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What is a Promotion?

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Abstract

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In this paper, data from the National Longitudinal Survey of Youth are used to analyze the determinants and the consequences of a promotion among young workers. The majority of events that workers label as a "promotion" do not involve any change in position or duties. Most promotions are simply an upgrade of the current position. The worker is typically the only person considered for the promotion. Men are more likely to be promoted than women and whites more so than blacks or Hispanics. The acquisition of company training and the receipt of a prior promotion are two of the most important determinants of promotion. Consequences of promotion include increased wages, training receipt, supervisory responsibilities, and job satisfaction. There is little evidence that promotion has 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 are typically not measured, and hence ignored.

Past empirical studies into the internal workings of firms 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 well-defined. 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, it is not so clear what it means to be promoted. Also, results from analyzing a single firm or occupation typically are not generalizable, as 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.

This study attempts to provide an examination of 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 to 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 studies 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. In this analysis, use is made of the small amount of information that exists in the NLSY that presumably reflects the degree of hierarchy within the firm, such as whether or not the person supervises other employees and firm size. Such limitations will exist in any large, general purpose, household data set. The findings from the use of a broader array of occupations, types of workers, and types of firms should complement the results from prior studies of individual firms and occupations.

In addition, this study provides different insights than the previous work of 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 or not they received a promotion. As will be seen in this analysis, the majority of events that workers label as "promotions" do not involve any change in job or position, but are simply an upgrade of their current position or do not involve any change in duties. Hence, limiting promotions to be a subcategory of "position changes" severely underestimates the extent to which workers report being promoted.

Background

For most workers, the 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, which is often considered part of the "structure" of the organization.

Promotions may be used by firms to motivate workers, particularly in companies where direct supervision of workers is difficult. A promotion may also be a reward that results in advancement within the firm, but also involves greater responsibility.

While for many years economists ignored mobility within firms, researchers in other fields, such as sociology, psychology, and human resource management typically paid greater attention to the structure of the employment relationship, and the notion of a "career." For example, vacancy-driven models (White 1970) provide theories of how upward mobility occurs. In particular, these models generally assume that mobility depends upon available positions at the firm. Movements to higher-level positions take place when vacancies occur in those positions, and these positions are filled by lower-level workers at the firm. New hires typically begin at lower-level positions.

Economists are generally more familiar with the concept of an internal labor market, where mobility within the firm is put into the context of a set of rules and guidelines that are part of the employment relationship (Doeringer and Piore 1971). Hiring is assumed to occur primarily at certain entry-level jobs or "ports of entry." Higher level jobs are filled from within the firm, which offers chances for promotion, or a "career ladder" to those hired at lower levels. Promotion is based upon the firm's evaluation of the worker's productivity. Consequently, while workers are hired based upon well-defined personal characteristics, promotion may occur based upon qualities that are typically unobserved, such as ability, dependability, and personality.

More recently, 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) model promotion activity within the firm in terms of a tournament. Essentially, a promotion is considered the "prize" and the probability of winning 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) present another model of the promotion process in which the receipt of promotions and training is based upon the individual's revealed ability at the job. While males and females are assumed to have similar labor market abilities, women are assumed to have greater nonmarket abilities and opportunities, and subsequently they are more likely to depart the firm than men. 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. Hence, women are less likely to be promoted and stay with the firm because they are viewed by the firm as having less job attachment.

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, who have less information about that worker, 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 preempt or encourage other firms to compete for that worker.

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 that is specific to a particular job, which makes workers more valuable to the employer providing the training (Becker 1964; Mincer 1974). Carmichael (1983) shows that a promotion ladder, where 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 these alternatives. Many of these models were conceived with the goal of being consistent with the facts concerning promotions, wages, and the internal workings of the 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 magnitude of the impact on wages 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, find that those who were promoted experienced about a 30 percent greater rate of wage growth than those who were not promoted. McCue (1996), using data from the PSID from 1976 to 1988, estimates that promotions

account for between 9 to 19 percent of life cycle wage growth. Hence, there exists 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 annually since that year.[1] 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 the promotion led to a wage increase, an increase in job responsibilities, or whether another promotion is possible at the current job.

In order to limit differences in promotion activity or turnover which 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. Although this group of workers is relatively young, they are in a period in their working lives in which human capital investments and promotion activity likely occur with greater frequency and play a more important role in career advancement than at other periods over their life cycle.

To examine the determinants of promotion, a probit equation on whether a promotion was received within the past year is estimated.[4] To determine the impact of promotions on wage growth, first-differenced fixed effect wage equations are estimated. The impact of a promotion on other outcomes, such as earnings structure, training receipt, and supervisory responsibilities is also estimated 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 in the estimations. The event history format of the NLSY, in which dates are collected for the beginning and ending dates of important events, allows for precise measures of tenure on the current job and total work experience.

Two additional variables which may be particularly important in determining promotion receipt included in this analysis 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, i.e., training received in the year prior to the promotion.

Promotion Type and Promotion Receipt

Table 1 presents information on the percent of individuals who received a promotion between 1989 and 1990. A breakdown of promotion receipt by eight different categories is also presented. These categories include: 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; there was a reorganization and was promoted; received promotion but continued to perform the same duties as before; lateral move to a different section; and other.

The data indicate that between 1989 and 1990, about 24 percent of the sample experienced a promotion at their current job. In order to provide some context to this figure, about 23 percent of the sample changed jobs between 1989 and 1990. Hence, the prevalence of mobility within a firm is very similar to that of mobility across firms among these workers.

The breakdown of promotion receipt by the different categories indicates that for most people a promotion essentially means staying in the same position, although the nature of the position may change somewhat. In particular, approximately 30 percent of those who received a promotion essentially performed the same duties as before the promotion. Also, about 1 of 4 of those promoted 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 percent were promoted to a higher level job in a different section, nearly 10 percent were chosen to fill a newly created position with greater responsibilities, and about 8 percent took over their old supervisor's job. Only about 6 percent received a promotion due to a reorganization and about 2 percent labelled a lateral move to a different section as a promotion.

It is difficult to compare these promotion percentages to prior research given that so little information exists. The overall promotion percentage is substantially higher than that of McCue (1996) who found that from three to five percent of workers (age 20 to 60) are 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 is required for a promotion, only about 10 percent of the sample would be considered "promoted." Second, the sample used here involves a much narrower and relatively young age range in which individuals may be more likely to experience promotions than at other times in their working careers.

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 include whether the promotion led to a wage increase; if the promotion led to an increase in job responsibilities; if other people were considered for the promotion; and if another promotion is possible at the current job. Table 2 presents information regarding these characteristics of a promotion for those who experienced a promotion.

About 89 percent of workers who were promoted within the past year reported that the promotion led to a wage increase. Similarly, about 85 percent underwent an increase in job responsibilities due to a promotion.[7] Also, most of these workers are not at

the top of the job ladder, as over 86 percent reported that another promotion is 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 do not "compete" with others for the promotion. This is probably related to the fact that respondents label most promotions as simply "position upgrades" or as "performing the same duties as before." While most promotions are not necessarily automatic, the majority of internal mobility events involve the worker remaining in the same position and being the only candidate for this promotion.

The seemingly passive nature of most promotions may be related to the notion of "plateauing" in the organizational behavior literature (Bardwick 1986). This concept usually refers to the plight of workers who, while not at the top of the job ladder, find that direct upward movements in the hierarchical ranks of the firm are not as frequent as desired. Although the workers from the NLSY examined here do not appear to be in "dead end" jobs and are not necessarily at "plateau" stages in their careers, they are likely in early career jobs in which most promotions are associated with relatively small or intermediate internal movements that do not involve large changes in tasks or job titles. For example, Kilborn (1990) reports, "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 are about 4 percentage points less likely to receive a promotion than men, while blacks and Hispanics are about 7 and 5 percentage

points less likely to be promoted than whites, respectively.[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 are 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 result in promotion. Unionized workers are less likely to be promoted, and firm size is positively related to internal mobility. The negative impact of unionism on promotion may occur because unionized firms are more likely to base promotion upon seniority than are nonunionized firms (Abraham and Medoff 1985). Given that the sample is comprised of relatively young workers, seniority rules may hamper the promotion prospects of those who are 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 examining promotion receipt among workers in 1990. To address this problem, a variable which represents 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 that there is a high degree of correlation between past and current promotion probabilities. Individuals who are

promoted are nearly 18 percentage points more likely to be promoted again. 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, and some workers are employed at firms with well-defined and numerous promotion steps, while others work for companies where promotions are more ambiguously structured and occur less frequently.

It is also of interest to note that approximately twice as many workers were promoted (20 percent) than trained (10 percent) in the prior year.[10] It should be mentioned that the company training measure captures participation in formal company training programs and does not reflect the acquisition of informal training. Hence, it may be true that the promotion measure reflects 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 occur only among men. The negative impact of union status on promotion also appears to be strongest among men. This result may suggest that the seniority-based promotion process plays a larger role for unionized men than for unionized women. Conversely, training appears to be more important in enhancing the promotion likelihood of women, implying that training may be a particularly effective mechanism by which labor market differentials between men and women might be minimized.[11]

Table 4 presents results for the gender/race coefficients when estimating separate probit equations for each of the promotion measures described in Table 1.[12] The estimates indicate no significant differences for females or Hispanics. Blacks, however, are less likely 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. Regardless of the source, taken together the findings on promotion receipt suggest that gender and race differences persist even after controlling 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 associated with 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, a first-differenced wage equation is estimated 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 all time invariant factors are not estimated using the first-differenced technique. In order to compare the returns to promotion to that of 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 that 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 increases wages by about eight percent between years. Also, there appears to be no immediate wage gain from changing jobs for these workers, which differs from previous research (Topel and Ward 1992) which suggests that job change is positively related to contemporaneous wage growth. The lack of a positive impact of job change on wage growth may be partially due to business cycle factors, as the 1989 to 1990 time period was the beginning of a recessionary period.[15] Specification (2) includes variables reflecting voluntary and involuntary transistions between jobs rather than a single job change variable, and the estimates indicate that voluntary job changes, or quits, increase wage growth by about three percent, whereas involuntary job changes, or layoffs, reduce wage growth by about eight percent.[16] Given that about 24 percent of the sample were promoted from 1989 to 1990, while about 18 percent quit jobs and about 5 percent were laid off, these estimates imply that mobility within the firm plays a larger role than mobility between firms in the wage growth of these workers.

In order to control for possible heterogeneity in wage growth that may be due to differences in initial endowments of ability, the education and AFQT percentile variables are included as additional regressors in specification (3). Although education is 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.

In order to provide some context to the promotion estimate relative to that of McCue (1996), specification (4) uses a modified promotion variable that only includes

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 percent, or slightly smaller than the return for all forms of promotions. This result implies that the more "passive" forms of promotion that do not involve a position change may be a way in which employers provide incentives and increase the salary of workers without changing the nature of the job. This result, along with the findings on promotion receipt, suggest 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 males experience wage gains of about 9 percent due to a promotion, while females gain about 7 percent. The gender differences in the wage returns to the promotion, are not statistically significant, however.[17] Voluntary job change is positively related to wage growth for males, but not for females. This result is similar to that of Loprest (1992), who found that job change is 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 where 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 is approximately 12 percent, suggesting that the gains to promotion increase in the years following the promotion. Interestingly, a voluntary job change between 1989 and 1990 increased wage growth by about 7 percent by 1996, whereas the negative impact of a layoff from 1989 to 1990 diminished by 1996. Conversely, subsequent quits from 1990 to

1996 are unrelated to 1996 wage growth, while layoffs over that time span are associated with a large (about 14 percent) 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 1990's that reduced the wage returns to quits and exacerbated the negative wage impacts of layoffs.

Specification (8) of Table 5 is similar to specification (7) but also includes an interaction term between promotion and whether the worker subsequently 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, which will lead firms to bid for the worker's services (Waldman 1984; Bernhardt and Scoones 1993). While the estimate on the coefficient is positive, it is not significant, which does not provide strong evidence for the signaling hypothesis.

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

The results on promotion type in column (1) indicate that five of the eight forms of promotion have a positive impact on wage growth, ranging from about 7 to 12 percent. A promotion associated with a reorganization increases wages by about 12 percent, which is more than any other form of promotion. A promotion that involves performing the same duties as before raises wages by about 7 percent, which is the smallest effect among the forms of promotions that are significantly related to wage growth. Lateral moves that workers label as a promotion are 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 are associated with greater long-run gains, while the impact of others decline over time. Specifically, while accepting a newly created position is unrelated to immediate wage gains, it has a large impact on long-term wage growth. In contrast, while taking over a supervisor's job is correlated with short-term wage improvements, in the long term this type of promotion is unrelated to wage growth.

Columns (3)-(6) present estimates from specifications stratified by gender. The results indicate that there are substantial gender differences in the returns to promotion by promotion type. For instance, in both the short term and the long term, men experience significant returns to taking a higher level job in a different section and to filling a newly created position, while women do not.

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

These differences in the competitive/noncompetitive returns to promotion 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 indicate that no one else was considered for the promotion, this is a literal interpretation of the promotion. Certainly

there are many cases where a supervisor reviews all eligible workers and selects one for advancement, but there is no explicit competition. Consequently, the designation of the promotion as "noncompetitive" may be more likely to reflect increases in productivity, particularly in the short term, than do "competitive" promotions. In contrast, competitive promotions appear to offer greater long-term wage returns.

While men and women both gain more in the long run from competitive promotions than from noncompetitive promotions, it is interesting to see that women receive no significant short-term wage gains from a competitive promotion, but their long-term return to a competitive promotion is over 11 percent. If competitive promotions are associated with movements to different career tracts, 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

Along with enhancing wages, a promotion may have a number of other consequences. For instance, a promotion may move an individual from working at an hourly piece rate to working on a salary. It may also lead to earnings which are based on bonuses or stock options. The results in Table 3 suggest that training leads to promotion, but it may also be true that promotion leads 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 about 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 dependent 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, the disaggregated promotion type measures, as well as the competitive/noncompetitive promotion distinction.

The results for the univariate promotion measure in Table 7 indicate that promotions not only impact wages, as shown in Tables 5 and 6, but also have some impact on the nature in which earnings are received. In particular, a promotion reduces the likelihood of earnings being based on piece rate, commissions, or tips. A promotion has no significant impact on the likelihood of earnings being based on bonuses or stock options, however. A promotion is also associated with training receipt, to becoming a supervisor, and to increases in job satisfaction. The result of "becoming a supervisor" is only mildly meaningful, however, given that about 40 percent of the sample report 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 percent report being in this category). Using this different definition, a promotion is still associated with increased managerial responsibilities. A promotion also appears to be positively related to increases in reported job satisfaction.[23]

The breakdown of promotion by type and competitive/noncompetitive categories reveals 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 involve

performing the same duties as before the promotion and position upgrades are associated with training receipt, supervisory responsibilities, and changes in the structure of earnings. In particular, promotions that involve performing the same duties as before are associated with training receipt, becoming a supervisor, and to a movement to compensation being based on bonuses or stock options. Similarly, a position upgrade is positively related to each of the outcomes other than earnings including bonuses or stock options. Promotions due to a reorganization appear to be largely related to increases in supervisory responsibilities. In addition, noncompetitive promotions appear to be more strongly correlated with moving workers off of piece rate pay than are competitive promotions.

Subsequent Job Attachment

As mentioned, past discussions of promotion have raised questions concerning the meaning and consequences of job advancement on labor market turnover. Are those 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, post-1990 job tenure with the 1990 employer is analyzed. 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). The model is based on the hazard rate at time t:

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

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 required for most other hazard functions.

Since it might be thought that a promotion may affect whether the job separation decision is initiated by the worker or the firm, along with estimating the Cox model for any type of job separation, models are estimated for voluntary and involuntary job separations as well. 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 exhibited in Table 3), any effect of promotion on subsequent job tenure must be interpreted with caution. In particular, if it is thought that workers with a higher "match quality" are promoted, the impact of a promotion on turnover may be confounded with this "match quality" effect. If so, it might be expected that any negative effect of a promotion on turnover may be partially due to the quality of the job match, and a promotion will appear to have a greater negative impact on turnover that it actually does.[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 is unrelated to job attachment, as it has no impact on all forms of job separation, voluntary separations, or involuntary separations. These results do not provide strong evidence for models that suggest that a promotion should increase job attachment (Lazear and Rosen 1981, 1990;

Rosen 1986) nor do they provide evidence for models that imply that a promotion 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 males, 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 findings of Blau and Kahn (1981b) and Viscusi (1980). This difference may occur because the individuals used in this analysis are of 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 significant. While there is certainly not a consensus regarding gender differences in job turnover, this result is similar to a number of other studies (Blau and Kahn 1981b; Light and Ureta 1992; and Viscusi 1980) who also found that men and women are largely indistinguishable in their quit behavior.

Education and the receipt of company training are negatively associated with layoffs, suggesting that both general and firm-specific skills are important determinants of job retention. Training appears to be particularly important for job retention among males. Also somewhat surprisingly, the number of children increases turnover for males, but not for females, ceteris paribus.

Table 9 presents estimates when the promotion type variables and the competitive/noncompetitive promotion variables are used in the Cox hazard models of job separation instead of the single promotion variable. For the full sample, there is one type of promotion, taking an old supervisor's job, that is positively related to job leaving. This positive effect on job separation occurs primarily among males. The hazard estimates for quits and layoffs, however, suggest that taking a former supervisor's job is more highly correlated with involuntary turnover than with voluntary job separations.[27] Consequently,

it may be more likely that those who took their supervisor's job were "downsized" as opposed to being recruited away by other employers.

Hence 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, is associated with increased job attachment. The findings from the previous sections indicate that training not only leads to promotion, but promotion leads 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 indicative of 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 more so than the direct measures of promotion.

Conclusions

In this study, data from the National Longitudinal Survey of Youth are used 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 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 percent of workers reported a promotion at their firm in the past year. Most promotions do not involve any change in job or position. The majority of events which workers label as "promotions" involve no change in duties or are an upgrade of their current position. Most workers report that they were the only person considered for the promotion. Men are more likely to be promoted than women and whites are more likely to be promoted than blacks or Hispanics. The findings that women

and minorities are less likely to be promoted are suggestive of discrimination, although these results cannot necessarily be interpreted as such since information on the specific nature of the workers' jobs and the structure of firms is not available.

There is a wage gain of about 8 percent between consecutive years due to a promotion. This wage gain increases to about 12 percent six years after the promotion. Non-competitive promotions, or promotions in which the worker is the only person considered for the promotion, lead to larger short-term wage gains than do competitive promotions, but competitive promotions have larger long-run wage returns. Promotion receipt is also associated with changes in the structure of earnings, training receipt, supervisory responsibilities, and job satisfaction. There is no strong evidence indicating that promotion is directly associated with greater or lesser job attachment.

The results imply that in some sense promotions are "passive" since promotions usually do not involve moving to another position, but are simply upgrades of a current position or involve performing the same duties as before the promotion. Yet the consequences of the promotion are more "active," as promoted workers, along with receiving increased wages, are more likely to be trained, to supervise other workers, and to experience changes in the structure of their compensation than are non-promoted workers. In addition, the positive impact of past promotions and prior company training on promotion receipt indicates that firms select the workers who they expect to be the most productive in the long run and promote them. Similarly, workers who compete with other workers for promotions appear to receive greater wage returns in the long run than in the short run, implying that workers also strategically plot 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 are indicative of human capital and matching models. Yet since the majority of promotions do not involve moving to other positions and are noncompetitive, promotions may be "passive" for strategic reasons. That is, by not making the promotion obvious, the firm does not reveal to other firms the productivity of the worker. This may be the case if position upgrades and other passive forms of promotion do not come with noticeable changes in such things as job titles and may explain why firms choose to produce job advancement in this way.

Notes

1. Included are oversamples of blacks and Hispanics.

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, the consequences of promotion may be understated by imposing this restriction.

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, promotion receipt is estimated for 1989-90 by a probit model.

5. The occupational categories and the percent 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 include: 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 an repair services (7.7); personal services and entertainment (3.9); and professional and related services (14.4).

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

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 these people are included in the base and if it is assumed that they did not experience any increase in job responsibilities, the figure is 59 percent.

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

9. The tenure variables are jointly significant (χ^2 = 21.83, Prob > χ^2 = .00).

10. While training and promotion are interrelated, only 3.4 percent of the sample received both company training and a promotion in 1989. 16.1 percent were promoted but not trained; 6.7 percent 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 (χ^2 = 32.17, Prob > χ^2 = .58). When a more restricted set of independent variables are 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 (χ^2 = 11.59, Prob > χ^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 estimating a structural model, the ease of interpretation of the probit estimates make them preferable to these alternatives.

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

14. Respondents can report earnings over any time frame (hour, day, month, etc.). For those who do 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 percent in 1989 to 5.6 percent in 1990.

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

17. $F = .11$, $Prob > F = .74$. Using the estimates that are stratified by gender in Table 3 and in Table 5, if women were treated similarly to men in promotion receipt (had the male promotion receipt coefficients), their wage growth would increase by about 10 percent (or by about 4 cents). If women were treated similarly to men in wage growth (had the male wage growth coefficients), however, wage growth would be reduced by about 10 percent (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 women's wages on average.

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

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 are presented because the immediate impact of promotion for these outcomes seems to be the most relevant and because some of the outcomes (such as the earnings structure variables) are unavailable after 1990.

21. Similar to 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 heteroscedasticity, the standard errors are corrected using the procedure developed by White (1980).

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

23. Promotion is also positively related to increases in the a number of non-wage benefits that workers report are made available to them, although a large number of workers report "don't know" when asked about non-wage benefit availability. Given that non-discrimination laws generally require that employers make available the same set of benefits 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 similarly as described in footnote 16.

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 than 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.

27. The coefficient for taking over an old supervisor's job is marginally significant at the .11 significance level in the layoff hazard estimation.

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Table 1

Percent Promoted 1989-90

	All	Males	Females
Percent promoted	24.23	24.69	23.56
Among those promoted, percent who experienced:			
Position upgrade	26.45	27.48	24.84
Took over old supervisor's job	8.12	8.49	7.55
Promoted to a higher level job in a different section	14.27	13.74	15.09
Chosen to fill a newly created position with greater responsibilities	9.59	8.49	11.32
There was a reorganization and was promoted	5.54	5.66	5.35
Received promotion but continued to perform basically the same duties as before	30.50	30.51	30.50
Lateral move to a different section	2.33	2.22	2.52
Other	3.20	3.43	2.83
Sample Size	3355	2005	1350

Source: National Longitudinal Survey of Youth

Table 2

Characteristics of a Promotion Among those Promoted
(In Percent)

	All	Males	Females
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 percent who experienced an increase in job responsibilities.

Table 3

Determinants of Promotion Receipt
(Absolute Value of T-Statistics)

Variable	Mean	(1) All	(2) All	(3) Males	(4) Females
Female[a]	.40	-4.20[*] (1.83)	-3.86[*] (1.66)		
Black[a]	.26	-7.17[**] (2.62)	-7.35[**] (2.66)	-7.71[**] (2.20)	-5.30 (1.17)
Hispanic[a]	.18	-4.57 (1.60)	-4.69 (1.63)	-10.12[**] (2.74)	3.36 (.73)
Education	12.99	-.01 (.01)	-.04 (.07)	.18 (.23)	-.16 (.15)
Armed Forces Qualifying Test percentile	43.02	-.07 (1.35)	-.07 (1.33)	-.07 (1.11)	-.07 (.80)
Tenure (in weeks)	201.87	.03 (1.61)	-.01 (.13)	.03 (1.17)	.03 (1.07)
Tenure squared x 10^{-3}	71.64	-.10[**] (3.08)	-.05 (.87)	-.10[**] (2.55)	-.09[*] (1.72)
Prior experience (in weeks)	310.57	-.01 (.04)	.01 (.21)	.01 (.20)	-.01 (.25)
Experience squared x 10^{-3}	124.37	-.01 (.18)	.01 (.01)	-.03 (.75)	.02 (.44)
Received company training 1988-89 at current job	.10	10.88[**] (3.53)	8.95[**] (2.87)	6.36 (1.56)	17.64[**] (3.67)
Firm > 1000 employees[a]	.40	7.04[**] (3.34)	6.71[**] (3.16)	8.56[**] (3.10)	5.31 (1.59)
Union member[a]	.16	-5.90[**] (1.97)	-5.30[*] (1.75)	-7.19[**] (2.02)	-4.30 (.76)
Reside in SMSA[a]	.80	-3.10 (1.18)	-2.42 (.91)	-2.98 (.89)	-3.21 (.74)
Local unemployment rate	5.53	-.09 (.16)	-.05 (.09)	.09 (.13)	-4.62 (.49)
Married[a]	.53	-.03 (.15)	-.36 (.16)	2.97 (.9)	-4.56 (1.37)

Table 3 (Cont.)

Variable	Mean	(1) All	(2) All	(3) Males	(4) Females
Number of children	.87	-.95 (.74)	-.95 (.74)	-.52 (.29)	-1.06 (.53)
Child less than age 6 in Household[a]	.34	2.59 (.94)	2.80 (1.01)	.58 (.15)	3.80 (.91)
Promoted 1988-89 at current job[a]	.20		17.86[**] (7.45)		
Log-likelihood		-1789.9	-1762.4	-1077.7	-699.0
Sample size		3355	3355	2005	1350

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 $\hat{b}f(\overline{X}\hat{b})$ where $\hat{b}$ is the vector of estimated parameters of the probit model, $\overline{X}$ is the vector of means of the explanatory variables, and f standard normal probability density function. The normalized coefficients are multiplied by 100. All equations include industry and occupation dummy variables.
  Refers to dummy variable.
[*]   [**]at the .05 level (two-tailed tests).

Table 4

Gender/Race Coefficients from Promotion Receipt Probits, by Type of Promotion
(Absolute Value of T-Statistics)

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 $\hat{b}f(\overline{X}\hat{b})$ where $\hat{b}$ is the vector of estimated parameters of the probit model, $\overline{X}$ is the vector of means of the explanatory variables, and f is the standard normal probability density function. The normalized coefficients are multiplied by 100. The normalized coefficients are multiplied by 100. The other independent variables included are the same as specification (1) in Table 3. The sample size for all equations is 3355.
* Statistically significant at the .10 level; ** at the .05 level (two-tailed tests).

Table 5

Promotions and Wage Growth
(Absolute Value of T-Statistics)

	(1) All[a]	(2) All[a]	(3) All[a]	(4) All - Position Change[a,c]	(5) Males[a]	(6) Females[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	3355	3355	3355	3355	2005	1350	2829	2829

Notes: 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.
[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).

Table 6

Promotion Coefficients From First-Differenced Wage Regressions
(Absolute Value of T-Statistics)

	(1) All [a]	(2) All [b]	(3) Males [a]	(4) Males [b]	(5) Females [a]	(6) Females [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	3355	2829	2005	1764	1350	1065

Notes: The numbers reported in the table are the estimated promotion coefficients from regressions where 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).

Table 7

Promotion Coefficients From First-Differenced Regressions
(Absolute Value of T-Statistics)

	(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 (1.19)	-9.06** (2.96)	5.06** (3.04)	15.86** (7.22)	6.26** (3.87)	15.18** (5.17)
Promotion Type						
Position upgrade	-2.99 (.92)	-6.52** (3.50)	5.72* (1.92)	17.59** (4.46)	6.57** (2.38)	15.81** (2.99)
Supervisor's job	11.20* (1.71)	2.48 (.57)	12.12** (2.46)	49.14** (7.44)	30.79** (4.96)	12.83 (1.49)
Higher level job	-.07 (.01)	-1.31 (.49)	6.87 (1.49)	11.22** (2.01)	2.67 (.61)	24.77** (3.18)
New position	.49 (.09)	-7.20** (2.09)	.61 (.13)	12.32* (1.91)	2.35 (.57)	26.99** (4.20)
Reorganization	9.68 (1.27)	-.44 (.07)	-5.85 (.90)	17.67** (2.56)	16.37** (2.25)	11.56 (1.21)
Same duties	5.15* (1.65)	.32 (.20)	5.14* (1.89)	9.71** (2.70)	2.34 (.97)	7.69 (1.60)
Lateral move	-4.76 (.92)	-5.87 (1.14)	7.12 (.61)	-1.89 (.12)	-5.60 (.54)	12.94 (1.02)
Other	4.97 (.43)	7.44 (1.40)	3.47 (.42)	16.98* (1.72)	-2.06 (.22)	17.11 (1.38)
Competitve/Noncompetitive						
Competitive	3.34 (1.12)	-1.96 (1.05)	5.89** (1.98)	16.81** (4.57)	5.18* (1.87)	15.57** (3.56)
Noncompetitive	1.80 (.77)	-2.32* (1.74)	4.64** (2.45)	15.39** (5.99)	6.79** (3.62)	14.98** (4.27)
Sample Size	3355	3355	3355	3355	3355	3355

Table 7 (cont.)

Notes: The numbers reported in the table are the estimated promotion coefficients from regressions where 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).

Table 8

Job Separation Hazard Estimates
(Absolute Value of T-Statistics)

Variable	(1) All Separations	(2) Quits	(3) Layoffs	(4) Males	(5) Females
Promotion	2.01 (.38)	3.17 (.49)	2.04 (.21)	-.98 (.14)	4.69 (.54)
Female	-5.99 (1.09)	-5.52 (.83)	-3.62 (.35)		
Black	12.07* (1.90)	3.24 (.41)	25.98** (2.33)	23.16** (2.89)	-6.67 (.62)
Hispanic	1.95 (.28)	-12.08 (1.41)	16.56 (1.43)	-5.77 (.67)	2.58 (.24)
Education	9.07 (.62)	.88 (.49)	-5.94** (2.26)	-1.18 (.64)	-.61 (.25)
Armed Forces Qualifying Test percentile	-.04 (.32)	.02 (.13)	-.07 (.35)	-.02 (.16)	-.05 (.24)
Tenure (in weeks)	-.47** (10.52)	-.51** (9.09)	-.40** (4.97)	-.46** (8.08)	-.51** (6.84)
Tenure squared x 10^{-3}	.42** (5.50)	.45** (4.66)	.33** (2.46)	.42** (4.30)	.45** (3.56)
Prior experience (in weeks)	-.01 (.18)	-.03 (.52)	.07 (.76)	.05 (.73)	-.13 (1.62)
Experience squared x 10^{-3}	-.04 (.55)	-.01 (.06)	-.17 (1.25)	-.12 (1.36)	.12 (.96)
Received company training 1988-89 at current job	-18.20** (2.15)	-13.66 (1.37)	-35.43** (2.06)	-26.98** (2.37)	-11.72 (.91)
Firm > 1000 employees	-23.36** (4.55)	-17.98** (2.88)	-32.81** (3.48)	-20.96** (3.10)	-21.82** (2.71)
Union member	-28.13** (3.88)	-55.08** (5.37)	2.78 (.25)	-28.11** (3.27)	-30.18** (2.12)
Reside in SMSA	-.33 (.05)	-3.70 (.48)	4.57 (.42)	3.12 (.40)	-5.37 (.52)
Local unemployment rate	-.40 (.29)	.56 (.33)	-1.40 (.57)	.35 (.20)	-1.10 (.47)

Table 8 (Cont.)

Variable	(1) All Separations	(2) Quits	(3) Layoffs	(4) Males	(5) Females
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	-14874.1	-9690.6	-4610.0	-8439.7	-5104.8
Sample Size	3335	3335	3335	1990	1345

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).

Table 9

Promotion Coefficients From Job Separation Hazards
(Absolute Value of T-Statistics)

Promotion Type	(1) All Separations	(2) Quits	(3) Layoffs	(4) Males	(5) Females
Position upgrade	-.14 (.02)	3.29 (.30)	-8.70 (.50)	-6.25 (.53)	5.94 (.39)
Supervisor's job	28.51* (1.81)	19.36 (.98)	44.24 (1.59)	33.77* (1.72)	23.56 (.88)
Higher level job	-8.57 (.66)	-17.88 (1.08)	10.57 (.49)	-23.47 (1.34)	13.42 (.69)
New position	-1.78 (.12)	2.98 (.16)	-3.52 (.12)	4.88 (.24)	-17.60 (.74)
Reorganization	16.07 (.82)	24.81 (1.11)	-11.34 (.25)	30.42 (1.21)	3.35 (.16)
Same duties	2.10 (.24)	6.48 (.62)	-2.92 (.18)	-.98 (.09)	3.26 (.23)
Lateral move	17.73 (.61)	2.92 (.08)	48.82 (1.07)	-28.15 (.62)	59.46 (1.52)
Other	-16.51 (.67)	-17.30 (.57)	-7.72 (.19)	2.90 (.10)	-56.18 (1.10)
Competitive/Noncompetitive					
Competitive	9.21 (1.08)	11.71 (1.12)	9.03 (.59)	9.90 (.95)	3.16 (.21)
Noncompetitive	-1.27 (.21)	-.61 (.08)	-1.37 (.12)	-6.64 (.82)	5.25 (.54)
Sample Size	3335	3335	3335	1990	1345

Notes: The numbers reported in the table are the estimated promotion coefficient 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; **at the .05 level (two-tailed tests).