

# Job Satisfaction and Promotions

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## Abstract

This paper estimates the impact of promotions and promotion expectations on job satisfaction using the 1996-2006 waves of the NLSY79 dataset. Having received a promotion in the past two years leads to increased job satisfaction, even while controlling for the worker's current wage, wage rank within her peer group and wage growth. Workers who believe a promotion is possible in the next two years also report higher job satisfaction. Additionally, past promotions have a lingering, but fading impact on job satisfaction.

**JEL: J28**

**Keywords:** promotions, job satisfaction, expectations

**Acknowledgements:** I would like to thank participants at the Northeast Ohio Economics Workshop and the Midwest Economics Association meetings for their helpful comments and suggestions. All remaining errors are mine.

Job satisfaction has received significant attention from economists in recent years. Part of the interest in job satisfaction is due to the correlation between satisfaction and employee behavior. More satisfied workers are less likely to leave their employer (Clark 2001, Shields and Ward 2001, Pergamit and Veum 1989, Akerloff et al 1988, McEvoy and Cascio 1985, Freeman 1978), have lower rates of absenteeism (Clegg 1983) and have higher productivity (Mangione and Quinn 1975). In this context, reported job satisfaction can be seen as a revelation of workers' preferences over jobs. Workers reporting a high degree of satisfaction with the job are signaling their preference for the current job, which is also exhibited in the lower quit rates of highly satisfied workers. In the absence of more direct measures, job satisfaction provides the closest proxy for the utility individuals derive from their employment. Understanding the determinants of economic wellbeing is a key concern of economic science, and job satisfaction is a key facet of an individual's overall wellbeing.

Promotions are also an important aspect of a worker's career and life, affecting other facets of the work experience. They constitute an important aspect of workers' labor mobility, most often carrying substantial wage increases (Kosteas 2009, Blau and DeVaro 2007, Cobb-Clark 2001, Francesconi 2001, Pergamit and Veum 1999, Hersch and Viscusi, 1996, McCue 1996, Olson and Becker 1983 and others) and can have a significant impact on other job characteristics such as responsibilities and subsequent job attachment (Pergamit and Veum 1999). Firms can use promotions as a reward for highly productive workers, creating an incentive for workers to exert greater effort. Promotions will only be an effective mechanism for eliciting greater effort if workers place significant value on the promotion itself. Otherwise, firms would simply use pay increases to reward effort and productivity.<sup>1</sup> Workers may value

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<sup>1</sup> Of course, promotions also serve to place individuals into different jobs, where their skills can be used to greater effect. However, not all promotions carry an increase in supervisory responsibilities or significant changes in tasks.

promotions because they carry an increase in job amenities such as a bigger office or spending account (factors which are observable but for which we do not have the information) or because they enjoy the acknowledgement of work well done and the ego boost that comes with a promotion (factors which are not easily observable). Some workers might enjoy the increase in authority over co-workers that often accompanies a promotion. Given all of the dimensions in which promotions can affect workers' careers and compensation, relatively little attention has been paid to the importance of promotions as a determinant of job satisfaction.

While several studies have investigated the determinants of job satisfaction, relatively little attention has been paid to the role of promotions and promotion expectations. Tournament theory postulates that firms use the prospect of a promotion as an incentive for workers to exert greater effort. This paper estimates the effect of a promotion and promotion expectations on job satisfaction using the 1996-2006 waves of the National Longitudinal Surveys of Youth 1979 cohort (NLSY79). It is the first paper to conduct a comprehensive examination of the link between promotions and job satisfaction using US data. Specifically, I examine whether promotions have a persistent or fading impact on job satisfaction and compare the relative importance of promotion receipt and promotion expectations.

Estimating the effect of both promotions and promotion expectations on job satisfaction helps us to understand the importance of promotions as a mechanism for eliciting greater effort from workers. Specifically, finding that promotions lead to greater job satisfaction, even after controlling for wages and wage increases, supports the notion that workers value the promotion itself. This gives firms a non-pecuniary tool for extracting effort and other positive behavior from their workers. Accurate estimates of these effects provide an indication of how effective

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The dataset used in this paper shows that roughly thirty-five percent of all promotions carry no change in supervisory responsibility, indicating that promotions may also serve other functions.

promotions might be in eliciting effort. Furthermore, promotion expectations can also play a powerful role. Workers who realize they are not going to win a promotion this time around may decrease work effort, unless they believe they are still in the hunt for a future promotion.

## Literature review and background

The conceptual model used in this paper takes the approach that self-reported job satisfaction is one of the few measures of worker well-being available to researchers, and may be the best proxy for the utility from working available to social scientists. Following Clark and Oswald (1996), job satisfaction is represented through a sub-utility function ( $u$ ), where overall utility ( $v$ ) is a function of job satisfaction and non-work related variables ( $\mu$ ). This gives us  $v = v(u, \mu)$ , where the non-work related variables may reflect health and family characteristics. The utility from working takes the form

$$u = u(y, h, i, j), \tag{1}$$

where  $y$  is income from work,  $h$  are the hours worked,  $i$  is a vector of individual characteristics and  $j$  is a vector of job/workplace characteristics. The individual characteristics include factors such as education, age, ability, marital status, gender and race. The firm/employment characteristics include tenure, union membership and firm size measures. Using the 1977 and 1973 Quality of Employment Surveys, respectively, Idson (1990) and Scherer (1976) both find a negative correlation between establishment size and job satisfaction. This correlation can be (at least partly) attributed to differences in the structure of work across plants of varying size. Since promotion rates are positively correlated with plant size, it is important to include controls for the latter.

Viewing the literature on job satisfaction in the broader context of life satisfaction or happiness suggests other variables are crucial for a well-specified empirical model. The literature on happiness has shown that well-being depends on relative, rather than absolute income, and that the effects of income growth are fleeting. These findings have also come through in the job satisfaction literature, showing that relative wages can be equally or more important to worker satisfaction than absolute income (Brown et al 2008, Cappelli and Sherer 1988, Clark and Oswald 1996, and others). Hammermesh (2001) finds that earnings shocks have a significant impact on satisfaction, however the effect is temporary. The first observation is important since any empirical model investigating the effects of promotions on job satisfaction must accurately account for earnings. It also suggests a mechanism through which promotions might affect employee satisfaction: promotions raise the worker to a higher position relative to those who do not receive one. People might derive satisfaction not only from having a higher income relative to their peers, but also higher rank, among other things. Therefore, the basic specification also includes the individual's percent wage rank. The latter finding from the life satisfaction literature is also informative; I investigate whether the effects of a promotion on job satisfaction are transitory. Thus, another specification includes a lagged promotion variable to capture whether the effects of a promotion are transitory, permanent or fading over time. The basic equation takes the following form:

$$s_{it} = c + \beta \vec{p}_{it} + \gamma \bar{w}_{it} + \delta \vec{x}_{it} + \varepsilon_{it}, \quad (2)$$

where  $s_{it}$  is job satisfaction,  $p$  is a vector of promotion and promotion belief variables,  $w$  is a vector of wage variables and  $x$  is a vector of individual and firm characteristics. This model is estimated using both OLS and fixed effects estimation.

Clark (1997), Sousa-Poza and Sousa-Poza (2003) and Long (2005) emphasize the importance of expectations in job satisfaction. All three papers find evidence supporting the hypothesis that part of the difference in job satisfaction between men and women (the latter report higher job satisfaction) is due to the fact that women have lower expectations. Long's study finds the gender difference only holds for less-educated workers in Australia. None of these studies, however, directly controls for expectations. Stutzer (2004) finds that individuals with higher income aspirations have lower life satisfaction. This logic extends to promotion expectations as well. Our sample shows that men have greater promotion expectations. The rate at which men report a promotion is possible is 62.6 percent, as opposed to 53.7 percent for women. However, men and women are equally likely to report having received a promotion. Thus, men are more likely to have unfulfilled expectations regarding promotions. I test for the importance of unfulfilled expectations by estimating an augmented model which includes an interaction term between the promotion receipt and promotion expectations variable.

As an indirect measure of the link between job satisfaction and future quits, a couple of papers have also investigated the importance of satisfaction with advancement opportunities on future job attachment, with mixed results. Clark (2001) finds that both satisfaction with pay and job security are the most important job satisfaction categories for determining future quits, while satisfaction with promotion opportunities is not a significant factor. Using cross-sectional data on British nurses, Shields and Ward (2001) find that dissatisfaction with promotion and training opportunities have a stronger effect on intentions to quit than dissatisfaction with workload or pay. Shields and Ward also find that nurses who report promotion prospects as the most important work characteristic do not have significantly different job satisfaction than those who report other employment characteristics as most important.

There are only a few papers estimating the impact of promotions on overall job satisfaction. Using data from the 1989 and 1990 waves of the NLSY, Pergamit and Veum (1989) find a positive correlation between promotions and job satisfaction. However, their empirical model only controls for promotions and the type of job change. Francesconi (2001) analyzes the effects of promotions on changes in job satisfaction using British household data. In another study using British household data, Clark (1996) includes a dummy variable indicating whether the respondent believes she has opportunities for promotion as an explanatory variable. This variable is very similar to the promotion expectations variable included in the present study; however he does not analyze the effects of actual promotions upon job satisfaction. To my knowledge, the current paper is the only one to conduct a comprehensive study on the relationship between job satisfaction and promotions using US data. It is also the first paper to consider the importance of promotion expectations and how these expectations may affect the relationship between promotion receipt, or lack thereof, and job satisfaction. De Souza (2002) estimates the effect of promotions on worker satisfaction, focusing on promotion satisfaction in a small sample of managers. De Souza finds that managers who received a promotion are more satisfied with promotion opportunities and have greater promotion expectations for the future. De Souza also considers other aspects of employee satisfaction, but does not analyze overall job satisfaction.

#### Data and variable construction

I use the 1996-2006 waves of the National Longitudinal Surveys of Youth 1979 (NLSY79). The NLSY, which conducted surveys every year starting in 1979 through 1994, then in even numbered years starting with the 1996 survey, began with an initial sample of 12,686

individuals. The initial sample contained oversamples of poor white individuals and members of the armed forces. The military and poor white oversamples were dropped in 1985 and 1991, respectively. Attrition also leads to further loss of sample size; while 9,018 individuals were surveyed in 1991, this number falls to 7,654 in the 2006 wave of the survey. The individuals in the survey were 14 to 22 years of age in 1979, so that the full sample consists of individuals in their thirties and forties. Inclusion of the lagged promotion, promotion belief and wage variables leads to a loss of one additional observation per respondent and as a result, the estimation uses information on job satisfaction from 1998-2006. Information on job satisfaction and promotions is available for 30,379 individual-year observations over that time frame. However, observations are excluded if any of the dependent variables are missing, the respondent worked fewer than 1,500 hours in the past calendar year, or the reported real hourly wage was less than five or greater than two-hundred and fifty dollars per hour. The hours and wage restrictions leads to an additional loss of 3,358 observations.<sup>2</sup> The final sample contains 18,364 observations on 5,388 individuals.

There is a single job satisfaction variable, which records the respondent's overall job satisfaction and takes four possible values: 0 (very unsatisfied), 1 (somewhat unsatisfied), 2 (somewhat satisfied) and 3 (very satisfied). Approximately ninety-three percent of the observations in the final sample record workers being satisfied with their job (see table 1). There is a fairly even split between those who are somewhat and those who are very satisfied. Thus, an alternative approach is to construct an indicator variable for whether the respondent is very satisfied with her job. This indicator variable serves as the dependent variable when fitting the

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<sup>2</sup> Estimates including individuals who do not meet the annual hours worked and wage range criteria yield similar results. Indeed, results using various subsets of regressors, with larger sample sizes, all yield similar results for the promotion variables.



model using the probit estimator, providing a third estimation method to check the robustness of the results to different estimation routines.

The promotion variable comes from a series of questions which ask the respondents about job changes. First, each respondent is asked whether she has experienced a position change with her current/most recent employer in the past two years. If she replies in the affirmative, she is also asked whether this position change was a promotion, demotion, or at the same level. The promotion variable takes a value of one if the respondent reports a position change that is a promotion and zero otherwise (including if she reports no position change). I could also construct a demotion variable, however, demotions are rare, occurring only once per thousand observations.

The dataset also contains information on promotion expectations. Respondents are asked whether they believe a promotion is possible in the next two years. Using this information, I create a promotion belief variable that takes a value of one if the respondent believes a promotion is possible, and zero if she does not. A lagged promotion expectations variable is created by taking the promotion expectation variable from the previous observation for that individual. If the sample contains consecutive observations for an individual, so that there are two years between the observations, then the promotion receipt variable and the lagged promotion expectations variable will cover the same period of time. If the observations are not consecutive, then the lagged promotion expectations and promotion receipt variables do not cover exactly the same period. The promotion receipt variable will cover all years since the previous interview, so that it still covers the expectations period. For example, if the interviews are four years apart, so that the first interview is at  $t-3$  and the second at  $t$ , then the promotion expectations variable covers years  $t-3$  and  $t-2$  while the promotion receipt variable covers years  $t-$

3, t-2, t-1 and t. Restricting the sample to observations where only two years have lapsed since the previous interview does not appear to have any substantial effect on the estimates. These results are not presented here but are available from the author upon request.

The dataset also provides information on the highest grade completed by the individual at the time of the interview. Past research on job satisfaction has shown that more highly educated workers have lower job satisfaction; with the proposed explanation that more highly educated workers have greater expectations and are therefore more likely to be disappointed. This negative correlation between education and job satisfaction generally is found only when controlling for wages or earnings; education can still lead to greater job satisfaction through higher earnings. Given these findings, it is important to control for educational attainment. Rather than treat the relationship between education and job satisfaction as linear and simply including a single schooling variable, I create three dummy variables for educational attainment. The first variable takes a value of one if the respondent completed 13-15 years of school and zero otherwise, representing individuals with more than a high school education but who have not completed college. The second variable represents college graduates, taking a value of one if the individual completed sixteen years of school and zero otherwise. Finally, the third variable takes a value of 1 if the respondent reports having completed more than sixteen years of school and zero otherwise. Those with a high school education or less make up the excluded group in the empirical model. This approach is frequently used in the job satisfaction literature.

The literature suggests the empirical model should control for three income variables: own income, relative income and the change in income. The data contain information on the hourly wage, which is converted into 2006 dollars by using the CPI deflator and is then converted in logarithms to facilitate interpretation of the coefficient estimates. I represent

income change by constructing the change in log wages from the previous observation for that individual. This is done by first obtaining the lagged wage which is created by taking the respondent's hourly wage from the previous observation that is available for that individual and then taking the difference between the log of the current wage and the log of the lagged wage. Rather than the comparison group wage, the estimation uses the individual's rank within her comparison group, expressed as a percentage and taking a value between zero and one. The comparison groups are created by grouping workers according to eleven broad occupation categories, four age groups (less than 37, 37-39, 40-42 and greater than 42 years of age), and four education groups (high school or less, some college, college and college plus), leading to 880 possible comparison groups.<sup>3</sup> Alternatively, I could have developed a relative wage variable using the same comparison groups (or by estimating a Mincerian wage equation and constructing wage residuals using the parameter estimates). However, the recent findings by Brown et al (2008) suggest that wage rank is the more appropriate measure.

The job satisfaction literature has established that women generally report greater job satisfaction than men with equivalent characteristics. One potential explanation for this observation is that dissatisfied women are more likely to quit than men, since the latter are still more likely to be the primary income earner in the household. Clark (1997) tests this assertion by estimating a Heckman selection model, and fails to find sample selection to be a significant factor. An alternative explanation is that men have greater expectations over various aspects of their work and careers, including promotion potential, therefore they run a greater risk of being disappointed when their expectations are not met. An indicator variable for whether the respondent is female will capture the average gender effect on job satisfaction.

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<sup>3</sup> There are 880 possible comparison groups (11x4x4x5). However, some groups will not contain any observations. For instance, we are unlikely to find many workers with more than a college degree who are manual laborers.

Other key variables include the Armed Forces Qualifying Test (AQT) percentile score, which was administered to all individuals participating in the NLSY79 in 1981. The variable is reported as the percentile, taking values between zero and one-hundred. Job tenure on the current or most recent job (the one for which all data is collected) is reported in years. There is an indicator variable which takes a value of one if the individual was a member of a union or employee association and zero otherwise. There are also two firm size variables. The first is a dummy variable which takes a value of one if the firm has multiple locations and zero otherwise. The second records the number of employees at the respondent's location (as opposed to the total number of employees at the firm across all locations). There are also indicator variables for gender and race (black and Hispanic).

Table 1 provides the response frequencies for the job satisfaction variable for the full sample and separately for men and women. In every case, respondents report being either somewhat or very satisfied with their job in over ninety percent of the observations. Individuals report being very unsatisfied with the current or most recent job in less than two percent of all observations. Contrary to other studies, the breakdown by gender shows highly similar levels of job satisfaction for men and women (columns 2 and 3 respectively).

Table 2 presents the summary statistics for the full sample and by gender. The mean job satisfaction value is roughly 2.39, reflecting the frequencies reported in table 1. Individuals report receiving a promotion in the past two years in seventeen percent of the observations, and believe a promotion is possible in the next two years nearly fifty-nine percent of the time. The average hourly wage (in 1996 dollars) is 20.63 while the average hours worked in the calendar year prior to the interview were 2,329. Roughly twenty-five percent of the observations are on individuals who attended some college, while thirteen percent were for those who completed

four years of college. Ten percent of the observations are on people with more than four years of college. The respondents in the sample range in age from 31 to 49 years, with an average age slightly under forty years, while the average tenure on the current/most recent job is 7.3 years. Unionization is potentially important, as 18.2 percent of the observations involve union members. In terms of firm characteristics, the average number of employees at the respondent's location is 1,189, while individuals report their firm has multiple locations in 71.2 percent of the sample.

Columns 2-3 report the summary statistics by gender. In this sample, there is not a significant difference between men and women in reported job satisfaction. This contrasts with previous studies which show that women have greater job satisfaction. The data shows a slightly higher fraction of women report being highly satisfied with work (49.3 versus 46.4 percent) however the difference is much smaller than what is observed in other datasets. The data does, however, show that men have greater promotion expectations even though promotion rates are slightly higher for women. Overall, the summary statistics suggest that gender does not play a significant role in job satisfaction in this sample. For this reason, I will focus on estimating job satisfaction models for the pooled sample rather than estimate separate models for men and women.

## Results and discussion

Table three presents the results of the basic specification. I fit the model using both OLS and fixed effects (FE) estimation with job satisfaction as the dependent variable. The probit estimator is used to fit the model where the indicator for being highly satisfied serves as the dependant variable. Coefficients and standard errors are reported for the OLS, and FE estimates,

while the marginal effect on being highly satisfied and corresponding standard errors are reported for the probit model. The model is estimated twice for each estimator, once excluding the wage variables and once with all three of them. As a robustness check, the model was estimated using only observations where the individual did not change employers since the last interview, yielding highly similar results.

Each of the three estimators yields similar results for the promotion variable. Comparing the two sets of estimates obtained via OLS estimation (columns one and two), we see that the coefficients on the promotion variable are highly similar. In fact, this observation holds across all three estimators, suggesting that while income is an important component of job satisfaction, it does not contribute much to the increase in job satisfaction that accompanies a promotion. Focusing on the estimates which include the wage variables, both the OLS and FE estimates show that receiving a promotion raises job satisfaction by roughly 0.12 units, on average. The fact that both OLS and FE estimation yield nearly identical coefficient estimates for promotion receipt suggests that promotions are not correlated with individual fixed effects. It does not appear that people who are more inclined to be satisfied with their jobs are also more likely to be promoted. According to the FE estimates, receiving a promotion has nearly the same impact on job satisfaction as a one-hundred and sixty-three percent increase in the hourly wage or a seventy-five point increase in the percent wage rank. However, this comparison is not quite correct, since an increase in the individual's hourly wage also raises his wage rank. To facilitate a simple comparison between the effect of promotion receipt and wage increases on job satisfaction, I have also estimated the models including one wage variable at a time, except for the change in the log wage. The results for the promotion and wage variables are presented in appendix table A1. They show that a promotion has the same impact on job satisfaction as a

sixty-nine percent increase in the wage. Promotion belief has an even stronger impact on job satisfaction. Contrary to expectations and previous research, the OLS estimates fail to find a statistically significant correlation between wage rank and job satisfaction; however the FE results show a strong, positive effect of wage rank on job satisfaction. A ten point increase in the wage rank percentile raises job satisfaction by 0.0158 points. Wage growth also shows a small, positive correlation with job satisfaction; however the coefficient is not statistically significant in the FE model.

Other variables, for the most part, have the predicted signs. In contrast with studies which find that more educated workers are less satisfied with their jobs, these estimates show no consistent correlation between levels of educational attainment and job satisfaction. This may be due to the fact that there is relatively little change in educational attainment over the sample period; we only observe a change in education levels for an individual between observations in 1.4 percent of the sample. Workers with higher ability are less satisfied with their jobs; this result is consistent with the hypothesis, put forward in the literature, that unfulfilled expectations can play a significant role in determining satisfaction. In contrast with previous studies, such as Clark (1996), there is a positive correlation between hours worked and job satisfaction, and it is not due to unobserved individual fixed effects. One possible explanation is that people work more hours when they enjoy their jobs. Job satisfaction appears to initially decline with job tenure and then rise. This finding is consistent with the dynamic that individuals with lower job satisfaction are more likely to leave their jobs, but will give it some time on a new job before doing so. While the OLS results show that union members are less satisfied with their jobs than non-union members, the FE results show that people who become union members also have a corresponding increase in satisfaction. The OLS results show that workers in larger firms are

less satisfied with their jobs, corroborating findings from previous research. However, this effect disappears after controlling for individual fixed effects, which might indicate that people who are less inclined to be satisfied with their jobs are more likely to work for large firms. Finally, Hispanics are more satisfied with their work, *ceteris paribus*, while blacks are less satisfied. However, the coefficient on gender is not statistically significant.

The marginal effects from the probit model have a slightly different interpretation; they represent the effect of the independent variable on the probability a person will be highly satisfied with her job. In the probit and ordered probit models, receiving a promotion is associated with a 9.8 percentage point increase in the probability a worker will be highly satisfied with her job. Promotion belief continues to affect job satisfaction; however the effect is smaller than the estimates using the OLS and FE models. Again, the impact of a promotion is large relative to the effect of a pay increase; a promotion has a greater impact on job satisfaction than a seventy percent increase in the hourly wage. The estimates for the remaining variables are similar to those using the OLS estimator.

Next, I investigate whether the effect of a promotion on job satisfaction is fleeting. All estimates include the same full set of explanatory variables used in the basic model; however, for the sake of brevity, only the results for the promotion receipt and belief variables and the hourly wage are reported. Table four presents the results of the augmented model fitted using the FE and probit estimators. The results show that lagged promotions (those reported in the previous interview, in most cases conducted two years earlier, so that the lagged promotions were received three to four years ago) continue to have a positive correlation with job satisfaction. However, the effect is much smaller; a promotion received three to four years ago (column 1) only leads to a 0.048 unit increase in reported job satisfaction, which is less than forty percent of



the impact of a promotion received in the past two years. Thus, it appears that the effect of promotions is fading. Furthermore, the results presented in column 2 indicate that the effect completely disappears after one lag. The results using the very satisfied indicator as the dependant variable show greater persistence on promotions' impact on job satisfaction. A promotion received two periods ago still has a lingering impact on current job satisfaction. The discrepancy between the FE and probit estimates for the two period lagged promotion receipt variable may be due to the unobserved individual fixed effects; OLS estimates that are not presented here also show a positive (but not statistically significant) correlation with job satisfaction similar in magnitude to the marginal effect shown in column 4. These findings reinforce previous research which has found that increases in income have only a temporary effect on life and job satisfaction.

Table five presents the results of an augmented model including interactions between promotion receipt and either current or lagged promotion belief, using the fixed effects estimator. Results indicate that workers who believe another promotion is possible in the next two years receive a smaller boost to job satisfaction from receiving a promotion than people who do not believe another promotion is possible. However, past promotion expectations do not appear to matter (column 1), indicating there is no disappointment effect. Promotion receipt has the same impact on job satisfaction for workers who did not believe a promotion would be possible in the next two years but received one anyway as those who believed one was possible and received a promotion. It is also possible that past promotion beliefs are not important when we are controlling for current beliefs, since they reflect the individual's current state of mind, which is also being reflected in the job satisfaction variable. Column 3 includes an interaction between promotion receipt and lagged promotion receipt. The interaction term does not show a

significant coefficient estimate. At the same time, the general patterns shown in table four persist; more recent promotions show a stronger effect on job satisfaction while promotions received further in the past continue to show a positive but smaller impact. Furthermore, the magnitudes of the effects are little changed from the estimates shown in table four. Taken together, the results in column 3 suggest that having received a promotion in the past does not diminish the impact of more recent promotions. All in all, these results also indicate that past promotions do have a lingering, but diminishing impact on job satisfaction. This is similar to the fading effect of wage and income increases on job/life satisfaction found in previous studies.

One might hypothesize that more frequent promotions also reflect smaller changes in job level, on average. Comparing the results in column one of table four with those in column four of table three, we see that inclusion of the lagged promotion receipt variable does not decrease the estimated effect of promotion receipt on job satisfaction. Furthermore, comparing column four of table three with column three of table five, we see that inclusion of the interaction term between recent and lagged promotion receipt does not lower the estimated impact of promotion receipt on job satisfaction either. Taken together, these results suggest that a greater frequency of promotions does not reflect smaller level changes.

#### *Job satisfaction and other job characteristics*

The literature on promotions shows that they carry many accompanying changes to a worker's job characteristics, in particular increases in supervisory responsibilities (Pergamit and Veum 1999). These changes might also have a significant impact on job satisfaction. Therefore, it is important to control for these job features when estimating the impact of promotions on job satisfaction. These variables are not included in the basic estimates because they are not

available for all observations, leading to a significant loss of sample size. In particular, the supervisor status and responsibilities variables are only available in the 1996 and 1998 waves of the survey. The surveys contain information on supervisor status, whether an individual has responsibility for setting pay, determining promotions or setting tasks. In addition to these variables, I use information on the following job amenities: parental leave, retirement plans, flexible hours, training programs and company provided child care. An indicator variable is included for each of these job amenities and the various supervisory responsibilities.

Column 1 of table six provides the results including all of these variables. Since only one observation is available per individual, the OLS estimator is employed. The results continue to show a positive effect of promotion receipt and promotion belief on job satisfaction; however the effect is not as strong as observed in tables 3-5.<sup>4</sup> Interestingly, being a supervisor and having responsibility for setting tasks are both associated with higher job satisfaction. Thus, it appears that part of the job satisfaction effect of promotions estimated in the basic model is capturing the effect of an increase in supervisory responsibility that often (but not always) accompanies a promotion. Caution is required before interpreting these results since we have not control for individual fixed effects. Column 2 estimates the model after first differencing the data and excluding the lagged promotion variable (since supervisor status is only available for 1996 and 1998). Promotion receipt and promotion belief both continue to show a strong, positive correlation with job satisfaction. However, while the supervisor and responsible for tasks variables continue to show a positive impact on job satisfaction, the coefficient estimates are no longer statistically significant. Taking deviations from means, which is equivalent to taking first differences when there are only two observations, can exacerbate measurement error which

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<sup>4</sup> To make sure the change in the coefficients is not due to the change in the sample, I estimate the basic model using the same sample employed to estimate the augmented model in table six. The results are highly similar to those presented earlier.

biases estimates towards zero. Given this potential problem, we do not want to draw any strong conclusions from those results. The take away from those results is the robustness of the promotion and promotion belief results.

Columns 3-4 provide results controlling for job amenities but not supervisor status and responsibilities. Having flexible hours, parental leave and access to training programs and company provided child care show a robust, positive impact on job satisfaction. Company sponsored retirement plans also show a positive link with job satisfaction, but only in the fixed effects model. That these effects persist after controlling for fixed effects indicates these amenities do lead to higher job satisfaction, not that happier workers are more likely to work for firms offering these employment characteristics. Promotions, lagged promotions and promotion belief all continue to show similar impacts on job satisfaction as those presented in table three. The positive effect of certain amenities on job satisfaction combined with the fact that including these variables in the model does not reduce the coefficient on job satisfaction, suggests that promotions do not increase the probability of receiving these amenities; they are probably offered to all or most employees at the firm. However, this exercise does give us a better sense of the effect of promotions on job satisfaction relative to other features of the employment relationship. Furthermore, it shows that the effect of promotions on raising job satisfaction is not due to any of the six job amenities included in the extended model.

### *Quits and job satisfaction*

The empirical literature cites a strong link between job satisfaction and both quits and quit intentions. Next, I show that the link between job satisfaction and quits also holds in this dataset. An indicator variable for quitting the most recent job is created from two other variables.

The respondent is asked whether she is currently with the most recent employer listed (which corresponds to the job information reported in the survey). If the respondent indicates that she is no longer with the employer, she is asked to state the reason, given the option of selecting several reasons for quitting. The quit variable takes a value of one if the individual reports that she is no longer with the most recent employer and indicates that she quit (for any reason) and zero otherwise. Given the short time frame, we should not expect to see a high rate of quits or of job separations more generally. In the primary sample, we observe quits in only two percent of the observations.

Given the low quit rate in the sample, I develop a second variable, measuring whether the respondent is currently working for the same employer reported in the previous observation for that individual. This variable takes a value of one if the individual is still employed with the same employer and zero if working for another employer. The observation is not used if the individual is not currently employed. This variable captures both voluntary and involuntary separations, therefore it is not a direct measure of quits, but more broadly captures the persistence of the employment relationship. The same employer model uses lagged job satisfaction and lagged promotion belief to capture the value of these variables when the individual was working for the employer reported in the previous observation.

The model is fitted using probit estimation for both variables. Marginal effects are reported with standard errors in parentheses. The results, presented in table seven, show a negative and highly statistically significant correlation between quits and both job satisfaction and promotion expectations. The marginal effect on the promotion receipt variable indicates a one point increase in job satisfaction is associated with a 0.68 percentage point decrease in the probability a worker will quit. This is an economically significant result given the two percent

quit rate observed in the sample. The negative correlation between promotion belief and quits provides further evidence that worker expectations are an important determinant of worker behavior. A worker who is not satisfied with his current employment situation may be more likely to stay with his current employer if he believes a promotion will place in him in a position where he will be happier. Believing a promotion is possible may convince the person not to quit but does not necessarily make him any happier in his current position. The results also show that job satisfaction may in fact be the most important determinant of voluntary job separations of all the explanatory variables included in the model. The results for the same employer variable corroborate the results for the quit variable. Individuals who reported higher job satisfaction in their previous interview are more likely to remain with the same employer. Likewise, individuals who believed a promotion would be possible in the next two years are also more likely to remain employed with the same firm. These results confirm previous findings in the literature showing that greater job satisfaction leads to lower worker turnover.

The correlation between job satisfaction and quitting may reflect unobservable individual characteristics; however the fixed effects logit is not a viable alternative in this case since the vast majority of the individuals in this sample never report having quit their jobs (the total sample size falls to roughly seven hundred observations). As a robustness check, the model was estimated using both OLS and FE estimation and in both cases, the negative correlation between job satisfaction and quits persists. In fact, the correlation becomes stronger when moving from the OLS to the FE estimator, indicating that failure to account for unobserved individual fixed effects biases the estimates towards zero. Thus, the estimates provided above may actually understate the importance of job satisfaction in predicting whether workers will quit in the near future.

## Conclusions

This paper estimates the effect of promotions and promotion expectations on job satisfaction. Both receipt of a promotion in the last two years and the expectation that a promotion is possible in the next two years result in higher job satisfaction, even while controlling for the current wage rate and the individual's wage rank within his comparison group. The effect of a promotion is roughly equal to a sixty-nine percent increase in the hourly wage. Combined with the correlations between job satisfaction and positive employee behaviors, these results suggest that promotions can be a very effective way for firms to elicit positive behavior from their employees. Additionally, it appears that firms can maintain a high level of job satisfaction even for workers not receiving a promotion if they can maintain the worker's belief that a promotion is possible.

The results in this paper are consistent with the empirical literature's finding that expectations play an important role in determining a worker's job satisfaction. The finding that promotions have a lasting, but diminishing impact on job satisfaction fits with previous research which found that income changes have a temporary effect on job and life satisfaction. Together, these observations provide strong evidence that people grow accustomed to their circumstances and require frequent improvements in their economic and employment situation in order to maintain a high level of satisfaction.

Finally, consistent with previous research, I also find a strong, negative correlation between quits and both job satisfaction and promotion expectations. In fact, these were the most important factors in the model determining whether a worker quit her most recent job by the time of the survey interview. Taken together, the job satisfaction and quits estimates indicate that

promotions can serve as an important mechanism for employers to keep their workers happy and to reduce turnover. More research is needed to provide a more thorough and detailed analysis of the links between worker turnover, promotions and job satisfaction as they relate to other aspects of the employment relationship, such as benefits and training. Such analyses will help to shed light on the relative importance workers' attach to promotions and other job characteristics. Further research is also needed to analyze the effectiveness of promotions as a mechanism for eliciting effort and reducing turnover relative to other mechanisms, such as pay increases. Such a comparison requires an analysis of the costs of promotions relative to pay increases.



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Table 1: Job satisfaction response frequency

Response	All	Men	Women
Very unsatisfied	1.71	1.55	1.9
Somewhat unsatisfied	5.52	5.2	5.91
Somewhat satisfied	45.06	46.9	42.83
Very satisfied	47.71	46.35	49.35
Mean	2.39	2.38	2.4
Observations	18,364	10,060	8,304

Table 2: Summary statistics

	Full Sample		Men		Women	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Job satisfaction	2.387	0.67	2.381	0.658	2.396	0.687
Very satisfied indicator	0.477	0.5	0.464	0.499	0.493	0.5
Promotion	0.17	0.384	0.17	0.375	0.171	0.376
Promotion belief	0.586	0.493	0.626	0.484	0.537	0.499
Hourly wage	20.63	13.76	23.12	15.4	17.61	10.73
Percent wage rank	0.514	0.29	0.575	0.284	0.439	0.279
Change in log wage	0.06	0.362	0.055	0.366	0.065	0.358
Hours worked	2,329	558.7	2,441	599.5	2,193	470.2
Some college indicator	0.251	0.434	0.215	0.411	0.295	0.456
College indicator	0.132	0.339	0.138	0.345	0.126	0.331
More than college indicator	0.101	0.302	0.104	0.306	0.097	0.297
AFQT score percentile	43.35	28.26	45.41	29.69	40.84	26.2
Age	39.54	4.04	39.52	4.07	39.57	4.006
Tenure (in years)	7.3	6.28	7.477	6.421	7.075	6.105
Union member	0.182	0.386	0.21	0.407	0.148	0.355
Firm has multiple locations	0.712	0.453	0.715	0.451	0.708	0.455
Number of employees	1,189	8,099	1,212	8,096	11,161	8,102
Married	0.737	0.44	0.787	0.409	0.676	0.468
Female	0.452	0.498	0	0	1	0
Black	0.256	0.437	0.239	0.426	0.277	0.448
Hispanic	0.189	0.391	0.188	0.39	0.19	0.448
Observations	18,364		10,060		8,304	

Means and standard deviations are presented for the full sample and by gender.

Table 3: Job satisfaction determinants

Variable	Least Squares		Fixed Effects		Probit	
	1	2	3	4	5	6
Promotion	0.121*** (0.013)	0.117*** (0.013)	0.122*** (0.013)	0.118*** (0.013)	0.1*** (0.01)	0.098*** (0.01)
Promotion belief	0.152*** (0.011)	0.148*** (0.011)	0.125*** (0.012)	0.124*** (0.012)	0.074*** (0.0081)	0.071*** (0.081)
Log hourly wage		0.109*** (0.027)		0.072*** (0.038)		0.098*** (0.022)
Percent wage rank		0.053 (0.04)		0.158*** (0.049)		0.026 (0.033)
Change in log wage		0.036** (0.014)		0.013 (0.016)		0.019* (0.011)
Log hours worked	0.057** (0.013)	0.065** (0.027)	0.051 (0.032)	0.072** (0.032)	0.08*** (0.02)	0.087*** (0.02)
Some college indicator	-0.0071 (0.018)	-0.015 (0.013)	0.00053 (0.064)	0.012 (0.064)	-0.0091 (0.01)	-0.017 (0.01)
College indicator	-0.0073 (0.018)	-0.031 (0.021)	-0.012 (0.09)	0.012 (0.091)	-0.0094 (0.014)	-0.033** (0.016)
More than college indicator	0.034* (0.021)	-0.0051 (0.025)	0.038 (0.104)	0.067 (0.105)	0.041** (0.017)	0.0046 (0.02)
AFQT score percentile	-0.0003 (0.00025)	-0.0008*** (.00025)				-0.00071*** (0.0002)
Age	0.0018 (0.0022)	0.0021 (0.0022)	0.029** (0.014)	0.029** (0.014)	0.0032* (0.0017)	0.0034** (0.0017)
Tenure (in years)	-0.0038 (0.0025)	-0.0066** (0.0026)	-0.02*** (0.0003)	-0.022*** (0.003)	-0.0084*** (0.002)	-0.011*** (0.002)
Tenure squared/100	0.00017 (0.00012)	0.024** (0.012)	0.00033** (0.00014)	0.041*** (0.014)	0.00033*** (0.00009)	0.00039*** (0.00009)
Union member	-0.019 (0.014)	-0.045*** (0.014)	0.052** (0.025)	0.044* (0.025)	-0.0054 (0.011)	-0.026** (0.011)
Firm has multiple locations	-0.056*** (0.013)	-0.063*** (0.011)	-0.0097 (0.015)	-0.013 (0.015)	-0.035*** (0.0089)	-0.04*** (0.009)
Log number of employees	-0.016*** (0.0026)	-0.019*** (0.0026)	-0.0022 (0.0038)	-0.0035 (0.0038)	-0.012*** (0.0021)	-0.015*** (0.0021)
Married	0.036*** (0.012)	0.031*** (0.012)	-0.027 (0.019)	-0.029 (0.019)	0.022** (0.0089)	0.018** (0.0089)
Female	-0.0079 (0.012)	0.016 (0.013)			0.056 (0.0095)	0.025*** (0.0097)
Black	-0.068*** (0.014)	-0.061*** (0.014)			-0.043*** (0.01)	-0.037*** (0.011)
Hispanic	0.051*** (0.014)	0.046*** (0.013)			0.044*** (0.011)	0.04*** (0.011)
R-squared/Pseudo R-squared	0.0559	0.0629	0.037	0.0423	0.0402	0.0455

All models contain 18,364 observations on 5,388 individuals.

All models control for industry, occupation and year effects.

Columns 1-4 present the coefficient estimates with corresponding standard errors in parentheses.

Column 5-6 presents the marginal effects with corresponding standard errors in parentheses.

Table 4: Job satisfaction and lagged promotion variables.

Variable	Fixed Effects		Probit	
	1	2	3	4
Promotion	0.122*** (0.016)	0.119*** (0.021)	0.091*** (0.012)	0.087*** (0.015)
Promotion belief	0.123*** (0.013)	0.113*** (0.016)	0.071*** (0.009)	0.067*** (0.01)
Lagged promotion	0.048*** (0.015)	0.058*** (0.02)	0.034*** (0.011)	0.039*** (0.014)
Lagged promotion (2 periods)		-0.0045 (0.018)		0.025** (0.013)
Log wage	0.034 (0.044)	0.0034 (0.055)	0.095*** (0.025)	0.091*** (0.029)
Percent wage rank	0.205*** (0.055)	0.198*** (0.066)	0.022 (0.036)	0.024 (0.042)
R-squared/Pseudo R-squared	0.0439	0.0436	0.0461	0.0451
Number of individuals	5,108	4,518	5,108	4,518
Observations	14,918	11,130	14,918	11,130

Columns 1-2 present coefficient estimates with corresponding standard errors in parentheses.

Columns 3-4 present marginal effects with corresponding standard errors in parentheses.

Full set of regressors included in each model; selected estimates provided for brevity.

\*, \*\*, \*\*\* denote significance at the ten, five and one-percent level, respectively.

Table 5: Job satisfaction and expectations interactions.

Variable	1	2	3
Promotion	0.156*** (0.031)	0.191*** (0.032)	0.129*** (0.019)
Lagged promotion	0.049*** (0.016)	0.049*** (0.016)	0.056*** (0.018)
Promotion belief	0.124*** (0.014)	0.136*** (0.015)	0.124*** (0.014)
Lagged promotion belief	0.017 (0.015)	0.0084 (0.014)	0.01 (0.014)
Promotion*promotion belief		-0.093*** (0.036)	
Promotion*lagged promotion belief	-0.048 (0.035)		
Promotion*lagged promotion			-0.029 (0.034)
R-squared	0.0457	0.0462	0.0456
Number of individuals	4,945	4,945	4,945
Observations	13,859	13,859	13,859

Fixed effects estimation results presented with standard errors in parentheses.

All models control for industry, occupation and year indicators.

Full set of regressors included in each model; selected estimates provided for brevity.

\*, \*\*, \*\*\* denote significance at the ten, five and one-percent level, respectively.

Table 6: Job satisfaction estimates including other work characteristics

	1	2	3	4
Promotion	0.075*** (0.03)	0.083*** (0.31)	0.10*** (0.016)	0.116*** (0.017)
Lagged promotion	0.0023 (0.03)		0.028* (0.015)	0.051*** (0.016)
Promotion belief	0.16*** (0.027)	0.102*** (0.029)	0.129*** (0.013)	0.113*** (0.014)
Log hourly wage	0.038 (0.077)	0.027 (0.035)	0.092*** (0.031)	0.032 (0.047)
Percent wage rank	0.128 (0.113)	0.06 (0.124)	0.03 (0.047)	0.18*** (0.059)
Supervise	0.226*** (0.083)	0.179 (0.113)		
Responsible for pay setting	0.029 (0.033)	0.0013 (0.035)		
Responsible for determining promotions	-0.014 (0.034)	0.036 (0.039)		
Responsible for setting tasks	0.088** (0.035)	0.06 (0.037)		
Parental leave	0.072** (0.033)	-0.0078 (0.036)	0.055*** (0.016)	0.044*** (0.019)
Retirement plan	0.018 (0.037)	0.065 (0.051)	0.014 (0.019)	0.07*** (0.023)
Flexible hours	0.12*** (0.026)	0.074** (0.032)	0.101*** (0.012)	0.059*** (0.015)
Training programs	0.099*** (0.029)	0.083** (0.034)	0.075*** (0.014)	0.083*** (0.017)
Company provided child care	0.08* (0.043)	0.117** (0.054)	0.073*** (0.018)	0.049*** (0.023)
Estimator	OLS	First Diff	OLS	FE
R-squared	0.1166	0.0625	0.08	0.0526
Number of individuals	3,021	2,265	4,901	4,901
Observations	3,021	2,265	13,269	13,269



All models control for industry, occupation and year indicators.  
Full set of regressors included in each model; selected estimates provided for brevity.  
\*, \*\*, \*\*\* denote significance at the ten, five and one-percent level, respectively.

Table 7: Quits and job satisfaction

	Quit	Same Employer
Lagged job satisfaction	-0.0068*** (0.00092)	0.012*** (0.0025)
Promotion belief	-0.0046** (0.0014)	0.009*** (0.0027)
Log hourly wage	-0.0092* (0.0036)	-0.00012 (0.0001)
Percent wage rank	-0.00026 (0.005)	0.0048 (0.0045)
Log hours worked	-0.0092** (0.0035)	-0.026*** (0.00067)
Some college indicator	0.0022 (0.0018)	0.0013 (0.0021)
College indicator	0.0091** (0.0042)	-0.0075 (0.0034)
More than college indicator	0.013*** (0.0058)	0.0063** (0.0029)
AFQT score percentile	4.56E-06 (0.00003)	0.000053 (0.00005)
Age	-0.00055** (0.00028)	0.00058 (0.00042)
Tenure (in years)	-0.0025*** (0.00035)	0.034*** (0.0057)
Tenure squared	0.000079*** (0.00002)	-0.0011*** (0.00019)
Union member	-0.0014 (0.002)	-0.0015 (0.0032)
Firm has multiple locations	0.00049 (0.0013)	-0.00052 (0.002)
Log number of employees	-0.00085** (0.00035)	0.0011** (0.0005)
Married	-0.0023 (0.0015)	0.0038 (0.0023)
Female	0.0051*** (0.0017)	0.0053** (0.0024)
Black	0.00055 (0.0017)	-0.0012 (0.0024)
Hispanic	0.001 (0.0018)	-0.0059** (0.003)
Pseudo R-squared	0.1469	0.6735
Observations	17,803	11,420

Marginal effects provided with standard errors in parentheses.

All models control for industry and year effects.

\*, \*\*, \*\*\* denote significance at the ten, five and one-percent level, respectively.

Table A1: Job satisfaction determinants with different combinations of wage variables

Variable	Fixed Effects			Probit		
	1	2	3	4	5	6
Promotion	0.118*** (0.013)	0.12*** (0.013)	0.119*** (0.013)	0.098*** (0.01)	0.099*** (0.01)	0.099*** (0.01)
Promotion belief	0.124*** (0.012)	0.124*** (0.016)	0.124*** (0.016)	0.071*** (0.081)	0.071*** (0.081)	0.071*** (0.081)
Log hourly wage	0.072*** (0.038)	0.173*** (0.022)		0.098*** (0.022)	0.118*** (0.01)	
Percent wage rank	0.158*** (0.049)		0.247*** (0.031)	0.026 (0.033)		0.161*** (0.015)
Change in log wage	0.013 (0.016)			0.019* (0.011)		
R-squared	0.423	0.415	0.418	0.0455	0.0454	0.0445

All models control for industry and year effects.

Full set of regressors included in each model; selected estimates provided for brevity.

\*, \*\*, \*\*\* denote significance at the ten, five and one-percent level, respectively.