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Social Skills and Promotions

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Abstract

This paper examines which factors raise the probability a worker will be promoted using the NLSY dataset. While other papers have tried to explain what affects a worker's probability of receiving a promotion, this is the first paper to look at the impact of social ability. We use the respondent's self reported sociability at age eighteen and whether the individual participated in clubs during high school as measures of social skills. Individuals who participated in clubs during high school are thirteen percent more likely to receive a promotion than those who did not. Interestingly, this result only holds for blue-collar workers. On the other hand, white-collar workers who report they are somewhat social are ten percent more likely to receive a promotion than their co-workers who are somewhat shy. There is no evidence of gender or race discrimination in the promotion process.

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1. Introduction

A significant fraction of a worker's lifetime wage increases come from within job wage increases. Workers are likely to receive pay raises as they move up the corporate ladder, often along with increases in supervisory responsibility. One study finds that within employer job changes can account for upwards of fifteen percent of some workers' life-cycle wage growth (McCue 1996), while another finds that promotions may provide the majority of a worker's wage growth during his thirties and forties (Kostea 2007). While several papers have estimated the wage effects of promotions, there are relatively few studies examining what factors lead to promotions.

This paper examines which factors raise the probability a worker will be promoted for a panel of individuals in their thirties and forties. Given that promotions are more frequent than voluntary job separations at these ages (three times more common in this dataset); within employer job changes are likely to be a greater source of wage growth relative to cross-employer job changes. While other papers have tried to explain what affects a worker's probability of receiving a promotion, this is the first paper to look at the impact of social ability. We use the respondent's self reported sociability at age 18 and whether the individual participated in clubs during high school as measures of social skills. Participation in clubs during high school is a good predictor of who will receive promotions in the future. Individuals who participated in clubs during high school are thirteen percent more likely to receive a promotion than those who did not. Interestingly, this result only holds for blue-collar workers. On the other hand, white-collar workers who report they are somewhat social are ten percent more likely to receive a promotion than their co-workers who are somewhat shy.

I also find strong evidence that union members are far less likely to receive promotions, while more able individuals, as measured by the armed forces qualifying test score, are more likely to be promoted. Promotions are also more likely in larger firms, possibly due to the fact that larger firms generally have deeper hierarchy structures. Interactions between the social ability measures and ability and schooling show that social skills have a greater impact on the probability of a promotion for less educated and less able individuals. One reason for this may be that individuals acquire the social skills necessary for advancement in white-collar and highly technical positions (which more educated people are likely to hold) while at university.

Involvement in fraternities and other college social groups may be more important for these individuals than having served on the yearbook committee in high school.

Finally, it appears that different factors affect the likelihood of a promotion for men and women. The number of children in the household and the presence of a child under the age of seven are both associated with lower probabilities of promotion for women, but do not have a significant impact on promotion rates for men. Marital status does not have a significant effect on the probability of a promotion for either gender, while social skills appear to be equally important for men and women.

The rest of the paper is organized as follows: section 2 provides the theoretical background and literature review, section 3 describes the estimation strategy and the data, section 4 discusses the results and section 5 draws conclusions and discusses avenues for future research.

2. Theoretical background and literature

Much of the theoretical literature on promotions is aimed at explaining the link between promotions and wage growth, or the strategic use of promotions to prevent worker turnover, not directly focusing on which worker characteristics are likely to lead to a promotion. Still, this literature is of relevance to the current paper for two reasons: 1) the link between promotions and wage growth provides the motivation to study the determinants of promotions, and 2) some of these models do provide insights into which workers are likely to be promoted.

Some models postulate tournaments are used at each level of the hierarchy to induce greater effort from the employees by giving a promotion and wage increase to the winner (Lazear and Rosen 1981, Rosen 1986). More able and driven workers continue to move up the ladder in this fashion. However, as Baker et. al. (1980) point out, while a tournament may be efficient in eliciting effort, the winner of the tournament may not be the best suited worker for the promotion. Unfortunately, models based on the tournament mechanism do not provide guidance in developing an empirical model for cross-sectional data since we do not observe

direct performance measures. Personnel records or individual data for a specific occupation, on the other hand, may contain the necessary information to test the tournament hypothesis.¹

Rosen (1982) and Calvo and Wellisz (1979) develop models where worker quality is positively associated with hierarchical position and the return to ability rises with the worker's level. However, these models assume the worker's productivity or ability are observable to the firm directly, and thus do not provide any guidance. Bernhardt (1995) develops a hierarchical model where more educated employees are promoted before their equally or more able, but less educated co-workers, suggesting that the model should account for the worker's educational attainment. Carmichael (1983) presents a model where workers with greater job tenure are promoted and receive higher pay as a mechanism to achieve optimal employee turnover. These models suggest that the variables typically included in a Mincerian wage equation to proxy for a worker's stock of human capital: education, age and tenure, should be included in an empirical model of promotion determination. In addition to these variables, the model estimated in this paper also includes the armed forces qualifying test score (AFQT) as a measure of ability not captured by the other variables.

There are a handful of empirical papers examining which factors affect a worker's probability of being promoted. Many of these studies focus on gender differences and test for potential discrimination in the promotion process. The literature can be grouped into three categories: studies using personnel records from a firm (Abraham and Medoff 1985, Baker et. al. 1994, Hersch and Viscusi 1996), studies looking at groups of workers categorized either by occupation or general job level (Broder 1993, Eberts and Stone 1985, Laband and Lentz 1993, Spurr 1990), and those using cross-sectional data on individuals from different firms and in different occupations (Cobb-Clark 2001, Francesconi 2001, Idson 1989, McCue 1996, Olson and Becker 1983, Pergamit and Veum 1999). While each category has its strengths and weaknesses, only studies in the third group are likely to yield results which might generalize to the greater labor force. Studies based on personnel records from a single firm will provide more accurate measure of promotions since the job level definitions are more consistent relative to cross-sectional data. However, we can not say whether the results extend to all firms or if they are idiosyncratic to the firm being analyzed. Additionally, those studies can not look at the effect of

¹ For example, personnel records often contain data on employee evaluations conducted by supervisors which can serve as a proxy for the worker's ability or productivity. Data on sales workers could contain information on the value of each representative's sales.

firm size or unionization on promotion rates since there is insufficient (if any) variation. Studies looking at workers in certain occupations often contain data on variables that affect wages and promotions which are missing in other datasets, such as quality of graduate program (for lawyers) or tenure within the school district (for teachers). These datasets may also contain information on widely accepted performance measures which are extremely difficult (if not impossible) to define for workers in a wide array of occupations. On the other hand, the results from these studies may only apply to the professions analyzed.

While the theoretical literature provides some guidance in developing the empirical model, a couple of empirical papers suggest the importance of other factors. Idson (1989) shows that workers in larger firms receive more promotions and total job changes using a cross-section of working age men. Analyzing personnel records from 400 firms, Abraham and Medoff (1985) find the promotion process is different in unionized relative to non-unionized firms. These studies indicate that it is important to also control for firm size and unionization. Indeed, these variables are generally included in cross-sectional studies when available.

The studies using cross-sectional or panel data typically include a similar set of covariates. The personal characteristics usually included are education, tenure, marital status, race and gender. The two studies using analyzing the NLSY dataset, Cobb-Clark (2001) and Pergamit and Veum (1999), also include information on the number of children or whether a very young child is present in the household. These two studies use relatively few years of data, 1988-1990 and 1989-1990, respectively. Also, because of the timing of the data, those studies observe the respondents in their twenties to early thirties, a period of the life-cycle where employer changes may play a relatively larger role in wage growth relative to promotions. This paper uses data from 1996-2004, when the respondents are in their thirties and forties. At this stage in life promotions are more frequent than voluntary job separations and are more likely to represent movement into higher levels of the firm hierarchy.

The age of the individuals in the sample may be particularly important when investigating the possibility of gender discrimination in the promotion process. Women may have lower promotion rates at younger ages due to the higher probability of leaving their current employer, or the labor force altogether, in order to raise children. This is less likely to be an issue with women in their later thirties and forties since they are past their prime child bearing

years. Thus, we are less likely to find evidence of gender discrimination in the promotion process than studies using data on younger women.

Indeed, much of the empirical literature focuses on gender differences in promotion rates and impacts, with a wide range of results. Hersch and Viscusi (1996) show that women receive more promotions than men, and that these promotions are linked to the woman's having previously quit a job because of her husband's move. However, promotions lead to significant wage increases for men but not for women. Olson and Becker (1983) find that women are held to higher standards and are therefore promoted less frequently. Spurr (1990) finds that female lawyers are less likely to achieve partnership than their male counterparts, even after controlling for a host of characteristics. However, Laband and Lentz (1993) show that this finding is very sensitive to the model specification. Eberts and Stone (1985) find evidence of discrimination in the promotion decisions of teachers to administrative positions, but that the degree of discrimination has declined over time. Broder (1993) does not find that female economists are less likely to be promoted to a higher rank, but that they are much less likely to work in a Ph.D. granting institution. Cobb-Clark (2001) finds for younger workers being a woman is associated with a nearly six percentage point decline in the probability of receiving a promotion.

Caution is required when interpreting these results. A finding that women are less likely to be promoted is consistent with, but does not necessarily indicate the presence of gender discrimination in promotion processes. As other researchers have noted (Lazear and Rosen 1990), women may have a higher opportunity cost of their time due to greater productivity outside of the workplace, leading to a higher probability of quitting in the future. This may lead women to invest less in firm or position-specific skills which raise the probability of being promoted. Conversely, the higher probability of quitting may also make employers weary of promoting women because of the investment required to train workers for managerial positions.² The higher opportunity cost for women may also make women less aggressive in pursuing promotions or lead them to spend less time at work, which would also lead to a lower probability of being promoted. Cannings (1988) discusses the possibility that women are socialized to be

² There is a question of whether this should be construed as gender discrimination by the employer. Even if we do consider this to be discrimination, there is a question of whether this practice creates inefficiencies. In this case, the employer is using gender to estimate the worker's probability of quitting; much as the employer may use the worker's past employment history and references.

less aggressive (regardless of their opportunity cost) while males' childhood experiences may endow them with skills necessary for leadership roles.

3. Data and estimation strategy

The data come from the 1996-2004 waves of the National Longitudinal Surveys of Youth 1979 cohort (NLSY79), since information on changes in job level is available beginning in 1996. The individuals in the survey were between the ages of 14 and 22 in 1979, so that our sample consists of individuals in their thirties and forties. The final sample is reduced significantly due to attrition. While there are a total of 9,964 individuals in the full sample, only 8,212 respondents were not interviewed in 1996.³ This number fell to 7,237 in 2004, so that by the final year of the survey, over twenty-seven percent of the sample is lost to attrition. Upwards of another one-thousand observations are lost each year because the individual is either unemployed or out of the labor market. Out of the sample of individuals who were surveyed and employed within the last year, observations are excluded if any of the key variables are missing. I also exclude individuals working less than thirty or more than one hundred hours per week, leaving a final sample containing 21,315 individual-year observations. Results on the sample including all workers, regardless of hours worked, yield qualitatively similar results.

Since the dependent variable is an indicator variable, I employ the probit estimator. 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. 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 promotion and zero otherwise, including if she reports no position change. An alternative approach would have been to code promotions with a value of two, position changes resulting in no level change with a one, and demotions with a value of zero and estimating an ordered probit equation. This approach was not taken for two reasons: 1) demotions are relatively rare, and 2) demotion decisions are likely to result from other mechanisms and thus other factors are likely to be much bigger determinants of demotions (such as poor performance in the previous position.)

³ The original sample contains 12,262 individuals. However, the over-samples of blacks, Hispanics and underprivileged non-blacks non-Hispanics were dropped after 1990 (Pergamit et. al. 2001).

The NLSY data set provides some interesting variables which are meant to capture the respondents' social abilities. The dataset provides three different measures of an individual's social skills. The first two variables are self reported and self-reflective. The individual is asked to report his own sociability (at ages six and eighteen) as he perceives himself. I use the sociability at age eighteen, which takes integer values ranging from one for very shy to four for very outgoing. The dataset also contains information on the types of clubs the respondent was a member of in high school, with nine categories of clubs. Borghans et al (2006) use this information to construct a variable which sums up the number of types of clubs the individual participated in. Thus, the clubs variable takes integer values between zero (did not belong to any clubs) to nine (participated in clubs in all nine categories).

In this paper, we construct a dummy variable taking a value of one if the respondent belonged to any clubs in high school and zero otherwise. We take this approach under the assumption that this variable is a better measure of social skills. It is not clear that someone who belongs to both the national honors society and the school choir (which are in two different categories in the NLSY data) is more social than the class president. The mere act of getting involved may be the best indicator of an individual's ability to work in a social setting.⁴ Using these variables, Borghans et al (2006) find that sociability has an impact on wages and choice of occupation. It is also likely that social skills are very important in management positions, affecting a person's ability to supervise others and making these skills an important determinant of promotions and the assignment of supervisory responsibility. As a robustness check, the model is also estimated using the sum of clubs variable as a robustness check.

A positive correlation between club involvement and promotions does not necessarily imply that getting involved in clubs will raise an individual's probability of receiving promotions in the future. The variable is simply meant to proxy for social skills. Getting involved in clubs during high school may help a person build social skills. At the same time, it is very likely that more social people are more likely to participate in clubs while in high school. Given the nature of the data, we will not be able to distinguish between the two.

⁴ Results were estimated using the number of clubs rather than the clubs indicator. In that case clubs still have a statistically significant and positive impact on the probability of being promoted, however the economic significance is much smaller. This suggests that the number of clubs participated in is not as important as having participated at all. These results are available from the author upon request.

In addition to the social skills variables, the model includes several individual controls including gender, race (black and Hispanic dummies), tenure, tenure squared, years of schooling completed, the AFQT score percentile and whether the respondent was part of a union or employee association.⁵ There are also two firm size variables: an indicator for whether the firm has multiple locations and the log number of employees at the respondent's location. All models contain both year and industry indicators. Occupation indicators were not included because the dataset contains substantially different occupation codes after the 2000 wave. Furthermore, estimates on the 1996-2000 sub-sample are not sensitive to the inclusion of the occupation codes. In addition to this basic model, estimates are obtained for a model including marital status, the number of children in the household and an indicator variable for whether there is a child under the age of seven in the household.⁶ These variables are included to represent the value of the respondent's time in home production.

Because the social skills variables are only measured once for each individual, a random effects probit is used in place of a fixed effects logit estimator. Even if there was within-individual variation in these variables, the fixed effects logit has the added detraction of requiring within-individual variation in the promotion variable. Roughly two-thirds of the individuals in the sample would be lost if we estimated a FE logit model. In particular, we lose many individuals who are never promoted.

We expect greater social skills to raise the probability of a promotion. There are two mechanisms through which self-reported sociability may be correlated with promotions. The more direct connection is that social skills are important in managerial and supervisory positions, so that more sociable people will have higher productivity in these positions. Alternatively a person who reports herself as being highly outgoing may also be a very confident individual. This self-confidence may lead the individual to take actions or exhibit behavior, such as an appropriate degree of aggressiveness, which leads to a promotion. Participation in clubs may reflect innate social ability or the formation of social capital that accompanies membership and participation in these clubs. The tenure-promotion probability profile should be convex, while the theoretical literature predicts that ability and level of education lead to a greater likelihood of

⁵ The respondent's age and age squared were included in initial specifications of the model; however the coefficients on these variables were both statistically and economically insignificant. The same results were obtained on the coefficient for the age variable when age squared was dropped. Thus, both variables have been excluded altogether.

⁶ These variables are not included in the basic specifications because they are not significant when the model is estimated for the entire sample. As the results show, these factors are only important for women.

being promoted. Larger firms provide more opportunity for career advancement, while unions will lead to fewer opportunities for promotion either by reducing turnover (either voluntary or involuntary) or compressing the hierarchy structure. Negative and statistically significant coefficients on the gender or race variables would be consistent with discrimination in the promotion process; however discrimination is not the only valid conclusion.

Before turning to the results, table one provides summary statistics for the key variables for the full sample as well as by occupation type (white versus blue-collar) and gender. Column one of table one provides the summary statistics for the full sample. Individuals in the sample experience a promotion 16.2 percent of the time. Individuals belonged to at least one club in 63.2 percent of the observations, while the average self reported sociability in the sample is 2.88; the average observation is on a person who reports herself as being somewhat outgoing. Some other interesting statistics to note are that union members comprise nearly sixteen percent of the observations and the worker's firm has multiple locations 68.4 percent of the time. The average years of school completed is 13.29 while the average AFQT score percentile is 40.7. Columns two and three provide the summary statistics for blue and white-collar workers, respectively. White-collar workers, who make up roughly twenty-seven percent of the total sample, receive promotions more often and are more likely to have been involved in clubs in high school. However, the average self-reported social orientation is highly similar for the two groups. White-collar workers are also on average more highly educated (by nearly 2.5 years of schooling) and have higher AFQT scores (nearly a twenty-two percentile difference). Columns 4 and 5 show a breakdown of the summary statistics by gender. According to both of our measures, men and women are equally social; they are also equally likely to receive a promotion. Indeed, there is little substantive difference in the average observable characteristics between men and women in the sample.

4. Results

Table two provides the results from the basic model. All models include indicators controlling for year and industry effects. Model one is a probit model without individual random effects. Individuals who are more outgoing are also more likely to receive a promotion. However, while the result is statistically significant, it is economically small. A person who is somewhat outgoing has a 0.7 percentage point higher probability of being promoted relative to

someone who is somewhat shy. Given the 16.2 percent sample probability of receiving a promotion, this represents a roughly four percent increase in the likelihood of being promoted. Belonging to clubs in high school is a fairly good predictor of the likelihood an individual will be promoted. Individuals who belonged to at least one club in high school are 2.1 percentage points (nearly thirteen percent) more likely to receive a promotion. Consistent with expectations, union membership is negatively correlated with promotions, while individuals working in larger firms are more likely to receive a promotion. A worker's probability of being promoted rise by 5.5 percentage points if the firm has multiple locations. As predicted, the tenure-promotion profile is concave. Finally, there does not appear to be any significant gender or race discrimination in the promotion process. On the contrary, Hispanics are more likely to be promoted. This may reflect a lack of educational opportunities for this demographic group which forces them to sort into occupations where they are able to quickly advance.

Column two presents the results from the random effects probit model. The results are highly similar to those in column one. Self-reported sociability is no longer significant at the five percent level, however this is due entirely to an increase in the standard error since the marginal effect is the same. Again having belonged to any clubs in high school is associated with a more than two percentage point increase in the probability of being promoted. The rest of the marginal effects are also highly similar to those in model one.

Columns three and four provide the results for the sub-samples of blue and white-collar workers, respectively. Workers are categorized as white collar if they work in managerial or technical occupations.⁷ Some very important differences between the two groups emerge. Self reported sociability is a significant factor in promotion probability for white-collar but not for blue-collar workers. The converse holds true for participation in clubs. Blue-collar workers who were involved in clubs in high school are 2.3 percentage points more likely to be promoted, while a white-collar worker who is somewhat outgoing is 1.9 percentage points more likely to be promoted than an individual who is somewhat shy. The negative correlation between union membership and promotions is considerably stronger for white-collar workers, while firm size has a slightly stronger effect on promotions for white collar-workers. Interestingly, education and ability (as measured by the AFQT score) only raise the probability of a promotion for blue-

⁷ Using the 1970 census codes for occupation (employed in the data through the 1998 wave of the NLSY) this corresponds to codes from 1-245. Similar groups were considered white-collar using the 2000 census codes (employed in the 2002 and 2004 waves of the NLSY).

collar workers; however the marginal effect of schooling is economically small compared to club participation. Two additional years of schooling (the standard deviation for blue-collar workers) are associated with a 0.7 percentage point increase in the probability of receiving a promotion. Tenure with the employer appears to be more important for workers in white-collar professions.

Overall, the results suggest that social skills are important factors for promotion, although different measures of these skills are important for workers in white versus blue-collar occupations. The finding that club participation is more important for blue-collar workers may arise because the social skills developed in high school clubs are not the ones which are important in managerial and technical professions. Workers may acquire these skills while attending university and taking part in college social organizations, such as fraternities or professional groups. This line of thought suggests that the importance of social skills may vary depending on level of education or ability. We pick up this inquiry in the next section.

Sociability by education and ability

Do social skills have a larger impact on the incidence of promotions for more or less educated workers? The connection between the social skills measures used in this paper and promotions may vary with educational attainment for two reasons: 1) social skills may be more important for the types of occupations and positions held by one group or the other, and 2) the social skills variables are measured when the respondent is eighteen and thus may not be an accurate reflection of a person's social skills at the age of thirty or forty. In particular, college graduates may acquire social skills while attending university, making the measures used in this study a noisier proxy for social skills for college graduates relative to high school graduates.

To address this question, we create interaction terms between the social skills variables and both years of schooling and the AFQT score. The results of this exercise are shown in table three. Columns one and two contain interactions between the social variables and years of schooling completed. They indicate that social skills have a larger impact on promotions for less educated workers. Focusing on column two, which drops the sociability at age eighteen variable and its interaction because neither variable was significant, we see that high school graduates who participated in clubs during high school have a 1.92 percentage point greater probability of receiving a promotion than high school graduates who did not participate, but club participation in high school is associated with a 0.84 percentage point decline in promotions for college

graduates. Furthermore, the results now show that having completed an additional year of schooling is associated with a 0.73 percentage point increase in the probability of being promoted. Including an interaction between the clubs variable with the individual's AFQT score shows a similar result. The estimates in column four show that an individual with the mean AFQT score percentile (0.407) is 1.8 percentage points more likely to receive a promotion if she participated in clubs during high school. For a worker with an AFQT score that is one standard deviation above the mean (0.69), involvement in clubs is associated with a 0.31 percentage point increase in the probability of being promoted. The results are not statistically significant if interaction terms are included for both years of school completed and AFQT score (column five).

Overall, the results suggest that social skills, as measured by participation in clubs during high school, has a positive correlation with the probability of receiving a promotion for high school graduates, but not for college graduates. This may reflect a difference in the type of social skills needed for advancement in the types of job that college graduates are likely to hold. Individuals may be more likely to acquire these skills while in college. It may well be that social skills have a greater impact on promotion potential in some industries or occupations relative to others.

Social skills, promotions and gender

There is a substantial literature which focuses on gender discrimination in the promotion process. The results are mixed; some studies find significant discrimination while others do not. Using the NLSY dataset, Cobb-Clark (2001) finds that women are six percentage points less likely to be promoted than men, even after controlling for several worker and firm characteristics. The results provided in table 2 of this paper, however, do not show any significant discrimination (either statistically or economically) against women. We now turn our focus to asking a different question: are social skills more or less important for female workers? Social skills may be more important for a woman's promotion potential if women sort into occupations or job classifications (within the same occupation) where social skills are more important (Borghans et al 2006). To address this issue, we estimate separate models for men and women.

In addition to social skills, other factors may have differential impacts on a man and a woman's promotion receipt. The presence of young children at home may raise the opportunity

cost of spending extra time at work for working mothers more than it does for working fathers. If promotions are decided by a tournament, then a mother with young children will be less likely to win the tournament if she can not devote as much time or effort as her co-workers. Furthermore, employers may view a female employee with young children as less willing/likely to put forth the time and effort that may be required for a managerial position, so that even in non-tournament settings, the firm may be less likely to promote women with young children. Even the prospect of short-term disruptions, such as the possibility a mother of young children may miss a few days of work each year to take care of sick children can have a significant, negative impact on productivity for someone in a supervisory or managerial position.

To address these issues, we add three variables to the model: the number of children present in the household, an indicator variable which takes a value of one if there are children under the age of seven present, and a dummy variable for marital status (equal to one if the respondent is married). We use the age of seven as a cutoff since at this point all children should be enrolled in school, giving parents the opportunity to work without having to pay for child care services (at least for a large fraction of the day). The presence of children under the age of seven and the number of children in the household should be negatively correlated with the probability of receiving a promotion for women, and may or may not have an impact on promotion potential for men. If the presence of children is associated with a lower probability of promotion for men, we expect the result to be weaker than for women. Marital status may also have a negative impact on the probability of promotion if employers believe married women are more likely to have children in the near future.

Estimates of probit models including the children and marital status variables are presented in table four. Column one estimates the model for all individuals. Again, participation in clubs in high school is associated with a 2.2 percentage point increase in the probability of receiving a promotion. Neither the presence of young children, nor the number of children in the household is significantly correlated with the probability of receiving a promotion. Marriage does not appear to have an effect on promotions either. When the model is estimated using men only (column two) we see the same marginal effect of sociability, as measured by club participation, on promotions as in the full sample. However, it appears that the presence of children under the age of seven is associated with a 1.6 percentage point increase in the probability of receiving a promotion for men. The effect is significant at the 5.3 percent level.

The presence of small children may cause men to exhibit greater effort in order to win a promotion and the corresponding wage increase in order to provide for the greater expenditures associated with raising children. The results from the model estimated on women only (column three) shows a similar marginal effect of clubs participation on promotions. As predicted, the presence of very young children has a negative impact on the probability a woman will be promoted. The effect is roughly equal in magnitude to that of club participation. Neither marriage nor the number of children is significantly correlated with promotion receipt.

Overall, it appears that the presence of small children is positively associated with the probability of receiving a promotion for men, and negatively for women. Since we do not control for individual fixed effects, however, this does not necessarily imply that a woman's chances of promotion decline when she has children. It may be that women who are inclined to have children also exhibit other behaviors which lower the chances of receiving a promotion. For instance, women who become mothers may also generally place a higher value on their time outside of the workplace. To address this issue, we estimate the model using only women who had children present in the household at some point during the sample.⁸ The results of this exercise are presented in column four. The presence of children under the age of seven is still associated with a lower probability of being promoted, although the marginal effect is slightly smaller than for the sample including all women.

Alternative clubs measure

As an alternative to the dummy variable for clubs participation, we also estimate the model using the number of types of clubs in which the individual participated as a robustness check. The sample mean is 1.269 types of clubs, with a standard deviation of 1.389 clubs. The results, provided in table five, show that club participation is still associated with an increased probability of receiving a promotion. According to the marginal effect for the model estimated using the full sample (column one) participating in one additional type of club is associated with a 0.77 percentage point increase in the probability of being promoted. Thus, a one standard deviation increase in the number of types of clubs translates into a roughly 1.07 percentage point increase in the probability of a promotion. This is less than half of the effect estimated using the

⁸ This is not a perfect measure for whether the individual has ever or will ever have children since it is possible that some of the women in the sample will give birth to their first child after the 2004 wave of the data. However, we are at least focusing on only those women who have had a child present in the household at some time.

clubs dummy variable. As stated in a previous section of this paper, the number of clubs may not be as important as the fact that the individual got involved at all. As a further check, we include the square of the number of clubs as an explanatory variable. While the coefficient on the squared term is not statistically significant, the marginal effect on the clubs variable increases with the inclusion of the squared term. Results estimating separate models for men and women yield qualitatively similar results. The marginal effect of clubs on promotions is larger for men than women; however this difference is not large given the size of the standard errors.

5. Conclusions

Employing the NLSY dataset, this paper estimates the importance of social skills as a determinant of promotion receipt, using two measures of social skill. The first is self-reported sociability (ranging from very shy to very outgoing) and the second is an indicator for whether the individual participated in clubs during high school. According to the second measure of social ability, more social individuals are more likely to receive promotions. Workers in larger firms and those with higher ability and longer tenure with their current employer are also more likely to receive a promotion, while union members are less likely to do so. There does not appear to be any race or gender discrimination. In fact, being Hispanic is associated with a greater probability of being promoted.

These effects are not the same for all individuals. Participation in clubs is a significant indicator of promotion potential for blue-collar workers but not for white-collar ones. The opposite is true with respect to self-reported sociability. Social ability has a greater impact on the promotion prospects of less educated and less able individuals. However, these skills are equally important to the promotion potential for men and women. A significant difference between the sexes is that the presence of young children in the household is associated with a lower probability of being promoted for women and a higher one for men.

The different results obtained when the model is estimated on blue-collar workers relative to when it is estimated on white-collar ones suggests that the importance of social skills may vary according to occupation. In future extensions of this paper, we would like to include measures of the importance of social skills by occupation into the data. This will allow us to see whether these differences also translate into promotion decisions.

References

- Abraham, K. G. and J. L. Medoff, 1985. "Length of service and promotions in union and nonunion work groups." *Industrial and Labor Relations Review*, Vol. 38 (3), 408-420.
- Baker, G.P., Jensen, M.C. and K.J. Murphy, 1988. "Compensation and incentives: practice vs. theory." *The Journal of Finance*, Vol. 63 (3), 593-616.
- Baker, G., Gibbs, M., and B. Holmstrom, 1994. "The Wage policy of a Firm." *The Quarterly Journal of Economics*, Vol. 109 (4), 921-955.
- Borghans, L., ter Wheel, B., and B.A. Weinberg, 2006. "People people: social capital and the labor-market outcomes of underrepresented groups." NBER working paper #11985.
- Broder, I. E., 1993. "Professional achievements and gender differences among academic economists." *Economic Inquiry*, Vol. 31, 116-127.
- Calvo, A.G. and Wellisz, S., 1979. "Hierarchy, ability, and income distribution." *Journal of Political Economy*, Vol. 87 (5), 991-1010.
- Cannings, K., 1988. "The earnings of female and male middle managers: a Canadian case study." *The Journal of Human Resources*, Vol. 23 (1), 34-56.
- Carmichael, L., 1983. "Firm-specific human capital and promotion ladders." *Bell Journal of Economics*, Vol. 14 (1), 251-258.
- Cobb-Clark, D. A., 2001. "Getting ahead: the determinants of and payoffs to internal promotion for young U.S. men and women." *Worker Wellbeing in a Changing Labor Market*, Vol. 20, 339-372, S. W. Polachek, Ed. JAI Press, New York.
- Ferrall, C., 1995. "Levels of responsibility in jobs and the distribution of earnings among U.S. engineers 1961-1986." *Industrial and Labor Relations Review*, Vol. 49 (1), 150-169.
- Francesconi, M., 2001. "Determinants and consequences of promotions in Britain." *Oxford Bulletin of Economics and Statistics*, Vol. 63 (3), 279-310.
- Freeman, R.B., 1982. "Union wage practices and wage dispersion within establishments." *Industrial and Labor Relations Review*, Vol. 36 (1), 3-21.
- Grund, C., 2005. "The wage policy of firms: comparative evidence for the US and Germany from personnel data." *International Journal of Human Resource Management*, Vol. 16 (1), 104-119.
- Hersch, J. and Viscusi, W.K., 1996. "Gender differences in promotions and wages." *Industrial Relations*, Vol. 35 (4), 461-472.

- Idson, T. L., 1989. "Establishment size differentials in internal mobility." *Review of Economics and Statistics*, Vol. 71 (4), 721-744.
- Kosteas, V. D. (2007). "Job Level Changes and Wage Growth," working paper.
- Lazear, E.P. and S. Rosen, 1990. "Male-female wage differentials in job ladders." *Journal of Labor Economics*, Vol. 8 (1), S106-S123.
- Lazear, E.P. and S. Rosen, 1981. "Rank order tournaments as optimum labor contracts." *Journal of Political Economy*, Vol. 89 (5), 841-864.
- Lima, F. and Pereira, P.T., 2003. "Careers and wages within large firms: evidence from a matched employer-employee data set." *International Journal of Manpower*, Vol. 24 (7), 812-835.
- McCue, K., 1996. "Promotions and Wage Growth." *Journal of Labor Economics*, Vol. 14 (2), 175-209.
- Meagher, K.J., 2001. "The impact of hierarchies on wages." *Journal of Economic Behavior and Organization*, Vol. 45, 441-458.
- Medoff, J.L. and Abraham, K.G., 1980. "Experience, performance and earnings." *The Quarterly Journal of Economics*, Vol. 95 (4), 703-736.
- Murphy, K. M. and Welch, F., 1990. "Empirical age-earnings profiles." *Journal of Labor Economics*, Vol. 8 (2), 202-229.
- Olson, C.A. and B.E. Olson, 1983. "Sex discrimination in the promotion process." *Industrial and Labor Relations Review*, Vol. 36 (4), 624-641.
- Pergamit, M.R. and J.R. Veum, 1999. "What is a promotion?" *Industrial and Labor Relations Review*, Vol. 52 (4), 581-601.
- Rothstein, D.S., 2001. "Supervisory status and upper-level supervisory responsibilities: evidence from the NLSY79." *Industrial and Labor Relations Review*, Vol. 54 (3), 663-680.
- Rosen, S., 1982. "Authority, control and the distribution of earnings." *Bell Journal of Economics*, Vol. 13 (2), 311-323.
- Rosen, S., 1986. "Prizes and Incentives in elimination tournaments." *American Economic Review*, Vol. 76 (4), 701-715.
- Topel, R. H., and Ward, M. P., 1992. "Job mobility and the careers of young men." *The Quarterly Journal of Economics*, Vol. 107 (2), 439-479

Table 1: Summary Statistics

variable	Full Sample	Blue-Collar	White-Collar	Male	Female
Promotion	0.162 (0.368)	0.148 (0.356)	0.198 (0.399)	0.162 (0.369)	0.162 (0.368)
Sociability at age 18	2.88 (0.692)	2.865 (0.701)	2.924 (0.667)	2.887 (0.684)	2.875 (0.701)
Clubs in high school	0.632 (0.482)	0.575 (0.494)	0.784 (0.411)	0.63 (0.483)	0.635 (0.482)
Log firm size	4.194 (2.019)	4.086 (1.977)	4.483 (2.10)	4.137 (2.055)	4.256 (1.977)
Firm has multiple locations	0.684 (0.465)	0.664 (0.472)	0.738 (0.44)	0.678 (0.467)	0.692 (0.462)
Union member	0.158 (0.365)	0.168 (0.374)	0.132 (0.338)	0.174 (0.379)	0.141 (0.348)
AFQT score percentile	0.407 (0.283)	0.348 (0.262)	0.567 (0.278)	0.418 (0.297)	0.395 (0.265)
Highest grade completed	13.29 (2.402)	12.62 (2.006)	15.08 (2.453)	13.18 (2.468)	13.4 (2.321)
Age	38.67 (3.698)	38.63 (3.714)	38.78 (3.655)	38.57 (3.693)	38.78 (3.701)
Tenure	6.218 (5.887)	5.952 (5.842)	6.932 (5.946)	6.312 (5.975)	6.115 (5.787)
Tenure squared/100	0.733 (1.185)	0.696 (1.171)	0.834 (1.217)	0.755 (1.212)	0.709 (1.155)
Female	0.476 (0.499)	0.452 (0.498)	0.538 (0.499)		
Black	0.296 (0.456)	0.330 (0.470)	0.204 (0.403)	0.284 (0.451)	0.31 (0.462)
Hispanic	0.182 (0.386)	0.189 (0.391)	0.166 (0.372)	0.18 (0.384)	0.185 (0.389)
Observations	21,315	15,531	5,784	11,175	10,140

Standard deviations are in parentheses.

Table 2: Marginal effects from promotion probit estimates

variable	1	2	3	4
Sociability at age 18	0.007* (0.0037)	0.007 (0.0039)	0.0034 (0.0042)	0.019* (0.008)
Clubs indicator	0.021** (0.0057)	0.022** (0.006)	0.023** (0.0064)	0.0045 (0.015)
Union member	-0.05** (0.0065)	-0.046** (0.0065)	-0.037** (0.0072)	-0.059** (0.016)
Firm size	0.014** (0.0014)	0.014** (0.0014)	0.012** (0.0016)	0.019** (0.0029)
Firm has multiple locations	0.055** (0.0053)	0.052** (0.0053)	0.049** (0.0058)	0.056** (0.012)
AFQT percentile	0.045** (0.013)	0.044** (0.014)	0.05** (0.015)	-0.0072 (0.028)
Years of school	0.0019 (0.0014)	0.0018 (0.0015)	0.0035* (0.0018)	-0.0034 (0.003)
Tenure	0.0051** (0.0015)	0.0052** (0.0014)	0.0019 (0.0015)	0.014** (0.0032)
Tenure squared/100	-0.038** (0.0079)	-0.038** (0.0073)	-0.023** (0.008)	-0.08** (0.016)
Black	-0.00041 (0.0067)	-0.0022 (0.0073)	-0.0033 (0.0079)	0.011 (0.017)
Hispanic	0.017* (0.0074)	0.017* (0.0082)	0.015 (0.0089)	0.017 (0.017)
Female	0.0042 (0.0054)	0.004 (0.0059)	-0.0019 (0.0065)	0.0065 (0.012)
Individual effects	no	RE	RE	RE
Log likelihood	-8,999	-8,913	-6,165	-2,682
Observations	21,315	21,315	15,531	5,784

Marginal effects reported with robust standard errors in parentheses.

All models include year and industry effects.

* and ** signify significance at the five and one percent levels, respectively.

Model 3 contains only observations on blue-collar workers.

Model 4 contains only observations on white-collar workers.

Table 3: Probit estimates including interactions with schooling and AFQT score

variable	Schooling interactions		AFQT score interactions		Both
	1	2	3	4	5
Sociability at age 18	0.0031 (0.022)		0.0059 (0.0066)		0.092** (0.032)
Club indicator	0.112** (0.030)	0.102** (0.030)	0.039** (0.0094)	0.039** (0.0093)	-0.032 (0.025)
AFQT score percentile	0.044** (0.014)	0.042** (0.014)	0.073 (0.044)	0.079** (0.021)	0.066** (0.023)
Years of school	0.0066 (0.0052)	0.0073** (0.0025)	0.002 (0.0015)	0.0024 (0.0015)	0.006* (0.0027)
Sociability*School	0.00032 (0.0017)				
Clubs*School	-0.0079** (0.0028)	-0.0069** (0.0027)			-0.0051 (0.0031)
Sociability*AFQT			0.0035 (0.0014)		
Clubs*AFQT			-0.054* (0.023)	-0.052* (0.022)	-0.032 (0.025)
Log likelihood	-8909	-9064	-8910	-9065	-9063
Observations	21,315	21,672	21,315	21,672	21,672

Marginal effects reported with robust standard errors in parentheses.

All models include year and industry effects.

* and ** signify significance at the five and one percent levels, respectively.

Table 4: Promotion probit estimates by gender

variable	All	Men	Women	Mothers
Sociability at age 18	0.0072 (0.0039)	0.0045 (0.0054)	0.01 (0.0056)	0.01 (0.0063)
Clubs indicator	0.022** (0.006)	0.022* (0.0085)	0.021* (0.0086)	0.017 (0.0096)
Number of children	0.0019 (0.0024)	0.0052 (0.0035)	-0.0038 (0.0036)	-0.0055 (0.0043)
Children under age 7	-0.0054 (0.0059)	0.016 (0.0083)	-0.023** (0.008)	-0.019* (0.0086)
Married	0.0016 (0.006)	0.0068 (0.0091)	-0.0011 (0.008)	-0.0028 (0.0093)
Log likelihood	-8911	-4655	-4218	-3293
Observations	21,311	11,172	10,139	7,923

Marginal effects reported with robust standard errors in parentheses.

All models include year and industry effects.

* and ** signify significance at the five and one percent levels, respectively.

Column four estimates the model using only observations on women who reported a child in the household at some point during the sample period.

Table 5: Alternative clubs measures

variable	Full Sample		Men		Women	
	1	2	3	4	5	6
Sociability at age 18	0.0067 (0.0039)	0.0068 (0.0039)	0.0038 (0.0054)	0.0039 (0.0054)	0.01 (0.0056)	0.01 (0.0056)
Number of clubs	0.0077** (0.0022)	0.013* (0.0052)	0.01** (0.0033)	0.013* (0.0076)	0.0062* (0.003)	0.012 (0.0071)
Number of clubs squared		-0.0012 (0.0011)		-0.00076 (0.0016)		-0.0012 (0.0014)
Log likelihood	-8911	-8911	-4654	-4654	-4219	-4218
Observations	21,311	21,311	11,172	11,172	10,139	10,139

Marginal effects reported with robust standard errors in parentheses.

All models include year and industry effects.

* and ** signify significance at the five and one percent levels, respectively.