

The Association between Board Composition, Board Governance, and Charity Care Provided by Nonprofit Hospitals

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ABSTRACT: In this study, we examine the association between board composition, board governance, and charity care provided by nonprofit hospitals. Using tax return data, we first investigate whether the composition of nonprofit hospital boards is associated with governing decisions related to patients' eligibility for charity care. Then, we examine whether these decisions are associated with the amount of charity care provided. These research questions are motivated by legislators' and regulators' interest in understanding how nonprofit hospitals behave in terms of charitable missions (Kennedy, Burney, Troyer, and Stroup 2010). Overall, we find percentage of doctors on the board is associated with decisions affecting patients' eligibility for free care. Related, we find that percentage of healthcare administrators on the board is associated with decisions affecting patients' eligibility for free and discounted care. We also find that governing decisions related to patients' eligibility for free and discounted care are associated with charity care provided.

Data Availability: Data used in this study are available from the authors upon request.

Keywords: nonprofit hospitals; board composition; board governance; social performance; charity care.

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I. INTRODUCTION

The debate surrounding whether nonprofit hospitals provide enough charity care to justify the taxes they avoid as nonprofit entities continues (Hofmann and McSwain 2013). Legislatures and taxpayers call for more transparency and accountability in the amount of charity care nonprofit hospitals provide through increased scrutiny and heightened legislation including the Affordable Care Act of 2010. Understanding the underlying factors that influence the amount of charity care a nonprofit hospital provides can supply useful information to stakeholders (e.g., citizens and legislators) as they assess nonprofit hospitals' social performance.

The purpose of this study is to explore the relationship between nonprofit hospital boards of directors and charity care provided. Specifically, we investigate two questions. First, we examine whether the composition of nonprofit hospital boards of directors is associated with board governing decisions related to patients' eligibility for charity care. Then, we examine whether these same board governing decisions are associated with a social performance outcome (i.e., the reported amount of charity care provided by hospital management).

The motivation for this research comes from two sources. First is the call from legislatures, regulators, and taxpayers who have expressed a keen interest in understanding how nonprofit hospitals behave in terms of charitable outcomes (U.S. Government Accountability Office 2008). Second is the call from nonprofit accounting research to enhance the understanding of factors associated with the amount of charity care provided (e.g., Kennedy, Burney, Troyer, and Stroup 2010; Rose-Ackerman 1996). If research can find factors associated with the amount of charity care provided, then legislators will have a better understanding of forces that underlie charity care decisions and better align regulations with incentives to improve outcomes.

To address our research questions, we collect and analyze nonprofit hospitals' tax filings along with corresponding hospital data from 2016. Our variables of interest include quantifiable measures of board composition (i.e., board size, percentage of medical doctors on the board, and percentage of healthcare administrators on the board), board governing decisions (i.e., board set guidelines on patients' eligibility for free charity care and discounted charity care), and social performance measured as the amount of charity care provided by hospital management.

Overall, at the board governance level, we find the composition of the board matters with respect to governing decisions regarding charity care. Specifically, the percentage of medical doctors on the board is positively associated with governing decisions affecting patients' eligibility for free charity care. Related, we find the percentage of healthcare administrators on the board is positively associated with governing decisions affecting patients' eligibility for free and discounted charity care. At the social performance level, we find that the same board governing decisions related to patients' eligibility for both free and discounted charity care are positively associated with the actual amount of charity care provided by hospital management.

Our study contributes to the nonprofit accounting literature and the board governance literature (e.g., Harris, Petrovits, and Yetman 2015) by providing legislators, regulators, nonprofit industry analysts, and taxpayers with useful information related to nonprofit hospitals and their charity care missions. For instance, results of our study suggest that board governance decisions related to who is eligible to receive charity care are influenced by the composition of nonprofit hospital boards (e.g., percentage of medical doctors and healthcare administrators on the board). Further, the same board governing decisions matter in nonprofit hospitals' social performance related to charity care provided. These findings should be of interest not only to lawmakers and taxpayers who (under tight budget constraints) question whether and/or what changes are needed

in the legislation/regulation of nonprofit hospitals in regard to the amount of charity care provided, but also for those who question what environmental factors help explain and/or predict nonprofit hospitals' behavior in terms of the amount of charity care they provide.

In addition, our study adds to prior nonprofit accounting literature (e.g., [Swift 2016](#); [Bai 2013](#)) in three ways. First, we collect and use data from the revamped 2009 IRS Form 990, Schedule H. This provides us with the opportunity to capture a “clean” measure of charity care that disentangles charity-related expense from bad debt expense. Second, to our knowledge, we are the first to explore the multi-layered relationship between the composition of a nonprofit hospital board of directors, board governance decisions, and charity care provided. Third, we introduce a composite measure of board composition (in a *post hoc* analysis) that may be a useful tool when assessing the relationship between nonprofit hospital boards of directors and social performance.

The remainder of our paper proceeds as follows. In Section II, we provide a brief background and literature review on nonprofit hospitals, charity care, nonprofit hospital boards of directors, and their behavior in terms of charity care provided. We then develop hypotheses in Section III. Following the hypotheses development, we present the research design and method in Section IV and the findings in Section V. In Section VI, we conclude with a discussion of the results, limitations, and outlook for future research.

II. BACKGROUND AND RELATED LITERATURE

A Brief History of Nonprofit Hospitals and Charity Care

During the mid-1800s nonprofit hospitals were established predominately by voluntary associations and religious organizations in the United States (U.S.) to care for those in need ([Hall 2016](#)). Over time, as the U.S. population grew, the demand for charitable services increased. As a result, the U.S. government used the Tariff Act of 1913 to start offering tax-exempt benefits to organizations (e.g., hospitals) as an incentive to create more nonprofit entities to operate for charitable purposes. The goal was to better align the supply and demand of charity services for those in need ([Smith and Crabtree 2006](#)).

As of 1955, for nonprofit hospitals, there were no explicit requirement(s) to obtain tax-exempt status. In an attempt to clarify expectations for this status, in 1956, the Internal Revenue Service ([IRS 1956](#)) established Revenue Ruling 56-185. This ruling stated that for a nonprofit hospital to qualify for tax-exempt status, it must, among other things, be “operated to the extent of its financial ability for those not able to pay for the services rendered and not exclusively for those who are able and expected to pay” (Rev. Rul. 56-185, 1956-1 C.B. 202, 203, [IRS 1956](#)). Further, the ruling stated that a nonprofit hospital “must not, however, refuse to accept patients in need of hospital care who cannot pay for such services” (Rev. Rul. 56-185, 1956-1 C.B. 202, 203, [IRS 1956](#)). Under the umbrella of this financial ability standard, a nonprofit hospital qualified for a tax-exempt status solely on the basis of providing charity care and/or reduced-cost medical care. No specific level of charity care was mandated ([Somerville 2012](#)).

Moving forward to 1965, federal legislation created Medicare and Medicaid to provide basic healthcare services to the elderly and the indigent. The newly enacted legislation raised questions about the need for tax-exempt nonprofit hospitals, because the old and the poor would be covered under these new government-sponsored insurance plans ([Rose-Ackerman 1996](#)). Arguments were (and continue to be) made to suggest that many individuals who are in need of medical care do not qualify and/or they “fall through the cracks” of the Medicare and Medicaid

system. As such, nonprofit hospitals have an important role in healthcare in that they can provide community benefits to aid in the relief of poverty and/or the promotion of health (Somerville 2012; Smith and Crabtree 2006). In 1969, the IRS created broader criteria that required nonprofit hospitals to meet a more flexible “community benefit” standard to be eligible for tax-exempt status. Revenue Ruling 69-545 removed the free or reduced-cost requirement and replaced it with a new standard that requires hospitals to promote the health of the community. Community benefit can cover a wide range of services including health education programs, drug abuse and addiction programs, and services that provide transportation to the hospital for senior citizens. The new standard allows nonprofit hospitals to provide many different services in addition to (or instead of) the prior, narrower requirement of free or discounted care to receive tax-exempt status (Somerville 2012).

The expanded definition of community benefit raised questions about what community benefit actually is and how it should be measured. Prior to 2008, measurement was an issue with some hospitals measuring community benefit as costs incurred and others measuring it as what the hospital charges for services. To try to minimize the confusion, in 2008, the IRS enacted legislation requiring nonprofit hospitals to provide, in the IRS Form 990, more disclosures and transparency related to the amount and type of charity care and community benefit they provide in the hopes that increased information will improve oversight of nonprofit hospitals’ charitable purpose (M. Yetman and R. Yetman 2012).¹ Additionally, the Form 990 required that community benefit and bad debt expense be measured using costs instead of charges to allow more comparability among hospitals.

Fast forward to today. As the Affordable Care Act and other healthcare issues take center ring, more attention is being drawn to healthcare spending.² In particular, as the percentage of government budgets dedicated to healthcare costs and the estimated tax benefits provided to nonprofit hospitals continue to increase, more interest from legislators, regulators, and taxpayers is being focused on nonprofit hospitals’ behavior (Hofmann and McSwain 2013) and whether they should maintain their tax-exempt status.³ Building upon this idea, we use data from the newly updated IRS Form 990 to investigate our research questions related to board composition, board governance, and the amount of charity care provided by hospital management.

¹ In 2008, the IRS revised the Form 990 and added (1) a comprehensive list of governance, management, and disclosure questions that nonprofit entities must address, and (2) a new Schedule H for nonprofit hospitals to provide a clear detailed account and distinction between charity care, Medicaid shortfalls, and community benefits. In 2010, the Patient Protection and Affordable Care Act enacted additional requirements that a hospital must meet to qualify for tax exemption. Among several requirements, nonprofit hospitals must address (publicize) a financial assistance policy.

² In 2006, the estimated tax benefits provided to nonprofit hospitals surpassed \$13 billion (Congressional Budget Office 2006).

³ In 2008, the U.S. Government Accountability Office (2008) commissioned research on nonprofit hospitals and the amount of charity care and community benefits they provide. The GAO findings suggest that there are large variations in state requirements on what nonprofit hospitals should provide in terms of charity care and community benefits. Their findings also suggest there are inconsistencies in how community benefits are even defined (GAO-08-880). In a report to the U.S. Senate Committee on Finance, the GAO states that studies examining whether nonprofit hospitals warrant their tax-exempt status are plagued by inconsistent definitions of community benefit, and this renders questions as to the usefulness of the commissioned research. As a result, the IRS revamped the Form 990 (in 2008) so that nonprofit hospitals would provide more transparent information.

The new IRS Form 990 allows a clear measure of charity care distinct from bad debt, community benefit, and other measures used in previous research.⁴ Charity care is defined as charges for which a hospital never expects payment because of a patient's lack of financial resources; bad debt expense relates to charges for which a hospital originally anticipates payment but does not receive. Although related, the provision of charity care is under the control of management, while bad debt expense is not. Charity care is captured on the IRS Form 990, Schedule H, Part 1, line 7d (e) as total financial assistance and means-tested government programs less direct offsetting revenue measured at cost.

Nonprofit Board of Directors

Boards of directors play an extremely important role in nonprofit organizations. Stakeholders of nonprofits typically do not have management decision rights, and because management does not fully bear financial risk and/or the wealth effects of its decisions, agency problems can be exacerbated in a nonprofit setting. Nonprofit boards of directors are empowered with a main purpose of governing and monitoring management activities on behalf of stakeholders to ensure that the nonprofit missions are being met (Hofmann and McSwain 2013).

When examining how nonprofit hospitals behave in terms of their charity care missions, there is a rich stream of nonprofit accounting research to suggest that environmental factors (e.g., internal factors related to the board, management, and financial conditions; external factors related to legislation, regulation, competition, and socio-economic conditions) are useful in evaluating the level of charity care a nonprofit hospital will provide (e.g., Harris et al. 2015; Balsam and Harris 2014). Specifically related to our research questions, we focus attention on internal environmental factors related to the board of directors (i.e., board composition and board governance) that might be useful when accessing charity care provided by nonprofit hospitals.⁵ The following is a brief review of the literature regarding board composition and board governance. For a more extensive review, please see Erwin, Landry, Livingston, and Dias (2019), Hofmann and McSwain (2013), and Cohen, Krishnamoorthy, and Wright (2004).

Board Composition

For purposes of our study, we define board composition as the organizational demography of the members on a board of directors. Prior literature in accounting and healthcare policy (e.g., Swift 2016; Aggarwal, Evans, and Nanda 2012; Brickley, Van Horn, and Wedig 2010; Larcker, Richardson, and Tuna 2007; Brower and Shrader 2000; Beasley 1996) suggests that board composition matters in setting company goals, board governance (as discussed in the next section), and social performance outcomes.

When looking at nonprofit hospitals, there is somewhat limited research (e.g., De Andrade Costa 2014; Kennedy et al. 2010; Alexander, Young, Weiner, and Heard 2008) that examines the

⁴ For instance, Bai (2013) examines hospitals' social performance with a community benefits measure. She defines community benefit as: (the sum of uncompensated care cost [i.e., the sum of bad debt expense and charity care expense deflated by a hospital's cost-to-charge ratio] + net educational expense + net research expense) scaled by hospital gross patient revenue. Bai (2013) points out that uncompensated care cost includes two conceptually different constructs.

⁵ While outside of the scope of our research, there are numerous studies (e.g., Barniv, Danvers, and Healy 2000; Eldenburg and Kallapur 1997; Eldenburg and Soderstrom 1996; Soderstrom 1993) that have examined nonprofit hospitals' behavior as it relates to other environmental factors (e.g., budgets, income, and cash flows under regulatory changes).

complex relationship between board composition and social performance outcomes (e.g., charity care provided by hospital management). For instance, [Young \(1996\)](#) examines the relationship between insider representation on nonprofit hospital boards of directors (measured by senior managers and medical staff employed by the hospital) and charity care (measured by state-reported levels of free care and uncompensated care [free care plus bad debt expense]). He finds that the relationship between insider representation and charity care depends on contextual factors related to financial health and/or competitive pressures. In more detail, he finds that insider representation is associated with less charity care provided when a nonprofit hospital has a relatively weak financial condition or is in a highly competitive market.

Related, [Bai \(2013\)](#) investigates how board size and occupational backgrounds of boards of directors (i.e., being a governmental official or physician) may influence for-profit and nonprofit hospital behavior in terms of social performance. She broadly defines social performance as the sum of uncompensated care cost, net education expense, and net research expense divided by hospital gross patient revenue.⁶ Specifically related to nonprofit hospitals, she finds that board size and the presence of government officials on the board is positively related to social performance. However, she does not find that the presence of physicians on the board is significantly associated with social performance. She suggests that board characteristics present unique effects on (for-profit and nonprofit) hospital behavior that needs to be examined further.

Board Governance

In our nonprofit setting, we define board governance as mechanisms designed by a board of directors to ensure that charitable missions are being met. While not specifically related to nonprofit hospitals, there is a plethora of accounting research to suggest that board governance is important to consider when evaluating performance outcomes (e.g., [Saxton, Neely, and Guo 2014](#); [Larcker et al. 2007](#)). For example, [Kitching \(2009\)](#) examines whether the board governing decision of hiring and overseeing internal and external auditors matters in a nonprofit setting. In particular, [Kitching \(2009\)](#) investigates whether audit quality is associated with the level of donations received by nonprofit organizations. [Kitching \(2009\)](#) finds a positive association between audit quality and donations received. Overall, [Kitching's \(2009\)](#) research shows that a dimension of board governance (i.e., hiring a qualified auditor) can provide useful information about a nonprofit's charitable missions (donations).

Additionally, [Yetman and Yetman \(2012\)](#) examine the effects of governance on the accuracy of nonprofit charitable expense reporting. As part of their study, they examine the association between dimensions of board governance (e.g., separation of ownership and control, audit quality, capital provider monitoring, and regulatory oversight) and charitable expense accuracy. Results from their study suggest that various forms of oversight and monitoring (e.g., having less outsourced management, requiring a financial statement audit, being audited by a larger CPA firm, having more donor-imposed restrictions) can be useful in improving the accuracy of nonprofit financial reporting.

More recently, in a broad nonprofit setting, [Harris et al. \(2015\)](#) examine whether donors' decisions are influenced by nonprofit entities that report stronger board governance. Using the 2008 revised IRS Form 990 and a sample of over 10,000 nonprofit entities' tax returns, they identify a broad set of governance disclosures. Next, they examine whether board governance is associated with donor decisions. Overall, they find that several governance dimensions (e.g., governance related to conflict of interest policies, management weaknesses, audits, compensation

⁶ Uncompensated care cost is computed as the sum of bad debt expense and charity care expense deflated by each hospital years' cost-to-charge ratio.

policies, and accessibility of financial information) are positively associated with donations and government grants given to nonprofit entities. They argue that donors may believe that when nonprofit organizations operate with stronger board governance, agency cost is reduced. That is, donors may provide more funding because they believe that stronger board governance better aligns the organizations' missions with the public they serve. [Harris et al. \(2015\)](#) recommend that research should extend the perimeters of their study and investigate whether stronger governance decisions are associated with actual performance (e.g., meeting charitable missions).

A goal of the current study is to extend the nonprofit board composition and board governance literature (e.g., [Harris et al. 2015](#); [Aggarwal et al. 2012](#)) in three ways. First, we capture a "clean" measure of charity care that disentangles charity care expense from bad debt expense. Studies using data from before the revision of the Form 990 in 2008 suffer from data that are difficult to interpret. Second, we explore the complex multi-layered relationship between nonprofit hospital boards (composition and governance) and a social performance outcome (in our setting, the amount of charity care provided by hospital management). Third, as part of a *post hoc* analysis, we introduce a composite measure of board composition that may be useful when assessing nonprofit hospitals' behavior related to charity care. By improving our understanding of these complex relationships, legislation and regulation could be enacted to help align the incentives of nonprofit hospitals with the incentives of society at large resulting in better outcomes.

III. HYPOTHESES DEVELOPMENT

In developing our hypotheses, we use the tenets of altruism (i.e., the act of selflessness) that suggest nonprofit hospitals are generally not utility maximizers in the sense that their utility function is not driven by self-interest and/or wealth. Rather, their utility function is driven by the desire to help others ([Rose-Ackerman 1996](#)). For example, nonprofit hospitals and physicians strive to provide charity care to patients in need, because their mission is to maximize the well-being of individuals in the communities they serve.

Board Composition and Board Governance

A large body of accounting research supports altruism theory by suggesting that the size and nature of who sits on a nonprofit hospital board of directors can positively influence nonprofit hospital behavior. For instance, prior research (e.g., [Epstein and McFarlan 2011](#); [Brown 2005](#)) suggests that nonprofit hospital board size matters to nonprofit hospital decision making. Theoretically, nonprofit boards often grow to be large out of the desire and/or need of community representation where various members can be the eyes and ears of those in neighborhoods that the nonprofit serves. This diversity of representation can help boards better understand the charitable needs of communities and thus influence a board to act in a more altruistic nature.⁷

⁷ Related, prior research (e.g., [Olson 2000](#)) suggests that board independence matters in nonprofit hospital decision making. Assertedly, nonprofits are best served with independent board members who, in the absence of residual claims, can help provide more direction to and control of management (e.g., help prevent collusion or expropriation of funds) to fulfill charitable goals. In preliminary development of our hypotheses, we examined and ran a battery of robustness tests on board independence. Ninety-three percent of the nonprofit hospital boards in our sample have a board independence rate that is greater than 50 percent (median = 80 percent; mean = 79 percent). Due to the potential noise surrounding (1) the lack of variation of board independence in our sample, and (2) the lack of significance for various measures of board independence in our models, we follow several other nonprofit hospital studies (e.g., [De Andrade Costa 2014](#); [Kennedy et al. 2010](#)) and exclude board independence from our analyses.

Adding to this thought, healthcare policy research (e.g., [Swift 2016](#)), the editors of *The New England Journal of Medicine* (2000), and the [American Board of Internal Medicine \(2001\)](#) suggest that who sits on a nonprofit hospital board matters in nonprofit hospital decision making. In particular, research asserts that medical doctors have an ethical duty to act in the best interest of patients ([Bai 2013](#)). They are expected to serve (in various capacities) the interest of those in need above and beyond their own self-interest. Since physicians are expected to advocate for the well-being of patients, their membership on a board should influence the board to act in a more charitable manner.

In a similar vein, healthcare administrators are responsible for planning, organizing, and overseeing the vision and objectives of healthcare institutions. While they do not take an ethical oath like physicians, their knowledge and expertise in the delivery of healthcare can be extremely valuable in helping hospitals achieve organizational goals. Nonprofit hospital administrators are acutely aware of the microscope under which they operate and the pressure to ensure that nonprofit hospitals meet their charitable expectations and “earn” their nonprofit status ([U.S. Senate Committee on Finance Minority Staff 2007](#)). In the case of nonprofit hospitals, healthcare administrators’ membership on the board (regardless of hospital affiliation) should positively influence the board in accomplishing social performance objectives.

Overall, while board composition can encompass many areas of decision making, we focus on the assertion that the composition of a nonprofit hospital board is important when examining board governing decisions related to charity care missions. Specifically, the board governing decisions we focus on are their guidelines on patients’ eligibility for charity care. A hospital board of directors sets charity care guidelines, usually based on federal poverty guidelines, that determine eligibility for free and discounted care. For example, Monadnock Community Hospital in New Hampshire, during 2016, provided free care to patients with a family income level below 200 percent of the federal poverty guidelines and discounted care to patients with a family income level below 400 percent of the federal poverty guidelines.⁸ The higher the board sets the guidelines, the more people will qualify for charity care in the form of free and discounted care. Less restrictive guidelines (defined as higher cut-off levels) ensure that more people will be eligible for free and discounted care. More restrictive guidelines (i.e., lower cut-off levels) will have the opposite effect. Hence, for our first hypothesis, we posit that the composition of a nonprofit hospital board of directors (measured in terms of board size, percentage of medical doctors on the board, and percentage of healthcare administrators on the board) will be positively associated with board governing decisions related to a patient’s eligibility for free charity care (H1a) and discounted charity care (H1b).

H1a: The composition of a nonprofit hospital board of directors will be positively associated with board governing decisions related to free charity care guidelines.

H1b: The composition of a nonprofit hospital board of directors will be positively associated with board governing decisions related to discounted charity care guidelines.

Board Governance and Social Performance

Turning to board governing decisions and social performance, research by [Schlesinger, Dorwart, Hoover, and Epstein \(1997\)](#) and [Hofmann and McSwain \(2013\)](#) support the theory that

⁸ In 2016, the federal poverty guideline for a family of four was \$24,563 (<https://aspe.hhs.gov/2016-poverty-guidelines>).

nonprofit hospitals' utility functions are not driven by self-interest. They suggest that the altruistic actions of nonprofit hospital boards most likely influence the overall decisions to fulfill charitable missions. For example, a nonprofit hospital board of directors will use governing mechanisms (e.g., charity care guidelines) to align management's personal objectives with those of the nonprofit hospital and the public they serve (Schlesinger et al. 1997; Hofmann and McSwain 2013). Following in this vein, we posit that board governing decisions related to free (discounted) charity care will be positively associated with social performance (in our setting, the amount of charity care provided by hospital management). Governing decisions are the purview of the board, which are then implemented by managers.

H2: Board governing decisions related to free (discounted) charity care guidelines will be positively associated with the reported amount of charity care provided by nonprofit hospital management.

Our two hypotheses are not without tension. Even though we argue that (1) board composition factors (i.e., board size, percentage of medical doctors on the board, and percentage of healthcare administrators on the board) will be positively associated with governing decisions related to charity care guidelines, and (2) board governing decisions related to charity care guidelines will be positively associated with the amount of charity care provided by hospital management, it is possible that we will not find support for our hypotheses. Agency theory suggests that assessing the outcomes of charitable efforts by nonprofit organizations is not straightforward. Governments (acting as principals) provide incentive contracts with favorable tax benefits to nonprofit hospitals (acting as agents). In exchange for the tax benefits, nonprofit hospitals provide charity care to the needy. However, without residual claims and without perfect monitoring of incentive and/or performance contracts, the basic concern of properly aligning a government's interests with a nonprofit hospital's interest still remains (Eldenbug, Gunny, Hee, and Soderstrom 2011; Krishnan, M. Yetman, and R. Yetman 2006; Leone and Van Horn 2005; Young 1996; Blanchard, Chow, and Noreen 1986; Conrad 1984; Fama and Jensen 1983; Jensen and Meckling 1976).⁹

Adding to the complexity of the principal/agent conflict, Aggarwal et al. (2012) argue that while nonprofit hospital boards of directors (acting as monitors) are used to reduce information asymmetry, they often reflect the views of multiple stakeholder groups (e.g., doctors, staff, patients, donors, taxpayers, and communities). As such, the board may have many different and possibly conflicting goals that influence the nature of contracting between the board of directors and hospital management.¹⁰ For example, Forgione and Giroux (1989) suggest that in the absence of perfect monitoring and/or government control, financially strapped nonprofit hospitals may have motive to reduce spending on charity care to control for shortfalls. Branson, Buxton, Chen, and Smith (2014) also find that some nonprofit hospitals make their charity care guideline

⁹ Olson (2000) and Callen and Falk (1993) discuss some additional reasons why nonprofits may be less altruistic in nature. Some stakeholders may be more focused on self-interests. For instance, some managers, directors, and/or doctors may seek returns on their investment in terms of excessive compensation, public acclamation, and/or promotion of personal reputation.

¹⁰ Hofmann and McSwain (2013) also discuss the view that while directors bring value (e.g., expertise) to nonprofits, they often represent diverse stakeholders, which can bring a cost of greater disagreement, dissonance, and inefficiency to nonprofits' missions. For this reason, there may be bounded limits as to how the composition of a nonprofit board can influence nonprofit missions (Yetman and Yetman 2012).

decisions based on the hospital's ability to cover its cost rather than the actual needs of the community.¹¹ Eldenburg and Vines (2004) add that nonprofit hospitals with high levels of cash may have motive to reclassify (misclassify) bad debt expense as charity care to control for negative reputational effects. These findings suggest there is a possible disconnect between board decisions and management's actions.

IV. RESEARCH DESIGN

Regression Models

We build upon models used in prior research that examine charity care spending by nonprofit hospitals (e.g., Kennedy et al. 2010) and the effects of nonprofit governance on charitable decisions (e.g., Harris et al. 2015). In particular, we use regression models to examine the relationship between board composition, board governance, and social performance (in our setting, the amount of charity care provided by nonprofit hospital management).

As shown in Model 1 and Model 2, we examine whether the composition of nonprofit hospital boards is associated with board governing decisions related to patients' eligibility for free and discounted charity care, thereby testing H1a and H1b. Then, as shown in Model 3, we examine whether the same board governing decisions related to patients' eligibility for free and discounted charity care are associated with the reported amount of charity care provided by hospital management, thereby testing H2.

In the models used to test our hypotheses, we include several controls for hospital and socio-economic characteristics that may affect charity care decisions and social performance outcomes. A complete listing, along with definitions, of the variables used in the models is provided in Table 1. A diagram of our models is presented in Figure 1.

$$\begin{aligned} \text{Model 1 (H1a)} \quad & \beta_0 + \beta_1(\text{Board Size}) + \beta_2(\text{Percent MDs on Board}) \\ \text{Free Care} \quad & + \beta_3(\text{Percent Healthcare Admins on Board}) \\ \text{Guidelines} = \quad & + \beta_4(\text{Percent Cross-Listed MDs/Healthcare Admins on Board}) \\ & + \beta_5(\text{Accessibility Disclosure}) + \beta_6(\text{Financial Position}) \\ & + \beta_7(\text{Financial Performance}) + \beta_8(\text{Medicare Mix}) + \beta_9(\text{Medicaid Mix}) \\ & + \beta_{10}(\text{Per Capita Income}) + \beta_{11}(\text{Hospital Competition}) + \beta_{12}(\text{Location}) \\ & + \beta_{13}(\text{State Regulation}) + \varepsilon \end{aligned}$$

$$\begin{aligned} \text{Model 2 (H1b)} \quad & \beta_0 + \beta_1(\text{Board Size}) + \beta_2(\text{Percent MDs on Board}) \\ \text{Discount Care} \quad & + \beta_3(\text{Percent Healthcare Admins on Board}) \\ \text{Guidelines} = \quad & + \beta_4(\text{Percent Cross-Listed MDs/Healthcare Admins on Board}) \\ & + \beta_5(\text{Accessibility Disclosure}) + \beta_6(\text{Financial Position}) \\ & + \beta_7(\text{Financial Performance}) + \beta_8(\text{Medicare Mix}) + \beta_9(\text{Medicaid Mix}) \\ & + \beta_{10}(\text{Per Capita Income}) + \beta_{11}(\text{Hospital Competition}) + \beta_{12}(\text{Location}) \\ & + \beta_{13}(\text{State Regulation}) + \varepsilon \end{aligned}$$

¹¹ In a similar vein, it is possible that nonprofit hospitals on "the surface" seem to provide abundant levels of charity care because they have less restrictive guidelines related to eligibility levels for charity care. However, if the less restrictive guidelines are not followed due to cost constraints and/or are only used for reputational effects, the actual amount of charity care provided may be lower.

TABLE 1
Description of Variables

Variable	Definition	IRS Form 990 Reference
Dependent Variables		
Board governance: Charity care decisions		
<i>Free Care Guidelines</i>	= charity care eligibility criteria (set as a percent) using federal poverty guidelines to determine family income limit for free care.	Schedule H, Part I, line 3a
<i>Discount Care Guidelines</i>	= charity care eligibility criteria (set as a percent) using federal poverty guidelines to determine family income limit for discounted care.	Schedule H, Part I, line 3b
Social performance: An outcome		
<i>Charity Care</i>	= [(total financial assistance and means-tested government programs) less (direct offsetting revenue)] scaled by program service revenue.	Schedule H, Part I, line 7d (e) scaled by 990 Part I, line 9 Current Year
Independent Variables of Interest		
Board composition		
<i>Board Size</i>	= number of voting members on the board of directors divided by staffed hospital beds.	990 Part VI, Section A, line 1a: scaled by hospital bed data collected from the U.S. Centers for Medicare & Medicaid Services (CMS) (https://www.cms.gov/)
<i>Percent MDs on Board</i>	= percentage of medical doctor (MD) members on the board of directors.	Board member data are found (1) on the Form 990, (2) on the hospital's website, and/or (3) through an internet search
<i>Percent Healthcare Admins on Board</i>	= percentage of healthcare administrator members on the board of directors.	
Board governance		
<i>Free (Discount) Care Guidelines</i>		
Control Variables		
<i>Percent Cross-Listed MDs/ Healthcare Admins on Board</i>	= percentage of board members who are both a medical doctor (MD) and a healthcare administrator.	Board member data are found (1) on the Form 990, (2) on the hospital's website, and/or (3) through an internet search

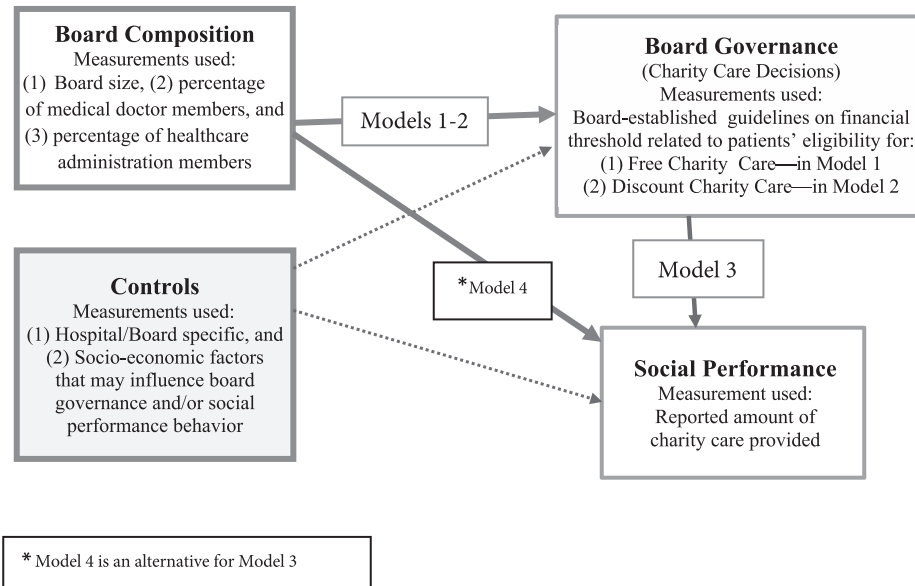
(continued on next page)

TABLE 1 (continued)

Variable	Definition	IRS Form 990 Reference
<i>Accessibility Disclosure</i>	= an indicator variable coded 0–1, whereas 1 = if IRS Form 990 is available on the nonprofit hospital's website, 0 if not.	990 Part VI, Section C, line 18
<i>Financial Position^a</i>	= ratio on lagged total assets minus lagged total liabilities, scaled by lagged program service revenue.	990 Part I, [line 20 Beginning of Current Year minus line 22 Beginning of Current Year] scaled by Part I, line 9 Prior Year
<i>Financial Performance^a</i>	= ratio on lagged total revenues minus lagged total expenses, scaled by lagged program service revenue.	990 Part I [line 12 Prior Year minus Part I, line 18 Prior Year] scaled by Part I, line 9 Prior Year
<i>Medicare Mix</i>	= percent of Medicare-funded inpatient days.	Data collected from the U.S. Centers for Medicare & Medicaid Services (CMS) (https://www.cms.gov/)
<i>Medicaid Mix</i>	= percent of Medicaid-funded inpatient days.	Data collected from City-Data.com (2016 year available)
<i>Per Capita Income</i>	= per capita income for individuals living in the municipality where the nonprofit hospital is located.	Hospital data collected from the U.S. Centers for Medicare & Medicaid Services (CMS) (https://www.cms.gov/)
<i>Hospital Competition</i>	= squaring the state market share of each hospital (in terms of number of beds) competing in the state market and then summing the resulting numbers (i.e., Herfindahl-Hirschman index).	Data collected from the U.S. Centers for Medicare & Medicaid Services (CMS) (https://www.cms.gov/)
<i>Location</i>	= an indicator variable coded 0–1, whereas 1 = rural, 0 = urban.	Regulatory data collected from the Hilltop Institute's Community Benefit State Law Profiles (Nelson et al. 2015).
<i>State Regulation</i>	= an indicator variable coded 0–1, whereas 1 = the state requires hospitals to provide policies that provide circumstances under which free (discount) care will be provided, 0 if not.	

^a We lagged position and performance because a nonprofit hospital board typically sets charity policies at the beginning of the year. If the hospital's financial position affects the board's decision, the decision will typically be based on the previous year's financials.

FIGURE 1
Diagram of Models



$$\begin{aligned}
 \text{Model 3 (H2)} \quad \text{Charity Care} = & \beta_0 + \beta_1(\text{Free Care Guidelines}) + \beta_2(\text{Discount Care Guidelines}) \\
 & + \beta_3(\text{Accessibility Disclosure}) + \beta_4(\text{Financial Position}) \\
 & + \beta_5(\text{Financial Performance}) + \beta_6(\text{Medicare Mix}) + \beta_7(\text{Medicaid Mix}) \\
 & + \beta_8(\text{Per Capita Income}) + \beta_9(\text{Hospital Competition}) + \beta_{10}(\text{Location}) \\
 & + \beta_{11}(\text{State Regulation}) + \varepsilon
 \end{aligned}$$

Variables Used in Models

Dependent Variables

We use board established guidelines on patients’ eligibility for free charity care (*Free Care Guidelines*) as the board governance dependent variable in Model 1 to test H1a. We use board established guidelines on patients’ eligibility for discounted charity care (*Discount Care Guidelines*) as the board governance dependent variable in Model 2 to test H1b. Finally, we use the amount of charity care (*Charity Care*) provided as the social performance dependent variable in Model 3 to test H2.

Free (discounted) charity care guidelines. At the construct level, charity care guidelines capture a factor in board governance decisions on who is eligible to receive charity care. At the operational level, these decisions are measured with two different board established guidelines *Free Care Guidelines* and *Discount Care Guidelines*. The guidelines are the family income limit (set as a percentage tied to the federal poverty level) for eligibility for free or discounted medical care. The data for the guidelines are extracted from each nonprofit hospital’s tax filings (i.e., IRS Form 990, Schedule H).

Charity care. At the conceptual level, charity care captures a social performance outcome (i.e., the dollar amount of charity care provided to the needy). Charity care (*Charity Care*) is calculated as total financial assistance and means-tested government programs provided by the

nonprofit hospital, at cost, net of the direct offsetting revenue. We scale *Charity Care* by total program service revenue to control for hospital size. The data for *Charity Care* are extracted from each nonprofit hospital's tax filings.

Independent Variables

For Model 1 and Model 2, dimensions of board composition (i.e., board size, percentage of medical doctors on the board, and percentage of healthcare administrators on the board) are the independent variables used to test H1a and H1b, respectively. For Model 3, elements of board governing decisions related to patients' eligibility for charity care (i.e., *Free Care Guidelines* and *Discount Care Guidelines*) are the independent variables used to test H2.

Board composition. At a theoretical level, board composition captures the makeup of the governing body that may affect governing decisions as they relate to organizational missions. In our setting, we capture composition in terms of board size (*Board Size*), percentage of medical doctors (*Percent MDs on Board*) on the board of directors, and percentage of healthcare administrators (*Percent Healthcare Admins on Board*) on the board of directors.¹²

Board Size is calculated as the number of voting members on the board divided by the number of hospital beds staffed during the year of observation. We scale by number of hospital beds to control for hospital size. The board size data are collected from each nonprofit hospital's tax filings. The bed data are collected from the U.S. Centers for Medicare & Medicaid Services (CMS 2016). Previous research (e.g., Epstein and McFarlan 2011) suggests that the size of a nonprofit board of directors can influence behavior. For instance, Aggarwal et al. (2012) argue that nonprofits develop large boards, in part, for two reasons. First, a nonprofit often benefits from a large board because members are often a heterogeneous group who serve as ambassadors for the communities they serve. Second, a nonprofit often benefits from a large board because members bring various experience, expertise, and knowledge to the organization to help further its charitable missions and/or help defray some of the fixed cost of running a complex nonprofit hospital (Harris et al. 2015; Olson 2000). Therefore, we predict a positive relationship between *Board Size* and *Free (Discount) Care Guidelines*.

We measure *Percent MDs on Board* as the percentage of medical doctors who are reported as voting members on the board of directors during the year of observation. The board member data are collected from each nonprofit hospital's tax filings. Physicians were either identified as such on the IRS Form 990 or were determined to be so from the nonprofit hospital's website and/or an internet search of individual board members. In line with previous literature (e.g., The New England Journal of Medicine 2000) that suggests medical doctors are patient centered and advocate for the well-being of patients in their daily work, we predict a positive relationship between *Percent MDs on Board* and *Free (Discount) Care Guidelines*.

Percent Healthcare Admins on Board is calculated as the percentage of voting members on the board of directors who are reported as healthcare administrators whether internal or external to the organization. The board member data are collected from each nonprofit hospital's tax filings. Healthcare administrators were identified as such on the IRS Form 990 or were determined to be so from the nonprofit hospital's website and/or an internet search of individual board members. Common examples of healthcare administrators include chief executive officer, chief operating officer, and executive director of medical operations. Theoretically, healthcare administrators add value to nonprofit hospital boards in terms of providing leadership and expertise that can help

¹² For an example listing of nonprofit hospital board member occupations, please see Appendix A. For our sample, two research assistants independently coded and verified reported board members' occupations.

hospitals achieve social mission(s); therefore, we predict a positive relationship between *Percent Healthcare Admins on Board* and *Free (Discount) Care Guidelines*.

Board governance. At the construct level, board governance captures board decisions as they relate to an organization's mission(s). For our study, we examine nonprofit hospital board-approved decisions related to guidelines on patients' eligibility for free charity care (*Free Care Guidelines*) and discounted charity care (*Discount Care Guidelines*).

As discussed earlier, *Free Care Guidelines* and *Discount Care Guidelines* are computed as the family income limit (set as a percentage of the federal poverty level) for eligibility for free or discounted medical care.¹³ The data for the guidelines are extracted from each nonprofit hospital's tax filings. Intuitively, one would expect that, as a hospital reduces the financial constraints on the amount of family income levels eligible for free or discounted care by implementing less restrictive guidelines, the amount of charity care provided will increase because more patients will meet the eligibility criteria. As such, we predict that as *Free Care Guidelines* and *Discount Care Guidelines* cut-off levels increase, *Charity Care* provided will increase.¹⁴

Control Variables

Similar to other research (e.g., [Kennedy et al. 2010](#)) examining charity care, in our models, we control for variables that may affect charity care decisions (*Free Care Guidelines* and *Discount Care Guidelines*) and social performance (*Charity Care*). More specifically, in Model 1 and Model 2, we control for board members who are cross-listed as medical doctors and healthcare administrators. Related, in Models 1–3, we control for financial transparency, financial condition, hospital-specific attributes, and socio-economic conditions. Definitions for our control variables are provided in Table 1.¹⁵

For board members who are cross-listed as physicians and healthcare administrators, we use percentage of board members who are both medical doctors and healthcare administrators (*Percent Cross-Listed MDs/Healthcare Admins on Board*) as a control for how the dual composition may influence charity care decisions. We make no prediction on the directional relationship between *Percent Cross-Listed MDs/Healthcare Admins on Board* and *Free (Discount) Care Guidelines*. It is possible that the overlapping effects of being both a medical doctor and a healthcare administrator result in the interaction term being positive or negative.

¹³ In another clarifying example, Grady Health System in Atlanta, GA, during 2016, provided free care to patients below 100 percent of the federal poverty guidelines and discounted care to patients below 400 percent of the federal poverty guidelines.

¹⁴ For each observation in our final sample, the *Discount Care Guidelines* amount is greater than (not equal to) the corresponding *Free Care Guidelines* amount, meaning that more people are eligible for discounted charity care than for free charity care.

¹⁵ In preliminary models, we examined various hospital-specific variables. For instance, we examined percentage of independent board members. We examined various types of board member occupations reported (e.g., being a nurse, a clergy, an elected [non-elected] government official, a business leader, a nonprofit leader, a lawyer, and a certified public accountant). Related, we assessed a standalone variable for the occupation of the CEO. Related, we examined whether the CEO is a medical doctor and/or a healthcare administrator. Further, we examined variables such as the number of hospital beds (as a standalone variable), compensation of key employees/directors, and type of hospital (e.g., religious or non-religious). Related, we explored various financial condition variables. For example, we examined program efficiency in terms of total program expenses divided by total expenses and financial position (performance) not lagged. We also investigated various socio-economic variables such as unemployment rates. We did not find significant associations between these characteristics and charity care decisions (social performance) examined in our study.

For financial transparency, we use accessibility disclosure (*Accessibility Disclosure*) as a control to capture board governance decisions as they relate to providing the public with access to financial reports (e.g., IRS Form 990 reports). Intuitively, one would expect that stronger public disclosures would reduce information asymmetry between management and the public, allowing stakeholders to gauge how well the nonprofit is adhering to charitable missions. Hence, we predict a positive relationship between *Accessibility Disclosure* and *Free (Discount) Care Guidelines* and *Charity Care*.

In terms of financial condition, we use financial wealth (*Financial Position*) and financial income (*Financial Performance*) as controls for how variations in a nonprofit's financial health may affect charity care decisions and social performance. One would expect a nonprofit hospital with greater wealth (i.e., net assets) to have more financial resources to provide greater levels of charity care. Accordingly, we predict a positive relationship between *Financial Position* and *Free (Discount) Care Guidelines* and *Charity Care*.

In line with prior research (e.g., [Kennedy et al. 2010](#)) that suggests that hospital management may consider charity care a discretionary expense that can be reduced (increased) when operating income margins are low (high), we do not make a prediction on the direction of the relationship between *Financial Performance* and *Free (Discount) Care Guidelines* and *Charity Care*.

Turning to hospital-specific attributes, we use percent of patients covered by Medicare and Medicaid (*Medicare Mix* and *Medicaid Mix*) as controls for variations in a nonprofit hospital's payer mix. We do not make a prediction on the directional relationship between *Medicare (Medicaid) Mix* and *Free (Discount) Care Guidelines* and *Charity Care*. On the one hand, as a nonprofit hospital serves more Medicare and/or Medicaid patients, it may have less available resources for charity care patients because of low reimbursement rates. On the other hand, more services provided to Medicare and/or Medicaid patients whose costs are not completely covered by Medicare and/or Medicaid may result in an increase in the amount of charity care needed.¹⁶

Turning to socio-economic variables, we use per capita income (*Per Capita Income*), the Herfindahl-Hirschman Index (*Hospital Competition*), hospital location (*Location*), and state laws that require policies on providing charity care (*State Regulation*) to control for how variations in the socio-economic and/or market environment may affect charity care decisions and social performance. In line with prior research (e.g., [Schneider 2007](#) and [Kennedy et al. 2010](#)) that suggests an increase in a person's income should lead to a decrease in the demand for charity care, we predict a negative sign on the directional relationship between *Per Capita Income* and *Free (Discount) Care Guidelines* and *Charity Care*.

For *Hospital Competition*, on the one hand, more competition could lead to less demand for charity care per hospital because there are more hospitals to provide charity care. On the other hand, some hospitals may focus on certain types of services (e.g., trauma or cardiovascular), thus making them less influenced by market competition. Additionally, if there are other hospitals in the area, some hospitals may encourage indigent patients to go to another hospital, a condition known as "dumping." For these reasons, we make no prediction on the direction of the relationship between *Hospital Competition* and *Free (Discount) Care Guidelines* and *Charity Care*.

Using *Location*, we control for whether a hospital operates in an urban or rural environment. On the one hand, rural areas typically have smaller numbers of indigent patients than urban areas.

¹⁶ Alternatively, Medicare often pays for bad debt incurred by Medicare patients if the hospital has made reasonable attempts to collect the debt. So, if a nonprofit hospital's bad debt declines as a result of Medicare reimbursements, the nonprofit hospital may have more resources available to provide charity care services ([Eldenburg and Vines 2004](#)).

On the other hand, rural areas are often less able to attract doctors and have fewer financial resources, which may limit the amount of charity care the hospital can provide (Bai 2013). Hence, we make no prediction on the directional relationship between *Location* and *Free (Discount) Care Guidelines* and *Charity Care*.

With *State Regulation*, we control for whether a hospital operates in a state that mandates hospitals to set policies that detail circumstances under which free (discounted) care will be provided. We do not make a prediction on the direction of the relationship between *State Regulation* and *Free (Discount) Care Guidelines* and *Charity Care*. As suggested by research (e.g., Lamboy-Ruiz, Cannon, and Watanabe 2017; Nelson, Tan, and Mueller 2015; Kennedy et al. 2010), legislative requirements on charity care spending may (or may not) lead to increases in charity care provided. Some hospitals may increase (decrease) spending to “simply” meet the minimum requirements.

Sample

In drawing our sample, we use *ProPublica*'s online database to collect a listing of nonprofit hospitals across the U.S.¹⁷ Then, we use Excel's random number generator function to collect a random sample of five nonprofit hospitals per state. For some states (e.g., Alaska and Utah), we were only able to collect a sample of three or four nonprofit hospitals due to limited available data on *ProPublica*. Overall, we collected an initial sample of 224 hospitals from across the U.S.

We used this sample selection process for two reasons. First, using a sample from across the U.S. allows us to control for some of the external validity issues surrounding generalizability. Second, restricting our sample to a relatively consistent number of nonprofit hospitals per state reduces the amount of in-state and out-of-state affiliated healthcare systems. Affiliations are such a major issue (in terms of service, support, governance/control, and accountability) that the IRS requires hospitals to “describe the roles of the organization and its affiliations in promoting the health of the communities served by the system . . . affiliated healthcare system is a system that includes affiliates under common governance or control, or that cooperate in providing healthcare services to their community or communities” (IRS Schedule H, Part VI; <https://www.irs.gov/pub/irs-pdf/f990sh.pdf>).

We hand collected, reviewed, and mapped affiliations from each nonprofit hospital's IRS Form 990, Schedule H, Part VI Supplemental Information (Part 6). In chronological order, we removed a nonprofit hospital if it was affiliated with another nonprofit hospital in our sample to ensure the hospitals in our sample are not operating under the same governance or control. Overall, we excluded 32 nonprofit hospitals that are affiliated with other nonprofit hospitals that fell in our sample. Additionally, we excluded eight nonprofit hospitals that are federal, teaching, a foundation, and/or rehabilitative in nature. This process leaves us with a sample of 184 nonprofit hospitals.

For the nonprofit hospitals in our sample, we collect financial reports from IRS Form 990 filings for the year 2016.¹⁸ Corresponding hospital and supplemental socio-economic data from the U.S. Government (i.e., U.S. Centers for Medicare & Medicaid Services [CMS 2016] and the U.S.

¹⁷ *ProPublica* is a nonprofit entity that provides tax return data for tax-exempt organizations in the U.S. (<https://projects.propublica.org/nonprofits>).

¹⁸ We limited the sample time period to a single year (2016) for two main reasons. First, we focused on one year to reduce the inherent noise of having a hospital randomly fall in the sample more than once. This was especially a concern with small states having only a few nonprofit hospitals. Second, due to the vast changes in healthcare systems over time, we focused on one year to reduce the inherent noise and complexity of cross-referencing hospital systems and affiliations across years. This was a concern since we had to hand collect and compare system and affiliation note disclosure data across all hospitals in the sample.

TABLE 2
Financial Descriptive Statistics for Nonprofit Hospitals in Sample
n = 138

	Mean	Std. Dev.	Minimum	Maximum	Median
Charity Care—net (financial assistance at cost)	\$3,836,172	\$7,824,093	\$(357,544)	\$75,065,256	\$1,516,298
Medicaid (unreimbursed)	\$8,906,981	\$11,863,273	\$(1,217,752)	\$67,466,552	\$4,000,757
Other (government programs cost, net)	\$265,628	\$1,394,788	\$(1,870,299)	\$13,584,363	0
Charity Care—total (financial assistance and means-tested government programs)	\$12,606,162	\$15,894,369	\$7,967	\$90,844,094	\$6,552,734
Community Benefit (financial assistance and means-tested government programs + other benefits)	\$18,665,970	\$23,736,688	\$8,511	\$167,164,283	\$10,595,487
Program Service Revenue (lagged)	\$222,785,169	\$212,845,223	\$4,439,274	\$1,061,994,716	\$162,554,206
Total Revenue (lagged)	\$230,943,107	\$223,316,338	\$4,809,744	\$1,230,398,225	\$169,920,434
Total Expenses (lagged)	\$215,819,158	\$205,449,364	\$3,432,269	\$1,182,824,422	\$154,620,362
Net Income (lagged)	\$15,123,949	\$26,301,729	\$(17,187,002)	\$208,661,754	\$4,325,594
Total Assets (lagged)	\$249,895,911	\$264,940,459	\$4,190,855	\$1,459,578,649	\$159,809,444
Total Liabilities (lagged)	\$109,670,761	\$135,345,890	\$235,096	\$795,115,226	\$56,326,078

All statistics in this table are reported in raw form without scaling.

Financial assistance and certain other community benefits' cost [e.g., Medicare (unreimbursed), net] can be a negative figure if the community benefit expense is less than the direct offsetting revenue.

Census Bureau [2016]) and City-Data.com were collected. Related, corresponding board member occupational data from nonprofit hospitals' websites and/or an internet search were also collected.

Next, we analyzed the data for missing information and/or influential observations. We removed 46 observations from the sample for the following reasons: 31 observations were missing financial variable data, 12 observations reported zero variation between free and discounted charity care guidelines, one observation reported a net profit on the amount of charity care provided (reimbursements exceeded costs), and two observations contained extreme outlying values.¹⁹ This left us with a final sample of 138 observations.

Financial descriptive statistics for the nonprofit hospitals in the final sample are provided in Table 2. Rounding to the nearest million, the average size of the nonprofit hospitals measured by lagged total revenues is \$231 million.²⁰ The average total expenses lagged is \$216 million. Total

¹⁹ Before testing the hypotheses, we examined the data for violations of the assumptions underlying the statistical analysis. We deleted two observations from the sample because the observations contained extremely influential values that fell beyond three standard deviations of the mean square error and have influence on the parameter estimates in the models.

²⁰ We lagged position and performance because a nonprofit hospital board typically sets charity policies at the beginning of the year. If the hospital's financial position affects the board's decision, the decision will typically be based on the previous year's financials.

assets average \$250 million, while total liabilities average \$110 million. Regarding charity care, the total amount of charity care provided, on average, is \$12.6 million, while the total amount of community benefit provided is \$18.7 million. On average, the amount of charity care provided by the nonprofit hospitals is slightly greater than 5 percent of their total program service revenues. Interestingly, the amount of charity care provided is on par with one of the standard amounts recommended by lawmakers (e.g., Senator Chuck Grassley) that nonprofit hospitals spend on charity care to maintain nonprofit status ([U.S. Senate Committee on Finance Minority Staff 2007](#)). Nontabulated, the size of nonprofit hospitals based on number of beds averages 165 beds (median = 135). The smallest hospital has ten beds and the largest hospital has 768 beds. Broken down into groups, 45 percent (n = 62) are small hospitals with 1 to 99 beds; 21 percent (n = 29) are medium hospitals with 100 to 199 beds, and 34 percent (n = 47) are large hospitals with 200+ beds. Forty-one percent of the nonprofit hospitals are rural; the remaining 59 percent are urban.

V. RESULTS

Descriptive Statistics

Table 3 presents the descriptive statistics for the variables used in the regression models. For the board governance variables, *Free Care Guidelines* has a mean of 178.97, indicating that, on average, the nonprofit hospitals provide free charity care to patients who financially fall below 178 percent of the federal poverty guidelines. *Discount Care Guidelines* has a mean of 339.30, signifying that, on average, the nonprofit hospitals provide discounted charity care to patients who financially fall below 339 percent of the federal poverty guidelines. As one would expect, the eligibility criteria for free charity care is more restrictive than for discounted charity care. The guideline amounts are similar to those found in prior research. [Branson et al. \(2014\)](#) examine community demographics, hospital size, and hospital charity care. Using a sample of nonprofit hospitals in Illinois, they find that nonprofit hospitals, on average, provide free charity care to patients who fall between 154 and 193 percent (per county and city, respectively) of the federal poverty guidelines. The hospitals provide discounted charity care to patients who fall between 309 and 467 percent (per county and city, respectively) of the federal poverty guidelines.

The mean for the social performance variable *Charity Care* is 0.05. This shows, on average, charity care provided by the nonprofit hospitals represents approximately 5 percent of the nonprofit hospitals' total program revenues. As stated earlier, this amount aligns with one of the standard amounts recommended by lawmakers that nonprofit hospitals spend on charity care to maintain nonprofit status ([U.S. Senate Committee on Finance Minority Staff 2007](#)).

For the board composition variables, *Board Size* is 0.22. This indicates that the nonprofit hospital boards have, on average, one board member for every 22 hospital beds (median = 14 beds). The unscaled board size averages 14 members (median = 13 members). Interestingly, our sample of nonprofit hospital boards has slightly more bed coverage than found in similar research. For instance, [Bai's \(2013\)](#) sample of California nonprofit hospital boards has, on average, one board member for every 15 hospital beds (median = 9 beds), with an unscaled board size averaging 15 members (median = 15 members).

Percent MDs on Board is 0.24, signifying that 24 percent of the board members, on average, are medical doctors. Interestingly, this amount is comparable to the 22 percent found in [De Andrade Costa's \(2014\)](#) sample of nonprofit California hospitals for the 1997–2010 period.

Percent Healthcare Admins on Board is 0.1522, indicating that, on average, 15.22 percent of the board members in the sample are healthcare administrators. Broken down, on average, 9.83

TABLE 3
Descriptive Statistics for Model Variables
n = 138

Variables Used in Models	Mean	Std. Dev.	Minimum	Maximum	Median
Dependent Variables					
Board Governance (for H1)					
<i>Free Care Guidelines</i>	178.97	51.01	100.00	300.00	200.00
<i>Discount Care Guidelines</i>	339.30	106.36	100.00	605.00	305.00
Social Performance (for H2)					
<i>Charity Care</i>	0.05	0.04	0.00	0.18	0.04
Independent Variables of Interest					
Board Composition (for H1)					
<i>Board Size</i>	0.22	0.23	0.01	1.36	0.13
<i>Percent MDs on Board</i>	0.24	0.14	0.00	0.71	0.22
<i>Percent Healthcare Admins on Board</i>	0.15	0.15	0.00	0.86	0.11
Board Governance (for H2)					
<i>Free Care Guidelines</i>			See above		
<i>Discount Care Guidelines</i>			See above		
Independent Control Variables					
<i>Percent Cross-Listed MDs/ Healthcare Admins on Board</i>	0.05	0.07	0.00	0.29	0.00
<i>Accessibility Disclosure</i>	0.06	0.24	0.00	1.00	0.00
<i>Financial Position</i>	0.66	0.51	-0.72	2.63	0.61
<i>Financial Performance</i>	0.05	0.08	-0.43	0.31	0.05
<i>Medicare Mix</i>	0.22	0.10	0.03	0.45	0.21
<i>Medicaid Mix</i>	0.05	0.05	0.00	0.30	0.04
<i>Per Capita Income</i>	29,345.00	11,222.00	14,993.00	93,156.00	26,884.00
<i>Hospital Competition</i>	0.04	0.04	0.00	0.20	0.03
<i>Location</i>	0.41	0.49	0.00	1.00	0.00
<i>State Regulation</i>	0.13	0.34	0.00	1.00	0.00

Please see Table 1 for a description of the variables.

percent of the board members are internal healthcare administrators to the hospital; 5.39 percent are external healthcare administrators to the hospital. In a somewhat similar vein, [Young \(1996\)](#) examines trends related to inside representation on governing boards of nonprofit hospitals in California. For a sample period of 1991, he finds that senior managers represent approximately 11.8 percent of the board, and medical staff represent approximately 24.12 percent of the board.

Turning to the control variables, *Percent Cross-Listed MDs/Healthcare Admins on Board* is 0.052. This indicates that, on average, 5.2 percent of the board members in the sample hold occupations as both medical doctors and healthcare administrators (e.g., chief of staff, executive director of medical operations). Broken down, on average, 4.43 percent of the board members are both medical doctors and healthcare administrators that are internal to the hospital; 0.77 percent of board members are both medical doctors and healthcare administrators that are external to the hospital.

Accessibility Disclosure is 0.06. This indicates that, on average, 6 percent of the nonprofit hospitals in the sample provide access to the completed IRS Form 990 on their own website. *Financial Position* is 0.66. This signifies that the nonprofit hospitals in the sample have a net position balance from the previous period that averages 66 percent of program service revenues from the same previous period. The average *Financial Performance* is 0.05, showing that the nonprofit hospitals in the sample have an increase in net position from the previous period that represents about 5 percent of program service revenues from the same previous period.

Turning to hospital-specific attributes, the *Medicare Mix* is 0.22. This indicates that Medicare-funded inpatient days represent approximately 22 percent of total inpatient days. The *Medicaid Mix* is 0.05. This signifies that Medicaid-funded inpatient days represent approximately 5 percent of total inpatient days.

In term of the proxies for socio-economic condition, the average *Per Capita Income* for 2016 is \$29,345, while the national average per capita income for the same time period is \$29,865. The reported *Location* is 0.41. This indicates that 41 percent of the nonprofit hospitals in the sample are in rural areas. Interestingly, the distribution of rural-urban nonprofit hospitals in our sample (from across the U.S.) is similar to the distribution found in other nonprofit hospital research. Quosig and Forgiere (2018) have 44 percent rural nonprofit hospitals in their sample of nonprofit hospitals (from across the U.S.).

Finally, *State Regulation* is 0.13. This indicates that 13 percent of the nonprofit hospitals in the sample are in states that require hospitals to provide policies on the circumstances to which free (discount) care will be provided. As of 2014, The Hilltop Institute reports that 20 states require hospitals to develop policies as to the circumstances for which free and discounted care will be provided (Nelson et al. 2015).

Correlations

Table 4 provides the Pearson correlation coefficients matrix for variables used in the regression models. Variables with a moderate to high degree of correlation are determined by a common threshold of greater than 0.50. As shown, *Discount Care Guidelines* is positively correlated with *Free Care Guidelines* at 0.59 ($p < 0.01$). *Percent Healthcare Admins on Board* is positively correlated with *Percent Cross-Listed MDs/Healthcare Admins on Board* at 0.56 ($p < 0.01$). While the correlations appear to be moderately high, a variance inflation factor (VIF) analysis indicates that the models (used to test the hypotheses) do not have significant problems with multicollinearity. The largest VIF is less than 1.95, suggesting no issues with multicollinearity (Mendenhall and Sincich 2011).

Regression Results

In Table 5, Model 1 and Model 2 provide the results for the regression models testing H1a and H1b, respectively. Model 3 provides the results for the regression model testing H2.

Testing H1—Association between Board Composition and Board Governance

For H1a, as shown in Model 1, we find that the composition of the board in terms of *Percent MDs on Board* (t-statistic = 1.85; $p = 0.03$) and *Percent Healthcare Admins on Board* (t-statistic = 3.12; $p = 0.001$) are positively associated with *Free Care Guidelines*. We do not find that composition in terms of *Board Size* is associated with *Free Care Guidelines*.

TABLE 4
Pearson Correlation Matrix
n = 138

Panel A: Charity Care to Accessibility Disclosure

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>
1. <i>Charity Care</i>	1.00							
2. <i>Free Care Guidelines</i>	0.26	1.00						
3. <i>Discount Care Guidelines</i>	0.25	0.59	1.00					
4. <i>Board Size</i>	0.09	-0.22	-0.26	1.00				
5. <i>Percent MDs on Board</i>	0.18	0.25	0.12	-0.16	1.00			
6. <i>Percent Healthcare Admins on Board</i>	0.10	0.32	0.18	-0.12	0.24	1.00		
7. <i>Percent Cross-Listed MDs/Healthcare Admins on Board</i>	-0.03	0.11	0.05	-0.08	0.38	0.56	1.00	
8. <i>Accessibility Disclosure</i>	-0.15	-0.04	0.08	-0.01	-0.13	-0.03	0.01	1.00
9. <i>Financial Position</i>	0.03	0.04	0.02	-0.02	-0.03	-0.02	0.02	0.01
10. <i>Financial Performance</i>	-0.04	0.21	0.23	-0.16	0.08	-0.01	-0.10	0.04
11. <i>Medicare Mix</i>	-0.07	0.19	0.14	-0.04	0.21	0.15	0.32	0.07
12. <i>Medicaid Mix</i>	0.18	0.26	0.26	-0.25	0.11	0.05	0.14	0.03
13. <i>Per Capita Income</i>	-0.14	0.18	0.22	-0.15	-0.03	0.13	0.15	0.12
14. <i>Hospital Competition</i>	0.12	0.12	-0.05	0.23	-0.06	-0.08	0.02	0.09
15. <i>Location</i>	-0.10	-0.31	-0.37	0.46	-0.22	-0.07	0.03	-0.02
16. <i>State Regulation</i>	0.08	0.02	0.21	-0.10	0.06	-0.02	-0.09	-0.10

Panel B: Financial Position to State Regulation, continued from Panel A

	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>
9. <i>Financial Position</i>	1.00							
10. <i>Financial Performance</i>	0.21	1.00						
11. <i>Medicare Mix</i>	0.01	0.18	1.00					
12. <i>Medicaid Mix</i>	0.16	0.11	0.11	1.00				
13. <i>Per Capita Income</i>	0.09	0.22	0.19	-0.01	1.00			
14. <i>Hospital Competition</i>	-0.04	-0.19	0.10	0.20	-0.09	1.00		
15. <i>Location</i>	0.13	-0.14	-0.06	-0.11	-0.25	0.29	1.00	
16. <i>State Regulation</i>	-0.03	0.01	0.04	-0.07	-0.01	-0.26	-0.11	1.00

In each cell, the reported number is the Pearson correlation coefficient. The number is shown in bold if greater than [50 percent] and $p < 0.010$.

Definitions of the variables used in Table 4 are presented in Table 1.

For H1b, as shown in Model 2, we find that the composition of the board in terms of *Percent of Healthcare Admins on Board* (t-statistic = 2.26; $p = 0.01$) is positively associated with *Discount Care Guidelines*. We do not find that composition in terms of *Board Size* and *Percent MDs on Board* are associated with *Discount Care Guidelines*.

Taken together, the results provide partial support for H1. The results suggest that who sits on a nonprofit hospital board is important in board governing decisions related to charity care. For instance, having medical doctors on boards may help governing bodies better understand

TABLE 5
Regression Models
n = 138

	Predicted Sign	DV of Interest = Board Governance		DV of Interest = Social Performance	
		Model 1 Testing H1a <i>Free Care Guidelines</i> Coefficient (t-value)	Model 2 Testing H1b <i>Discount Care Guidelines</i> Coefficient (t-value)	Model 3 Testing H2 <i>Charity Care</i> Coefficient (t-value)	Model 4 Testing H2- Alternative <i>Charity Care</i> Coefficient (t-value)
Intercept		122.77 (8.53)***	266.33 (7.79)***	0.03 (2.14)**	0.04 (3.20)***
IV of Interest (Model 1, 2, 4) = Board Composition					
<i>Board Size</i>	+	-9.97 (-0.63)	-15.55 (-0.55)		0.04 (2.74)***
<i>Percent MDs on Board</i>	+	50.70 (1.85)**	-1.35 (-0.03)		0.04 (2.23)**
<i>Percent Healthcare Admins on Board</i>	+	123.76 (3.12)***	126.90 (2.26)**		0.05 (1.86)**
IV of Interest (Model 3) = Board Governance					
<i>Free Care Guidelines</i>	+			0.00 (1.34)*	
<i>Discount Care Guidelines</i>	+			0.00 (1.69)**	
Control Variables					
<i>Percent Cross-Listed MDs/ Healthcare Admins on Board</i>	?	-134.01 (-1.51)	-98.28 (-0.59)		-0.08 (-1.55)
<i>Accessibility Disclosure</i>	+	-11.58 (-1.22)	31.27 (0.66)	-0.02 (-3.84)***	-0.02 (-2.37)***
<i>Financial Position</i>	+	3.23 (0.40)	-1.86 (-0.12)	0.00 (0.54)	0.01 (0.72)
<i>Financial Performance</i>	?	86.65 (1.39)	188.89 (1.70)*	-0.02 (-0.38)	-0.01 (-0.14)
<i>Medicare Mix</i>	?	36.38 (0.75)	32.00 (0.44)	-0.04 (-1.07)	-0.04 (-1.04)
<i>Medicaid Mix</i>	?	143.29 (1.74)*	417.86 (2.76)***	0.05 (0.91)	0.13 (2.23)**

(continued on next page)

TABLE 5 (continued)

	Predicted Sign	DV of Interest = Board Governance		DV of Interest = Social Performance	
		Model 1 Testing H1a <i>Free Care Guidelines</i> Coefficient (t-value)	Model 2 Testing H1b <i>Discount Care Guidelines</i> Coefficient (t-value)	Model 3 Testing H2 <i>Charity Care</i> Coefficient (t-value)	Model 4 Testing H2- Alternative <i>Charity Care</i> Coefficient (t-value)
<i>Per Capita Income</i>	–	0.00 (1.10)	0.00 (1.37)*	–0.00 (–2.48)***	–0.00 (–1.54)*
<i>Hospital Competition</i>	?	311.44 (3.36)***	238.52 (1.31)	0.12 (1.24)	0.13 (1.46)
<i>Location</i>	?	–24.82 (–2.72)***	–57.62 (–3.10)***	–0.01 (–0.84)	–0.01 (–2.18)**
<i>State Regulation</i>	?	5.44 (0.41)	68.30 (2.33)**	0.01 (0.72)	0.01 (1.09)
Adj. R ²		0.27	0.22	0.10	0.10
Model F-Value		< 0.0001	< 0.0001	0.01	0.01

***, **, * Indicate significance at $p < 0.01$, $p < 0.05$, and $p < 0.10$, respectively.

Our results are reported using ordinary least square regression models with White's corrected t-statistics (p-values).

A coefficient with an unknown predicted sign has a two-tailed p-value. A coefficient with a predicted sign has a one-tailed p-value.

Definitions of the variables used in the models are presented in Table 1.

(from a practitioner's perspective) the individual needs of patients. This may lead to the board establishing less restrictive guidelines on patients' eligibility for the most comprehensive form of care (i.e., free charity care). Related, having healthcare administrators on boards may help governing bodies better understand (from an organizational perspective) how to efficiently and effectively meet the charitable needs of communities the hospitals serve. This may lead boards to establish less restrictive guidelines on patients' eligibility for both free and discounted charity care. Finally, results from H1 suggest that board size may not bring value in terms of helping nonprofit hospital boards with governance decisions related to patients' eligibility for charity care. On the one hand, larger boards bring diversity and/or various levels of expertise that may help nonprofit hospitals better understand the charity care needs of the communities they serve. On the other hand, at some point, larger boards may become too large, unorganized, and/or unwieldy.

Testing H2—Association between Board Governance and Social Performance

Turning to H2, as shown in Model 3, we find that board governing decisions related to *Free Care Guidelines* and *Discount Care Guidelines* (t-statistic = 1.34; $p = 0.09$ and t-statistic = 1.69; $p = 0.05$, respectively) are both positively associated with social performance measured by the amount of *Charity Care* provided by hospital administrators. Supportive of H2, our results suggest that

board governing decisions regarding charity care guidelines influence the amount of charity care hospital managers provide.²¹

As an additional test of H2, we ran an alternative model (Model 4 in Table 5) to examine a more direct relationship between nonprofit hospital boards of directors and the amount of charity care provided. Instead of examining, as shown in Model 3, the association between board governance (*Free Care Guidelines* and *Discount Care Guidelines*) and social performance (*Charity Care*), we examine, as shown in Model 4, the association between board composition (*Board Size*, *Percent MDs on Board*, and *Percent Healthcare Admins on Board*) and social performance (*Charity Care*). Although management decides the amount of charity care based on board-set guidelines, board composition affects the guidelines. As such, we test more directly whether board composition is associated with the amount of charity care provided.

We find that *Board Size* (t-statistic = 2.74; p = 0.004), *Percent MDs on Board* (t-statistic = 2.23; p = 0.01), and *Percent Healthcare Admins on Board* (t-statistic = 1.86; p = 0.03) are all positively associated with *Charity Care*. Adding further support to H2, our results suggest that the characteristics of the board of directors (in terms of composition and/or governance) influence nonprofit hospitals' mission(s) in providing charity care to the communities they serve.²²

Significant Control Variables Used in Models to Test Hypotheses

Turning to the control variables used in the models to test our hypotheses (Models 1–3), we find that a majority of the control variables are useful in one or more of the models. *Accessibility Disclosure* is negatively associated with *Charity Care* (t-statistic = -3.84; p = 0.0002). Unexpectedly, the negative sign suggests that disclosing financial reports on the nonprofit hospitals' websites may lead hospital managers to behave in a more conservative manner in terms of dollars of charity care provided.

Financial Performance is positively associated with *Discount Care Guidelines* (t-statistic = 1.70; p = 0.09). This implies that boards may loosen restrictions on patients' eligibility for discounted charity care when hospital financial performance strengthens. It is worth mentioning that more patients typically qualify for discounted charity care than for free charity care. Therefore, when financial performance improves, a nonprofit hospital board may expand its charity care program to help more people pay their hospital bill(s) with discounts rather than provide them with free care.

²¹ In an attempt to address potential concerns about endogeneity in Model 3 (testing H2), we ran a series of reduced models, a Hausman test, and a two-stage least squares (2SLS) regression model. Overall, results from the series of models and test indicate that an ordinary least squares (OLS) model is appropriate to use. It is worthy to mention that under the assumptions of the appropriateness of the instruments, we used the Hausman test to assess the possible existence of an endogeneity problem and thus the appropriateness of using an OLS model versus a 2SLS model. For the test, we explored each independent variable as a possible endogenous variable. The results of the test suggest both the OLS and the IV estimators are consistent (efficient). As such, we use the OLS model to test H2.

²² Using Models 1–3 (as shown in Table 5), as part of a further analysis, we disaggregated *Healthcare Admins on Board* by whether a board member works internally or externally to the hospital they serve. We find that *Internal Healthcare Admins on Board* is positively associated with *Free Care Guidelines* (t-statistic = 3.29; p < 0.01, one-tailed) and *Charity Care* (t-statistic = 1.72; p = 0.044, 1-tailed). We find that *External Healthcare Admins on Board* is positively associated with *Free Care Guidelines* (t-statistic = 2.33; p = 0.01, one-tailed), *Discount Care Guidelines* (t-statistic = 1.83; p = 0.035, one-tailed), and *Charity Care* (t-statistic = 1.48; p = 0.07, one-tailed). Therefore, whether the healthcare administrator is internal or external to the hospital does not appear to matter (except when looking at *Internal Healthcare Admins on Board* and *Discount Care Guidelines*). In the same disaggregated models, we also find the control for *Percent Cross-Listed MDs/Healthcare Admins on Board* is significantly related to *Free Care Guidelines* (t-statistic = -1.66; p = 0.10, two-tailed).

Medicaid Mix is positively associated with *Free Care Guidelines* (t-statistic = 1.74; $p = 0.09$) and *Discount Care Guidelines* (t-statistic = 2.76; $p = 0.007$). This indicates that as a nonprofit hospital's percentage of low-income patients increases, the board recognizes the increased need (demand) for free and discounted charity care activities and so increases the eligibility levels.

Interestingly, the control for *Per Capita Income* moves in competing directions when assessing board governance and social performance. Looking at board governance, *Per Capita Income* has an unexpected positive relationship with *Discount Care Guidelines* (t-statistic = 1.37; $p = 0.09$). This suggests that as a community's per capita income increases, nonprofit hospitals may have less demand for charity care. As such, the boards may be able to supply more discounted charity care services. In terms of social performance, *Per Capita Income* has an expected negative associated with *Charity Care* (t-statistic = -2.48; $p = 0.007$). This suggest as a community's per capita income increases, the actual amount of charity care needed and/or provided decreases.

We find that *Hospital Competition* is positively associated with *Free Care Guidelines* (t-statistic = 3.36; $p = 0.001$). This implies that market forces may increase the supply of charity care services and drive down the cost (or demand) of charitable services for individual hospitals. Thus, boards may have more available resources to focus attention on the most restrictive form of charity care (i.e., free care), moving it closer to the less restrictive form of charity care (i.e., discounted care). On average, the nonprofit hospitals in our sample set guidelines on patients' eligibility for free (discounted) charity care at 178 percent (339 percent) of the federal poverty guidelines. The range between the average free charity care and discounted charity care is 161 percent. The results indicate that as hospitals face more competition, the range between the two numbers narrows.

Related, we find that *Location* is negatively associated with *Free Care Guidelines* (t-statistic = -2.72; $p = 0.007$) and *Discount Care Guidelines* (t-statistic = -3.10; $p = 0.002$). This implies that when looking at board governance decisions related to patients' eligibility for charity care, rural hospitals may have less available resources than urban hospitals to offer services; therefore, they may tighten their eligibility standards. In our sample, the mean program revenue for rural hospitals is \$82,164,991 and \$343,432,716 for urban hospitals, while the mean unscaled amount of charity care provided by rural hospitals is \$3,924,504 (i.e., 4.8 percent of mean program revenue) and \$18,715,478 (i.e., 5.45 percent of mean program revenue) for urban hospitals.

For *State Regulation*, we find the variable is positively associated with *Discount Care Guidelines* (t-statistic = 2.33; $p = 0.02$). This indicates that states with regulation that requires hospitals to have policies on the circumstances to which free (discount) charity care will be provided tend to set more generous discounted charity care guidelines. It is worthy to note, however, *State Regulation* does not seem to be associated with the actual amount of charity care provided. In line with prior research (e.g., [Kennedy et al. 2010](#)), this result suggests regulation may not lead to increases in the actual amount of charity care provided.

Finally, we do not find the controls for *Percent Cross-Listed MDs/Healthcare Admins on Board*, *Financial Position*, and *Medicare Mix* are statistically significant in the models used to test our hypotheses. It is possible that the overlapping effect of a board member being cross-listed as both a medical doctor and a healthcare administrator does not add incremental value in charity care decisions.²³ Related, it is possible that the nonprofit hospitals in our sample focus on a current measure (*Financial Performance*) rather than measures of past performance (*Financial Position*) in charity care decisions. In a similar vein, it is possible that the nonprofit hospitals in our sample

²³ As part of a further analysis, in Models 1–4, if we exclude the control for *Percent Cross-Listed MDs/Healthcare Admins on Board*, all variables of interest stay significantly the same, except in Model 1, where *Percent MDs on Board* becomes insignificant at $p = 0.1022$.

focus more on the Medicaid patient mix (low income patients) than the Medicare patient mix (i.e., elderly and disabled patients) when making charity care decisions.²⁴

Post Hoc Analyses

As *post hoc* analyses, we use our final sample of 138 observations to explore variations in the measures used in the models to examine the association between board composition, board governance, and the amount of charity care provided. In our first *post hoc* analysis, as shown in Table 6 (Models 5–7), we explore a variation in the board composition measure for medical doctors (*Percent MDs on Board*) and healthcare administrators (*Percent Healthcare Admins on Board*). In particular, we examine whether having at least one medical doctor (*A MD on Board*) and at least one healthcare administrator (*A Healthcare Admin on Board*) on the board are positively associated with board governance decisions related to patients' eligibility for charity care (testing H1a and H1b) and social performance related to charity care provided (testing H2). In our sample, 91 percent of the hospitals have at least one medical doctor on the board, while 75 percent have at least one healthcare administrator on their board. Forty-three percent of hospitals have at least one medical doctor on the board who is also a healthcare administrator.

For H1a, as shown in Table 6 (Model 5), we find that the composition of the board in terms of having at least one medical doctor on the board (*A MD on Board*) is positively associated with *Free Care Guidelines* (t-statistic = 1.33; p = 0.09). Related, we find that having at least one healthcare administrator on the board (*A Healthcare Admin on Board*) is positively associated with *Free Care Guidelines* (t-statistic = 3.32; p = 0.0006). For H1b, as shown in Table 6 (Model 6), we find that the composition of the board in terms of having at least one healthcare administrator on the board (*A Healthcare Admin on Board*) is positively associated with *Discount Care Guidelines* (t-statistic = 2.08; p = 0.02). In addition, for H2, as shown in Table 6 (Model 7), we find that the composition of the board in terms of *Board Size* (t-statistic = 2.67; p = 0.004) and having at least one medical doctor on the board (*A MD on Board*) (t-statistic = 1.92; p = 0.028) are positively associated with *Charity Care*. Overall, the findings in Table 6 (Models 5–7) are similar to the results shown in Table 5 (Models 1, 2, and 4) with one exception. As shown in Model 7, *A Healthcare Admin on Board* is not statistically associated with *Charity Care*. Whereas, as shown in Table 5 (Model 4), *Percent Healthcare Admins on Board* is positively associated with *Charity Care* (t-statistic = 1.86; p = 0.03). Seemingly, having more than one healthcare administrator on the board of directors adds value in terms of the amount of charity care provided.

For our second *post hoc* analysis, as shown in Table 6 (Models 8–10), we explore whether a composite measure of board composition (in terms of board size, medical doctor representation, and healthcare administrative representation) is useful in board governance decisions and social performance related to charity care provided. For a composite measure (*Composite of Board*), we

²⁴ As a robustness test, we logged the *Free Care Guidelines* and *Discount Care Guidelines* variables in the models used to test our hypotheses. In Model 1, *Percent MDs on Board* (t-statistic = 2.14; p = 0.017) and *Percent Healthcare Admins on Board* (t-statistic = 3.33; p = 0.001) stay statistically significant. Related, all control variables stay significantly the same, except *Percent Cross-Listed MDs/Healthcare Admins on Board* (t-statistic = -1.81; p = 0.07) and *Per Capita Income* (t-statistic = 1.38; p = 0.085) become significant. In Model 2, *Percent Healthcare Admins on Board* (t-statistic = 2.55; p = 0.006) stays statistically significant. Related, all control variables stay significantly the same, except *Hospital Competition* (t-statistic = 1.83; p = 0.069) becomes significant. In Model 3, *Discount Care Guidelines-logged* (t-statistic = 2.22; p = 0.014) stays statistically significant. *Free Care Guidelines-logged* becomes statistically nonsignificant (t-statistic = 1.28; p = 0.102). All control variables stay significantly the same.

TABLE 6
Post Hoc Analysis
n = 138

	DV of Interest = Board Governance		DV of Interest = Social Performance		DV of Interest = Board Governance		DV of Interest = Social Performance	
	Model 5 Post Hoc H1a Free Care Guidelines Coefficient (t-value)	Model 6 Post Hoc H1b Discount Care Guidelines Coefficient (t-value)	Model 7 Post Hoc H2 Charity Care Coefficient (t-value)	Model 8 Post Hoc H1a Free Care Guidelines Coefficient (t-value)	Model 9 Post Hoc H1b Discount Care Guidelines Coefficient (t-value)	Model 10 Post Hoc H2 Charity Care Coefficient (t-value)		
Intercept	122.00 (8.37)***	286.52 (7.29)***	0.04 (2.72)***	110.70 (8.29)***	236.38 (7.15)***	0.05 (4.41)***		
IV of Interest (Model 1, 2, 4) = Board Composition								
Board Size	+ -16.24 (-0.87)	-24.67 (-0.85)	0.03 (2.67)***					
A MD on Board	+ 15.01 (1.33)*	-27.72 (-1.02)	0.02 (1.92)**					
A Healthcare Admin on Board	+ 32.85 (3.32)***	41.00 (2.08)**	0.01 (1.01)					
Composite of Board				20.28 (4.61)***	22.49 (2.26)**	0.01 (1.30)*		
Control Variables								
A Cross-Listed MD/A Healthcare Admin on Board	? -6.74 (-0.71)	-8.32 (-0.42)	-0.00 (-0.33)					
Accessibility Disclosure	+ -17.14 (-1.65)**	20.73 (0.43)	-0.02 (-2.42)***	-9.10 (-0.93)	38.65 (0.81)	-0.02 (-3.03)***		
Financial Position	+ 2.19	-5.04	0.01	3.42	-1.40	0.01		

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TABLE 6 (continued)

	DV of Interest = Board Governance		DV of Interest = Social Performance		DV of Interest = Board Governance		DV of Interest = Social Performance	
	Model 6		Model 7		Model 8		Model 9	
	Post Hoc H1a	Free Care Guidelines Coefficient (t-value)	Post Hoc H2	Charity Care Coefficient (t-value)	Post Hoc H1a	Free Care Guidelines Coefficient (t-value)	Post Hoc H1b	Discount Care Guidelines Coefficient (t-value)
<i>Financial Performance</i>	(0.27)	(-0.31)	(0.72)	(0.44)	(0.44)	(-0.09)	(0.58)	(-0.00)
	103.01	189.19	0.01	103.00	103.00	196.33	-0.00	(-0.01)
	(1.80)*	(1.84)*	(0.10)	(1.88)**	(1.88)**	(1.93)**	(-0.05)	(-0.05)
<i>Medicare Mix</i>	17.55	20.80	-0.05	-13.79	-13.79	-31.61	(-0.05)	(-0.05)
	(0.36)	(0.28)	(-1.24)	(-0.31)	(-0.31)	(-0.42)	(-0.05)	(-0.05)
<i>Medicaid Mix</i>	123.33	430.69	0.11	125.21	125.21	400.57	0.09	(-1.22)
	(1.41)	(3.00)***	(1.79)*	(1.41)	(1.41)	(2.51)**	0.09	(-1.22)
	0.00	0.00	-0.00	0.00	0.00	0.00	0.09	(-1.22)
	(0.66)	(1.42)*	(-2.01)**	(1.14)	(1.14)	(1.63)*	(1.41)	(-1.22)
<i>Per Capita Income</i>	294.74	197.05	0.14	275.09	275.09	191.72	(1.41)	(-1.22)
	(3.08)***	(1.08)	(1.44)	(3.05)***	(3.05)***	(1.07)	(1.41)	(-1.22)
<i>Hospital Competition</i>	-22.57	-56.45	-0.01	-18.82	-18.82	-47.49	(1.41)	(-1.22)
	(-2.44)**	(-3.06)***	(-2.18)**	(-2.25)**	(-2.25)**	(-2.60)**	(1.41)	(-1.22)
<i>Location</i>	8.52	70.19	0.01	7.78	7.78	69.70	(1.41)	(-1.22)
	(0.63)	(2.44)**	(1.29)	(0.59)	(0.59)	(2.53)**	(1.41)	(-1.22)
<i>State Regulation</i>	0.23	0.22	0.08	0.27	0.27	0.24	(1.41)	(-1.22)
	< 0.0001	< 0.0001	0.03	< 0.0001	< 0.0001	< 0.0001	(1.41)	(-1.22)
Adj. R ²								
Model F-Value								

***, **, * Indicate significance at p < 0.01, p < 0.05, and p < 0.10, respectively. Our results are reported using ordinary least square regression models with White's corrected t-statistics (p-values). A coefficient with an unknown predicted sign has a two-tailed p-value. A coefficient with a predicted sign has a one-tailed p-value.

use an indicator variable coded 0–3. The variable is a cumulative measure of three criteria, whereas each condition is coded 1 = yes, 0 = no. The three criteria are: (1) Is the board size at or above the sample median of 13 members? (2) Does the board have a medical doctor member? (3) Does the board have a healthcare administrative member? For H1a, as shown in Table 6 (Model 8), we find that *Composite of Board* (t-statistic = 4.61; $p < 0.0001$) is positively associated with *Free Care Guidelines*. For H1b, as shown in Table 6 (Model 9), we find that *Composite of Board* (t-statistic = 2.26; $p = 0.013$) is positively associated with *Discount Care Guidelines*. For H2, as shown in Table 6 (Model 10), we find that *Composite of Board* (t-statistic = 1.30; $p = 0.0986$) is positively associated with *Charity Care*. Overall, these results are similar to the results shown in Table 5 (Models 1–3), which implies that a composite board measure could be a useful tool when assessing board governance decisions and social performance related to charity care provided.²⁵

In our final *post hoc* analysis, we extend our H2 examination of whether board governing decisions related to free (discounted) charity care guidelines are positively associated with the reported amount of charity care provided by nonprofit hospital management. In particular, we examine various measures of the dependent variable *Charity Care*. The *Charity Care* variable we use in our main analysis is measured as total financial assistance and means-tested government programs provided, at cost, net direct offsetting revenue. The variable is scaled by total program service revenue to control for hospital size. For a *post hoc* analysis, we examine both a narrower and a broader measure of *Charity Care*. Our narrower measure of charity care is solely net charity care (*Net Charity Care*). This is a measure of total financial assistance, at cost, net direct offsetting revenue [as reported on IRS Form 990, Schedule H, Part 1, line 7a (e)]. Again, we scale the measure by total program service revenue to control for hospital size. Our broader measure of charity care is community benefit (*Community Benefit*). This is a measure of total financial assistance and means-tested government programs provided, at cost, along with “other benefits,” all net direct offsetting revenue (as reported on IRS Form 990, Schedule H, Part 1, line 7k (e)). “Other benefits” include items such as health professions’ education and research. Again, we scale the measure by total program service revenue to control for hospital size. For this analysis, we use Model 3 shown in Table 5. We replace the dependent variable *Charity Care* with a narrow measure of charity care (*Net Charity Care*). Then, we replace the same dependent variable with a broad measure of charity care (*Community Benefit*). Results (untabulated) suggest that board governing decisions related to *Discount Care Guidelines* are positively associated with *Net Charity Care* (t-statistic = 1.29; $p = 0.099$) and *Community Benefit* (t-statistic = 2.56; $p = 0.006$) provided by hospital management. We do not find that board governing decisions related to *Free Care Guidelines* are associated with *Net Charity Care* or *Community Benefit*.²⁶ One logical interpretation of these results is that nonprofit hospitals may try to steer patients into discounted charity care (i.e., making payments, no matter how small) rather than free charity care (i.e., expecting absolutely no payment) when a patient does not qualify and/or falls through the cracks of

²⁵ In *post hoc* Model 7, *A Healthcare Admin on Board* is not statistically significantly associated with *Charity Care*. As a followup, we examined Model 10 with the *Composite of Board* variable excluding the criterion of having a healthcare administrative member. The variable is not statistically significant in the model.

²⁶ In the *post hoc* models used to examine different *Charity Care* measures, we include the control variables used in Table 5 (Model 3). When compared to the Model 3 results, we find the following differences: (1) *Financial Position* becomes significant in the *Net Charity Care* and *Community Benefits* models, (2) *Financial Performance* becomes significant in the *Net Charity Care* model, (3) *State Regulation* becomes significant in the *Net Charity Care* model, (4) *Accessibility Disclosure* becomes insignificant in the *Net Charity Care* and *Community Benefit* models, and (5) *Per Capita Income* becomes insignificant in the *Net Charity Care* model.

means-tested government programs. Data constraints, however, prevent us from testing this interpretation.

VI. CONCLUSION

Stakeholders (e.g., legislatures, regulators, and taxpayers) are calling for useful information related to nonprofit hospitals' decisions and social performance related to charity care activities (Hofmann and McSwain 2013). In this study, we examine whether specific characteristics of boards may be useful when assessing and/or predicting the amount of charity care provided by hospital management. In particular, we examine whether the composition of nonprofit hospital boards of directors is associated with governing decisions related to patients' eligibility for charity care. Then, we examine whether these same board governing decisions related to patients' eligibility for charity care are associated with the actual amount of charity care provided by hospital management.

This study provides useful information to legislatures and other stakeholders interested in nonprofit hospital behavior and also furthers research that examines nonprofit boards of directors. For legislators and other stakeholders, our study indicates that the composition of the board of directors matters when setting charity care guidelines. Having medical doctors and healthcare administrators on the board is associated with less restrictive guidelines being set by the board regarding free charity care. Healthcare administrators are also associated with less restrictive guidelines being set by the board regarding discounted charity care. We also find that board guidelines are associated with the amount of charity care provided by the hospital's management. Although the board does not directly decide the actual amount of charity care provided (as does management), our results indicate that they do influence that amount. Accordingly, our results suggest that board composition matters to the amount of charity care a nonprofit hospital provides. These findings may be of particular interest to legislators and other stakeholders interested in understanding factors that influence the amount of charity care provided. Lawmakers, both at the national and state level, are enacting legislation to encourage nonprofit hospitals to act in a more charitable nature. As the number of regulations regarding charity care increases and more bright-line measures are being imposed, our results indicate that encouraging medical doctors and healthcare administrators to serve on nonprofit hospital boards may lead to governing mechanisms that increase patients' eligibility for charity care and thus the amount of charity care a nonprofit hospital provides.

Additionally, our study furthers research that examines nonprofit boards of directors. Our study lends support to the belief that nonprofit hospital boards can successfully use governing mechanisms to align board objectives with those of the nonprofit hospital and the public they serve. Our results also support research (e.g., Harris et al. 2015; Kitching 2009) showing that board governance decisions (in our setting, charity care eligibility guidelines) matter and can influence management behavior in the fulfillment of charitable missions.

Finally, in furthering the board composition literature, our results indicate that a composite measure for board characteristics may be an alternative (efficient and effective) variable to use when examining the association between the makeup of board of directors, board governance, and social performance. Additionally, our results indicate that, when it comes to hospital administrators, having more than one administrator on the board may be valuable in social performance outcomes.

Limitations

As with any research, before drawing any major conclusions with our results, there are limitations to consider. For instance, it is possible that important and/or unimportant variables were

erroneously added and/or deleted from our regression models. Also, this study represents a sample of nonprofit hospitals from across the U.S. While this decreases the threat to external validity (i.e., increases generalizability), this increases the threat to internal validity. Notably, we attempt to control for hospital affiliations and differences in state regulations regarding charity care. However, complex differences in state regulations regarding Medicaid (some states voting to expand Medicaid and other states voting not to), differences among Affordable Care Act insurance exchanges (some states opting to use federal exchanges and other states developing their own exchanges), along with other state-specific legislative and regulatory differences and/or socio-economic conditions may influence state-level charity care decisions (Plante 2009; Eldenburg, Hermalin, Weisbach, and Wosinska 2004; Young 1996). Related, this study represents only one period in time (2016) and does not necessarily generalize across other time periods. In addition, prior research suggests that although charity care reporting using standardized definitions and categories is a major improvement in accountability, expenses are an imperfect measure of charity care. Some charity care benefits are qualitative (e.g., reduced morbidity rates) in nature (Gray and Schlesinger 2009).

Future Research

The findings from this study suggest several opportunities for future research. A natural extension of this study is to investigate how changes in the external and/or internal hospital environment (e.g., changes in market conditions, and/or political environments) influence nonprofit hospital behavior in terms of charity care and/or community benefits. For example, it is possible that some nonprofit hospitals may focus on capital investments and growth capacity (e.g., to increase the type and/or depth of healthcare services offered to underserved communities) in the short term to provide greater amounts of charity care and/or community benefits in the long-term horizon. Related, board governance is a very complex construct. Continued research is needed to examine how mechanisms, magnitude, and valid measures of board governance influence charity care decisions and social performance outcomes.

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APPENDIX A
Backgrounds for Nonprofit Hospitals' Board Members
Number of Boards = 138

General Background Area ^a	Relationship to Nonprofit Hospital ^b	Occupation	Number of Board Seats in Sample = 1,872			
			Number of Occupations Reported = 2,222 ^c			
Health/Hospital Care	Internal or External	Administrator:	CEO	80		
		• Chief Executive Officer (CEO)	Leader	205		
		• Leader (e.g., President, Officer, Vice President, Executive Director)	Total	285 ^d		
		Professional:	MDs	455 ^e		
		• Physician (e.g., Doctor of Medicine, MD)	Nurses	38		
		• Nurse (e.g., Doctor of Nursing, Registered Nurse)	Other	33		
		• Dentist (e.g., Doctor of Dental Medicine)	Total	526		
		• Optometrist (e.g., Doctor of Optometry)				
		• Other (e.g., Pharmacist, Podiatrist, Psychologist)				
			Total	7		
Other Medical	External	• Professional (e.g., Veterinarian)	Total	7		
Government	External	• Elected Official (e.g., Elected State Representative, Elected Mayor)	Elected	49		
		• Non-Elected Official (e.g., Non-Elected Commissioner)	Non-Elected	42		
		• Military (e.g., Chief Master Sergeant in U.S. Air Force)	Military	8		
		Total	99			
Business	External	For Profit Businesses That Are Non-Health/Hospital Care	Owner	158		
		• Owner (e.g., Founder/Owner, Principal, Partner)	CEO	78		
		• Chief Executive Officer (CEO)	Leader	188		
		• Leader (e.g., President, Officer, Vice President, Executive Director)	Other	245		
		• Other (e.g., Banker, Real Estate Agent)	Total	669		
		• Professional (e.g., Lawyer, Certified Public Accountant)	Total	172		
		Education	Internal or External	• Educational Leader (e.g., College President)	Leader	47
				• Doctor of Education, Doctor of Philosophy	Ph.D.	52
				Total	99	

(continued on next page)

APPENDIX A (continued)

General Background Area ^a	Relationship to Nonprofit Hospital ^b	Occupation	Number of Board Seats in Sample = 1,872	
			Number of Occupations Reported = 2,222 ^c	
Nonprofit	External	Nonprofit Organizations That Are Non-Health/Hospital Care • Various (e.g., CEO, Executive Director)	CEO	13
			Leader	38
			Other	15
			Total	66
Religious	Internal or External	• Clergy; Nun/Sister	Total	58
Other	Internal or External	• Various (e.g., Volunteer, Retired Schoolteacher) • Unidentified Occupation	Various	81
			Unidentified	160
			Total	241

^a It is possible for board members to have a background in more than one general area and/or to have more than one occupation.

^b Representation can be internal or external, i.e., holding or not holding a position within the nonprofit hospital's system. External representation does not necessarily imply independence. It is possible for an external member to lack independence through affiliation.

^c Number of board seats in sample = 1,872. Within a given year, the actual number of members to sit on a board of directors can fluctuate above/below the reported number of board seats due to various reasons (e.g., turnover, term limits, vacancy, retirement, replacement).

^{d,e} Ninety-four of the board members are MDs that hold administrative positions. As such, they are reported in both the administrator and MD classifications.

Other: In our sample, 93 percent of the hospitals have a board independence rate that is greater than 50 percent (median = 80 percent; mean = 79 percent). The raw mean (median) average of members per board = 14 (13). The mean (median) number of board members scaled by number of hospital beds = 0.22 (0.13).