-time to a part-time job for both men and women. Women changing from a full-time to a part-time job in this sample experience a decrease in wages of 9.9 percent. This effect is less than half as large for men and is not statistically significant.

How much of the difference in annual average wage growth with job change can be explained by differences in men's and women's changes from full-time to part-time jobs? I break the difference in the average annual wage growth between men and women into two parts, the difference due to changing from full-time to part-time work

and all other factors:

$$
\begin{aligned}
&(\Delta w_t|\text{change})_m - (\Delta w_t|\text{job change})_f \\
&\quad = \Pr(\text{full-to-part})_m \times (\Delta w_t|\text{full-to-part})_m \\
&\qquad - \Pr(\text{full-to-part})_f \times (\Delta w_t|\text{full-to-part})_f \\
&\qquad + \text{all other factors} \\
&0.046 = (0.079)(-0.049) - (0.127)(-0.099) \\
&\qquad + \text{all other factors} \\
&\quad = 0.009.
\end{aligned}
$$

The left-hand side, 0.046, is the difference between men's and women's average annual log wage growth with job changes. The overall intercept shift associated with being female is included in "all other factors." The differences between men and women in total wage growth when changing from a full-time to a part-time job accounts for 19.6 percent of the difference in total wage growth with job change. This comes in part from the fact that women are more likely to make this transition and in part from the larger wage decrease associated with this change for women than for men. While this is a significant percentage of the difference, it leaves a large part of wage-growth differences unexplained.

Differences in occupational changes made when changing jobs may also be a source of differences in wage growth with job change. One way to assess the degree to which men and women receive different returns from occupational changes is to control for individual occupation transitions. However, when using a ten-occupation classification, this means controlling for 99 different transitions, and this may not be as fine a disaggregation as one would like. For example, the transition from service to sales occupations still allows for large differences in the actual job activities within each of these categories that one would like to control for.

In order to control for a much finer occupational transition categorization, I create a one-dimensional index that captures the premium associated with different occupational transitions. Alan B. Krueger and Lawrence H. Summers (1988) show that after controlling for human capital factors, a significant relationship between wages and occupation and industry remains. They label this relation the premium associated with being in a certain occupation or industry. I estimate this premium from a standard wage equation controlling for industry and occupation. I use data from the CPS because the larger sample size allows me to disaggregate occupation more finely. The sample is made up of young men 18–29 years old working more than 30 hours per week to approximate my NLSY sample. I control for 42 different occupational categories.

After estimating the premiums to these occupations, I calculate the change in occupation premium associated with every job change in the NLSY sample. This index is zero for those who did not change occupations when changing jobs. I use this index of change in occupational premium as a control for the type of occupational change made and the wage growth due solely to the occupational change. If men and women were making the same "types" of occupational changes, the index would be similar, and there will be no difference in the relationship of this index to wage growth with job change for men and women. There will not be a difference even if men and women are changing to and from different occupations, if they are moving to occupations that lead to the same change in premium. The average value of the index is 0.0045 for men and 0.0053 for women.

The third column in Table 2 shows the estimation including the occupational index "OCC-index" and the interaction of this index with being female. The results of the estimation show a strong significant relationship between the index and wage growth, as expected. However, the coefficient on the interaction with being female is not statistically significant. After controlling for occupational transitions, the female indicator variable is still significantly negative, −0.031. These results suggest that, even at this relatively disaggregated level of occupational classification, differences in the wage

growth associated with particular occupational transitions made by men and women cannot account for any of the difference in wage growth with job change.

V. Conclusions

This paper began with the fact that young men and women experience different wage growth over the early years of labor-force participation. In the sample of mainly full-time workers studied here, women have on average 19-percent lower annual wage growth than men. Further analysis shows that this difference can be attributed largely to differences in wage growth when changing jobs. Men and women have similar rates of job mobility and wage growth in years without job change. However, women have on average less than 50 percent of the wage growth of men when changing jobs.

Although there are large differences in the characteristics of the jobs men and women change to, hours and occupation differences account for only a limited amount of the difference in wage growth with job change. Changing from full-time to part-time jobs accounts for approximately 20 percent of the difference, while differences in occupational transitions are unable to account for any of the difference in wage growth.

The early labor-market years are a time of rapid wage growth. For young men, job mobility plays a large role in this growth. This paper demonstrates that this is not true for young women. The consequences of this fact may be far-reaching, affecting the lifetime wage profile and labor-market actions of women. It is therefore important to try to understand why these differences exist. This study suggests that differences in job characteristics play only a limited role in this explanation. The source of much of the substantial difference between men and women's wage growth with job changes still remains to be explained.

REFERENCES

Altonji, Joseph G. and Paxson, Christina, "Labor Supply Preferences, Hours Constraints, and Hours–Wage Trade-Offs," *Journal of Labor Economics*, April 1988, *6*, 254–76.

Burdett, Kenneth, "A Theory of Employer Job Search and Quit Rates," *American Economic Review*, March 1978, *68*, 212–20.

Krueger, Alan B. and Summers, Lawrence H., "Efficiency Wages and the Inter-industry Wage Structure," *Econometrica*, March 1988, *56*, 259–93.

Loprest, Pamela J., "Gender Differences in the Labor Market Experiences of Young Workers," Ph.D. dissertation, Massachusetts Institute of Technology, 1992.

Murphy, Kevin M. and Welch, Finis, "Empirical Age–Earnings Profiles," *Journal of Labor Economics*, April 1990, *8*, 202–29.

Polachek, Solomon William, "Occupational Self-Selection: A Human Capital Approach to Sex Differences in Occupational Structure," *Review of Economics and Statistics*, February 1981, *63*, 60–9.

Reskin, Barbara and Hartmann, Heidi, *Women's Work, Men's Work: Sex Segregation on the Job*, Washington, DC: National Academy Press, 1986.

Topel, R. and Ward, M., "Job Mobility and the Careers of Young Men," National Bureau of Economic Research (Cambridge, MA) Working Paper, No. 3294, 1988.

Treiman, Donald and Hartmann, Heidi, *Women, Work, and Wages: Equal Pay for Jobs of Equal Value*, Report of the Committee on Occupational Classification and Analysis, Washington, DC, National Academy Press, 1981.