Why Are Promotions Less Likely in Nonprofit Firms?

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Abstract

We use data from the Multi-City Study of Urban Inequality (MCSUI) employer survey to document a new empirical finding that workers are less likely to receive promotions in nonprofit firms than in for-profit firms. We propose an incentives-based explanation for this result and offer empirical evidence that is consistent with our hypothesis. At the heart of our explanation is a tradeoff between the incentive-provision and job-assignment roles of promotions. While for-profit firms must rely on promotions to serve both purposes, presumably achieving neither perfectly, we argue that nonprofits have the luxury of using promotions predominantly to achieve optimal job assignment. We conjecture that incentive creation may be less of a concern in nonprofit firms, where workers self-select and are often intrinsically motivated by interest in the firm's output, thus allowing promotions to be used mainly to achieve efficient job assignments.

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1. Introduction

A growing empirical literature on nonprofit organizations has focused almost exclusively on wage differentials between the for-profit and nonprofit sectors. The premise for much of this work is the notion that compensating differentials might exist between nonprofit and for-profit jobs, with nonprofit workers accepting lower wages in exchange for the opportunity to work towards a meaningful social mission. Differences between nonprofits and for-profits in other (non-wage) aspects of the employment relationship have received virtually no attention in the literature. This paper is the first to consider differences in promotion behavior between nonprofit and for-profit firms. Such a study is important for at least two reasons. First, it sheds light on an important labor market difference between nonprofit and for-profit organizations, apart from the wage differentials that have been the focus of all prior empirical work. This contributes to a better understanding both of nonprofit organizations and of promotion behavior in firms more generally. Second, since much of our discussion focuses on incentive creation, this work contributes to the empirical literature on incentives in organizations.

We find clear evidence that promotions are less likely in nonprofit than in for-profit firms, and this finding is robust to the inclusion of a broad set of controls for the characteristics of workers, firms, and jobs. This finding is intriguing since it lacks an obvious theoretical explanation, and our goal in this paper is to scrutinize the result and to offer an explanation for it. We propose a potential explanation and provide an array of empirical facts that collectively provide support for it. At the core of our explanation is a fundamental difference in incentive provision between nonprofit and for-profit organizations. We argue that incentives in nonprofit firms are in some sense created "automatically" since the output in such firms is something of intrinsic interest to the workers. This obviates the need for nonprofit employers to use promotions as incentive mechanisms, allowing them to rely on promotions strictly to achieve optimal job assignment. In contrast, for-profit firms must rely on promotions both for incentives and for job assignment, presumably achieving neither goal perfectly. Our story draws on three distinct and interdisciplinary branches of theoretical literature: one on promotions, another on the existence of nonprofit firms, and a third on the incentive effects of job design.

The most plausible explanation for the narrow scope of prior empirical work on nonprofits, in particular the singular focus on wages, is data limitations. A study of differences in promotion behavior between nonprofit and for-profit firms requires information on nonprofit

status and promotion decisions as well as detailed characteristics of firms, jobs, and workers. Such information is rarely available in one place, and in fact even some of the previous literature on wage differentials had to infer nonprofit status indirectly by using industry variables. Fortunately, for our purposes there exists a data set containing the relevant information. We use the Multi-City Study of Urban Inequality, a large cross-sectional data set surveying establishments in four metropolitan areas of the United States.

Our empirical strategy is to consider our potential explanation and a number of alternatives, using descriptive analysis to evaluate the extent to which the data support or reject each one. In doing so, we uncover a number of other stark differences between for-profit and nonprofit firms that must be reconciled with any competing explanation for the observed differences in promotion rates between the two sectors. To summarize, we find empirical support for the following facts: promotions are less likely in nonprofit than in for-profit firms, and this difference does not appear to be due to differences in turnover rates between nonprofits and for-profits; nonprofit firms appear to engage in internal hiring more frequently than do for-profit firms; nonprofit firms are less likely to base promotions on job performance or merit than are for-profit firms; nonprofit firms are less likely than for-profit firms to use output-contingent incentive contracts or within-job wage growth to motivate workers; despite using fewer direct incentive mechanisms to motivate workers, average worker performance in nonprofit firms is the same as in for-profit firms; the observed difference in promotion rates between the nonprofit and for-profit sectors is more pronounced for high-skilled than for low-skilled workers.

We acknowledge that our data do not allow us to provide definitive proof that our incentives-based explanation is correct. Furthermore, any one of the empirical facts we report, considered alone, provides merely suggestive evidence consistent with our theory. Nonetheless, we believe that the union of these empirical facts provides a compelling body of evidence in support of the theory. Indeed, we are struck by how neatly these individual bits of suggestive evidence fit together to produce a coherent picture and how difficult it is to conceive of an alternative explanation to ours that is also consistent with this same broad pattern of empirical facts.

The structure of the paper is as follows. After discussing the previous literature and describing our data, we begin the empirical work by documenting the clear differences in promotion behavior between for-profit and nonprofit firms and showing that this is not simply an

artifact of omitted observable characteristics of workers or of firms. We then consider an array of empirical evidence, each component of which sheds some light on how consistent our theory is with the data. This method also allows us to consider some alternatives to our incentives-based explanation. Finally, we offer our interpretation of the collective results in our concluding discussion.

2. Previous Literature on Promotions and Nonprofit Firms

The basic empirical finding that, *ceteris paribus*, promotions are more likely in for-profit than in nonprofit firms was first identified in recent work by DeVaro (2003) in the context of a structural promotion model designed to empirically test the predictions of tournament theory, though the result was not scrutinized or interpreted in that paper.[1] Although no previous empirical work has considered the link between promotion decisions in a firm and whether the firm is for-profit or nonprofit, there is a literature on promotions and a separate literature on nonprofits. Since these distinct literatures are relevant to our discussion, we briefly review both of them.

A lucid survey of the promotions literature can be found in Gibbons and Waldman (1999a), which focuses on two distinct roles of promotions. Promotions are used both to assign workers to jobs and as a means of creating incentives for workers. Papers concerning the job-assignment function of promotions extend single-period job assignment models to a multi-period context in which workers can potentially scale the rungs of a promotional ladder. Movement up the ladder occurs either because the employer learns about worker ability through a series of noisy signals over time or because workers accumulate productivity-enhancing human capital during their tenure with the firm. A number of papers combine the learning and human capital approaches to the problem of promotions as a job-assignment mechanism. See Waldman (1984), Milgrom and Oster (1987), Bernhardt (1995), and especially Gibbons and Waldman (1999b, 2002). The second key role of promotions is in creating incentives for workers, as in tournament theory as first articulated by Lazear and Rosen (1981) and Rosen (1986). An extensive

[1] In an earlier paper, Mirvis and Hackett (1983) used the 1977 Quality of Employment Survey to consider how workers rate various aspects of their jobs on a five-point scale. One of these items was "promotion opportunities", and respondents in the nonprofit and government sectors reported lower promotion opportunities than respondents in the for-profit sector. This study reported only the mean response to this survey question by sector, though it is interesting that this unconditional result is consistent with our finding in this paper.

literature, both theoretical and empirical, has developed during the past two decades that extends and tests the tournament model. For a recent survey of this literature see DeVaro (2003).

A difficult question posed by Baker, Jensen, and Murphy (1988) is why firms use promotions both for job assignment and incentives, rather than using promotions purely for job assignment and using bonuses to create incentives. Using promotions to achieve job assignment and to create incentives confronts the firm with a tradeoff between job assignment and incentives. It is unlikely that the firm can achieve both goals perfectly through promotions, so it would seem preferable to use promotions to achieve job assignment while creating incentives through compensation bonuses. This has been dubbed the Baker-Jensen-Murphy puzzle in Gibbons and Waldman (1999a), which surveys the literature offering a number of potential solutions to the puzzle. We will offer yet another solution to the puzzle as it applies to nonprofit firms.

In the literature on nonprofit organizations, much of the early work addressed theoretical considerations. Representative papers include Newhouse (1970), Weisbrod (1975, 1979), Hansmann (1980), Easley and O'Hara (1983), and Holtmann (1983). These papers study the question of why nonprofit firms exist and why they coexist with for-profit firms. Both Weisbrod (1979) and Hansmann (1980) argue that nonprofit firms represent the optimal mechanism for providing certain goods. In particular, Hansmann argues that "contract failure" is a primary reason for the existence of nonprofit firms. Easley and O'Hara (1983) formalize these arguments by demonstrating that the coexistence of nonprofit and for-profit firms in the economy may be understood as the solution to an optimal contracting problem between society and the owners of firms, where society represents the principal and the owner-managers of firms represent the agents. Their main result is that when output is not easily measured, nonprofits may be superior to for-profit firms. The basic intuition is that legal constraints on nonprofits that prohibit the distribution of profits among owners of the firm provide members of society with some insurance that the contract will be fulfilled.

Empirical papers in the nonprofit literature focus entirely on wage-differentials between the nonprofit and for-profit sectors. The motivation for this line of work is the notion that if workers prefer to do work that contributes to a positive social mission, they should be willing to accept lower wages to work in such jobs, other things equal. That is, a compensating differential should emerge between nonprofit and for-profit firms. Evidence from a survey of student

attitudes is consistent with this. Rawls, Ullrich and Nelson (1975) present survey evidence of graduate students in business at Vanderbilt University showing that those students who claim to place less emphasis on economic wealth are more likely to end up in nonprofit jobs. The suggestion that the mission of nonprofit organization represents a nonpecuniary job characteristic that is valued by some workers is consistent with our argument that nonprofit jobs provide a source of intrinsic motivation that is absent in similar jobs in for-profit organizations.

Apart from the aforementioned work on attitudes, most empirical work has used data on actual wages. Weisbrod (1983) studies wage differentials among lawyers, using a national random sample of 790 lawyers taken between 1973 and 1974, and finds a substantial wage gap in the expected direction. That is, public interest or nonprofit lawyers are paid significantly less than for-profit lawyers. However, Goddeeris (1988) using the same sample of lawyers, finds that job sector choice depends on personal characteristics relating to non-pecuniary aspects of the job. Furthermore, the estimated wage differential between public-interest and private sector lawyers disappears when one simultaneously accounts for self-selection. Preston (1988) studies the day care industry and finds that in the federally financed sector of this industry the wage differential goes in the opposite direction, with nonprofit workers being paid more than for-profit workers. In the other more competitive segment of this industry, there is no statistically significant wage differential between nonprofit and for-profit workers. Preston (1989) uses data from the 1980 Survey of Job Characteristics and the 1979 Current Population Survey to study nonprofit wage differentials for workers of different skill levels. For managers and professional workers she finds that nonprofit workers are paid 20 percent less on average, while clerical and sales workers are paid only 5 percent less on average. Frank (1996) studies a sample of recent graduates of Cornell University's College of Arts and Sciences, and finds a substantial compensating differential in the wages of these students' first jobs. Those working in the nonprofit sector receive lower pay.

The recent careful investigation by Mocan and Tekin (2003) exploits a rich employer-worker matched data set to measure the extent of a nonprofit wage differential for child care workers. Their methodology accounts for unobserved worker heterogeneity and worker self-selection into the nonprofit sector and into full-time versus part-time work. Their main result concerning the wage differential is that there is a substantial compensation premium in favor of nonprofit jobs. The Mocan and Tekin study, with its rich data and careful attention to selection

issues, provides what is perhaps the most convincing measure to date of the nonprofit wage differential in a particular context, namely that of child care workers. Detailed data that exclusively pertain to child care workers allow the authors to avoid potential contamination of their results due to inter-industry unobserved variables. Nonetheless, it cannot be established how specific the results of the study are to the context of child care centers and to what extent they reflect more general differences between the nonprofit and for-profit sectors.

The study by Leete (2001) analyzes the broadest sample to date, using over four million observations from the 1990 Census. Although she finds no evidence of an economy-wide nonprofit wage differential, within particular industries she finds wage differentials, some positive and some negative. This is consistent with the mixed results from the other work in this literature that analyzes particular industries; sometimes the wage differential is positive and sometimes it is negative, and sometimes it is essentially zero. In summary, the empirical literature suggests that there is not a nonprofit wage differential at the economy-wide level, though within particular industries both positive and negative wage differentials are observed.

3. Data: Multi-City Study of Urban Inequality (MCSUI)

We use data from the Multi-City Study of Urban Inequality (MCSUI), a cross-sectional employer telephone survey collected between 1992 and 1995. There are 3510 observations in the data and the sampling universe consists of four metropolitan areas: Atlanta, Boston, Detroit, and Los Angeles. Harry Holzer conducted the bulk of the survey, producing 3213 cases. A supplement of 297 cases was provided by Kirschenman, Tilly, and Moss. The survey respondent was the owner in 14.5% of the cases, the manager or supervisor in 42%, a personnel department official in 31.5%, and someone else in 12%. Screening identified a respondent who actually carried out hiring for the relevant position, and the survey instrument took 30-45 minutes to administer on the telephone, with an overall response rate of 67%. For more information about the data, see Holzer (1996).

The sampling scheme was somewhat complex. Slightly less than two thirds of the cases were drawn from regional employment directories provided by Survey Sampling, Inc. (SSI) based on local telephone directories. This was a sample stratified by establishment size (25% 1-19 employees, 50% 20-99 employees, 25% 100 or more employees) and was designed to be self-weighting. Slightly more than one third of the cases were drawn from the current or most recent

employer reported by respondents in the companion MCSUI household survey. A number of considerations render the complete (unweighted) sample unrepresentative of the population of interest. One issue is that the MCSUI household survey over-sampled low-income areas and areas with high concentrations of racial minorities. A second issue is that the SSI subsample was restricted to employers who had hired a worker for a position that did not require a college degree within the previous three years, whereas the household subsample was not restricted to entry-level jobs in this way. Inverse-probability sampling weights adjust for these complexities of the sampling scheme, and weighted observations are a representative sample of firms such as would occur if a random sample of employed people were drawn from each city. We use these sampling weights throughout the study.

A substantial fraction of survey questions ask about the most recently hired worker, and these questions form the basis for the empirical analysis. The survey includes two promotion variables, describing both received and expected promotions. In particular, the employer is asked if the most recently hired worker has been promoted since the hiring date and, whether or not a promotion has been received, if this worker is expected to be promoted within the next five years. These two questions provide the basis for the dichotomous dependent variables, PROMOTE and PROMEXP, used in this analysis. The other key question in the survey asks the respondent employer whether the firm is for-profit. In addition to the promotion variables and the for-profit status of the firm, the data include the worker's tenure with the firm, as well as characteristics of the firm, of the job, and of workers.

Summary statistics for the variables used in the empirical analysis are displayed in Table 1 for the full sample and for the subsamples of nonprofit and for-profit firms. Seventy-five percent of the establishments in the sample are for-profit and 25 percent are nonprofit. The fraction of received promotions is a relatively small 7.5 percent because the sample consists of recently hired workers, many of whom have not been with the firm for long. The fraction of workers expected to receive promotions within the next five years is about two thirds. Table 1 reveals that many variables differ between nonprofit and for-profit firms. Most of these differences in means are statistically significant. The only ones that are insignificant at the five percent level are: firm size and the monthly hiring rate and net change in employment of the firm; the mining and agriculture, forestry, and fishing industries, all of which are represented only trivially in this metropolitan sample; tenure, race, and the extent to which the position

requires talking on the phone or using computers. Table 2 provides the detailed occupational distribution of for-profit and nonprofit jobs in our sample, including both the actual counts and those weighted with the survey sampling weights.

4. Promotions in For-Profit and Nonprofit Firms

The basic empirical result that received and expected promotions are more likely in for-profit than in nonprofit firms can be seen in the first two lines of Table 1. Nearly nine percent of the most recently hired workers received promotions in for-profit firms versus about four percent in nonprofit firms. Similarly, about 70 percent were expected to be promoted in for-profit firms versus only 56 percent in nonprofit firms. Both differences in means are statistically significant with t-statistics above 3.5. This unconditional difference in means, which is the result reported in DeVaro (2003) using the same data but conditioning on a number of other determinants of received and expected promotions, is the starting point for our analysis.

A number of omitted factors that are correlated with both promotion rates and for-profit status could potentially explain the empirical result -- the most obvious include worker and firm characteristics. The fact that so many of these characteristics differ by nonprofit status, as seen in Table 1, highlights the importance of including an extensive set of control variables in the promotion equations. An important worker characteristic that is relevant to promotions is tenure with the firm. In the MCSUI data, tenure is measured as the number of months that the most recently hired worker has been with the firm. Another important worker characteristic is skill level. For this we use educational attainment, measured as dummy variables for whether the most recently hired worker has a college degree or more and whether the worker has a high school degree but no college degree. The reference group is workers with less than a high school degree. In addition to educational attainment, the data also include a measure of the job-specific performance of the most recently hired worker. The respondent employer is asked to rate the performance level of the most recently hired worker in the position into which they were hired, from 0 to 100 where 100 is high and 50 is average.

If promotions are determined via tournaments or internal promotion competitions, then the probability of promotion for the most recently hired worker should be a function of the skill level of other workers in the firm, in particular those workers who compete directly with the most recently hired worker for promotion. As a broad measure of the ability of other workers in

the firm, we use the fraction of workers in the firm with at least a college degree. We also include a variable that measures more closely the performance of the most recently hired worker's competition. Paralleling the subjective employer-reported performance rating, the employer is also asked to rate the performance of the "typical employee" in the position held by the most recently hired worker. Again this is on a scale from 0 to 100, with 100 high and 50 average.

A number of firm characteristics could also be relevant in determining promotions, and to the extent that these are correlated with nonprofit status, our measured for-profit effect might be proxying for these other firm characteristics. Our controls for firm characteristics include firm size, number of sites of operation, the fraction of employees covered by collective bargaining agreements, and dummy variables for whether or not the firm is a franchise, whether or not it has any temporary workers, whether or not it has any contract workers. In addition, we include industry controls for agriculture, forestry, and fishing, mining, manufacturing, transportation, wholesale trade, retail trade, finance, services, and public administration, with construction serving as the reference group.

Table 3 reports the results of probit estimations using PROMOTE and PROMEXP as the dependent variables for promotions and expected promotions and including the control variables. For continuous independent variables, such as firm size, the entries are probability derivatives evaluated at the means of all variables. For discrete independent variables, such as whether or not the firm is a franchise, the entries measure the change in predicted probabilities when the dummy independent variable increases from zero to one. The result that emerges from Table 3 is striking. Even in the presence of an extensive set of controls for worker characteristics, firm characteristics, and industry effects, for-profit status has a statistically significant positive effect on both received and expected promotions. For-profit status is associated with an increase in promotion probability by 4.3 percentage points and with an increase in the probability of expected promotion by 13.3 percentage points. In both cases the associated t-statistics exceed 2.5. These magnitudes, based on an extensive set of control variables, closely mirror those of the unconditional results reported at the start of this section.

In addition to the results in Table 3, we estimated a number of alternative specifications, controlling for more variables in an effort to dissolve the nonprofit effect. Across all of these specifications, the difference in promotion probability between for-profit and nonprofit firms

(both for received and expected promotions) remained statistically significant and of the same order of magnitude. We report a number of these alternative specifications in Table 4. First, although the core specification of Table 3 already controls for skill levels and worker performance using educational attainment and a job-specific performance rating, we include occupational controls for four broad occupational categories (professionals, sales workers, service workers, laborers and operators). Second, we control for worker demographic characteristics (age, gender, race). Third, we control for characteristics of the job, in particular indicators for the frequency with which various tasks are performed. These are dummy variables that equal one if a particular task is required in the position on a daily basis, and zero otherwise, for the following tasks:

talk: talking face-to-face with customers or clients;
phone: talking over the phone with customers or clients;
read: reading instructions at least one paragraph long;
write: writing paragraphs or memos;
math: doing arithmetic or other computations;
computer: working with a computer

Finally, we also include an indicator for whether the position requires a college degree.

In addition to these specifications, we also estimated models that control more carefully for skill and occupation, by estimating the core specification within educational and occupational subgroups. We report and discuss these specifications later in the paper. We also included some establishment-level turnover variables that we constructed, though we defer a lengthy discussion of turnover to later in the paper. Finally, we estimated (unreported) specifications that control for whether or not the establishment offered each of 17 fringe benefits in the job in question. Such controls are potentially important since fringe benefit provision is somewhat different between the nonprofit and for-profit sectors. Nonetheless, there are not strong reasons to expect fringe benefit provision to be important determinants of promotion probabilities. In fact, inclusion of these 17 fringe benefit indicators did not change the key result concerning promotions in nonprofits.[2]

[2] Unconditional differences in means reveal that nonprofits are more likely to provide health insurance for their employees and for their employees' families, dental and vision coverage, paid sick or personal days, life insurance, disability insurance, day care, maternity/paternity leave, and to contribute to pension plans. For-profit firms are more likely to offer paid vacations and holidays, savings (401K) plans, and stock options. No statistical difference

One potentially important variable for which we cannot control is the growth rate of the establishment. If, for example, the for-profit sector has more growth than the nonprofit sector, this could explain some of the difference in promotion rates between nonprofit and for-profit firms. Unfortunately, the MCSUI data do not include usable information on, for instance, growth rate of sales or revenues. Although this omission is a potential source of concern, it should be mitigated to some extent by the fact that we can measure establishment-wide employee growth, since this should be positively correlated with growth in sales. We return to this issue later in our discussion of turnover. Inclusion of these establishment-wide measures of employee growth and turnover did not change the basic result concerning promotions in nonprofits.

The missing values that litter the survey pose another potential source of concern. Missing values are scattered throughout many of the variables of the survey, so that the reported specifications that include many variables on the right-hand side involve a large number of missing observations. What mitigates this concern is the fact that the nonprofit effect is strong and statistically significant across every specification we estimated, regardless of the subsample and the included control variables. Furthermore, the magnitude of the nonprofit coefficient varies surprisingly little across these specifications even when large numbers of observations disappear because of missing values. This leads us to believe that the main cost of missing values in this context is simply reduced precision in our estimates, making the persistence of the nonprofit effect across numerous specifications all the more striking.

In summary, the empirical finding that received and expected promotions are more likely in for-profit than in nonprofit firms is significant in magnitude, precisely measured, and quite robust to the inclusion of other variables that potentially explain received and expected promotions. Of course, we cannot definitively rule out the possibility that an omitted variable correlated with both promotion rates and for-profit status explains the empirical result. Nevertheless, we believe we have exhausted most of the obvious candidates without eliminating the for-profit effect. Therefore, we proceed under the maintained hypothesis that there is

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between nonprofit and for-profit organizations was found for supplemental unemployment benefits, tuition reimbursement and flexible hours for parents in the unconditional specifications. Most of these differences disappear in the presence of the controls for firm characteristics and industry listed in Table 2. Conditionally, nonprofits are more likely to offer pension plan contributions, day care and supplemental unemployment benefits whereas for-profit firms are more likely to offer paid vacation, savings plans, stock options and flexible hours for parents. Adding all of the 17 fringe benefit provision indicator variables as regressors to our two main promotion probit specifications leaves our overall result unchanged in that the coefficient on for-profit status is 0.036 with a t-statistic of 2.07 for promotions and 0.184 with a t-statistic of 3.30 for expected promotions.

something inherently different about promotion processes in nonprofit firms as compared with for-profit firms. In the next section we propose a potential explanation for why promotions might differ in nonprofit firms, and we evaluate the extent to which the data are consistent with this and with alternative explanations.

5. Why Are Promotions Less Likely in Non-Profit Firms?

Existing theory on promotion behavior in firms does not provide an obvious explanation for why promotion processes should differ between for-profit and nonprofit firms. The theoretical models in the promotions literature appear as applicable in nonprofit firms as they are in for-profit firms. That is, both types of firms face the issues of job assignment and incentive creation and could use promotions to achieve both aims. Absent an obvious theoretical explanation for the empirical result, we propose a potential explanation and evaluate the extent to which it is consistent with the data. We argue that workers in nonprofit firms are intrinsically motivated by the organizational mission. This allows nonprofit employers to use promotions mainly to achieve efficient job assignments rather than to create incentives. In contrast, for-profit employers must use promotions to achieve both objectives, presumably achieving neither perfectly. Our story thus offers a resolution to the "Baker-Jensen-Murphy Puzzle" in non-profit firms. In nonprofit firms the puzzle is eliminated, since promotions can be used mainly to achieve efficient job assignments. In effect, nonprofit employers can avoid the tradeoff altogether.

It seems to us quite plausible that a worker's empathy with the social mission of the nonprofit organization would provide a source of motivation. This is also in harmony with the empirical literature on wage differentials between the two sectors, which argues that nonprofit status represents a nonpecuniary job characteristic that some workers value positively. It is also consistent with survey evidence on worker attitudes (Rawls, Ullrich, and Nelson 1975). Finally, the view that nonprofit workers are inherently motivated by the organizational goal is also very much in consonance with theories on motivational job design, which have their roots in the organizational psychology and management literatures. These theories focus on how certain characteristics of jobs affect worker motivation. For example, in the job characteristics model described in Hackman and Oldham (1980), "task significance", or the extent to which a job has important impacts on the lives of others, translates into a degree of experienced meaningfulness

of one's work, which ultimately translates into better worker performance. The basic idea is that firms design jobs or bestow jobs with certain characteristics that have the potential to motivate workers through various channels, one of which is increasing the extent to which a worker believes his or her work is meaningful. We argue that in many nonprofit firms such motivational job design is achieved automatically, simply by virtue of the fact that the firm is nonprofit and likely guided by a social mission. That is, nonprofit jobs by their very definition are inherently designed to impart incentives since workers who choose to work in them are inherently motivated by "the cause."

Nonetheless, providing convincing empirical evidence that our incentives-based story is the explanation for the observed differences in promotion behavior between the two sectors is a formidable task. Our approach is to systematically assemble a variety of empirical facts that are relevant to our proposed explanation and that might be supportive or cast doubt on it. Much of our effort is focused on trying to determine whether and how nonprofit and for-profit firms differ in their provision of worker incentives. We then draw conclusions based on the entire collection of empirical facts. The pursuit of information corroborating or rejecting our incentives-based hypothesis and other competing hypotheses leads us to address the following questions in this section:

- Do nonprofit firms use promotions as incentive mechanisms?
- Do nonprofits use output-contingent contracts rather than promotions to create incentives?
- Is within-job wage growth higher in nonprofit than in for-profit firms?
- Does average worker performance differ between nonprofit and for-profit firms?
- Do the differences in promotion rates between nonprofit and for-profit firms exist for both high and low-skilled workers?
- What if promotions are simply not possible in many nonprofit jobs?
- Are internal labor markets more prevalent in for-profit than in nonprofit firms?
- Do worker turnover rates differ between for-profit and nonprofit firms?

Do Nonprofit Firms Use Promotions As Incentive Mechanisms?

The question of whether or not nonprofit firms use promotions as incentive mechanisms has implications for the promotion probabilities of individual workers because if promotions are

extremely rare then they are unlikely to provide strong incentives. In contrast, if promotions are rare this need not have implications for the role of promotions in achieving efficient job assignments. One can imagine situations in which optimal job assignment might be achieved and remain static for quite some time, with no need for frequent promotions.

Casual observation and previous empirical work (Gerhart and Milkovich 1989, Lazear 1992, McCue 1996) suggests that promotions are associated with large wage increases. This is also true in the MCSUI data, in both for-profit and nonprofit firms, as revealed by the following survey question about the most recently hired worker. "If promoted, what would this employee's wage or salary be?" From this we constructed a wage spread between this reported promotion wage and the worker's current wage. The average increase in hourly wage from promotion is $3.63 in for-profit firms and $4.33 in nonprofit firms, with the difference of $0.71 statistically insignificant even at the 30 percent level. So our results based on the MCSUI data are consistent with the large wage increases from promotion found in the previous literature using other data sets; workers in both for-profit and nonprofit firms receive large wage increases of similar magnitude.

Given the large wage increases that accompany promotions, it might seem obvious that promotions have incentive effects. Nevertheless, even in the presence of large wage increases, promotions cannot have incentive effects unless they are based on merit and job performance. In this subsection, we provide evidence that promotions are less likely to be based on merit in nonprofit firms than in for-profit firms. Respondent employers were asked three consecutive questions about promotion criteria for workers in the position held by the most recently hired worker. They were asked about the extent to which promotions are based on "merit and job performance", on "seniority", and on "affirmative action". For all three questions, responses were recorded as "Mostly", "Somewhat", or "Not at all." Due to the relatively small sample sizes, we created three dichotomous variables by combining the "Somewhat" responses with the smaller of the other two categories.[3] More precisely, we defined:

MERIT = 1 if promotions are based mostly on merit

= 0 if only somewhat or not at all

SENIORITY = 1 if promotions are based mostly or somewhat on seniority

= 0 if promotions are not at all based on seniority

[3] None of our results are sensitive to this aggregation of responses.

AFFIRMATIVE ACTION = 1 if promotions are based mostly or somewhat

= 0 if promotions are not at all based on affirmative action.

The following table reports the mean values for each of these variables, by for-profit status of the firm:

Fraction of Firms Basing Promotions on Merit, Seniority or Affirmative Action

	MERIT	*SENIORITY*	*AFFIRMATIVE ACTION*
For-profit	0.888	0.584	0.438
Nonprofit	0.765	0.615	0.568
Difference in Means (unconditional)	***0.123*** **	***-0.031***	***-0.130*** **
Difference in Means (conditional)	***0.085*** **	***-0.061***	***-0.114*** **

Note: ** denotes statistical significance at the 5% level.

Nonprofit firms are more than 12 percent less likely than for-profit firms to base promotions on merit and job performance. Furthermore, nonprofit firms are more likely to base promotions on seniority or affirmative action than are for-profit firms, though for seniority this difference is statistically insignificant. The last line of the table gives the conditional difference in means, controlling for firm characteristics and industry effects listed in Table 3. This is the change in the predicted probability of the dependent variable (*MERIT*, *SENIORITY*, or *AFFIRMATIVE ACTION*) when for-profit status increases from zero to one, in probit equations that include all of the firm and industry characteristics as controls. These effects are evaluated at the means of all control variables. For both merit and affirmative action, both the unconditional and the conditional differences in means are statistically significant at the five percent level.

To corroborate this evidence that nonprofit firms are less likely than for-profit firms to base promotions on merit and job performance, we estimated probit equations using received and expected promotions as dependent variables, and the performance levels of the most recently hired worker and of the typical worker in that position as independent variables with controls for firm characteristics and industry effects. Estimating these probits on the for-profit and nonprofit subsamples produced the following table of probability derivatives for the performance variables:

Marginal Effects from Promotion Probits

	PROMOTE	PROMEXP
For-profit Firms		
Performance	0.031**	0.045**
Typical Performance	-0.012*	-0.021*
Nonprofit Firms		
Performance	0.010	0.016
Typical Performance	-0.007	-0.045

Note: Probit equations also include controls for firm characteristics and industry effects. * and ** denote statistical significance at the 10% and 5% levels. Cell entries are marginal effects multiplied by 10, with all other covariates evaluated at their mean values.

Each marginal effect in the table is multiplied by 10, giving the percentage point increase in the promotion probability for a ten-point increase in either of the performance variables. In for-profit firms, a ten-point increase in performance on the 100-point scale is associated with an increase in the probability of promotion by 3.1 percentage points and an increase in the probability of expected promotion by 4.5 percentage points. A ten-point increase in the performance of the typical employee in that same position is associated with a decrease in the promotion probability of more than one percentage point for the most recently hired, and more than a two percentage-point decrease in the probability of expected promotion for this worker. These effects are negative since the typical worker in that position competes with the most recently hired worker for the same promotion opportunities. The results suggest that in for-profit firms, promotions are based on relative performance and may be thought of as internal promotion competitions as described in DeVaro (2003).

In contrast, the results for the subsample of nonprofit firms suggest that neither promotions nor expected promotions are associated with the performance level of the most recently hired worker, or with the performance of this worker's competition for promotion. None of the performance effects are statistically significant at the 10 percent level. These results indicate that promotions in nonprofit firms appear to be based neither on absolute performance levels nor on relative performance.

Combining these results with the employer's responses to questions about the extent to which promotions are based on merit and job performance, as opposed to seniority or affirmative action, a clear picture emerges that promotions in nonprofit firms are less often based on merit than in for-profit firms. The natural conclusion is that promotions in nonprofit firms do not serve

as incentive mechanisms -- or at least that they provide much weaker incentives than promotions in for-profit firms -- since even when associated with large wage increases, promotions can only produce incentives when they are based on worker performance. In contrast, for-profit employers report a greater tendency to base promotions on merit and job performance, and indeed promotions and expected promotions in for-profit firms are strongly related to worker performance. This suggests that the role of promotions as incentive mechanisms is stronger in for-profit firms.

Do Nonprofits Use Output-Contingent Contracts Rather than Promotions to Create Incentives?

Given that nonprofits appear not to use promotions as incentive mechanisms, it is natural to ask how worker incentives are created in such firms. One possibility is that nonprofits do not use promotions to create incentives because they instead use output-contingent contracts such as bonuses to motivate workers. For this contracting view to be correct requires that worker output be measurable at relatively low cost in nonprofit firms. A theoretical argument suggests just the opposite. Easley and O'Hara (1983) argue based on reasoning from Hansmann (1980) that the co-existence of for-profit and nonprofit firms can arise as a solution to an optimal contracting problem, and that nonprofit firms may be superior to for-profit firms when output is hard to measure.

The Easley-O'Hara argument suggests that nonprofit firms would not be motivating workers via incentive contracting because output would frequently be unmeasurable (or measurable only at high cost) in nonprofit firms. The proposition is readily tested empirically, since the MCSUI data include a number of questions concerning output-contingent compensation. In particular, the respondent employer is asked if the most recently hired worker receives "anything in addition to the wage or salary, such as tips, bonuses, or other supplements?" The mean response in for-profit firms was 66.9 percent versus only 21.1 percent in nonprofit firms, and the difference in means is statistically significant with a t-statistic exceeding 15. This establishes clearly that firms are far more likely than nonprofit firms to have output-contingent compensation contracts. More detailed empirical evidence is provided in the

following table reporting the employer's use of each of a number of different modes of output-contingent compensation.[4]

Differences in Output-Based Pay by For-Profit Status

	Tips?	Commission on Sales?	Piece Rates?	Bonuses?	Profit Sharing?
For-profit Firms	0.058	0.125	0.038	0.487	0.297
Nonprofit Firms	0.011	0.014	0.006	0.179	0.013
Difference in Means (unconditional)	**0.047****	**0.111****	**0.032****	**0.307****	**0.284****
Difference in Means (conditional)	**0.013***	**0.036****	**0.007**	**0.291****	**0.283****

Note: * and ** denote statistical significance at the 10% and 5% levels.

Nonprofit firms are more than 11 percent less likely than for-profits to pay commission on sales, and more than 30 percent less likely to pay bonuses. Furthermore, while only about four percent of for-profit firms report having piece-rate compensation, virtually no nonprofit firms use piece rates. The last line of the table reports conditional differences in means controlling for firm characteristics and industry effects, estimated from probit equations. These cell entries are the change in the predicted probability of the dependent variable when for-profit status increases from zero to one, evaluating the effects at the means of the other covariates, namely firm characteristics and industry effects. These empirical results, bolstered by the theoretical argument by Easley and O'Hara that nonprofit firms are most likely when the output is hard to measure, provide a convincing case that nonprofit firms are less likely than for-profit firms to rely on output-contingent incentive contracts as the primary means of motivating workers.[5]

Is Within-Job Wage Growth Higher in Nonprofit Than in For-Profit Firms?

If nonprofits do not rely on promotions for incentives, and if they do not rely on output-contingent incentive contracts, then perhaps they use within-job wage increases to motivate

[4] About one percent of nonprofit firms report that profit sharing represents part of worker compensation. This fraction should be zero in nonprofit firms and we cannot discern why it is positive. It likely represents measurement error or a different interpretation of profit sharing on the part of the respondent nonprofit employer. In any event, as the fraction is quite low we believe it does not raise any major concerns.

[5] Further evidence that pay and performance are not as tightly linked in nonprofits as in for-profits is offered in Werner and Gemeinhardt (1995). They study a sample of 1811 workers from 69 nonprofit firms in Houston metropolitan area. The nonprofit jobs include those in employment and training, youth development, mental health, social service, education, arts and culture, and environmental organizations. Their basic conclusion is that nonprofits do not tie compensation to organizational performance, as measured by average annual budget growth and administrative efficiency.

workers, as opposed to the inter-job wage growth that occurs when a worker moves to a higher rung of a promotional ladder. Maybe there is more potential in nonprofit firms than in for-profit firms for achieving wage growth without promotions. We address this issue empirically using the following MCSUI question: "What is the highest wage or salary that any employee in this position could expect to be paid without promotion?" The question refers to the position into which the most recently hired worker was hired. The survey also asks, "What is [this employee's] actual starting wage/salary?" The reported time frame for both wage questions was either hourly, weekly, monthly, or annually, and we converted all responses to hourly wages measured in 1990 dollars, deflated using the CPI-UX. We then defined a wage spread measuring the difference between the highest wage obtainable in the position, and the starting wage, and used this as our measure of within-job wage growth.

The average wage spread in nonprofit firms is $4.48 per hour, while in for-profit firms it is $3.70 per hour. This difference of $0.78 per hour is statistically significant with a t-statistic of 2.03. This would seem to lend support to the hypothesis that nonprofit firms use within-job wage growth in lieu of promotions to create incentives for workers. However, the result is unconditional and is not robust to the inclusion of control variables. In fact, controlling for only one other variable, firm size, is enough to render the difference in means statistically insignificant at the ten percent level. Controlling for a larger set of firm characteristics switches the sign of the difference in means and reduces the magnitude to $0.66 per hour. These results are presented in Table 5, which reports coefficients from OLS using the within-job wage spread as the dependent variable. In summary, there appears to be no difference between for-profit and nonprofit firms in opportunities for within-job wage growth.

Does average worker performance differ between nonprofit and for-profit firms?

Nonprofit firms appear less likely than for-profits to use promotions for incentive creation, since promotions in nonprofits are much less likely to be based on merit and job performance. Furthermore, nonprofits appear less likely than for-profits to rely on output-contingent contracts and no more likely than for-profits to rely on within-job wage increases to create incentives. Given this apparent dearth of incentive mechanisms in nonprofit firms relative to for-profit firms, it is natural to question whether incentives suffer in nonprofit firms and if workers ultimately have lower average performance in nonprofit firms. We address this by

comparing average employer-reported performance levels for the most recently hired worker in both nonprofit and for-profit firms, though we note that such evidence must be considered only suggestive. The reason is that incentives are not the only determinants of worker performance, and a selection effect might be working in the opposite direction. That is, it is possible that nonprofit employers draw from a higher-ability distribution of workers than do for-profit firms, so that even if nonprofit firms offer weaker incentives than do for-profit firms this might not be detectable by simple comparisons of average performance.

Given this caveat regarding a possible selection effect, our evidence suggests that average performance does not suffer in nonprofit firms due to weaker incentives. The average worker performance score in nonprofit firms is 80.7, versus only 77.8 in for-profit firms, so performance is actually slightly higher in nonprofit firms. This small difference is statistically significant at the five percent level. However, the difference disappears in the presence of controls for worker and firm characteristics.

We conclude that there is no difference in average performance between workers at for-profit firms versus those in nonprofit firms. Yet for-profit firms appear to use more intensively a number of incentive mechanisms, including promotions and various types of output-contingent incentive contracts. Given that performance levels are the same on average between for-profit and nonprofit firms, it would appear that nonprofit firms have some other means of creating worker incentives. Our hypothesis is that workers in nonprofit firms are inherently more motivated than for-profit workers, simply by virtue of their interest in the organizational mission of the nonprofit firm. In economic terms, effort is more costly to workers in for-profit firms than in nonprofit firms.

Do the Differences in Promotion Rates Between Nonprofit and For-Profit Firms Exist for Both High and Low-Skilled Workers?

If our incentives-based explanation for the lower likelihood of promotion in nonprofit firms is correct, it would seem that the intrinsic source of motivation deriving from nonprofit jobs would be strongest for high-skilled workers, since their work is likely to be linked closely with the mission of the organization. In contrast, the work of low-skilled workers such as janitors in nonprofit firms is fairly distanced from the overall social mission of the firm. Nonetheless, to the extent that lower-skilled workers understand the role of their jobs in

contributing indirectly to the overall mission of the organization, even they may experience some of the motivational effects of working in nonprofit firms. So whether the incentives that are inherent in nonprofit firms are stronger for high-skilled workers than for less-skilled workers is an empirical question.

To address this question of whether the same differences in promotion behavior between nonprofits and for-profits exist both for high-skilled and low-skilled workers, we estimated the main promotion probits on subsamples disaggregated by skill level. In particular, we defined as "low-skilled" those workers with a high school degree or less and "high-skilled" as all other workers. Results are displayed in Table 6. For high-skilled workers, the relationship observed in the full sample holds both for promotions and for expected promotions. Specifically, controlling for other factors, for-profit status is associated with a five percent increase in the probability of promotion and a 14 percent increase in the probability of expected promotion. For low-skilled workers the evidence of this relationship is weaker. There is no evidence of a positive relationship between for-profit status and promotions. Furthermore, though for-profit status increases the probability of expected promotion by 12 percent, this is statistically significant only at the ten percent level.

We also investigated whether the positive relationship between for-profit status and promotions is found in occupational subgroups. For this purpose we defined four broad occupational groups, based on a survey question that asks what job the most recently hired worker was hired to do. Verbal descriptions were converted to 2, 3, and 4-digit codes according to the 1980 SOC. Our four broad groups, in roughly descending order of skill level, are as follows:

Professionals: Administrative, engineering, scientific, teaching, and related occupations, including creative artists

Sales: Technical, clerical, sales, and related occupations; precision production, craft and repair

Services: Service occupations, including military occupations

Low-skilled: Operators, fabricators, laborers; farming, forestry, fishing, and hunting occupations.

Probit equations for promotions and expected promotions are displayed in Table 7.

The disaggregation by occupation reveals that the relationship between promotions and for-profit status that holds in the full sample also holds in all but the least-skilled occupational group. For the professional, sales, and service occupations, for-profit status is associated with statistically significant increases in either the probability of promotion or the probability of expected promotion, and even when the estimated effect is statistically insignificant it is still positive. In contrast, for low-skilled occupations, the estimated effects of for-profit status on probabilities of promotion and expected promotion are negative and statistically insignificant.

In summary, the disaggregation by educational attainment and by occupation reveals that the positive effect of for-profit status on promotion probabilities holds for all except the least-skilled workers. That is consistent with the view that the work of high-skilled workers tends to be more tightly linked to the organizational mission than the work of low-skilled workers. The problem of creating incentives for janitors is the same whether they work in for-profit or nonprofit firms. The fact that a nonprofit firm has a social mission does not create strong incentives for janitors, since their work is very far removed from the mission of the organization. For highly-skilled professionals, on the other hand, promotions are less likely to be needed by the nonprofit firm as incentive-creation devices for an already motivated staff of professional workers.

The evidence thus far is consistent with our incentives-based explanation for the difference in promotion behavior between nonprofit and for-profit firms. We next turn our attention to alternative explanations, considering three in the next three subsections. We first address the possibility that the organizational structures are fundamentally different between the two types of firms, so that perhaps promotions are not even possible in many nonprofit firms. Second, we consider the possibility that internal labor markets are more prevalent in for-profit than in nonprofit firms. Finally, we investigate whether turnover rates differ between the two firm types, since differences in turnover have implications for promotion behavior when firms engage in significant internal hiring. Although the MCSUI data are well-suited for documenting our core empirical findings and for addressing our incentives-based explanation for it, they are less well-suited to evaluating these alternative explanations. In particular, the MCSUI data lack direct measures of the nature of the organizational structure, of internal hiring, and of turnover rates at the different levels of a firm's promotional hierarchy. While we take some preliminary

steps in investigating these alternative explanations, a more convincing and complete analysis must await the development of new data sets.

What if Promotions are Simply Not Possible in Many Nonprofit Jobs?

The first competing explanation we address is the possibility that promotions are simply not possible in many nonprofit jobs. That is, if nonprofit organizations are inherently flat and for-profit organizations tend to have a more vertical structure, promotions would simply not be possible in many nonprofit firms. This would seem to be an alternative explanation for our main empirical findings that has nothing to do with incentives. Even if this is true, however, the question remains as to why nonprofit organizational structures tend to be flatter and for-profit structures more hierarchical. Our incentives-based hypothesis provides one possible explanation, namely that the reason a horizontal organizational structure is desirable for nonprofits is that they need not rely on promotions for incentive-creation. In this sense our incentives-based view might be seen as shedding light not only on differences in promotion rates between nonprofits and for-profits but also on differences in the choice of organizational structure between these two types of firms.

To address this alternative hypothesis, we return to the MCSUI question that asks, "If promoted, what would this employee's wage or salary be?" One possible answer to this question is "No promotion possible." A cross tabulation of this response with nonprofit status reveals that nonprofits are more likely than for-profits to report that no promotion is possible, consistent with the notion that nonprofit structures are more horizontal.[6] Fifteen percent of all firms, 14 percent of for-profit firms, and 21 percent of nonprofit firms report that no promotion is possible. A probit of this response on nonprofit status and the full set of firm characteristics, industry controls, and occupation controls reveals that nonprofits are nearly 11 percent more likely than for-profits to report "no promotion possible", and this difference is statistically significant at the five percent level.

To see if this fact is driving our results, we estimated our core probit equations for promotions and expected promotions excluding from the sample those observations for which the respondent reported that no promotion is possible for the most recently hired worker. The

[6] To avoid a proliferation of output we summarize the most important results of this subsection in the text rather than reporting the detailed results. All of the detailed results are available from the authors upon request.

main empirical finding that promotion probabilities are lower in nonprofit firms remains quite robust even with the exclusion of these observations. In the core specification, the for-profit marginal effect in the promotion probit changed from 0.043 to 0.046 as a result of this exclusion, and the for-profit marginal effect in the expected promotion probit changed from 0.133 to 0.125. Both effects are statistically significant at the five percent level, just as they were when estimated on the full sample. We conclude that while it is true that nonprofits are more likely to report that no promotion is possible, this fact is clearly not driving our result.

A related point is that a particular type of nonprofit job could potentially be driving our result. Consider hospitals or schools, for example. Because of the nature of these jobs (nurses cannot be promoted to doctors and teachers are unlikely to be promoted to principals) it might be that observations from one or a small number of detailed occupations are driving our result. This seems highly unlikely, given Table 2 that shows that the nonprofit jobs are allocated across all 20 occupational categories in a way that does not seem dramatically different from the occupational distribution for for-profit jobs. Nonetheless, to address this we re-estimated all of our core promotion probits on 20 subsamples, each of which excludes one of the 20 detailed occupational categories. Our results are highly robust in that the for-profit coefficient of interest changed very little across these twenty specifications as can be seen in Table 8. In summary, the evidence demonstrates clearly that our result is not driven by any particular nonprofit occupations or by the fact that promotions are simply not possible in many nonprofit jobs due to a horizontal organizational structure.

Are Internal Labor Markets More Prevalent in For-Profit Than in Nonprofit Firms?

Another alternative explanation for our result is simply that for-profit firms are more likely than nonprofit firms to be characterized by internal labor markets with a high level of internal hiring. If that were the case, then it would not be surprising to see higher rates of promotion and expected promotion in for-profit firms than in nonprofit firms. Unfortunately, our data do not allow us to address this issue directly, since the survey does not ask about the extent to which the firm has an internal hiring policy. The best information available is the employer's answer to the following question: "Do you have formal procedures for posting internal job openings and soliciting applications for filling them?" This proxy for internal hiring is subject to biases in both directions. Obviously some firms may engage in significant internal hiring, even

absent any formal procedures regarding internal hiring. Alternatively, some firms may engage in relatively little internal hiring, even with formal procedures in place. These problems notwithstanding, in the absence of a better measure we interpret this variable as a noisy indicator of a firm's propensity to engage in internal hiring.

Sixty percent of the firms in the sample report having formal procedures for internal hiring. However, this figure masks substantial differences between for-profit and nonprofit firms, as illustrated in the following table:

Fraction of Firms with Formal Procedures for Internal Hiring

For-profit Firms	0.519
Nonprofit Firms	0.885
Difference in Means	***-0.366*****

Note: ** indicates significance at the 5% level.

Nonprofit firms are 37 percent more likely than for-profit firms to have formal procedures for internal hiring. This difference in means is estimated very precisely with a t-statistic of nearly 16.

Such a large and precisely estimated difference suggests that for-profit and nonprofit firms indeed differ in their propensities to engage in internal hiring, but not in the way that would explain the main empirical finding. It appears that nonprofit firms are more likely than for-profit firms to engage in significant internal hiring. To address the possibility that for-profit status is simply proxying for some other characteristic that determines a firm's propensity to engage in internal hiring, in Table 9 we report probability derivatives from a probit where the dependent variable is the employer's answer to the question about formal procedures. The independent variables include the for-profit status of the firm in addition to the other firm characteristics and industry effects found in Table 3.

Even in the presence of controls for firm characteristics and industry effects, for-profit firms are found to be 30 percent less likely than nonprofit firms to have formal procedures for internal hiring. This is quite close to the unconditional difference in means of 37 percent and is precisely estimated with a t-statistic over six. This result is inconsistent with the competing hypothesis that promotions are less likely in nonprofit firms because these firms engage in less internal hiring. In fact, it appears that nonprofit firms engage in internal hiring *more* frequently than do for-profit firms.

This result might seem puzzling at first glance. If internal hiring is more common in non-profits, how can promotions be less common in non-profits? It would seem that they should go together since internal hiring decisions frequently involve promotions. While it is true that, *ceteris paribus*, more internal hiring implies greater likelihood of promotion, for promotions to create incentives they need to occur with some degree of frequency. The prospect of getting promoted to manager 25 years from now provides little motivation to work hard today, even if the firm engages almost exclusively in internal hiring. For-profit firms, even with their greater degree of external hiring, use promotions as incentive mechanisms, and this requires that promotions occur with some degree of frequency. The job-assignment function of promotions need not have implications for promotion frequency, whereas the incentives function of promotions requires that they be doled out with sufficient frequency to keep noses to the grindstone. Workers must have good reason to believe that they could be promoted "within the next five years", say, if promotions are to provide strong incentives.

Do Worker Turnover Rates Differ Between For-Profit and Nonprofit Firms?

If rates of turnover differ between for-profit and nonprofit firms, this could explain part of the observed difference in promotion rates between the two types of firms. The predicted relationship between turnover and promotion rates is not a simple one and depends on a number of factors. Consider first a hierarchical or vertical organizational structure with fixed job slots. That is, each level of the job hierarchy involves a distinct set of tasks so that promotions assign workers to different jobs with different sets of tasks. In such firms, in the absence of employment growth in the firm, both very low and very high rates of turnover are associated with low promotion probabilities. With low turnover rates, promotions are infrequent because opportunities for promotion only arise when vacancies are created by separations. With high turnover rates, the most recently hired worker has likely not been with the firm long enough to receive a promotion. Furthermore, the worker is not expected to be with the firm long enough to receive a promotion.

If job slots are flexible rather than fixed, then even with a hierarchical organizational structure, the relationship between turnover and promotion rates is somewhat different. Job slots are described as flexible when the production process does not necessitate having specific numbers of workers at each job level (e.g. one manager, five assistant managers, and fifty

production workers). When job slots are flexible, promotions reflect mostly a change in job title without large changes in tasks performed. Jobs in research are often described by flexible job slots. In firms with a hierarchical structure and flexible job slots, promotion rates can be high even when turnover is very low since promotion opportunities do not hinge on the creation of vacancies.

Finally, other things equal, promotion rates should be lower in firms with flatter organizational structures, regardless of turnover rates. To summarize this discussion, the relationship between promotion rates and turnover depends on a number of factors, the most obvious being the organizational structure of the firm. A further complication is that even among firms with equal rates of turnover, the distribution of these turnover rates across levels of a job hierarchy could be quite different between firms. For example, one firm might experience high turnover at the lowest rungs of the promotional job ladder and much lower rates of turnover higher up, whereas another firm might experience roughly comparable turnover rates at all levels of the job hierarchy.

The degree of turnover at various levels of the job hierarchy affects the strength of incentives created by promotions. To provide incentives, promotions must occur sufficiently often so that workers believe that their good performance could reasonably lead to their promotion within a reasonable amount of time. So the incentive-creation function of promotions depends on turnover whereas the job-assignment function does not. Optimal job assignment could be achieved and maintained even in the absence of any turnover or further promotions, though promotions would not create strong incentives in this context.

The MCSUI data contain only limited information relevant to turnover rates. We use this to construct measures of hiring rates, separation rates, and net change in the workforce for each firm. The survey asks the respondent employer how many workers have been newly hired since the start of 1992.[7] Since the interview dates are observed and range from 6/8/1992 to 3/15/1995, for each observation we computed a variable called "months" measuring the number of months that elapsed between the start of 1992 (or 1993) and the survey date, using the day of the month to compute fractional months. For the small subset of observations collected by Kirschenman, Moss, and Tilly, the actual interview dates were not recorded. We therefore set these survey

[7] For a small subset of observations collected by Kirschenman, Moss, and Tilly towards the end of the data collection effort, the employer was asked this question since the start of 1993 rather than 1992.

dates to 3/15/1995, the midpoint of the data collection period for these observations. We then define a monthly hiring rate as follows:

Hiring rate = (number of new hires since start of 1992) / (establishment size × months)

This can be interpreted as the monthly hiring rate as a fraction of establishment size.

The survey also asks a number of other questions about what has happened since the start of 1992 (or 1993), including the number of workers who were discharged, the number who quit, the number who were laid off, and the number who were recalled from layoff. We then define the separation rate as follows:

Separation rate = (discharges + quits + layoffs – recalls) / (establishment size × months)

This can be interpreted as the monthly separation rate as a fraction of establishment size.

The survey also asks what the net change in total number of employees has been since the start of 1992 (or 1993). To produce a monthly figure normalized by firm size we define:

Net change = (net change since start of 1992) / (establishment size × months)

The averages for hiring rates, separation rates, and net change of employees are displayed in Table 1. Between nonprofits and for-profits, only the separation rate has a statistically significant difference in means at the five percent level. For-profit firms have higher monthly rates of separation during the sample period than do nonprofit firms. When we control for other firm characteristics, however, this difference between nonprofit and for-profit firms disappears. In a regression of the separation rate on for-profit status and a set of firm characteristics, the for-profit coefficient is statistically insignificant with a t-statistic of 1.26. Similar regressions for hiring rate and net change in employees reveal that, in the presence of firm characteristics, there are no statistically significant differences between for-profit and nonprofit firms in their hiring rates or net change in employees. Finally, inclusion of any of these turnover variables in the promotion probits does not change our basic result. That is, even after controlling for differences

in turnover there are still large and statistically significant differences in promotion rates between nonprofit and for-profit firms.[8]

We emphasize caution in interpreting these results, given the crudeness of these measures of turnover. The measures of hiring rates, separation rates, and net change pertain to all employees at each establishment. Given that we focus on the probabilities of promotion and expected promotion for the most recently hired worker, the more relevant measures of turnover would pertain only to workers of that skill type and to workers located at higher rungs of the promotional hierarchy. Firms with high overall turnover rates might still experience low turnover for certain jobs, such as the one into which the most recent worker was hired. Unfortunately the data provide no information about turnover rates in each firm by skill level. Nonetheless, the evidence suggests that at least at the level of the entire establishment, there are no statistically significant differences in turnover behavior between nonprofit and for-profit firms.

6. Conclusions

We have documented the empirical fact that promotions are less likely in nonprofit than in for-profit firms, even after controlling for an extensive set of controls for worker and firm characteristics. As this is the first study to identify this intriguing result, and since it is based on only one data set, there is a clear need for future work that corroborates the finding using complementary information from other data sets. Although the MCSUI is rich in the information relevant to addressing our empirical question, it is lacking in some respects. The limitations of the data were particularly pronounced when considering alternative hypotheses to our incentives-based story. The alternative explanations we addressed were based on differences between the sectors in organizational structure, in the propensity to hire internally, and in turnover rates. Although our results were unsupportive of these alternative explanations, we caution that our data do not permit a definitive analysis of these issues. The MCSUI lacks a direct measure of the extent of a firm's internal hiring. Also, there is not a good measure of turnover rates by level of a firm's promotional hierarchy. Any work using new data sets with better measures of internal

[8] When we include the hiring rate, separation rate, and net change in employees in our core specification, the coefficient on for-profit status is 0.041 with a t-statistic of 2.01 for promotions and 0.101 with a t-statistic of 1.82 for expected promotions.

hiring and turnover rates, and the differences in these variables between for-profit and nonprofit firms, would be enlightening.

In the absence of any prior theory to explain why promotions are less likely in nonprofit than in for-profit firms, we proposed a potential explanation. At the heart of our story is a fundamental difference in incentive provision between nonprofit and for-profit firms. We argue that nonprofits do not use promotions for incentives mainly because they do not have to. That is, workers are intrinsically motivated by their interest in the nonprofit firm's output, an argument that is consistent with casual observation, with the theory of motivational job design, and with the previous literature on nonprofits. A key economic implication of this is that since the incentive function of promotions is less important in nonprofit than in for-profit firms, nonprofits can afford to use promotions primarily to facilitate optimal job assignment, obviating the need to tradeoff the two goals of incentives and job assignment. That is, there is an easy resolution to the Baker-Jensen-Murphy puzzle in the context of nonprofit firms. Since nonprofit firms use promotions strictly for job assignment, the puzzle does not exist at all.

The broad pattern of evidence we present is consistent with our incentives-based explanation for the stark difference in promotion rates between nonprofits and for-profits, though it cannot conclusively establish our view as correct. To summarize our main empirical findings, our empirical work revealed that nonprofit firms appear less likely than for-profits to use promotions as incentive mechanisms, since the link between performance and promotions is weaker in nonprofits than in for-profits. Furthermore, nonprofits do not appear to rely on within-job wage growth or incentive contracting to motivate workers and are clearly less likely than for-profits to use output-contingent contracts like piece rates. We also found that the observed difference in promotion rates between nonprofits and for-profits is found for all but the least-skilled workers. This is consistent with the notion that the work of skilled workers is more closely tied to the organizational mission than that of low-skilled workers, so the intrinsic motivation provided by nonprofit work should be highest for skilled workers.

Although ultimately the importance of our incentives-based theory will rest on future corroborating work across different data sets, it is worth considering some of the broader implications suggested by it. In particular, if our incentives-based view is correct then it should have implications for the organizational structure of nonprofits versus for-profits. That is, the fact that nonprofits may be flatter organizations than for-profits might be understood within our

framework. The organizational benefits to be had from a flatter versus a more hierarchical organizational structure might be easier to realize in nonprofits, if promotions can be used mostly for optimal job assignment and are not as important for creating incentives.

Even if all of our empirical findings are upheld in future work with other data, the obvious critique remains that our findings are subject to alternative interpretations. This is unavoidably true. Nevertheless, we believe we have narrowed and sharpened the focus of future inquiry by proposing a number of potential alternative explanations and either eliminating them or casting some doubt on them. Perhaps more importantly, our interpretation is one of *collective* results rather than simply the individual fact that promotions are less likely in nonprofit firms. That is, our incentives-based explanation for the differences in promotion behavior is consistent with a broad pattern of evidence in the data concerning differences between nonprofits and for-profits in their provision of worker incentives, as well as with a number of distinct strands of theoretical literature. Any competing explanation would ideally also be consistent with the collective empirical evidence and with existing theory.

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Table 1: Summary Statistics

	Full Sample	**Nonprofits**	**For-profits**
Promotions	0.075 (0.310)	0.043 (0.208)	0.086 (0.338)
Expected Promotions	0.667 (0.676)	0.559 (0.812)	0.695 (0.616)
Firm Characteristics			
For-profit Status	0.753 (0.832)	•	•
Franchise	0.061 (0.325)	0.018 (0.163)	0.073 (0.365)
Number of Sites	62.900 (461.403)	37.317 (307.101)	73.407 (521.615)
Size	745.506 (13222.282)	1241.841 (4714.340)	633.577 (15699.262)
Union	17.538 (60.200)	37.454 (80.835)	10.988 (44.193)
Fraction of High Skill Employees	0.314 (0.646)	0.525 (0.532)	0.254 (0.645)
Temps	0.355 (0.846)	0.481 (0.955)	0.328 (0.808)
Contract	0.297 (0.731)	0.421 (0.923)	0.264 (0.653)
Hiring Rate	0.020 (0.092)	0.014 (0.112)	0.017 (0.078)
Separation Rate	0.028 (0.372)	0.011 (0.055)	0.031 (0.430)
Net Change in Employees	0.006 (0.166)	0.011 (0.177)	0.002 (0.159)
Industry Controls			
Agriculture, Forestry or Fishing	0.000 (0.014)	0.000 0.000	0.000 (0.017)
Mining	0.006 (0.159)	0.003 (0.042)	0.008 (0.190)
Manufacturing	0.199 (0.558)	0.031 (0.180)	0.252 (0.623)
Transportation	0.055 (0.432)	0.030 (0.317)	0.064 (0.475)
Wholesale Trade	0.075 (0.582)	0.005 (0.056)	0.099 (0.680)
Retail Trade	0.152 (0.505)	0.015 (0.119)	0.189 (0.570)
Finance	0.073 (0.340)	0.029 (0.307)	0.084 (0.350)
Services	0.402 (0.847)	0.829 (0.567)	0.276 (0.722)
Public Administration	0.014 (0.146)	0.050 (0.277)	0.002 (0.041)

	Full Sample	Nonprofits	For-profits
Employee Characteristics			
Performance	78.337 (22.536)	80.736 (27.337)	77.810 (21.046)
Typical Performance	76.132 (21.377)	79.064 (17.128)	75.482 (22.459)
High School Degree or More	0.255 (0.590)	0.212 (0.597)	0.267 (0.585)
College Degree or More	0.348 (0.958)	0.556 (0.890)	0.302 (0.943)
Tenure	6.061 (14.976)	5.520 (12.827)	6.186 (15.747)
Demographics			
Age	30.597 (13.754)	33.059 (17.875)	30.195 (11.699)
Male	0.476 (0.834)	0.315 (0.889)	0.533 (0.783)
White	0.605 (0.797)	0.601 (0.870)	0.599 (0.786)
Black	0.171 (0.499)	0.192 (0.593)	0.160 (0.462)
Hispanic	0.143 (0.554)	0.139 (0.596)	0.152 (0.553)
Other Non-White	0.081 (0.574)	0.068 (0.439)	0.089 (0.630)
Job Characteristics			
Talk	0.606 (0.822)	0.827 (0.724)	0.530 (0.803)
Phone	0.564 (0.817)	0.595 (0.928)	0.560 (0.789)
Math	0.678 (0.746)	0.622 (0.879)	0.699 (0.708)
Compute	0.586 (0.782)	0.606 (0.923)	0.602 (0.724)
Read	0.605 (0.772)	0.731 (0.859)	0.577 (0.750)
Write	0.420 (0.872)	0.620 (0.823)	0.368 (0.828)
Position Requires College Degree	0.283 (1.014)	0.517 (0.934)	0.226 (0.987)
Number of Observations	3510	697	2520

Note: Standard Deviations in parentheses.

Table 2: Occupational Distribution

	Unweighted Frequencies		*Weighted Frequencies*	
Occupation	*Nonprofits*	*For-profits*	*Nonprofits*	*For-profits*
Executive, Administrative and Managerial Occupations	48	167	54.69	267.82
Engineers, Surveyors and Architects	5	40	1.66	84.76
Natural Scientists and Mathematicians	4	21	13.55	27.98
Social Scientists, Social Scientists, Religious Workers, Lawyers	25	4	34.25	3.2
Teachers, Librarians, and Counselors	75	13	177.97	17.06
Health Diagnosing and Treating Practitioners	4	3	1.03	2.68
RNs, Pharmacists, Dieticians, Therapists, and Physician's Assts.	24	25	48.71	52.19
Writers, Artists, Entertainers, and Athletes	7	33	5.16	33.6
Health Technologists and Technicians	22	31	25.97	31.44
Technologists and Technicians, except Health	8	65	21.36	61.06
Marketing and Sales Occupations	17	409	16.07	395.8
Administrative Support Occupations, including Clerical	242	677	227.43	629.35
Service Occupations	144	289	111.41	208.5
Agricultural, Forestry and Fishing Occupations	2	12	1.07	11.47
Mechanics and Repairers	9	83	4.9	70.39
Construction and Extractive Occupations	3	40	2.43	42.36
Precision Production Occupations	8	101	6.99	90.79
Production Working Occupations	5	221	3.77	174.77
Transportation and Material Moving Occupations	14	106	7.14	90.8
Handlers, Equipment Cleaners, Helpers and Laborers	9	117	5.83	93.53

Table 3: Promotion Probits

	Promotions	**Expected Promotions**
For-profit Status	0.0425 (0.0141)**	0.1331 (0.0495)**
Employee Characteristics		
Performance	0.0018 (0.0005)**	0.0041 (0.0009)**
Relative Performance	-0.0007 (0.0004)	-0.0033 (0.0012)**
High School Degree or More	-0.0013 (0.0127)	-0.0014 (0.0302)
College Degree or More	-0.0528 (0.0142)**	0.0272 (0.0398)
Tenure	0.0032 (0.0006)**	-0.0084 (0.0018)**
Firm Characteristics		
Franchise	0.0015 (0.0228)	-0.0011 (0.0624)
Number of Sites	0.0000 (0.0000)	0.0001 (0.0000)*
Size	0.0000 (0.0000)	0.0001 (0.0000)**
Union	-0.0004 (0.0002)**	-0.0014 (0.0006)**
Fraction of High Skill Employees	-0.0070 (0.0249)	0.1158 (0.0570)**
Temps	-0.0007 (0.0134)	0.0878 (0.0327)**
Contract	0.0045 (0.0142)	-0.0039 (0.0329)
Industry Controls		
Mining	-0.0331 (0.0358)	●
Manufacturing	-0.0456 (0.0187)**	0.0278 (0.0770)
Transportation	-0.0430 (0.0153)*	-0.0148 (0.0959)
Wholesale Trade	-0.0102 (0.0299)	0.0533 (0.0836)
Retail Trade	-0.0440 (0.0175)*	0.0089 (0.0831)
Finance	-0.0486 (0.0135)**	0.0740 (0.0780)
Services	-0.0296 (0.0265)	-0.0417 (0.0812)
Public Administration	-0.0409 (0.0227)	0.1209 (0.1031)
Number of Observations	1899	1770

Note: Entries are probability derivatives evaluated at the means of all variables for continuous variables. For discrete independent variables, entries measure the change in predicted probabilities when the dummy independent variable increases from 0 to 1. Standard errors are in parentheses.
* and ** indicate significance at the 10% and 5% level, respectively.

Table 4: Other Specifications

	Promotions				Expected Promotions			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
For-profit Status	0.0425	0.0411	0.0411	0.0382	0.1331	0.1322	0.1042	0.0838
	(0.0141)**	(0.0142)**	(0.0130)**	(0.0130)**	(0.0495)**	(0.0497)**	(0.0516)**	(0.0508)*
Employee Characteristics								
Performance	0.0018	0.0018	0.0020	0.0018	0.0041	0.0041	0.0045	0.0041
	(0.0005)**	(0.0005)**	(0.0005)**	(0.0005)**	(0.0009)**	(0.0009)**	(0.0010)**	(0.0010)**
Relative Performance	-0.0007	-0.0007	-0.0005	-0.0004	-0.0033	-0.0033	-0.0028	-0.0027
	(0.0004)	(0.0004)*	(0.0004)	(0.0004)	(0.0012)**	(0.0011)**	(0.0012)**	(0.0012)**
High School Degree or More	-0.0013	0.0032	0.0044	-0.0002	-0.0014	-0.0125	-0.0035	-0.0376
	(0.0127)	(0.0139)	(0.0131)	(0.0131)	(0.0302)	(0.0306)	(0.0316)	(0.0325)
College Degree or More	-0.0528	-0.0462	-0.0555	-0.0573	0.0272	-0.0074	0.0008	-0.0641
	(0.0142)**	(0.0174)**	(0.0160)**	(0.0199)**	(0.0398)	(0.0427)	(0.0446)	(0.0494)
Tenure	0.0032	0.0032	0.0031	0.0031	-0.0084	-0.0085	-0.0078	-0.0079
	(0.0006)**	(0.0006)**	(0.0006)**	(0.0006)**	(0.0018)**	(0.0018)**	(0.0018)**	(0.0018)**
Firm Characteristics								
Franchise	0.0015	0.0038	0.0067	0.0085	-0.0011	0.0016	-0.0024	0.0018
	(0.0228)	(0.0237)	(0.0241)	(0.0241)	(0.0624)	(0.0625)	(0.0615)	(0.0615)
Number of Sites	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)*	(0.0001)*	(0.0001)*	(0.0001)*
Size	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)**	(0.0000)**	(0.0001)*	(0.0000)*
Union	-0.0004	-0.0004	-0.0004	-0.0003	-0.0014	-0.0014	-0.0015	-0.0015
	(0.0002)**	(0.0002)**	(0.0002)*	(0.0002)*	(0.0006)**	(0.0006)**	(0.0006)**	(0.0006)**
Fraction of High Skill Employees	-0.0070	-0.0103	-0.0146	-0.0120	0.1158	0.0961	0.1023	0.0401
	(0.0249)	(0.0254)	(0.0248)	(0.0237)	(0.0570)**	(0.0572)*	(0.0581)*	(0.0609)
Temps	-0.0007	0.0004	0.0048	0.0054	0.0878	0.0907	0.0893	0.0825
	(0.0134)	(0.0133)	(0.0132)	(0.0131)	(0.0327)**	(0.0329)**	(0.0351)**	(0.0344)**
Contract	0.0045	0.0043	0.0115	0.0082	-0.0039	-0.0027	0.0055	0.0020
	(0.0142)	(0.0142)	(0.0145)	(0.0139)	(0.0329)	(0.0331)	(0.0336)	(0.0337)
Industry Controls								
Mining	-0.0331	-0.0335	0.0475	0.0459	•	•	•	•
	(0.0358)	(0.0353)	(0.1462)	(0.1455)				
Manufacturing	-0.0456	-0.0477	-0.0517	-0.0502	0.0278	0.0063	0.0094	0.0085
	(0.0187)**	(0.0185)**	(0.0173)**	(0.0170)**	(0.0770)	(0.0796)	(0.0838)	(0.0844)
Transportation	-0.0430	-0.0434	-0.0434	-0.0426	-0.0148	-0.0255	-0.0129	-0.0083
	(0.0153)*	(0.0151)*	(0.0132)**	(0.0128)**	(0.0959)	(0.0988)	(0.1028)	(0.1043)
Wholesale Trade	-0.0102	-0.0130	-0.0210	-0.0245	0.0533	0.0285	0.0329	0.0150
	(0.0299)	(0.0284)	(0.0234)	(0.0213)	(0.0836)	(0.0876)	(0.0893)	(0.0931)
Retail Trade	-0.0440	-0.0422	-0.0456	-0.0451	0.0089	0.0073	0.0143	0.0115
	(0.0175)*	(0.0183)*	(0.0166)**	(0.0162)**	(0.0831)	(0.0843)	(0.0881)	(0.0897)
Finance	-0.0486	-0.0477	-0.0432	-0.0434	0.0740	0.0521	0.0787	0.0655
	(0.0135)**	(0.0141)**	(0.0142)*	(0.0133)**	(0.0780)	(0.0821)	(0.0815)	(0.0851)
Services	-0.0296	-0.0261	-0.0310	-0.0322	-0.0417	-0.0546	-0.0414	-0.0377
	(0.0265)	(0.0272)	(0.0271)	(0.0266)	(0.0812)	(0.0823)	(0.0865)	(0.0870)
Public Administration	-0.0409	-0.0397	-0.0378	-0.0426	0.1209	0.1356	0.1339	0.0865
	(0.0227)	(0.0238)	(0.0214)	(0.0159)	(0.1031)	(0.0998)	(0.1001)	(0.1159)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Occupation Controls								
Sales	•	0.0077 (0.0219)	0.0001 (0.0191)	0.0028 (0.0185)	•	-0.0413 (0.0456)	-0.0338 (0.0473)	-0.0249 (0.0483)
Services	•	0.0001 (0.0302)	-0.0209 (0.0187)	-0.0123 (0.0201)	•	-0.1637 (0.0705)**	-0.1833 (0.0726)**	-0.1337 (0.0705)**
Low-Skilled Laborers	•	0.0328 (0.0350)	0.0049 (0.0257)	0.0109 (0.0259)	•	-0.0960 (0.0607)	-0.1461 (0.0669)**	-0.1006 (0.0656)
Demographics								
Age	•	•	-0.0001 (0.0006)	-0.0002 (0.0006)	•	•	-0.0034 (0.0017)**	-0.0031 (0.0017)*
Male	•	•	0.0166 (0.0126)	0.0177 (0.0130)	•	•	0.0691 (0.0318)**	0.0850 (0.0322)**
Black	•	•	0.0358 (0.0232)*	0.0351 (0.0227)*	•	•	0.0553 (0.0332)	0.0563 (0.0325)*
Hispanic	•	•	0.0221 (0.0205)	0.0231 (0.0202)	•	•	0.0838 (0.0373)**	0.0850 (0.0362)**
Other Non-White	•	•	0.0750 (0.0418)**	0.0720 (0.0401)**	•	•	0.1502 (0.0457)**	0.1536 (0.0465)**
Job Characteristics								
Talk	•	•	•	-0.0092 (0.0137)	•	•	•	-0.0543 (0.0350)
Phone	•	•	•	0.0055 (0.0141)	•	•	•	0.0683 (0.0380)*
Math	•	•	•	0.0138 (0.0115)	•	•	•	-0.0007 (0.0334)
Compute	•	•	•	-0.0028 (0.0135)	•	•	•	0.0661 (0.0362)*
Read	•	•	•	0.0190 (0.0115)	•	•	•	0.0324 (0.0351)
Write	•	•	•	0.0192 (0.0138)	•	•	•	0.0406 (0.0381)
Position Requires College Degree	•	•	•	-0.0108 (0.0252)	•	•	•	0.0590 (0.0550)
Number of Observations	1899	1874	1802	1785	1770	1748	1686	1669

Note: Entries are probability derivatives evaluated at the means of all variables for continuous variables. For discrete independent variables, entries measure the change in predicted probabilities when the dummy independent variable increases from 0 to 1. Standard errors are in parentheses. * and ** indicate significance at the 10% and 5% level, respectively. Columns 1 and 5 report the same results as Table 3.

Table 5: Dependent Variable = Within Job Wage Growth

	(1)	(2)
For-profit Status	-0.607 (0.400)	0.656 (0.417)
Size	0.000 (0.000)	0.000 (0.000)
Franchise	•	-0.013 (0.395)
Number of Sites	•	0.000 (0.000)
Union	•	0.009 (0.005)*
Fraction of High Skill Employees	•	1.654 (0.701)**
Temps	•	-0.117 (0.367)
Contract	•	0.291 (0.378)
Constant	4.256 (0.362)**	2.528 (0.433)**
Number of Observations	2274	1947

Note: The dependent variable is equal to the difference between the highest attainable wage in the position and the starting wage. Standard errors are in parentheses. * and ** indicate significance at the 10% and 5% level, respectively.

Table 6: Promotion Probits by Education Level

	Promotions		**Expected Promotions**	
	Skilled	Low-skilled	Skilled	Low-skilled
For-profit Status	0.047 (0.016)**	0.019 (0.026)	0.137 (0.061)**	0.122 (0.066)*
Employee Characteristics				
Employee Performance	0.001 (0.001)*	0.002 (0.001)**	0.005 (0.001)**	0.004 (0.001)**
Typical Performance	0.000 (0.001)	-0.001 (0.001)	-0.004 (0.002)**	-0.002 (0.002)
Tenure	0.003 (0.001)**	0.002 (0.001)**	-0.008 (0.003)**	-0.009 (0.002)**
Firm Characteristics				
Franchise	-0.025 (0.016)	0.053 (0.052)	-0.037 (0.088)	0.061 (0.063)
Number of Sites	0.000 (0.000)**	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)*
Size	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Union	-0.001 (0.000)*	0.000 (0.000)	-0.001 (0.001)	-0.001 (0.001)**
Fraction of High Skill Employees	-0.043 (0.025)*	0.031 (0.043)	0.159 (0.065)**	0.067 (0.086)
Temps	-0.020 (0.016)	0.016 (0.021)	0.158 (0.046)**	-0.033 (0.046)
Contract	0.002 (0.017)	-0.001 (0.020)	-0.003 (0.042)	0.000 (0.045)
Industry Controls				
Mining	0.081 (0.183)	•	•	•
Manufacturing	0.038 (0.097)	-0.086 (0.027)**	0.104 (0.096)	-0.029 (0.111)
Transportation	0.034 (0.108)	-0.062 (0.018)**	0.099 (0.110)	-0.092 (0.135)
Wholesale Trade	0.077 (0.132)	-0.033 (0.033)	0.075 (0.110)	0.082 (0.111)
Retail Trade	0.049 (0.106)	-0.077 (0.024)**	0.069 (0.111)	-0.036 (0.114)
Finance	0.008 (0.077)	-0.064 (0.018)**	0.111 (0.095)	0.070 (0.118)
Services	0.056 (0.072)	-0.068 (0.026)**	0.004 (0.118)	-0.074 (0.115)
Public Administration	0.119 (0.194)	•	0.164 (0.086)	0.022 (0.230)
Number of Observations	943	941	884	886

Note: Entries are probability derivatives evaluated at the means of all variables for continuous variables. For discrete independent variables, entries measure the change in predicted probabilities when the dummy independent variable increases from 0 to 1. Standard errors are in parentheses. * and ** indicate significance at the 10% and 5% level, respectively.

Table 7: Promotion Probits by Occupation

	Promotions				**Expected Promotions**			
	A	B	C	D	A	B	C	D
For-profit Status	0.028	0.037	0.032	-0.020	0.106	0.154	0.089	-0.019
	(0.016)**	(0.021)	(0.015)**	(0.044)	(0.080)	(0.063)**	(0.123)	(0.119)
Employee Characteristics								
Performance	0.002	0.002	-0.001	0.001	0.004	0.006	-0.004	0.002
	(0.001)**	(0.001)**	(0.001)	(0.001)**	(0.002)*	(0.001)**	(0.003)	(0.002)
Relative Performance	0.000	-0.001	0.000	-0.001	-0.006	-0.003	-0.001	0.000
	(0.000)	(0.001)**	(0.001)	(0.001)**	(0.003)**	(0.001)**	(0.004)	(0.002)
High School Degree or More	-0.011	0.004	0.003	0.040	0.073	-0.022	-0.074	0.006
	(0.008)	(0.018)	(0.018)	(0.032)**	(0.070)	(0.038)	(0.099)	(0.070)
College Degree or More	-0.050	-0.047	0.004	-0.001	0.134	-0.021	-0.120	0.090
	(0.039)**	(0.018)**	(0.027)	(0.036)	(0.105)	(0.051)	(0.203)	(0.129)
Tenure	0.001	0.003	0.002	0.003	-0.011	-0.009	-0.014	-0.003
	(0.001)**	(0.001)**	(0.001)**	(0.002)**	(0.004)**	(0.002)**	(0.006)**	(0.004)
Firm Characteristics								
Franchise	•	0.033	-0.004	-0.014	-0.393	0.095	0.004	0.169
		(0.043)	(0.018)	(0.018)	(0.186)**	(0.054)	(0.120)	(0.073)*
Number of Sites	0.000	0.000	0.000	-0.001	0.000	0.000	0.000	0.003
	(0.000)	(0.000)**	(0.000)**	(0.000)*	(0.000)	(0.000)	(0.000)	(0.001)**
Size	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)**	(0.000)	(0.000)*
Union	0.000	-0.001	-0.001	0.000	-0.003	-0.002	0.003	-0.001
	(0.000)	(0.000)**	(0.000)**	(0.000)	(0.001)**	(0.001)**	(0.001)*	(0.001)*
Fraction of High Skill Employees	-0.026	0.001	0.024	0.040	0.189	0.065	0.002	-0.011
	(0.017)*	(0.037)	(0.038)	(0.041)	(0.100)**	(0.066)	(0.191)	(0.169)
Temps	-0.001	0.010	-0.002	-0.002	0.172	0.111	-0.180	0.025
	(0.009)	(0.019)	(0.018)	(0.013)	(0.076)**	(0.038)**	(0.096)*	(0.067)
Contract	-0.005	0.017	-0.004	-0.004	-0.096	0.027	0.027	-0.001
	(0.007)	(0.022)	(0.016)	(0.014)	(0.074)	(0.041)	(0.091)	(0.071)
Industry Controls								
Manufacturing	0.542	-0.056	0.932	-0.057	0.165	0.003	0.454	-0.054
	(0.959)	(0.028)	(0.142)**	(0.049)*	(0.082)	(0.106)	(0.116)	(0.138)
Transportation	•	-0.046	•	-0.023	0.147	0.031	-0.483	-0.139
		(0.027)		(0.021)	(0.080)	(0.128)	(0.153)	(0.186)
Wholesale Trade	0.703	-0.040	•	-0.017	0.225	-0.009	-0.104	0.065
	(0.791)	(0.028)		(0.018)	(0.073)*	(0.112)	(0.495)	(0.145)
Retail Trade	0.496	-0.038	0.791	-0.029	0.201	-0.023	0.177	-0.087
	(0.918)	(0.032)	(0.232)**	(0.024)**	(0.060)**	(0.112)	(0.370)	(0.189)
Finance	0.913	-0.056	•	•	0.173	0.054	0.389	-0.155
	(0.317)*	(0.022)*			(0.054)*	(0.104)	(0.190)	(0.391)
Services	0.078	-0.026	0.437	-0.028	0.269	-0.035	0.152	-0.145
	(0.115)	(0.038)	(0.226)**	(0.023)*	(0.298)	(0.107)	(0.381)	(0.191)
Public Administration	•	-0.034	•	•	•	0.117	0.139	•
		(0.047)				(0.161)	(0.431)	
Number of Observations	240	1065	217	290	245	999	230	267

Note: A = Professionals; B = Sales; C = Services; and D = Low-skilled as described in the text. Entries are probability derivatives evaluated at the means of all variables for continuous variables. For discrete independent variables, entries measure the change in predicted probabilities when the dummy independent variable increases from 0 to 1. Standard errors are in parentheses. * and ** indicate significance at the 10% and 5% level, respectively.

Table 8: Occupation Probits

	Promotions		**Expected Promotions**	
Dropped Occupation	*Coefficient*	*T-statistic*	*Coefficient*	*T-statistic*
Executive, Administrative and Managerial Occupations	0.049	2.93	0.158	3.14
Engineers, Surveyors and Architects	0.044	2.49	0.114	2.37
Natural Scientists and Mathematicians	0.043	2.5	0.130	2.72
Social Scientists, Social Scientists, Religious Workers, Lawyers	0.039	2.26	0.141	2.92
Teachers, Librarians, and Counselors	0.037	1.94	0.098	2.15
Health Diagnosing and Treating Practitioners	0.042	2.46	0.133	2.8
RNs, Pharmacists, Dieticians, Therapists, and Physician's Assts.	0.047	2.74	0.150	3.16
Writers, Artists, Entertainers, and Athletes	0.042	2.42	0.133	2.76
Health Technologists and Technicians	0.042	2.42	0.133	2.77
Technologists and Technicians, except Health	0.038	2.24	0.133	2.75
Marketing and Sales Occupations	0.046	2.78	0.122	2.49
Administrative Support Occupations, including Clerical	0.041	2.04	0.139	2.27
Service Occupations	0.038	2.07	0.146	2.93
Agricultural, Forestry and Fishing Occupations	0.042	2.47	0.129	2.7
Mechanics and Repairers	0.041	2.4	0.131	2.71
Construction and Extractive Occupations	0.042	2.5	0.129	2.72
Precision Production Occupations	0.044	2.65	0.136	2.84
Production Working Occupations	0.045	2.67	0.140	2.9
Transportation and Material Moving Occupations	0.044	2.63	0.143	2.96
Handlers, Equipment Cleaners, Helpers and Laborers	0.039	2.33	0.131	2.72

Note: "Coefficient" is the estimated coefficient on for-profit status from a probit, which includes all controls listed in Table 3, but is estimated on the sub-sample of firms that excludes firms in which the most recently hired worker has the listed occupation.

Table 9: Probit for Determinants of Internal Hiring

For-profit Status	-0.302 (0.041)**
Firm Characteristics	
Franchise	-0.095 (0.073)
Number of Sites	0.000 (0.000)
Size	0.000 (0.000)**
Union	0.003 (0.001)**
Fraction of High Skill Employees	0.243 (0.066)**
Temps	0.191 (0.034)**
Contract	0.029 (0.035)
Industry Controls	
Agriculture, Forestry or Fishing	-0.129 (0.302)
Mining	0.372 (0.035)**
Manufacturing	0.223 (0.060)**
Transportation	0.226 (0.060)**
Wholesale Trade	0.084 (0.089)
Retail Trade	0.162 (0.067)**
Finance	0.174 (0.066)**
Services	0.105 (0.072)
Public Administration	0.291 (0.062)**
Number of Observations	2507

Note: The dependent variable is equal to 1 if a firm reports having formal procedures for internal hiring and equal to 0 otherwise. Entries are probability derivatives evaluated at the means of all variables for continuous variables. For discrete independent variables, entries measure the change in predicted probabilities when the dummy independent variable increases from 0 to 1. Standard errors are in parentheses. * and ** indicate significance at the 10% and 5% level, respectively.