Are Non-Profit Firms Simply For-Profits in Disguise? Evidence from Executive Compensation in the Nursing Home Industry

Anup Malani and Albert Choi[1]

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[1]Associate Professor, University of Virginia Law School, and assistant professor, Department of Economics, University of Virginia, respectively. We thank Michael Snypes for invaluable research assistance; Hospital & Healthcare Compensation Service – especially Rosanne Cioffe – for providing data and guidance on nursing home compensation; Anne McGeorge of Deloitte & Touche, LLP, for speaking with us about tax-rules relating to executive compensation at non-profit firms; the University of Virginia Law School for providing generous financial support to this project; and Doug Lichtman, Edward R. Morrison, George Triantis, and workshop participants at Georgetown University Law Center and the University of Virginia Law School for their helpful comments. We welcome all comments from readers; please direct them to amalani@virginia.edu.

Abstract

It is well-established that non-profit hospitals employ performance bonuses with much lower frequency than for-profit hospitals. Weisbrod (1999, 2003a, 2003b) suggest that this implies that principals of non-profit and for-profit firms have different objectives or purposes. Brickley and Van Horn (2002) dispute the different-objectives hypothesis. They present evidence that the salaries and turnover of executives at non-profit hospitals reward financial performance but not altruistic activities. Employing a unique data set of executive compensation at 2,700 nursing homes in 2001 and 2002, this paper improves on Brickley and Van Horn's analysis in three important ways. First, we provide an explanation for how non-profit firms and for-profit firms may both seek to reward financial performance but write different executive compensation contracts. This explanation relies upon tax penalties on the use of financial rewards for executives by non-profit firms. Second, we introduce direct comparisons of wages at non-profit and for-profit facilities as well as superior controls for quality of patient care and the risk profile of patients. Third, we consider the implications of observed patterns in executive compensation for alternative theories of non-profit behavior, such as quality/quantity maximization. We conclude that executive compensation at non-profit firms supports that the hypothesis that principals at non-profit firms either care about profits just like principals at for-profit firms (the strong version of the for-profit-in-disguise model) or behave as if they do (the weak version).

It is well-established that there are significant differences in the structure of executive compensation at non-profit and for-profit firms. In particular, Weisbrod and co-authors (Roomkin and Weisbrod, 1999; Ballou and Weisbrod, 2003; Erus and Weisbrod, 2003) demonstrate that non-profit hospitals employ performance bonuses with much lower frequency than for-profit hospitals. They suggest that this and other differences in compensation imply that principals of non-profit and for-profit firms have different objectives or purposes. Perhaps principals at non-profit firms are altruistic (Newhouse, 1970; Lakdawalla & Philipson, 1998, 2002) or take non-profit status in order to commit not to shirk on non-contractible aspects of product quality (Hansmann, 1980; Glaeser & Shleifer, 2001). Brickley and Van Horn (2002) present evidence that disputes the different-objectives hypothesis. Their findings suggest that the salaries and turnover of executives at non-profit hospitals reward financial performance but not altruistic activities. This paper improves on Brickley and Van Horns analysis in three important ways, and in the process extends it to another mixed sector – nursing homes.

First, we offer a theory for how it can be that non-profits and for-profits principals behave as if have the same objective – profit maximization – yet write different wage contracts for executives. Its purpose is to reconcile Weisbrod et al.'s findings with Brickley and Van Horn. Our explanation points to tax rules intended to implement the non-distribution constraint as against executives. These rules penalize the use of financial performance incentives at non-profit firms. As a result, non-profits have to rely on turnover to a greater degree than for-profits in order to encourage executives to maximize profits. This theory implies lower performance-sensitivity of pay and stronger performance-sensitivity of turnover at non-profit firms. It also implies higher base pay for non-profit executives, lest they have an incentive to move to the for-profit sector. We test these predictions with a unique, facility-level data set of executive compensation and turnover at 2700 nursing homes in 2001 and 2002. We find strong support for all three implications of the tax story.

Our second contribution is to fill some gaps in Brickley and Van Horn's empirical evaluation. For example, because they had salary data on non-profit but not for-profit facilities, Brickley and Van Horn were unable to make a direct comparison of performance-sensitivities at non-profit and for-profit firms.[1] In contrast, two-thirds of the firms in our nursing home data are for-profit. (This also happens to be the average market of for-profits throughout the nursing home industry.) As mentioned above, this direct comparison reveals that

[1]Brickley and Van Horn do directly compare non-profit and for-profit hospitals with respect to turnover, but only 6% of their sample are for-profit facilities.

non-profit salaries have lower performance-sensitivity than for-profit salaries, as predicted by our tax constraint hypothesis. In addition, whereas Brickley and Van Horn employ indirect measures (such as revenue per patient day) to control product quality, our data contain direct measures of quality of patient care based upon CMS quality inspections. This permits a direct and more accurate test of the quality-maximization hypothesis. Our comparison reveals little systematic difference between quality-incentives employed by non-profit and for-profit homes.

Finally, we present an extended analysis of how our findings with respect to executive pay may help discriminate between the dominant theories of non-profit behavior. In particular, we compare implications for the for-profit-in-disguise model (Weisbrod 1988) with those for the severe-agency cost model, the altruistic principal model, and the non-contractible quality model. We find the severe-agency cost model and the non-contractible quality model difficult to reconcile with the performance-sensitivity of turnover at non-profit firms. Moreover, although we cannot reject the quality- or quantity maximization hypotheses, our data do not suggest that non-profits power up incentives on these outcomes more than for-profits do. Ultimately, we find support for the for-profit-in-disguise model. That said, it is important to note that we do not assert that non-profits principals maximize profits, but only that these firms *behave as if* their principals maximized profits. This can be explained by an objective of profit maximization or external forces or custom that encourage such behavior. For example, it may be that product or labor market competition causes non-profits to reward executives for financial performance. The current draft is agnostic as to the causes of profit-maximization-like behavior.

The remainder of the paper may be outlined as follows. Section 1 provides an overview of the tax penalties non-profits face if they incorporate profit-incentives into wage contracts. Section 2 draws out the implications of these tax rules for executive pay at a profit-maximizing non-profit firm. Section 3 tests these predictions against compensation data in the nursing home industry. Section 3 also extends the literature on executive pay in non-profits by introducing direct comparisons of executive salaries in the for-profit and non-profit sector as well as better controls for product quality. Section 4 examines the implications of our findings for alternative theories of non-profit executive pay. The conclusion discusses innovations we hope to implement in future drafts.

1 Tax constraints on payment of performance bonuses by non-profits

This section provides an overview of tax regulations governing compensation at for-profit versus non-profit firms. Its main conclusion is that non-profit firms face tax penalties that discourage them from offering performance-based incentives correlated with profits. This finding motivates our theory that differential tax rules on non-profits may explain why non-profits and for-profits may behave as if they have the same objective, namely profit maximization, but write different executive pay contracts.

For-profit nursing homes have three primary ownership forms: sole proprietorships (3.16%), partnerships (11.15%), and corporations (85.69%).[2] The first two forms need not be concerned about tax rules concerning executive compensation because they do not have to pay entity-level taxes. Large corporations must pay, among other things, corporate-level income taxes before distributing income to shareholders. For these entities, the main executive pay-related tax question is whether executive wage payments are tax-deductible, i.e., whether they may be deducted from revenue in order to calculate the subset of income on which the firm must pay income taxes.[3] Most nursing homes that take the corporate form, however, are probably small. These may and surely do choose to be taxed as partnerships are, i.e., they also avoid entity-level income taxation.

The ownership of non-profit nursing homes may be categorized as either religious (20.6%) or secular (73.79%). Nursing homes under both types of ownership are subject to the same set of tax rules. Subject to conformance to what is colloquially known as the "non-distribution constraint" (Hansmann 1980), non-profit firms do not have to pay income taxes. Therefore, they need not concern themselves with whether their wage payments to executives are tax-deductible. The non-distribution constraint is a broad set of rules

[2] These percentages are based on all CMS-registered facilities in 2003.

[3] The answer to this question is yes, subject to two exceptions that do not meaningfully impact even large nursing homes. The first exception to the rule applies only in the case of public corporations. If base pay of the CEO or the next four highest paid executives exceeds $1 million, then the excess is not tax-deductible. Internal Revenue Code (I.R.C.) §§ 162(m)(3)(A), (B) (2003). This rule does not apply to performance bonuses. I.R.C. § 162(m)(4)(C). Since few nursing homes are public corporations and the highest base salary to an executive recorded in our data set of nursing home compensation is $240,000, this first exception is not relevant to our analysis. The second exception to the rule that executive wages are tax deductible is that payments which are not "reasonable" may not be deducted. I.R.C. § 162(a)(1). This exception is rarely triggered. To the best of our knowledge, it has never been used to penalize a nursing home.

designed to stop the firm from distribution profits (net of competitive wages) to promoters or any other associated individuals. Violations of the constraint may subject the firm to tax penalties that include, at their maximum, a revocation of the non-profit status of the entire firm. In other words, violations of the constraint may cause the firm to have to pay corporate income taxes.

In this context, the executive pay-related tax question for non-profits is which sort of executive wage payments violate the non-distribution constraint – or, in more precise legal terminology, the rule against private inurement – and what the penalties are for violations. The answer to the first question, especially with regard to incentive compensation, is not unambiguous. The IRS's position on incentive pay has never been set forth with precision and has arguably vacillated from penalizing profits-sharing, see Lorain Ave. Clinic v. Commissioner, 31 T.C. 141, 162 (1958), and G.C.M. 39,862 (1991), to allowing revenue sharing so long as the absolute amount received by the employee was not excessive, Rev. Rul. 69,383, 1969-2 C.B. 113. (It should be noted, however, that the IRS confined the latter opinion to its facts and stressed that sharing even gross revenue could constitute illegal inurement.)

The best guidance non-profits have is a series of IRS General Counsel Memoranda (G.C.M.) that, although not binding upon the IRS or Tax Court, are informative as to IRS thinking. These advisory opinions suggest that transactions which reward executives for attaining performance goals, such as quality, but unrelated to profits, G.C.M. 38,322 (1980), are permissible so long as they meet certain procedural requirements. For example, they must be the result of arms-length negotiations and "reasonable," G.C.M. 39,670 (1987). They may also have to be designed and approved by a disinterested compensation committee, G.C.M. 39,674 (1987), and contain a ceiling to avoid a windfall to the executive, G.C.M. 38,322.[4]

The exact penalty for violation of these rules depends on the date of the offending compensation arrangement and it's prosecution by the IRS. Before 1996, the only penalty available to the IRS once it found that an illegal payment was to revoke the offending non-profit's tax-exempt status, forcing the entity to pay income taxes on all net income. I.R.C. §§ 501(c)(3), (4). Because it perceived that the IRS was reluctant to impose such a draconian penalty and, therefore, that the IRS was bit to lax in enforcing the non-distribution constraint, Congress promulgated I.R.C. § 4958, which authorizes the IRS

[4]The reader should note, however, that some non-profit tax experts, such as Anne McGeorge of Deloitte & Touche, LLP, believe that revenue-based bonuses may be permissible. The non-profit firm, however, bears the burden of demonstrating that overall pay is reasonable relative to services rendered and that the compensation contract conforms to the procedural requirements mentioned in the text accompanying this note.

to set forth "intermediate sanctions" for, among other things, compensation arrangements that violate the rule against private inurement. The IRS proposed regulations implementing intermediate sanctions in July 1998, 63 F.R. 41486-01, and these regulations became effective in January 2002, 67 F.R. 3076. Therefore, there is some ambiguity as to which sanctions applied to the nursing home salaries that we explore in Section 3. A little over half (1435 of 4128 observations) of those occurred in 2001 and the remainder in 2002.

Intermediate sanctions provisions authorize two penalties on compensation arrangements that violate the rule against private inurement. (Technically such arrangements are called excess benefit transactions.) First, the executive (not the firm) must pay a 25% excise tax on the share of her salary that the IRS deems an excess benefit. (This tax increases to 200% if the executive does not pay the initial fine promptly.) I.R.C. § 4958; Treas. Regs. § 53-4958.1. The share deemed an excess benefit is calculated by comparing total salary (base plus bonus, as well as any other benefits accruing to the executive) to the fair market value of the services that the executive has rendered. Treas. Regs. § 53.4958-4(a)(1). Second, any manager at the firm who has knowingly participated in an excess benefit transaction must pay a penalty of 10% of the excess benefit conferred. I.R.C. § 4958(a)(2).

The reader should note two things about intermediate sanctions. First, the firm does not pay any penalties under intermediate sanctions provisions. If the manager who permitted the excess benefit compensation arrangement is a promoter of the firm, however, then the IRS might treat the firm as the party which has to pay the 10% penalty. Moreover, the firm always retains the right to pay both the 25% penalty charged to an executive or the 10% penalty charged to the manager. Second, intermediate sanctions do not displace, but rather supplement, the penalty of revocation of tax-exempt status. Ultimately, the exact penalty sought is left to the discretion of the IRS.[5]

[5]In order to determine the effect of these tax penalties on the behavior of a non-profit firm, it is useful to consider how choice of compensation for, say, a CEO affects the profits of a firm. CEO pay may be a function of revenues R, quantity produced y, quality q, or costs C of non-executive labor inputs, but not the effort of the CEO because that is unobservable to the firm's promoters. If t is the corporate income tax rate, then a for-profit firm earns profits of: $[1-t]\times\{R(y,q)-C(y,q)-w(y,q)\}$. By contrast, if revocation of exempt status is the penalty for an excess benefit transaction, the non-profit firm would expect profits of: $[1-tp(w')]\times\{R(y,q)-C(y,q)-w(y,q)\}$, where $p(w')$ is the probability that the IRS finds that the wage contract violates the rule against private inurement, and w' is the slope of w with respect to net income before payment of executive wage, i.e., $x=R-C$. If only intermediate sanctions are imposed upon excess benefit transactions, then expected profits rise to: $R(y,q)-C(y,q)-\{[1+0.10p\,(w')\,s\,(w)]\times w\,(y,q)\}$, where $s(w)$ is the share of the wage that is an excess benefit. Moreover, the worker would only receive income worth:

The preceding discussion suggests that it is more costly for a non-profit firm to raise profits by increasing the slope of a CEO's wage curve than it is for a for-profit firm to do so. The additional cost to the non-profit ranges from 10% of the surplus wage to around 35% (the corporate income tax rate) of all firm profits, discounted of course by the probability that the IRS will find the wage scheme in violation of rules against private inurement. Yet the non-profit firm obtains no greater benefit from a steeper wage curve than does the for-profit. In either case the benefit is incremental effect of wage slope on net income before deduction of CEO wages.[6] Therefore, so long as net income is concave in profits and the expected penalty is less concave in profits than net income is, both of which are reasonable assumptions, the profit-maximizing non-profit will offer a flatter wage contract than the for-profit. This conclusion is reinforced by the intermediate sanction on the CEO. That sanction places increases the cost of power to the firm by increasing pressure on the participation constraint of the CEO.

Although maximizing behavior does not imply that the non-profit firm must offer a flatter wage than the for-profit firm if the former's objective is something other than profits, our assumption for purposes of reconciling the discrepancy between the empirical findings of Weisbrod and co-authors and of Brickley and Van Horn is that non-profits behave like profit maximizers. This assumption is consistent with Brickley and Van Horn's empirical findings, although we also offer some theoretical justifications for the assumption in Section 2. Moreover, data on executive compensation in the hospital industry (Roomkin and Weisbrod 1999), and as we shall demonstrate in Section 3, the nursing home industry suggest that non-profits have flatter wage curves than for-profits. Finally, and perhaps most telling, are two industry sources that support our conclusion that tax-penalties encourage flatter wage curves in the non-profit sector. One is Anne McGeorge, a tax partner in the healthcare practice at Deloitte and Touche, LLP. Ms. McGeorge has written to us that:

> Prior to the implementation of Intermediate Sanctions regulations, non-profit organizations faced revocation of tax-exempt status for payment of "excessive" compensation, including earnings-based bonuses that may have represented "inurement" to executives. As a result, the stakes for non-compliance with tax regulations were high, and non-profit organizations shied away from

$[1 - 0.25p(w')s(w)] \times w(y,q)$, ignoring personal income taxes.

[6] In the model above, the additional cost to the non-profit of raising the slope of executive wage ranges from $0.10p'(w')s(w)$ with intermediate sanctions to $tp'(w')$ with revocation of exempt status. The benefit is merely $x'(w')$.

> transactions that could facially represent inurement. This aversion to payment of earnings-based bonuses has become part of the culture of non-profit organizations with respect to executive compensation, and may at least partially account for the less frequent use of bonuses contingent on profitability in non-profit versus for profit organizations.

The other source is advertisements for legal and accounting services such as that found at www.kdv.com/nonprofit-articles/incentive.html, which suggest not only that non-profit clients seek to use incentive pay, but that they must be very wary of tax-law constraints on this device.

2 Stylized model of non-profits as for-profits-in-disguise

This section present a hidden-action, principal-agent model of executive compensation at a profit-maximizing firm that chooses non-profit status. The hidden-action model is standard in the executive pay literature and the firm's non-profit status implies tax law-related constraints on its use of performance bonuses for executives. The model is stylized in the sense that the tax constraint is imposed in a rather draconian fashion. We assume that the non-profit may only offer two wages: zero or a positive fixed wage. The implication is that the firm must pay the executive a flat wage and can only employ firing as an incentive. While this assumption is less-than-realistic, our goal is to highlight the differences in behavior implied by the tax penalties on the use of profit-incentives by non-profits. We will test these implications against the data in Section 3 in order to determine the validity of our theory that tax constraints can explain how non-profits and for-profits can both have the same objectives but write different executive pay contracts.

We pause here to justify our assumption of profit-maximization by the non-profit firm. A common misperception regarding non-profit status is that non-profits cannot earn profits. In fact, non-profits can and often do earn rents. The key feature that distinguishes non-profit and for-profit firms that the former cannot distribute these profits to it promoters. But this technical observation does not, by itself, imply that non-profits maximize profits. We justify our assumption in either of three ways.

First, although the non-distribution constraint bars the distribution of profits, it may not be not perfectly enforced. This may lead certain profit-maximizing principals to choose non-profit status on the logic that the implicit

tax imposed by the non-distribution constraint is de facto lower than corporate income taxes. Therefore, while the non-profit sector may attract many purely altruistic entrepreneurs, it may also serve as an attractive nuisance to naked profit-takers. Second, even a principal unable to distribute profits may want to maximize profits if, for example, retained earnings are a cheaper source of funds than bank loans.[7] Alternatively, it may be that profit-maximization is a product of the multi-task principal agent problem. Because profits are measurable, they are likely to be incentivized even when the principal actually cares about something else. Holmstrom and Milgrom (1991). Third, competition with for-profit homes may cause non-profit firms to make changes that raise profits. For example, they may have to reduce costs to keep up with price competition from for-profits.[8] This theory is consistent with observations on changes in non-profit and for-profit hospital behavior over time. David (2003).

The central difficulty with assuming that a non-profit firm seeks to maximize profits is identifying the person or body that plays principal to the CEO's role as agent. We shall assume that it is the board of trustees or a member of that board. By implication, we assume it is not the CEO. The reason is that we believe that most CEOs – or more precisely, executive directors or administrators – of non-profit nursing homes are not the promoters of these homes. They were probably not even the first individuals to hold their positions. Support from this claim comes from our compensation data, which suggests that average turnover at executive-level jobs at non-profit homes was 23.1% in 2001-2002. Support also comes from the fact that 20.6% of homes are religious and therefore likely not to have been established by the CEO.

2.1 For-profit model

Before we turn to our model of executive compensation at the non-profit firm, we set forth a model of executive compensation at a for-profit firm as a benchmark. There are two effort levels, $e \in \{e_H, e_L\}$, and the ex ante uncertain surplus x is in $[\underline{x}, \overline{x}]$. The conditional distribution of x is strictly positive and continuous everywhere; depends on the effort ($f(x|e_L) \neq f(x|e_H)$ for some x); and obeys the monotone likelihood ratio property (MLRP) ($\partial [f(x|e_H)/f(x|e_L)]/\partial x \geq 0$). Effort is unobservable, so the principal can only offer a wage schedule $w(x)$ that is contingent on the surplus. We assume this wage schedule is non-

[7] Small business like nursing homes rarely rely on debt issues or traditional equity financing.

[8] The skilled nursing facilities in our sample do not compete on price. They are dependant upon Medicare for payments and Medicare prices are generally fixed.

decreasing. In the principal-agent literature, this assumption is often justified on the grounds that, were it not to hold, the executive would have an incentive to deliberately report a lower surplus than realized.

The risk-neutral principal's utility is given by $x - w(x)$. The agent's utility is separable in his wage and the cost of effort: $u(w(x)) - \psi(e)$. We assume the cost of effort is positive for high effort and zero for low effort, $\psi = \psi_H > \psi_L \equiv 0$. The agent's reservation utility is also assumed to be zero, $U(0) \equiv 0$. Our model incorporates both limited liability and risk aversion: we assume the agent is risk averse ($u' > 0$ and $u'' < 0$) and subject to a limited liability constraint, ($w(x) \geq 0 \ \forall \ x$). Finally, for simplicity, we assume that setting $w = 0$ is tantamount to firing the agent, since the agent receives his outside reservation wage.

Assuming that the principal seeks to induce high effort, she solves the following program:

$$\max_{w(x)} \int (x - w(x)) f(x|e_H) \, dx$$

subject to

$$\begin{aligned}
\int u(w(x)) f(x|e_H) \, dx - \psi &\geq 0 \equiv U(0) && \text{(PC)} \\
\int u(w(x)) f(x|e_H) \, dx - \psi &\geq \int u(w(x)) f(x|e_L) \, dx && \text{(IC)} \\
w(x) &\geq 0 \ \forall \ x && \text{(LL)} \\
w(x) &\geq w(z) \ \forall \ x \geq z && \text{(ND)}
\end{aligned}$$

The wage contract that solves this program has three relevant characteristics. First, there is a region where the agent receives a zero wage. Second, there is a region where the agent receives a positive wage. Third, the zero wage region is continuous and lies entirely to the left of the positive wage region. Moreover, wages are non-decreasing in the positive wage region.

The limited liability constraint with the agent's zero reservation utility imply that the participation constraint (PC) will not bind at optimum and the limited liability constraint (LL) must bind for some x. The MLRP, the continuity of f, and the fact that $\int f(x|e_L) \, dx = \int f(x|e_H) \, dx = 1$ imply that there must exist a point x', such that for all x below $\widehat{x}$, $f(x|e_L) > f(x|e_H)$, and all x above $\widehat{x}$, $f(x|e_L) < f(x|e_H)$. Since $f(x|e_L) > f(x|e_H)$ calls for an inference that the agent has more likely exerted the low effort, it will be foolish from the principal's perspective to compensate the agent when the realized x is below $\widehat{x}$. Hence, in this region, $x = 0$. In other words, when $x > 0$, we must have $f(x|e_L) < f(x|e_H)$. Let x_f be the point where the wage becomes

positive. Finally, from the MLRP and the non-decreasing wage constraint, we know that when $x > 0$, as x rises $w(x)$ rises as well.

2.2 Non-profit model

Our model of executive compensation at the profit-maximizing non-profit firm is the same as the for-profit model, with one exception: tax law imposes the following constraint on non-profit wages:

$$w(x) \in \{0, w_n | w_n > 0\} \tag{TC}$$

In words, the non-profit principal can only either pay a constant, positive wage or fire the agent. The reason we adopt such a harsh characterization of tax penalties is that, first, it keeps the model fairly simple, and, second, it accentuates and thus clarifies the impact of the tax penalties discussed in the previous section.

Since the wage must also be non-decreasing, the principal's program boils down to choosing a cutoff x_n and a positive wage $w_n > 0$, such that, above x_n, the agent receives w_n while below x_n, the agent is fired. Assuming again that the principal wants to induce the high effort, we can write the non-profit's program as

$$\max_{w_n, x_n} \int x f(x|e_H)\, dx - \int_{x_n}^{\bar{x}} w_n f(x|e_H)\, dx$$

subject to

$$\int_{x_n}^{\bar{x}} u(w_n) f(x|e_H)\, dx - \psi \geq 0 \equiv U(0) \tag{PC'}$$

$$u(w_n) \int_{x_n}^{\bar{x}} [f(x|e_H) - f(x|e_L)]\, dx > \psi \tag{IC'}$$

As in the for-profit case, the limited liability constraint with the zero reservation utility imply that the participation constraint will not bind at optimum. Similarly, since it will be silly for the principal to reward the agent when the realized surplus indicates that the agent has more likely have exerted low effort, i.e., $x_n \geq x'$. The optimal solution is such that when $x \leq x'$, $w = 0$, and when $x > x'$, $w = w_n > 0$. The two parameters, w_n and x_n, are chosen optimally to so as to bind the incentive compatibility constraint.

2.3 Predicted differences

The central question for our purposes is how the non-profit wage curve compares to the for-profit curve. There are three key differences, the first two of

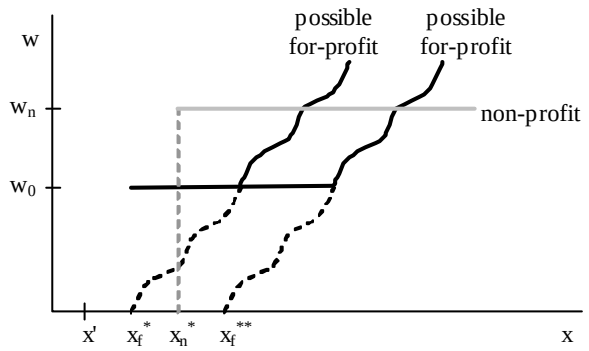

Figure 1: Illustration of non-profit and possible for-profit wage curves.

which are illustrated in Figure 1. First, from the tax constraint, the slope of the non-profit wage schedule is lower than that of the for-profit. Second, base pay at the non-profit is higher than the base pay at the for-profit. If this were not the case, then, because the non-profit executive would receive a lower total pay in equilibrium than the for-profit executive, she will not have an incentive to exert the high effort. Third, overall pay, salary plus bonus, is greater at the non-profit. The reason is that the non-profit program is simply a constrained version of the for-profit program. The constraint binds, implying higher costs of inducing high effort for the non-profit.

Lastly, although the moral hazard model seems to suggest that the more constrained non-profit wage schedule should employ more frequent firing as the second-best incentive mechanism, it is uncertain whether a non-profit executive will be fired more or less often than a for-profit executive, i.e., $x_f \gtreqless x_n$. The reason is that since there is no exogenous cost of firing (aside from the agent's risk aversion issue), the principal would want to extend the "zero-wage region" as far up as possible in both types of organization, i.e., increase x_f and x_n as much as she can. While increasing x_n necessitates the principal needs to raise w_n for the entire positive wage region to satisfy the incentive compatibility constraint, increasing x_f can be less costly for the for-profit principal since she has more flexibility. The theory, therefore, leaves it ambiguous as to whether the probability of separation will be higher or lower in non-profit organizations.

3 Executive compensation observed in the nursing home industry

The main implications of the model in the previous section is that (1) the financial performance-sensitivity of total salaries at non-profits is lower than that at for-profits; (2) non-profits rely more heavily on turnover to reward financial performance; (3) non-profits have a higher base salary than for-profits; (4) non-profits have a flatter wage curve than for-profits; and (5) total salary at a non-profit is higher than total salary at a comparable for-profit. In this section we test these predictions against data from the nursing home industry and find support for our theory that tax constraints on non-profit executive pay explain why the differences between executive compensation at non-profit and for-profit firms do not imply that these firms do not both have the same objectives, namely profit maximization.

This section also offers two extensions of Brickley and Van Horn's analysis of the financial performance-sensitivity of non-profit wages. First, because we include data on for-profit homes as well as non-profit homes, this section permits a direct comparison of the profit sensitivity of these two forms. Second, we offer more direct measures of the quality of patient care and include adjustments for the risk profile of each firm's patient base. This permits more accurate assessments of performance sensitivity at both forms of home.

3.1 Data

The data for this section come from three main sources. Data on executive compensation at nursing homes come from the Hospital and Healthcare Compensation Service (HHCS). Data on quantity and quality come from the Center for Medicare and Medicaid Services' (CMS) Nursing Home Quality Initiative (NHQI). Finally, data on financial indicators such as revenue come from the CMS Healthcare Cost Report Information Service (HCRIS).

HHCS data. The HHCS data are based on a proprietary, compensation survey sent annually to the universe of nursing homes in the U.S. This universe can be organized into three basic types of homes: skilled nursing facilities (SNF), which may be thought of as intermediate-term care facilities; ordinary nursing facilities (NF) or assisted-living centers, both of which are long-term care facilities; and facilities that are both SNFs and long-term care facilities. (In contrast, hospitals are thought of as acute care facilities. However, many SNFs and some NFs are physically located in or closely associated with hospitals.) We obtained the results of the 2001 and 2002 surveys. The former had

1,817 participants and the latter 2,319 participants. In this paper we use data on base salary and bonus-pay for five executive positions: the executive director of continuing care retirement centers (CCRC), the associate director of such centers, the nursing home administrator, the chief financial officer (CFO), and the director of nurses. A CCRC is an agglomeration of three types of facilities: a SNF, an assisted-living facility, and an independent-living facility. (The latter type of facility assists individuals with chronic care needs who live at their own homes.) Only 16.2% of our sample were CCRC-member facilities. We also employ data on average turnover rates for all executive positions at each facility.[9]

NHQI data. We merged HHCS data with CMS data from two sources, based on CMS provider numbers. (About 6% of observations were dropped because they could not be associated with a Medicare provider number.) The first source was NHQI data obtained from public-use files from the CMS website. These data include information on the characteristics of each CMS-registered facility as well as the results of a quality inspection conducted between 2001 and 2003, but most likely in 2003. The quality inspection was typically conducted only once for each facility. Therefore, although the compensation data are from 2001 and 2002, we merged each observation with the results of the quality inspection for that facility, regardless of the year in which the inspection was conducted.

The quality survey scored 14 different variables, such as

- percent of residents whose need for help with activities of daily living has increased
- percent of residents who have moderate to severe pain
- percent of residents who were physically restrained
- percent of residents who are more depressed or anxious
- percent of residents who have/had a catheter inserted and left in their bladder

We employ principal components factor analysis to distill the 14 measures down to three. After rotation to clarify interpretation, the latter appear to place greatest weight on increases in the percentage of residents who need

[9]It should be noted that only a small percentage of respondents provide information on turnover. Moreover, our turnover variables do not distinguish between voluntary and involuntary turnover.

help with activities of daily living, the percent of patients living with severe pain, and the percentage of residents with bed sores.[10] We acknowledge that the NHQI quality measures, and thus our quality scores, may measure not just quality but also the risk profile of each home's resident population. Although this may complicate interpretation of quality-sensitivity of executive pay in Section 4, it should improve the accuracy of our estimates of the profit-sensitivity of executive pay in this Section.

HCRIS data. The second source with which we merged the HHCS data was HCRIS data. The HCRIS data, also obtained from public-use files at the CMS website, contain detailed results from financial reports, ("Medicare cost reports") required to be filed annually by all Medicare-participating nursing facilities. Since Medicare only covers services provided at SNFs, we only have financial data on this class of facilities. However, Medicare-participating SNFs account for 78.3% of our sample. Although HCRIS reports contain a rich array of data, they do not permit extraction of data on net income excluding executive pay, or what we term surplus in Section 2.[11] Instead, we simply employ total revenue minus total costs (before interest and taxes) as our measure of profits and this difference divided by total assets as our measure of return on assets.

3.2 Unconditional results

We begin our empirical analysis with a review of the raw data. Table 1 presents a breakdown of the nursing home industry by tax status (ignoring government-owned facilities). The first column presents the market share of non-profit homes across nine census regions and nationally. The universe is all CMS-registered homes, which accounted for 97.2% of all homes in 1999. Statistical Abstract of the U.S. (2003). Nationally 30% of homes were non-profit. The

[10] Our regressions of wage on profit are only feasible for a subsample of skilled nursing facilities, which provide intermediate duration care, somewhere between the acute care of hospitals and the long-term care of ordinary nursing homes. In these regressions, we also employed three of the 14 quality measures that are targetted specifically at short-term residents. These measures pick up delirium, pain, and pressure sores. We find, however, that these controls do not alter our basic results.

[11] One solution would be to add total salary back into net income to create net surplus before payment of the agent. This approach suffers, however, from two problems. First, the independent variable net surplus would no longer be orthogonal to the error, making OLS estimates biased. Second, net surplus could only be calculated for the roughly 2700 firms for which total salary data were available. This means we would not have enough observations per county to calculate the variance of net surplus by county for our test of the principal-agent model.

nursing home industry contrasts with the hospital industry, where 68% of non-governmental hospitals were non-profit in 2001. Statistical Abstract of the U.S. (2003). (Note that these market shares are based solely on facility counts; they are not weighted by number of beds at each facility.) The second and third columns present market shares in the 2001 and 2002 HHCS data. The non-profit market shares in these data are similar to that in the CMS-registered universe. Across all three data sources, the west-south-central region has the lowest non-profit share (17-24%) and the mid-Atlantic region has the highest share (43-47%).

Table 2 describes the distribution of salary and turnover by tax status and position. The first page of the table reports total salary and base pay; the second page reports bonus pay and average turnover in all executive positions. Total salary is simply the sum of base plus bonus pay. 2001 and 2002 data are pooled for purposes of this analysis. All facilities do not report compensation for all positions. The CCRC-related positions are limited by the small number (16%) of facilities that are members of CCRCs. The highest position in a stand-alone nursing home is the nursing home director. Around 80% of facilities report salaries for this position. A similar fraction report nursing director salaries. However, only 11% report CFO salary data.

There are five features to note about executive compensation at nursing homes. First, executive directors of CCRCs have the highest total salary – \$97 - \$106 thousand on average. This is because they oversee multiple nursing facilities in the retirement community. Interestingly, the next highest paid position is not the nursing home administrator, but the CFO at a nursing home. These individuals earn, on average, \$75 - \$80 thousand. Second, all salary components and turnover are right-skewed. However, this right skew is lower at non-profit firms for base or total salary, but higher at non-profits for bonus. Of course the latter point is mitigated by the lower average bonus at non-profits, which we will turn to momentarily.

Third, total salary and base salary are generally higher at non-profit firms than for-profit firms. The difference is \$9 and \$18 thousand, respectively, for the executive director position. Both numbers are statistically significant. The difference is smaller – \$0.7 and \$2.5 thousand, respectively – for the home administrator position. These differences are statistically significant or close to significant. The differences are larger but less significant at the CFO position. Fourth, bonus pay is significant lower at non-profit homes. For example, executive directors receive \$9.5 thousand and nursing home administrators \$1.8 thousand less in bonus pay at non-profits. Finally, average turnover at executive positions is significantly lower – by 5.7% – at non-profit homes.

Table 3 sets forth the distributions of our financial performance measures

and quality/patient risk measures by tax status. Note that, because profit data is only available for SNFs, our summary statistics only apply to this type of home. Two conclusions emerge. First, non-profit homes do much more business than for-profits but are significantly less profitable than for-profit homes. Median non-profit revenues and costs are roughly $4 million greater than for-profit revenues and costs. Consistent with this finding is that they treat more patients given the number of beds they have.[12] The median non-profit, however, reports that it barely breaks even whereas the median for-profit home reports profits of $227 thousand. Return on assets tells a similar story: median non-profit return is virtually zero, whereas median for-profit return is 9 percent. These findings are mirrored in relative performance measures.

Second, non-profits and for-profits operate at different levels of quality and/or have patient populations with different risk profiles. On the one hand, for-profits have a larger increase in the percentage of patients that require assistance with activities of daily living. They also have a greater percentage of patients who had pressure sores. On the other hand, for-profits appear to have fewer patients living with severe pain. Although NHQI interprets all of these measures as quality indicators, one cannot clearly reject that they measure patient risk. Our belief, based upon the wording the NHQI questionnaire and consultation with a gerontologist, is that the daily living and pressure sore scores, respectively, measure quality while pain measures risk. This would suggest that for-profits provide lower quality and non-profits treat riskier patients. We stress, however, that our interpretation is not infallible and that these numbers are merely summary statistics.

Table 4 sets forth data on the remaining variables we employ in this section. Note that non-profit nursing homes are on average only five beds larger than for-profit homes. This partly explains the difference between non-profit and for-profit volume of business.

3.3 Conditional results

The picture of compensation painted in Table 2 was based on raw data. It did not control for the quantity or the quality of care provided at facilities and the risk-profile of facilities' patient populations. Presumably, administering a larger facility or a facility that provides higher quality or higher risk care is

[12] The measure to which we refer is technically in-patient days divided by (number of beds times 365). Although this statistic can exceed one if, for example, our bed numbers are off, we interpret this measure as a rough proxy for the occupany rate. It can also be interpreted as a resource utilization rate.

more difficult that administering one which is smaller or provides lower quality or lower risk care. The administrator's compensation would reflect this additional difficulty. Given the systematic differences in size and quality/risk of non-profit and for-profit facilities, unconditional differences in compensation across tax-status could mask differences in size and quality. To address this problem, Table 5 presents the result of a series of regression models that attempt to isolate the impact of tax status on compensation controlling for size and quality.

We estimate two basic regression models:

$$\begin{aligned}(1) \qquad wijt &= \beta_0 + \beta_1 Beds_j + \beta_3 SNF_{jt} \\ &\quad + \beta_4 HospitalBased_{jt} + \boldsymbol{\beta}_5 \mathbf{Region}_{jt} + \gamma NFP_{jt} + \varepsilon_{ijt}\end{aligned}$$

$$\begin{aligned}(2) \qquad wijt &= \beta_0 + \beta_1 Beds_j + \beta_2 Quality_j + \beta_3 SNF_{jt} \\ &\quad + \beta_4 HospitalBased_{jt} + \boldsymbol{\beta}_5 \mathbf{Region}_{jt} + \gamma NFP_{jt} + \varepsilon_{ijt}\end{aligned}$$

where i indexes executive position, j indexes facilities and t indexes time, w is a compensation component or turnover, and the skilled nursing facility, hospital-based facility, and region are self-explanatory indicator variables. Both models contain quantity controls (number of beds). The second model adds two quality controls: percent of residents whose need for help with activities of daily living has increased and percent of residents who have moderate to severe pain. Note that, because they are drawn from NHQI inspections that were conducted only once per facility between 2001 and 2003, the quantity and quality variables are not necessarily from the same year as the compensation data.

The two models were estimated using ordinary least squares (OLS) for each compensation component and turnover. In addition, because compensation components have right skew, the total salary, base pay, and turnover equations were estimated using quantile regression for the median. Because bonus pay is especially skewed, these equations were estimated using quantile methods for the 75th quantile.[13] Finally, the turnover equations were estimated as probits after converting turnover number from percentages to shares.[14] The OLS estimates were obtained permitting groupwise heteroskedasticity by firm;

[13] In contrast to OLS estimation, which minimizes squared deviations, quantile methods minimize multiples of absolute deviation – specifically, one for the median regressions and 1.5 and 0.5 for positive and negative deviations for the 75th quantile regressions.

[14] There is not much to be gained here. Although OLS on turnover percentages is equivalent to estimating a linear probability model, the fact that the turnover variable is an

robust standard errors are reported. The standard errors in the quantile regressions were obtained using bootstrap methods with 20 replications.

Table 5 presents estimates of the coefficient on the non-profit status indicator for regressions grouped by executive position (columns) and estimation method, regression model, and salary component or turnover (rows). The results are fairly consistent with those from Table 2. Although not always significantly so, total salary tends to be higher at non-profits, except for the director of nursing position. For example, controlling for quantity and quality, the executive director of a CCRC makes $5.7 thousand more at a non-profit. Base salary has an even statistically stronger tendency to be higher at non-profits. For example, controlling for quantity and quality, base pay for the executive director of a CCRC and the nursing home administrator are $14.3 and $2.1 thousand higher at a non-profit, respectively. Even the director of nursing tends to have a higher base pay at non-profit homes.

In contrast, bonus pay and turnover are lower at non-profit facilities. For example, the 75th quantile of bonuses for executive directors is over $16 thousand lower at non-profits. The difference is $4 thousand for CFOs, controlling for quantity and quality. (The reader should note, however, that the gap is smaller and not significant for nursing home administrators.) Moreover, average executive turnover is 7 – 11% lower at non-profit facilities. This gap is significant across most models and estimation methods.

3.4 Test of financial performance-sensitivity

Thus far our analysis has focused on testing the predictions of our tax-constrain theory concerning base, bonus and total pay across sectors. In Tables 6A, 7 and 8, we introduce direct tests of the theory's predictions that non-profit wage is flatter in profits than for-profit wage and that non-profits rely heavily on turnover to incentivize profits.

We begin with Table 6A, which presents the results from a regression of total salary of nursing home administrators on

- a measure of profits;
- the three quality/risk measures reported in Table 3;
- the occupancy rate from Table 3 and the number of beds at the home;
- and indicators for hospital-based homes and regional dummies.

average across all executive positions within a given firm should reduce concern about misspecification.

We only report results for total salary because, in theory, both base and bonus can change from year to year with performance. Thus both base and bonus may reflect performance pay. We focus on the nursing home administrator because it is the highest position at non-CCRC homes and has sufficient observations to permit robust estimation of the model. We run five specifications depending on our measure of profits: (1) net income, (2) revenue and costs separately, (3) return on assets, (4) relative profits, (5) relative return on assets. Note that financial data are only available for SNFs, the conclusions of Tables 6A (through Table 8) are limited to this type of facility. Although we include only regional fixed effects, state fixed effects do not materially alter our conclusions. Estimation was by OLS, though median regression results are very similar.

There are two features to note about the results. First, and foremost, coefficients on financial performance at both for-profit and non-profit SNFs have the wrong sign, i.e., they are negative. While this is offset by the fact that the coefficients are not significant or incredibly small, the results with respect to for-profits suggest that our level wage regressions are suspect. The reason is most likely omitted variables. For example, we do not have data on the experience or tenure of executives. Second, to the extent that the omitted variables problem does not affect quality measures or for-profits and non-profits differently, non-profit wages do not reward or punish the first and third quality measures differently than for-profit wages. Non-profit wages do, however, discourage the second quality/risk measure – which corresponds to the percentage of patients living in pain. This is a bit surprising given that Table 3 reports non-profits generally have more patients living with pain.[15]

In order to address the omitted variables problem, Table 7 reports the results of differences in wage on differences in performance regressions. Differencing removes the role of any omitted variables that have cross-sectional variation but are relatively constant over time. We believe this includes most executive-specific variables, which do not change dramatically year to year.

[15] Table 6B extends table 6A by adding the variance of financial performance and quality and these variances interacted with their corresponding outcome measure as regressors. The logic behind this model is that, Aggarwal and Samwick (1999) suggest that one can test whether the principal-agent model of executive compensation is appropriate for a given set of data by checking a simple prediction of the model. If the principal seeks to maximize profits and the agent is risk averse, the slope of the wage curve should fall as the variance of profits in the industry rises. The reason is that industry variance by itself is not informative about the agent's effort and the cost of tying the risk averse agent's wage to profits rises as the industry variance increases. Of course this argument also works in cases where the principal seeks to maximize quality. Although we find weak support for the principal-agent model, these regression may suffer from the same omitted variables problem as Table 6A.

Because our quality measures and our data on beds are also cross-sectional, however, these too drop from the analysis.

The results suggest, first, that for-profit wages reward profit and return on assets, whether measured in absolute or relative terms. Second, non-profits wages tend to reward profit less, but return on assets more than for-profit wages. These differences, however, are not statistically significant. Third, for-profits reward resource utilization more than non-profits, though the differences are again not statistically significant.

Table 8 turns from our attention from total salary to turnover. It reports the estimates from a probit model of turnover of executives on measures of financial performance, quality/risk, and quantity. We restrict our analysis to non-profit firms for two reasons. First, our tax-constraint theory predicts that non-profits will employ turnover to encourage profits. Second, although two-thirds of our sample (and the universe of nursing homes) is for-profit, few for-profits responded to survey questions about turnover.[16] In contrast to level wage regressions, we introduce lags of profit measures in the turnover regressions. The reason is that current year profits may reflect the performance of the new executive rather than the fired executive. Moreover, in dynamic models with adverse selection as well as moral hazard, firing decisions may be based on multiple years of poor performance, not just last period performance. Finally, the lagged profit specification is common in the executive compensation literature. Zhou (2000), Brickley and Van Horn (2002), Chidambaran and Prabhala (2003).

We find that turnover tends to have a positive but insignificant relationship with previous year profits, but a significant negative relationship with profits lagged two and three years. This is also true for return on asset and relative profit regressions. While the positive relationship with last year financial performance are difficult to explain, the strong negative relationship with further lags of financial performance variables confirms the prediction of the tax theory that non-profits employ turnover as a stick to encourage profit maximization by executives. This finding is consistent with Brickley and Van Horn (2002), who find that non-profits rely on turnover to encourage financial performance more than for-profits in direct comparison of the two forms.

[16] Note that our sample size ranges from 100-200 firms. This constitutes roughly 11 - 23 percent, respectively, of all non-profit SNFs. This calculation is based on 2600 total SNFs in our sample and the one-third market share of non-profits.

4 Alternative theories

In the previous section we found that non-profit nursing homes provide executives higher base pay and total salary and lower bonus pay than for-profit homes. Moreover, skilled nursing facilities (SNFs) in both sectors appear to reward executives with higher wages for higher profits, though the performance-sensitivity of non-profit pay is lower than for-profit pay, and non-profit SNFs employ turnover to turnover to punish firing. Each of these results lend support to our theory that differential tax rules on non-profit executive compensation can explain why the two forms of organization may have the same objectives but employ different executive incentive schemes. This theory, in turn, bolsters the case for the for-profit-in-disguise model because the differential tax rules only apply with resect to wage incentives on profits and correlates of profits.

The objective of this section is to employ the empirical analysis from the previous section to discriminate between some of the major theories of non-profit behavior. Because our null hypothesis, based upon the analysis of the previous sections, is for-profit-in-disguise model, it is important to explain precisely what we mean by this label and to highlight weaknesses of the model before we turn to other theories of non-profit behavior. The for-profit-in-disguise model has two forms. The strong version of the theory suggests that the principals of no-profit firms seek to maximize profits for their own financial benefit. This is the most cynical version of the theory. It implies non-profit principals have the same "base" objectives as non-profits and are taking advantage of tax breaks for non-profit firms.[17] The weak version of the theory suggests either that non-profit principals maximize profits because they are forced to by external forces, such as competition (for patients) from for-profits or because other objectives are not contractible, or because profit maximization, because it provides financial security, is a means to more lofty ends. These two forms of the for-profit-in-disguise model have dramatically different policy implications. Whereas the strong version of the theory suggests one ought to eliminate tax benefits for non-profits, the weak version

[17] More precisely, if firms vary in their cost-structures and the non-distribution constraint is imperfectly enforced, one might imagine that low cost firms sort into for-profit status while high cost firms sort into non-profit status. High cost firms include those who would not survive in competition but for the income tax-exemption for non-profits. These firms extract zero rent as for-profits due to competition, but perhaps positive rents as non-profits due to the tax exemption and imperfect enforcement of the non-distribution constraint. (Indeed, some firms who would just marginally survive competition as for-profits may find that the returns to the non-profit tax-exemption filtered through the non-distribution constraint are greater and therefore justify non-profit status.)

suggests one ought to make it easier for non-profit firms to provide incentives for executives to maximize profits by relaxing the tax constraints discussed in Section 1.[18]

Although presently our analysis does not permit us to discriminate between the strong and weak versions of the for-profit-in-disguise model, one weakness in the strong version of the model is that the tax benefits of non-profit status are smaller in the nursing home industry than in other industries, such as hospital services. The reason is that most for-profit homes are small enough that they can opt for pass-through tax treatment. Therefore, the only real benefit of non-profit status is property tax benefits.[19] The implication is that profit-maximizing principals have a less compelling reason to take non-profit status in the nursing home industry, at least relative to the cost of the tax constraint on executive pay in the non-profit sector.

In addition, we highlight one weakness in both forms of the for-profit-in-disguise model. Although it is consistent with nursing home data and much of the hospital data on executive compensation, it is inconsistent the finding that total salary at non-profit hospitals is lower than total salary at for-profit hospitals. Roomkin and Weisbrod (1999). There are two ways to reconcile the for-profit-in-disguise model with this finding. One is to concede that the model may apply to non-profits in some industries, but not others. However, this response begs two questions: which theory is appropriate for the hospital sector and why do non-profits differ across industries. Another approach is to consider that Roomkin and Weisbrod's finding controls only for quantity. (When they do not control for quantity, total salary is actually higher at non-profit firms.) If one controls for hospital quality, one may find that total salary is actually higher at non-profit firms. This would be the case, for example, if quality is positively correlated with wage and if, at any given level of quality, non-profits produce higher levels of quantity per firm.

Because controlling for quality might also end up supporting Roomkin and Weisbrod's initial finding that total salary is lower at non-profit hospitals, however, it is valuable to check the nursing home data against alternative theories of non-profit behavior. If these perform better than the for-profit-in-disguise model, we would reject that model even for the nursing home industry. The three alternative theories we shall investigate are the severe agency cost

[18] Unless, of course, relaxing these constraints would attract profit-seeking principals to the non-profit sector.

[19] Because homes primarily provide services, sales taxes are a small burden on homes. Homes receive few donations and do not raise money by issuing bonds, so the tax deduction for charitable contributions and income from non-profit bonds, respectively, have little value to them.

model, the quality or quantity maximization model, and the non-contractible quality model.

4.1 Severe agency cost model

The severe agency cost model is a simpler and even more skeptical model than the for-profit-in-disguise model and much more simple. It posits that, because the board of trustees has no monetary stake in the non-profit firm and is not subject to serious legal penalties for lax oversight,[20] the non-profit executive effectively sets her own salary. Assuming executives are risk-averse and the for-profit executive is subject to more meaningful oversight by her firm's board of directors and shareholders, this model predicts that the non-profit executive will receive a higher, flatter wage, with no risk of involuntary termination, as compared to the for-profit executive. The reason is that the non-profit executive, even if she sees herself as the residual claimant on profits, will seek to fully insure herself against exogenous fluctuations in profit. Nonetheless, her total pay will be correlated with the firms profits because she will set her base pay equal to her expectations about the firm's profits. (This relationship would be attenuated if one takes into account the tax penalties on non-profit compensation.)

This model is consistent with nursing home data on wages and with hospital data on base and bonus pay. However, it cannot explain why non-profit executives have lower total pay than for-profit executives in the hospital industry. It is also inconsistent with the finding that executive turnover is twice as high in non-profit hospitals as in for-profit hospitals. Ballou and Weisbrod (2003, Table 1). Indeed, it is also likely in tension with the fact that, although non-profit turnover is lower that for-profit turnover in the nursing home industry, it is still significant. Unless all of the 23.1% turnover at non-profit homes is plausibly voluntary, it is inconsistent with the severe agency cost model. Finally, the model is hard to reconcile with the finding of Brickley et al. (2003) that non-profit hospital CEOs that also serve on their hospital boards of trustees receive 10% higher compensation. The negative implication is that when they do not (at 46% of hospitals), they are unable to extract all possible surplus. In other words, boards play a non-negligible oversight role when not captured.

[20] The board of trustees is subject to suit by the state attorney general for violations of the fiduciary duty to take care in managing the non-profit firm. However, such suits are exceedingly rare.

4.2 Quality or quantity maximization model

A second, alternative model of non-profit behavior is that the promoters of these firms seek to maximize some combination of quality and quantity in addition to or instead of profits. Newhouse (1970), Lakdawalla and Philipson (1998, 2002). If executive is assumed not to be also the promoter, then the model conforms to the principal-agent model but with the principal maximizing a broader or different objective function. For example, if the principal sought to maximize only quantity, then the non-profit program for high effort would maximize $E(y|e_H)$ subject to, among other constraints, the balanced budget condition that $E(x|y, e_H) \geq E(w(y)|e_H)$. Using the fact that $x = py - C(y)$, where p is the price of output, and conjecturing that the budget constraint binds, the non-profit program can be written

$$\max_{w(y)} \frac{1}{p} \int [w(y) + c(y)] f(y|e_H) \, dy$$

subject to incentive compatibility and limited liability constraints written in terms of output rather than surplus. (We ignore the tax constraint both for simplicity and because it is less likely to constrain output-related incentives.) We do not solve this or the quality maximization problem in the present draft. However, it is likely to predict that the signs of differences between non-profit and for-profit compensation and turnover are ambiguous. The reason is that the quality/quantity maximization program just shifts the attention of the compensation scheme from profits to quality/quantity, but does not clearly eliminate the use of incentives.

The only testable prediction of the quality/quantity maximization model is that total salary in the non-profit sector should reward quality and/or quantity. We test these predictions in table 6A. It appears that non-profits do not provide a different direction of incentives on two out of the three measures of quality. The one measure on which they do – pain – is more likely a measure of risk than quality for reasons discussed earlier. (The reader should keep in mind that higher values for quality signify worse quality. Therefore, power on quality implies a negative slope on the quality variable and the principal-agent model implies a positive slope on the quality/variance of quality interaction, just the opposite of what is predicted with revenue.) As for quantity, although level regressions reveal that non-profits place significantly less incentives on occupancy rate or resource utilization, the difference regressions in Table 7, which raise fewer concerns about omitted variable bias, suggest that the differences are not significant.

4.3 Non-contractible quality model

A third alternative to the for-profit-in-disguise theory is the non-contractible quality model of Hansmann (1980) and Glaeser and Shleifer (2001). This model posits that the non-distribution constraint is a commitment mechanism used by certain promoters to convince consumers that their firms will not shirk on non-contractible attributes of product quality in order to increase their take-home pay. To the extent that the promoter is not also a top executive, and only top executives know whether the firm shirks on quality, we can convert the non-contractible quality model into a principal-agent model. The key feature is that the principal, seeking to extend the non-distribution commitment to the executive, will abstain from powering up profit incentives, lest they encourage the executive to shirk on quality even though the promoter has no incentive to do so. The result will be a flat wage curve and zero involuntary turnover. (To accentuate the differences between this model and our baseline model, we ignore other objectives of the promoters, such as quality/quantity maximization.) Because the non-profit executive would face less compensation risk, she needs less insurance and thus base pay and total pay will likely be lower than at for-profit firms.

Even putting aside concerns unrelated to executive compensation,[21] the non-contractible model has a number of problems. First, it is unclear why shutting down profit incentives would lead the executive to promote non-contractible quality rather than, say, personal leisure, which may come at the cost of that same quality. Second, the model cannot explain the finding of higher base pay in non-profit hospitals and higher base and total pay in non-profit nursing homes. There appears to be more insurance in these sectors than the non-contractible quality model would predict.

[21] Philipson (2000) notes that the non-contractible quality model predicts that, ceteris paribus, non-profit prices should be higher than for-profit prices because they reflect unobserved, positive differences in quality. However, he finds that there are no statistically significant differences between prices at non-profit and for-profit nursing homes. Moreover, Malani and David (2004) note that the non-contractible model assumes that non-profit facilities, if their tax-status is not immediately apparent to consumers, will convey this information in their communications with consumers. However, surveys of several thousand non-profit hospital, nursing home, and child-care websites and yellow-pages entries suggest that non-profits do not communicate their tax status to consumers.

5 Conclusion

This paper extends the main findings concerning non-profit executive compensation from the hospital industry to the nursing home industry. More importantly, it provides an explanation for a important puzzle about such compensation. Non-profits appear to behave much like non-profits firms along a range of outcomes, including quality (Malani et al. 2003) and quantity (David 2004) of production. Yet, the structure of executive compensation at non-profit firms differs significantly from that at for-profit firms. Specifically, non-profits employ performance bonuses much less than non-profit firms do. This paper resolves this discrepancy with respect to the for-profit-in-disguise model. We provide evidence that tax constraints limit the slope of executive salaries to profits and cause non-profit firms that behave like profit-maximizers to rely more heavily on turnover than bonuses as an incentive to raise profits. Because this explanation does not work for other models of non-profit behavior, it privileges the for-profit-in-disguise model over others. This effect is reinforced by a number of other inconsistencies between observed patterns of executive compensation and alternatives to the for-profit-in-disguise model.

We conclude by again stressing, first, that our analysis does not permit us to distinguish between the strong and weak versions of the for-profit-in-disguise model. We do not contend that principals of non-profit firms care about profits in the same way that principals at for-profit firms do. Moreover, this paper is a work in progress. In the next iteration, we expect to make three important changes. To address the omitted variable problem in our level wage regressions (Tables 6A and 6B), we plan to add three more years of data to our sample. This will permit the introduction of firm fixed effects, which will control for omitted variables with primarily cross-sectional variation.[22] In addition, we expect to add variables on patient complaints against nursing homes. Because these data vary over time, they permit the inclusion of quality controls to our difference in wage regressions (Table 7). Finally, in order to ensure that our turnover regression is more representative of all NFP firms, we hope to merge our sample with data on turnover from IRS Form 990 Part V. This will increase the sample size for these regressions.

[22] These additional data will hopefully also increase the number of for-profit firms on which we have turnover data, permitting us to make direct comparisons of the relationship between financial performance and turnover at non-profit and for-profit homes.

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Table 1. NFP market shares (by facility), by region.

	CMS-certified homes		Exec. comp. data set (2001)		Exec. comp. data set (2002)	
Region	No.	NFP share (by facility)	No.	NFP share (by facility)	No.	NFP share (by facility)
New England	1037	0.27	98	0.34	96	0.33
Middle Atlantic	1646	0.47	234	0.43	268	0.44
South Atlantic	2256	0.27	411	0.23	431	0.26
East North Central	2972	0.29	381	0.39	494	0.34
East South Central	982	0.23	101	0.31	126	0.25
West North Central	1982	0.47	230	0.29	371	0.53
West South Central	1999	0.17	120	0.24	179	0.18
Mountain	700	0.28	57	0.47	136	0.38
Pacific	1678	0.21	186	0.31	209	0.34
Total	15252	0.30	1818	0.32	2310	0.35

Notes. CMS numbers are from CMS NHQI About file from 2004. There are 383 observations in the HHCS data unique to 2001 and 885 unique to 2002. The data have observations for 1425 firms for both years.

Table 2. Distribution of salary components ($1000s) for five key positions in nursing homes.

Salary component	Ownership status	Statistic	Exec. dir. of CCRC	Assoc. dir. of CCRC	Nurs. home administrator	C.F.O.	Dir. of nursing
Total salary ($1000s)	**NFP**	min	53.0	40.3	31.0	29.0	32.0
		p25	82.5	63.2	57.5	60.0	49.8
		p50	98.0	75.0	67.5	75.0	56.5
		p75	123.4	88.2	78.7	94.8	64.5
		max	240.0	137.0	200.0	220.0	135.0
		mean	106.7	78.4	70.4	80.9	57.8
		N	539	137	968	441	1230
	FP	min	59.0	44.5	35.0	39.5	24.4
		p25	85.6	63.0	60.0	54.0	51.0
		p50	94.1	66.9	69.0	73.1	57.9
		p75	105.3	73.1	78.0	93.2	65.0
		max	200.0	122.5	161.0	125.0	113.0
		mean	97.7	68.0	69.7	75.3	58.6
		N	131	77	2318	18	2267
	Difference	**mean**	**9.0**	**10.4**	**0.7**	**5.6**	**-0.8**
		std err	3.06	2.55	0.61	7.40	0.40
		p-val. (> 0)	0.00	0.00	0.12	0.22	0.98
Base pay ($1000s)	**NFP**	min	53.0	40.3	31.0	29.0	32.0
		p25	82.0	62.7	57.4	60.0	49.6
		p50	96.0	75.0	67.0	74.9	56.2
		p75	120.0	86.5	77.8	94.2	64.2
		max	240.0	137.0	200.0	220.0	135.0
		mean	104.4	77.4	69.8	79.9	57.6
		N	539	137	968	441	1230
	FP	min	59.0	44.5	35.0	39.5	24.4
		p25	75.0	60.8	58.2	54.0	50.0
		p50	80.0	63.8	66.9	67.8	56.0
		p75	90.0	66.1	75.0	86.0	63.2
		max	200.0	114.0	161.0	125.0	103.0
		mean	86.0	63.6	67.2	71.5	57.0
		N	131	77	2318	18	2267
	Difference	**mean**	**18.5**	**13.8**	**2.5**	**8.3**	**0.6**
		std err	2.92	2.37	0.59	7.20	0.38
		p-val. (> 0)	0.00	0.00	0.00	0.12	0.07

Table 2. Distribution of salary components for five key positions in nursing homes (continued).

Salary component	Ownership status	Statistic	Exec. dir. of CCRC	Assoc. dir. of CCRC	Nurs. home administrator	C.F.O.	Dir. of nursing
Bonus pay ($1000s)	**NFP**	min	0.0	0.0	0.0	0.0	0.0
		p25	0.0	0.0	0.0	0.0	0.0
		p50	0.0	0.0	0.0	0.0	0.0
		p75	0.0	0.0	0.0	0.0	0.0
		max	38.7	18.0	33.8	42.0	11.3
		mean	2.3	1.0	0.6	1.0	0.2
		N	539.0	137.0	968.0	441.0	1230.0
	FP	min	0.0	0.0	0.0	0.0	0.0
		p25	7.0	0.0	0.0	0.0	0.0
		p50	12.0	1.9	0.0	0.0	0.0
		p75	16.6	8.1	5.9	6.8	0.0
		max	36.0	16.9	24.0	15.0	13.0
		mean	11.8	4.4	2.4	3.7	1.6
		N	131.0	77.0	2318.0	18.0	2267.0
	Difference	**mean**	**-9.5**	**-3.4**	**-1.8**	**-2.7**	**-1.4**
		std err	0.60	0.55	0.15	0.94	0.09
		p-val. (< 0)	0.00	0.00	0.00	0.00	0.00
Turnover (for all executive positions) (percent)	**NFP**	min	0.0				
		p25	8.0				
		p50	13.7				
		p75	28.0				
		max	100.0				
		mean	23.1				
		N	322				
	FP	min	0.0				
		p25	10.0				
		p50	20.0				
		p75	41.0				
		max	200.0				
		mean	28.8				
		N	54				
	Difference	**mean**	-5.7				
		std err	3.90				
		p-val. (< 0)	0.07				

Notes. CCRC stands for continuing care retirement community. CCRC are business agglomerations which include a skilled nursing facility, assisted living facility, and an independent living facility. For self-standing nursing homes, the highest position is administrator.

Table 3. Summary statistics for profit, quality and quantity measures.

Ownership status	Statistic	Revenue ($100K)	Costs ($100K)	Profits ($100K)	Relative profits ($100K)	ROA (rate)	Relative ROA (rate)
NFP	min	4.11	3.89	-160.09	-161.25	-0.9113	-0.8565
	p25	45.83	43.88	-3.56	-4.54	-0.0360	-0.0642
	p50	80.09	76.25	0.00	-0.58	0.0001	-0.0158
	p75	124.39	116.89	2.79	2.12	0.0323	0.0133
	max	886.02	827.07	97.50	95.69	0.7263	0.7263
	mean	102.84	89.94	-1.70	-2.55	-0.0062	-0.0293
	N	962	962	961	961	954	954
FP	min	0.06	4.42	-100.27	-101.34	-0.9964	-1.0625
	p25	36.91	35.20	-0.94	-1.66	-0.0280	-0.0575
	p50	55.42	51.51	2.27	1.06	0.0903	0.0387
	p75	76.13	72.01	6.28	4.54	0.2292	0.1664
	max	234.10	281.67	130.95	130.02	0.9539	0.8919
	mean	60.25	56.51	2.55	1.35	0.0956	0.0507
	N	2269	2269	2269	2269	2189	2189

Notes. Because return on assets explodes for firms with a small amount of assets and amall asset numbers may represent accounting discrepancies, we omit from our sample firms with ROA greater than one when calculating summary statistics on ROA and relative ROA. Relative profit and ROA are calculated by differencing a firm's profits or ROA and the median profit or ROA, respectively in which the firm resides.

Table 3. Summary statistics for profit, quality, quantity measures (continued).

Ownership status	Statistic	Quality 1: Daily living assistance (score)	Quality 2: Pain (score)	Quality 3: Pressure sores (score)	Occup. Rate: in-patient days/ (beds*365)
NFP	min	-1.9949	-1.3919	-1.8020	0.1510
	p25	-0.5391	-0.5152	-0.6689	0.9130
	p50	-0.0548	-0.0507	-0.2582	0.9599
	p75	0.5595	0.5046	0.1697	1.1337
	max	4.0124	5.3796	2.7402	44.3534
	mean	0.0965	0.1024	-0.1949	1.3894
	N	1173	1173	1173	962
FP	min	-2.1282	-1.4578	-1.8351	0.1090
	p25	-0.5058	-0.6625	-0.5791	0.8216
	p50	0.0258	-0.2193	-0.1735	0.9106
	p75	0.7233	0.3597	0.3082	0.9589
	max	5.5464	5.4207	3.7577	36.8916
	mean	0.1395	-0.0557	-0.0967	1.1468
	N	2416	2416	2416	2269

Notes. Higher numbers imply worse quality for quality measures. The quality measures are calculated by distilling 14 original quality measures from CMS's NHQI inspections to three factors. The interpretation for each factor is based upon the original measures that have the highest load on that factor. The first factor places heavy weight on the percent increase in the number of residents who need assistance with daily living. The second places heavy weight on the percent of residents living in moderate to severe pain. The third places heavy weight on the percent of patients with pressure sores. We report statistics on the scores for each firm on each factor based upon the sum of the original 14 measures weighted by their loadings on each factor.

Table 4. Summary statistics for remaining variables.

Ownership status	Variable	Mean	Std. dev.	N
NFP	Beds	105.15	68.92	1247
	Skilled nursing facility	0.84	0.37	1402
	Hospital-based	0.05	0.21	1247
	Region - Northeast	0.20	0.40	1402
	Region - Midwest	0.42	0.49	1402
	Region - South	0.24	0.42	1402
	Region - West	0.15	0.35	1402
FP	Beds	110.55	51.45	2475
	Skilled nursing facility	0.89	0.31	2726
	Hospital-based	0.02	0.13	2475
	Region - Northeast	0.15	0.36	2726
	Region - Midwest	0.33	0.47	2726
	Region - South	0.38	0.49	2726
	Region - West	0.14	0.35	2726

Notes. All variables except for beds are 0-1 dummies.

Table 5. Coefficient on NFP indicator in regressions of salary component on ownership status and controls.

Salary component	Regression model	Estimation method	Statistic	Exec. dir. of CCRC	Assoc. dir. of CCRC	Nurs. home administrator	C.F.O.	Dir. of nursing
Total salary	(1)	OLS	Coeff.	4.98	10.63**	1.13	9.72***	-0.56**
			Std. err.	1.23	0.23	0.43	0	0.02
			Obs.	555	167	3058	404	3312
			R-sqd.	0.06	0.24	0.22	0.15	0.25
	(2)	OLS	Coeff.	5.70*	11.64*	0.65	7.07***	-0.97*
			Std. err.	0.54	1.28	0.61	0.05	0.11
			Obs.	406	115	2748	337	2940
			R-sqd.	0.1	0.27	0.26	0.16	0.27
		Median	Coeff.	1.55	7.22	-0.84	0.91	-1.91***
			Std. err.	5.94	4.57	0.64	14.33	0.48
			Obs.	406	115	2748	337	2940
Base pay	(1)	OLS	Coeff.	14.31**	13.97**	2.80*	10.64***	0.85**
			Std. err.	0.88	0.25	0.39	0.03	0.05
			Obs.	555	167	3058	404	3312
			R-sqd.	0.11	0.28	0.24	0.15	0.26
	(2)	OLS	Coeff.	14.30**	15.08**	2.14	8.14***	0.44**
			Std. err.	0.23	1.15	0.5	0.08	0.01
			Obs.	406	115	2748	337	2940
			R-sqd.	0.12	0.32	0.28	0.16	0.29
		Median	Coeff.	14.12***	12.32***	0.58	5.07	-0.38
			Std. err.	3.81	3.14	0.61	13.24	0.42
			Obs.	406	115	2748	337	2940

Table 5. Coefficient on NFP indicator in regressions of salary component on ownership status and controls (continued).

Salary component	Regression model	Estimation method	Statistic	Exec. dir. of CCRC	Assoc. dir. of CCRC	Nurs. home administrator	C.F.O.	Dir. of nursing
Bonus pay	(1)	OLS	Coeff.	-9.33**	-3.33***	-1.67**	-0.92**	-1.41**
			Std. err.	0.35	0.02	0.04	0.03	0.03
			Obs.	555	167	3058	404	3312
			R-sqd.	0.27	0.14	0.06	0.02	0.07
		75th quantile	Coeff.	-16.64***	-7.64***	-3	-2.6	0
			Std. err.	1.1	2.15	2.39	1.75	0
			Obs.	555	167	3058	404	3312
	(2)	OLS	Coeff.	-8.60**	-3.44**	-1.49**	-1.07**	-1.41**
			Std. err.	0.31	0.13	0.11	0.03	0.1
			Obs.	406	115	2748	337	2940
			R-sqd.	0.18	0.17	0.06	0.03	0.09
		75th quantile	Coeff.	-16.88***	-10.80***	0	-4.00**	0
			Std. err.	1.9	2.87	1.72	1.88	0
			Obs.	406	115	2748	337	2940
Turnover (for all executive positions)	(1)	OLS (%)	Coeff.	-7.59*				
			Std. err.	0.61				
			Obs.	341				
			R-sqd.	0.02				
		Logit (share)	Coeff.	-0.22***				
			Std. err.	0.01				
			Obs.	282				
		Median	Coeff.	-7.43				
			Std. err.	5.62				
			Obs.	341				
	(2)	OLS (%)	Coeff.	-9.99***				
			Std. err.	0.06				
			Obs.	294				
			R-sqd.	0.04				
		Logit (share)	Coeff.	-8.34				
			Std. err.	170.12				
			Obs.	168				
		Median	Coeff.	-11.15***				
			Std. err.	3.07				
			Obs.	294				

Notes. All regression are facility-level. The sample pools observations from 2001 and 2002. All regression models include the following controls: number of beds, skilled nursing facility indicator, hospital-based facility indicator and region indicators for northeast, south and west. (Midwest indicator is omitted). Regression model (2) adds two quality measures as controls: additional percentage of residents who require assistance with daily living and percentage of residents living in moderate to severe pain. The OLS and logit regressions allow for heteroskedasticity by ownership status. Robust standard errors are reported for OLS and logit coefficients. Standard errors in quantile regressions are obtained by bootstrap methods with 20 replications. Significant coefficients marked with asterisks: 10% (*), 5% (**), 1% (***). Odds ratios for two logit estimates are (1) 0.8 and (2) 0.00029.

Table 6A. Level salary on level profits, quality, quantity.

	(1)	(2)	(3)	(4)	(5)
Profits	-0.043448				
	(0.035874)				
Profits * NFP	0.019323				
	(0.051852)				
Revenues		-0.000525			
		(0.045997)			
Revenue * NFP		0.008109			
		(0.046185)			
Costs		0.101134*			
		(0.053473)			
Costs * NFP		-0.020406			
		(0.055890)			
Return on assets (ROA)			-0.000005**		
			(0.000002)		
ROA * NFP			-4.199551		
			(4.349122)		
Relative profits				-0.029803	
				(0.036092)	
Relative profits * NFP				-0.00044	
				(0.051564)	
Relative ROA					-0.000005**
					(0.000002)
Relative ROA * NFP					-2.958941
					(4.152397)
Quality1 (daily activities)	-0.678021*	-0.618933*	-0.675503*	-0.681276*	-0.675724*
	(0.350685)	(0.346134)	(0.349666)	(0.350284)	(0.349666)
Quality 1 * NFP	-1.519098*	-1.911991**	-1.428807*	-1.505694*	-1.442466*
	(0.791588)	(0.780762)	(0.784281)	(0.790209)	(0.784374)
Quality 2 (pain)	0.203883	-0.058226	0.213969	0.209136	0.215145
	(0.402271)	(0.400625)	(0.403313)	(0.402561)	(0.403310)
Quality 2 * NFP	-3.623704***	-3.268432***	-3.631269***	-3.624962***	-3.638726***
	(0.862794)	(0.887904)	(0.864714)	(0.863045)	(0.866799)
Quality 3 (pressure sores)	1.093129***	0.710283*	1.112689***	1.102112***	1.112360***
	(0.408398)	(0.408161)	(0.408043)	(0.408336)	(0.408057)
Quality 3 * NFP	0.017422	-0.124221	-0.098756	0.001793	-0.089714
	(0.933261)	(0.950781)	(0.923142)	(0.933090)	(0.924613)
Beds	0.096234***	0.051314***	0.095565***	0.095905***	0.095535***
	(0.009829)	(0.012722)	(0.009579)	(0.009743)	(0.009579)
Beds * NFP	0.028297	0.009745	0.029945	0.02857	0.029931
	(0.019333)	(0.020653)	(0.019206)	(0.019290)	(0.019157)
Occupany rate (in-patient days)	1.405713***	0.616479**	1.358385***	1.391848***	1.358143***
	(0.282203)	(0.298176)	(0.267830)	(0.280894)	(0.267711)
Occupany * NFP	-0.992847***	-0.755143**	-0.937410***	-0.982125***	-0.934887***
	(0.312959)	(0.345439)	(0.298712)	(0.312114)	(0.298996)
Observations	2663	2663	2660	2663	2660
R-squared	0.27	0.3	0.27	0.27	0.27

Notes. Dependent variable is total salary for nursing home adminitrator. Profits are measures by profits, revenue and cost, return on asstes (ROA), profits relative tp median in county, and ROA relative to median in county. Quality variables are scores for a three-factor factor analysis on 14 quality variables in the Nursing Home Quality Initiative. Occupancy rate is total inpatient days divided by (beds * 365). Regressions include region fixed effects. (State fixed effects do not materially change the findings.) Estimation was by OLS. (Median regressions produce similar results.) Finally, we permit group-wise heteroskedasticity at the firm-level and report robust standard errors.

Table 6B. Level salary on level profits, quality, quantity. Includes variance of outcomes and interaction of outcomes and variance of outcomes.

	(1)	(3)		(1)	(3)
Profit	-0.037685		Quality1	1.085313	0.909513
	(0.114632)			(0.822466)	(0.831082)
Var(profit) * profit	-0.009752		Var(q1) * q1	-2.038692*	-2.079249*
	(0.153465)			(1.150170)	(1.157589)
Var(profit)	7.662200***		Var(q1)	0.754901	0.786652
	(1.430163)			(1.189750)	(1.220560)
Profit * NFP	-0.163846		Quality1 * NFP	-3.983885**	-3.391365
	(0.217140)			(2.030075)	(2.082099)
Var(profit) * profit * NFP	0.245579		Var(q1) * q1 * NFP	3.275513	2.865174
	(0.258497)			(2.755862)	(2.778998)
Var(profit) * NFP	8.270089***		Var(q1) * NFP	-3.720456	-3.098917
	(3.198709)			(2.766212)	(2.742160)
ROA		-0.000400*	Quality2	0.262921	0.244237
		(0.000213)		(0.912527)	(0.916771)
Var(ROA) * ROA		0.000402*	Var(q2) * q2	0.019933	-0.053987
		(0.000217)		(1.299970)	(1.299156)
Var(ROA)		5.155971***	Var(q2)	0.643436	0.864802
		(1.266150)		(1.207003)	(1.226227)
ROA * NFP		-1.42001	Quality2 * NFP	-2.603704	-2.291888
		(15.441109)		(2.209084)	(2.197980)
Var(ROA) * ROA * NFP		-3.977021	Var(q2) * q2 * NFP	1.556232	0.591649
		(27.252314)		(2.851297)	(2.893920)
Var(ROA) * NFP		3.368727	Var(q2) * NFP	-9.172433***	-9.909393***
		(2.762398)		(2.713569)	(2.718613)
Occupancy rate	1.132219***	1.189159***	Quality3	0.784356	0.529934
	(0.303343)	(0.298728)		(0.994536)	(1.016145)
Var(occ.) * occ.	0.080651*	0.092682**	Var(q3) * q3	-0.294159	0.230292
	(0.043198)	(0.042897)		(1.442292)	(1.479397)
Var(occ.)	-8.548173**	-9.393572***	Var(q3)	2.333519*	2.943540**
	(3.692484)	(3.627295)		(1.204939)	(1.209407)
Occupancy rate * NFP	-1.044527***	-0.916872***	Quality3 * NFP	0.474198	1.013918
	(0.344961)	(0.318891)		(2.535365)	(2.516308)
Var(occ.) * occ. * NFP	-0.041015	-0.031378	Var(q3) * q3 * NFP	-2.088832	-2.514083
	(0.102116)	(0.103967)		(3.616400)	(3.624496)
Var(occ.) * NFP	3.283807	2.435029	Var(q3) * NFP	3.196678	5.415117*
	(9.063032)	(9.258702)		(2.861769)	(2.798112)
Observations	2545	2542			
R-squared	0.31	0.3			

Notes. Dependent variable is total salary for nursing home administrator. Profits are measures by profits, revenue and cost, return on asstes (ROA), profits relative to median in county, and ROA relative to median in county. Quality variables are scores for a three-factor factor analysis on 14 quality variables in the Nursing Home Quality Initiative. Occupancy rate is total inpatient days divided by (beds * 365). Variances are calculated at the county-level. In order to generate a common scale for variances, regressions do not include variance directly, but rather the quantile of a county's variance among all counties in the nation. Regressions include region fixed effects. (State fixed effects do not materially change the findings.) Estimation was by OLS. (Median regressions produce similar results.) Finally, we permit group-wise heteroskedasticity at the firm-level and report robust standard errors.

Table 7. Difference in salary on difference in profits and quantity.

	(1)	(2)	(3)	(4)	(5)
Profits	0.084413**				
	(0.039630)				
Profits * NFP	-0.063779				
	(0.061797)				
Revenues		0.076719**			
		(0.038631)			
Revenue * NFP		-0.040353			
		(0.058346)			
Costs		-0.049329			
		(0.067326)			
Costs * NFP		0.180032*			
		(0.092742)			
Return on assets (ROA)			0.000024***		
			(0.000001)		
ROA * NFP			0.164995		
			(2.880509)		
Relative profits				0.084413**	
				(0.039630)	
Relative profits * NFP				-0.063779	
				(0.061797)	
Relative ROA					0.000024***
					(0.000001)
Relative ROA * NFP					0.164995
					(2.880509)
Occupany rate (in-patient days)	5.966596*	5.542918	6.426413**	5.966596*	6.426413**
	(3.186198)	(4.112098)	(3.246111)	(3.186198)	(3.246111)
Occupany * NFP	-3.724578	-10.421264	-4.050217	-3.724578	-4.050217
	(5.489120)	(7.030335)	(5.520959)	(5.489120)	(5.520959)
Observations	845	845	845	845	845
R-squared	0.02	0.03	0.02	0.02	0.02

Notes. Dependent variable is change in total salary for the nursing home administrator from 2001 to 2002. This differencing drops observations from firms where we only have one year of data. All independent variables are also differences. Profits are measures by profits, revenue and cost, return on asstes (ROA), profits relative tp median in county, and ROA relative to median in county. Quality variables are scores for a three-factor factor analysis on 14 quality variables in the Nursing Home Quality Initiative. Occupancy rate is total inpatient days divided by (beds * 365). Regressions include region fixed effects. (State fixed effects do not materially change the findings.) Estimation was by OLS. (Median regressions produce similar results.) Finally, we permit group-wise heteroskedasticity at the firm-level and report robust standard errors.

Table 8. Probit of turnover on lagged profits based on sample of non-profit firms only.

	(1)	(2)	(3)	(4)	(5)
Profits (t-1)	0.02168				
	(0.026248)				
Profits (t-2)	-0.00622				
	(0.023717)				
Profits (t-3)	-0.037608**				
	(0.017161)				
Revenue (t-1)		0.098143*			
		(0.058981)			
Revenue (t-2)		-0.083653*			
		(0.044706)			
Revenue (t-3)		-0.011485			
		(0.017567)			
Costs (t-1)		-0.076172			
		(0.050749)			
Costs (t-2)		0.090070**			
		(0.043015)			
Costs (t-3)		-0.014467			
		(0.028952)			
ROA (t-1)			0.681315		
			(1.068711)		
ROA (t-2)			-1.610345***		
			(0.546255)		
ROA (t-3)			-0.957192*		
			(0.505875)		
Relative profits (t-1)				0.012218	
				(0.007756)	
Relative profits (t-2)				-0.016371**	
				(0.006955)	
Relative profits (t-3)				-0.009399	
				(0.007594)	
Relative ROA (t-1)					1.221547***
					(0.361561)
Relative ROA (t-2)					-1.082537**
					(0.509325)
Relative ROA (t-3)					-0.779744
					(0.497503)
Observations	101	102	198	198	198

Notes. Dependent variable is share turnover for in all executive positions at a nursing home. (Where turnover was greater than 100%, we reduced turnover values to 1.) Profits are measured by actual profits, revenue and cost separately, return on assets (ROA), profits relative to median in county, and ROA relative to median in county. Regressions in clude quality and quantity variables, though coefficients are not reported. Quality variables are scores for a three-factor factor analysis on 14 quality variables in the Nursing Home Quality Initiative. Occupancy rate is total inpatient days divided by (beds * 365). We estimated a probit model. We permit group-wise heteroskedasticity at the firm-level and report robust standard errors.