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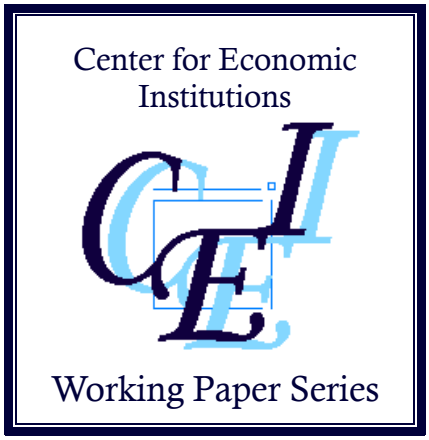

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Compensation and Intrinsic Motivation in Nonprofit and For-Profit Organizations[❄]

by

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Abstract

We develop a theoretical model in which for-profit and nonprofit employers compete to hire a worker who derives intrinsic motivation from the nonprofit's social mission. We also use a unique data set of California establishments to provide new evidence on sectoral differences in pay and HRM systems, finding a greater incidence of training and benefits in nonprofits, lower wages (with the wage gap increasing in skill level), and less incentive pay than in for-profits. The model is used to interpret both this new evidence and other empirical results from the literature, including the inconclusive sign of the FP-NP wage differential.

Keywords: nonprofits, incentive pay, intrinsic motivation, compensating differentials, fringe benefits, training

JEL codes: J33, L30, L29

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I. INTRODUCTION

Understanding how the behaviors of nonprofit (NP) organizations differ from those of for-profit (FP) firms is important because the NP sector employs about 10 percent of all workers (Salaman, Sokolowski, and Geller 2012) and provides services that help fulfill social welfare needs. Nonetheless, theoretical work on NPs is rare, and Roomkin and Weisbrod's (1999) observation that economic theory concerning behavioral differences between the two types of organizations is underdeveloped remains true today.[1] Moreover, empirical work tends to focus on measuring wage differentials between the two sectors while ignoring how those differentials relate to other components of the human resource management (HRM) system.

We develop a theoretical model of organizational decision making that incorporates firm-sponsored training (a key component of HRM systems) into the process of wage determination when NPs and FPs compete in the labor market. Our model yields new implications for the sectoral wage differential. We also provide new empirical evidence from a novel data set of Northern California employers concerning sectoral differences in base wages, incentive pay, fringe benefits, and training, interpreting that evidence and the prior empirical literature through the lens of the theoretical model.

The model offers a new explanation for the following puzzle in the literature. Compensating differentials theory predicts a wage differential favoring FPs, because NP workers derive non-pecuniary value from the organization's social mission and are therefore willing to accept lower wages.[2] But the empirical literature is inconclusive concerning the sign of the wage differential, as we document in Section V. The model offers an explanation for this mixed evidence and clarifies the conditions under which the differential should be positive or negative. It also offers a new explanation for how skill levels affect the sectoral wage differential. A new prediction regarding the sectoral difference in firm-sponsored training emerges, and we clarify the conditions under which training is used more intensively in NPs or FPs. New empirical evidence regarding this prediction is presented. Fringe benefits are incorporated in an extension.

The model features an NP organization, with a unique social mission, that competes with a market of FP firms to hire a worker who derives intrinsic motivation from the social mission.

[1] One potential reason for the scarcity in theoretical work is that profit maximization, which is taken as axiomatic in standard economic theory, is a poor behavioral assumption for NPs.

[2] Leete (2000) provides a literature review of intrinsic motivation and its connection to NP social missions. See also Kreps (1997) for a discussion of intrinsic motivation versus external incentives, and Frank (1996) for evidence concerning a negative relationship between workers' earnings and the extent to which their employers and occupations are viewed as being socially responsible.

This setup reflects a well-known observation that NPs are more likely than FPs to have social missions that create intrinsic motivation for workers.[3] Whereas the FPs maximize profit, the NP maximizes the degree to which the worker enhances the organizational mission, subject to maintaining non-negative profit. This setup reflects the "non-distribution constraint" (Hansmann 1980, 1996), the central feature of NPs, which is described as follows in Hansmann (1980): "A nonprofit organization is, in essence, an organization that is barred from distributing its net earnings, if any, to individuals who exercise control over it, … . It should be noted that a nonprofit organization is not barred from earning a profit. … It is only the distribution of the profits that is prohibited. Net earnings, if any, must be retained and devoted in their entirety to financing further production of the services that the organization was formed to provide."

Our model reflects a well-known observation that output and performance, both at the organizational and worker level, are generally harder to measure in NPs than in FPs. This observation, along with the non-distribution constraint, suggests that incentive pay should be more prevalent in FPs than in NPs. The non-distribution constraint forbids certain forms of performance-based pay at the organizational level (e.g., profit sharing).[4] Other forms of incentive pay that are not legally prohibited may be thwarted by performance measurement problems. Moreover, the literature suggests that NP workers' intrinsic motivation can substitute for incentive pay. The empirical literature finds that output-contingent compensation is more prevalent in FPs than NPs. Our model assumes that the NP cannot offer incentive-based bonuses, and we analyze the implications of that assumption for other (related) organizational decisions.

The organizations in our model make offers (the NP offers base wages, and the FPs offer base wages and revenue-contingent bonuses), the worker accepts an offer, the employer provides training, and the worker exerts costly effort on two dimensions (revenue-increasing effort and mission-enhancing effort). The incentive to invest in mission-enhancing effort derives from the worker's intrinsic motivation, and the incentive to invest in revenue-increasing effort derives from the worker's desire for a bonus. The employer's initial compensation offer is then honored, and the game ends when profit and (in the case of the NP) the mission are realized.

Because the NP competes with the FPs in the labor market, the NP can only hire if the worker is at least as profitable in the NP as in the FPs. If a FP hires the worker, the firm sets the

[3] FPs can also have social missions, though those missions generally lack the prominence and motivating potential seen in NPs.

[4] As noted in Hallock (2011), Hansmann (1980) writes on page 900 that money given to a manager that varies with "annual surplus achieved by the firm is likely to be viewed as a distribution of profits either by the state authorities charged with policing nonprofit corporations or by the Internal Revenue Service".

bonus to make the worker the full residual claimant. The base wage is then determined by Bertrand wage competition so that the worker captures the entire surplus associated with his employment as his net compensation (base wage + expected bonus – effort costs), and his employer makes zero profits. If the worker has no intrinsic motivation, the NP cannot hire the worker without making a negative profit. This is because, due to the NP's inability to incentivize workers via bonus payments, the joint monetary surplus associated with the worker's employment (defined as the firm's profit + the worker's compensation – the worker's effort costs) is lower in the NP than in an FP. Hence, if the NP offers a high enough base wage so that the worker is indifferent between the NP and an FP, the NP will make a negative profit upon the worker's acceptance of the offer.

The worker's intrinsic motivation, however, helps the NP to hire the worker at a lower base wage. If the intrinsic motivation is strong enough, the NP can hire the worker and still make non-negative profits. If the NP hires the worker, in equilibrium the base wage plus intrinsic motivation (net of effort costs) equals what the worker would enjoy in an FP. The NP hires the worker if intrinsic motivation exceeds a threshold level, and otherwise a FP hires the worker.

Our model provides an explanation for the inconclusive sign of the FP-NP wage differential. That explanation hinges on the link between the process of wage determination and the provision of firm-sponsored training via the following logic. Suppose for the moment that training is equally effective in both sectors. Then the NP base wage is lower than the FP base wage. To see why, consider a worker whose intrinsic motivation is equal to the threshold level. The joint monetary surplus associated with the worker's employment is higher in an FP than in the NP by the amount of the worker's net expected bonus (i.e., expected bonus minus the effort cost). But the NP can hire the worker, making zero profits because the worker's net intrinsic motivation in the NP is equal to the worker's net bonus (expected bonus – effort costs) in an FP. This implies that the worker's base wage is the same in either sector; and for a worker whose intrinsic motivation is above the threshold level, the worker's higher intrinsic motivation further reduces the base wage in the NP. The result is that, on average, the base wage is lower in the NP than in a FP.

Now suppose that training is (sufficiently) more effective in the NP than in the FPs. The NP's training effectiveness increases the joint monetary surplus associated with the worker's employment in the NP. This implies that, even if a worker's intrinsic motivation is relatively low, the NP can still hire the worker by paying a higher base wage without making a negative profit. Then the average NP base wage becomes higher than the FP base wage.

How do skill levels affect the FP-NP wage differential? According to the model, the answer depends on how skill levels influence the effectiveness of mission-enhancing effort and training. Preston (1989) provides empirical evidence that the FP-NP wage gap increases with skill level, though her preferred explanation (based on "labor donations") is that the tasks of higher-skilled workers relate more closely to the organization's social mission than do those of lower-skilled workers.[5] Our model yields a prediction consistent with this explanation. That is, if the effectiveness of mission-enhancing effort increases with skill level, the wage gap increases in our model. Our empirical result corroborates Preston's, though Leete (2001) finds no evidence that the wage differential increases in skill levels, and she interprets this as casting doubt on labor donations.

Our theoretical analysis provides an explanation for the ambiguous sign on the relationship between skill levels and the sectoral wage gap and can reconcile Preston's empirical evidence (and ours) with Leete's. The key to our explanation for the ambiguous sign is the effectiveness of training. Suppose that the effectiveness of training increases with skill level more in the NP than in the FPs. Then the joint monetary surplus associated with a worker's employment increases with the worker's skill level more in the NP than in the FPs. This implies that the wage gap decreases with skill level because the higher joint monetary surplus helps increase the worker's base wage more in the NP than in the FPs. By an analogous logic, the wage gap increases with skill level if the effectiveness of training increases with skill level more in the FPs than in the NP.

Concerning the model's predictions on sectoral difference in firm-sponsored training, first note that profit-maximizing employers provide training up to the point where marginal profit is zero. Thus, in the FPs the equilibrium and profit-maximizing training levels coincide. But in the NP the equilibrium training level can exceed the profit-maximizing level, based on the following logic. Suppose the NP hires the worker in equilibrium. If the NP chooses the profit-maximizing training level, it must make a positive profit (otherwise it would not have succeeded in hiring the worker). Since the NP's objective is to maximize the extent to which the mission is enhanced (subject to maintaining non-negative profit), the NP spends all the profit to enhance the mission. By providing training beyond the profit-maximizing level, the NP decreases its profit, which indirectly hurts the advancement of its mission. But a higher level of training directly

[5] See also Young (1983), Handy and Katz (1998), and DeVaro and Brookshire (2007).

enhances its mission. At the chosen training level, the direct and the indirect effects balance out, as long as profit is not zero.[6]

The fact that the NP chooses to train beyond the profit-maximizing level means that, even if the NP is relatively less effective in training, the NP may still provide more training than a FP. Moreover, if the NP is relatively more effective in training, the NP definitely provides more training than a FP. Thus, the model suggests a tendency for NPs to provide more training than FPs.[7]

Our empirical analysis uses a unique data set. The California Health and Employment Survey (CHES) is a sample of establishments from 27 counties in Northern California, surveyed in 2005 – 2006. An appealing and distinctive feature of the CHES is that, for each establishment, data on the average starting wage are available for each of three skill groups. This distinction permits an analysis of how the FP-NP wage differential varies across skill groups *within the same sample of establishments*. We use the data to provide new evidence (at the establishment level) on sectoral differences in base wages, incentive pay, fringe benefits, and training, interpreting that evidence in light of the theoretical model.

We find evidence of a wage differential (favoring FPs) that varies considerably by skill level. For the lowest-skill group no statistically significant difference exists between NP and FP establishments in the average starting wage, but a large and statistically significant difference emerges favoring FPs for the highest-skill group. The differential in training provision favors NPs which, to our knowledge, is the first empirical evidence on sectoral training differences, and we corroborate this new result in the British Household Panel Survey. We also find a greater likelihood of output-based compensation (i.e., tips, bonuses, and commissions) in FPs, and evidence that NPs are more likely than FPs to use each of several fringe benefits.

Our theoretical model provides insights into the link between FP-NP differences in training and wage levels for different skill groups. The model suggests two possible explanations for the greater likelihood of training in NPs: (1) training is more efficient in NPs than in FPs, and (2) NPs provide training beyond the profit-maximizing level. For the low-skilled group, our model suggests that training is significantly more efficient in NPs than in FPs, because otherwise

[6] The same logic suggesting over-investment in training applies to investments in improving match quality via the design of fringe benefits packages, as discussed in an extension. "Over-investment" arising from the non-distribution constraint also applies to other types of investments not explicitly considered here, such as R&D.

[7] An additional reason to anticipate this result is that NPs may use training to inculcate in workers the mission, deepening their commitment to it. Although we expect that reason to be relevant in practice, it is not modeled, which illustrates that even without this effect the result is present.

the FP-NP wage differential should be positive (favoring FPs). We find a positive FP-NP wage differential that increases as the skill level increases. The model suggests two possible reasons: as the skill level increases, (1) the relative effectiveness of training in FPs increases, and/or (2) the effectiveness of mission-enhancing effort increases sufficiently strongly compared to changes in the effectiveness of training in the FPs and the NP.

The FP-NP wage differential is necessarily positive if training is more efficient in the FP sector. Otherwise the sign of the differential depends on the degree of relative effectiveness of training in the two sectors. Hence the model can generate three alternative configurations of sectoral differences in base wages and training: (1) differentials in both variables favoring the FPs, (2) differentials in both variables favoring the NP, (3) differentials in base wages favoring FPs and a training differential favoring the NP. A fourth configuration (i.e., a base wage differential favoring the NP and a training differential favoring the FPs) is inconsistent with the model and would allow it to be rejected empirically.

II. PRIOR THEORETICAL LITERATURE

To our knowledge, this study is the first to theoretically analyze FP-NP competition in the labor market. Several prior studies incorporate competition between FP firms (principals) and "mission-oriented" organizations or public ones in the labor market, where the objective of the mission-oriented principal is the success of a project in Besley and Ghatak (2005) and profit in Barigozzi and Burani (2014), and the objective of the public firm is cost-effective production of a given amount of public goods in Delfgaauw and Dur (2008, 2010). However, the non-distribution constraint, which is what fundamentally defines an NP, is not incorporated in those models. Our model incorporates this key feature of NPs by assuming they maximize the degree to which a worker enhances the social mission, subject to a non-negative profit constraint, where net earnings are invested in further enhancing the social mission.

Besley and Ghatak (2005) show that intrinsic motivation deriving from an organizational mission can substitute for explicit incentives, and that matching principals and agents on "mission-preferences" increases efficiency and can economize on the need for high-powered incentives. Although they incorporate a fixed wage, they do not consider the sectoral wage differential, which is a central focus of our analysis, and they do not incorporate worker skill levels or firm-sponsored training. Although they consider the implications of labor market competition across sectors, they do not model the competitive process explicitly.

Delfgaauw and Dur (2008, 2010) consider selection of workers across private and public sectors, where workers differ in their degree of public service motivation.[8] The motivation to work in the public sector resembles the motivation to work for the NP sector in our model. Barigozzi and Burani (2014) study a model in which a mission-oriented firm and a standard firm compete to hire one worker, who is privately informed of her productive ability and intrinsic motivation. When hired by the mission-oriented firm, motivated workers benefit from intrinsic motivation and enjoy their personal contribution to the firm's output. For a wide range of parameterizations, a compensating wage differential emerges, where the total salary gained by a motivated worker in the mission-oriented firm is lower than the salary that the same worker type would gain in the standard firm.

III. THEORETICAL MODEL AND ANALYSIS

Consider an NP organization seeking to hire a worker who is intrinsically motivated by the unique social mission of the organization. There is a distribution of potential workers in the population who vary by a parameter, θ, that reflects the degree to which a worker is intrinsically motivated by the mission.[9] Let θ be a random variable with a known density function g(.) with support $(0,\infty)$, where $g(\theta) > 0$ for all $\theta \in (0,\infty)$. High-θ workers are highly motivated by the NP's social mission. Nature takes a draw from the distribution of θ, which represents one worker, and simultaneously draws a worker skill level (high or low), with the realizations of both random variables publicly observed. The NP competes against a market of FP firms for the worker's services. For simplicity, we assume that market consists of two FP firms. All four economic agents are risk neutral. Once employed by one of the three organizations, the worker can exert revenue-increasing effort (denoted e_R) and mission-enhancing effort (denoted e_M), by incurring convex effort costs $C_R(e_R)$ and $C_M(e_M)$.

Before exerting effort the worker may receive an amount of training, y, which the employer provides at a convex cost of t(y) per worker. Let y^{NP} and y^{FP} denote equilibrium

[8] Delfgaauw and Dur (2007) characterize optimal incentive schemes in a model in which workers privately observe their degree of intrinsic motivation. Low wages imply a lower probability of filling a job vacancy, but the expected intrinsic motivation of a new employee is high because workers with low intrinsic motivations are dissuaded from applying for a low-wage job.

[9] In Delfgaauw and Dur (2008), there are three types of workers (lazy, regular, and dedicated) and two sectors (public and private) where dedicated workers experience intrinsic motivation from working in the public sector. Note that we treat the NP's mission as being pre-determined and, therefore, exogenous. The organizational mission, like explicit incentives, is chosen by the firm, presumably with incentive implications in mind. However, organizational missions apply (obviously) to entire organizations and, once chosen, tend to remain for a long time. In contrast, compensation is malleable and subject to adjustment both over time and across worker groups (or even across individual workers) within the organization. So it is natural to treat the mission as pre-determined.

training levels for the NP and the FPs.[10] Let $\pi_N(e_R, y)$ denote the profit generated by the worker if employed by the NP, and let w_0^{NP} denote the fixed base wage that the NP offers the worker. As explained in the introduction, the NP cannot offer incentive pay.[11] We assume

$\pi_N(e_R, y) = S_N R_N(e_R, y) - t(y) - w_0^{NP}$, where

$R_N(e_R, y) = R_{N1}(e_R) + R_{N2}(y)$, $R_{N1}(0) = 0$, $S_N = L_N$ (>0) for a low-skilled worker, and $S_N = H_N$ (>L_N) for a high-skilled worker. The worker's labor advances the organizational mission to a degree determined by the worker's mission-enhancing effort, the level of training the NP gives the worker, and the profit generated by the worker. More precisely, let $M(e_M, y, \pi_N(e_R, y))$ denote the degree to which the NP's mission is advanced by the worker. For simplicity, we focus on the following additively separable specification:

$M(e_M, y, \pi_N(e_R, y)) = S_M(M_1(e_M) + M_2(y)) + K \times \pi_N(e_R, y)$, where $S_M = L_M$ (> 0) for a low-skilled worker, $S_M = H_M$ (> L_M) for a high-skilled worker, and K (> 0) is a parameter that captures the degree to which profit contributes to the mission.

Our model incorporates the non-distribution constraint by assuming that the NP maximizes $M(e_M, y, \pi_N(e_R, y))$ subject to $\pi_N(e_R, y) \geq 0$. Although $\pi_N(e_R, y)$ can be positive, all profit must be used to contribute to the NP's mission.

Both FPs maximize profit, have no social mission, and do not face a non-distribution constraint. If employed by an FP, the worker generates revenue for the firm in an amount determined by the worker's revenue-increasing effort and by the amount of training received. The FPs offer a combination of a fixed wage, w_0^{FP}, and a bonus, B. The FPs' profit generated by the worker, denoted by $\pi_F(e_R, y)$, is $\pi_F(e_R, y) = S_F(R_{F1}(e_R) + R_{F2}(y)) - t(y) - w_0^{FP} - B$, where $S_F = L_F$ (> 0) for a low-skilled worker and H_F (> L_F) for a high-skilled worker, and the bonus B is contingent upon $R_{F1}(e_R)$.[12]

If c denotes cash compensation (i.e., $c = w_0^{FP} + B$ in an FP, and $c = w_0^{NP}$ in the NP), the worker's utility, U_W, is $U_W = c + U_I - C_R(e_R) - C_M(e_M)$, where U_I (intrinsic utility) $\equiv \theta S_M M_1(e_M)$. Thus, the worker's intrinsic motivation is proportional to the amount by which the worker's mission-enhancing effort actually enhances the mission, which is captured by $S_M M_1(e_M)$.

[10] In our one-period model, no opportunity for worker mobility exists after the training is received, so the distinction between firm-specific and general training is not meaningful. We rely on a single-period model for simplicity, because our focus is not on worker mobility, and our data cannot address mobility. At the end of the section we highlight some considerations that would arise if our model were extended to multiple periods.

[11] This assumption simplifies the exposition of the model and the results, but it is not crucial. All that is required is that the NP offers weaker incentive pay than the FPs.

[12] In practice, firms hire many workers and over time learn the return from training, $R_{F2}(y)$. Thus, by observing $R_{F1}(e_R) + R_{F2}(y)$, the firm can infer $R_{F1}(e_R)$.

All organizations face uncertain demand for their outputs, so revenue is stochastic. More precisely, letting $e_R \in [0, 1]$, we assume $R_{F1}(e_R) = 1$ with probability e_R and 0 with probability $1 - e_R$, whereas $R_{N1}(e_R)$ is a positive number with probability e_R and 0 with probability $1 - e_R$. All employers face a diminishing marginal revenue product of training; $R_{F2}(y)$ is twice-continuously differentiable, with $R_{F2}'(y) > 0$ and $R_{F2}''(y) < 0$ for all $y \geq 0$, and $R_{N2}(y) = \psi R_{F2}(y)$, where ψ (> 0) is a parameter that captures the effectiveness of training in generating revenue in the NP relative to the effectiveness in FPs. We assume unique solutions to the following four maximization problems: Max $[S_F e_R - C_R(e_R)]$ with solution e_R', Max $[S_F R_{F2}(y) - t(y)]$ with solution y', Max $[S_N R_{N2}(y) - t(y)]$ with solution y'', and Max $[\theta S_M M_1(e_M) - C_M(e_M)]$ with solution e_M'. Concerning the second and third of these maximization problems, note that $y' > y''$ (i.e., the profit-maximizing level of training is greater in the FPs than in the NP) if and only if $S_N \psi < S_F$.

The timing is as follows. Nature takes a single draw from the distribution of θ representing one job applicant whose skill level (high or low) and degree of intrinsic motivation (θ) become common knowledge, and four stages follow. In stage 1, the three organizations simultaneously and independently make take-it-or-leave-it compensation offers to the worker; the FPs' offers combine a base wage and a revenue-contingent bonus, whereas the NP's offer is only a base wage. In stage 2, the worker accepts an offer. In stage 3, the employer provides an amount of training, y, and the worker exerts efforts (e_M, e_R). In stage 4, the worker's employer pays compensation based on the offer, the organization's profit and (in the case of the NP) mission are realized, and the game ends.

Results and Analysis

If the worker is employed by an FP in equilibrium, the firm's compensation offer is $c = w_0^{FP} + B$, where $w_0^{FP} = S_F R_{F2}(y') - t(y')$, $B = S_F$ if $R_{F1} = 1$, and $B = 0$ otherwise. The equilibrium training level, y^{FP}, equals the profit-maximizing training level, y'. Because the worker is risk neutral, the firm maximizes profit by choosing a bonus that makes the worker the residual claimant. This implies that $B = S_F$ if $R_{F1} = 1$ and $B = 0$ otherwise. Then the worker exerts effort level e_R', and the firm's equilibrium profit is $\pi_F(e_R', y') = S_F(R_{F1}(e_R') + R_{F2}(y')) - t(y') - w_0^{FP} - B$, where $B = S_F \times R_{F1}(e_R')$. Equilibrium expected profit is zero due to Bertrand wage competition. Hence $E[\pi_F(e_R', y')] = 0$, implying $w_0^{FP} = S_F R_{F2}(y') - t(y')$.

Given the preceding, the NP hires the worker in equilibrium if and only if the following two conditions hold:

(1) $w_0^{NP} + \theta S_M M_1(e_M') - C_M(e_M') = S_F R_{F2}(y') - t(y') + S_F e_R' - C_R(e_R')$

(2) $\pi_N(0, y'') = S_N(R_{N1}(0) + R_{N2}(y'')) - t(y'') - w_0^{NP}$

$= S_N R_{N2}(y'') - t(y'')$

$- [S_F R_{F2}(y') - t(y') + S_F e_R' - C_R(e_R') - (\theta S_M M_1(e_M') - C_M(e_M'))] \geq 0.$

Condition (1) determines w_0^{NP}. It says that the worker's net utility in equilibrium (where "net" refers to effort costs), w_0^{NP} + intrinsic motivation – effort costs (i.e., the left-hand side of the equation), must equal the expected net utility that the worker would enjoy if hired by an FP, namely w_0^{FP} + expected bonus – effort costs (i.e., the right-hand side of the equation).

Condition (2) says that the NP must make non-negative profit by employing the worker at the wage of w_0^{NP} determined by (1), which is the term in square brackets in (2). Note that $e_R = 0$ in equilibrium because the NP cannot offer incentive pay, and that y" denotes the NP's profit-maximizing level of training. Then $\pi_N(0, y'') \geq 0$ must hold. If $\pi_N(0, y'') > 0$, the NP may choose $y > y''$, where $\pi_N(0, y) \geq 0$ holds, to maximize the extent to which the mission is enhanced. This is indeed the case in equilibrium. Proposition 1 describes equilibrium wage differentials and shows that their signs can be positive or negative depending on parameter values.[13]

Proposition 1

(i) There exists θ' (≥ 0) such that, in equilibrium, the worker is hired by the NP if $\theta \geq \theta'$ and by an FP if $\theta < \theta'$. Furthermore, there exists $S_F' \in (0, \psi S_N)$ such that $\theta' > 0$ if $S_F > S_F'$ and $\theta' = 0$ otherwise, where θ' is strictly increasing in S_F for all $S_F > S_F'$.

(ii) Suppose $S_F > S_F'$. Equilibrium base wages and the expected sectoral wage differential, denoted $\Delta_{FP\text{-}NP}$, are as follows:

$w_0^{FP} = S_F R_{F2}(y') - t(y')$ for $\theta < \theta'$,

$w_0^{NP} = S_F R_{F2}(y') - t(y') + S_F e_R' - C_R(e_R') - (\theta S_M M_1(e_M') - C_M(e_M'))$ for $\theta \geq \theta'$, and

$\Delta_{FP\text{-}NP} = E[w_0^{FP} | \theta < \theta'] - E[w_0^{NP} | \theta \geq \theta']$

$= - [S_F e_R' - C_R(e_R') - E[\theta S_M M_1(e_M') - C_M(e_M')/\theta \geq \theta']]$.

(iii) Suppose $S_F > S_F'$. We have that $\Delta_{FP\text{-}NP}$ is strictly increasing in S_F for all $S_F > S_F'$. Furthermore, there exists S_F'' ($\geq S_F'$) and S_M' (> 0) with the following properties:

[13] All proofs are in Appendix A.

$\Delta_{FP\text{-}NP} > 0$ if $S_F > S_F''$,

$\Delta_{FP\text{-}NP} = 0$ if $S_F = S_F''$, and

$\Delta_{FP\text{-}NP} < 0$ if $S_F < S_F''$,

where $S_F'' \in (S_F', \psi S_N)$ is strictly decreasing in S_M for all $S_M < S_M'$, and $S_F'' = S_F'$ for all $S_M \geq S_M'$.

Point (ii) of Proposition 1 states equilibrium wages, and point (i) can be understood as follows. The worker sorts across sectors based on preferences, such that in equilibrium, a worker with sufficient intrinsic motivation will be employed by the NP, and otherwise the worker will be employed by an FP. The fact that the NP has a mission valued by the worker creates an advantage for the NP (relative to the FP) because it allows the NP to depress the worker's base wage. The larger is θ, the more the NP can depress the wage, increasing the NP's advantage relative to the FP. However, unlike the FPs, the NP cannot use incentive pay, which disadvantages the NP relative to the FPs. Since the NP's advantage is increasing in θ, if θ is sufficiently high (i.e., if $\theta \geq \theta'$) the NP wins in Bertrand competition.

If the FP's effectiveness of revenue-increasing effort and training (represented by S_F) is relatively small (i.e., $S_F \leq S_F'$), the worker joins the NP regardless of the value of θ, so that $\theta' = 0$. This is because the NP's disadvantage associated with incentive pay is sufficiently small that the NP can win in Bertrand competition even for a worker with small θ. In contrast, if S_F is larger than S_F', then θ must be sufficiently high for the worker to join the NP, so that $\theta' > 0$. The threshold θ' is increasing in S_F beyond S_F' because, as the FP's effectiveness of revenue-increasing effort and training increases, the NP needs a higher level of intrinsic motivation to win in Bertrand competition. Henceforth, we focus on the case of $S_F > S_F'$, which is the interesting case since it allows the worker to join either sector depending on the value of θ'.

Point (iii) provides an explanation for the inconclusive sign of the FP-NP wage differential, by identifying conditions under which the expected value of the differential in base wages, $\Delta_{FP\text{-}NP}$, is positive or negative. The logic is as follows. Suppose for the moment that training is equally effective in the NP and FPs. A worker hired by an FP has expected utility w_0^{FP} + $S_F e_R' - C_R(e_R')$, where $S_F e_R' - C_R(e_R')$ is the worker's net expected utility from the bonus (expected bonus $S_F e_R'$ minus effort cost $C_R(e_R')$). If instead hired by the NP, the joint monetary surplus associated with the worker's employment (i.e., firm's profit + worker's compensation – worker's effort costs) is smaller in the NP than in an FP by the same amount $S_F e_R' - C_R(e_R')$,

because the NP cannot incentivize the worker via bonus payments. The NP can then hire the worker without incurring a loss only if the worker's net intrinsic utility, $\theta S_M M_1(e_M') - C_M(e_M')$, is greater than or equal to the difference of the net surplus $S_F e_R' - C_R(e_R')$. Then the equilibrium NP base wage,

$w_0^{NP} = w_0^{FP} + S_F e_R' - C_R(e_R') - (\theta S_M M_1(e_M') - C_M(e_M'))$, is less than or equal to the equilibrium FP base wage, w_0^{FP}, where $w_0^{NP} = w_0^{FP}$ holds for the worker with the threshold level of $\theta = \theta'$ (because $S_F e_R' - C_R(e_R') - (\theta' S_M M_1(e_M') - C_M(e_M')) = 0$). Hence, the expected FP-NP differential in the base wage is positive.

Now suppose that training is more effective in the NP than in the FPs. Higher training effectiveness increases the joint monetary surplus associated with the worker's employment in the NP. This allows the NP to hire a relatively low-θ worker without incurring a loss by paying a base wage, w_0^{NP}, higher than w_0^{FP}. The result is that, if the training effectiveness is higher in the NP than in the FPs (by a sufficient amount), the FP-NP wage differential turns negative, implying point (iii).

Proposition 2 describes how the sectoral wage differential varies by worker skill level.

Proposition 2

The effect of worker skill levels on the FP-NP wage differential depends on how skill affects the effectiveness of training in the FPs and the NP, and the effectiveness of mission-enhancing effort in the NP. More specifically:

(i) There exists a value H_F' ($\geq L_F$) such that $\Delta_{FP\text{-}NP}$ increases as skill level increases if and only if $H_F > H_F'$. Furthermore, there exists a value H_N' ($\geq L_N$) such that $H_F' > L_F$ if and only if $H_N > H_N'$, where H_F' is increasing in H_N for all $H_N > H_N'$.

(ii) There exists a value H_M' ($\geq L_M$) such that $\Delta_{FP\text{-}NP}$ increases as skill level increases if and only if $H_M > H_M'$. Furthermore, there exists a value H_N'' ($\geq L_N$) such that $H_M' > L_M$ if and only if $H_N > H_N''$, where H_M' is increasing in H_N for all $H_N > H_N''$.

Proposition 2 can be explained as follows. Our model assumes that, as the worker's skill level increases, the effectiveness of training (and of revenue-increasing effort) increases for all

employers, though perhaps to differing degrees for the FPs versus the NP.[14] Suppose that effectiveness increases (sufficiently) more strongly in the FPs than in the NP. Then the joint monetary surplus associated with a worker's employment increases with the worker's skill level more in the FPs than in the NP. This implies that the expected FP-NP wage differential increases with skill level because the higher joint monetary surplus helps increase the worker's base wage more in the FPs than in the NP. This is the logic behind point (i).

The expected wage differential might also increase in the skill level for a different reason, as stated in the first sentence of point (ii). This happens when an increase in skill level implies a particularly strong increase in the effectiveness of mission-enhancing effort in the NP. An increase in the effectiveness of mission-enhancing effort does not affect the joint monetary surplus associated with a worker's employment in the NP or FPs. Hence, the maximum base wage that the NP can offer to hire a worker without making a loss, which is the base wage of a worker with $\theta = \theta'$, would also remain unchanged. However, for a worker with any given $\theta > \theta'$, a higher effectiveness of mission-enhancing effort allows the NP to further reduce the worker's base wage. The result is that an increase in the effectiveness of mission-enhancing effort decreases the average base wage of the NP workers without affecting the FP base wage.

If the aforementioned effect is sufficiently strong, the expected FP-NP wage differential will rise with skill level. Regarding the second sentence of point (ii), an increase in training effectiveness in the NP increases the NP base wage, and this would obviously shrink the aforementioned (positive) FP-NP wage differential and perhaps even reverse its sign. Thus, the property "$\Delta_{FP\text{-}NP}$ increases as skill level increases" is less likely to hold in the wake of an increase in the NP's training effectiveness. Hence, as H_N increases, a stronger increase in the effectiveness of mission-enhancing effort is required for an increase in skill level to increase the FP-NP wage differential. The result, as stated in point (ii)'s second sentence, is that the threshold for mission-enhancing effort, H_M', is increasing in H_N.

Concerning training, recall from condition (2) that $\pi_N(0, y'') \geq 0$ holds if the NP hires the worker in equilibrium. If $\pi_N(0, y'') > 0$, the NP's equilibrium training level, y^{NP}, satisfies $y^{NP} > y''$ and $\pi_N(0, y^{NP}) \geq 0$. The logic for this "over-investment" in training in the NP is as follows. Starting from $y = y''$ in the NP, as y is increased beyond y", the NP's profit decreases, and the lower profit detracts from the NP's mission. At the same time, increasing y beyond y" directly

[14] This assumption is for simplicity, and our qualitative results do not depend on it. That is, our results would remain qualitatively unchanged if we were to assume that, as the worker's skill level increases, the effectiveness of training decreases for all employers.

enhances the NP's mission because $\partial M/\partial y = S_M M_2'(y) > 0$. The second effect dominates the first effect when y is relatively close to y". As y increases, the second effect is eventually dominated by the first effect if $\pi_N(0, y")$ is sufficiently positive. Starting from y = y", the NP increases y as long as positive profit is made, up to the point where these two effects are counterbalanced.

Thus, the NP "burns profit" by providing more than the profit-maximizing level of training. However, the NP may not burn all the profit on training, because some of it may be invested in enhancing the mission directly. This implies the following proposition concerning sectoral differences in training.

Proposition 3

Comparing $E[y^{NP}(\theta)/\ \theta \geq \theta']$ and y^{FP} yields:

(i) If $S_F \leq \psi S_N$, then $E[y^{NP}(\theta)/\ \theta \geq \theta'] > y^{FP}$.

(ii) If $S_F > \psi S_N$, then there exists values S_F^{**} and S_F^{*}, where $S_F^{**} \geq S_F^{*} > \psi S_N$, such that $E[y^{NP}(\theta)/\ \theta \geq \theta'] > y^{FP}$ if $S_F < S_F^{*}$, and $E[y^{NP}(\theta)/\ \theta \geq \theta'] < y^{FP}$ if $S_F > S_F^{**}$.

The intuition for Proposition 3 is as follows. Regarding point (i), if the NP has a training advantage, then the NP (which already has a tendency to over-invest in training, relative to the FPs) is expected to train more than the FPs. Regarding point (ii), if the FPs have a training advantage, there are competing effects. The FPs' training advantage suggests the FPs should train more than the NP, but the NP's tendency to over-invest in training suggests the opposite. If the FPs' training advantage is sufficiently small, the second effect dominates, so that the NP continues to be expected to train more than the FPs, whereas the first effect dominates if the FPs' training advantage is sufficiently large.[15]

Corollary 1, which follows from Propositions 1 and 3, describes the possible ways in which FP-NP differences in training and wage levels are related.

Corollary 1

(A) Suppose $S_M < S_M'$. Then $S_F^{*} > S_F"$, which implies: (i) holds if $S_F > S_F^{**}$, (ii) holds if $S_F" < S_F < S_F^{*}$, and (iii) holds if $S_F < S_F"$. If $S_F^{*} < S_F < S_F^{**}$, then (i) or (ii) holds.

[15] Since θ' depends on S_F, $E[y^{NP}(\theta)|\ \theta \geq \theta'] - y^{FP}$ is not necessarily monotonically decreasing in S_F, and hence we cannot rule out the possibility of $S_F^{**} > S_F^{*}$.

(B) Suppose $S_M \geq S_M'$. Then (i) holds if $S_F > S_F^{**}$ and (ii) holds if $S_F < S_F^{*}$. If $S_F^{*} < S_F < S_F^{**}$, then (i) or (ii) holds.

(i) $\Delta_{FP\text{-}NP} > 0$ *and* $E[y^{NP}(\theta)/\ \theta > \theta'] < y^{FP}$

(ii) $\Delta_{FP\text{-}NP} > 0$ *and* $E[y^{NP}(\theta)/\ \theta > \theta'] > y^{FP}$

(iii) $\Delta_{FP\text{-}NP} < 0$ *and* $E[y^{NP}(\theta)/\ \theta > \theta'] > y^{FP}$

Thus, the signs of the differentials in base wages and in training vary with parameter values, and a number of different observed configurations of compensation and training would be consistent with the model. However, the model can be rejected empirically if a pattern of evidence is observed such that $\Delta_{FP\text{-}NP} < 0$ and $E[y^{NP}(\theta)|\ \theta > \theta'] < y^{FP}$. To see why, notice that $E[y^{NP}(\theta)|\ \theta > \theta'] < y^{FP}$ implies that training is less effective in the NP than in the FPs because, despite the tendency to over-invest, the NP provides a lower training level, on average, than the FPs. Additionally, the NP is disadvantaged in that it cannot use incentive pay. It can only successfully hire the worker if intrinsic motivation is high, which allows the NP to hire the worker at a lower base wage than the FPs would offer. Hence, the NP's base wage must be below the FPs' base wage, so $\Delta_{FP\text{-}NP} < 0$ cannot hold.

Robustness

We next consider the sensitivity of our results to several alternative modelling choices. First, suppose that training increases the marginal benefit of effort rather than having no effect on it. In particular, suppose that the FP's revenue is $S_F((1 + y)R_{F1}(e_R) + R_{F2}(y))$, and the NP's revenue is analogous. The key trade-off that drives the inconclusive sign of the FP-NP wage differential remains qualitatively unchanged in this setup. That is, the worker's intrinsic motivation helps the NP to hire the worker at a lower base wage, but the NP cannot incentivize the worker via bonus payments. The FP-NP differential is more likely to be positive because the joint monetary surplus associated with the worker's employment in an FP is higher in this alternative setup than in the original model. Concerning training, the FP's incentive to provide training is higher in this setup because training increases the marginal benefit of effort. The threshold values in Proposition 3 and Corollary 1 change, but the results remain qualitatively unchanged.

Second, suppose that training increases the worker's intrinsic utility rather than having no effect on it, by assuming that U_I (intrinsic utility) $\equiv \theta S_M(M_1(e_M) + M_2(y))$. Higher intrinsic utility

helps the NP to hire the worker at a lower base wage in this setup than in the original model. The FP-NP wage differential is, therefore, more likely to be positive, although the key driving forces for the inconclusive sign of the FP-NP wage differential remain qualitatively unchanged. Concerning training, the NP's incentive to provide training is higher in this setup because training helps the NP to hire the worker at a lower base wage. The threshold values in Proposition 3 and Corollary 1 change, but the results remain qualitatively unchanged.

Third, suppose that there are multiple NPs (with exactly the same missions) rather than just one. Competition among the NPs then implies that, if the worker is employed by an NP in equilibrium, the NP provides the profit-maximizing level of training, and the zero-profit condition determines the worker's base wage. Hence, unlike in the original model, NPs do not exhibit a tendency to over-invest in training in this setup. The key driving forces for the inconclusive sign of the FP-NP wage differential, again, remain qualitatively unchanged.

Discussion

In practice, FPs are subject to income taxes on profit, whereas NPs face reduced taxes.[16] Incorporating a profit tax for FPs into the model, while allowing the NP to be exempt, would not change the main results. To see this, suppose that the FPs maximize after-tax profit, $(1 - \tau)\pi_F(e_R, y)$ where $\tau \in (0, 1)$ denotes the tax rate. The FPs' compensation offers and their training decisions in equilibrium would remain unchanged because $(1 - \tau)\pi_F(e_R, y)$ is maximized if and only if $\pi_F(e_R, y)$ is maximized.[17] This implies that the NP's compensation offer and its training decision would also remain unchanged. Alternatively, under the assumption that the NP is subject to a profit tax that is positive (but less than τ), our model would yield another prediction that, as the NP's tax rate decreases (and hence its tax advantage relative to the FPs increases), the level of its training investment decreases. As the tax rate decreases, the NP can more effectively use its profit to further the social mission directly, and hence it reduces the amount of money it pours into training investments.

[16] For example, U.S. federal law exempts NPs with the 501(c)(3) designation (about three-quarters of NPs in the U.S., and all of the NPs in our data set) from federal taxes on income generated by activities related to their social mission but not income generated from activities unrelated to that mission. Some states provide further exemptions for NPs (for example, from property, sales, and use taxes) whereas others do not (for example, California provides a property tax exemption for NPs, with regional variations in how and when it is applied).

[17] FPs pay zero tax because their equilibrium profits are zero in the model. Their tax burden would be positive if heterogeneous productivity shocks randomly hit the two FPs. The qualitative nature of the results would remain unchanged under this alternative modeling.

Although a one-period model is sufficient for addressing our questions of interest and evaluating them using the CHES data, questions involving sectoral differences in turnover would require a multiple-period model. A key determinant of turnover is the portion of a worker's training that is general (versus firm-specific). In our one-period model the distinction between general and firm-specific training is not meaningful, because workers do not leave the organization after training. In a multi-period model, additional predictions would emerge concerning mobility of workers within and across sectors and the wage changes arising from those transitions, though the CHES data could not be used to test such predictions empirically.[18] A multi-period setting would also have implications for the model's training results. Although the sign of the sectoral training differential is theoretically ambiguous, the model suggests a tendency for NPs to over-invest in training, which has implications for future sectoral wage differentials in a multi-period model. In particular, if case (ii) of Corollary 1 prevails (as we find in the CHES data), then in a multi-period model the wage differential favoring FPs should be muted (and possibly reversed) in periods beyond the first, as training increases the relative productivity of NP workers. Consequently, a wage differential favoring FPs should be easier to detect for *starting* wages (which do not yet reflect the productivity-enhancing effect of training) than for current wages. Our empirical work uses starting wages.

If there are multiple NPs with similar social missions, then competition among NPs for workers becomes relevant along with competition between NPs and FPs. Consider an extreme case in which there are two NPs with exactly the same mission. Then our result that NPs tend to "over-invest" in training relative to FPs would disappear, because the equilibrium and profit-maximizing training levels would coincide for the NPs, and they would both make zero profit in equilibrium. What makes the assumption of a single NP reasonable is that the mission is likely to be at least partially organization-specific.[19] If there are multiple NPs with distinct (or related but different) missions, then our analysis based on a single NP is relevant.[20]

[18] If job hierarchies are incorporated along with multiple periods, questions concerning differential career advancement across the two sectors might also be addressed. See DeVaro and Brookshire (2007) for empirical evidence that promotion rates are lower in NPs than FPs.

[19] For example, even two NPs that have the same stated mission might differ in their organizational cultures and therefore in their approaches to interpreting and pursuing that mission.

[20] Even in the extreme case of a zero-profit equilibrium with multiple NPs, a tendency for more training in NPs than FPs may be expected if NPs use training to inculcate workers in the mission (increasing their knowledge of it and strengthening their commitment to it). If the model were to incorporate this additional mechanism, our qualitative results should remain unchanged, but the result concerning training would strengthen.

IV. EXTENSION: FRINGE BENEFITS

The preceding model abstracts from fringe benefits (i.e., compensation "in kind" rather than in cash), which represent a large component of most compensation packages – typically one quarter to more than one third of a worker's total compensation. We now briefly summarize an extension that allows employers in both sectors to include fringe benefits in the compensation plan, which has implications for sorting and match quality.[21]

Benefits can be tailored to fit the tastes of a class of workers the firm wishes to attract, thereby serving as a sorting mechanism.[22] Given that different types of workers optimally sort into the two sectors in our model (see point (i) of Proposition 1) it might be expected that the sectors will pursue different strategies with respect to benefits offerings. Securing high-quality matches is of interest to employers in both sectors but is arguably of particular importance in NPs, where "motivated agents" (in the parlance of Besley and Ghatak 2005) are sought.[23] Benefits represent another type of investment (in addition to training) that employers in either sector can make to enhance expected future worker productivity. In the case of an NP, this investment represents another avenue by which the employer can advance the social mission. The presence of the non-distribution constraint in the NP but not the FP sector suggests a reason why benefit investments may differ between the two sectors. To the extent that benefit offerings are more generous, equilibrium wages will be lower due to the usual compensating differentials argument, which points to the importance of incorporating benefits into the model.

Let b denote some quantity of fringe benefits, where $b \geq 0$. At the outset of the game, before Nature draws θ, all employers choose a value of b with the knowledge that a cost $\Upsilon(b)$ must be paid upon hiring the worker, where Υ is strictly convex. For the NP, b enters the M function both directly and indirectly through its (direct) effect on profit. For the FPs, b enters the profit functions directly. We assume that b always enters in additively separable fashion and that λb enters the worker's utility function directly, and additively, where $\lambda > 0$. The parameter λ

[21] See the supplementary note for more details.

[22] See Eriksson and Kristensen (2014) for recent empirical evidence on the role of fringe benefits in inducing sorting. Evidence suggesting sorting can be found in a survey of attitudes of graduate students in business at Vanderbilt University that reveals clear differences between workers who end up in NPs and those who end up in FPs, with the former claiming to place less emphasis on economic wealth (Rawls, Ullrich, and Nelson 1975). Alternative motivations for offering benefits arise from legal mandates, tax advantages, and nonlinear pricing of health insurance that allows employers to purchase insurance at a lower cost than workers would face individually.

[23] The value of good matches is a central focus in Besley and Ghatak (2005), which distinguishes between "mission-oriented" NPs and "profit-oriented" conventional firms. Handy and Katz (1998) suggest that lower wages in NPs may generate trust by inducing positive selection in managerial workers; they also suggest that fringe benefits, when combined with low wages, may induce sorting that increases managerial quality in NPs.

(when less than 1) can be interpreted as deadweight loss, such as would occur if, for example, the worker is unmarried and if the fringe benefit in question is spousal health insurance. Reductions in λ imply reductions in the employers' equilibrium choices of b.

The results for fringe benefits parallel those for training. Intuitively, training and fringe benefits represent two alternative ways that employers can invest in enhancing productivity and, in turn, the social mission. The difference is that fringe benefits enter the worker's utility function directly, whereas training does not. Analogous to the parameter ψ that relates to the training effectiveness in the NP relative to the FPs, the parameter ψ_b relates to the effectiveness of fringe benefits (in improving match quality) in the NP relative to the FPs.

Analogous to Proposition 3 of the main model, there exist values S_F^{bb} and S_F^{b}, where $S_F^{bb} \geq S_F^{b} > \psi_b S_N$, such that the NP is expected to provide a higher (lower) level of fringe benefits than the FPs if $S_F < S_F^{b}$ ($S_F > S_F^{bb}$). When $S_F > \psi_b S_N$, the effectiveness of fringe benefits in the FPs is higher than in the NP. Nevertheless, the NP is still expected to provide more fringe benefits than the FPs if $S_F < S_F^{b}$ because the NP tends to over-invest in fringe benefits. Also, analogous to Corollary 1, we find that the signs of the differentials in base wages and in fringe benefits vary with parameter values, and a number of different observed configurations of compensation and fringe benefits would be consistent with the model. However, the model can be rejected empirically if a pattern of evidence is observed such that $\Delta_{FP\text{-}NP} < 0$ and $E[b^{NP}(\theta) | \theta > \theta'] < b^{FP}$, where $b^{NP}(\theta)$ and b^{FP} are defined for fringe benefits analogously to $y^{NP}(\theta)$ and y^{FP}, respectively, for training.

V. EMPIRICAL EVIDENCE

The theoretical model and its extension allow the existing empirical evidence on base wages, incentive pay, and fringe benefits to be interpreted simultaneously in a unified framework. This section is structured in two parts. The first summarizes existing empirical evidence, and the second presents new evidence from the CHES.

A. Prior Empirical Evidence

The bulk of the prior empirical literature focuses on sectoral differences in wages, although there is also evidence concerning incentive pay and fringe benefits. To our knowledge there has been no prior work on sectoral differences in training.

Sectoral Wage Differentials

The widespread use of volunteers in the NP sector is consistent with high levels of intrinsic motivation, and the NP worker's empathy for the social mission of the organization is an important source of that intrinsic motivation and allows NP employers to pay their workers less. This compensating differentials argument is sometimes called the "donative labor hypothesis", meaning that NP workers "donate" labor by accepting lower wages.[24] Preston (1989) introduces this terminology and argues, as follows, that the compensating differential should differ by skill level. Within the organization, the intrinsic motivation deriving from the mission should be strongest for those whose work is most closely related to the organizational mission. Typically those would be the high-skilled workers who run the organization and whose decisions affect its direction. In contrast, the work of mailroom workers and custodians has little direct connection to the mission, and intrinsic motivation should therefore be weaker for such workers.[25]

Overall, the empirical literature is inconclusive concerning the sign of the wage differential. Some studies find no sectoral wage differential. For example, Leete (2001) uses the 1990 Census and finds no evidence of an economy-wide differential, though she finds differentials (some favoring NPs, others favoring FPs) in particular industries. Ruhm and Borkoski (2003) use CPS data and find no evidence of labor donations to NP employers. DeVaro and Brookshire (2007) use a cross section of employers in four metropolitan areas of the U.S. and find no differential in starting or current wages, and Ben-Ner, Ren, and Paulson (2011) find no wage differential in two samples of Minnesota establishments from selected industries.

Other empirical evidence supports labor donations. Mirvis and Hackett (1983) find a wage differential favoring FPs, though without any controls. Weisbrod (1983) finds support for lawyers, though Goddeeris (1988) uses the same data to show that the result disappears after accounting for selection and choice-based sampling. In a study of hospitals, Roomkin and Weisbrod (1999) find higher pay in FPs than NPs. In an analysis of 300 white-collar workers spanning many occupations and industries, Preston (1989) finds about a 20 percent differential favoring FPs for managers and professionals but only about a 5 percent differential for clerical and sales workers.[26] This result is consistent with Preston's argument that the higher-skilled

[24] Some authors, e.g., Hallock (2011), draw a distinction between compensating differentials and labor donations, but the ideas are similar and are probably indistinguishable from an empirical standpoint.

[25] See also Young (1983), Handy and Katz (1998), and DeVaro and Brookshire (2007).

[26] Preston (1989) also corroborates her results using CPS data, though without a direct measure of NP status.

workers in the organization are more likely to do work that relates closely to the organizational mission, so intrinsic motivation should be higher for these workers, and the compensating differential larger. Similarly, to explain their finding of a difference in promotion rates (favoring FP workers) for high-skilled occupations but no difference for low-skilled occupations, DeVaro and Brookshire (2007) argue that intrinsic motivation in the high-skilled occupations obviates the need for NPs to rely on promotions as incentive mechanisms. However, Leete (2001) does not find that the wage differential varies by skill level; for that and other reasons she interprets her analysis as generally unsupportive of labor donations.

In contrast to the supply side emphasis of the donative labor hypothesis, the demand-side "property rights hypothesis" predicts a wage differential favoring NPs. Because the "non-distribution constraint" allows surpluses to be reinvested in the organization, kept as an endowment, or used for other charitable purposes but not distributed to those who run the organization, NPs might inflate wages or fringe benefits as an indirect way of redistributing profit. This idea is consistent with evidence from matched employer-employee data on childcare workers (Mocan and Tekin 2003), from the U.S. nursing home industry (Borjas et al. 1983) , and from the less competitive segment of the day care center industry (Preston 1988).[27]

Our model captures the idea of the donative labor hypothesis by analyzing a worker who derives intrinsic motivation from the social mission if employed by the NP. The model also captures the idea behind the property rights hypothesis through the NP's provision of firm-sponsored training. That is, instead of inflating wages or fringe benefits, the NP provides a level of training higher than its profit-maximizing level to maximize the degree to which the worker enhances the organizational mission. By incorporating both ideas in a single framework, our model can explain the inconclusive sign of the FP-NP wage differential.

Building on Preston (1989) and drawing on familiar logic from the theory of compensating differentials, Jones (2015) offers an explanation for the mixed evidence concerning the sectoral wage differential and why it varies by occupation and industry. The issue is whether labor demand in the NP sector is strong enough to exhaust the economy's supply of motivated workers. If NP labor demand is high relative to FP labor demand, the marginal worker is not motivated by the NP social mission, so the wage differential shrinks to zero. Data variation in the NP labor share across geographic localities is exploited, and a separate analysis in a single industry (nursing homes) is conducted, with the empirical evidence consistent with the theory.

[27] Borjas et al. (1983) find that FP nursing homes pay the lowest wages, except perhaps for religious NP nursing homes. The other two types of organizations in the sample are publics and secular NPs.

The main predictions are that when the NP labor share is low, the sectoral wage differential favors FPs and that when the share is sufficiently high the differential vanishes. Although the analysis does not explicitly consider how the differential varies with skill level, allowing relative supply and demand to vary by skill level as well as by sector could generate such results.

Sectoral Differences in Incentive Pay

Empirical work has consistently found a lower incidence of incentive pay based on either individual-level or organization-level performance measures in NPs than FPs, consistent with the presence of the non-distribution constraint, as Hallock (2011) argues.[28] For example, prior evidence shows that 69 Houston NPs do not tie pay to organizational performance (Werner and Gemeinhardt 1995); bonuses are higher (in absolute terms and relative to base pay) in FP than NP hospitals (Roomkin and Weisbrod 1999); NPs are less likely than FPs to use commissions on sales, bonuses, piece rates, and (obviously) profit sharing and stock options (DeVaro and Brookshire 2007); FPs are more likely than NPs to use incentive pay for CEOs but not lower-level workers (Erus and Weisbrod 2003); and the link between economic performance and pay for top managers is weak in NP hospitals (Bertrand, Hallock, and Arnould 2005).

Although the legal restrictions prohibiting profit-sharing rewards for NPs can explain some of the preceding evidence, Erus and Weisbrod (2003) note that the law does not prevent NPs from tying pay to performance measures other than profit. Other explanations must also apply. One common argument is that output is harder to measure in NPs than in FPs, at both the organizational and individual level (Weisbrod 1988, 1989, Cleverley and Mullen 1982, Oster 1996, Hallock 2000, and Erus and Weisbrod 2003). Indeed, Easley and O'Hara (1983) argue, based on reasoning from Hansmann (1980), that NPs arise as the solution to an optimal contracting problem when organization-level output is hard to measure, while Rose-Ackerman (1996) references the "difficulty of monitoring charitable work" and measuring service quality. Another explanation is that, absent intrinsic motivation, FPs must rely on extrinsic incentives.[29] The reliance on extrinsic motivation is consistent with arguments that FPs create incentives via promotions (DeVaro and Brookshire 2007), NP managers receive a smaller share of their compensation in bonuses than do FP managers (Frey 1997), and NPs (when well matched with

[28] Furthermore, Hallock (2001) finds in a large panel of NPs that organizational size (as measured by assets) is the only performance-related variable that has a statistically significant positive relationship to managerial pay.

[29] This argument requires qualification because the organizational mission, like explicit incentives, is chosen by the firm, presumably with incentive implications in mind. However, as discussed earlier, it is natural to treat the mission as pre-determined.

principals based on mission preferences) have increased efficiency and less need for incentive pay (Besley and Ghatak 2005).

Fringe Benefits

A number of prior empirical studies have considered fringe benefits. Preston (1989) finds (at the worker level) that pensions and health insurance appear more common in FPs than NPs and that the wage differential is largely unchanged when including binary indicators for those benefits in the model as controls. DeVaro and Brookshire (2007) find (at the establishment level) differences between the two types of organizations in many benefits on a list of 17.[30] Using information on total expenditures on benefits at childcare centers, Mocan and Tekin (2003) infer a measure of hourly benefits compensation, which in turn allows them to consider wage plus benefits compensation as a dependent variable rather than wages alone. Whether the dependent variable is wages or wages plus benefits, they find compensating differentials favoring NPs.

B. New Empirical Evidence from the CHES

We use data from the California Health and Employment Survey (CHES) to provide new empirical evidence of establishment-level differences between the NP and FP sectors in base wages (for different worker skill levels), output-contingent compensation (bonuses, tips and commissions), training, and fringe benefits. The CHES is a cross section of 1427 establishments in 27 Northern California counties that were surveyed from Fall 2005 to Fall 2006 (Maxwell 2007).[31] Government agencies (federal, state, city or county) and establishments with fewer than five workers were excluded from the sampling frame, and establishments with more than 50 employees were oversampled. We use inverse probability sampling weights throughout the

[30] Those results were omitted from the published version but are as follows. Unconditional differences in means reveal that NPs 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 contributions to pension plans. FPs are more likely to offer paid vacations and holidays, and savings (401K) plans. No statistically significant differences between the two types of organizations are found for supplemental unemployment benefits, tuition reimbursement and flexible hours for parents. However, most of the preceding differences disappear in the presence of controls for establishment characteristics and industry. In the presence of those controls, NPs are more likely to offer pension plan contributions (in contrast to the result in Preston 1989), day care, and supplemental unemployment benefits, whereas FPs are more likely to offer paid vacation, savings plans, stock options and flexible hours for parents.

[31] The response rate was 67 percent. Counties were selected on the basis of the U.S. Department of Agriculture 9-category scale based on the degree of rurality in the county (U.S. Department of Agriculture, Economic Research Service 2006) to obtain a balance of urban versus rural areas that approximate the mix in the U.S. Proportionate random sampling of establishments within each county ensured an appropriate balance of rural and urban establishments (if a county only had 5 percent of the establishments, for example, within the 27 county area, only 5 percent of the establishments in the random sampling of establishments came from that county).

analysis to ensure results are representative of establishments within California with respect to size and industry.

The CHES offers several advantages for our study. First, it includes information on FP and NP status (as opposed to government agencies). The treatment of government agencies is inconsistent across studies in this literature; sometimes they are grouped with NPs, and sometimes they are dropped. The CHES NP measure allows a clean contrast between the NP and FP sectors because it excludes government agencies.[32]

Second, it contains a relatively large sample of establishments while restricting the sampling frame to the northern part of one state. The relatively small geographic scope eliminates variation in state-level institutions, such as the tax treatment of NPs, and reduces heterogeneity in certain regional factors (e.g., differences in local labor market conditions) that could otherwise complicate a wage analysis. Some states exempt NPs from sales, use, and property taxes, whereas other states do not. But in our analysis the tax treatment of NPs is the same for all organizations in the sample.

Third, the CHES contains wage information for three skill levels for each establishment: "low-skilled" (requiring a worker starting in the position to have no more than a high school education and no more than one year of work experience), "mid-skilled" (requiring some college and/or one to three years of work experience), and "high-skilled" (requiring at least a college degree and/or at least five years of work experience). The distinction in skill levels allows us to estimate three wage regressions for distinct skill levels *using the same set of employers*. In most worker-level data sets, partitioning the sample into three skill groups would instead require estimating on three different subsamples of employers.

Fourth, the wage observed is the average nominal *starting* wage in the typical job in each of the three skill levels.[33] Compared to current wages, which are typically used in studies using worker-level data, starting wages are less influenced by "post-hire" factors like training, learning-by-doing, job tenure, and employer learning about worker productivity that could differ between the two sectors and make a compensating differential harder to detect. Moreover, our theoretical model pertains to hiring, which makes starting wages the relevant measure.

[32] The CHES question is, "Are you a for-profit or nonprofit company?" Answer choices are "For profit", "Nonprofit (501(c)(3))", "Government (Federal, state, city, county)", "Other", with a response of "Government" ending the survey. The CHES sample contains only "For profit" and "Nonprofit (501(c)(3))" responses.

[33] We converted responses to the average starting wage question, "$____ per _____" (e.g., $9.85 per hour), to hourly wages. We assume full-time work when computing hourly wages (e.g., annual salary is divided by 2080, monthly salary is divided by 173, and weekly is divided by 40).

Finally, the CHES contains key dimensions of HRM systems that can be used to assess FP-NP sectoral differences. The measures include wages, whether tips and commissions are offered, whether bonuses are offered, whether each of various fringe benefits is offered, and whether training is offered. Only wages (and tips and commissions) are available for each of the three skill categories. The other measures are only available at the establishment level, though it should be understood that organizations often have establishment-wide policies governing these components of compensation (e.g., fringe benefits). Establishment characteristics in the CHES include establishment size, firm size, industry, whether the establishment operates in a rural or urban area, and collective bargaining status (in each skill group).[34]

Respondents are asked to identify the "typical position" at each skill level in the establishment, which was used to determine the occupational classification of the job at each skill level. Table 1 displays the distribution of occupations by skill level, which differs considerably between the sectors. The frequency of management, quantitative and professional occupations increases in skill level in both sectors, and the frequency of support; office and sales; and production, construction, and transportation decreases in skill level for both sectors. A higher proportion of NP jobs are in management, quantitative and professional occupations at each skill level: 91 percent in high-skilled jobs, 45 percent in mid-skilled jobs, and 22 percent in low-skilled jobs. Corresponding numbers for FPs are 76, 29 and 5 percent. In contrast, a greater proportion of FP jobs are in the production, construction, and transportation occupations at each skill level: 8 percent for high-skilled jobs, 22 percent for mid-skilled jobs, and 30 percent for low-skilled jobs. Corresponding numbers for the NP sector are 2 percent, 7 percent and 10 percent.

We estimate the following regression by ordinary least squares to assess FP-NP differences in HRM systems, controlling for establishment characteristics:

(3) $HRM_j^s = \alpha + \beta FP_j + \boldsymbol{O}_j\boldsymbol{\gamma} + \boldsymbol{X}_j\boldsymbol{\delta} + \varepsilon_j$

where FP_j equals 1 if establishment j is a for-profit and 0 if it is a nonprofit, HRM_j is a measured component in establishment j's HRM system (for skill level s for variables – such as base wages – that have within-establishment variation across skill levels); O_j is a series of binary indicators for management, quantitative, professional, support, office and sales, and other occupations; and

[34] Establishment size and firm size are available as categorical variables, each in eleven categories: (5-9 workers, 10-19, 20-50, 51-99, 100-299, 300-499, 500-999, 1000-1999, 2000-4999, 5000-9999, and 10,000+). The firm size measure includes all workers on the firm's payroll in any of its establishments, including part time workers, full time workers, temporary workers, and permanent workers, with establishment size observed based on the first eight of those categories (i.e., the top category is 1000+).

$\boldsymbol{X_j}$ is a vector of controls for other establishment characteristics. The occupation dummies describe the "typical" job represented in skill level *s* at establishment *j*; these are also the jobs to which the wage measure applies. Appendix B (Table B1) defines all variables used in the analysis.

When *HRM* represents base wages, we estimate models in wage levels rather than logs, consistent with the theoretical model, although we demonstrate that results do not change when logs are used (Appendix B, Table B2). As a robustness check, we re-estimate equation (3), each time dropping the observations associated with a particular occupation to assess whether that occupation drives the results.

Table 2 displays means or percentage distributions for all variables (both overall and by sector) and reveals that 88 percent of observations are in the FP sector. It also shows sectoral differences in HRM components. In both sectors the average starting wage increases markedly in skill level. There is no FP-NP wage differential for low-skilled jobs. However, a wage differential favoring FPs emerges for mid-skilled jobs and is even larger for high-skilled jobs.[35]

Consistent with an assumption of our theoretical model, Table 2 reveals a large differential favoring FPs in output-based pay such as bonuses, or tips and commissions.[36] It also reveals that the probability of providing training is higher in NPs than FPs and that differentials favor NPs for each of a list of fringe benefits. Apart from the different occupational distributions by sector (documented in Table 1), Table 2 reveals differences in other characteristics of FP and NP establishments that could underlie the differences in HRM components. A larger proportion of FP establishments is large and in retail and wholesale trade, business services, construction, manufacturing, and the transportation/communication/public utility sectors, while a larger proportion of NP establishments is in rural areas and services and the education/medical sectors. Regression estimates of equation (3) show that the unconditional FP-NP differences in monetary compensation remain after controlling for sectoral differences in establishment characteristics. Column 1 of Table 3 reveals that the unconditional wage gap is \$7.64 (\$3.45) [\$0.10] per hour, favoring FPs, in high-skilled (mid-skilled) [low-skilled] jobs, and the result for low-skilled jobs is statistically insignificant at the 10 percent level.

[35] The differential in shift premiums also favors FPs. Shift premium pay refers to extra compensation that is paid in exchange for working non-standard (and therefore generally undesirable) hours. Such pay is not output-contingent, so it does not correspond to the revenue-based bonuses in our theoretical model, but it can be interpreted as part of the "base wage" in the theoretical model because it does not vary directly with performance.

[36] Tips and commissions occur with negligible frequency in the NP subsample, whereas bonuses are more common (though still under 20 percent, which is less than half the rate at which they occur in FPs).

These results change little in the presence of controls for establishment size, rural area, collective bargaining (for position), manufacturing and service industry dummies, and dummies for occupation categories (at each skill level), as seen in Table 3, column 2. The FP advantage is $7.08 ($3.28) and statistically significant at the 1 percent level in high-skilled (mid-skilled) jobs but insignificant in low-skilled jobs. The results reveal similar unconditional and conditional differences when the dependent variable is measured as the presence of tips or commission in the job at each skill category, with all FP-NP differences estimated with high precision (i.e., $p \leq 0.001$). A significant difference favoring FPs also exists in the likelihood of a bonus (observed only at the establishment level) and is of the magnitude 22.8 (20.7) percentage points for the univariate (multivariate) case (Table 4).

To assess whether the FP advantage in wages and tips or commissions appears only in a specific occupation, we re-estimate equation (3) in a number of subsamples, each time dropping observations in a particular occupation (Table 3, columns 3 to 8). Results suggest that the wage advantage is concentrated in professional occupations: the FP wage advantage in high and mid-skilled jobs disappears (that is, the coefficient becomes statistically insignificant at $p \leq 0.10$) when the sample excludes professional occupations. Results also suggest that management occupations may be the source of the FP advantage in offering tips or commissions in high-skilled jobs, as the coefficient becomes statistically insignificant at the ten percent level.

The unconditional 17 percentage point difference in training ($p \leq 0.001$) diminishes to 13 percentage points in the presence of establishment characteristics (Table 4). The likelihood of offering each of 10 fringe benefits is higher in NPs than FPs both in univariate and multivariate analyses, with all differences statistically significant ($p \leq 0.05$) and, for most benefits, is large in magnitude even with controls for establishment characteristics.

In sensitivity analyses (available upon request) we incorporate additional controls for employer and worker characteristics, none of which change the main pattern of results. We consider a more detailed set of industry indicators based on the NAICS codes[37]; an indicator for whether the firm's (not the establishment's) workforce increased or decreased during the last year and during the past 5 years; how long the firm has been in business (less than 5 years or more than 20 years); and whether the multi-establishment firm had establishments located only in California, regionally, nationally, or multi-nationally. We also include as regressors an

[37] The industry categories are: agriculture/mining; construction; trade, communication, and public utilities; wholesale trade; retail trade; education and medical; finance, insurance, and real estate; business services; and manufacturing.

indicator of whether more than 33 percent of workers in the job were temporary or part time and demographic characteristics of workers in the establishment (i.e., if more than 33 percent of the workforce was female, aged under 26 or between 55 to 64, or married, and the average number of dependents including a spouse).[38] These questions were asked only in firms with 50 or fewer workers, so we interact these variables with a "size 50 or less" indicator to preserve observations.

A limitation of the analysis is that an estimated wage differential might reflect selection rather than a compensating differential. For example, Lazear (2000) finds that higher-productivity workers sort into an FP (Safelite Glass Corporation) that switches from time rates to piece rates, and a similar result could hold across sectors given the evidence that NPs are less likely than FPs to use incentive pay. Such sorting is potentially relevant for the measurement of wage differentials: Goddeeris (1988) shows that the wage differential favoring FPs that was found in Weisbrod (1983) disappears after accounting for self selection.

Few empirical studies have convincingly accounted for selection, particularly in broad, economy-wide samples. The literature has, however, noted observable, systematic differences between NP and FP workers.[39] For example, Mirvis and Hackett (1983) and Preston (1989) find that NP workers have higher levels of education, work fewer hours, and are more likely to be female, black, and unionized than FP workers. In contrast, DeVaro and Brookshire (2007) casts doubt on the notion that NPs attract lower-productivity workers by showing that average worker performance is slightly higher in NPs than FPs, though this difference becomes statistically insignificant in the presence of detailed controls for worker and employer characteristics.

VI. INTERPRETING THE EVIDENCE

The empirical evidence from Section V can be interpreted through the lens of our theoretical model. Because our result that the likelihood of training is higher in NPs than FPs is new, we investigated whether it applies beyond the CHES. The result is strongly supported for multiple dimensions of training reported in the British Household Panel Survey (BHPS).[40] One

[38] Women are historically over-represented in the NP sector. Preston (1990) investigates the reason why and finds evidence that the structure of NP compensation is an important factor that attracts women to the sector.

[39] Goddeeris (1988) and Mocan and Tekin (2003) pay particular attention to selection in narrow samples of lawyers and childcare workers, respectively. The latter part of Preston (1989) applies the methods of Heckman (1978, 1979) and Lee (1978) and finds that the results of these corrections are inconclusive concerning the hypothesis of whether lower-productivity workers self-select into NPs.

[40] We are grateful to Eduardo Melero for generously conducting this empirical analysis for us. Although the BHPS results strongly confirm our new finding concerning training, we could not have used the BHPS as our primary data set. Our analysis hinges on employer joint decisions concerning multiple components of compensation and HRM systems, so establishment-level data are preferable to a household survey.

might interpret the result to mean that training efficiency is higher in NPs than in FPs, but the logic of Proposition 3 reveals that this is not necessarily the case. Even if FPs are more efficient in training, NPs may still provide higher levels of training if the FP training advantage is sufficiently small, because NPs have tendency to "over-invest" in training.

For the lowest skill group, we find no statistically significant difference between NPs and FPs in the average starting wage in the CHES. Our model suggests that training efficiency is higher in NPs than in FPs for the lowest skill group, because Proposition 1 (iii) says that $\Delta_{FP\text{-}NP} = 0$ if $S_F = S_F$" ($< \psi S_N$). That is, the NP's disadvantage associated with incentive pay should be more than offset by its relative efficiency in training for the NP to profitably hire the worker at an average base wage that is same as the FP base wage. In addition to higher training efficiency, the NP's tendency for over-investment further increases its incentives for training provision. If training were not incorporated in the model (or training efficiency were the same in the NP and FPs), the wage differential would unambiguously favor FPs. By capturing the link between the provision of training and the sign of FP-NP wage differential, our model offers an explanation for the empirical finding of the lowest skill group. This can be explained neither by the donative labor hypothesis nor by the property rights hypothesis, because the former predicts a positive sign and the latter predicts a negative sign.

Consistent with Preston (1989), we find that the FP-NP wage differential is positive for the mid-skill group and that it is larger for the high-skill group. Proposition 2 offers two possible reasons for this result: as the skill level increases, (1) the relative effectiveness of revenue-increasing effort and training in FPs increases, and/or (2) the effectiveness of mission-enhancing effort increases sufficiently strongly compared to changes in the effectiveness of revenue-increasing effort and training in FPs and the NP. If instead these effects cancel each other out, the FP-NP base wage differential would not change with skill level, which provides a theoretical rationale for the results in Leete (2001).

The conventional explanation for this result (e.g., Preston 1989, Handy and Katz 1998, DeVaro and Brookshire 2007) is that the compensating differential favoring FPs increases with skill level because the work becomes more closely tied to the organizational mission. Preston (1989, p. 443) writes, "…the further removed the worker is from the generation of social benefits, the less likely he will be to 'donate' his labor at a reduced wage. Therefore, a negative nonprofit wage differential is most likely to occur in managerial and professional occupations ..." This argument requires that the lower-skilled workers are the ones whose work is "further removed …

from the generation of social benefits". But it is not hard to imagine, particularly in NPs where services are directly provided, cases in which the lower-skilled workers (rather than the managers) are the ones whose work most directly generates social benefits.

In our model, the FP-NP base wage differential can be increasing in the skill level even if the work of lower-skilled workers is more closely tied to the organizational mission. To see this, suppose that the effectiveness of mission-enhancing effort decreases as the skill level increases, lowering higher-skilled workers' intrinsic motivation. Since lower intrinsic motivation should be offset by the higher NP base wage, this effect works in the direction of decreasing the FP-NP wage differential. However, if the relative effectiveness of revenue-increasing effort and training in FPs increases sufficiently strongly as the skill level increases, the latter effect overshadows the former effect so that the wage differential is still increasing in the skill level.

Our evidence that bonuses, tips, and commission are higher in FPs than NPs is consistent with the previous literature and with the assumption of our theoretical model that the FPs can pay a revenue-contingent bonus whereas the NP cannot. Consistent with an extension of the model, we find evidence that the probability of offering fringe benefits is higher in NPs than in FPs (see Table 2). Benefits represent an investment channel through which the employer can positively influence sorting of workers into the applicant pool, and the "over-investment" logic that guides NPs in other areas applies to benefits too. Similarly, the results in Mocan and Tekin (2003) are consistent with the intuition from our model that NPs tend to over-invest in fringe benefits.

VII. CONCLUSION

We have proposed a theoretical model to describe a nonprofit organization's quest to hire a worker in the face of labor market competition from for-profit firms. Our model incorporates the non-distribution constraint and a social mission that provides intrinsic motivation to workers, both of which are fundamental features of the nonprofit organizational form. Equally important, it incorporates firm-sponsored training and a clear distinction between base wages and incentive pay to study the link between the process of wage determination and the provision of firm-sponsored training. The value of the theoretical contribution is in providing a unified analytical framework for interpreting an array of empirical facts -- including a new training result -- concerning differences between the nonprofit and for-profit sectors. In the empirical literature, these facts are typically studied in isolation, and their interrelationships are not explored. In contrast, their interrelationships are central in this study. Specifically, wage levels, incentive pay,

fringe benefits, and training are all incorporated into the theoretical framework and analyzed simultaneously.

Three empirical patterns are illuminated by the theoretical model. First, the inconclusive evidence in the literature concerning the sign of the sectoral wage differential can be explained by our theoretical model, and the explanation is driven by interrelationships in the employer choice variables just noted and by labor market competition across sections. Second, the analysis clarifies the conditions under which the magnitude of the FP-NP wage differential increases with skill level. Third, the presence of the non-distribution constraint implies a tendency of the NP to "over-invest" in training (and also in fringe benefits).

The empirical contribution is to provide new evidence from a novel data set of Northern California establishments, which allows us to compare sectoral differences in (starting) base wages for different skill groups within the same sample of employers. The main result that is new to the literature is that, consistent with the "over-investment" implication of the non-distribution constraint in the theoretical model, training is more likely in NPs than in FPs. Other empirical results corroborate findings from earlier studies (e.g., the FP-NP wage differential is absent at the lowest job levels but increases at the higher job levels, incentive pay is less often used in nonprofits than in for-profits, and each of an array of fringe benefits is more common in nonprofits than in for-profits), but with two important differences. First, the nature of our data allows us to examine the firm's key choice variables simultaneously in the same data set, whereas previous studies have not had all of this information in the same sample. Second, much of the literature is based on worker samples rather than establishment samples, and the latter are preferable when analyzing systems of HRM components chosen jointly by employers.

It is hoped that this analysis stimulates future theoretical work on differences in organizational decisions between the NP and FP sectors. Future work on sectoral wage differentials should recognize the fact that the two sectors differ starkly on (non-wage) dimensions like training, fringe benefits, and incentive pay which, as our theoretical work demonstrates, has implications for wage differentials. As new data become available, within-industry analysis in samples larger than the CHES would be of interest and would mitigate concerns about unobserved establishment-level heterogeneity. Finally, although our theoretical and empirical work has focused only on the FP and NP sectors, our approach could be applied to other types of organizations (e.g., those in the public sector) for which a social mission applies and profit is not the central focus.

Appendix A

Proof of Proposition 1

Suppose that the worker is hired by an FP in equilibrium. The joint surplus of the FP and the worker is

$\pi_F(e_R, y) + c - C_R(e_R) - C_M(e_M)$

$= S_F(R_{F1}(e_R) + R_{F2}(y)) - t(y) - C_R(e_R) - C_M(e_M)$.

Given the definition of e_R' and y', we have that $(e_R, y) = (e_R', y')$ maximizes the joint surplus, and that the FP chooses y = y' in equilibrium. The risk-neutral worker chooses $e_R = e_R'$ under the revenue-contingent bonus of $B = S_F$ if $R_{F1}(e_R) = 1$, and 0 otherwise. This is the bonus that the FP offers in equilibrium given that the firm is also risk neutral. The worker chooses $e_M = 0$ in equilibrium because $U_I = 0$ when the worker is employed by the FP. Bertrand wage competition implies that the FP's equilibrium expected profit is zero. Hence, $S_F(e_R' + R_{F2}(y')) - t(y') - w_0^{FP} - S_F e_R' = 0$, which implies that (A1) holds in equilibrium.

(A1) $w_0^{FP} = S_F R_{F2}(y') - t(y')$

Then the worker's expected equilibrium utility is given by (A2).

(A2) $U^F \equiv S_F R_{F2}(y') - t(y') + S_F e_R' - C_R(e_R')$.

Now suppose that the worker is hired by the NP in equilibrium. The worker then chooses $e_R = 0$, because a bonus contingent upon $R_{N1}(e_R)$ is prohibited, and he chooses $e_M = e_M'$ to maximize $U_I - C_M(e_M) = \theta S_M M_1(e_M) - C_M(e_M)$. The worker's equilibrium utility is $w_0^{NP} + \theta S_M M_1(e_M') - C_M(e_M')$. Bertrand wage competition implies that the worker's equilibrium fixed wage is defined by (A3), which implies (A4).

(A3) $w_0^{NP} + \theta S_M M_1(e_M') - C_M(e_M') = U^F$

(A4) $w_0^{NP} = S_F R_{F2}(y') - t(y') + S_F e_R' - C_R(e_R') - (\theta S_M M_1(e_M') - C_M(e_M'))$

Given that the NP's profit-maximizing level of training is y = y" (which maximizes $S_N R_{N2}(y) - t(y)$) and that its profit must be non-negative, $\pi_N(0, y") \geq 0$ must hold at the equilibrium level of w_0^{NP}. This condition is equivalent to (A5).

(A5) $\pi_N(0, y") = S_N R_{N2}(y") - t(y") - (S_F R_{F2}(y') - t(y')) - (S_F e_R' - C_R(e_R'))$

$+ \theta S_M M_1(e_M') - C_M(e_M') \geq 0$.

Condition (A5) is necessary and sufficient for the worker to be employed by the NP in equilibrium. Let $h(S_F) \equiv S_N R_{N2}(y") - t(y") - (S_F R_{F2}(y') - t(y')) - (S_F e_R' - C_R(e_R'))$, so that condition (A5) becomes $h(S_F) + \theta S_M M_1(e_M') - C_M(e_M') \geq 0$.

Claim 1: There exists a value $S_F' \in (0, \psi S_N)$ such that $h(S_F) > 0$ if $S_F < S_F'$, $h(S_F) = 0$ if $S_F = S_F'$, and $h(S_F) < 0$ if $S_F > S_F'$.

[Proof] We have that $h(0) = S_N R_{N2}(y'') - t(y'') > 0$, $h(\psi S_N) < 0$, $h(S_F)$ is continuous and strictly decreasing in S_F for all S_F, and $h(S_F) \to -\infty$ as $S_F \to +\infty$. This implies the result. *Q.E.D.*

We have $\theta S_M M_1(e_M') - C_M(e_M') (> 0)$ is continuous and strictly increasing in θ for all $\theta > 0$, where $\theta S_M M_1(e_M') - C_M(e_M') \to 0$ as $\theta \to 0$ and $\theta S_M M_1(e_M') - C_M(e_M') \to +\infty$ as $\theta \to +\infty$. Claim 1 then implies that there exists $\theta' (\geq 0)$ such that $\pi_N(0, y'') \geq 0$ if $\theta \geq \theta'$ and $\pi_N(0, y'') < 0$ otherwise, where $\theta' > 0$ if $S_F > S_F'$ and $\theta' = 0$ otherwise, and θ' is strictly increasing in S_F for all $S_F > S_F'$. This implies (i), and (A1) and (A4) together imply (ii).

To prove iii), let $\Delta(S_F) \equiv -[S_F e_R' - C_R(e_R') - E[\theta S_M M_1(e_M') - C_M(e_M')|\theta \geq \theta']]$ and establish Claim 2.

Claim 2: $\Delta(S_F)$ is strictly increasing in S_F for all $S_F > S_F'$, and $\Delta(S_F) \to +\infty$ as $S_F \to +\infty$.

[Proof] For any given $S_F > S_F'$, by the definition of θ' we have (A6).

(A6) $S_N R_{N2}(y'') - t(y'') - (S_F R_{F2}(y') - t(y')) - (S_F e_R' - C_R(e_R')) + \theta' S_M M_1(e_M') - C_M(e_M') = 0$.

We have that $S_N R_{N2}(y'') - t(y'') - (S_F R_{F2}(y') - t(y'))$ is continuous and strictly decreasing in S_F, and it approaches $-\infty$ as S_F approaches $+\infty$. (A6) then implies that $-(S_F e_R' - C_R(e_R')) + \theta' S_M M_1(e_M') - C_M(e_M')$ is continuous and strictly increasing in S_F (notice that θ' is increasing in S_F) and it approaches $+\infty$ as S_F approaches $+\infty$. We also have that $E[\theta S_M M_1(e_M') - C_M(e_M')|\theta \geq \theta']$ is continuous and strictly increasing in θ' and it approaches $+\infty$ as θ' approaches $+\infty$. Then, since θ' is strictly increasing in S_F for all $S_F > S_F'$, we have the desired result. *Q.E.D.*

Finally, let $\Delta_0(S_M) \equiv \Delta_{FP\text{-}NP} = -[S_F' e_R' - C_R(e_R') - E[\theta S_M M_1(e_M') - C_M(e_M')|\theta \geq 0]]$ so that $\Delta(S_F) \to \Delta_0(S_M)$ as $S_F \to S_F'$, and establish Claim 3.

Claim 3: There exists $S_M' > 0$ such that $\Delta_0(S_M) > 0$ if $S_M > S_M'$, $\Delta_0(S_M) = 0$ if $S_M = S_M'$, and $\Delta_0(S_M) < 0$ if $S_M < S_M'$, where $\Delta_0(S_M)$ is continuous and strictly increasing in S_M for all $S_M > 0$.

[Proof] We have that $E[\theta S_M M_1(e_M') - C_M(e_M')|\theta \geq 0]$ is continuous and strictly increasing in S_M, it approaches 0 as S_M approaches 0, and it approaches $+\infty$ as S_M approaches $+\infty$. Then $S_F' e_R' - C_R(e_R') > 0$ implies the result. *Q.E.D.*

Claims 2 and 3 together imply iii) except for the property that $S_F'' < \psi S_N$ if $S_M < S_M'$. To prove this, notice that, if $S_F = \psi S_N$, then $-(S_F e_R' - C_R(e_R')) + \theta' S_M M_1(e_M') - C_M(e_M') = 0$, which

implies $\Delta(S_F) > 0$. Then, Claim 2 implies $S_F'' < \psi S_N$ must hold if $S_M < S_M'$ because $\Delta(S_F'') = 0$ by the definition of S_F''. This completes the proof of Proposition 1. *Q.E.D.*

Proof of Proposition 2

Recall that we focus on the case of $S_F > S_F'$. From (A6), θ' is determined by (A7).

(A7) $\Delta(S_F, S_N) \equiv -(S_F e_R' - C_R(e_R')) + \theta' S_M M_1(e_M') - C_M(e_M')$

$= -(S_N R_{N2}(y'') - t(y'')) + (S_F R_{F2}(y') - t(y'))$

Claim 1: $E[\Delta(S_F, S_N) \mid \theta \geq \theta']$ is continuous and strictly increasing in S_F.

[Proof] We have that (i) $\Delta(S_F, S_N)$ is continuous and strictly increasing in S_F because $S_F R_{F2}(y') - t(y')$ is strictly increasing in S_F, and (ii) θ' is continuous and strictly increasing in S_F because $S_F R_{F2}(y') - t(y') + S_F e_R' - C_R(e_R')$ is strictly increasing in S_F. (i) and (ii) together imply the result. *Q.E.D.*

Claim 2: $E[\Delta(S_F, S_N) \mid \theta \geq \theta']$ is strictly decreasing in S_N.

[Proof] We have that θ' is continuous and strictly decreasing in S_N because $-(S_N R_{N2}(y'') - t(y''))$ is continuous and strictly decreasing in S_N. This implies the result. *Q.E.D.*

Notice that $E[\Delta(S_F, S_N) \mid \theta \geq \theta'] = -[S_F e_R' - C_R(e_R') - E[\theta S_M M_1(e_M') - C_M(e_M') | \theta \geq \theta']]$
$= E[w_0^{FP} | \theta < \theta'] - E[w_0^{NP} | \theta \geq \theta'] = \Delta_{FP\text{-}NP}$, and that $E[\theta S_M M_1(e_M') - C_M(e_M') | \theta \geq \theta']$ is continuous and strictly increasing in S_M. Claims 1 and 2 then together imply the result. *Q.E.D.*

Proof of Proposition 3

We establish Claims 1 and 2.

Claim 1: For all $\theta \geq \theta'$, y^{NP} is a continuous function of θ, denoted $y^{NP}(\theta)$, with the following property: There exists a value θ'' ($> \theta'$) such that $y^{NP}(\theta)$ is strictly increasing in θ for all $\theta < \theta''$ and a fixed number for all $\theta \geq \theta''$. Also, for all $\theta < \theta'$, y^{FP} is a fixed number.

[Proof] Suppose $\theta < \theta'$. Then an FP employs the worker and chooses $y^{FP} = y'$ in equilibrium. Now suppose $\theta \geq \theta'$ so that the NP employs the worker in equilibrium. We have that $e_R = 0$ and $e_M = e_M'$ hold in equilibrium, and the equilibrium fixed wage, w_0^{NP}, is given by (A4). In equilibrium, the NP chooses $y = y^{NP}$ to maximize $M(e_M', y, \pi_N(0, y))$ subject to $\pi_N(0, y) \geq 0$, where

(A6) $M(e_M', y, \pi_N(0, y)) = S_M(M_1(e_M') + M_2(y)) + K[S_N(R_{N1}(0) + R_{N2}(y)) - t(y) - w_0^{NP}]$.

Define $\tilde{y}$ ($\geq$ y") by $\pi_N(0, \tilde{y}) = 0$ so that $\tilde{y}$ = y" when $\theta = \theta'$. We have that $S_N R_{N2}(y) - t(y)$ is continuous and strictly decreasing in y for all y > y", and it approaches $-\infty$ as y approaches $+\infty$. This implies that $\tilde{y}$ is continuous and strictly increasing in θ for all $\theta > \theta'$ and $\tilde{y} \to +\infty$ as $\theta \to +\infty$. Recall that y = $\hat{y}$ is the unique solution to Max $S_M M_2(y) + K(S_N R_{N2}(y) - t(y))$, where $\hat{y} >$ y" holds. We then have that $y^{NP} = \min\{\tilde{y}, \hat{y}\}$. Given the property of $\tilde{y}$, there exists a value θ" ($> \theta'$) such that $\tilde{y} < \hat{y}$ if $\theta < \theta$", $\tilde{y} = \hat{y}$ if $\theta = \theta$", and $\tilde{y} > \hat{y}$ if $\theta > \theta$". *Q.E.D.*

Claim 2: Comparing $y^{NP}(\theta)$ and y^{FP} yields:

(a) Suppose $S_F \leq \psi S_N$. Then $y^{NP}(\theta) \geq y^{FP}$ holds for all $\theta \geq \theta'$, where $y^{NP}(\theta) > y^{FP}$ holds unless $S_F = \psi S_N$ and $\theta = \theta'$.

(b) There exists a value $S_F^+ > \psi S_N$ such that $\hat{y} = y^{FP}$ if $S_F = S_F^+$ and $\hat{y} > y^{FP}$ if $S_F > S_F^+$.

[Proof] By the definitions of y' and y", we have that y" > y' if $S_F < \psi S_N$ and y" = y' if $S_F = \psi S_N$. Note that $y^{NP} = \tilde{y} =$ y" when $\theta = \theta'$, and that $y^{FP} =$ y'. Claim 1 then implies Claim 2 – (a).

We have that $y^{FP} =$ y' is continuous strictly increasing in S_F and y' $\to +\infty$ as $S_F \to +\infty$, whereas $\hat{y}$ is independent of S_F. This implies Claim 2 – (b). *Q.E.D.*

Claims 1 and 2 together imply that $E[y^{NP}(\theta)| \theta \geq \theta'] > y^{FP}$ for all $S_F \leq \psi S_N$, and $E[y^{NP}(\theta)| \theta \geq \theta'] < y^{FP}$ for all $S_F \geq S_F^+$. y^{FP} is a continuous function of S_F. Also, because θ' is a continuous function of S_F, $E[y^{NP}(\theta)| \theta \geq \theta']$ is also a continuous function of S_F. Intermediate Value Theorem then implies Proposition 3. *Q.E.D.*

Proof of Corollary 1

Suppose $S_M < S_M'$. Suppose $S_F = \psi S_N$ so that y' = y" holds. Then from (A6) we have that $-(S_F e_R' - C_R(e_R')) + \theta' S_M M_1(e_M') - C_M(e_M') = 0$, and this implies $-[S_F e_R' - C_R(e_R') - E[\theta S_M M_1(e_M') - C_M(e_M')|\theta \geq \theta']] > 0$. Claim 2 in the proof of proposition 1 then implies S_F" $< \psi S_N$ where S_F" is as defined in Proposition 1. We then have $S_F^* > S_F$" since $S_F^* > \psi S_N$. Propositions 1 and 3 then imply (A).

Next suppose $S_M \geq S_M'$. By Proposition 1 iii), $\Delta_{FP\text{-}NP} > 0$ for all $S_F > S_F'$ in this case. Propositions 1 and 3 then imply (B). *Q.E.D.*

Appendix B

Table B1: Definition of Variables

Variable	Definition
At each skill level	
Starting wages	Average starting wage in the typical position at the skill level.
Tips/commissions	A 1, 0 variable with 1 indicating that workers in the typical position at the skill level can get things like commissions or tips to augment their wage.
Establishment wide	
Monetary compensation	A series of 1, 0 variables with 1 indicating that the establishment offers a particular category of monetary compensation. Categories include bonuses and supplemental pay.
Training	A 1, 0 variable with 1 indicating that the establishment provides formal training.
Paid time	A series of 1, 0 variables with 1 indicating that the establishment offers a particular category of paid time off work. Categories include vacation, holidays, and sick leave.
Insurance	A series of 1, 0 variables with 1 indicating that the establishment offers a particular category of benefits related to insurance. Categories include health, dental, life, vision, disability, and mental health insurance.
Pension	A 1, 0 variable with 1 indicating that the establishment offers a defined benefit or defined contribution retirement plan.
For profit	A 1, 0 variable with 1 indicating a for-profit establishment.
Small	A 1, 0 variable with 1 indicating an establishment with 50 or fewer employees.
Rural area	A 1, 0 variable with 1 indicating an establishment located in a rural area.
Industry	
Agriculture	A 1, 0 variable with 1 indicating the establishment has a North American Industry Classification System (NAICS) code of 100000 to 150000.
Construction	A 1, 0 variable with 1 indicating the establishment has a NAICS code of 150000 to 180000.
Manufacturing	A 1, 0 variable with 1 indicating the establishment has a NAICS code of 200000 to 399999.
Trade, communication, public utilities	A 1, 0 variable with 1 indicating the establishment has a NAICS code of 400000 to 499999.
Wholesale trade	A 1, 0 variable with 1 indicating the establishment has a NAICS code of 500000 to 519999.
Retail trade	A 1, 0 variable with 1 indicating the establishment has a NAICS code of 520000 to 599999.
Finance, insurance, real estate	A 1, 0 variable with 1 indicating the establishment has a NAICS code of 600000 to 679999.
Education and medical	A 1, 0 variable with 1 indicating the establishment has a NAICS code of 800000 to 809999 or 820000 to 829999.
Business services	A 1, 0 variable with 1 indicating the establishment has a NAICS code of 730000 to 739999 or 870000 to 879999. Category includes engineering, accounting, research, and management services.
Services	A 1, 0 variable with 1 indicating the establishment has a NAICS code of 700000 to 709999 or 720000 to 729999 or 750000 to 799999 or 810000 to 819999 or 830000 to 869999 or 880000 to 899999.
Jobs in Establishment	
High-skilled jobs	Percentage of jobs in the establishment that require at least a college degree and/or extensive (about 5 years) work experience at the time of hire.
Mid-skilled jobs	Percentage of jobs in the establishment that require some college and/or some (about 1 to 3 years) work experience at the time of hire.
Low-skilled jobs	Percentage of jobs in the establishment that require no more than a high school education and one year of work experience at the time of hire.
Collective bargaining	A 1, 0 variable with 1 indicating that wages in the typical position at the skill level are covered by collective bargaining.

Variable	Definition
Occupation	
Management	A 1, 0 variable with 1 indicating that the 2-digit Standard Occupational Code (SOC) is 11.
Business and financial operations	A 1, 0 variable with 1 indicating that the 2-digit SOC is 13.
Computer and mathematical	A 1, 0 variable with 1 indicating that the 2-digit SOC is 15.
Architecture and engineering	A 1, 0 variable with 1 indicating that the 2-digit SOC is 17.
Life, physical, and social science	A 1, 0 variable with 1 indicating that the 2-digit SOC is 19.
Community and social services	A 1, 0 variable with 1 indicating that the 2-digit SOC is 21.
Legal	A 1, 0 variable with 1 indicating that the 2-digit SOC is 23.
Education, training, and library	A 1, 0 variable with 1 indicating that the 2-digit SOC is 25.
Arts, design, entertainment, sports, and media	A 1, 0 variable with 1 indicating that the 2-digit SOC is 27.
Healthcare practitioners and technical	A 1, 0 variable with 1 indicating that the 2-digit SOC is 29.
Healthcare support	A 1, 0 variable with 1 indicating that the 2-digit SOC is 31.
Protective service	A 1, 0 variable with 1 indicating that the 2-digit SOC is 33.
Food preparation and serving related	A 1, 0 variable with 1 indicating that the 2-digit SOC is 35.
Building and grounds cleaning and maintenance	A 1, 0 variable with 1 indicating that the 2-digit SOC is 37.
Personal care and service	A 1, 0 variable with 1 indicating that the 2-digit SOC is 39.
Sales and related	A 1, 0 variable with 1 indicating that the 2-digit SOC is 41.
Office and administrative support	A 1, 0 variable with 1 indicating that the 2-digit SOC is 43.
Farming, fishing, and forestry	A 1, 0 variable with 1 indicating that the 2-digit SOC is 45.
Construction and extraction	A 1, 0 variable with 1 indicating that the 2-digit SOC is 47.
Installation, maintenance, and repair	A 1, 0 variable with 1 indicating that the 2-digit SOC is 49.
Production	A 1, 0 variable with 1 indicating that the 2-digit SOC is 51.
Transportation and material moving	A 1, 0 variable with 1 indicating that the 2-digit SOC is 53.
High-skilled positions	
Management	A 1, 0 variable with 1 indicating that the 2-digit SOC is 11.
Quantitative	A 1, 0 variable with 1 indicating that the 2-digit SOC is from 13 to 19.
Professional	A 1, 0 variable with 1 indicating that the 2-digit SOC is from 20 to 29.
Office and sales	A 1, 0 variable with 1 indicating that the 2-digit SOC is from 41 to 43.
Other	A 1, 0 variable with 1 indicating that the 2-digit SOC is from 31 to 55, but not 41 to 43.
Mid-skilled positions	
Management	A 1, 0 variable with 1 indicating that the 2-digit SOC is from 11 to 29.
Support	A 1, 0 variable with 1 indicating that the 2-digit SOC is from 31 to 39.
Office and sales	A 1, 0 variable with 1 indicating that the 2-digit SOC is from 41 to 43.
Other	A 1, 0 variable with 1 indicating that the 2-digit SOC is from 45 to 55.
Low-skilled positions	
Management	A 1, 0 variable with 1 indicating that the 2-digit SOC is from 11 to 39.
Office and sales	A 1, 0 variable with 1 indicating that the 2-digit SOC is from 41 to 43.
Other	A 1, 0 variable with 1 indicating that the 2-digit SOC is from 45 to 55.

Appendix Table B2: For-Profit Advantage in Compensation in Positions at Different Skill Levels: Log Wages

	Baseline		Removing a Single Occupation from Estimations					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Univariate	Multivariate	Management	Quantitative	Professional	Support	Office and Sales	Other
High-skill	0.159****	0.124**	0.408****	0.125**	-0.029	included in other	0.128**	0.111**
Mid-skill	0.128***	0.113***	0.044			0.121***	0.178***	0.100**
Low-skill	-0.027	-0.063*	-0.051				-0.065	-0.066

Note: Numbers are the coefficients on the for-profit variable from ordinary least squares estimations with starting wages or tips/commissions in the typical position at each skill level as the dependent variables. The univariate baseline estimation contains only the for profit variable as an independent variable. The remaining estimations (columns 2 to 8) also contain small, rural area, collective bargaining (for position), manufacturing and service industries, and occupational binaries (at each skill level) with office and sales as the omitted variable. The estimations *Removing a Single Occupation from Estimations* exclude the records for the occupation designated in the column heading. The *Other* column excludes occupations not listed in columns 3 to 8. The management variable is the omitted variable in the estimation removing office and sales positions. Appendix Table B1 provides a definition of the variables and Table 2 shows their means in each sector.

**** $p \leq 0.001$

*** $p \leq 0.01$

** $p \leq 0.05$

* $p \leq 0.10$

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Table 1: Occupational Differences between For-Profit and Nonprofit Organizations

	Typical Position at Each Skill Level					
	High		Mid		Low	
	For Profit	Non Profit	For Profit	Non Profit	For Profit	Non Profit
Management	49.0	56.4	9.4	9.9	0.4	1.7
Quantitative						
Business and financial operations	6.2	2.3	3.9	2.3	1.0	1.5
Computer and mathematical	1.6	0.0	2.1	0.2	0.4	0.0
Architecture and engineering	4.8	0.4	4.1	0.4	0.9	0.0
Life, physical, and social science	1.3	0.7	0.9	0.0	0.0	0.0
Professional						
Community and social services	0.3	5.9	0.2	4.8	0.0	6.3
Legal	4.0	3.6	2.3	3.1	0.4	2.0
Education, training, and library	0.2	14.7	0.9	18.7	0.4	9.7
Arts, design, entertainment, sports, and media	2.9	2.8	2.5	3.7	1.3	0.0
Healthcare practitioners and technical	5.5	4.5	2.5	1.5	0.3	0.6
Subtotal	**75.8**	**91.3**	**28.8**	**44.6**	**5.1**	**21.8**
Support						
Healthcare support	0.3	0.0	2.3	3.8	1.7	0.2
Protective service	0.7	1.1	0.3	0.0	0.5	11.4
Food preparation and serving related	1.3	0.0	5.1	0.2	10.6	3.7
Building and grounds cleaning and maintenance	0.4	0.2	1.0	0.3	9.0	2.7
Personal care and service	1.5	0.1	3.6	2.5	3.6	4.9
Subtotal	**4.2**	**1.4**	**12.3**	**6.8**	**25.4**	**22.9**
Office and Sales						
Sales and related	5.7	0.6	11.7	8.7	9.6	10.3
Office and administrative support	6.2	4.9	25.9	32.8	29.6	35.2
Subtotal	**11.9**	**5.5**	**37.6**	**41.5**	**39.2**	**45.5**
Production, construction, and Transportation						
Farming, fishing, and forestry	0.4	0.0	0.7	0.0	1.1	0.2
Construction and extraction	3.8	0.0	6.5	0.0	8.4	1.4
Installation, maintenance, and repair	1.7	1.1	7.1	4.0	9.2	3.8
Production	2.0	0.0	4.7	0.3	6.6	3.0
Transportation and material moving	0.1	1.0	2.6	3.0	4.9	1.7
Subtotal	**8.0**	**2.1**	**21.6**	**7.3**	**30.2**	**10.1**
Sample size	1035	206	1008	195	928	168

Note: Cell entries are percentages.

Table 2: Characteristics of For-Profit and Nonprofit Organizations

	Total	For Profit	Non Profit
At each skill level			
Starting wages			
Low-skilled position	11.6	11.6	11.6
Mid-skilled position	19.4	19.9	16.4
High-skilled position	31.6	32.8	25.2
Tips/commissions			
Low-skilled position	33.0	37.0	1.7
Mid-skilled position	23.3	26.5	1.9
High-skilled position	19.6	22.1	3.1
Establishment wide			
Training	51.9	49.8	67.0
Monetary compensation			
Bonuses	38.8	41.6	18.1
Shift premium	18.4	19.3	12.1
Paid time			
Vacation	83.1	81.5	95.6
Holidays	80.9	79.1	94.6
Sick leave	68.0	64.8	91.4
Insurance			
Health	79.0	77.6	90.2
Dental	52.6	49.5	76.6
Life	34.4	31.1	58.5
Vision	29.7	27.5	46.9
Disability	29.8	26.3	54.1
Mental health	14.0	13.3	18.9
Pensions	53.6	50.4	77.7
For profit	88.2	100.0	0.0
Small	85.4	86.7	75.4
Rural area	13.0	12.6	16.3
Industry			
Services	28.6	24.5	58.8
Retail trade	15.6	17.3	3.5
Business services	11.2	12.5	2.2
Finance, insurance, real estate	9.1	9.2	8.0
Manufacturing	8.0	8.7	2.7
Construction	7.7	8.6	1.3
Wholesale trade	7.3	7.9	2.7
Education, medical	7.1	5.5	18.9
Trade, communication, public utilities	5.2	5.6	2.0
Agriculture	0.2	0.3	0.0
Jobs in establishment			
High-skilled jobs	37.5	36.8	43.5
Mid-skilled jobs	32.9	32.6	35.0
Low-skilled jobs	29.6	30.6	21.5
Collective bargaining			
High-skilled position	3.3	3.3	3.2
Mid-skilled position	4.0	3.9	5.1
Low-skilled position	5.0	5.0	5.3
Sample size	1427	1206	220

Note: Numbers are percentages, except for starting wages. Item-specific nonresponse lowers sample sizes in some cells.

Table 3: For-Profit Advantage in Compensation in Positions at Different Skill Levels

	Baseline		Removing a Single Occupation from Estimations					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Univariate	Multivariate	Management	Quantitative	Professional	Support	Office and Sales	Other
Wages								
High-skilled	7.644***	7.080***	17.962***	7.198**	0.902	included in other	7.346**	6.638**
Mid-skilled	3.451***	3.278***	1.905**			3.421***	4.203**	3.128**
Low-skilled	0.097	-0.384	-0.243				-0.428	-0.455
Tips/commissions								
High-skilled	0.191****	0.124****	0.094	0.120****	0.173****	included in other	0.120****	0.104***
Mid-skilled	0.246****	0.245****	0.243****			0.226****	0.261****	0.262****
Low-skilled	0.354****	0.423****	0.296****				0.538****	0.432****

Note: Numbers are the coefficients on the for-profit variable from ordinary least squares estimations with starting wages or tips/commissions in the typical position at each skill level as the dependent variables. The univariate baseline estimation contains only the for profit variable as an independent variable. The remaining estimations (columns 2 to 8) also contain small, rural area, collective bargaining (for position), manufacturing and service industries, and occupational binaries (at each skill level) with office and sales as the omitted variable. The estimations *Removing a Single Occupation from Estimations* exclude the records for the occupation designated in the column heading. *Included in other* means that jobs in the support category were included in the *Other* group for high-skilled jobs because few jobs in this group were in high skilled (Table 2). The *Other* column excludes occupations not listed in columns 3 to 8. The management variable is the omitted variable in the estimation removing office and sales positions. Appendix Table B1 provides a definition of the variables and Table 2 shows their means in each sector.

**** $p \leq 0.001$

*** $p \leq 0.01$

** $p \leq 0.05$

* $p \leq 0.10$

Table 4: For-Profit Advantage in Establishment-wide Compensation and Training Measures

	Univariate	Multivariate
Training	-0.165****	-0.127****
Monetary compensation		
Bonuses	0.228****	0.207****
Shift premium	0.069**	0.053
Paid time		
Vacations	-0.153****	-0.143****
Holidays	-0.169****	-0.155****
Sick leave	-0.285****	-0.264****
Insurance		
Health	-0.144****	-0.126****
Dental	-0.289****	-0.266****
Life	-0.281****	-0.246****
Vision	-0.205****	-0.176****
Disability	-0.281****	-0.258****
Mental health	-0.073**	-0.062**
Pensions	-0.290****	-0.270****

Note: Benefits are only included if at least 10 percent of establishments offer them. Numbers are coefficients on the for profit variable from ordinary least squares estimations with formal training, bonuses, or a specific benefit offered in the establishment as the dependent variables. The univariate baseline estimations contain only the for profit variable as an independent variable. The multivariate baseline estimations also contain small, rural area, presence of collective bargaining in the establishment, manufacturing and service industries, and the percentage employed in low-skilled positions and the percentage employed in high-skilled positions. Appendix Table B1 provides a definition of the variables and Table 2 shows their means in each sector.

**** $p \leq 0.001$

*** $p \leq 0.01$

** $p \leq 0.05$

* $p \leq 0.10$