Doing Well by Doing Good: Evidence from Hospitals

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Abstract

This paper examines the monetary benefit of charity care provided by hospitals. Hospitals that provide more charity care experience higher patient revenues and profitability in subsequent periods. This is because charity care provision helps hospitals build a positive reputation, provide better services, expand high-margin business, and broaden the patient base to improve cost efficiency. I use ICU visits as an instrumental variable and find that more charity care causes better financial performance. The results show hospitals can do well by doing good, providing an economic rationale for corporations to engage in more corporate social responsibility (CSR) initiatives.

JEL classification: G30, G32, L31, M14

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1. Introduction

Modern corporations strive to balance their commitment to maximizing shareholders' value with their responsibilities to other stakeholders. Milton Friedman's seminal 1970 essay, "The Social Responsibility of Business is to Increase its Profits," laid the groundwork for shareholder primacy theory and suggested that focusing on other stakeholders might divert from this primary goal. However, in August 2019, members of the Business Roundtable, including executives of Apple, General Motors, Walmart, and Blackrock, among others, revised their statements on the Purpose of a Corporation. The updated statements deviate from the traditional wisdom and explicitly proclaim that corporations bear a "fundamental commitment to all of our stakeholders" - an inclusive list comprising of customers, employees, suppliers, communities, and of course, shareholders. In this paper, I show that the tension between shareholder value and broader stakeholder responsibility is not absolute - it is indeed possible to do well by doing good. I provide evidence to support this argument by quantifying the monetary benefit to hospitals from providing free charity care to their patients.

In this paper, I present an example to demonstrate how engaging in Corporate Social Responsibility (CSR) initiatives positively influences financial performance, particularly within the normal business cycle. Hospitals that allocate more resources to charity care, a form of financial assistance to low-income patients, exhibit enhanced financial performance in terms of patient revenue and profitability. I use ICU visits as an instrumental variable to establish a causal relationship between charity care provision and financial performance. For added robustness, I leverage the Affordable Care Act (ACA) Medicaid expansion as a quasi-natural experiment. The ACA Medicaid expansion results in a notable reduction in the number of uninsured patients, consequently diminishing the need for charity care. The failure to adequately fulfill CSR obligations leads to a decline in patient revenue. The positive association between financial performance and charity care provision is likely casual given the evidence from both IV regressions and from the ACA Medicaid expansion.

Furthermore, I explore potential mechanisms through which the provision of charity care

can enhance a hospital's financial performance. By offering charity care, a hospital establishes a positive image and cultivates a strong reputation. A stronger hospital reputation enables the accumulation of necessary resources to provide higher-quality services, including acquiring funding resources (for example, in the form of increased donations) and allocating more towards R&D expenditures. Additionally, a positive reputation attracts highly skilled doctors, enhancing the hospital's workforce and expertise. Moreover, hospitals with a strong reputation are more likely to offer comprehensive ancillary services, catering to a wider range of patient needs. Secondly, reputable hospitals are better positioned to expand their provision of high-margin services, such as specialized procedures or treatments, which contribute to increased revenue generation. Lastly, these hospitals can leverage their positive reputation to expand their patient base and achieve improved scale efficiency.

This paper makes several contributions. First, this paper contributes to the CSR literature by establishing a causal relation between charity care (a form of Corporate Social Responsibility in the healthcare industry) and financial performance. The difficulty of establishing causality between CSR and financial performance remains challenging due to the endogeneity issue that arises from more financially capable hospitals being better positioned to provide a higher level of charity care (supply of CSR). The hospital industry is a unique setting that tackles the endogeneity issue by randomizing the provision of charity care (ICU Visits) and shifting the demand for charity care (ACA Medicaid Expansion). I find that the provision of charity care boosts patient revenue in the subsequent year. Second, I investigate the potential economic channels for charity care to positively impact revenue, given the detailed operational data of hospitals. More specifically, I find providing more charity care creates a strong reputation for the hospitals and attracts a larger patient population, which in turn, allows hospitals to achieve scale efficiency. Lastly, the unique advantage of using the hospital data is lower estimation error in measuring CSR performance. I can directly access first-hand information on the level of cost of engaging in CSR-related activities provided by hospitals, without relying on any estimations of CSR performance from other databases,

such as Refinitiv and MSCI KLD.

This paper also proposes a solution to an existing puzzle in the literature that for-profit hospitals provide a comparable level of charity care to non-profit hospitals.[1] Charity care represents a significant component of hospitals' contribution to community benefit. This observation not only calls into question the sufficiency of community benefits provided by non-profit hospitals to justify their tax exemption status but also raises questions about why for-profit hospitals match non-profit hospitals in providing charity care. For-profit hospitals may be motivated to provide greater community benefits (charity care) if fulfilling their CSR leads to a favorable effect on their financial performance. This paper studies whether CSR provides a pecuniary motive for companies and provides an economic rationale for corporations to engage in more corporate social responsibility (CSR) initiatives.

The Corporate Social Responsibility activity of the hospital industry includes several components but primarily involves providing financial support to low-income patients through charity care. According to Rosenbaum, Kindig, Bao, Byrnes, and O'Laughlin (2015), *"hospitals spend 56% of the community benefit spending in providing financial assistance for indigent patients and offset losses from means-tested government programs such as Medicaid".* Charity care is essentially the financial assistance to the low-income population. Patients who are approved by the hospital for charity care are eligible for either free or substantially discounted healthcare services, depending on their income level. Charity care and its associated services constitute the majority of community benefits that non-profit hospitals contribute to. As such, charity care is a fundamental component of hospitals' corporate social responsibility.

In this study, I use two dimensions to measure financial performance: patient revenue and profitability. Patient revenue refers to Total Patient Revenue and Net Patient Revenue: Total Patient Revenue is the most straightforward measure, while Net Patient Revenue is

[1] A substantial body of literature indicates that nonprofit and for-profit entities demonstrate no significant difference in providing charity care. For example, see Bruch and Bellamy (2021); Cram, Bayman, Popescu, Vaughan-Sarrazin, Cai, and Rosenthal (2010); Schlesinger, Mitchell, and Gray (2003)

calculated by subtracting the contractual discounts and allowances from the Total Patient Revenue. Additionally, I construct two profitability metrics: Return on Assets (ROA) and Profit Margin. Return on Asset is calculated as total net income divided by total asset, while the profit margin is total net income scaled by total revenue. I first use an Ordinary Least Squares (OLS) regression to evaluate the relation between financial performance and charity care provision measures. I find that there is a positive association between the provision of charity care and following-period patient revenue and profitability. The positive correlation holds robust for non-profit, for-profit, and government hospitals, indicating that the beneficial impact of Corporate Social Responsibility remains significant irrespective of the organization's governance structure or dividend distribution policy.

There is an endogeneity concern for the causal inference: more profitable hospitals are more capable of providing charity care, which implies a positive correlation between profitability and CSR. To overcome the endogeneity issue, I use ICU visits as an instrument variable, since the elevated ICU cost is the main trigger of demand for charity care. Patients normally choose to go to the nearest ICU provider. Given that the geographical location of hospitals remains constant and accidents leading to ICU demand are inherently random, ICU visits should effectively randomize the allocation of charity care provision. For the robustness check, I use the Affordable Care Act's (ACA) Medicaid expansion as a negative shock to the demand for charity care. ACA expanded Medicaid coverage to almost all adults with incomes up to 138% of the Federal Poverty Level and significantly reduced the proportion of the uninsured population. To date, 40 states (including DC) have adopted the Medicaid expansion at various times since 2014, while 11 states have not adopted the expansion[2]. Due to Medicaid expansion, the hospitals significantly decrease the total amount of charity care. The ACA Medicaid expansion, which aims to relieve the financial burden of hospitals, leads to lower patient revenues of hospitals. This result provides further evidence that a decrease in the demand for charity care causes worse financial outcomes.

[2]Source: https://www.kff.org/medicaid/issue-brief/status-of-state-medicaid-expansion-decisions-interactive-map/

Next, I investigate economic channels through which CSR impacts financial performance. The provision of charity care helps hospitals establish a positive image of altruism and build up a strong reputation. A better reputation may economically help the hospitals through various channels. A stronger reputation allows a hospital to accumulate the necessary inputs to provide higher-quality services, such as funding resources, R&D expenditure, attracting better doctors to work for them, and providing more comprehensive ancillary services. Additionally, such hospitals are more able to broaden their provision of high-margin services, such as labor and delivery services, organ acquisition, and device implant to patients. Lastly, hospitals are more likely to expand their business operations and achieve improved scale efficiency. The OLS regressions and IV regression analysis both provide consistent and robust evidence to support these channels, indicating that hospitals that prioritize CSR exhibit better financial performance.

This paper is related to Environmental, Social, and Governance (ESG) research in the finance literature and contributes to the ongoing debate on whether CSR has a significant impact on a firm's performance. While some studies have suggested that CSR has no financial benefit or could even have a negative impact on performance (Bae, El Ghoul, Gong, and Guedhami (2021); Demers, Hendrikse, Joos, and Lev (2021); Bolton and Kacperczyk (2021); Krüger (2015); Humphrey, Lee, and Shen (2012)), others have found that CSR is beneficial (Albuquerque, Koskinen, Yang, and Zhang (2020); Lins, Servaes, and Tamayo (2017); Sun and Ding (2020); Flammer (2021); Cornett, Erhemjamts, and Tehranian (2016); Dimson, Karakaş, and Li (2015); Hong, Kubik, and Scheinkman (2012)). The hospital industry, which places great emphasis on CSR, represents an ideal context to explore the causal impact of CSR. Also, the hospital industry has various ownership structures (non-profit, for-profit, and governmental hospitals, etc), leading to different dividend payment policies and utility functions. This allows us to test our hypothesis in various governance structures and alter the empirical context. This paper uses the ICU visit as the instrument variable to establish the causal positive impact of CSR on financial performance.

This paper also contributes to the health finance literature on the determinants of the provision of charity care (Kim, McCue, and Thompson (2009); Valdovinos, Le, and Hsia (2015); Clement, White, and Valdmanis (2002)). Nonprofit hospitals are valued for their tax-exempt status, which was worth approximately $24.6 billion in 2011 (Rosenbaum, Kindig, Bao, Byrnes, and O'Laughlin (2015) The tax-exempt status of nonprofit hospitals does not lead to a significant difference in the provision of community benefits when compared to for-profit hospitals. This could be because the minimum requirement for nonprofit hospitals to provide community benefits remain vague or loose. Therefore, similar levels of charity care provided by both types of hospitals may be an equilibrium choice based on a trade-off between boosting financial performance and incurring the cost of fulfilling CSR obligations. This result suggests that the utility obtained from providing CSR should follow a concave function, where hospitals must balance the costs of CSR with the benefits of social responsibility on financial performance, based on a set of hospital characteristics, to maximize their overall utility function.

The causal effect of CSR has significant policy implications for corporations in general. Nonprofit hospitals often distribute retained earnings as managerial compensation and hold excessive cash reserves, resulting in significantly higher agency costs than for-profit hospitals (Cadman and Patel (2022). This even results in a situation where non-profit hospitals do not provide as much community benefit as for-profit hospitals. Policymakers must address this agency problem and ensure that nonprofit hospitals fulfill their CSR obligations. Furthermore, the evidence presented in this paper encourages firms in other industries to engage in socially responsible activities, which can lead to long-term financial performance benefits. Management should consider CSR as a valuable social asset (Lins, Servaes, and Tamayo (2017) and allocate additional resources to expand their CSR practices. Therefore, this paper provides pecuniary motivations for corporations that may be myopic in their approach to fulfilling their societal responsibilities, to take CSR more seriously.

The rest of this paper is structured as follows. Section 2 describes the data and variable

construction and provides summary statistics. Section 3 presents the empirical results on how CSR impacts financial performance using both OLS regressions and IV regression analysis. In Section 4, I examined the economic channels. Additional robustness checks are provided in Section 5. Finally, Section 6 concludes the paper.

2. Data and Empirical Setup

2.1. Introduction to Hospitals and Charity Care

As per the Centers for Medicare & Medicaid Services (CMS), hospitals provide supervised inpatient diagnostic and therapeutic services as well as rehabilitation services. The healthcare sector constitutes an essential part of the United States economy (Nunn, Parsons, and Shambaugh (2020): "The healthcare sector employs 11% of American workers and accounts for 24% of government spending. Health care was 17.7% of the US GDP as of 2018". The national expenditure on hospital care totaled $1.12 trillion or 6% of GDP in 2019 (Cadman and Patel (2022)). Additionally, the hospital sector is an industry in which one would anticipate active engagement in extensive CSR-centered activities. More than 50% of the hospitals in the United States are nonprofit organizations and have a responsibility to provide community benefits that target crucial health needs or improve the health conditions within their local areas. Given the large magnitude of the economy size and the high density of CSR in the industry, the hospital care industry provides an ideal setting to test the research question: does CSR provide monetary benefits?

While the Corporate Social Responsibility of the hospital industry has various forms, the most crucial one is to provide financial assistance to low-income patients (i.e., charity care). Non-profit hospitals, in particular, need to invest significant resources in community benefit initiatives in exchange for their tax exemption status as non-profit entities. Non-profit hospitals must comply with the disclosure requirement of the Internal Revenue Service (IRS) to maintain their tax-exempt status. Hospital organizations submit Schedule H (Form 990) to report the details of community benefit initiatives provided by their facilities and other non-hospital healthcare facilities under their operation during the tax year. These initiatives include activities such as charity care, facility improvement, medical education, and training, as well as research and development of medication.

Patients who are unable to afford medical expenses can request financial assistance from

hospitals. The provision of charity care to low-income patients is not uncommon in both non-profit and for-profit hospitals. To qualify for charity care, patients are required to submit an application package, which normally includes an application form, tax documents, paychecks, medical bills, and other relevant information. The discount offered to patients is determined based on the details provided in their application materials. Patients who are approved by the hospital for charity care will enjoy free or significantly discounted health services. For example, the University of Utah hospital may provide full charity care (100% free) for patients with income below 150 % Federal Poverty Limit (FPL) and offer different degrees of discounted medical services depending on the patient's income level[3].

Non-profit hospitals do not provide significantly more charity care than for-profit hospitals to justify their tax-exempt status (Schneider (2007); Bai, Zare, Eisenberg, Polsky, and Anderson (2021); Bruch and Bellamy (2021); Cram, Bayman, Popescu, Vaughan-Sarrazin, Cai, and Rosenthal (2010); Schlesinger, Mitchell, and Gray (2003)). Previous evidence suggests that charity care accounts for 2% to 3% of the total expense in hospitals. For instance, Bai, Zare, Eisenberg, Polsky, and Anderson (2021) find nonprofit hospitals spent 2.3% of their total expenses on charity care, which was less than that of government (4.1%) or for-profit (3.8%) hospitals. Another work by Cram, Bayman, Popescu, Vaughan-Sarrazin, Cai, and Rosenthal (2010) suggests that non-profit and for-profit hospitals appear to provide a similar amount of uncompensated care while government hospitals provide significantly more based on inpatient data. In my sample, I find that for-profit hospitals allocate a comparable amount of their funds to charity care relative to their total assets, similar to both for-profit and government hospitals. On average, the charity care provided by for-profit hospitals accounts for 87% of that provided by government hospitals and 73% of that provided by non-profit hospitals. Given that for-profit hospitals are not prohibited from distributing earnings to the owner and are not required to provide charity care, it is puzzling to determine the motive behind for-profit hospitals offering charity care.

[3]https://healthcare.utah.edu/bill/financial-assistance

It is worth noting that charity care is distinct from bad debt. Bad debt refers to the medical bills that hospitals cannot collect from patients ex-post. Firstly, bad debt is not considered part of community benefits, while charity care is a crucial component of hospitals' contribution to community benefits. While non-profit hospitals cannot leverage their bad debt to claim tax-exempt status, providing charity care (which is approved by the hospital) is an essential criterion for justifying their tax-exempt status. In addition, while bad debt is not considered a community benefit, hospitals can still claim tax deductions for it. Conversely, charity care does not offer much tax deductibility benefit to hospitals. Thirdly, the intention of charity care and bad debt are distinct. Charity care is given to eligible low-income patients, either free of cost or at minimal charges, and the expectation is not to collect the payment. In contrast, bad debt is a result of bills that were expected to be reimbursed but remain unpaid.

2.2. Data

I obtain comprehensive data on the cost report from the Healthcare Cost Report Information System (HCRIS), an annual collection by the Centers for Medicare and Medicaid Services (CMS). All hospitals that participate in Medicare or Medicaid programs are required to report their data to CMS, creating a sample that spans almost the entirety of hospitals in the United States. The database includes not only nonprofit, for-profit, and government-owned hospitals but also other facility types, such as rehabilitation hospitals, psychiatric hospitals, and children's hospitals. My panel comprises 6568 hospitals, of which 3392 (52%) are nonprofit, 2272 (35%) are for-profit, and 1540 (23%) are government-owned hospitals. The database contains extensive information on hospitals' community benefits, labor wages, charges and costs, balance sheets, and more. My baseline panel data covers the period from 2011 to 2020.

I clean the data in the following process. I scale all of the monetary variables (including patient revenue, charity care cost, bad debt, research, donation, and purchase) by the total

assets of each hospital to control for the size and to avoid the mechanical issue of larger hospitals having large scales of these variables naturally. In addition, I construct the control variables in the following ways. Leverage is the ratio of total liability to total assets. R&D can be defined as the total research expenses and equipment purchases, scaled for the total assets; Size is the logarithm of the total asset; Scale can be measured by taking the logarithm of the number of beds. Cost per patient is the total cost scaled by the total discharges. Return on assets (ROA) is the result of scaling the total net income by the total assets. The profit margin is calculated as the total net income scaled by the total revenue.

Insert **Table 1** here.

Table 1 reports the summary statistics for the variables used in this paper. In terms of profitability, more than half of the hospitals in the sample report negative net income from patient services, consistent with findings from Rosenbaum, Kindig, Bao, Byrnes, and O'Laughlin (2015) that approximately half of the tax-exempt hospitals had operational losses in 2011. Not surprisingly, the largest two components of total charity care costs are related to uninsured patients and Medicaid. On average, ICU revenue accounts for about 1.6% of the total patient revenue. Hospitals receive donations amounting to 30 basis points of their total assets and spend 50 basis points of their total asset on research equipment purchases (R&D expenditure).

3. Empirical Analysis

3.1. Patient Revenues

3.1.1. Baseline Regressions

I first examine the OLS regression of patient revenues on the cost of charity care. I use two indicators as the profitability: (a) Total Patient Revenue and (b) Net Patient Revenue. Total patient revenue is the direct measure of the profits that hospitals earn from providing

treatment services to patients, while net patient revenue refers to the revenue a healthcare provider earns from patient services after deducting contractual allowances and discounts from the total patient revenue. I use the following three profitability measures as the dependent variable: return on assets (ROA: scaling the total net income by the total assets), and the Profit Margin (the total net income scaled by the total revenue).

I use the uncompensated care data from the sheet of S10 from HCRIS data to construct my independent variables (including charity care, bad debt, etc.) of each hospital. Hospitals report their charity care expenses in the following five categories: Insured patients, Uninsured patients, Medicaid, CHIP (Children's Health Insurance Program), and other programs. I compute the total cost of charity care provided by hospitals by summing up the expenses across all five categories. My primary focus lies on the total cost of charity care, charity care provided to patients (both uninsured and insured), and care related to Medicaid. These variables are particularly influenced by the ACA Medicaid expansion. I further run the regression with the decomposition of the charity care into five parts to see the heterogeneous effects of each component.

Table 2 reports the OLS regressions of patient revenue on the cost of charity care provided by hospitals. I introduce the following regression:

$$\text{Patient Revenue}_{i,t} = \beta \times \text{Charity Care}_{i,t-1} + \omega \text{X}_{i,t} + \gamma_i + \tau_t + \varepsilon_{i,t} \tag{1}$$

Columns (1) - (3) use total patient revenue (TPR) as the dependent variable, while Columns (4) - (6) use net patient revenue (NPR) as the dependent variable. Net patient revenue refers to the revenue a healthcare provider earns from patient services after deducting contractual allowances and discounts from the total patient revenue. Columns (2) and (5) present results from the full sample analysis, including observations after the Tax Cuts and Jobs Act were implemented[4]. The other columns only consider data from before 2018.

[4]Tax Cut and Jobs Act significantly reduce the tax burden on business and individuals, which will increase the profitability of hospitals

Columns (3) and (6) specifically examine the differential effects of each component of charity care by breaking down the total cost of charity care into five parts. Additionally, I consider the controls for facility and local characteristics, such as scale, inpatient share, research and development (R&D) spending, the concentration of discharges (measured by HHI), and local poverty rate. γ_i is the facility-level fixed effect, and τ_t is the year fixed effect. I lag the independent variables (charity care variables) by one fiscal year because the impact of Corporate Social Responsibility (CSR) should be long-term, and the charity care expenses may contaminate the revenue measures in the contemporaneous period.

Insert **Table 2** here.

Table 2 indicates that expenditure on CSR has a positive correlation with patient revenues in the subsequent year. Conditional on the total assets of the hospital, one dollar increase in charity care is associated with 7.2 dollar increase in the total patient revenue and 1.8 dollar increase in the net patient revenue. The effects are significant statistically and economically, regardless of the presence of control variables. Decomposing the cost of charity care, I find that the expenses of charity care provided to uninsured and insured patients are positively associated with financial performance in the following year. Charity care related to the Children's Health Insurance Program (CHIP), Medicaid, and other state or local government indigent care programs does not show a significant effect on profitability. Overall, the findings presented in Table 2 indicate that the provision of charity care predicts improved financial performance for the hospital in the following year.

3.2. Endogeneity Concern

The results obtained through the baseline OLS regressions do not provide a causal inference between the provision of charity care and financial performance. The issue of endogeneity arises from the fact that hospitals with higher profitability possess a greater capability to offer charity care, rather than the opposite direction of causality. In this section, I employ

ICU revenue as an instrumental variable to approximate a quasi-randomized allocation of charity care provision, regardless of a hospital's profitability.

Insert **Figure 1** here.

To determine whether ICU visits randomize the provision of charity care, I consider two potential channels: patient choice based on hospital quality and patient preference for the nearest hospital. If the latter mechanism is true, it implies that charity care driven by ICU visits is randomized. In fact, the majority of the ICU admissions originate from the emergency room[5]. Figure 1 depicts the sources of ICU admissions in the United States based on a study of 172,785 ICU admissions (Wunsch, Angus, Harrison, Linde-Zwirble, and Rowan (2011)). Around 58% of ICU admissions directly stem from the emergency department, while only 1.8% and 17.5% of the ICU admissions originate from other hospital ICU providers and from the hospital floor, respectively. The decision of an Emergency Room (ER) provider is likely influenced by the proximity to the nearest hospitals.

The most significant triggers leading to ICU visits are respiratory and cardiovascular diseases, both of which are highly time-sensitive. In fact, the primary five reasons to visit ICU for adults are "respiratory insufficiency/failure with ventilator support, acute myocardial infarction, intracranial hemorrhage or cerebral infarction, percutaneous cardiovascular procedures, and septicemia or severe sepsis without mechanical ventilation. Other conditions and procedures involving high ICU use are poisoning and toxic effects of drugs, pulmonary edema and respiratory failure, heart failure and shock, cardiac arrhythmia and conduction disorders, renal failure with major complication or comorbidity, gastrointestinal hemorrhage with complication or comorbidity, and diabetes with complication or comorbidity"[6], according to Society of Critical Care Medicine. Mechanical ventilation is the most requested

[5]While there is a lack of national evidence, the literature generally indicates that approximately 60% of ICU admissions come from the emergency department (ED), as documented by Datta, Kar, and Ahmed (2015), Wunsch, Angus, Harrison, Linde-Zwirble, and Rowan (2011), etc.

[6]Source: Society of Critical Care Medicine
https://www.sccm.org/Communications/Critical-Care-Statistics

technology support, being necessary for 20%-40% of ICU admissions in the United States. During such emergent situations, every additional second spent on transportation to the hospital substantially raises the likelihood of death. Based on the information above patients exhibit high sensitivity to the distance they need to travel to reach the ICU and tend to opt for the nearest ICU provider.

Furthermore, I find more empirical evidence to support the notion that patients' decisions regarding ICU providers are influenced more by the location of the hospitals rather than their quality. I find no positive or significant correlation between ICU revenue and hospital quality measures such as staffing capacity and bed availability. Additionally, there is no correlation between local income levels and ICU revenue, indicating that individuals from wealthier communities are not more inclined to seek ICU services than those from lower-income areas. However, a correlation is detected between ICU revenue and the local population, suggesting that patients tend to choose the nearest ICU provider. Considering that the geographical location of hospitals remains constant and accidents leading to ICU demand are inherently random, ICU visits should effectively randomize the allocation of charity care provision.

Figure 2 shows the relation between the endogenous x variable (charity care provision) and z variable (ICU revenue).

Insert **Figure 2** here.

The instrument employed in this study satisfies the relevance condition, as ICU visits represent a significant catalyst for the demand for charity care. According to Levinson, Hulver, and Neuman (2022), a substantial proportion of adults reporting medical debt attribute it to the costs associated with emergency care (50%) and hospitalizations (35%)[7]. Figure 1 depicts the bin scatter plot showcasing the relationship between the variable of primary interest (x variable, charity care) and the instrument variable (z variable, ICU revenue). The figure reveals a nearly linear association between these two variables, suggesting that ICU

[7]Source: https://www.kff.org/health-costs/issue-brief/hospital-charity-care-how-it-works-and-why-it-matters/

visits significantly drive the provision of charity care by hospitals.

Insert **Table 3** here.

Table 3 reports the results from the first-stage and second-stage analyses. In the first-stage analysis, Column (1) presents the results indicating a significant and positive correlation between ICU revenue and charity care provision. The first-stage regression yields an F-statistic of 230.45, surpassing the critical value for a 10% Stock-Yogo weak instrumental variable (IV) test. Columns (2) and (3) present the results of the second-stage regressions. The estimates derived from the IV regressions are approximately 3 to 4 times greater than the estimates obtained through OLS regressions. This discrepancy suggests that the endogenous variable exhibits differing correlations with charity care provision and patient revenue. Charity care represents a cost imposed on hospitals and the revenues that hospitals opt to forgo. Consequently, the provision of charity care is expected to temporarily reduce patient revenue. The IV estimates presented herein reveal that the true relationship between charity care and patient revenue is indeed larger than the estimates derived from OLS regressions.

3.3. Profitability

The impact of charity care on the profitability of hospitals, specifically their ability to generate revenue from operating expenses or the cost of doing business, remains unclear. Although offering charity care has a positive impact on patient revenues, it is conceivable that operating expenses may also increase simultaneously, potentially leading to unchanged or even decreased profitability. This section studies the impact of providing charity care on hospitals' profitability.

$$\text{Profitability}_{i,t} = \beta \times \text{Charity Care}_{i,t-1} + \omega \text{X}_{i,t} + \gamma_i + \tau_t + \varepsilon_{i,t} \tag{2}$$

I consider two measures of profitability in this study: Return on Assets (ROA, obtained by scaling the total net income by the total assets), and Profit Margin, calculated by scaling

the total net income by the total revenue. Providing charity care may incur short-term costs for hospitals' operations, but in the long run, it can benefit their profitability. In the following tables, I show the impact of lagged charity care provision on these profitability measures, both OLS regressions and IV analysis.

Insert **Table 4** here.

Table 4, Columns (1) and (2) display the results obtained from OLS regressions, while Columns (3) and (4) present the instrumental variable (IV) estimates utilizing lagged ICU revenue as the instrument variable. Consistent with the findings about patient revenues, the IV regressions yield larger estimates compared to the OLS regressions. An increase of one standard deviation in the provision of charity care (8%) is associated with a 4% increase in Return on Assets (ROA) and a 2.2% increase in the profit margin. These changes correspond to substantial relative jumps of 12% and 13% standard deviations, respectively. Hence, the impact on profitability is both economically and statistically significant.

4. Economic Channels

The provision of charity care helps hospitals establish a positive image of altruism and build up a strong reputation in the eyes of the public. I will examine whether a better reputation can help the hospitals through several potential economic channels. Firstly, a stronger hospital reputation allows the hospital to accumulate the necessary materials to provide higher-quality services. Additionally, such hospitals are more able to broaden their provision of high-margin services. Lastly, hospitals are more likely to expand their business operations and achieve improved scale efficiency. I introduce the following regressions:

$$\text{Economic Channel}_{i,t} = \beta \times \text{Charity Care}_{i,t-1} + \omega \text{X}_{i,t} + \gamma_i + \tau_t + \varepsilon_{i,t} \tag{3}$$

where γ_i is facility-level fixed effect and τ_t is year fixed effect. For all the regressions, I

cluster the standard error on facility- and year-level. I include the same facility and local characteristics controls as previous practices.

4.1. Better Quality of Services

A better reputation can be beneficial in many aspects. Firstly, hospitals will need to acquire more up-to-date equipment to meet the requirements of patients who cannot be treated with the current resources available. Secondly, prestigious hospitals tend to attract highly skilled doctors, resulting in better services and expertise. Additionally, reputable hospitals are more likely to offer a wide range of ancillary services such as imaging tests, lab tests, and physical therapy. Lastly, a hospital with better fame is more likely to receive more donations and the gift can be surprisingly sizable. For example, New York Presbyterian/Columbia University Irving Medical Center received a gift of $600 million to support cancer research and patient care from Herbert and Florence Irving in 2017[8].

$$\text{Quality of Services}_{i,t} = \beta \times \text{Charity Care}_{i,t-1} + \omega \text{X}_{i,t} + \gamma_i + \tau_t + \varepsilon_{i,t} \tag{4}$$

To examine the impact of a hospital's reputation on the quality of services provided, I create and analyze the following variables. Firstly, I calculate the hospital's research and development (R&D) expenditure by adding research expenses and capital purchases and dividing the sum by total assets. As patients expect to receive immediate treatments upon visiting hospitals, the need for equipment purchases and research expenses is simultaneous. In Column (1) Panel A, I examine the contemporaneous relation between the provision of charity costs and R&D investment. Secondly, I measure the density of doctors at the local county level by dividing the total number of local doctors holding M.D. degrees by total assets[9]. Lastly, I scale the revenue generated from ancillary services and the amount of donations received

[8]Source: https://www.advisory.com/daily-briefing/2018/12/04/philanthropic-gifts

[9]Data Source: Area Health Resources File (AHRF). The current measure has a limitation; data on M.D. holders are only available at the county level, which is the most detailed level of granularity accessible for this information.

by total assets. In Table 5, Panel A, the results indicate a positive correlation between the provision of charity care and those key factors, including contemporaneous R&D expenditure, attraction of doctors, revenue from ancillary services, and the amount of donations received. These findings provide evidence that engaging in charitable activities contributes to the improvement of hospitals, highlighting the positive impact of doing good deeds on hospital performance.

Insert **Table 5** here.

4.2. Expanding High-Margin Services Provision

More than half of nonprofit hospitals struggle with surviving financially and make negative net incomes. The Operating Room (OR) constitutes the primary source of revenue and profit margin for the hospitals. However, patients tend to choose hospitals with a better reputation when seeking high-margin medical services. The reputation of a hospital serves as a form of social trust, enhancing its perceived reliability and influencing patients' decisions in favor of that hospital. I analyze key surgical services such as labor and delivery services, organ acquisition, and implant devices to patients (all scaled relative to total assets). The findings indicate how offering charitable care impacts the provision of high-margin services in the subsequent year.

$$\text{High-Margin Services}_{i,t} = \beta \times \text{Charity Care}_{i,t-1} + \omega \text{X}_{i,t} + \gamma_i + \tau_t + \varepsilon_{i,t} \tag{5}$$

The findings are presented in Table 5. Panel B reveals a positive relationship between the total cost of charity care and the provision of high-margin medical services. For every dollar of charity care provided, there is an associated increase of 4 cents in revenue from labor and delivery services, as well as a cost of 0.5 cents attributed to implant devices for the patients. Furthermore, the provision of charity care is positively associated with the likelihood of hospitals receiving organ donations and offering organ acquisition services, which

are relatively infrequent services among hospitals. These results suggest that a hospital's enhanced reputation can help attract patients seeking more advanced surgical procedures.

4.3. Improved Scale Efficiency

According to the reputation channel, hospitals can reduce the average cost of treating patients and achieve a scale economy by attracting more patients to receive medical services. When hospitals invest in equipment and fixed assets, there are significant fixed costs initially, and these costs stay relatively stable, regardless of the depreciation method used for accounting. So, when hospitals have more patients, the cost of treating each patient decreases, allowing them to offer services with higher profit margins. Moreover, many low-income individuals suffer from common diseases like diabetes, asthma, and AIDS. Hospitals can learn from treating these common diseases and improve their research in diagnosis, medication, and treatment, which leads to better services at a lower cost. In this section, I will explain how hospitals achieve efficiency by providing charity care.

$$\text{Scale Efficiency}_{i,t} = \beta \times \text{Charity Care}_{i,t-1} + \omega \text{X}_{i,t} + \gamma_i + \tau_t + \varepsilon_{i,t} \tag{6}$$

I examine the impact of providing charity care on the following-period cost efficiency in the following method. To begin with, I examine whether charity care enhances the patient base and will measure the busyness using total discharges and parking receipts. I scale the total discharges and parking receipts by the total assets (in thousand). I measure the Cost per Patient by dividing the total cost of treating patients by the total discharges. Table 6 Columns (2) suggests that the total cost of charity care is positively associated with the following-year total discharges and negatively associated with the average treatment cost of patients. Every $ 10,000 expenditure spent on charity care is associated with an increment of 2.6 discharge in the following fiscal year, conditional on the total asset. If a hospital allocates 1% of its total assets towards charity care, the average cost of treating one patient

will reduce by $723 [10].

Insert **Table 6** here.

Table 6 replicates the previous analysis, using lagged ICU revenue as the instrument variable. All analyses include facility- and year-fixed effects, while standard errors are clustered at the facility and year level. Notably, the results from the instrumental variable (IV) analysis align closely with the robust findings obtained through ordinary least squares (OLS) regressions. The IV estimates are slightly larger, indicating the endogenous variable differently correlates with the x and y variables. These findings highlight the positive impact of providing charity care, as it incentivizes hospitals to enhance the quality of services, leading to increased business activity and improved scale efficiency.

5. Robustness

5.1. ACA Medicaid Expansion

5.1.1. Background of ACA Medicaid Expansion

This study faces an endogeneity concern that more profitable hospitals are more capable of providing charity care due to their ability to handle increasing uncompensated care burdens. In fact, approximately half of the non-profit hospitals had negative income back in 2011 (Rosenbaum, Kindig, Bao, Byrnes, and O'Laughlin (2015)). Hospitals that incur operating losses and struggle to make ends meet may have a lower motivation to offer charity care, as it increases the burden of operational expenses. This endogeneity concern pertains to the supply side of charity care. To address this concern, I utilize the Affordable Care Act (ACA) Medicaid expansion as a negative shock to the demand side for charity care. The

[10]Furthermore, I control a "outlier provision of charity care" dummy variable that indicates whether hospitals spend more than 30% of their total assets on charity care. Due to their unusually high expenditure on charity care, this significantly inflates the average cost of treating patients. Upon the bin scatter plot of charity care provision and cost per patient, I have observed a negative correlation between the two variables.

federal government does not have the authority to withhold payments for an entire state Medicaid program for failing to implement the Medicaid expansion, which effectively made the expansion optional. The decision to participate in or withdraw from the program lies almost entirely at the discretion of the state. Prior to the ACA, Medicaid eligibility for adults was limited to specific categories, such as individuals with an income below a certain percentage of the Federal Poverty Level (FPL) or adults who are poor and have dependent children. However, with the expansion of Medicaid, states were given the option to cover all adults with income up to 138% of the federal poverty level ($20,120 for an individual in 2023), resulting in a significant reduction in the uninsured population.

Insert **Figure 3** here.

Figure 3 displays the timeline of the adoption of ACA Medicaid expansion across various states. The report reveals that 25 states (including DC) chose to opt-in to the Medicaid expansion program in 2014. Nonetheless, some states have gradually adopted ACA Medicaid expansion since 2014, indicating a phased introduction of the policy. To date[11], 40 states (including DC) have adopted the Medicaid expansion at various times since 2014, while 11 states have not adopted the expansion (the states that have not adopted Medicaid expansion are Florida, Georgia, Tennessee, Texas, Kansas, Mississippi, Alabama, North Carolina, South Carolina, Wisconsin, and Wyoming). Due to the expansion, 35 million low-income adults have gained access to lower costs of medical care services and health coverage.

ACA Medicaid expansion decreases the total demand for charity care but increases the demand for charity care related to Medicaid. Hospitals provide charity care in five categories: uninsured patients, insured patients, Medicaid, Children's Health Insurance Program (CHIP), and other state or local government indigent care programs. The biggest component of the total charity care cost is the Medicaid-related cost, followed by the charity care cost for uninsured patients. These two parts are influenced most by the ACA Medicaid expansions

[11]Tool: MapChart
https://www.mapchart.net/usa.html

as the expansion significantly reduces the number of uninsured patients but increases the number of patients covered by Medicaid. Hospitals provide charity care to eligible patients after Medicaid, which means the demand for charity care related to Medicaid increases. But the total demand for charity care by uninsured low-income patients decreases after Medicaid expansion. The endogeneity issue is that financially sound hospitals are more inclined to offer charity care. The endogeneity concern primarily relates to the supply side of CSR. I utilize the ACA Medicaid Expansion as the shock to the demand side for charity care. The expansion resulted in a significant decrease in the uninsured population, benefitting approximately 35 million low-income individuals who now have access to medical services at a reduced cost.

The purpose of the ACA Medicaid expansion is to alleviate financial strain on low-income individuals and to reduce the burden on hospitals that provide charity care. On the balance sheet, the expansion should reduce hospitals' operating expenses and allow for more flexibility in capital allocation. However, I find that hospitals experience a notable decrease in patient revenue shortly after expanding. The results suggest that a lack of sufficient CSR-centered activities can lead to a decline in financial performance. In the following section, I will present evidence indicating how hospitals' patient revenues declined following the ACA Medicaid expansion.

5.1.2. Evidence from ACA Medicaid Expansion

In this section, I use the ACA Medicaid expansion as a robustness check to provide further validation for the causal impact of charity care on financial performance. The factors that determine the timing of the expansion adoption are unlikely to be correlated with the dependent variable. Although the political ideology of the state government may be the most significant factor, it should not directly impact the total patient revenue of the hospitals.

Given that the expansion was introduced to states at different times, the treatment effect can be varying across different states and years (Borusyak, Jaravel, and Spiess (2021); Call-

away and Sant'Anna (2021); Goodman-Bacon (2021)). The traditional TWFEDD (Two-Way Fixed Effect Diff-in-Diff), which involves the comparison between late and early treatment groups, will bias the ATE estimation if the effects vary over time (Goodman-Bacon (2021)). I adopt the approach proposed by Goodman-Bacon (2019) as my primary methodology to tackle the heterogeneous effect issue. Bacon decomposition accounts for the time-varying effect across time and improves the accuracy of estimated treatment effects for staggered Diff-in-Diff. Additionally, I provide the result using the method proposed by Callaway and Sant'Anna (2021) as a robustness check. Firstly, I show the time trend of the provision of charity care and patient revenues in the following graphs, accounting for the heterogeneous effects of treatment and control variables.

Insert **Figure 4** here.

The two uppermost graphs indicate that the ACA Medicaid expansion resulted in a shift in hospitals' expenditures toward charity care. The expansion led to a reduction in demand for charity care due to a decrease in the number of uninsured patients. As a result, hospitals spent less on total charity care but directed more resources to charity care related to Medicaid as such care is usually provided after Medicaid. Both total patient revenue and net patient revenue, exhibit a decline following the expansion of Medicaid under the Affordable Care Act (ACA). These trends indicate that inadequate corporate social responsibility (CSR) initiatives have a detrimental effect on patient revenues and that CSR initiatives lead to monetary benefits for hospitals.

$$\text{Charity Care/Patient Revenue}_{i,t} = \beta \times \text{Post-ACA}_{i,t} + \omega \text{X}_{i,t} + \gamma_i + \tau_t + \varepsilon_{i,t} \tag{7}$$

For the Bacon decomposition, I incorporate the facility-level fixed effect γ_i, the year fixed effect τ_t, and control variables for facility and local characteristics, as per equations (2) and (3). The effects of the staggered implementation of ACA Medicaid expansion on hospitals' charity care costs are presented in Table 7. Following the expansion, hospitals

reduced their total charity care costs due to a decline in uninsured patients and, consequently, lower demand for charity care. However, I also note an increase in the cost of charity care associated with Medicaid. While the total cost of charity care reduces by approximately 14% relative to its sample mean, there is a 23% increase in charity care costs associated with Medicaid. Correspondingly, I observe a decrease in the two patient revenue measures, which is consistent with the trend observed in Figure 2. ACA Medicaid expansion results in a decline of 0.06 and 0.39 in Total Patient Revenue and Net Patient Revenue, for each unit of total assets. This translates to a 5% and 9.4% decrease compared to the sample means.

Insert **Table 7** here.

Next, I reconcile the results from the Bacon decomposition with those from the OLS regressions. Table 3, Panel A suggests that post-ACA Medicaid expansion, the constituents of charity care provided by the hospital experience the following changes: for every dollar of asset, there is a decrease of 0.010 dollars in charity care related to uninsured patients and a decrease of 0.001 dollars in charity care related to the uninsured patients. Combining the changes in these components and the coefficients of these components in Table 2, Total Patient Revenue is expected to decrease by 0.16 dollars for every dollar of the total asset $(14.47 \times (-0.010) + 14.98 \times (-0.001))$. Net Patient Revenue is expected to decrease by 0.04 dollars for every dollar of total asset $(3.77 \times (-0.010) + 4.31 \times (-0.001))$. These findings are consistent with the changes presented in Panel B. The coefficients and significance obtained from CSDiD are slightly stronger but consistent with the results from the Goodman-Bacon decomposition[12].

These findings add to a causal inference between CSR and total patient revenue, as supported by the evidence from the IV and Bacon decomposition analyses.

[12]The magnitudes of the estimation from Bacon decomposition are close to the results from traditional staggered difference-in-difference

5.1.3. Differential Effect of ACA on hospitals

The effects of ACA Medicaid expansion are heterogeneous across different types of hospitals. The ownership structure may lead to disparities in the objectives pursued by different types of hospitals. For instance, government hospitals funded by the federal government are expected to compensate for the shortage of charity care, whereas for-profit hospitals financed by individual investors aim to maximize owners' value instead of maximizing social welfare. Hospitals may strategically adjust the provision of charity care to offset the negative impact of declined demand for charity care. If a hospital anticipates a decline in both the demand for charity care and patient revenue, the hospital is more likely to deliberately increase the provision of charity care. This phenomenon is expected to be most pronounced in for-profit hospitals whose goal is to maximize the wealth of the owners. Thus, I investigate how different hospitals respond to ACA Medicaid expansion, highlighting variations in their behaviors.

$$\mathrm{Y}_{i,t} = \beta_0 \mathrm{Post}_{i,t} + \beta_1 \mathrm{Post}_{i,t} \times \mathrm{NP} + \beta_2 \mathrm{Post}_{i,t} \times \mathrm{FP} + \beta_3 \mathrm{NP} + \beta_4 \mathrm{FP} + \omega \mathrm{X}_{i,t} + \gamma_i + \tau_t + \varepsilon_{i,t} \quad (8)$$

where i denotes hospital facility and t denotes the year. NP and FP are dummy variables that equal 1 for nonprofit hospitals and for-profit hospitals, respectively. Additionally, the dummy variable *post* takes a value of 1 for the hospitals in the post-ACA period. The baseline estimate is government hospitals that are anticipated to provide affordable health services regardless. This regression examines how for-profit hospitals, nonprofit hospitals, and government hospitals behave differently in response to ACA Medicaid expansion.

Table 8, Column (1) shows that hospitals experienced a significant decrease in patient revenue after the ACA Medicaid expansion was implemented. However, the decline was less pronounced for for-profit hospitals and non-profit hospitals compared to government hospitals. In fact, the combined effects for for-profit hospitals were likely not significant (-0.811 + 1.033 = 0.222). Moreover, non-profit hospitals saw a smaller decline in patient

revenue compared to government hospitals, suggesting that they may have adjusted their charity care provision to offset the decrease in patient revenue.

Regarding charity care provision, hospitals tended to offer less financial assistance to low-income patients, including both uninsured and insured individuals. However, for-profit hospitals exhibited a slower decline in their overall charity care provision. When we analyzed charity care provided to uninsured and insured patients separately in Columns (3) and (4), we found that the decline in charity care for uninsured patients was more noticeable than for insured patients. For-profit hospitals, in an effort to mitigate the decrease in patient revenue, allocated a larger portion of their charity care resources to low-income patients.

Insert **Table 8** here.

5.2. Does the Effect of CSR Depend on the Consumer's Expectations?

5.2.1. Bad Debt

Bad debt can be considered as a form of involuntary Corporate Social Responsibility (CSR) for hospitals, for several reasons. Firstly, hospitals typically do not turn away patients who seek medical assistance and only bill them after services have been provided. Therefore, hospitals are unlikely to selectively choose patients who are more able to pay for services rendered. Secondly, bad debt is entirely not under the control of hospitals and arises from patients' decisions to default on their financial obligations. Unlike charity care, which hospitals can choose to approve or reject, bad debt occurs unexpectedly and without any control on the hospital's part. Moreover, patients who accumulate bad debt often have serious illnesses that leave them unable to pay their bills. These illnesses are typically unpredictable and not within the control of hospitals.

$$\text{Patient Revenues}_{i,t} = \beta \times \text{Bad Debt}_{i,t-1} + \text{X}_{i,t} + \gamma_i + \tau_t + \varepsilon_{i,t} \tag{9}$$

Insert **Table 9** here.

Columns (1) and (2) use Total Patient Revenue (TPR) as the metric for profitability, while Columns (3) and (4) employ Net Patient Revenue. The total bad debt is the independent variable for Columns (1) and (3), whereas Columns (2) and (4) employ more granular categories of bad debt. Specifically, Medicare bad debt refers to situations where hospitals provide services to Medicare beneficiaries, but they fail to pay their deductible or coinsurance amounts. Non-Medicare bad debt refers to the financial obligations of non-Medicare patients that they fail to fulfill. Lastly, non-reimbursable Medicare bad debt is the portion of allowable Medicare coinsurance and deductibles that are considered to be uncollectible and are not reimbursed by Medicare. The findings in Columns (1) and (3) of Table 9 indicate a positive correlation between bad debt and patient revenues of hospitals. However, if I break down bad debt into three categories - non-reimbursable bad debt, Medicare bad debt, and non-Medicare bad debt - I find heterogeneous effects. In particular, the correlation between non-reimbursable bad debt and patient revenue is negligible since this type of bad debt does not directly benefit patients. As a result, it is not considered part of a hospital's Corporate Social Responsibility. Thus, we have evidence that the effectiveness of CSR is contingent on the expectations of consumers/patients.

5.2.2. Subsample Analysis: by Different Ownerships

Past research has demonstrated that the provision of charity care varies depending on the type of hospital control. For instance, government hospitals typically offer more charity care than for-profit and non-profit hospitals. Another concern relates to the imprecise estimation of operational expenses in nonprofit hospitals, as highlighted by Cadman and Patel (2022). Being nonprofit organizations, hospitals are not allowed to distribute dividends to owners and must reinvest retained earnings for future operations. Consequently, non-profit hospitals tend to hold higher amounts of cash and retained earnings, invest more in fixed assets such as land improvements and buildings, and offer excessive compensation to management.

In this section, my analysis focuses on the varying impact of charity care across different

hospital types. I investigate the monetary benefit of charity care using different subsamples to determine whether ownership structure is a driving factor.

Insert **Table 10** here.

Table 10 presents the results of my subsample analysis, which focused on non-profit, for-profit hospitals, and government hospitals. Columns (1) to (3) reveal a positive association between charity care expenses and total patient revenue (TPR). Specifically, for each dollar spent on charity care, TPR increased by approximately 8.7 dollars for non-profit hospitals, 6.9 dollars for for-profit hospitals, and 3.7 dollars for government hospitals in the subsequent period, while maintaining constant total assets. However, the interaction between the government dummy and charity care is negative and significant at the 1% level, suggesting that the impact of government hospitals is much lower than that of other hospital types. One potential explanation is that government hospitals are established to offer financial aid to low-income patients, resulting in people taking it for granted. As a result, this provides a secondary piece of evidence that patients' expectations of hospitals' altruistic behaviors play a crucial role.

6. Conclusion

This paper provides an example of how organizations can benefit financially by engaging in Corporate Social Responsibility (CSR) initiatives. To investigate this, I use ICU visits as an instrument to randomize the provision of charity care. The results show that hospitals providing more charity care experience higher patient revenue and profitability in the subsequent period. For robustness, I introduce a novel approach using the ACA Medicaid expansion as a negative shock to the demand for charity care. This helps address the potential endogeneity issue on the supply side, where more profitable hospitals are better positioned to provide higher levels of charity care. The analysis demonstrates that hospitals actively involved in CSR-related activities tend to perform better in the following fiscal year.

I propose solutions to two persistent puzzles in the financial economics literature. First, for-profit hospitals, which are not obligated to provide any charity care and can distribute their earnings to their owners, are on par with non-profit hospitals in terms of providing charity care. The comparable level of charity care provided by for-profit and non-profit hospitals is likely to be an equilibrium based on the trade-off between the cost of providing charity care and monetary benefits. This paper also contributes to the mixed evidence about the role of CSR in creating value for shareholders. Even though previous literature shows CSR does not contribute to shareholder value during a crisis, I find evidence of a positive causal effect on financial performance. Using the health industry setting, I provide direct evidence to show that Corporate Social Responsibility enhances the financial performance of hospitals.

In this paper, I investigate the economic channels through which Corporate Social Responsibility impacts financial performance. My findings indicate the existence of the following channels: By offering charity care, a hospital establishes a positive image and cultivates a strong reputation. A stronger hospital reputation enables the accumulation of necessary resources to provide higher-quality services, including acquiring funding resources (in the form of increased donations) and allocating more towards R&D expenditures. Additionally, a positive reputation attracts highly skilled doctors, enhancing the hospital's workforce and expertise. Furthermore, hospitals with a strong reputation are more likely to offer comprehensive ancillary services, catering to a wider range of patient needs. Secondly, reputable hospitals are better positioned to expand their provision of high-margin services, such as specialized procedures or treatments, which contribute to increased revenue generation. Lastly, these hospitals can leverage their positive reputation to expand their business operations and achieve improved scale efficiency.

This result is robust and consistent in different ownership structures of hospitals. Nevertheless, the extent of the impact is contingent upon patients' expectations of hospitals' provision. For government hospitals, the positive effects of charity care are less prominent

due to patients' ex-ante expectations of higher charity care provision from these hospitals. However, I observed that the impact of charity care is particularly significant in for-profit hospitals. The findings for for-profit hospital groups provide an impetus for corporations to increase their commitment to Corporate Social Responsibility. Companies should view CSR as not only a duty to enhance the quality of life in their local communities but also as a social asset that can improve their financial performance.

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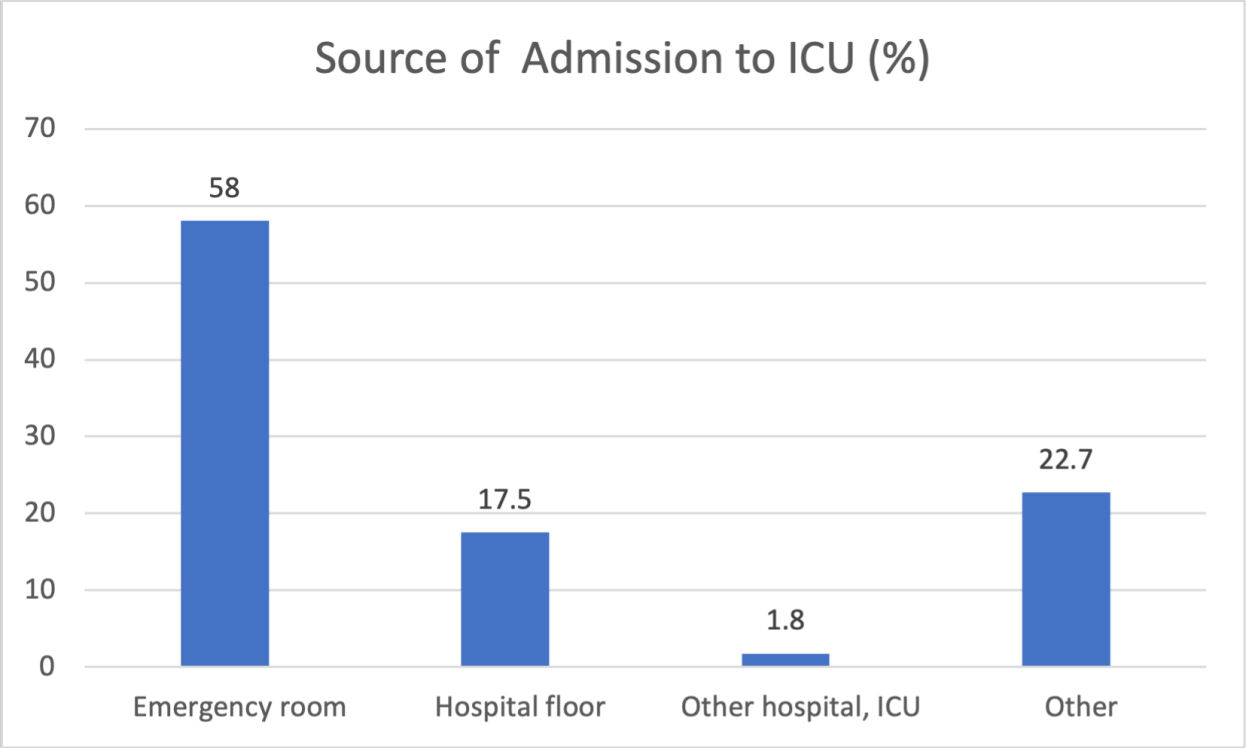


Fig. 1. Source of ICU Admissions

According to the graph, the primary source of ICU admissions is the emergency department (ED), accounting for 58% of the ICU admissions. Merely 1.8% of ICU admissions originate from other hospitals' ICUs, which are likely to be determined by the quality of hospitals. It indicates that patients likelu opt for the nearest ICU facility available to them.

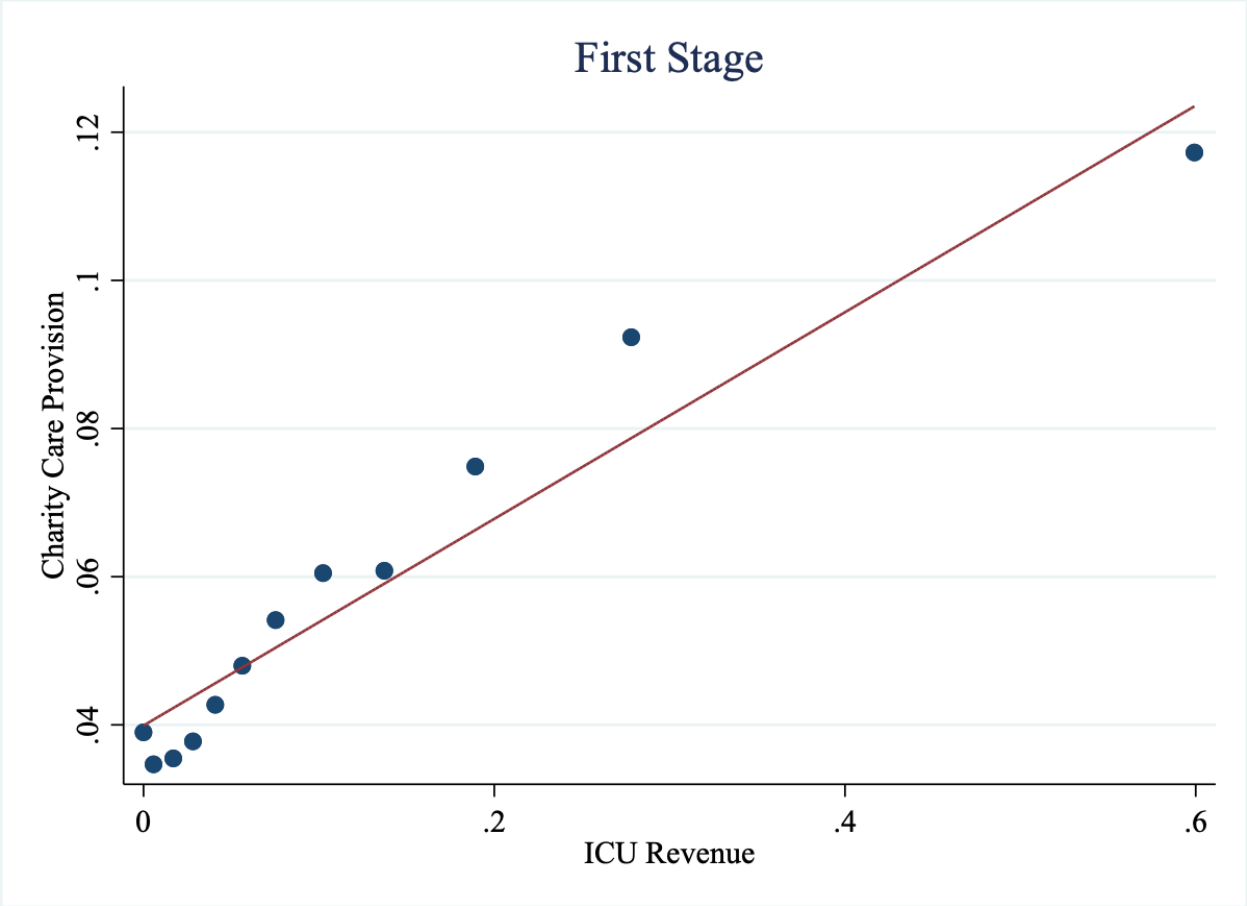


Fig. 2. First Stage of IV

This graph verifies the relevance condition of ICU revenue as the Instrument Variable. Specifically, the trend indicates a quasi-proportional relationship between the provision of charity care (explanatory variable of interest) and the ICU revenue earned by hospitals in the same year (instrument variable).

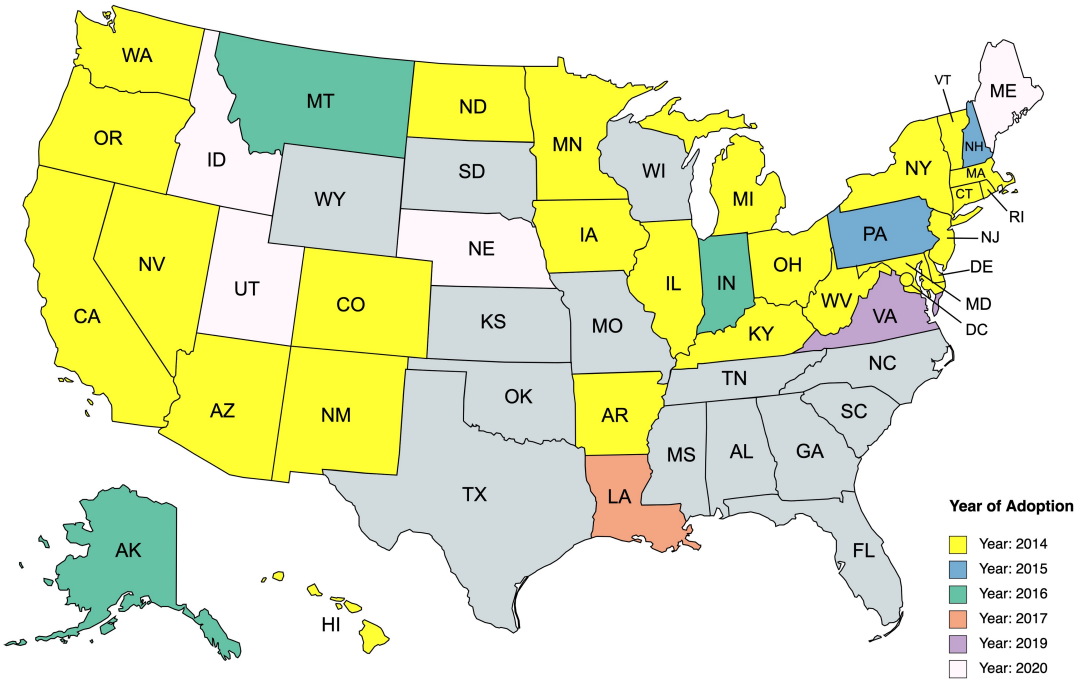
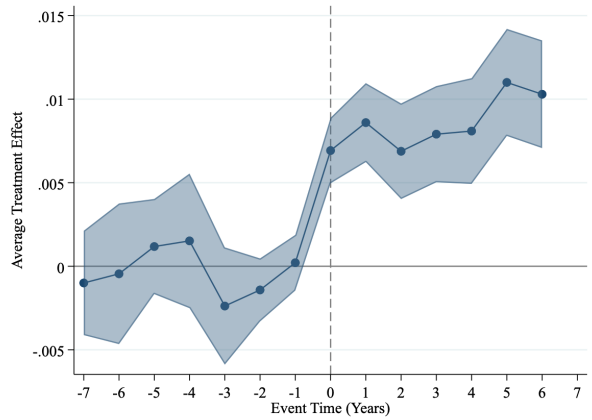
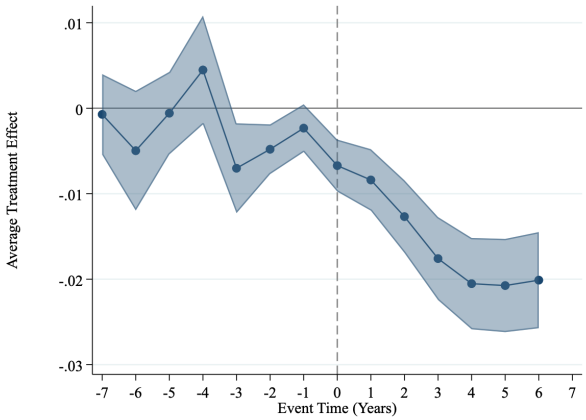


Fig. 3. The Year of Adoption by States as of 2020

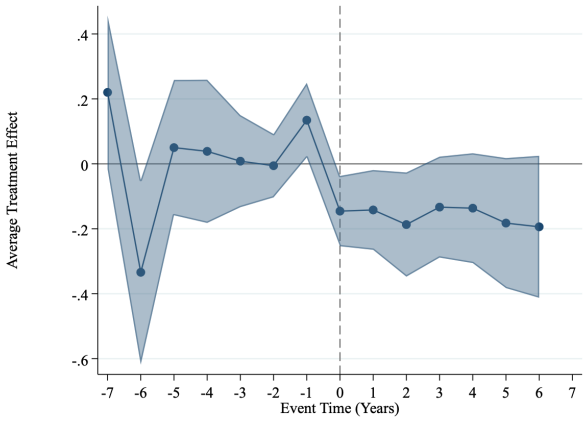
In 2014, 25 states (including DC) elected to participate in the ACA Medicaid expansion program. Since 2014, the ACA Medicaid expansion has been gradually implemented by other states. As of now, 40 states have adopted the Medicaid expansion at different points since 2014, while 11 states have not yet adopted the program.



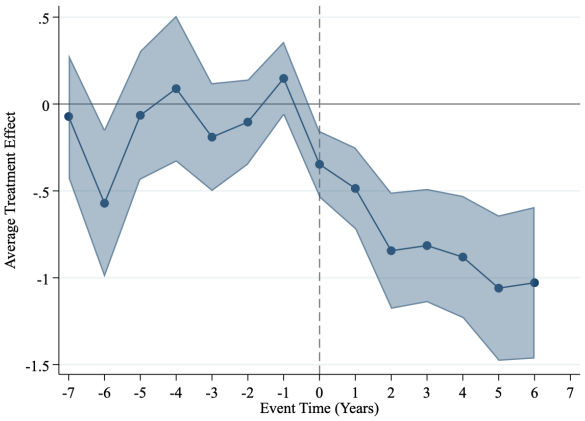
(a) Charity Care - Medicaid



(b) Charity Care - Total



(c) Net Patient Revenue



(d) Total Patient Revenue

Fig. 4. The four figures depict the trends of four key variables subsequent to the enactment of the Affordable Care Act (ACA) Medicaid expansion: **(a) Charity Care - Medicaid, (b) Charity Care - Total, (c) Net Patient Revenue, and (d) Total Patient Revenue.**

Charity care related to Medicaid is the difference between net revenue and cost for the Medicaid program and refers to the charity care specific to the Medicaid program. Total charity care is the summation of all categories of charity care, including uninsured patients, insured patients, Medicaid, Children's Health Insurance Program (CHIP), and other programs. Net patient revenue is the revenue a hospital earns from patient services after deducting contractual allowances and discounts from the total patient revenue.

Table 1: **Summary Statistics**

The table provides summary statistics for the main variables used in my paper. The sample comprises 6,568 hospitals, of which 3,392 are non-profit, 2,272 are for-profit, and 1,540 are government hospitals. The data covers the period from 2011 to 2020.

The monetary variables are scaled by the total assets of each hospital. Leverage is the ratio of total liability to total assets. R&D can be defined as the total research expenses and equipment purchases, scaled for the total assets; Size is the logarithm of the total asset; Scale can be measured by taking the logarithm of the number of beds. Cost per patient is the total cost scaled by the total discharges. Return on assets (ROA) is the result of scaling the total net income by the total assets. The profit margin is calculated as the total net income scaled by the total revenue.

	(1) mean	(2) sd	(3) p5	(4) p50	(5) p95	(6) N
Profitability						
total patient revenue	4.14	5.51	0.63	2.79	13.43	55,785
net patient revenue	1.27	1.80	0.32	1.04	3.63	55,785
operating margins	0.96	0.26	0.48	0.98	1.31	59,668
ROA	0.06	0.33	-0.30	0.04	0.49	57,543
profit margins	0.04	0.15	-0.20	0.04	0.26	57,506
CSR Measures						
charity cost - total	0.051	0.081	0	0.025	0.196	55,785
charity cost - uninsured	0.017	0.034	0	0.004	0.082	55,785
charity cost - insured	0.005	0.013	0	0	0.024	55,785
charity cost - Medicaid	0.026	0.051	0	0.003	0.117	55,785
charity cost - CHIP	0.0001	0.0006	0	0	0.0007	55,785
charity cost - other	0.0006	0.0035	0	0	0.0023	55,785
bad debt non-reimbursable	0.0003	0.0012	0	0	0.0016	55,785
bad debt non-Medicare	0.085	0.144	-0.001	0.035	0.362	55,785
bad debt Medicare	0.005	0.011	0	0.002	0.022	55,785
bad debt total	0.091	0.149	0	0.039	0.380	55,785
Hospital Characteristics						
size (ln(AT))	17.78	1.72	14.98	17.73	20.65	55,253
# of beds (ln)	4.27	1.11	2.71	4.19	6.13	57,771
leverage	0.44	0.95	-0.62	0.44	1.59	55,785
R&D	0.005	0.013	0	0	0.027	55,785
empty bed-days	360.2	31.61	339.30	365	366	57,761
cost per patient	52.51	333.61	8.19	22.07	106.88	46,753
donations	0.003	0.012	0	0	0.016	55,785
icu revenue	0.077	0.151	0	0.010	0.366	55,785
delivery	0.022	0.047	0	0	0.111	55,785
implant	0.008	0.032	0	0	0.051	57,543
organ acquisition	0.0004	0.0024	0	0	0	57,537

Table 2: **Patient Revenue and Charity Care**

Table 2 reports the result from following the OLS regressions:

$$\text{Patient Revenue}_{i,t} = \beta \times \text{Charity Care}_{i,t-1} + \omega \text{X}_{i,t} + \gamma_i + \tau_t + \varepsilon_{i,t}$$

where i denotes hospital facility and t denotes the year. Columns (1) - (3) use total patient revenue (TPR) as the dependent variable, while Columns (4) - (6) use net patient revenue (NPR) as the dependent variable. Net patient revenue refers to the revenue a healthcare provider earns from patient services after deducting contractual allowances and discounts from the total patient revenue. Columns (2) and (5) present results from the full sample analysis, including observations before and after the Tax Cuts and Jobs Act were implemented. The other columns only consider data from before 2018. Columns (3) and (6) specifically examine the differential effects of each component of charity care by breaking down the total cost of charity care into five parts.

The regressions scale the patient revenue and charity care by the total assets to control for size effects. $\text{X}_{i,t}$ is the facility and local characteristics controls, which include the logarithm of the number of beds (scale), the proportion of inpatient charges relative to total charges (inpatient share), research and development (R&D) expenditure, leverage (total liability divided by total asset), cash holding (cash divided by total assets), the local concentration of discharges measured by the Herfindahl-Hirschman Index (HHI), and the local poverty rate. γ_i is the facility-level fixed effect, and τ_t is the year fixed effect. The standard error is clustered at the facility and year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Total Patient Revenue			Net Patient Revenue		
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	TPR	TPR	TPR	NPR	NPR	NPR
Total	5.96***	7.16***		1.67**	1.84***	
	(4.22)	(4.90)		(3.48)	(4.33)	
Uninsured			14.47***			3.77***
			(5.93)			(3.90)
Insured			14.98**			4.31**
			(2.79)			(2.89)
Medicaid			2.43			0.74
			(1.63)			(1.35)
CHIP			71.13			43.29*
			(1.34)			(1.90)
Other			7.08			2.39
			(1.17)			(0.96)
Constant	2.63**	3.23***	2.50**	0.83*	0.85**	0.79*
	(2.75)	(3.41)	(2.53)	(1.90)	(2.85)	(1.76)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Before Tax Cut	Yes	No	Yes	Yes	No	Yes
Facility FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.72	0.68	0.72	0.55	0.50	0.55
Observations	28,160	42,131	28,160	28,160	42,131	28,160

Table 3: **Patient Revenue and Charity Care: IV estimates**

Table 3 reports the results from following the IV regressions:

$$\text{Patient Revenue}_{i,t} = \beta \times \widehat{\text{Charity Care}}_{i,t-1} + \omega \text{X}_{i,t} + \gamma_i + \tau_t + \varepsilon_{i,t}$$

where i denotes hospital facility and t denotes the year. The IV estimation use lagged ICU revenue as the instrument variable. Column (1) displays the result of the first-stage analysis, while Columns (2) and (3) present the results of the second-stage regressions. $\text{X}_{i,t}$ is the facility and local characteristics controls, which include the logarithm of the number of beds (scale), the proportion of inpatient charges relative to total charges (inpatient share), research and development (R&D) expenditure, leverage (total liability divided by total asset), cash holdings (cash divided by total assets), the local concentration of discharges measured by the Herfindahl-Hirschman Index (HHI), and the local poverty rate. γ_i is the facility-level fixed effect, and τ_t is the year fixed effect. The standard error is clustered at the facility and year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	First Stage	Second Stage	
	Charity Care	Patient Revenue	
	(1)	(2)	(3)
	Charity Care$_{t-1}$	Total Revenue	Net Revenue
ICU Revenue$_{t-1}$	0.24***		
	(15.23)		
$\widehat{\text{Charity Care}}_{t-1}$		31.39***	5.69***
		(5.79)	(4.49)
Control FE	Yes	Yes	Yes
Facility FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
F Statistics	230.45		
Observations	42,131	42,131	42,131

Table 4: **How does charity care provision impact profitability?**

Table 4 reports the results from the following regressions:

$$\text{Profitability}_{i,t} = \beta \times \text{Charity Care}_{i,t-1} + \omega \text{X}_{i,t} + \gamma_i + \tau_t + \varepsilon_{i,t}$$

where i denotes hospital facility and t denotes the year. Columns (1) and (2) show the results from OLS regressions. Columns (3) and (4) present IV estimates by using lagged ICU revenue as the instrument variable. The ICU revenue and charity care are scaled by the total assets. $\text{X}_{i,t}$ is the facility and local characteristics controls, which include the logarithm of the number of beds (scale), the proportion of inpatient charges relative to total charges (inpatient share), research and development (R&D) expenditure, leverage (total liability divided by total asset), cash holdings (cash divided by total assets), the logarithm of total assets (size), the local concentration of discharges measured by the Herfindahl-Hirschman Index (HHI), and the local poverty rate. γ_i is the facility-level fixed effect, and τ_t is the year fixed effect. The standard error is clustered at the facility and year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	OLS Regressions		IV Regressions	
	(1)	(2)	(3)	(4)
	Return on Asset	Profit Margin	Return on Asset	Profit Margin
Total	0.09*	0.05**	0.50**	0.28***
	(1.67)	(2.95)	(2.17)	(3.95)
Controls	Yes	Yes	Yes	Yes
F Statistics			165.88	165.88
Adj. R-squared	0.54	0.59	0.08	0.04
Observations	41,863	41,850	41,863	41,850

Table 5: **The Economic Channels through which Altruistic Reputation Enhance Financial Performance**

Table 5 examines whether a better reputation helps a hospital in the following dimensions. A stronger hospital reputation facilitates the accumulation of vital inputs necessary for providing higher-quality services, including funding resources (donations), R&D expenditure, attracting better doctors (local M.D. holder density), and providing more comprehensive ancillary services. The table examines the contemporaneous relationship between R&D and charity care provision, as well as the lagged relationships between doctor density, ancillary services, donations, and charity care provision. Such hospitals are more able to broaden their provision of high-margin services, such as delivery, organ acquisition, and device implant to patients. Additionally, hospitals are more likely to expand their business operations and achieve improved scale efficiency by enhancing the patient base (total discharges and parking receipts) and lowering the cost of treating patients. The regressions scale the reputation variables and charity care by the total assets to control for size. The regressions include the firm and local characteristics control variables, such as scale (the logarithm of the number of beds, the local concentration of discharges (HHI), R&D expenditure, cash holdings, local poverty rate, and the proportion of inpatient service discharges account for total charges (inpatient share). γ_i is the facility-level fixed effect, and τ_t represents the year fixed effect. Standard errors are clustered at the facility and year levels. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Better Quality of Services

	(1) R&D Expenditure	(2) Doctor Attraction	(3) Ancillary Services	(4) Donations Received
Charity	0.011***	0.073***	1.830***	0.003**
	(6.38)	(4.29)	(5.33)	(2.07)
Observations	43,454	42,124	42,131	42,131

Panel B: Expanding High-Margin Services Provision

	(1) Delivery Service	(2) Organ Acquisition	(3) Device Implant
Charity	0.037***	0.0002**	0.005**
	(5.92)	(2.40)	(2.18)
Observations	42,131	42,131	42,131

Panel C: Improving Scale Efficiency

	(1) Total Discharges	(2) Parking Receipts	(3) Cost_per_Patient
Charity	0.065***	0.065**	-40.216*
	(4.75)	(2.94)	(-1.73)
Observations	42,090	42,131	32,643

Table 6: **The Economic Channels through which Altruistic Reputation Enhance Financial Performance: IV Estimates**

Following Table 5, this table examines the economic channels through which reputation boosts financial performance: improving better quality of services, expanding high-margin medical services provision, and improving scale efficiency. The IV estimation use lagged ICU revenue as the instrument variable. The regressions include the firm and local characteristics control variables, such as scale (the logarithm of the number of beds, the local concentration of discharges (HHI), ROA, R&D expenditure, cash holdings, local poverty rate, and the proportion of inpatient service discharges account for total charges (inpatient share). γ_i is the facility-level fixed effect, and τ_t represents the year fixed effect. Standard errors are clustered at the facility and year levels. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Better Quality of Services

	(1) R&D Expenditure	(2) Doctor Attraction	(3) Ancillary Services	(4) Donations Received
Charity	0.037***	0.338**	11.110***	0.007*
	(7.28)	(3.33)	(6.25)	(1.94)
Observations	43,454	42,124	42,131	42,131

Panel B: Expanding High-Margin Services Provision

	(1) Delivery Service	(2) Organ Acquisition	(3) Device Implant
Charity	0.218***	0.003**	0.035***
	(5.69)	(2.96)	(4.00)
Observations	42,131	42,131	42,131

Panel C: Improving Scale Efficiency

	(1) Total Discharges	(2) Parking Receipts	(3) Cost_per_Patient
Charity	0.257***	0.0004**	-72.305***
	(5.10)	(2.42)	(-3.17)
Observations	42,090	42,131	32,643

Table 7: **How does ACA Medicaid expansion impact charity care and patient revenues?**
This table presents the results of the following staggered diff-in-diff model (Bacon decomposition):

$$\text{Charity Care/Patient Revenue}_{i,t} = \beta \times \text{Post-ACA}_{i,t} + \omega \text{X}_{i,t} + \gamma_i + \tau_t + \varepsilon_{i,t}$$

where i denotes hospital facility and t denotes the year. γ_i is the facility-level fixed effect, and τ_t is the year fixed effect. Post-ACA is a dummy variable that equals 1 after the ACA Medicaid expansion for each state, and 0 otherwise. Panel A presents the impacts of the staggered introduction of the ACA Medicaid expansion program on the provision of charity care, including the total cost and cost of each sub-component. Panel B details the effects of the ACA Medicaid expansion on patient revenues of hospitals. To account for the heterogeneous effect of the staggered diff-in-diff, Panel B utilizes the decomposition methodology from Goodman-Bacon (2019) (hereafter, referred to as Bacon), while Columns (3) and (4) use the methodology from Callaway and Sant'Anna (2021) (hereafter, CSDiD) as the robustness check. $\text{X}_{i,t}$ is the facility and local characteristics controls, which include the logarithm of the number of beds (scale), the proportion of inpatient charges that account for total charges (inpatient share), research and development (R&D) expenditure, cash holdings, the local concentration of discharges measured by the Herfindahl-Hirschman Index (HHI), and the local poverty rate. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Panel A: Charity Care

	(1)	(2)	(3)	(4)	(5)	(6)
	Total	Uninsured	Insured	Medicaid	CHIP	Other
Post-ACA	-0.007***	-0.010***	-0.001***	0.006***	0.000***	-0.001***
	(-5.00)	(-17.45)	(-4.18)	(5.72)	(4.89)	(-9.63)
Control	Yes	Yes	Yes	Yes	Yes	Yes
Method	Bacon	Bacon	Bacon	Bacon	Bacon	Bacon
Observations	29,351	29,351	29,351	29,351	29,351	29,351

Panel B: Patient Revenues

	(1)	(2)	(3)	(4)
	Net Patient Revenue	Total Patient Revenue	Net Patient Revenue	Total Patient Revenue
Post-ACA	-0.057*	-0.392***	-0.175**	-0.667***
	(-1.78)	(-5.67)	(-2.43)	(-5.14)
Control	Yes	Yes	Yes	Yes
Methodology	Bacon	Bacon	CSDiD	CSDiD
Observations	29,351	29,351	28,597	28,597

Table 8: **Differential Effects of ACA Medicaid Expansion by Hospital Types**
This table states whether different hospitals strategically provide charity care in response to ACA Medicaid Expansion. Column (1) investigates the impact on total patient revenue as the dependent variable, while Columns (2) - (4) assess the influence of ACA Medicaid Expansion on the cost of charity care provided to patients. The combined charity care includes the sum of charity care for both uninsured and insured patients. The variables FP and NP are dummy variables representing for-profit and non-profit hospitals, respectively. The regressions include the following control variables: scale (the logarithm of the number of beds), inpatient share (the proportion of inpatient charges that account for the total charges), R&D expenditure, cash holdings, the local concentration of discharges (HHI), and local poverty rate. Facility- and year-fixed effects are included and standard errors are clustered at the facility and year levels. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Columns (1) and (2)

	Patient Revenue	Charity Care for Patients		
	(1)	(2)	(3)	(4)
Bad Debt	Total	Combined	Uninsured	insured
Post	-0.811***	-0.016***	-0.014***	-0.001*
	(-4.63)	(-3.71)	(-3.76)	(-1.73)
Post × FP	1.033**	0.004*	0.005**	-0.001*
	(3.23)	(1.86)	(2.31)	(-1.97)
Post × NP	0.245*	-0.001	-0.002*	0.001
	(1.985)	(-0.95)	(-1.94)	(1.52)
Constant	3.491***	0.038***	0.030***	0.009**
	(4.06)	(5.06)	(4.60)	(3.32)
Controls	Yes	Yes	Yes	Yes
Facility FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Adjusted R-squared	0.66	0.64	0.64	0.43
Observations	43,454	43,454	43,454	43,454

Table 9: **Use Bad Debt as an alternative measure of CSR to perform robustness check**

This table shows the results from the following regressions:

$$\text{Patient Revenue}_{i,t} = \beta \times \text{Bad Debt}_{i,t-1} + \omega \text{X}_{i,t} + \gamma_i + \tau_t + \varepsilon_{i,t}$$

Columns (1) and (2) use total patient revenue (TPR) as the dependent variable, while Columns (3) and (4) employ net patient revenue (NPR). The total bad debt is the independent variable for Columns (1) and (3), whereas Columns (2) and (4) employ more granular categories of bad debt. Specifically, Medicare bad debt refers to situations where hospitals provide services to Medicare beneficiaries, but they fail to pay their deductible or coinsurance amounts. Non-Medicare bad debt refers to the financial obligations of non-Medicare patients that they fail to fulfill. Lastly, non-reimbursable Medicare bad debt is the portion of allowable Medicare coinsurance and deductibles that are considered to be uncollectible and are not reimbursed by Medicare. The regressions include the following control variables: scale (the logarithm of the number of beds), inpatient share (the proportion of inpatient charges that account for the total charges), R&D expenditure, cash holdings, the local concentration of discharges (HHI), and local poverty rate. Facility- and year-fixed effects are included and standard errors are clustered at the facility and year levels. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Total Patient Revenue		Net Patient Revenue	
	(1)	(2)	(3)	(4)
Bad Debt	TPR	TPR	NPR	NPR
Total	4.52***		1.33***	
	(4.85)		(4.34)	
Non-Medicare		4.08***		1.20***
		(4.69)		(4.10)
Medicare		25.48***		9.63***
		(4.23)		(4.41)
Non-reimbursable		22.42		-9.46
		(0.79)		(-0.96)
Constant	3.29***	3.16***	0.84**	0.79**
	(3.54)	(3.46)	(2.96)	(2.77)
Controls	Yes	Yes	Yes	Yes
Facility FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Adjusted R-squared	0.68	0.68	0.50	0.51
Observations	42,131	42,131	42,131	42,131

Table 10: **Differential Impacts of Charity Care by Hospital Types: Subsample Analysis**

The table reports the OLS results in different types of hospitals and back out the additional impact of being government hospitals.

$$\text{Patient Revenue}_{i,t} = \beta \times \text{Charity Care}_{i,t-1} + \gamma \times \text{Charity Care}_{i,t-1} \times \text{G} + \omega \text{X}_{i,t} + \gamma_i + \tau_t + \varepsilon_{i,t}$$

Columns (1), (2), and (3) exhibit the results of OLS regression analyses conducted on subsamples of for-profit, non-profit, and government hospitals, respectively. Column (4) presents the findings of OLS regressions involving interaction between charity care and a dummy variable (G), where G equals 1 for government hospitals. The regressions are adjusted for several control variables, including the logarithm of the number of beds (scale), the proportion of inpatient charges that account for total charges (inpatient share), research and development (R&D) expenditure, cash holdings, the local concentration of discharges measured by the Herfindahl-Hirschman Index (HHI), and the local poverty rate. All regressions include facility and year fixed effect and cluster the standard error at the facility and year levels. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	For - Profit	Non - Profit	Government	Interactions
	(1)	(2)	(3)	(4)
Charity Care	TPR	TPR	TPR	TPR
Total	6.51**	7.33***	3.12**	8.19***
	(2.81)	(4.67)	(2.58)	(4.88)
Government				0.23
				(0.89)
Government × Total				-5.29***
				(-3.36)
Constant	11.47***	1.22	-0.34	3.13**
	(3.94)	(1.17)	(-0.38)	(3.28)
Controls	Yes	Yes	Yes	Yes
Facility FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Adjusted R-squared	0.65	0.61	0.71	0.68
Observations	11,082	22,438	8,461	42,131