CHICAGO BOOTH

Institutional Drivers of Reporting Decisions in Nonprofit Hospitals

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ABSTRACT

We examine the influence of normative and regulative institutional factors on cost shifting by nonprofit hospitals in their publicly reported statements. We explore whether normative constraints imposed by stakeholders, who prefer that nonprofit hospitals allocate their resources toward patient-related program services, influence the extent to which nonprofit hospitals shift costs toward program services and away from administrative and fundraising categories, thereby appearing more efficient. We also explore whether regulative factors, such as oversight, influence cost shifting behaviors. Results indicate that nonprofit hospitals facing higher normative pressures to demonstrate efficiency shift costs to a greater extent, and hospitals facing higher regulatory oversight shift costs to a lesser extent. Consistent with prior research, we also find that hospitals that obtain higher donations revenue shift costs to a greater extent. Our results show that, in addition to economic factors documented by prior literature, institutional factors also influence nonprofit hospitals' cost shifting behaviors.

1. Introduction

This paper examines whether nonprofit hospitals shift expenses across cost categories in their Internal Revenue Service (IRS) Form 990

disclosures in order to appear more programmatically efficient and the extent to which such cost shifting is influenced by institutional factors, including both normative and regulative pressures.[1] Nonprofit organizations incur three broad categories of expenses: program service, fundraising, and administrative. Program service expenses are those incurred to further the nonprofit mission of the organization directly, such as cost of supplies and pharmaceuticals at nonprofit hospitals. Fundraising expenses are those incurred to generate donations or government grants. Management and general (administrative) expenses are those incurred for the overall functioning and management of the nonprofit.[2] Nonprofit hospitals with relatively higher program service expenses relative to fundraising and administrative expenses appear more efficient to stakeholders.

Managers of nonprofit hospitals have a variety of incentives to shift expenses from the administrative and fundraising categories toward the program service category in their 990s. One set of incentives that has been explored by extant literature is driven by economic benefits obtained from cost shifting, such as increased donations or managerial compensation (Baber, Daniel, and Roberts [2002], Krishnan, Yetman, and Yetman [2006]). A second set of incentives, which has not yet been empirically explored, arises from institutional pressures to be more efficient in delivering program services (Meyer and Rowan [1977], Covaleski, Dirsmith, and Samuel [2003]). These institutional pressures include *normative* constraints that arise from prescriptions, social sanctions, and norms imposed by customers, donors, and other community members, who prefer that nonprofit hospitals allocate their resources toward program service rather than toward administrative or fundraising activities. A counter institutional pressure on cost shifting is oversight from regulatory agencies that impose rules and monitor the extent to which the organization conforms to such regulations (Ruef and Scott [1998]).[3]

We explore the effects of both normative and regulative institutional pressures on cost shifting. More specifically, we examine whether nonprofit hospitals facing stronger normative institutional expectations of efficiency

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[1] The 990 is the primary source of nonprofit hospital financial information and contains financial statements including an income statement and a balance sheet, as well as information related to a hospital's nonprofit mission and activities.

[2] Program service expenses are defined in the instructions to the 990 as "mainly those activities that the reporting organization was created to conduct and which, along with any activities commenced subsequently, form the basis of the organization's current exemption from tax." Fundraising expenses are defined as "the total expenses incurred in soliciting contributions, gifts, grants, etc." Management and general expenses are defined as "the organization's expenses for overall function and management, rather than for its direct conduct of fundraising activities or program services."

[3] A third type of institutional pressure is *cognitive*, which refers to a wider belief system and cultural framework. We do not explicitly partition the cognitive institutional element because prior research by Ruef and Scott [1998] suggests that cognitive elements provide the basic framework that gives rise to normative and regulative pressures.

have higher levels of cost shifting (i.e., shifting from fundraising and/or administrative to program service expenses) and whether nonprofit hospitals that have a higher likelihood of regulatory oversight have lower levels of cost shifting.

We conduct empirical analyses using a sample of California nonprofit hospitals. Examining hospitals in isolation is particularly important for several reasons. First, the nonprofit hospital industry is an important segment of the economy. Health care accounted for 16.5% of the 2007 GNP (Kaufman and Tkach [2008]), and nongovernmental nonprofit hospitals constitute over 70% of the hospital industry. Second, as we discuss in the following section, institutional pressures are especially salient in nonprofit hospitals (Covaleski, Dirsmith, and Michelman [1993], Scott [2001]). Third, nonprofit hospitals have unique challenges in being programmatically efficient because they face social pressures as well as legal obligations to treat patients with emergency medical conditions, regardless of a patient's ability to pay, at least until the patient is stabilized.

To estimate the extent of cost shifting, we merge two data sources: IRS 990s and California regulatory hospital activity reports from the Office of Statewide Health Planning and Development (OSHPD). We compare the amount of program service to total expenses reported by nonprofit hospitals on their 990s to the amount reported to the OSHPD for the same hospital and time period. For reasons discussed later, we presume that the OSHPD report reflects program service expenses more accurately than does the 990 and that any differences between the reports is a result of cost shifting on the 990. Results of our analysis reveal that nonprofit hospitals in California report a higher ratio of program to total expenses on their 990 forms (86.5%) compared with the OSHPD reports (77.4%).

We develop and test hypotheses regarding the extent of cost shifting. We predict that cost shifting will be greater for hospitals with greater normative and less regulative institutional pressures. We draw from prior research and measure normative pressures by church affiliation, proportion of charity care to total care, rural status, and membership in a system. Regulative pressures include proportions of Medicare and Medicaid patient revenue to total patient revenue. Our results indicate that hospitals that are church affiliated perform more charity care, are located in rural areas, or are members of hospital systems shift costs to a greater extent. On the other hand, hospitals that have a higher proportion of Medicare to total patient revenue shift costs to a lesser extent. In addition, we find the level of cost shifting by hospitals to be positively associated with reliance on public donations. Furthermore, our results show that the use of an outside accountant is associated with lower cost shifting.

Our research contributes to the accounting literature. Our first contribution is that we examine institutional influences (including both normative and regulative pressures) on nonprofit hospitals' propensity to shift costs. While management scholars argue that economic, political, and social institutions influence firms' outcomes and behavior (Chan, Isobe, and Makino

[2008]), previous studies in accounting that examine hospital cost shifting have employed primarily an economic lens.[4] To our knowledge, ours is the first study to examine directly institutional pressures on nonprofit hospitals' propensity to shift costs. Our study demonstrates that managers may shift costs even in the absence of pecuniary benefits and when the primary beneficiary is the firm. Thus, our study contributes to the literature by incorporating an additional set of influences on firm behaviors and outcomes, which enables us to obtain a better understanding of the factors that drive cost shifting in nonprofits. We expand on this discussion in the following section.

A second contribution of our study is that we combine two high-quality databases to estimate a measure of total cost shifting. Prior research computes cost shifting using one data set, which requires relativity stronger assumptions about what constitutes cost shifting and/or considers only shifting from fundraising into program service expenses (e.g. Krishnan, Yetman, and Yetman [2006], Jones and Roberts [2006]). While Keating, Parsons, and Roberts [2008] use two data sets to calculate cost shifting and do not have to make as strong assumptions regarding what constitutes cost shifting, they examine only one particular component of fundraising expenses (i.e., telemarketing campaigns). None of these prior studies examine shifting of administrative expenses. Our analysis allows us to estimate the *total* amount of overreported program service expenses (i.e., from both shifting of fundraising and administrative expenses), which allows us to better estimate the *total* effect of misreporting on the program service expenses.

The next section provides some background, reviews the theory, and contains the hypotheses. This is followed by a discussion of our data and empirical analyses. Next, we report our results. The final section presents our conclusions.

2. Background and Theory

2.1 COST SHIFTING IN NONPROFIT ORGANIZATIONS

Accounting information can assist stakeholders in monitoring a nonprofit and evaluating whether resources are being used in the most efficient

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[4] For instance, Eldenburg and Vines [2004] examine the responses of nonprofit hospitals to an accounting rule change that disallowed hospitals from recognizing charity care as revenues. This change provided nonprofit managers with an incentive to reclassify bad-debt expenses as charity care. The reclassification not only decreases the burden of bad-debt collections but also increases the reported charity care and portrays the hospital in a favorable light. Their results indicate that hospitals with high cash levels tend to reclassify to a higher extent. Eldenburg and Soderstrom [1996] find that Washington hospitals shifted costs among payers by manipulating contractual adjustments (i.e., the difference between gross charges and reimbursement amounts), which are an allowable deduction from revenue. Eldenburg and Kallapur [1997] find that after the 1983 change in reimbursement policies, whereby Medicare paid hospitals for inpatient services at a flat fee but continued to reimburse outpatient services based on reported costs, Washington hospitals allocated more overhead costs to outpatient departments.

and effective manner. Extant research shows that stakeholders use accounting measures to monitor the efficiency of nonprofit organizations (Baber, Roberts, and Visvanathan [2001], Okten and Weisbrod [2000], Posnett and Sandler [1989], Tinkelman [1999], Weisbrod and Dominguez [1986], Yetman and Yetman [2003]). One commonly used metric for measuring nonprofit efficiency is the program service ratio (PSR), which is computed as program service expenses divided by total expenses and measures the proportion of expenses that are related to the nonprofit's mission. Shifting costs from the administrative and/or fundraising into the program service category will increase the PSR. A higher PSR indicates that a greater portion of the nonprofit's total expenditures are used for providing services to the constituents it is meant to serve, such as patient care in a nonprofit hospital.

Nonprofit managers face a variety of pressures to report a higher PSR. The first group of pressures is economic in nature. For instance, donors use the 990 to monitor the efficiency of a nonprofit organization and to assist them in making their donation allocation decisions. Prior research indicates a positive association between donations and PSRs (Harvey and McCrohan [1988], Khumawala and Gordon [1997], Weisbrod and Dominguez [1986]). In addition, because nonprofits often compensate managers based on programmatic efficiency, nonprofit managers can increase their compensation by shifting expenses to appear more programmatically efficient (Baber, Daniel, and Roberts [2002]).

The second group of pressures is institutional in nature. These include pressures imposed on nonprofits by various nonprofit stakeholders in the form of social sanctions and norms to be more efficient in delivering program services (Meyer and Rowan [1977], Covaleski, Dirsmith, and Samuel [2003]). A counter institutional pressure on cost shifting arises from regulatory agencies that impose rules and monitor the extent to which organizations conform to such rules (Ruef and Scott [1998]).

Prior empirical studies document evidence of cost shifting and also find an association between cost shifting and economic incentives, such as donations and managerial compensation (Baber, Daniel, and Roberts [2002], Krishnan, Yetman, and Yetman [2006]). However, prior research has not directly examined the influence of institutional factors on cost shifting. We address this gap in the literature and examine whether the extent of cost shifting is influenced by institutional factors, including both normative and regulative. We discuss institutional pressures in greater detail in the following section.

2.2 INSTITUTIONAL THEORY

Institutional theorists recognize that, in addition to economic factors, institutional pressures also can affect firm behavior (Goodrick and Salancik [1996], Goodstein [1994], Hitt et al. [2004]). Institution constraints are defined as "humanly devised constraints that shape human interaction" (North [1990, p. 3]). Elaborating further, Scott [1995, p. 33]

defines institutional constraints as "cognitive, normative, and regulative structures and activities that provide stability and meaning to social behavior." Institutional pressures thus arise from social, political, and regulatory agencies that monitor and sanction firm behavior (Child and Tsai [2005]). Institutional pressures impose moral as well as cultural boundaries around appropriate firm and managerial behaviors and outcomes and emanate primarily from three sources: general societal expectations of how an organization should behave; regulatory authorities, such as state and local bodies; and the actions of other organizations within the same reference group (Greenwood and Hinings [1996], Scott [2001], Dacin, Oliver, and Roy [2007]). While some of these pressures may encourage behaviors that improve financial performance, others do not. For example, institutional constraints may discourage aggressive emphasis on profits or high-powered managerial incentives. In order to thrive, organizations must adhere to these pressures whether they are consistent with or contrary to economic performance (Meyer and Rowan [1977], Zucker [1987], Greenwood and Hinings [1996]).

Institutional pressures are particularly salient in the hospital industry, and furthermore, stronger in nonprofit hospitals (Scott [2001]). Hospitals operate in environments that impose substantial institutional pressures not only on their technical activities, but also on their managerial activities related to administration and obtaining of resources (Ruef and Scott [1998]). Additional institutional pressures in nonprofits arise as a result of their multidimensional objective functions, restrictions on the distribution of surplus, and undefined ownership. An additional complicating factor in nonprofit hospitals is that one set of institutional pressures may conflict with other sets of pressures. On the one hand, nonprofit hospitals are expected to be economically efficient and reduce costs (Dranove [1998], Eldenburg and Krishnan [2003]). On the other hand, managers of nonprofit hospitals have institutional constraints on pursuing opportunities that increase economic value if such opportunities reduce benefits for sections of the community. For example, a nonprofit hospital may not be able to cut back on services to the poor and uninsured, even though this may be financially beneficial. Using Oliver's [1997] conceptualization, hospitals are good examples of enterprises in which the *institutional* environment, with its emphasis on norms and rules for obtaining legitimacy, collides with the *task* environment, with its focus on effective and efficient control of the work processes.

Next, we consider the influence of normative and regulative pressures on cost shifting by nonprofit hospitals.

2.2.1. Normative Pressures. Normative pressures arise from prescriptions, social sanctions, and norms imposed by customers, donors, and other community members. In exchange for appearing to conform to such normative institutional pressures, the nonprofit obtains rewards, such as increased legitimacy (Meyer and Rowan [1977], Covaleski, Dirsmith, and Samuel

[2003]). This increased legitimacy can benefit the organization by allowing it to appeal to its stakeholders for more resources and subjecting it to lower regulatory and behavioral scrutiny by internal and external constituents (Bansal and Clelland [2004], Scott [2001]). Organizations that maintain institutional legitimacy also enjoy higher survival rates in the presence of environmental threats (Baum and Oliver [1991]). As a result, organizations have incentives to respond strategically to such normative institutional pressures (Oliver [1991]).

Institutional pressures are likely to manifest in the form of expectations of high PSRs in nonprofit hospitals because administrative and fundraising expenses generally are construed as wasteful relative to program service expenses (Eldenburg and Krishnan [2003]). Higher PSRs serve as an indication that hospital managers are exerting efforts to provide maximum benefits to the constituents and therefore enable nonprofits to demonstrate "symbolic performance," that is, generate positive social evaluations (Deephouse and Suchman [2008]). Heugens and Lander [2009] define symbolic performance as "a compound construct encompassing the extent to which organizations command legitimacy, status, and reputation." Higher symbolic performance indicates better alignment with prevailing cultural norms as well as relevant rules and laws (Heugens and Lander [2009], Scott [2001]).

Hospitals can respond in a number of ways to normative institutional pressures for higher PSRs. These include *acquiescence* to institutional norms, *compromise* by balancing or bargaining with external constituents, *avoidance* by escaping institutional expectations, *defiance* by dismissing or ignoring institutional expectations, and *manipulation* by co-opting or influencing institutional pressures (Oliver [1991]). Of these, avoidance is likely to be a route explored by nonprofit hospitals. Hospitals have limited avenues for improving their PSRs through pursuit of economically attractive opportunities, but reporting higher PSRs via cost shifting allows the nonprofit to window dress or conceal its nonconformity to normative expectations, which is a form of avoidance (Oliver [1991]). Thus, by providing an appearance or pretext of acceptance of normative expectations, hospitals can project conformity to such norms.

An opposite force may arise from the culture at many nonprofit institutions, which places emphasis on ethical behavior. As a result, any appearance of impropriety may severely compromise the nonprofit's status in the community. However, managers may rationalize their behaviors, especially when the benefits of cost shifting are filtered back to the community in the form of higher program services.

While all nonprofit hospitals face normative pressures, differences can exist in the intensity of pressures imposed by different constituents, which leads to cross-sectional differences in responses (Proenca, Rosko, and Zinn [2000]). Therefore, we hypothesize that those hospitals that face higher normative institutional constraints are more likely to shift cost to improve PSRs.

H1: There is a positive association between normative institutional pressures for conformance and cost shifting in nonprofit hospitals.

2.2.2. Regulative Pressures. Institutional theory considers regulations as a form of institutional pressure because regulations serve to codify widely held beliefs (D'Aunno, Succi, and Alexander [2000], Fennell and Alexander [1987]). Regulation serves a rule setting, monitoring, and sanctioning role and influences the flow of government resources to the organization (Ruef and Scott [1998]). Regulation establishes the expectations and rules, allows the regulator to monitor the firm's conformity to such rules, and provides sanctions and punishments if necessary. Conformance to regulatory rules requires organizational accountability and reliability in reporting in exchange for resources (D'Aunno, Succi, and Alexander [2000]). However, regulative pressures not only operate exclusively via coercion and formal laws and codes, but also may operate informally and rely on cultural-cognitive and normative pressures rather than punitive measures (Scott [2001]).

While, on the one hand, conformance to regulative pressures confers legitimacy to the organization, nonconformance to regulative pressures can cause the firm to lose legitimacy. Loss of legitimacy has adverse consequences such as restrictions on access to markets and limitations on strategic choices and threatens a firm's ability to operate successfully (Deephouse and Carter [2005], Phillips and Zuckerman [2001]). Therefore, regulative pressures can reduce cost shifting not only because they increase the likelihood that such cost shifting will be detected and penalized in the form of fines and penalties, but also because they can result in loss of legitimacy.

Regulations can be specific to one operating sphere of the organization; however, these pressures can spill over to other spheres, especially if the organization commits a regulatory violation. For example, a default on a financial regulation signals that the organization is deviating from expected behaviors. Such a default may expose the organization to legitimacy challenges in other areas and open it up for greater scrutiny by stakeholders. Organizations that fail to conform to regulations may therefore lose their institutional support as well as their legitimacy and associated social acceptance. As a result, we expect that an organization that has a higher likelihood of regulatory scrutiny is less likely to shift costs, leading to the following prediction.

H2: There is a negative association between regulative institutional pressures and cost shifting in nonprofit hospitals.

The next section summarizes financial disclosure requirements in nonprofit hospitals and describes our data sources.

3. Data and Analysis

3.1 FINANCIAL DISCLOSURES BY CALIFORNIA HOSPITALS

A nonprofit hospital in the United States that is registered under Section 501(3)(c) of the Internal Revenue Code and has gross receipts of over $25,000 is required to file a 990 annually. Congressional reports suggest that the intent of the 990 is to serve as the primary source of publicly available nonprofit financial information (Joint Committee on Taxation [2000]).[5] The IRS uses the 990 primarily to identify nonprofits that are engaging in activities that can compromise the exempt status (e.g., political lobbying).

In addition, hospitals providing medical care in the State of California must provide additional disclosures to state regulatory authorities. The California OSHPD, which is a department of the California Health and Human Services Agency, collects, analyzes, and disseminates data on hospitals licensed in California.[6] The Director of OSHPD is appointed by the Governor of California and must be confirmed by the state legislature. The information collected by OSHPD includes detailed line items for each revenue and expense category as well as nonfinancial information, such as patient mix and usage statistics, but does not break out expense items into program service, fundraising, and administrative costs.

3.2 SAMPLE SELECTION

We collect the OSHPD data from the California Health and Human Services Agency and the 990 data from the Statistics of Income (SOI) database.[7] Because external changes in the hospital industry make the analysis of a large panel of data noisy, we restrict our analyses to the years for which matched comparable data across the databases are available (1999-2005).

During the period of the study, there were about 197 nonprofit hospitals in California. Of these, we exclude 23 specialty hospitals, such as psychiatric or rehabilitation hospitals, and 48 hospitals that cater primarily to long-term care (nursing homes) because of differences in the funding model of long-term care homes. We also exclude the 24 hospitals belonging to the Kaiser Foundation because these hospitals do not report to OSHPD (the Kaiser hospitals are integrated health care systems that provide insurance

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[5] Nonprofits are not required to prepare financial statements. Even if they do prepare a set of financial statements, they are not required to disclose these to the public.

[6] For instance, The Health Planning and Policy (HPP) Division of OSHPD utilizes the OSHPD data to conduct research on issues related to health care cost containment, access to needed services, and improvement of the quality of care.

[7] The SOI database is from the IRS and contains 990 and other data on all 501(c)(3) organizations with more than $10 million in assets, plus a random sample of approximately 4,000 smaller organizations. The SOI files include most financial variables on the 990 form and were obtained from the National Center for Charitable Statistics (NCCS). The NCCS, which is a project of the Center on Nonprofits and Philanthropy (CNP) of the Urban Institute, is the national repository of data on the nonprofit sector in the United States (http://nccs.urban.org).

as well as hospital care). Finally, we exclude 13 very small hospitals (less than 15 beds) because they are not included in the 990 data. Eighty-nine hospitals remain after these screens.

We match each of the 89 remaining nonprofit hospitals in the OSHPD database with each nonprofit hospital in the 990 database. Since the two databases have different firm identifier numbers (a unique nine-digit hospital number in the OSHPD data and a unique nine-digit employer identification number (EIN) in the 990s), we match by hospital name and zip code.[8] The matching process produced 620 hospital-year observations.

3.3 CALCULATION OF COST SHIFTING: COMPARISON OF PSR ON 990 AND OSHPD

For each observation, we compare the PSRs resulting from the underlying data reported in the OSHPD and 990 reports. The OSHPD report includes expenses by line item, which enables us to calculate total program service expenses. The 990 explicitly reports program and total expenses. Because of the higher ability and incentive to shift costs on the 990 (as discussed in the next section), we expect the PSR to be larger on the 990 and assume that any difference in the ratios is likely to be due to *overreported* program service expenses on the 990.

3.3.1. Ability and Incentive to Manage Reporting on 990 and OSHPD Reports. Because of differences in the guidance and regulatory scrutiny, we believe that it is reasonable to presume that managers have a stronger *ability* to shift costs on their 990s. With respect to the guidance, the accounting manual for the OSHPD reports, which is over a thousand pages long, prescribes detailed cost-accounting procedures, including specific cost pools, cost drivers, and cost allocation procedures. On the other hand, the procedures for the 990 are less detailed and more open to interpretation. Therefore, managers have less latitude in shifting costs in the OSHPD as compared to the 990s.

With respect to regulatory scrutiny, since the IRS uses the 990 primarily to identify nonprofits that are engaging in activities that can compromise the exempt status, it is generally not concerned with the expense categories. In fact, recent statistics show that less than 1% of all 990s are subject to IRS review (United States General Accounting Office [2002]), and we were unable to document a single instance where a nonprofit organization was assessed any fines or penalties for improperly recording expenses in its various categories, other than when related to nonprofits' taxable activities.[9]

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[8] Minor differences in data can arise due to the underlying data used to prepare the two forms and the differences in reporting requirements. In our sample, the average difference in assets as reported in the OSHPDs versus 990s is less than 3% and is not statistically different from zero. Results are robust to the exclusion of firms in which the difference in assets as reported in the OSHPDs versus 990s is greater than 5%. In our estimation models, we include a control variable for any difference in total cost between the OSHPD and the 990.

[9] See Sansing [1998] and Yetman [2001] for discussions of nonprofits' taxable activities.

However, with respect to the OSHPD, the California Health and Human Services Agency (see www.oshpd.cahwnet.gov) states that every OSHPD report undergoes a desk audit that takes an average of 12 hours to conduct. In addition to these desk audits, the California Health and Human Services Agency contracts with the State Department of Health Services to perform on-site reviews of every hospital's accounting system to validate the reported data. Thus, because the average audit rate for 990s is less than 1%, while the audit rate for OSHPD reports is 100%, hospitals have relatively less ability to shift costs to manage OSHPD reports.

Because of differences in availability and expense classification, we believe it is reasonable to presume that managers have a stronger *incentive* to shift costs on their 990s. With respect to availability, the 990 is freely available for virtually all nonprofits in the United States and serves as the primary publicly available financial report, whereas OSHPD reports have to be purchased at a cost of $375 per year.[10] In addition, the OSHPD data are available only for California hospitals, whereas the 990 data are available for nonprofit organizations located throughout the country. Stakeholders are likely to be interested in comparing a variety of nonprofits in making relative efficiency determinations.

Finally, with respect to expense classification, it is simpler to assess a nonprofit's efficiency using the 990 because it makes use of broad expense categories (i.e., fundraising, administrative, and program service). In contrast, the OSHPD data are complex and have hundreds of data items, making it more difficult to determine program service expenses. In addition, instead of using financial reports directly, stakeholders can easily obtain financial ratios computed from the 990 data using Web sites, such as *Charity Navigator*, which provide ratings of charities based on PSR and fundraising ratio (www.charitynavigator.org). Thus, because nonprofit managers are likely to believe that a larger set of stakeholders will use the 990 data as opposed to the OSHPD data, they will have weaker incentives to shift costs to manage OSHPD reports.

Because of the stronger ability and incentive to shift costs on the 990, we expect program service expenses to be larger on the 990. In addition, any differences in the reported program service expenses between OSHPD data and the 990s are likely to be due to *overreported* program service expenses in the 990s rather than *underreported* program service expenses in the OSHPD data. We argue this because prior research has already documented that, consistent with incentives, nonprofits overstate program service expenses on their 990s (Krishnan, Yetman, and Yetman [2006], Jones and Roberts [2006], and Keating, Parsons, and Roberts [2008]), and we know of no reason that a California hospital would understate its program service expenses on its OSHPD. However, even if the differences

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[10] A limited number of data fields are available for free download from the OSHPD Web site. However, these data are not of adequate detail to compute the PSRs in an identical manner to the 990s.

are due to understatement of its program service expenses on OSHPD, we cannot identify any reason that understatement would be correlated with institutional factors. Finally, to the extent that hospital managers also overstate program service expenses on their OSHPD reports (ostensibly to appear more "charitable" to regulators), our measure of cost shifting will be conservatively measured, introducing a conservative bias in our tests.

3.3.2. Calculation of Total Program Service Expenses on OSHPD Report. To compare program service expenses on the OSHPD to those on the 990, we must define clearly the expenses on the OSHPD that would be reported as program service expenses on the 990. The OSHPD report breaks down all expenses into nine categories. Five of these categories (i.e., education costs, administrative services, general services, fiscal services, and unassigned costs) contain both program and nonprogram (i.e., administrative and fundraising) related expenses, while the other four categories (i.e., daily hospital services, ambulatory services, ancillary services, research costs) contain only program service expenses.

To partition the OSHPD expenses into program or nonprogram, we rely on the instructions to the 990 since we will be comparing the total program service expenses as a proportion of total expenses reported on the OSHPD to those on the 990. These instructions state that program service expenses are "activities that the reporting organization was created to conduct and that form the basis of the organization's current exemption from tax." It also states that "examples of exempt purpose achievements include providing charity care by a hospital, providing higher education to students under a college's degree program, making grants or providing assistance to individuals who were victims of a natural disaster, and providing rehabilitation services to residents of a long-term care facility. Do not report a fundraising activity as an exempt purpose unless it is substantially related to the accomplishment of the organization's exempt purposes (other than by raising funds)." For a hospital, this limits program service expenses to three potential categories: directly improving patient medical or mental condition, directly providing medical education, and directly conducting medical research.

The instructions to the 990 make it clear that supporting services, even though necessary in order to deliver patient care, education, or research, are not a part of program service expenses but are administrative. The instructions state that administrative expenses are those "for overall function and management, rather than for the direct conduct of program services." The instructions offer some specific examples of administrative expenses, including officer salaries, patient accounting and billing, liability insurance, personnel, office management, and investment expenses.

The instructions note that the salient test to be applied to each expense is whether or not that expense is directly related to the organization's basis

for income tax exemption. For example, the cost of medical supplies is a program expense as it is intended to directly improve a patient's health, which in turn is a hospital's basis for tax exemption. Liability insurance (including malpractice) is not a program expense because the hospital was not granted exempt status to purchase liability insurance (even though a hospital cannot feasibly operate without it). A nonprofit would be hard pressed to argue that expenses such as nonpatient food services (i.e., cafeteria for guests), grounds maintenance, security, or parking are directly program related. The portion of building depreciation allocable to surgery facilities or patient rooms is a program expense, whereas the portion allocable to administrative offices is an administrative expense. The OSHPD reports require a step-wise cost allocation system whereby such joint expenses would be allocated between program and administration.

While most of the partitions allow us to define clearly an expense as either program or nonprogram, there are cases where a single expense category contains both program and nonprogram components, such as interest expense. In these cases, we classify the entire expense as program, thus introducing a conservative bias into our tests.

The appendix contains a detailed list of all OSHPD expenses and our classification category (i.e., program or nonprogram). Table 1 provides the mean proportion of each expense line item that is classified as nonprogram in the OSHPD data.

3.3.3. Cost Shifting Measure. Table 2 provides descriptive statistics for the hospital sample.[11] As shown in table 2, the nonprofit hospitals in our sample have a mean reported PSR of 0.865 in their 990s. As opposed to this, the mean PSR calculated from our line-item analysis of OSHPD reports is 0.774. The average difference in PSR between the 990s and the OSHPD reports is 0.09. The mean nonprogram service expenses (i.e., administrative and fundraising) as a proportion of total expenses is 0.226 in OSHPD reports, whereas it is 0.135 as reported in the 990s, which is consistent with nonprofit hospitals strategically managing their program service expenses in their 990s. In the following section, we examine whether the differences in reported expenses between OSHPD and 990 are associated with institutional pressures.

3.4 CHARACTERISTICS ASSOCIATED WITH COST SHIFTING

In this section, we examine the effect of normative and regulative pressures on the extent of cost shifting in the 990s. Using the difference in the PSR on the 990 and the OSHPD (*Difference in PSR*) as our dependent variable, we estimate the following model:

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[11] Examination of yearly means reveals that there is no significant yearly trend for any of the variables included in the analysis (untabulated).

TABLE 1

Items Classified as Nonprogram from OSHPD Data (as Percent of Total Expenses as per OSHPD)

Variable	Mean	Median	Standard Deviation	Q1	Q3
Education administration office	0.430%	0.203%	0.452%	0.147%	0.511%
Hospital administration	5.158%	4.478%	3.198%	3.001%	6.543%
Governing board expense	0.067%	0.029%	0.104%	0.009%	0.080%
Public relations	0.807%	0.557%	1.148%	0.337%	0.911%
Administrative personnel	0.813%	0.734%	0.391%	0.542%	0.983%
Management of auxiliary groups	0.102%	0.080%	0.092%	0.051%	0.127%
Administrative employee health services	0.152%	0.123%	0.111%	0.081%	0.201%
Medical staff administration	0.346%	0.273%	0.340%	0.181%	0.411%
Nursing administration	1.028%	0.923%	0.528%	0.651%	1.296%
Other (nonmedical) administrative services	1.118%	0.692%	1.388%	0.213%	1.508%
Printing and duplicating	0.217%	0.195%	0.135%	0.120%	0.301%
Nonpatient food services	0.818%	0.780%	0.488%	0.497%	1.048%
Grounds	0.110%	0.078%	0.131%	0.049%	0.118%
Security	0.351%	0.318%	0.170%	0.233%	0.443%
Parking	0.172%	0.082%	0.242%	0.021%	0.213%
Communications	0.537%	0.498%	0.302%	0.368%	0.648%
Data processing	2.263%	2.084%	1.198%	1.424%	2.731%
Physical plant operations (nonmedical and remainder after allocation to inpatient, ambulatory and ancillary services)	1.676%	1.490%	0.745%	1.174%	2.030%
Physical plant maintenance (nonmedical and remainder after allocation to inpatient, ambulatory, and ancillary services)	1.367%	1.278%	0.775%	0.945%	1.643%
Other general services	0.420%	0.279%	0.396%	0.124%	0.633%
General accounting	0.854%	0.765%	0.427%	0.591%	1.054%
Patient accounting	1.238%	1.155%	0.689%	0.758%	1.641%
Credit and collection	0.504%	0.405%	0.380%	0.252%	0.631%
Other fiscal services	0.710%	0.395%	1.146%	0.208%	0.708%
Insurance—hospital and professional malpractice	0.844%	0.765%	0.535%	0.508%	1.122%
Insurance—other	0.227%	0.152%	0.283%	0.080%	0.274%
Licenses and taxes (other than income)	0.109%	0.086%	0.101%	0.039%	0.143%
Employee benefits (nonpayroll related, nonmedical)	0.361%	0.170%	0.484%	0.038%	0.499%
Total	22.798%	19.067%	16.382%	12.641%	28.448%

Data are computed from the Office of Statewide Health Planning and Development (OSHPD) for the period 1999–2005 and include 620 hospital-year observations.

TABLE 2
Descriptive Statistics

Variable	Data Source	Mean	Median	Standard Deviation	Q1	Q3
PSR reported in 990	IRS 990	0.865	0.892	0.092	0.811	0.935
PSR calculated from OSHPD	OSHPD	0.774	0.778	0.043	0.746	0.804
Difference in PSR		0.090	0.113	0.103	0.028	0.161
Difference in PSR as proportion of 990 PSR		0.091	0.125	0.123	0.035	0.173
Normative variables						
Church Indicator	OSHPD	0.184	0.000	0.388	0.000	0.000
Charity to Total Revenue	OSHPD	0.110	0.093	0.073	0.060	0.149
Rural Hospital Indicator	OSHPD	0.094	0	0.293	0	0
System Hospital Indicator	OSHPD	0.443	0	0.497	0	1
Regulative variables						
Medicare to Total Revenue	OSHPD	0.364	0.377	0.158	0.295	0.451
Medicaid to Total Revenue	OSHPD	0.135	0.078	0.147	0.037	0.191
Economic variables						
Donations to Total Revenue	OSHPD	0.011	0.000	0.041	0.000	0.004
Expertise and reputation variables						
Accounting Indicator	IRS 990	0.692	1.000	0.462	0.000	1.000
Management Firm Indicator	OSHPD	0.020	0	0.142	0	0
Paid Executive Indicator	IRS 990	0.726	1.000	0.446	0.000	1.000
Age	IRS 1023	39.294	40.000	18.058	26.500	55.000
Financial need variables						
Current Ratio	IRS 990	0.821	0.686	0.989	0.454	0.952
Operating Margin	OSHPD	−0.003	0.012	0.098	−0.037	0.050
Community sophistication variables						
PCI ($000)	Bureau of Labor Statistics	32.165	29.232	10.013	24.209	37.103
College	U.S. Census Bureau	25.668	24.900	8.449	21.400	30.800

(Continued)

TABLE 2 —*Continued*

Variable	Data Source	Mean	Median	Standard Deviation	Q1	Q3
Board variables						
Board Size	OSHPD	16.056	15.000	4.356	14	18
Board Comp ($)	OSHPD	101.143	67.150	495.93	0	0
Control variables						
Staffed Beds	OSHPD	235.889	204.500	44.659	132.000	315.000
Log Assets	OSHPD	18.839	18.788	1.099	18.069	19.569
Average Length of Stay	OSHPD	6.019	4.922	7.036	4.255	8.513
Occupancy Rate	OSHPD	0.705	0.708	0.161	0.617	0.809
Teaching Hospital Indicator	OSHPD	0.249	0	0.433	0	0
Case Mix Index	OSHPD	1.128	1.100	0.184	0.980	1.220
HHI	OSHPD	0.186	0.137	0.194	0.051	0.254

Data are for the period 1999–2005 and include 620 hospital-year observations. *Difference in PSR* is the difference in PSR computed from 990 less that computed from the OSHPD data. *Church Indicator* is one if the hospital is church owned; otherwise, it is zero. *Charity to Total Revenue* is charity care expenses divided by total revenue. *Rural Hospital Indicator* is one if the hospital is located in a rural area; otherwise, it is zero. *System Hospital Indicator* is one if the hospital is a member of a multihospital system; otherwise, it is zero. *Medicare to Total Revenue* is Medicare patient to total patient revenue. *Medicaid to Total Revenue* is Medicaid patient to total patient revenue. *Donations to Total Revenue* is donations revenue divided by total revenue. *Accounting Indicator* is one if the hospital reported nonzero outside accounting and auditing fees on its 990, and zero otherwise. *Management Firm Indicator* is one if an outside professional management group manages the hospital; otherwise, it is zero. *Paid Executive Indicator* is one if the hospital reported compensation for officers, directors, trustees, and key employees on its 990, and zero otherwise. *Age* is the number of years the hospital has been in business. *Current Ratio* is current liabilities divided by current assets. *Operating Margin* is operating income as a percentage of total revenue. *PCI ($000)* is the income per person living in the county. *College* is the percentage of adults who are college graduates and includes those who completed at least four years of college. *Board Size* is the number of members on the hospital's board. *Board Comp* is the compensation paid to board members to attend board meetings scaled by the number of beds available for patients. *Log Assets* is log of total assets. *Average Length of Stay* is the average number of days a patient stays from admission to discharge. *Occupancy Rate* is patient days divided by available patient days, where available patient days is computed as staffed beds × 365. *Teaching Hospital Indicator* is one if the hospital has a residency program; otherwise, it is zero. *Case Mix Index* is a measure of the average severity of illness of patients. *HHI* is the level of competition and is defined as the Herfindahl index of competition for each hospital county market.

$$
\begin{aligned}
Difference\ in\ PSR_{it} = {} & \alpha + \beta_1\,Church\ Indicator_{it} + \beta_2\,Charity\ to\ Total\ Revenue_{it} \\
& + \beta_3\,Rural\ Hospital\ Indicator_{it} \\
& + \beta_4\,System\ Hospital\ Indicator_{it} \\
& + \beta_5\,Medicare\ to\ Total\ Revenue_{it} \\
& + \beta_6\,Medicaid\ to\ Total\ Revenue_{it} \\
& + \beta_7\,Donations\ to\ Total\ Revenue_{it} \\
& + \beta_8\,Accounting\ Indicator_{it} \\
& + \beta_9\,Management\ Firm\ Indicator_{it} \\
& + \beta_{10}\,Paid\ Executive\ Indicator_{it} \\
& + \beta_{11}\,Age_{it} + \beta_{12}\,Current\ Ratio_{it} + \beta_{13}\,Operating\ Margin_{it} \\
& + \beta_{14}\,PCI_{it} + \beta_{15}\,College_{it} + \beta_{16}\,Board\ Size \\
& + \beta_{17}\,Board\ Comp_{it} + \beta_{18}\,Staffed\ Beds_{it} + \beta_{19}\,Log\ Assets_{it} \\
& + \beta_{20}\,Average\ Length\ of\ Stay_{it} + \beta_{21}\,Occupancy\ Rate_{it} \\
& + \beta_{22}\,Teaching\ Hospital\ Indicator_{it} + \beta_{23}\,Case\ Mix\ Index_{it} \\
& + \beta_{24}\,HHI_{it} + \varepsilon_i. \tag{1}
\end{aligned}
$$

The model is pooled and cross-sectional and uses data from 1999 to 2005. We eliminate influential observations with a Cook's *D* statistic greater than 1.0 (Belsley, Kuh, and Welsch [1980])[12] and use clustered standard errors by hospital as well as by year to control for potential lack of independence in our observations.[13]

3.4.1. Normative Variables. H1 predicts a positive association between normative institutional pressures for conformance and cost shifting. Drawing on prior literature in economics, health care, and strategy, we posit that four types of nonprofit hospitals face higher normative institutional pressures. These include church hospitals, hospitals that provide a higher extent of charity care, rural hospitals, and hospitals that are owned by a health care system.

3.4.1.1. Church Hospitals. Church hospitals face greater normative institutional pressures than nonchurch hospitals as a result their religious identity and their focus on community benefits. These pressures can result in a church hospital offering programs or services that are not efficient in

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[12] Results are robust to including the full sample.

[13] Petersen [2009] provides an extensive review and analysis of the various methods used to address correlations across time and/or firms and recommends that if a firm effect is suspected to be present, the standard errors should be clustered by firm. Clustered standard errors are unbiased, produce correctly sized confidence intervals in the presence of either temporary or permanent firm effects, and are robust to heteroskedasticity (Froot [1989], Rogers [1993], Petersen [2009]).

terms of the PSR, and therefore increase incentives to shift costs to improve the PSR.

Religious identity requires that church hospitals maintain fidelity to the religious and institutional teachings of the church to which they belong (White, Chou, and Dandi [2010]). As part of the religious identity, church hospitals are subject to oversight from the church system. For example, Catholic hospitals such as Mercy Hospitals are governed by the *Ethical and Religious Directives for Catholic Health Care Services* [2001].[14] The beliefs and values of the church may require that hospitals provide services even if the services are unprofitable (such as trauma services), or unpopular (e.g., services that contain an element of social stigma such as the treatment of HIV/AIDS, substance abuse, etc). In addition, these beliefs may require that church hospitals refrain from providing services that are contrary to the beliefs of the church (e.g., abortion or end-of-life procedures), even when these services are profitable. Such service offering restrictions can negatively affect PSR efficiency.

Community benefits in church hospitals, which arise from the hospitals' roots in voluntarism and charity and their religious beliefs regarding compassion, are higher than in nonchurch hospitals (White, Chou, and Dandi [2010], O'Rourke [2001]). Community benefit programs in church hospitals, which can manifest in the form of provision of holistic care, preventative care, and educational programs, may be counter to efficiency in terms of the PSR. Therefore, church hospitals face institutional and organizational constraints preventing them from making efficiency-enhancing tradeoffs that affect the vulnerable sections of the community where the hospital is located and from which it obtains its legitimacy.[15]

While they face institutional pressures resulting from religious identity and community benefits, church hospitals are also required to be equal to other hospitals competing in the market place and operate technically as efficiently as other nonchurch hospitals (Scott and Davis [2007]). A high PSR provides a signal that the hospital uses a greater portion of its revenue dollars in the form of program services relative to administration and is consistent with the hospital delivering value on all its institutional expectations. This increases incentives for church hospitals to shift costs and improve PSRs.

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[14] These directives forbid member hospitals from performing abortions or any medical service that could potentially be an end-of-life procedure, even if such procedures are medically as well as economically justified. Other religious hospitals, such as Presbyterian or Adventist hospitals, face similar restrictions. In addition, some states, notably New York, Pennsylvania, and Ohio, also have Jewish hospitals, which are likely to face institutional constraints that are similar to church hospitals. However, there are only two Jewish hospitals in California, and both are long-term care hospitals rather than general hospitals.

[15] Some church hospitals have CEOs who are nuns and do not receive any compensation since they have taken a vow of poverty. In other cases, the church CEOs may get compensated, but such compensation may accrue to the religious order rather than to the individual.

We measure membership in a church system by using *Church Indicator*, which takes the value of one if the hospital is classified as a church hospital by OSHPD, and zero otherwise. We expect a positive coefficient on β_1. Table 2 shows that 18.4% of our observations are church hospitals.

3.4.1.2. Charity Hospitals. Hospitals that have high levels of charity care have higher institutional pressures because they are more critical to the community than are hospitals that provide less charity care. The community has more to gain if hospitals run efficiently because higher efficiency enables hospitals to provide more units of charity care. Because the hospital is so important to the community's welfare, the community cares more about the hospital's efficiency. Consistent with this, prior studies have found that a higher level of charity care provision is a signal of higher expectations and pressure from the community (Frank and Salkever [1991], Thorpe and Phelps [1991]).

To measure charity care, we use the definition recommended by the California Bureau of State Auditors and include the following items collected from the OSHPD data: Charity Discount, Contractual Adjustment for County Indigent Program, Donation for Indigent, and Provision for Bad Debt, and express it as a percentage of total revenues (*Charity to Total Revenue*). We predict a positive coefficient on β_2. The proportion of charity to total revenue averages 11% in our sample, with a standard deviation of 7.3%.[16]

3.4.1.3. Rural Hospitals. Rural hospitals play an important role in the local community and face scrutiny regarding access to care and quality of care provided (Li, Schneider, and Ward [2009]). They are also more likely to be visible because of their salience to the community, and institutional research suggests that organizational visibility influences the extent of institutional pressures faced by a firm as well as its responses to such pressures (Clemens and Douglas [2005]). A more visible firm attracts more attention and also may be held more accountable for its actions and adherence to institutional constraints (Goodstein [1994], Julian, Ofori-Dankwa, and Justis [2008]). We argue that these especially strong institutional pressures will incentivize rural hospitals to shift costs in response to such scrutiny.

We include *Rural Hospital Indicator*, which is set to one if the hospital is located in a rural area (according to OSHPD), and zero otherwise, and predict β_3 to be positive. Rural hospitals represent 9.4% of our observations.

3.4.1.4. System Hospitals. System hospitals face greater normative institutional pressures than nonsystem hospitals as a result of their community orientation, information sharing across member hospitals within a system,

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[16] When we restrict the definition of charity to include only the charity discount, the mean (median) value of charity care is 3.208% (1.648%) and the standard deviation is 4.209%. When we reestimate the analyses using this definition of charity care, our results are more powerful than those reported in this paper.

and types of service offerings. First, multihospital systems face pressures to engage in community orientation practices, and such pressures result in the incentive to shift costs to improve PSRs. Using an institutional perspective, Newbold [1995] argues that because of their community orientation, hospitals have a desire to meet the expectations of local governments, to placate third-party payers, and to conform to industry norms. Building on this and other research, Proenca, Rosko, and Zinn [2000] find empirical support for their hypothesis that hospitals belonging to networks, systems, or alliances will have a higher degree of community orientation.[17]

In the context of hospitals, membership structures, such as multihospital systems, encompass relational density, have greater exposures to institutional expectations and norms, and thus are more likely to adopt community orientation practices as a response to the institutional pressures (Westphal, Gulati, and Shortell [1997], Goodstein [1994], Daft and Weick [1984]). The local community can use the PSR to determine not only whether the hospital is running efficiently, but also whether resources are kept in the local community (via program service expenses) rather than accruing to off-site management teams (in the form of administrative expenses). This provides an incentive for system hospitals to shift costs to improve PSRs.

A second source of institutional pressures in multihospital systems arises from information sharing within the system. System hospitals typically share information regarding technology, and medical and financial performance (Balotsky [2005], Bazzoli et al. [2000]). Thus, efficiency ratios such as PSR come under scrutiny and such performance information is shared across member hospitals, providing an incentive for system hospitals to shift costs to improve their PSRs.

Finally, with respect to service offerings, system membership usually affects the product mix of member hospitals. For example, member hospitals may replicate services across all hospitals or concentrate offerings in a limited number of hospitals (Balotsky [2005], Dranove and Shanley [1995]). While these decisions are made with the view to improving total system performance, they may adversely affect the financial performance and PSR efficiency of individual member hospitals, which in turn can lead to incentives to improve PSRs to boost reported performance.

We measure system hospitals with an indicator (*System Hospital Indicator*) that is set to one if the hospital is a member of a multihospital system (as

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[17] In supporting their theoretical arguments, Proenca, Rosko, and Zinn [2000] rely on the idea of interconnectedness. Ingram and Simons [1995] define interconnectedness as the relational density among occupants of an organizational field, and they argue and find that this is related to how much attention an organization pays to the policies and practices of other organizations, which in turn is directly related to the level of conformity with external expectations. Interconnectedness facilitates voluntary sharing of information, values, and practices; creates an environment where norms spread more quickly, creating more consistent environmental pressures; and promotes organizational conformity (DiMaggio and Powell [1983], Oliver [1991], Pfeffer and Salanick [1978]).

per OSHPD), and zero otherwise, and predict β_4 to be positive. About 44% of our sample observations are part of a system.

3.4.2. Regulative Variables. H2 predicts a negative association between regulative pressures and cost shifting in nonprofit hospitals. Regulations form expectations regarding specific types of behavior (e.g., environmental pollution or accounting fraud). We capture regulative pressures using the proportions of Medicare and Medicaid patient revenue to total revenues.

Medicare is a U.S. government–administered program that provides health insurance coverage generally to the elderly. Participation in the Medicare program (which includes virtually all the hospitals in the United States) subjects a hospital to oversight from an important regulatory body, that is, the Medicare agency. The Medicare audit program imposes regulatory pressures on firm actions and performance. Hospitals that participate in the Medicare program can be audited by the U.S. Department of Health and Human Services, Office of Audit Services (OAS) to ensure that the reported costs are accurate, proper procedures are followed for cost allocation, and the claims made by a hospital to an insurance company or the Medicare agency are justified.[18] If the audit reveals misreporting, the hospital may be required to reimburse funds to the government with penalties and lose its eligibility to receive government funding (Chang, Steinbart, and Tuckman [1993]). In addition, an unfavorable Medicare audit report signals that the hospital was misreporting and exposes the hospital to questions regarding the other types of reports it produces, including IRS 990 reports.

We measure the extent of regulative pressures as the proportion of Medicare patient revenue to total patient revenue (*Medicare to Total Revenue*) as reported on the OSHPD. We expect that hospitals with higher *Medicare to Total Revenue* face higher regulative pressures and shift costs to a lesser extent, and thus we expect a negative coefficient on β_5. The proportion of Medicare to total revenue averages 36% in our sample, with a standard deviation of nearly 16%.[19]

In addition to Medicare, another program that contains regulatory oversight is Medicaid, which is a public insurance program for uninsured children and disabled adults. The federal government establishes the general guidelines for Medicaid; however, the states are responsible for the details regarding eligibility and administration of Medicaid. As with Medicare, the OAS can audit state Medicaid reports. Thus, similar to participation in Medicare, participation in the Medicaid program subjects a hospital to

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[18] Another purpose of the Medicare audit is to explore whether the hospital is classifying patients accurately into various diagnoses (i.e., not "upcoding" patients into services that have higher reimbursements) or billing for services, such as resident consultations even when the resident was not present (Firshein [1997]).

[19] Prior evidence shows that hospitals with a higher proportion of Medicare patients have a higher likelihood of Medicare audits (Chang, Steinbart, and Tuckman [1993]).

regulatory oversight, and these regulatory pressures will cause downward pressure on cost shifting for hospitals with a higher proportion of Medicaid patients. However, unlike Medicare, Medicaid also imposes severe cost pressures on the hospital because Medicaid reimbursements are only a fraction of the rate received for the same service for a privately insured patient. As a result, hospitals with more Medicaid patients may benefit to a greater extent from cost shifting, relative to those with fewer Medicaid patients, if such cost shifting results in increased donations.

We measure the extent of pressures from Medicaid as the proportion of Medicaid patient to total patient revenue (*Medicaid to Total Revenue*) as reported on the OSHPD. Given the contradictory pressures for cost shifting, the sign on β_6 could be positive or negative. The proportion of Medicare to total revenue as reported on the OSHPD averages 13.5% in our sample, with a standard deviation of nearly 15%.

3.4.3. Economic Variables. Prior research has established a positive association between economic incentives to appear efficient and cost shifting for a broad sample of nonprofit organizations, including hospitals (Krishnan, Yetman, and Yetman [2006]). As mentioned earlier, a substantial portion of revenue in nonprofit hospitals is earned through the provision of medical services, unlike charitable organizations, which depend on donations for their survival and continued existence. However, due to competitive market conditions, donations can make a significant difference to the nonprofit hospital's capacity to break even. Our empirical measures for economic incentives are motivated by prior research, which suggests that donors consider PSR as an important measure of nonprofit organizational efficiency and empirically documents that donations increase as PSRs increase (Harvey and McCrohan [1988], Khumawala and Gordon [1997], Weisbrod and Dominguez [1986]). We conjecture that hospitals receiving a greater proportion of their revenues from donations will have stronger economic incentives to appear efficient.

We define economic incentives using the measure *Donations to Total Revenue* as reported on the OSHPD, which is the proportion of revenue earned from public donations, and predict a positive coefficient for β_7. While the average amount of donations to total revenue in our sample observations is small (only 1.1%), the standard deviation is quite large (4.1%). Thus, when the operating margin is close to zero, donations are likely to influence a hospital's ability to break even.

3.4.4. Expertise and Reputation Variables. We use additional independent variables to control for other factors that are likely to be associated with cost shifting, based on previous studies such as Krishnan, Yetman, and Yetman [2006] and Baber, Daniel, and Roberts [2002]. For instance, differences in reporting may be less pronounced in hospitals with more expertise and/or a stronger reputation. We control for the level of accounting expertise in the nonprofit with an indicator variable (*Accounting Indicator*) set to one

if the hospital reported nonzero outside accounting and auditing fees on its 990, and zero otherwise. To the extent that cost shifting may arise from lack of accounting expertise, the use of outside accounting expertise could decrease the probability of cost shifting if outside accountants are more familiar with accounting rules, causing us to predict a negative coefficient on β_8. Nearly 70% of our observations report nonzero for outside accounting and auditing fees on their 990.

Some hospitals are managed by an outside professional hospital management team that includes a CEO and other top managers. We include an indicator (*Management Firm Indicator*) set to one if an outside management team manages the hospital and zero otherwise, as reported on the OSHPD. Because this variable is also an indicator of expertise, we expect the coefficient on β_9 to be negative. Two percent of our observations are managed by an outside professional management team.

The use of a paid executive could increase the probability of correctly reporting expenses if a paid executive exercises greater care in preparing the 990 (or requires greater care on the part of employees who prepare the form) than would an unpaid volunteer executive. However, it is also possible that the paid officer indicator variable could capture economic incentives of managers. For instance, the use of a paid officer might actually be positively associated with cost shifting if the officer can increase his or her compensation by improving the PSR (Baber, Daniel, and Roberts [2002], Krishnan, Yetman, and Yetman [2006]). We include an indicator variable (*Paid Executive Indicator*) set to one if the hospital reported compensation for officers, directors, trustees, and key employees on its 990, and zero otherwise. We do not make a prediction on β_{10}. Nearly 73% of our observations report officer compensation on their 990s.

We use age of the nonprofit in years (*Age*) as reported in the SOI data from IRS 1023 as a control for the reputation of the nonprofit (Okten and Weisbrod [2000], Weisbrod and Dominguez [1986]). We presume that a hospital with a higher reputation will have lower propensity to shift costs and, hence, we expect a negative coefficient on β_{11}. The average age of the hospitals in our sample is 39 years.

3.4.5. Financial Need Variables. A stronger financial need may increase a hospital's incentive and/or need to appear more efficient in order to garner more resources from stakeholders. We capture financial need in the variables *Current Ratio* and *Operating Margin*. The *Current Ratio* is the ratio of current liabilities to current assets as reported on the IRS 990, and a higher ratio implies lower liquidity and may be associated with increased cost shifting. Hence, we expect a positive coefficient on β_{12}.

Operating Margin is operating income as a percentage of total revenue from the OSHPD. A more profitable hospital would have less incentive and need to shift costs. However, profitability also can reflect political costs, which may attract regulatory scrutiny regarding a hospital's nonprofit status and may result in incentives to shift more in order to appear efficient. It

also may be the case that political costs may cause the hospital to shift less if the hospital believes that there is a high likelihood of getting caught, which would suggest a positive relationship with the incentive to shift costs. Given the conflicting possibilities, we refrain from making a forecast on the sign of β_{13}.

Financial need varies substantially across the observations in our sample. The average current ratio is 0.82, with a standard deviation of 0.98. The average operating margin reflects a loss, but is not significantly different from 0. However, the standard deviation of 0.098 suggests high variance in the profitability of the hospitals in the sample. We recognize that our financial need variables are to some extent indirect and thus will contain measurement error, and we encourage readers to keep these limitations in mind when interpreting our results.

3.4.6. Community Sophistication Variables. The level of the knowledge of the community can drive the extent to which PSRs are monitored relative to other measures, and thereby influence cost shifting decisions. For example, a community that is relatively less sophisticated may scrutinize PSRs to a greater extent because it does not have the expertise to analyze other, relatively more sophisticated, performance measures. To control for these effects, the analyses includes two variables aimed at capturing the features of the community where the hospital is located. These include the per-capita income (*PCI*), which is the income per person living in the county, and the percentage of population with college degrees (*College*), which is a measure of the percentage of adults in the community who have completed at least four years of college. Per-capita income was collected from the Bureau of Labor Statistics, and percentage of population with college degree or above was collected from the U.S. Census Bureau. We expect that higher income and education will be associated with higher community sophistication and monitoring of additional performance variables and therefore expect a negative coefficient on β_{14} and β_{15}. For our sample, the mean PCI was \$32,165 with a standard deviation of \$10,013. On average, 25.67% of the population had a college degree or above.

3.4.7. Board Variables. Board size also may influence reporting and monitoring decisions. While additional members on the board may bring specialized expertise, a larger board size may also increase coordination costs, as well as encourage free riding. Very large boards can become unwieldy and disengaged, and therefore less effective (Jensen [1993] and Yermack [1996]). The IRS believes boards that are too large may result in weaker governance (Ostrower [2007]). Nonprofit boards are particularly susceptible to growing large as board members are selected for many reasons, such as to encourage them to become donors or to perform fundraising activities. Indeed, prior research has found a negative association between board size and firm performance (Yermack [1996], Cheng, Evans, and Nagarajan [2008]). Based on the findings of previous research, board size is likely to

be associated with poorer quality monitoring and/or higher attention paid to easily accessible measures such as PSR rather than more complex measures. Thus, we include a control variable for board size (*Board size*) and predict board size to be associated with higher cost shifting (i.e., β_{16} to be positive). The mean board size in our sample was 16.05.

Board member compensation may also be associated with financial reporting and monitoring. Ryan and Wiggins [2004] find that compensation is linked with board independence, which is generally associated with strong governance. In addition, it also is possible that members who are compensated for attending board meetings may have the knowledge, ability, and/or incentives to be more effective board members. More effective boards are more likely to produce more accurate financial reports (Cohen, Krishnamoorthy, and Wright [2004], Yetman and Yetman [2010]). Finally, it is possible that compensated board members may focus on additional performance measures, reducing the attention on PSR. Therefore, we include a control for the board compensation, scaled by the number of beds (*Board Comp*) and expect β_{17} to be negative. The mean board compensation per bed was $101.14; however, a majority of the hospitals did not pay their board members for attending meetings.

3.4.8. Other Control Variables. We include several other control variables in our analysis, the first of which is size. Prior hospital research commonly measures hospital size using patient beds (e.g., Balotsky [2005], Bazzoli et al. [2000], D'Aunno, Succi, and Alexander [2000]), whereas prior non-profit research measures size using total assets (e.g., Tinkelman [1999], Krishnan, Yetman, and Yetman [2006], Keating, Parsons, and Roberts [2008]). Because size is an important control variable and to be through, we included both proxies. Specifically, we include both the number of beds available for patients (*Staffed Beds*) and the log of total assets (*Log Assets*), both of which are collected from the OSHPD report.

We refrain from making a prediction on these two control variables. First, although either or both of these measures may be capturing size, the predicted relationship between size and cost shifting is unclear. On the one hand, Tinkelman [1999] argues that larger organizations are more likely to have higher quality financial reports because they are more likely to have professional accounting expertise. Consistent with this, prior nonprofit research has documented a negative relationship between nonprofit misreporting and size (Tinkelman [1999], Krishnan, Yetman, and Yetman [2006], Keating, Parsons, and Roberts [2008], Yetman and Yetman [2010]). If either *Staffed Beds* or *Log Assets* is capturing expertise, we would predict a negative coefficient. On the other hand, prior institutional research argues and finds support for an association between firm size and pressures for conformance to institutional norms (Proenca, Rosko, and Zinn [2000], Meyer [1979], Powell [1991], Pfeffer and Salancik [1978], Greening and Gray [1994], Mintzberg [1983], Dobbin et al. [1988], Dobbin et al. [1993], Edelman [1992], Scott [1992]).

If either *Staffed Beds* or *Log Assets* is capturing pressure for conformance to institutional norms, we would predict a positive coefficient.

Second, it is possible that total assets for hospitals may be capturing the level of technology of a hospital (such as diagnostics and imaging) rather than size. High-tech hospitals may have a lower need to shift costs because they offer unique services to the community (e.g., transplants) and thus fill a more specialized niche in the community. Therefore, they may be subject to less institutional pressure, which predicts a negative relation between technology and cost shifting.

Finally, we include other controls for hospital characteristics that could influence efficiency and reporting decisions. These include average length of stay from admission to discharge (*Average Length of Stay*), *Occupancy Rate*, *Teaching Hospital Indicator*, illness severity (*Case Mix Index*), and level of competition in the hospital market measured by the Herfindahl Index (*HHI*). We also include year indicators and the difference between total expenses in OSHPD and 990 as additional controls (untabulated).[20]

4. Results

4.1 UNIVARIATE

Table 3 provides the correlation coefficients and shows that all of the normative and regulative independent variables and most of the control variables are correlated with the *Difference in PSR* in the predicted direction. In addition, all of the variance inflation factors (VIF) were below two, and the condition index was below three, which is well below the multicollinearity threshold suggested by Belsley, Kuh, and Welsch [1980].

4.2 MULTIVARIATE

Table 4 provides the multivariate results of the clustered analysis of the characteristics associated with cost shifting. H1 predicts a positive association between normative pressures and cost shifting in nonprofit hospitals. The results in table 4 indicate a significant positive coefficient on all four normative institutional variables: *Church Indicator*, *Charity to Total Revenue*, *Rural Hospital Indicator*, and *System Hospital Indicator*. Hospitals that are associated with a church, have a larger proportion of charity care, are located in rural areas, or belong to hospital systems shift costs to greater extent, consistent with their facing more institutional pressures than their counterparts to demonstrate programmatic efficiency and with their shifting costs to provide an impression of such efficiency. These results are consistent with H1.

H2 predicts a negative association between cost shifting and the likelihood of regulatory oversight. The results in table 4 reveal a significant

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[20] Results are robust to the exclusion of these control variables.

TABLE 3
Correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1 Difference in PSR	1																									
2 Difference in PSR as proportion of 990 PSR	0.99	1																								
3 Church Indicator	0.21	0.20	1																							
4 Charity to Total Revenue	0.12	0.11	0.14	1																						
5 Rural Hospital Indicator	0.08	0.06	0.14	−0.01	1																					
6 System Hospital Indicator	0.30	0.29	0.25	0.13	0.21	1																				
7 Medicare to Total Revenue	−0.03	−0.04	0.12	0.05	0.02	0.16	1																			
8 Medicaid to Total Revenue	0.00	0.01	0.06	0.23	−0.07	−0.07	−0.32	1																		
9 Donations to Total Revenue	0.01	0.01	−0.10	−0.02	−0.07	−0.18	−0.10	0.02	1																	
10 Accounting Indicator	−0.22	−0.21	0.04	−0.14	−0.12	−0.25	−0.09	−0.03	0.14	1																
11 Management Firm Indicator	0.00	0.00	0.16	−0.04	−0.04	−0.11	−0.08	0.08	0.02	0.04	1															
12 Paid Executive Indicator	−0.10	−0.07	−0.26	0.01	−0.16	−0.22	−0.10	0.02	0.00	0.16	0.00	1														
13 Age	−0.11	−0.10	0.01	−0.03	−0.17	−0.11	0.13	0.03	−0.01	0.11	0.06	0.03	1													
14 Current Ratio	−0.05	−0.05	−0.03	−0.05	0.02	0.05	0.09	−0.13	0.01	0.10	0.08	0.02	−0.14	1												
15 Operating Margin	0.02	0.02	0.03	−0.05	0.06	0.14	0.04	−0.23	0.01	−0.06	−0.08	0.03	0.06	−0.15	1											
16 PCI	0.16	0.16	−0.18	−0.10	−0.19	0.12	−0.11	−0.08	−0.32	−0.06	−0.09	0.10	0.05	0.01	0.11	1										
17 College	0.09	0.10	−0.25	−0.07	−0.26	0.06	−0.10	−0.01	−0.05	0.10	−0.09	0.17	0.05	0.02	0.05	0.94	1									
18 Board Size	0.10	0.10	0.04	0.01	−0.23	−0.17	0.05	0.01	−0.02	0.06	0.04	0.16	0.44	−0.10	−0.06	0.11	0.17	1								
19 Board Comp	−0.08	−0.09	0.00	−0.06	−0.02	−0.07	0.03	0.00	−0.03	0.02	−0.03	−0.10	−0.04	−0.02	0.00	0.01	0.03	0.05	1							
20 Staffed Beds	0.13	0.14	0.12	−0.06	−0.27	−0.04	−0.04	0.07	−0.07	0.02	0.21	0.16	0.15	−0.12	0.00	0.05	0.11	0.46	−0.07	1						
21 Log Assets	0.03	0.04	0.06	−0.12	−0.22	−0.02	−0.23	0.00	0.09	0.14	0.00	0.16	0.23	−0.18	0.11	0.15	0.19	0.32	0.00	0.60	1					
22 Average Length of Stay	−0.01	0.02	−0.04	−0.16	−0.05	−0.12	−0.12	0.08	0.03	0.11	−0.03	0.08	0.03	−0.02	−0.37	−0.04	−0.03	−0.01	−0.02	0.01	−0.06	1				
23 Occupancy Rate	0.00	0.00	0.08	0.01	−0.06	0.04	−0.11	−0.01	−0.05	0.08	−0.07	0.09	0.06	−0.10	0.06	0.00	0.05	0.15	0.10	0.09	0.44	0.10	1			
24 Teaching Hospital Indicator	0.06	0.06	0.05	0.02	−0.16	0.04	0.02	−0.04	−0.05	0.10	0.14	0.14	−0.09	0.09	−0.02	−0.01	0.02	0.11	0.05	0.32	0.38	−0.09	0.15	1		
25 Case Mix Index	0.16	0.16	0.16	−0.19	−0.04	0.15	0.20	−0.36	0.01	0.08	0.13	−0.02	0.14	0.02	0.08	0.19	0.16	0.10	−0.05	0.25	0.40	−0.11	0.07	0.30	1	
26 HHI	−0.15	−0.15	0.07	−0.03	0.41	0.01	−0.16	−0.03	−0.02	0.00	−0.06	−0.22	−0.12	−0.08	0.03	−0.14	−0.26	−0.38	−0.04	−0.42	−0.21	0.09	−0.11	−0.13	−0.10	1

Data are for the period 1999–2005 and include 620 hospital-year observations. Correlations that are greater than the absolute value of 0.09 are significant at 10% or better.

TABLE 4

Drivers of Differences in PSR (620 Observations Clustered by Hospital and Year)

Predictor	Predicted Sign	Difference in PSR			Difference in PSR as Proportion of 990 PSR		
		Coefficient	*t* Value	Pr > |t|	Coefficient	*t* Value	Pr > |t|
Normative variables							
Church Indicator	+	**0.039**	3.760	<.0001	**0.046**	3.760	0.000
Charity to Total Revenue	+	**0.138**	2.170	0.030	**0.153**	2.050	0.041
Rural Hospital Indicator	+	**0.038**	2.020	0.044	**0.042**	1.830	0.067
System Hospital Indicator	+	**0.034**	3.420	0.001	**0.042**	3.640	0.000
Regulative variables							
Medicare to Total Revenue	−	**−0.087**	−2.690	0.007	**−0.109**	−2.820	0.005
Medicaid to Total Revenue	+/−	0.023	0.780	0.433	0.026	0.730	0.465
Economic variables							
Donations to Total Revenue	+	**0.250**	2.160	0.031	**0.312**	2.230	0.026
Expertise and reputation variables							
Accounting Indicator	−	**−0.037**	−3.930	<.0001	**−0.041**	−3.680	0.000
Management Firm Indicator	−	**−0.034**	−1.830	0.067	**−0.039**	−1.950	0.052
Paid Executive Indicator	+/−	−0.013	−1.200	0.231	−0.008	−0.610	0.544
Age	−	**−0.001**	−2.980	0.003	**−0.001**	−2.750	0.006
Financial need variables							
Current Ratio	+	−0.005	−0.930	0.353	−0.006	−0.870	0.385
Operating Margin	+/−	0.044	0.910	0.363	0.061	1.070	0.287
Community sophistication variables							
PCI ($000)	−	**0.006**	4.660	<.0001	**0.007**	4.430	<.0001
College	−	**−0.006**	−3.450	0.001	**−0.007**	−3.230	0.001
Board variables							
Board Size	+	**0.004**	2.500	0.013	**0.005**	2.500	0.013
Board Comp ($)	−	**−0.002**	−2.490	0.014	**−0.002**	−2.650	0.008
Other control variables							
Staffed Beds	+/−	0.002	0.630	0.528	0.003	0.770	0.445
Log Assets	+/−	**−0.010**	−1.730	0.085	**−0.012**	−1.700	0.090
Average Length of Stay	+/−	**0.002**	2.740	0.006	**0.002**	3.080	0.002
Occupancy Rate	+/−	−0.011	−0.370	0.714	−0.018	−0.490	0.621
Teaching Hospital Indicator	+/−	0.011	1.040	0.298	0.014	1.130	0.260
Case Mix Index	+/−	**0.096**	3.560	0.000	**0.114**	3.620	0.000
HHI	+/−	**−0.135**	−5.130	<.0001	**−0.154**	−4.810	<.0001
Intercept, R^2		0.150, 0.31			0.156, 0.29		

Data are for the period 1999–2005 and include 620 hospital-year observations. The analysis used standard errors clustered by hospital as well as by year. Variable definitions are available in table 2. Coefficients in bold are significant at $p < 10\%$ or better (two tailed).

negative coefficient on our measure of regulative pressures, that is, *Medicare to Total Revenue*, which is consistent with H2. Regarding our conjecture that regulative and economic pressures could operate in different directions for Medicaid patients, the coefficient on *Medicaid to Total Revenue* is not significant.

The positive and significant coefficient on *Donations to Total Revenue* reveals that hospitals that obtain a higher proportion of revenue from donations shift costs and improve their PSRs to a greater extent in their publicly reported 990 disclosures. The higher PSRs can enable them to obtain greater future donations, which is consistent with the conclusion that economic incentives also drive cost shifting in publicly reported statements. Our ability to replicate this prior result provides comfort that our measure of cost shifting is appropriate and that the cost shifting behavior of our sample is consistent with the evidence found in prior literature.

The results for the expertise control variables indicate that hospitals that had their financial statements reviewed by an independent accountant shifted costs to a lesser extent, consistent with Krishnan, Yetman, and Yetman [2006] and Yetman and Yetman [2010]. Hospitals that are governed by a management firm also are less likely to shift costs, suggesting that some of the cost shifting may be driven by lack of expertise rather than a deliberate intent to misreport. However, we do not find a significant relationship between the use of paid officers and cost shifting, suggesting that the variable may be capturing both expertise as well as economic incentives. With respect to our reputation variable, older hospitals are less likely to shift costs, consistent with our prediction that hospitals with stronger reputations will have a lower propensity to shift costs.

Higher community education levels are associated with lower cost shifting, consistent with our prediction that a more sophisticated community will monitor additional performance variables. However, contrary to our expectations, higher per capita income is associated with higher cost shifting. It is likely that in communities with higher per capita incomes, the community has less time to monitor the performance of the hospital and hence relies on summary measures. Also, hospitals located in more affluent communities may garner higher donations if they demonstrate higher efficiencies, and therefore such hospitals have higher incentives to shift costs.

We do not find that financial need is associated with cost shifting, which is likely due to the measurement error inherent in our financial need variables. However, the results for our board variables indicate that hospitals with smaller boards and higher board compensation are less likely to shift costs, consistent with our predictions.

We find a negative coefficient on *Log Assets*, suggesting larger organizations are more likely to have higher quality financial reports, which may be due to accounting expertise in larger organizations. It is also possible that *Log Assets* may be measuring the level of technology in the organizations. Hospitals with higher technology may be filling a unique community need by treating specialized ailments (such as transplants) and are thus susceptible to lower pressures. *Average Length of Stay* and *Case Mix Index* are positively associated with cost shifting. Because both of these variables are signals of higher resource consumption, we conjecture that this is driven by a need to obtain higher resources, such as donations. It is also possible that the positive coefficient on *Average Length of Stay* may capture incentives to shift costs as a result of inefficient operations. *HHI* has a negative coefficient, which implies that hospitals located in less competitive markets (where the *HHI* is higher) shift costs to a lower extent. It is likely that because of their monopoly status, they face less institutional pressure.

4.3 SENSITIVITY ANALYSES

The manner in which we cluster program service expenses in the OSHPD is central to our analysis. Recall that, in our primary analysis, we categorize program service expenses consistent with the instructions to the 990,

which explicitly state that the nonprofit should include "expenses that relate to the organization's overall operations and management" in the management and general category. While we are comfortable with the way in which we categorize program service expenses in our primary analysis, we nevertheless conduct a sensitivity test that applies an extremely narrow categorization of program service expenses. We believe that this extremely conservative test provides a lower bound on our results.

For this sensitivity test, we recategorize the expenses in the OSHPD into program and nonprogram by referring again to the instructions of the 990 and classifying as management and general *only* those items that are provided as *examples* in the 990. The instructions to the 990 provided the following as examples of management and general expenses: "Board of directors meetings, staff meetings, committee meetings, general legal services, accounting including patient accounting and billing, general liability, insurance, office management, auditing, human resources, other centralized services, preparation, publication, and distribution of an annual report, and management of investments." We reestimate PSR including only the following expenses as nonprogram: hospital administration, governing board expense, public relations, administrative personnel, printing and duplicating, communications, data processing, general accounting, patient accounting, credit and collection, other fiscal expenses, insurance (hospital and professional malpractice), licenses and taxes (other than income taxes), and employee benefits (nonpayroll related, nonmedical). Thus, we exclude, for example, plant operations expenses allocated to administration because this is not provided as an example in the 990.

Using this definition of program-service expenses results in a mean (median) difference of 0.023 (0.0507) between PSR as per 990 and PSR from OSHPD. The results (table 5) are qualitatively similar even if we use the narrowest definition of program and nonprogram service expenses, with the exception that the rural hospital dummy is no longer significant at conventional two-tailed *p*-value levels. These results provide comfort that the results are robust to alternative clustering of program service expenses in the OSHPD.

We also perform several additional sensitivity tests (untabulated). We reestimate our model by year and find the results to be robust. In addition, because hospitals with higher PSRs may have a lower scope to improve the ratio, we reestimate the regression after scaling cost shifting by the proportion of PSR according to 990 and find robust results (*Difference in PSR as proportion of 990 PSR*). The results are provided in tables 4 and 5. We also reestimate the results using as the dependent variable the difference in PSR divided by 1-PSR as per OSHPD. This ratio represents the extent of cost shifting as a proportion of the maximum cost that potentially can be shifted. Results are substantively similar (untabulated). Furthermore, we restrict the definition of charity care to include only the charity discount as a percentage of revenue. We reestimate the analyses using this definition of charity care and find consistent results (untabulated).

TABLE 5

Drivers of Differences in PSR—Restricted to Items Mentioned in Instructions to IRS 990
(*620 Observations Clustered by Hospital and Year*)

Predictor	Predicted Sign	Difference in PSR			Difference in PSR as Proportion of 990 PSR		
		Coefficient	*t* Value	Pr > |*t*|	Coefficient	*t* Value	Pr > |*t*|
Normative variables							
Church Indicator	+	**0.044**	4.200	<.0001	**0.054**	4.220	<.0001
Charity to Total Revenue	+	**0.147**	2.340	0.020	**0.171**	2.200	0.029
Rural Hospital Indicator	+	0.029	1.490	0.137	0.034	1.360	0.175
System Hospital Indicator	+	**0.035**	3.550	0.000	**0.047**	3.790	0.000
Regulative variables							
Medicare to Total Revenue	−	**−0.106**	−3.250	0.001	**−0.133**	−3.200	0.001
Medicaid to Total Revenue	+/−	0.035	1.180	0.240	0.047	1.230	0.220
Economic variables							
Donations to Total Revenue	+	**0.217**	1.760	0.079	**0.283**	1.750	0.081
Expertise and reputation variables							
Accounting Indicator	−	**−0.032**	−3.410	0.001	**−0.038**	−3.250	0.001
Management Firm Indicator	−	**−0.042**	−1.900	0.058	**−0.056**	−2.150	0.032
Paid Executive Indicator	+/−	−0.015	−1.430	0.154	−0.010	−0.740	0.459
Age	−	**−0.001**	−2.960	0.003	**−0.001**	−2.720	0.007
Financial need variables							
Current Ratio	+	−0.004	−0.840	0.400	−0.005	−0.800	0.424
Operating Margin	+/−	0.004	0.090	0.931	0.019	0.310	0.756
Community sophistication variables							
PCI ($000)	−	**0.006**	4.590	<.0001	**0.007**	4.350	<.0001
College	−	**−0.006**	−3.440	0.001	**−0.007**	−3.210	0.001
Board variables							
Board Size	+	**0.003**	2.100	0.037	**0.004**	2.130	0.033
Board Comp ($)	−	**−0.002**	−2.670	0.008	**−0.002**	−2.870	0.004
Other control variables							
Staffed Beds	+/−	0.004	1.090	0.274	0.006	1.280	0.201
Log Assets	+/−	−0.010	−1.600	0.111	−0.012	−1.580	0.115
Average Length of Stay	+/−	0.000	0.830	0.408	0.001	1.190	0.234
Occupancy Rate	+/−	0.013	0.410	0.679	0.008	0.200	0.842
Teaching Hospital Indicator	+/−	0.008	0.740	0.460	0.011	0.830	0.406
Case Mix Index	+/−	**0.102**	3.830	0.000	**0.132**	4.000	<.0001
HHI	+/−	**−0.128**	−5.010	<.0001	**−0.154**	−4.650	<.0001
Intercept, R^2		0.06, 0.31			0.05, 0.30		

Data are for the period 1999–2005 and include 620 hospital-year observations. The analysis used standard errors clustered by hospital as well as by year. Variable definitions are available in table 2. Coefficients in bold are significant at $p < 10\%$ or better (two tailed).

5. *Conclusions*

This paper examines whether nonprofit hospitals shift costs to manage their publicly available financial ratios and whether such cost shifting is associated with institutional factors. Prior literature documents that nonprofits shift costs toward program service expenses and that such cost shifting is associated with economic incentives (Baber, Roberts, and Visvanathan [2001], Callen and Falk [1993], Posnet and Sandler [1989], Weisbrod and Dominguez [1986], Krishnan, Yetman, and Yetman [2006]). Our paper extends this literature and explores a richer set of hospital characteristics that

are associated with the extent to which these ratios are managed. These factors include both normative and regulative institutional pressures.

We conduct empirical analyses using two different datasets: IRS Form 990 financial statements and the OSHPD financial data for nonprofit hospitals located in California. Our analyses suggest that normative institutional pressures are associated with higher cost shifting, whereas regulative institutional pressures reduce the extent of cost shifting. We also replicate earlier literature and find that hospitals that are more reliant on donations revenue shift costs to a greater extent. Our results also indicate that nonprofits that use an accounting expert to review their financial statements have a lower degree of cost shifting, indicating that expertise in the preparation of financial statements contributes to differences in reported numbers.

We do not profess that institutional constraints are substitutes for economic forces and acknowledge that institutional forces are likely to act in conjunction with economic and market forces. Rather, we argue that a more comprehensive understanding of the motives for organizational behaviors requires recognition that "organizations are inextricably embedded in a dynamic system of interrelated economic, institutional, and ecological processes" (Dacin [1997, p. 47]).

Limitations of our study should be noted when drawing inferences from our results. Our estimation of cost shifting, based on the 990 and the OSHPD financial databases, is central to our analysis. Our measure assumes that cost shifting is more likely to be prevalent in the 990 forms. While we feel this assumption is reasonable based on differences in the ability (i.e., guidance and regulatory scrutiny) and incentive to shift costs between the 990 and the OSHPD reports, we acknowledge that the quality of our cost shifting measure is only as strong as this assumption. In addition, the accuracy in our measure of cost shifting is dependent on our ability to identify correctly program service expenses from the OSHPD. While our sensitivity test using an extremely conservative measure of cost shifting supports our primary inferences, the magnitude of the effect documented in our primary analysis is dependent on our ability to measure cost shifting correctly. Finally, we acknowledge that there may be measurement error in some of the other variables, such as charity care and occupancy rate.

Prior research has underscored the importance of economic factors driving nonprofit reporting decisions. Our empirical results show that institutional pressures also influence nonprofit reporting behaviors. Thus, our study reveals that a combination of theories provides a richer understanding of the motives driving strategic cost shifting in nonprofits. Results of our study reveal that, consistent with the arguments of Oliver [1991], organizations engage in strategies that not only improve their performance, but also shape and influence the criteria used by institutional stakeholders to evaluate organizational performance. The combined effect of institutional and economic factors in driving organizations' accounting decisions warrants further empirical attention.

APPENDIX
Expense Classifications

There are nine categories of OSHPD expenses: daily hospital services, ambulatory services, ancillary services, research costs, education costs, administrative services, general services, fiscal services, and unassigned costs. This appendix describes the expenses that are classified as program versus those classified as nonprogram.

	Program	Nonprogram
Daily hospital services	All are classified as program service expenses and include total cost related to the following: medical/surgical intensive care, coronary care, pediatric intensive care, neonatal intensive care, psychiatric intensive (isolation) care, burn care, other intensive care, definitive observation, medical/surgical acute, pediatric acute, psychiatric acute—adult, psychiatric acute—adolescent and child, obstetrics acute, alternate birthing center, chemical dependency services, physical rehabilitation care, hospice—inpatient care, other acute care, nursery acute, subacute care, subacute care—pediatric, skilled nursing care, psychiatric long-term care, intermediate care, residential care, other long-term care services, other daily hospital services.	None of the expenses are classified as nonprogram.
Ambulatory services	All are classified as program service expenses and include total cost related to the following: emergency services, medical transportation services, psychiatric emergency room, clinics, satellite clinics, satellite ambulatory surgery center, outpatient chemical dependency, observation care, partial hospitalization—psychiatric, home health care services, hospice—outpatient services, adult day health care services, other ambulatory services.	None of the expenses are classified as nonprogram.
Ancillary services	All are classified as program service expenses and include total cost related to the following: labor and delivery services, surgery and recovery services, ambulatory surgery services, anesthesiology, medical supplies sold to patients, durable medical equipment, clinical laboratory services, pathological laboratory services, blood bank, echocardiology, cardiac catheterization services, cardiology services, electromyography, electroencephalography, radiology, nuclear medicine, magnetic	None of the expenses are classified as nonprogram.

(Continued)

APPENDIX —*Continued*

	Program	Nonprogram
	resonance imaging, ultrasonography, computed tomographic scanner; drugs sold to patients, respiratory therapy, pulmonary function services, renal dialysis, lithotripsy, gastro-intestinal services, physical therapy, speech-language pathology, occupational therapy, other physical medicine, electroconvulsive therapy, psychiatric/psychological testing, psychiatric individual/group therapy, organ acquisition, other ancillary services.	
Research costs	All are classified as program service expenses and include total cost related to research projects and administration.	None of the expenses are classified as nonprogram.
Education costs	The following expenses are classified as program service expenses: School of Nursing, licensed vocational nurse program, medical postgraduate education, paramedical education, other health profession education, student housing.	The following expenses are classified as nonprogram: education administration office.
Administrative services	The following expenses are classified as program service expenses: chaplaincy services, medical library, medical records, nursing float personnel, inservice education—nursing, utilization management, community health education, management engineering.	The following expenses are classified as nonprogram: hospital administration, governing board expense, public relations, administrative personnel, management of auxiliary groups, administrative employee health services, medical staff administration, nursing administration, other administrative services.

(*Continued*)

APPENDIX —*Continued*

	Program	Nonprogram
General services	The following expenses are classified as program service expenses: kitchen, dietary, laundry and linen, social work services, central transportation, central services and supplies, pharmacy, purchasing and stores, housekeeping.	The following expenses are classified as nonprogram: printing and duplicating, nonpatient food services, grounds, security, parking, communications, data processing, other general services, physical plant operations, physical plant maintenance[a]
Fiscal services	The following expenses are classified as program service expenses: admitting, outpatient registration.	The following expenses are classified as nonprogram: patient accounting, general accounting, credit and collection, other fiscal services.
Unassigned costs	The following expenses are classified as program service expenses: depreciation and amortization, leases and rentals, interest—working capital, interest—other, other unassigned costs.	The following expenses are classified as nonprogram: insurance—hospital and professional malpractice, insurance—other licenses and taxes (other than income), employee benefits (nonpayroll related, nonmedical).

[a]Expenses related to physical plant operations and physical plant maintenance do not include the portion of physical plant cost that is attributable to program service expenses. The portion that is attributable to program service expenses is allocated to the direct cost of program services and is allocated to each department based on square footage.

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