WHAT IS A PROMOTION?

MICHAEL R. PERGAMIT and JONATHAN R. VEUM*

Using National Longitudinal Survey of Youth data, the authors analyze the determinants and consequences of a promotion among young workers. Most events that workers called "promotions" involved no change in position or duties, but were simply an upgrade of the current position. Typically, only one person was considered for the promotion. Men were more likely to be promoted than women, and whites more likely than blacks or Hispanics. The acquisition of company training and the receipt of a prior promotion were two of the most important predictors of promotion. Consequences of promotion included increased wages, training receipt, supervisory responsibilities, and increased job satisfaction. There is little evidence that promotion had a direct impact on job attachment.

Little is known about the process by which higher-level jobs are filled from within an organization. While there are a number of theories regarding the internal dynamics of the firm, there is scant empirical evidence concerning the employment relationship once an individual has a job. "Success" at a job is usually reduced to a single measure, such as the wage rate or earnings. Employment activities within the firm, such as promotion activity and the consequences of promotion, typically are unmeasured, and hence ignored.

Past empirical studies of firms' internal workings have primarily used data from individual firms or occupations. The primary advantage of examining a single firm or occupation is that the definition of a promotion tends to be clear. For example, most people understand what it means to become partner at a law firm or to receive tenure at a university. At other types of jobs, however, what it means to be promoted is not so clear. Also, results from analyzing a single firm or occupation typically are not generalizable, since the findings are not representative of the labor market as a whole. One exception is a recent study by McCue (1996), who used nationally representative household data from the Panel Study of Income Dynamics (PSID) to examine the impact of promotions on wage growth.

*Michael Pergamit is Research Vice President for Economic Studies at the National Opinion Research Center, and Jonathan Veum is Senior Economist with Freddie Mac. The authors thank Stephen Bronars, Mary Joyce, and Caroline Ratcliffe for helpful comments and Alexander Eidelman for excellent research assistance.

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In this study we examine the nature, causes, and consequences of mobility within the firm among a representative group of private sector workers. Data from the National Longitudinal Survey of Youth (NLSY) are used to analyze the promotion process and to estimate the impact of a promotion on wages, job attachment, and other labor market outcomes. The primary data used here are generated from responses to a set of questions asked of respondents in 1990 about promotion receipt and the characteristics of the promotion. The data provide a variety of measures of promotion, which give insight into the "meaning" of a promotion among individuals who work in different firms and occupations.

Unlike surveys of individual firms or of narrowly defined occupations, the NLSY does not provide sufficient detail to identify the level of job within the company or the nature of the job beyond a three-digit occupational classification. Our analysis makes use of the small amount of information in the NLSY that presumably reflects the degree of hierarchy within the firm, such as firm size and whether or not the person supervises other employees. Any large, general purpose, household data set is bound to have limitations, but findings from analysis of a broad array of occupations, types of workers, and types of firms should usefully complement the results from prior studies of individual firms and occupations.

In addition, this study provides insights different from those of the previous work by McCue, primarily for two reasons. First, in the PSID, only a single measure of upward mobility within the firm, or promotion, is available. The NLSY data used here allow for an examination of a variety of measures of promotion. Second, the sequence of questions in the PSID only allows for those individuals who underwent a "position change" to be asked whether they received a promotion. As will be seen in this analysis, most events workers label "promotions" do not involve any change in job or position, but are simply official upgrades of their current position or other formal amendments that leave their job duties undisturbed. Hence, limiting promotions to be a subcategory of "position changes" results in severe underestimation of the extent to which workers report being promoted.

Background

For most workers, conditions of employment such as wages, benefits, and work environment are extremely important aspects of a job. Also of importance is an individual's rank or position within an organization. For instance, in many firms there exists a well-established hierarchy in which advancement takes the form of promotions to higher-level jobs, a pattern that is often considered part of the organization's "structure." Promotions may be used to motivate workers, particularly by companies in which direct supervision of workers is difficult. A promotion may also be a reward that results both in advancement within the firm and greater responsibility.

There is a growing theoretical literature within economics on the internal organizations of firms (see Gibbons 1996 for a summary). For example, Lazear and Rosen (1981) and Rosen (1986) modeled promotion activity within the firm as a tournament. A promotion is the "prize," and the probability of winning it is a function of productivity. The winner of the prize receives the salary, benefits, and prestige associated with the higher position. Since each group of new hires knows that not all will be promoted, the probability of promotion serves as an incentive to work hard.

Lazear and Rosen (1990) presented another model of the promotion process in which the receipt of promotions and training is based on the individual's revealed ability at the job. While men and women are assumed to have similar labor market abilities, women are assumed to have greater nonmarket abilities and opportunities, and consequently they are more likely than men to depart the firm. Since job leaving among those promoted imposes a cost on the firm, the employer will have a higher promotion

standard for women and be less likely to promote women than men.

Other models deal with the method by which workers are assigned to particular jobs (Sattinger 1993). Recent related research emphasizes that task assignment may also serve to make the firm's knowledge about the worker available to the public. A promotion may reveal to competing firms, which naturally have less information about that worker than does the employing firm, that the worker is of high ability and may be worth hiring (Waldman 1984; Bernhardt and Scoones 1993). Wage increases are often associated with promotions, and the magnitude of the wage increase may either encourage other firms to compete for that worker or discourage them from doing so.

It may also be true that a promotion is a consequence of human capital investment or reflects a good job match. The human capital model suggests that workers often receive training specific to a particular job, which makes them more valuable to the employer providing the training (Becker 1964; Mincer 1974). Carmichael (1983) showed that a promotion ladder, whereby jobs are assigned by seniority and wages are attached to jobs, can lead to human capital investment and to efficient turnover behavior. Job match theory indicates that information about the quality of a job match reveals itself over time (Jovanovic 1979). A promotion may simply be the firm's optimal response after learning about a worker's productivity.

These conceptual and theoretical models of the promotion process are not mutually exclusive, and it is difficult to test among them. Many of these models were conceived with the goal of being consistent with the facts concerning promotions, wages, and the internal workings of firms. Yet the empirical evidence on internal mobility is scarce, and to date few studies have examined representative groups of private sector workers. Also, for the most part, these models often label a generic movement within the firm as a "promotion," when in fact there is virtually no evidence as to what a typical worker considers to be a "promotion."

Still, these approaches generate questions that give hints as to which framework may be the most plausible. For instance, is upward mobility more a function of readily observable characteristics, such as education, or of characteristics that are more difficult to observe, such as ability? Are there gender or race differences in promotion? Does training lead to promotion? Do promotions lead to improvements in wages or other conditions of employment? Do promotions have any impact on job attachment?

Past empirical studies primarily use data from individual firms or occupations and provide very inconsistent results as to who is promoted (Baker, Gibbs, and Holmstrom 1994; Broder 1993; Hersch and Viscusi 1996; Laband and Lentz 1993; Spurr and Sueyoshi 1994). The evidence is somewhat more consistent regarding the impact of promotions on wages, as most studies find that promotions and wage growth are positively correlated. Still, the estimated wage impact differs widely across studies. For instance, Olsen and Becker (1983), using a small sample of private sector workers at one firm from 1973 to 1977, found that those who were promoted experienced about a 30% greater rate of wage growth than those who were not promoted. McCue (1996), using data from the PSID for 1976–88, estimated that promotions accounted for 9–19% of life cycle wage growth. Hence, there is a great deal of uncertainty about internal labor markets, promotion activity, and the consequences of promotion among private sector workers.

Data and Variables

Data from the National Longitudinal Survey of Youth (NLSY) provide an opportunity to analyze the determinants of job advancement and the effect of internal mobility on labor market outcomes. The NLSY is a sample of approximately 10,000 young men and women who were between the ages of 14 and 22 in 1979 and who have been interviewed regularly since that year.[1]

[1]Included are oversamples of blacks and Hispanics.

In the 1988 and 1989 surveys, respondents were asked a single question concerning whether or not they were promoted within the past year. In 1990, individuals were asked a more detailed set of questions concerning the type and consequences of any promotion received on the current job within the past year. The responses to these questions are the key variables of interest in this study.

In particular, along with being asked if they were promoted, in 1990 individuals were asked to classify the promotion into one of eight categories, such as "took over an old supervisor's job," "chosen to fill a newly created position," or "received a promotion due to a reorganization." In addition, respondents were asked about some of the consequences of a promotion, such as whether it led to a wage increase or an increase in job responsibilities, or whether another promotion was possible at the current job.

In order to limit differences in promotion activity or turnover that may be simply due to differences in labor supply, the primary sample used here is restricted to those individuals who were working 30 or more hours per week at the 1989 and 1990 interview dates.[2] Since government workers, particularly younger ones, may be more apt to have "automatic" promotions, such as step or grade increases in the General Schedule, the sample is limited to private-sector workers who are not self-employed.[3] Excluding those with missing information on most variables used in the analysis results in a sample of 3,355 young men and women who were age 25 to 33 in 1990. These relatively young workers are at a stage in their working lives in which human capital investments and promotion activity likely occur often and play an important role in career advancement.

To examine the determinants of promotion, we estimate a probit equation on whether a promotion was received within the past year.[4] To determine the impact of promotions on wage growth, first-differenced fixed effect wage equations are estimated. We also estimate the impact of a promotion on other outcomes, such as earnings structure, training receipt, and supervisory responsibilities, through a series of first-differenced equations. In addition, the effect of a promotion on subsequent job tenure is estimated through a Cox proportional hazard model.

In the promotion receipt and hazard models, variables used in the estimations include individual characteristics such as gender, race, education, tenure, experience, firm size, region, the local unemployment rate, union status, occupation, and industry.[5] In order to capture the impact of nonmarket opportunities on the likelihood of promotion and on turnover, variables representing marital status, the number of children, and the presence of a child age 6 or less in the household are also included

[2]This restriction minimizes any effects due to a promotion associated with moving from part-time to full-time employment. If full-time jobs involve greater monetary compensation than part-time jobs, imposing this restriction may result in an under-estimate of the consequences of promotion.

[3]In the NLSY (and the Current Population Survey), all individuals are placed in a "class of worker" category. Individuals included in the sample used here are in the category "works for a private company or an individual for wages, salary, or commission."

[4]Since workers were asked about promotion in the 1988, 1989, and 1990 surveys, promotion receipt could also be modeled by a discrete time hazard model over these three years. The primary focus throughout the paper, however, is on the more detailed promotion information that is available only in 1990. Consequently, we use a probit model to estimate promotion receipt for 1989–90.

[5]The occupational categories and the percentage in each are professional and technical (15.0); managers (14.5); sales (5.0); clerical (18.1); craftsmen (17.4); operatives (14.2); laborers and farmers (6.3) (omitted); and service workers including private household (9.5). The industrial categories are agriculture, forestry, fisheries, and mining (3.1); construction (7.3); manufacturing (28.4) (omitted); transportation, communication, and public utilities (7.3); wholesale and retail trade (19.4); finance, insurance, and real estate (8.5); business and repair services (7.7); personal services and entertainment (3.9); and professional and related services (14.4).

Table 1. Percent Promoted, 1989–90.

Description	*All*	*Men*	*Women*
Percent Promoted	24.23	24.69	23.56
Among Those Promoted, Percent Who:			
Had a Position Upgrade	26.45	27.48	24.84
Took Over Old Supervisor's Job	8.12	8.49	7.55
Were Promoted to a Higher Level Job in a Different Section	14.27	13.74	15.09
Were Chosen to Fill a Newly Created Position with Greater Responsibilities	9.59	8.49	11.32
Were Promoted Following a Reorganization	5.54	5.66	5.35
Received a Promotion but Continued to Perform Basically the Same Duties as Before	30.50	30.51	30.50
Made a Lateral Move to a Different Section	2.33	2.22	2.52
Other	3.20	3.43	2.83
Sample Size	3,355	2,005	1,350

Source: National Longitudinal Survey of Youth.

in the estimations. The event history format of the NLSY, in which the beginning and ending dates of important events are collected, allows for precise measures of tenure on the current job and total work experience.

Two additional variables we include that may be particularly important in determining promotion receipt are measures of individual ability and company training. It may be true that firms are more willing to promote workers of high ability. An individual's score on the Armed Forces Qualifying Test (AFQT), which is a primary criterion for enlistment in the Armed Forces, is taken to be a measure of ability.[6] Also, data on job training received by respondents are available in the NLSY, and since company training may lead to promotion, a measure of company training receipt is used. In order to minimize the impact of the endogeneity of training (since training may be a consequence of a promotion), the training variable reflects training received in the period from 1988 to 1989, that is, training received in the year prior to the promotion.

[6]The AFQT was administered to all respondents in 1980. The score used in the estimations is the percentile ranking of the score based on the respondent's age when the test was taken.

Promotion Type and Promotion Receipt

Table 1 presents information on the percentage of individuals who received a promotion between 1989 and 1990. Also presented is a breakdown of promotion receipt by eight different categories: given a position upgrade; took over old supervisor's job; promoted to a higher-level job in a different section; chosen to fill a newly created position with greater responsibilities; promoted following a reorganization; received promotion but continued to perform the same duties as before; made a lateral move to a different section; and other.

The data indicate that between 1989 and 1990, about 24% of the sample received a promotion at their current job. By comparison, about 23% of the sample changed jobs between 1989 and 1990. Hence, among these workers, the prevalence of mobility within a firm was very similar to that of mobility across firms.

The breakdown of promotion receipt by the different categories indicates that for most people a promotion meant no change of position, although the nature of the position may have changed somewhat. In particular, approximately 30% of those who received a promotion essentially performed the same duties as before, and another 26%

Table 2. Characteristics of a Promotion among Those Promoted (in Percent).

Characteristic	*All*	*Men*	*Women*
Promotion Led to a Wage Increase	89.18	89.29	88.99
Promotion Led to an Increase in Job Responsibilities[a]	85.49	83.43	88.69
Other People Were Considered for the Promotion	32.96	34.75	30.19
Another Promotion Is Possible at Current Job	86.84	87.07	86.48
Sample Size	813	495	318

[a]Those who reported "received promotion but continued to perform basically the same duties" were not asked if their responsibilities increased as a result of the promotion. These individuals were excluded from the base when computing the percentage who experienced an increase in job responsibilities.

remained in the same position but experienced a "position upgrade."

The other types of promotion, which involved actual changes in the current position, were far less common. About 14% of the sample were promoted to a higher-level job in a different section, nearly 10% were chosen to fill a newly created position with greater responsibilities, and about 8% took over their old supervisor's job. Only about 6% received a promotion due to a reorganization, and about 2% labeled a lateral move to a different section as a promotion.

It is difficult to compare these promotion percentages to results of prior research, given the dearth of information. The overall promotion percentage is substantially higher than that reported by McCue (1996), who found that 3–5% of workers (age 20–60) were promoted annually. Two reasons may account for these differences. First, in the data set used by McCue, only those who underwent a position change were asked if they were promoted. The categories of promotion used here indicate that most promotions do not involve a position change: if an actual position change were required for a promotion, only about 10% of the sample would be considered "promoted." Second, in contrast with McCue's sample, which included individuals over a fairly wide age range, the workers in our sample were all young and at a stage in their careers when they may have been particularly likely to experience promotions.

At the 1990 interview, respondents who were promoted at their current job were asked a number of questions regarding the nature of the promotion. These questions included whether the promotion led to a wage increase; whether it led to an increase in job responsibilities; whether other people were considered for the promotion; and whether another promotion was possible at the current job. Table 2 presents information regarding these characteristics of a promotion for those who experienced a promotion.

About 89% of workers who were promoted within the past year reported that the promotion led to a wage increase. Similarly, about 85% experienced an increase in job responsibilities due to a promotion.[7] Most of these workers were not at the top of the job ladder, as over 86% reported that another promotion was possible at their current job.

Only about a third of those promoted said that other people were considered for the promotion. Hence, about two-thirds of those promoted apparently did not "compete" with others for the promotion. This is probably related to the fact that respondents labeled most promotions as simply a "position upgrade" or "performing the same duties as before." While it may not be true

[7]Individuals who reported "received promotion but continued to perform basically the same duties as before" were not asked if their job responsibilities increased due to the promotion. These individuals were excluded from the denominator when calculating this percentage. If they are included in the base and if it is assumed that they did not experience any increase in job responsibilities, the figure is 59%.

that most promotions were automatic, the recipients of most promotions remained in the same position and were the sole candidates for the promotion. The promotions observed in the NLSY may mostly represent relatively small or intermediate internal movements that did not involve large changes in tasks or job titles. This is not uncommon. For example, Kilborn (1990) reported, "In Monsanto's information services department, made up mostly of computer experts, people can climb from being a technologist to a senior technologist to a distinguished technologist" (p. D6).

Table 3 presents results from estimating a probit equation on the receipt of a promotion between 1989 and 1990. The reported coefficients are the derivative of the probability with respect to a one-unit change in the particular variable, where the derivatives are evaluated as the sample means of the independent variables. The estimates from specification (1) indicate that women were about 4 percentage points less likely than men to receive a promotion, while blacks and Hispanics were, respectively, about 7 and 5 percentage points less likely than whites to be promoted.[8] It is unclear whether these results indicate barriers to advancement for women and minorities, since narrow definitions of job type or job level are not directly controlled for here. Also, these differentials may reflect the nature of jobs in which women and minorities are employed rather than the behavior of employers. Yet, since most individuals are not at the top of the job ladder, or are not in "dead-end" jobs, these findings suggest that such barriers to advancement exist.

The results on the other variables indicate that job tenure, company training, firm size, and union status were significantly related to promotion receipt.[9] The effect of job tenure and company training on promotion likelihood suggests that the acquisition of job-specific skills resulted in promotion. Unionized workers were less likely to be promoted than were nonunionized workers, and firm size was positively related to internal mobility. Unionism may negatively affect promotion because unionized firms are more likely to base promotion on seniority than are nonunionized firms (Abraham and Medoff 1985). Given that the sample is comprised of relatively young workers, seniority rules may have hampered the promotion prospects of those who were unionized. The positive impact of firm size on promotion likely reflects the availability of greater opportunities for upward mobility at larger workplaces (Idson 1989).

Since detailed information on promotion is not available prior to the 1990 interview, there is a potential initial conditions problem when we examine promotion receipt among workers in 1990. To address this problem, a variable representing the receipt of a promotion in the prior year is included in the analysis. As suggested by Heckman and Robb (1985), the inclusion of a lagged dependent variable, such as the receipt of prior promotion, is likely to account for unobservable characteristics that influence the likelihood of promotion receipt.

In specification (2), when the receipt of prior promotion is included as an additional regressor, the results indicate a high degree of correlation between past and current promotion probabilities. A future promotion was nearly 18 percentage points more likely for individuals who had already been promoted at least once than it was for those who had not yet been promoted. Two interpretations are suggested by this result. First, the past promotion variable may capture unobserved motivation or ambition and reflect the fact that certain people move upward through the firm's internal hierarchy at a much faster rate than others. Second, this variable may also reflect characteristics of the job, as well as the fact that some firms have well-defined and numerous promotion steps while others have more ambiguously structured and less frequent

[8]The Hispanic coefficient is marginally significant at the .11 level.

[9]The tenure variables are jointly statistically significant ($\chi^2 = 21.83$, Prob > $\chi^2 = .00$).

Table 3. Determinants of Promotion Receipt.
(Absolute Values of t-Statistics in Parentheses)

Variable	*Mean*	*(1) All*	*(2) All*	*(3) Men*	*(4) Women*
Female[a]	.40	−4.20*	−3.86*		
		(1.83)	(1.66)		
Black[a]	.26	−7.17**	−7.35**	−1.71**	−5.30
		(2.62)	(2.66)	(2.20)	(1.17)
Hispanic[a]	.18	−4.57	−4.69	−10.12**	3.36
		(1.60)	(1.63)	(2.74)	(.73)
Education	12.99	−.01	−.04	.18	−.16
		(.01)	(.07)	(.23)	(.15)
Armed Forces Qualifying Test Percentile	43.02	−.07	−.07	−.07	−.07
		(1.35)	(1.33)	(1.11)	(.80)
Tenure (in Weeks)	201.87	.03	−.01	.03	.03
		(1.61)	(.13)	(1.17)	(1.07)
Tenure Squared × 10^{-3}	71.64	−.10**	−.05	−.10**	−.09*
		(3.08)	(.87)	(2.55)	(1.72)
Prior Experience (in Weeks)	310.57	−.01	.01	.01	−.01
		(.04)	(.21)	(.20)	(.25)
Experience Squared × 10^{-3}	124.37	−.01	.01	−.03	.02
		(.18)	(.01)	(.75)	(.44)
Received Company Training 1988–89 at Current Job	.10	10.88**	8.95**	6.36	17.64**
		(3.53)	(2.87)	(1.56)	(3.67)
Firm > 1000 Employees[a]	.40	7.04**	6.71**	8.56**	5.31
		(3.34)	(3.16)	(3.10)	(1.59)
Union Member[a]	.16	−5.90**	−5.30*	−7.19**	−4.30
		(1.97)	(1.75)	(2.02)	(.76)
Reside in SMSA[a]	.80	−3.10	−2.42	−2.98	−3.21
		(1.18)	(.91)	(.89)	(.74)
Local Unemployment Rate	5.53	−.09	−.05	.09	−4.62
		(.16)	(.09)	(.13)	(.49)
Married[a]	.53	−.03	−.36	2.97	−4.56
		(.15)	(.16)	(.9)	(1.37)
Number of Children	.87	−.95	−.95	−.52	−1.06
		(.74)	(.74)	(.29)	(.53)
Child Less Than Age 6 in Household[a]	.34	2.59	2.80	.58	3.80
		(.94)	(I.01)	(.15)	(.91)
Promoted 1988–89 at Current Job[a]	.20		17.86**		
			(7.45)		
Log-Likelihood		−1,789.9	−1,762.4	−1,077.7	−699.0
Sample Size		3,355	3,355	2,005	1,350

Notes: The coefficients are normalized to represent the derivative of the probability of the outcome with respect to a change in the explanatory variable. This is computed as $\hat{\beta}\phi(\bar{X}\hat{\beta})$ where $\hat{\beta}$ is the vector of estimated parameters of the probit model, $\bar{X}$ is the vector of means of the explanatory variables, and ϕ is the standard normal probability density function. The normalized coefficients are multiplied by 100. All equations include industry and occupation dummy variables.

[a]Refers to dummy variable.

*Statistically significant at the .10 level; **at the .05 level (two-tailed tests).

promotions.

It is also of interest to note that in the prior year approximately twice as many workers were promoted (20%) as were

Table 4. Gender/Race Coefficients from Promotion Receipt Probits, by Type of Promotion. (Absolute Value of t-Statistics in Parentheses)

Variable	*Position Upgrade*	*Supervisor's Job*	*Higher-Level Job*	*New Position*	*Reorganization*	*Same Duties*	*Lateral Move*	*Other*
Female	−4.24	−2.67	.52	3.42	2.86	−1.06	1.86	−6.00
	(1.49)	(.62)	(.15)	(.87)	(.57)	(.39)	(.26)	(.94)
Black	−3.75	4.35	1.54	−10.98*	−24.82**	−4.96	−7.10	−15.95*
	(1.00)	(.74)	(.33)	(1.89)	(2.73)	(1.32)	(.73)	(1.72)
Hispanic	−3.39	3.62	1.83	1.65	−5.39	−4.75	−11.20	−7.80
	(.84)	(.61)	(.38)	(.30)	(.76)	(1.19)	(.99)	(.87)
Log-Likelihood	−790.3	−314.4	−498.7	−360.5	−221.4	−855.0	−108.5	−142.1

Notes: The coefficients are normalized to represent the derivative of the probability of the outcome with respect to a change in the explanatory variable. This is computed as $\hat{\beta}\phi(\bar{X}\hat{\beta})$ where $\hat{\beta}$ is the vector of estimated parameters of the probit model, $\bar{X}$ is the vector of means of the explanatory variables, and ϕ is the standard normal probability density function. The normalized coefficients are multiplied by 100. All equations include industry and occupation dummy variables. The other independent variables included are the same as specification (1) in Table 3. The sample size for all equations is 3,355.

*Statistically significant at the .10 level; **at the .05 level (two-tailed tests).

trained (10%).[10] It should be mentioned that the company training measure captures participation in formal company training programs and not the acquisition of informal training. Hence, the promotion measure could reflect increases in skills or productivity that are not captured by the company training variable.

Results from the promotion probits estimated separately by gender presented in specifications (3) and (4) indicate that the black and Hispanic differentials in promotion receipt occurred only among men. The negative impact of union status on promotion also appears to have been strongest among men. This result may suggest that the seniority-based promotion process played a larger role for unionized men than for unionized women. Conversely, training appears to have been more important in enhancing the promotion likelihood of women, implying that training may be a particularly effective mechanism for reducing labor market differentials between men and women.[11]

Table 4 presents results for the gender/race coefficients when separate probit equations are estimated for each of the promotion measures described in Table 1.[12] The estimates indicate no significant differences for women or Hispanics. Blacks, however, were less likely than whites to fill a newly created position, to experience a promotion due to a reorganization, or to receive a promotion in the "other" category. Similar to the other gender/race findings, these results may reflect differences in types of jobs held, differences in job levels, or different treatment from employers. Regard-

[10]While training and promotion are interrelated, only 3.4% of the sample received both company training and a promotion in 1989. 16.1% were promoted but not trained; 6.7% were trained but not promoted.

[11]A likelihood ratio test cannot reject the null hypothesis that the coefficients are the same for men and women ($\chi^2 = 32.17$, Prob > $\chi^2 = .58$). When a more restricted set of independent variables is used in the promotion receipt equation (black, Hispanic, tenure, tenure squared, company training, firm size, and union status), the null hypothesis is nearly rejected at conventional levels ($\chi^2 = 11.59$, Prob > $\chi^2 = .11$).

[12]Alternatively, a multinomial choice model such as a multinomial logit or probit could be estimated for these promotion measures. Since the primary objective in this instance is data description rather than estimation of a structural model, the ease of interpretation of the probit estimates makes them preferable to these alternatives.

less of the source, the findings on promotion receipt, taken together, suggest that gender and race differences persist even after we control for a fairly rich set of explanatory variables.

The Consequences of Promotion

What are the consequences of a promotion? It may serve as a method to enhance wages and simply be a mechanism by which workers move along their wage-tenure profiles. Yet, not all wage increases are necessarily promotions, so there must be something about a promotion that differentiates it from a wage gain.[13] Also, a promotion may have an impact on other aspects of the job, such as the structure of earnings, training receipt, and supervisory responsibility. In addition, a promotion may be a mechanism used by firms to increase job attachment.

Wage Returns

In order to examine the impact of a promotion on wage growth, we estimate a first-differenced wage equation in which the dependent variable is the change in log wages between 1989 and 1990, or essentially the difference in wages before and after a possible promotion.[14] The differencing procedure eliminates the effect of any heterogeneity bias due to unobserved factors if it is assumed that the selection process varies only across individuals and not over time for the individual. The effects of the time-invariant factors cannot, of course, be estimated using the first differences technique; in order to compare the returns to promotion to the returns to changing jobs, a job change dummy variable is the other key independent variable included as a regressor. It is important to mention that since the promotion variable refers to promotions received at the current job at the 1990 interview date, the job change variable reflects any change in employers from 1989 to 1990 prior to promotion receipt.

Table 5 presents results from estimating first-differenced wage equations. In specification (1), the estimate on the promotion variable indicates that a promotion increased wages by about 8% between years. Also, there appears to have been no immediate wage gain from changing jobs for these workers. This finding for job change differs from Topel and Ward's (1992) results, which suggested that job change was positively related to contemporaneous wage growth. That earlier study, however, primarily analyzed individuals as they entered the work force (starting at age 18). Our finding that wage growth had no positive impact on job change may also be partially due to business cycle factors, as 1989–90 was the beginning of a recessionary period.[15]

Specification (2) includes variables reflecting voluntary and involuntary transitions between jobs rather than a single job change variable, and the estimates indicate that voluntary job changes, or quits, increased wage growth by about 3%, whereas involuntary job changes, or layoffs, reduced wage growth by about 8%.[16] Given that about 24% of the sample were promoted from 1989 to 1990, while about 18% quit jobs and about 5% were laid off, these estimates imply that mobility within the firm played a larger role than mobility between firms in the wage growth of these workers.

[13]About 29% of those who experienced a real wage gain from 1989 to 1990 reported being promoted.

[14]Respondents could report earnings over any time frame (hour, day, month, etc.). For those who did not report an hourly wage, one is constructed using usual hours worked over the time frame. The CPI-U is used to convert all wages to 1990 dollars. The 1990 mean wage is $10.51, and the mean wage difference between 1989 and 1990 is $0.40.

[15]The national unemployment rate increased from 5.3% in 1989 to 5.6% in 1990 (U.S. Bureau of Labor Statistics 1998).

[16]"Quits" include all voluntary separations, such as those due to job search, pregnancy, or other reasons. Involuntary separations contained in the "layoff" category include plant closings, the end of temporary or seasonal jobs, and firings.

Table 5. Promotions and Wage Growth.
(Absolute Value of t-Statistics in Parentheses)

Indep. Var.	*(1)* *All*[a]	*(2)* *All*[a]	*(3)* *All*[a]	*(4)* *All—Position Change*[a,c]	*(5)* *Men*[a]	*(6)* *Women*[a]	*(7)* *All*[b]	*(8)* *All*[b]
Promotion 1989–90	8.10** (7.02)	8.07** (7.01)	7.94** (6.89)	6.61** (5.11)	8.65** (5.69)	7.15** (4.07)	11.65** (6.62)	10.28** (4.61)
Education			.89** (3.18)					
AFQT			−.03 (1.54)					
Job Change 1989–90	.62 (.52)							
Quit 1989–90		2.80** (2.18)	2.70** (2.10)	2.59** (2.01)	3.11* (1.82)	2.28 (1.19)	6.21** (3.07)	6.27** (3.09)
Layoff 1989–90		−8.01** (3.41)	−7.91** (3.57)	−8.38** (3.56)	−6.67** (2.27)	−10.78** (2.71)	−.23 (.06)	−.15 (.04)
Quit 1990–96							1.84 (1.08)	.92 (.48)
Layoff 1990–96							−14.08** (6.61)	−14.07** (6.61)
Promotion * Quit 1990–96								3.63 (1 .00)
Constant	1.99** (3.12)	2.00** (3.14)	−8.07** (2.52)	2.83** (4.61)	1.58* (1.87)	2.63** (2.74)	12.04** (9.76)	12.36** (9.70)
$\bar{R}^2$	.01	.02	.02	.01	.02	.02	.04	.04
Sample Size	3,355	3,355	3,355	3,355	2,005	1,350	2,829	2,829

Note: All coefficients are multiplied by 100.

[a]The dependent variable is the natural log of the 1990 hourly wage minus the natural log of the 1989 hourly wage.

[b]The dependent vatiable is the natural log of the 1996 hourly wage minus the natural log of the 1989 hourly wage.

[c]The promotion measure excludes the categories "position upgrade" and "received promotion but continued to perform basically the same duties as before."

*Statistically significant at the .10 level; **at the .05 level (two–tailed tests).

In order to control for possible heterogeneity in wage growth that may be due to differences in initial endowments of ability, we include the education and AFQT percentile variables as additional regressors in specification (3). Although education was a significant determinant of wage growth, the promotion estimate is changed very little by the inclusion of these additional regressors. Consequently, the promotion measure appears to reflect changes in productivity that are above and beyond individual differences in ability or education.

To provide a promotion estimate more comparable to that of McCue (1996), in specification (4) we use a modified promotion variable that includes only promotions that might be considered "position changes" (promotions in the "position upgrade" and "same duties" categories are excluded). The return to "position change" forms of promotions is just under 7%, or slightly smaller than the return for all forms of promotions. This result implies that the more "passive" forms of promotion that did not involve a position change may have been a way in which employers provided incentives to workers and increased their salaries without changing the nature of their jobs.

This result, along with the findings on promotion receipt, suggests that requiring a "position change" for a promotion may understate both the incidence and returns to promotion.

Specifications (5) and (6) present estimates of first-differenced wage regressions stratified by gender. The estimates indicate that men experienced wage gains of about 9% due to a promotion, while women gained about 7%. The gender differences in the wage returns to the promotion are not statistically significant, however.[17] Voluntary job change was positively related to wage growth for men, but not for women. This result is similar to that of Loprest (1992), who found that job change was an important determinant of wage growth for young men, but not for young women.

In order to examine the longer-term wage gains to promotion, specification (7) presents results from a first-differenced wage equation in which the dependent variable is the difference between the 1996 and the 1989 log wage for those working at a full-time job in 1996.[18] Along with the variables reflecting job change from 1989 to 1990, also included in specification (7) are variables reflecting whether the worker changed jobs voluntarily or involuntarily from 1990 to 1996, or after the possible receipt of a promotion from 1989 to 1990. The estimate for the promotion coefficient indicates that wage growth was approximately 12%, suggesting that the gains to promotion increased in the years following the promotion. Interestingly, a voluntary job change between 1989 and 1990 increased wage growth by about 7% by 1996, whereas the negative impact of a layoff from 1989 to 1990 diminished by 1996. Conversely, subsequent quits from 1990 to 1996 were unrelated to 1996 wage growth, while layoffs over that time span were associated with a large (about 14%) reduction in wage growth. These results may suggest that as workers age, the returns to quits diminish and the wage costs to layoffs increase. These findings may also be a consequence of business cycle factors in the early 1990s that reduced the wage returns to quits and exacerbated the negative wage effects of layoffs.

Specification (8) is similar to specification (7) but also includes an interaction term between promotion and whether the worker quit the 1990 job by 1996. This interaction term is included to test the hypothesis that a promotion signals the value of the worker to other firms, leading them to bid for the worker's services (Waldman 1984; Bernhardt and Scoones 1993). While the estimate on the coefficient is positive, it is not statistically significant, and thus lends little support to the signaling hypothesis.

Table 6 presents estimates of the impact of a promotion on wage growth when various types of promotion, as presented in Table 1, are included as independent variables, as opposed to the single promotion measure. In addition, since the findings in Table 2 indicate that a minority of those promoted competed with others for a promotion, we present results from specifications in which the promotion variable is divided into categories based on the competitive/noncompetitive nature of the promotion.

The results on promotion type in column (1) indicate that five of the eight forms of promotion had a statistically significant positive impact on wage growth, ranging from about 7% to 12%. A promotion associated with a reorganization increased wages by about 12%, which is more

[17] $F = .11$, Prob > F = .74. Using the estimates that are stratified by gender in Table 3 and Table 5, if women were treated similarly to men in promotion receipt (if they had the male promotion receipt coefficients), their wage growth would increase by about 10% (or by about 4 cents). If women were treated similarly to men in wage growth (if they had the male wage growth coefficients), however, wage growth would be reduced by about 10% (men experienced lower wage growth than women). Hence, if women were treated similarly to men in both promotion receipt and wage growth, there would be no net change in their wages, on average.

[18] The most recent NLSY data available at the time of this analysis were from the 1996 survey. Individuals were not necessarily employed at the same job in 1996 as in 1990.

Table 6. Promotion Coefficients from First–Differenced Wage Regressions. (Absolute Value of t–Statistics in Parentheses)

Indep. Var.	*(1)* *All*[a]	*(2)* *All*[b]	*(3)* *Men*[a]	*(4)* *Men*[b]	*(5)* *Women*[a]	*(6)* *Women*[b]
Promotion Type						
Position Upgrade	10.10**	8.93**	10.09**	9.25**	10.21**	8.64*
	(4.97)	(2.84)	(3.83)	(2.35)	(3.20)	(1.65)
Supervisor's Job	9.69**	6.44	9.70**	8.57	9.71*	2.27
	(2.72)	(1.18)	(2.11)	(1.25)	(1.72)	(.25)
Higher-Level Job	8.27**	11.85**	12.03**	15.36**	2.91	6.44
	(3.05)	(2.84)	(3.30)	(2.83)	(.72)	(.99)
New Position	4.72	16.64**	8.38*	32.58**	.29	−5.36
	(1.44)	(3.32)	(1.82)	(4.80)	(.06)	(.74)
Reorganization	11.82**	20.92**	12.79**	16.85*	10.32	29.20**
	(2.75)	(3.02)	(2.28)	(1.92)	(1.54)	(2.61)
Same Duties	7.09**	13.08**	6.33**	14.18**	8.29**	11.21**
	(3.73)	(4.52)	(2.52)	(3.79)	(2.86)	(2.46)
Lateral Move	−3.18	11.35	−9.78	8.43	5.78	15.95
	(.48)	(1.21)	(1.10)	(.67)	(.60)	(1.16)
Other	8.20	5.10	8.11	−2.94	8.25	16.80
	(1.46)	(.61)	(1.13)	(.27)	(.90)	(1.30)
Competitive/Noncompetitive						
Competitive	5.20**	16.02**	6.74**	18.18**	2.49	11.30**
	(2.83)	(5.67)	(2.85)	(5.12)	(.85)	(2.40)
Noncompetitive	9.53**	9.61**	9.71**	11.07**	9.24**	6.65**
	(7.05)	(4.63)	(5.37)	(4.10)	(4.50)	(2.07)
Sample Size	3,355	2,829	2,005	1,764	1,350	1,065

Notes: The numbers reported in the table are the estimated promotion coefficients from regressions in which the dependent variable is the change in the natural log of hourly wages. All equations also include variables representing job change over time. All coefficients are multiplied by 100.

[a]The dependent variable is the natural log of the 1990 hourly wage minus the natural log of the 1989 hourly wage.

[b]The dependent variable is the natural log of the 1996 hourly wage minus the natural log of the 1989 hourly wage.

*Statistically significant at the .10 level; **at the .05 level (two–tailed tests).

than any other form of promotion. A promotion that involved performing the same duties as before raised wages by about 7%, which is the smallest effect among the forms of promotion that were significantly related to wage growth. Lateral moves that workers labeled as a promotion were unrelated to wage growth.

The results in column (2), in which the change in wages from 1989 to 1996 is used as the dependent variable, indicate that some forms of promotion were associated with greater long-run gains, while the impact of others declined over time. Specifically, while accepting a newly created position was unrelated to immediate wage gains, it had a large impact on long-term wage growth. In contrast, taking over a supervisor's job was correlated with short-term wage improvements, but in the long term this type of promotion was unrelated to wage growth.

Columns (3)–(6) present estimates from specifications stratified by gender. The results indicate that there were substantial gender differences in the returns to promotion by promotion type. For instance, in both the short term and the long term, men

experienced statistically significant returns to taking a higher-level job in a different section and to filling a newly created position, while women did not.

When the promotion variable is divided into competitive/noncompetitive categories, the estimates reveal that noncompetitive promotions resulted in greater wage gains than did competitive promotions in the short run. In particular, the findings in column (1) indicate that noncompetitive promotions had nearly twice the impact on wage gains (nearly 10%) as did competitive promotions (approximately 5%). The long-term wage growth estimates in column (2) indicate, however, that the return to a competitive promotion increased substantially over time, as the return was over 16% by 1996, whereas the return to a noncompetitive promotion remained at around 10%.

These differences between the returns to competitive and noncompetitive promotions suggest that a competitive promotion may move workers to a new career track that does not result in a large immediate wage increase, but has longer-term wage returns. Although respondents who received a "noncompetitive" promotion indicated that no one else was considered for the promotion, this is a literal interpretation of the promotion. Certainly there are many cases in which a supervisor reviews all eligible workers and selects one for advancement, but there is no explicit competition. Consequently, a promotion designated as "noncompetitive" may be more likely to reflect increases in productivity, particularly in the short term, than is a promotion designated as "competitive." In contrast, competitive promotions appear to offer greater long-term wage returns.

While men and women both gained more in the long run from competitive promotions than from noncompetitive promotions, it is interesting to see that women received no significant short-term wage gains from a competitive promotion, but their long-term return to a competitive promotion was over 11%. If competitive promotions are associated with movements to different career tracks, this result may suggest that women are more likely than men to sacrifice short-term wage gains to undergo such career changes.

Earnings Structure, Training, and Supervision

A promotion may have a number of consequences besides enhancing wages. For instance, it may move a worker from an hourly piece rate to a salary. It may also lead to earnings based on bonuses or stock options. The results in Table 3 suggest that training led to promotion, but it may also be true that promotion led to greater training receipt. Along with training, a promotion may result in greater supervisory responsibilities and authority over other workers. Since the NLSY contains direct measures of the structure of earnings, training receipt, and supervisory responsibilities, it is possible to examine the relationship between promotion receipt and each of these outcomes. In addition, a promotion may enhance a worker's view of the job, or increase "job satisfaction." A job satisfaction measure is generated from an annual question asking how the worker liked the job, with a four-category response ranging from "like it very much" to "dislike it very much."[19] This measure ranges from zero (low satisfaction) to four (high satisfaction).

Table 7 presents results from estimating the impact of a promotion on the structure of earnings, training receipt, supervision, and job satisfaction. The results reported in the table are the coefficients from estimating regression equations similar to the first-differenced wage equations.[20] In this case, the change in each of the outcome variables between years is used as the de-

[19]Specifically, the question reads, "How (do/did) you feel about (the job you have now/your most recent job)? (Do/did) you like it very much, like it fairly well, dislike it somewhat, or dislike it very much?"

[20]Only the one-year impact of promotion on these outcomes is presented because the immediate impact of promotion for these outcomes seems to be the most relevant, and also because some of the outcomes (such as the earnings structure variables) are unavailable after 1990.

Table 7. Promotion Coefficients from First–Differenced Regressions. (Absolute Value of t–Statistics in Parentheses)

Indep. Var.	*(1) Earnings Include Bonuses or Stock Options*	*(2) Earnings Based on Piece Rate/ Commissions/ Tips*	*(3) Received Company Training 1989–90*	*(4) Became Supervisor*	*(5) Responsible for Pay or Promotion of Others*	*(6) Job Satisfaction*
Promotion	2.31	−9.06**	5.06**	15.86**	6.26**	15.18**
	(1.19)	(2.96)	(3.04)	(7.22)	(3.87)	(5.17)
Promotion Type						
Position Upgrade	−2.99	−6.52**	5.72*	17.59**	6.57**	15.81**
	(.92)	(3.50)	(1.92)	(4.46)	(2.38)	(2.99)
Supervisor's Job	11.20*	2.48	12.12**	49.14**	30.79**	12.83
	(1.71)	(.57)	(2.46)	(7.44)	(4.96)	(1.49)
Higher-Level Job	−.07	−1.31	6.87	11.22**	2.67	24.77**
	(.01)	(.49)	(1.49)	(2.01)	(.61)	(3.18)
New Position	.49	−7.20**	.61	12.32*	2.35	26.99**
	(.09)	(2.09)	(.13)	(1.91)	(.57)	(4.20)
Reorganization	9.68	−.44	−5.85	17.67**	16.37**	11.56
	(1.27)	(.07)	(.90)	(2.56)	(2.25)	(1.21)
Same Duties	5.15*	.32	5.14*	9.71**	2.34	7.69
	(1.65)	(.20)	(1.89)	(2.70)	(.97)	(1.60)
Lateral Move	−4.76	−5.87	7.12	−1.89	−5.60	12.94
	(.92)	(1.14)	(.61)	(.12)	(.54)	(1.02)
Other	4.97	7.44	3.47	16.98*	−2.06	17.11
	(.43)	(1.40)	(.42)	(1.72)	(.22)	(1.38)
Competitve/Noncompetitive						
Competitive	3.34	−1.96	5.89**	16.81**	5.18*	15.57**
	(1.12)	(1.05)	(1.98)	(4.57)	(1.87)	(3.56)
Noncompetitive	1.80	−2.32*	4.64**	15.39**	6.79**	14.98**
	(.77)	(1.74)	(2.45)	(5.99)	(3.62)	(4.27)
Sample Size	3,355	3,355	3,355	3,355	3,355	3,355

Notes: The numbers reported in the table are the estimated promotion coefficients from regressions in which the dependent variable is the change in the job characteristic between 1989 and 1990. All equations also include job change as an independent variable. All coefficients are multiplied by 100.

*Statistically significant at the .10 level; **at the .05 level (two–tailed tests).

pendent variable and the promotion receipt variables are used as the key independent variables in each regression.[21] Results are presented for the single promotion measure and the disaggregated promotion type measures, as well as for an estimation incorporating the competitive/noncompetitive promotion distinction.

The results for the univariate promotion measure in Table 7 indicate that promotions not only affected wages, as shown in Tables 5 and 6, but also had some impact on how earnings were received. In particular, a promotion reduced the likelihood of earnings being based on piece rate, commissions, or tips. A promotion had no

[21]Similar to the procedure in the wage equations, a job change dummy variable was also included in all regressions. Since ordinary least squares with limited dependent variables (limited to 1, 0, or −1 for the structure of earnings, training, and supervision outcomes) will likely be affected by heteroskedasticity, we correct the standard errors using the procedure developed by White (1980).

statistically significant impact on the likelihood of earnings being based on bonuses or stock options, however. A promotion was also associated with training receipt, becoming a supervisor, and increases in job satisfaction. "Becoming a supervisor" is only mildly meaningful, however, given that about 40% of the sample reported being a "supervisor."[22] A more significant definition of supervision may be being responsible for the pay or promotion of others, which more likely characterizes the role of a "manager" (about 16% reported being in this category). Using this different definition, a promotion was still associated with increased managerial responsibilities. A promotion also appears to have been positively related to increases in reported job satisfaction.[23]

The breakdown of promotion by type and competitive/noncompetitive categories yields some insights into the meaning of the different forms of promotion. For instance, some of the more "passive" forms of promotion, such as promotions that involved performing the same duties as before the promotion, position upgrades, and noncompetitive promotions, were associated with training receipt, supervisory responsibilities, and changes in the structure of earnings.

Subsequent Job Attachment

As mentioned, past discussions of promotion have raised questions concerning how job advancement affects labor market turnover. Are workers who advance within the firm more likely to stay with the firm, or are those people going to move on to better jobs regardless of a promotion? Does a promotion signal to other employers that the worker is of high ability and actually lead to a greater probability of job leaving?

In order to examine the impact of promotion on subsequent job attachment, we analyze post-1990 job tenure with the 1990 employer. The probability of leaving the job held at the 1990 interview data by 1996 is estimated through a Cox proportional hazards model (Cox and Oakes 1984) based on the hazard rate at time t:

$$(1) \qquad h(t,x) = h_o(t)\ e^{x\beta}$$

where $h_o(t)$ is the baseline hazard rate at time t and x is a vector of covariates including promotion receipt. This model is used to estimate whether an individual leaves the job in week t given that the person did not leave the job in week $t-1$. The Cox model is nonparametric in the sense that it does not require distributional assumptions on the base-line hazard, as is required for most other hazard functions.

Since a promotion could, in principle, affect whether the job separation decision is initiated by the worker or the firm, we estimate the Cox model not only for all job separations together, but also for voluntary and involuntary job separations. Quit and layoff hazard models are estimated using a competing risks framework, which essentially treats all job exits other than the one of interest as right-censored at the individual's time of departure.[24] It is important to mention that since individuals are not randomly assigned promotions (as shown in Table 3), any effect of promotion on subsequent job tenure must be interpreted with caution. In particular, if workers with a higher "match quality" were promoted, the impact of a promotion on turnover may be confounded with this "match

[22]The seemingly high percentage of workers who reported being a "supervisor" is not unique to the NLSY. In the General Social Surveys and the Panel Study of Income Dynamics, approximately 40% of workers reported supervising other workers (Rothstein 1998).

[23]Promotion was also positively related to increases in the number of non-wage benefits that workers reported were made available to them, although a large number of workers responded "don't know" when asked about non-wage benefit availability. Given that non-discrimination laws generally require employers to make the same set of benefits available to all workers, it is likely that workers become more cognizant of the non-wage benefits available to them immediately following a promotion.

[24]"Quits" and "Layoffs" are defined as described in footnote 16.

quality" effect. If so, any negative effect of a promotion on turnover may have been partially due to the quality of the job match, and a promotion will appear to have had a greater negative impact on turnover than it actually did.[25]

Table 8 presents results from estimating the Cox models. The specifications and control variables are similar to those used in the promotion receipt equations in Table 3.[26] Specification (1) includes the results from estimating all forms of job separation, while specifications (2) and (3) present results from quit and layoff separation hazard models, respectively. Specifications (4) and (5) present estimates for all job separations stratified by gender.

The estimates indicate that a promotion received from 1989 to 1990 was unrelated to job attachment, as it had no impact on all forms of job separation, voluntary separations, or involuntary separations. These results support neither those models suggesting that a promotion should increase job attachment (Lazear and Rosen 1981, 1990; Rosen 1986) nor those implying that it may induce turnover (Waldman 1984; Bernhardt and Scoones 1993).

The estimates for the coefficients on some of the other variables are of interest. The results indicate that blacks, particularly black men, are more likely to experience involuntary turnover than are whites, which is similar to findings of Blau and Kahn (1981a). There is no race differential in quit behavior, however, which differs from results of Blau and Kahn (1981b) and Viscusi (1980), who found that blacks were less likely than whites to quit. This difference may occur because the individuals used in this analysis were from a more recent cohort of young workers than the workers examined in previous studies. It is also of note that the gender coefficient is not statistically significant. While there is certainly not a consensus regarding gender differences in job turnover, this result accords with a number of other studies (Blau and Kahn 1981b; Light and Ureta 1992; and Viscusi 1980) that also found men and women to be largely indistinguishable in their quit behavior.

Education and the receipt of company training were negatively associated with layoffs, suggesting that both general and firm-specific skills were important determinants of job retention. Training appears to have been particularly important for job retention among men. Also somewhat surprisingly, the number of children increased turnover for men, but not for women, *ceteris paribus*.

Table 9 presents estimates from Cox hazard models with the promotion type variables and the competitive/noncompetitive promotion variables used in place of the single promotion variable. There is one type of promotion, taking an old supervisor's job, that was positively related to job leaving, but this relationship is statistically significant only at the 10% level. Overall, these estimates, along with promotion estimates in Table 8, do not provide strong evidence directly linking promotion receipt and job turnover. The receipt of company training, however, was associated with increased job attachment. The findings from the previous sections indicate not only that training led to promotion, but also that promotion led to further training. Hence, a promotion may indirectly increase job attachment through its impact on training receipt. This may suggest that firms use training as a mechanism to retain promoted workers who might otherwise leave the firm, which is consistent with task assignment models. Alternatively, it may be the case that the the training receipt measure is in itself a measure of "promotion" that captures match quality of a job better than the direct measures of promotion do.

[25]An obvious solution to this problem is to generate an instrument for the promotion variable. Any instrument, however, would rely on fairly dubious identification restrictions, as it is difficult to find variables that affect promotion but not job turnover. We experimented with several variables to identify the promotion instrument, but in no case were the estimates much different from those reported here.

[26]The sample size for the hazard estimations is slightly smaller due to missing data for 20 individuals after the 1990 interview.

Table 8. Job Separation Hazard Estimates.
(Absolute Value of t–Statistics in Parentheses)

Variable	*(1) All Separations*	*(2) Quits*	*(3) Layoffs*	*(4) Men*	*(5) Women*
Promotion	2.01	3.17	2.04	–.98	4.69
	(.38)	(.49)	(.21)	(.14)	(.54)
Female	–5.99	–5.52	–3.62		
	(1.09)	(.83)	(.35)		
Black	12.07*	3.24	25.98**	23.16**	–6.67
	(1.90)	(.41)	(2.33)	(2.89)	(.62)
Hispanic	1.95	–12.08	16.56	–5.77	2.58
	(.28)	(1.41)	(1.43)	(.67)	(.24)
Education	9.07	.88	–5.94**	–1.18	–.61
	(.62)	(.49)	(2.26)	(.64)	(.25)
Armed Forces Qualifying Test Percentile	–.04	.02	–.07	–.02	–.05
	(.32)	(.13)	(.35)	(.16)	(.24)
Tenure (in Weeks)	–.47**	–.51**	–.40**	–.46**	–.51**
	(10.52)	(9.09)	(4.97)	(8.08)	(6.84)
Tenure Squared × 10^{-3}	.42**	.45**	.33**	.42**	.45**
	(5.50)	(4.66)	(2.46)	(4.30)	(3.56)
Prior Experience (in Weeks)	–.01	–.03	.07	.05	–.13
	(.18)	(.52)	(.76)	(.73)	(1.62)
Experience Squared × 10^{-3}	–.04	–.01	–.17	–.12	.12
	(.55)	(.06)	(1.25)	(1.36)	(.96)
Received Company Training 1988–89 at Current Job	–18.20**	–13.66	–35.43**	–26.98**	–11.72
	(2.15)	(1.37)	(2.06)	(2.37)	(.91)
Firm > 1000 Employees	–23.36**	–17.98**	–32.81**	–20.96**	–21.82**
	(4.55)	(2.88)	(3.48)	(3.10)	(2.71)
Union Member	–28.13**	–55.08**	2.78	–28.11**	–30.18**
	(3.88)	(5.37)	(.25)	(3.27)	(2.12)
Reside in SMSA	–.33	–3.70	4.57	3.12	–5.37
	(.05)	(.48)	(.42)	(.40)	(.52)
Local Unemployment Rate	–.40	.56	–1.40	.35	–1.10
	(.29)	(.33)	(.57)	(.20)	(.47)
Married	–19.46**	–11.94*	–35.52**	–22.80**	–18.74**
	(3.61)	(1.80)	(3.64)	(3.02)	(2.34)
Number of Children	2.37	2.73	–.12	6.42*	–1.64
	(.80)	(.74)	(.02)	(1.74)	(.35)
Child Less Than Age 6 in Household	–8.98	–13.17	1.96	–11.47	–6.99
	(1.37)	(1.62)	(.17)	(1.29)	(.70)
Log–Likelihood	–14,874.1	–9,690.6	–4,610.0	–8,439.7	–5,104.8
Sample Size	3,335	3,335	3,335	1,990	1,345

Notes: The reported coefficients are multiplied by 100. Industry and occupation industry dummy variables are also included.

*Statistically significant at the .10 level; **at the .05 level (two–tailed tests).

Conclusions

We have used data from the National Longitudinal Survey of Youth to examine the determinants of advancement within the firm and to estimate the impact of upward mobility on a number of labor market outcomes. Past studies often only have data on internal advancement for limited sets of workers, and generally use a single

Table 9. Promotion Coefficients from Job Separation Hazards. (Absolute Value of t–Statistics in Parentheses)

Indep. Var.	*(1) All Separations*	*(2) Quits*	*(3) Layoffs*	*(4) Men*	*(5) Women*
Promotion Type					
Position Upgrade	−.14	3.29	−8.70	−6.25	5.94
	(.02)	(.30)	(.50)	(.53)	(.39)
Supervisor's Job	28.51*	19.36	44.24	33.77*	23.56
	(1.81)	(.98)	(1.59)	(1.72)	(.88)
Higher-Level Job	−8.57	−17.88	10.57	−23.47	13.42
	(.66)	(1.08)	(.49)	(1.34)	(.69)
New Position	−1.78	2.98	−3.52	4.88	−17.60
	(.12)	(.16)	(.12)	(.24)	(.74)
Reorganization	16.07	24.81	−11.34	30.42	3.35
	(.82)	(1.11)	(.25)	(1.21)	(.16)
Same Duties	2.10	6.48	−2.92	−.98	3.26
	(.24)	(.62)	(.18)	(.09)	(.23)
Lateral Move	17.73	2.92	48.82	−28.15	59.46
	(.61)	(.08)	(1.07)	(.62)	(1.52)
Other	−16.51	−17.30	−7.72	2.90	−56.18
	(.67)	(.57)	(.19)	(.10)	(1.10)
Competitive/Noncompetitive					
Competitive	9.21	11.71	9.03	9.90	3.16
	(1.08)	(1.12)	(.59)	(.95)	(.21)
Noncompetitive	−1.27	−.61	−1.37	−6.64	5.25
	(.21)	(.08)	(.12)	(.82)	(.54)
Sample Size	3,335	3,335	3,335	1,990	1,345

Notes: The numbers reported in the table are the estimated promotion coefficients from hazard models of job leaving. The other independent variables are the same as those used in Table 8. All coefficients are multiplied by 100.

*Statistically significant at the .10 level (two-tailed test).

measure of promotion. The data set used here allows for an examination of the promotion process among a large representative sample of private sector workers.

The data indicate that about 24% of workers reported a promotion at their firm in the past year. Most promotions did not involve any change in job or position. The majority of events that workers called "promotions" involved no change in duties or were an upgrade of the current position. Most workers reported that they alone were considered for the promotion. Men were more likely to be promoted than women, and whites more likely than blacks or Hispanics—findings that, in the absence of information on the specific nature of the workers' jobs and the structure of firms, provide suggestive, although certainly not definitive, evidence of discrimination.

Promotions were associated with a wage gain of about 8% between consecutive years, increasing to about 12% six years after the promotion. Non-competitive promotions, or those for which only one person was considered, led to larger short-term wage gains than did competitive promotions, but competitive promotions had larger long-run wage returns. Promotion receipt was also associated with changes in the structure of earnings, training receipt, supervisory responsibilities, and job satisfaction. There is no strong evidence indicating that

promotion was directly associated with greater or lesser job attachment.

The results imply that in some sense promotions were "passive," since they usually did not involve moving to another position, but were simply upgrades of a current position or involved performing the same duties as before the promotion. Yet the consequences of the promotion were more "active," as promoted workers, besides receiving increased wages, were more likely to be trained, to supervise other workers, and to experience changes in the structure of their compensation than were nonpromoted workers. In addition, the positive impact of past promotions and prior company training on promotion receipt indicates that firms selected for promotion those workers whom they expected to be the most productive in the long run. Similarly, workers who competed with other workers for promotions appear to have received greater wage returns in the long run than in the short run, implying that workers also strategically plotted their long-term course within an organization.

These results suggest that the promotion process involves aspects of tournament, job matching, human capital, and task assignment models. The long-term gains to competitive promotions are consistent with the notion of a tournament model. The role of training and the selection process involved in promotion receipt accord with human capital and matching models. In addition, since most promotions do not involve moving to other positions and are noncompetitive, promotions may be "passive" for strategic reasons. That is, by keeping the promotion inconspicuous, the firm does not signal the worker's productivity to other firms. It may also be true that firms offer some of these forms of promotion in conjunction with wage increases to enhance workers' job satisfaction.

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