Hospital Community Benefit Requirements and Consumer Financial Health

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ABSTRACT

To preserve their tax-exempt status, nonprofit hospitals must meet the Community Benefits Requirements (CBR) that impose significant restrictions on nonprofit hospitals' financial assistance, billing, and collection practices. For-profit hospitals are exempt from these requirements. We show that financially vulnerable consumers, those most positioned to benefit from CBR, default significantly more if they reside in localities served by for-profit hospitals. These effects are amplified in states with more stringent CBR requirements. Yet these effects are attenuated in states that *uniformly* regulate *all* hospitals' financial assistance, billing, and collection practices. Combined, these regulations shape the geographic distribution of hospitals. For-profit hospitals, not bound by CBRs, have a higher presence in communities where CBR pressures on nonprofit hospitals are most costly: those characterized by lower income and lower credit score consumers. This geographic distribution underscores an unintended consequence of the CBRs—for-profit hospitals serve relatively more financially vulnerable consumers, and by extension, undermine their financial health.

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Key Words: Community benefit requirements, for-profit hospitals, consumer default

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I. Introduction

Federal and state governments have long recognized the adverse effects of healthcare costs and medical debt on consumer financial health. Beyond Medicare and Medicaid, they established a legal framework to protect vulnerable consumers, centered on Community Benefit Requirements (CBRs), which condition nonprofit hospitals' tax-exempt status on providing charity care, financial assistance, and restrained billing and collection practices.[1] Despite their central role in U.S. health policy, the efficacy of CBRs remains largely unexplored.

This paper examines the impact of CBRs on consumer financial health, measured by default rates and collection accounts. CBRs apply only to *nonprofit* hospitals, leaving *for-profit* hospitals unconstrained by comparable obligations. This institutional asymmetry, combined with cross-state heterogeneity in CBR legislation, offers a natural setting to identify whether CBRs contribute to consumer financial health. Further, we isolate three economic channels of CBR impact on consumer financial health—(i) financial assistance policies (FAPs), (ii) billing restrictions, and (iii) collection restrictions—by leveraging three corresponding state-level sets of legislation affecting these practices at *all* hospitals.

We find that consumers in markets served by for-profit hospitals, unburdened by CBRs, exhibit worse financial outcomes than those served by nonprofit hospitals. These effects are most pronounced in states with stronger CBR regulations and among financially vulnerable populations—low-income and low-credit-score consumers—who stand to benefit most from CBR protections. We further confirm the role of three important components of CBRs (i) financial

[1] Plummer, Socal, and Bai (2024) estimate that nonprofit hospitals receive tax benefits averaging approximately $87,000 per hospital bed annually, equal to 44.1% of their net income. Bai, Yehia, and Anderson (2020) estimate that in 2017, 2,563 small nonprofit hospitals collectively provided approximately $14.2 billion in charity care, amounting to 29.6% of their net income.

assistance, (ii) billing and (iii) collection requirements. Specifically, we document that our core effects are attenuated in jurisdictions that adopted laws restraining these distinct revenue recovery channels for *all healthcare providers*. The results suggest that CBRs are effective as they improve the financial health of vulnerable consumers.

Our empirical strategy builds on four components. First, we proxy the potential impact of CBRs by the share of for-profit hospitals within a locality (e.g., a 25-mile ZIP-code radius). [2] The identifying assumption is that financially vulnerable consumers do not fully reallocate medical demand toward nonprofit hospitals subject to CBRs, i.e., demand for hospital care is locally inelastic. Second, we exploit the fact that CBRs should affect low-income and low-credit-score consumers the most. Third, we exploit the variation in state laws governing three distinct components of hospitals' revenue recovery practices. Finally, we include rich consumer, economic, and locality-by-time fixed effects to compare observationally similar consumers across hospital markets. While we cannot explicitly rule out the potential selection effects, the totality of the results imposes a significant burden on alternative non-CBR related explanations, as all the evidence is uniformly consistent with CBRs contributing to better consumer financial health through revenue recovery restrictions channels.

In the first part of our paper, we first show that observationally similar individuals default significantly more in markets with high versus low for-profit hospital exposure.[3] The average default-rate differential across the top and bottom for-profit hospital exposure quartile is 0.77% (against a 5.35% baseline), and it declines monotonically with income and credit score (Figure 1).

[2] We use American Hospital Association's (AHA) Annual Survey to construct this variable. The results are robust to alternative definition of a locality: 50-mile vicinity of a given ZIP code, county, or CBSA.

[3] The default rate is defined as the share of consumers in a given ZIP code that have delinquent or derogatory accounts exceeding 5% of their outstanding debt balances in the subsequent six (or twelve) months. Our results are robust to alternative definitions of default rates and collection-account-based proxies of consumer financial health.

A 100-point decrease in credit score increases the differential by 1.70%, while a one–standard deviation decline in income raises it by 0.65%. These results are consistent with federal CBR statutes inducing a wealth transfer from nonprofit hospitals to consumers, but can also be attributed to non-pecuniary benefits sought after by *nonprofit* hospitals and their donors (Glaeser and Shleifer, 2001).

To isolate the CBR effect, we leverage variation across 25 states that impose additional CBR requirements beyond federal mandates. These statutes differ in scope and enforcement intensity. Default differentials across for-profit hospital exposure quartiles are largest in states with stronger CBRs (Figure 2), particularly among low-income and low-credit-score consumers. In states without such regulations, effects are about one-third as large. The results suggest that state-level CBR statutes impose a wealth transfer that goes beyond the potential altruistic goals of nonprofit hospitals.

In the second part of the paper, we examine the mechanisms through which CBRs improve consumer financial health. For-profit hospitals are known to increase healthcare costs (e.g., Aghamolla, Jain, and Thakor 2023; Beniwal and Shakya 2024) and/or offer lower-quality care (e.g., Gupta et al. 2024; Kannan et al. 2025), potentially worsening consumer financial outcomes. While we acknowledge these channels, our focus is on three complementary mechanisms—FAPs, billing restrictions, and collection restrictions—that constrain nonprofit hospitals' revenue recovery ability. These three mechanisms embedded in the CBRs effectively impose wealth transfer to consumers.

To confirm the presence of these three CBR-related channels, we exploit time-varying state laws governing these practices. While some states reinforced nonprofit-specific CBRs, others enacted regulations applying to all hospitals. These statutes effectively narrow cross-ownership

variation in hospitals' ability to engage in aggressive revenue recovery and, thus, should attenuate the differential impact of CBRs (i.e., for-profit hospital exposure) on consumer financial outcomes.

We build three distinct legal indices that capture the regulatory stringency across states (detailed in Section II). These indices correspond to three stages of the medical bills' lifecycle. First, upon facing an unpaid medical bill, hospitals evaluate patients' eligibility for free or subsidized care following FAPs. 11 states mandate *all* hospitals to establish and publicize clear FAPs.[4] Second, remaining medical bills are transferred to billing and ultimately sold to collection agencies.[5] 21 states have adopted at least one type of regulation that imposes restrictions on hospitals' ability to bill patients or sell bills to collection agencies. Finally, the bills are collected by debt collectors. We extend the third-party debt collector regulations index from Fedaseyeu (2020) and Fonseca (2023).[6] 18 states adopted new third-party debt collector regulations during our sample period. Conceptually, these *three* sets of laws can be viewed as regulatory shocks that erode the comparative revenue recovery advantages of for-profit hospitals. We expect these regulations to level the playing field and attenuate the relative adverse effect of for-profit hospitals on consumers' financial health.

We find that the adverse effects of consumers' exposure to for-profit hospitals, unburdened by CBRs, are significantly attenuated in states that adopted one of the above three types of regulations (Figures 3 through 5). This attenuating effect is most pronounced in states with CBR

[4] FAPs require clear policies that guarantee charitable care to a specific set of patients. States frequently accompany the requirements with state-funded aid or offer assistance through community health centers (Stark and Bosco, 2021). FAPs are frequently linked to licensing, certificates of need, or reimbursement programs.

[5] We exploit four types of billing restrictions: (i) requirement to offer payment plans, (ii) limitations on interest charged on unpaid medical debt, (iii) preconditions before debts are sent to collections, and (iv) restrictions on the sale of medical debt to third-party debt collectors.

[6] Restrictions on third-party debt collectors include licensing, bonding requirements imposed on third-party debt collection firms to declaring certain debt collection practices unlawful, and making violations of debt collection laws a criminal offense (Fedaseyeu, 2020).

laws and for financially vulnerable consumers. These results support the notion that CBRs benefit consumers through three distinct dimensions: FAPs, billing restrictions, and collection restrictions. The results further speak to the efficacy of FAPs, billing, and collection laws in positively contributing to consumer financial health.

Overall, our results imply that for-profit hospitals enjoy a comparative advantage in serving financially vulnerable populations and raise the question of whether for-profit hospitals operate in markets where this advantage is greatest. In the final part of the paper, we show that for-profit hospitals are more prevalent in low-income, low-credit-score, and in more competitive markets where nonprofits cannot easily offset CBR-related costs via higher prices. This pattern is stronger in states with CBR regulations but is far less pronounced in states with stringent FAP, billing, and collection regulations. These findings have important policy implications. While CBRs improve consumer financial outcomes and reduce defaults among vulnerable populations, they also raise compliance costs that can *discourage* nonprofit presence in precisely those communities. In contrast, uniform billing and collection regulations level the competitive field, mitigating this unintended effect.

Our paper contributes to several strands of literature. First, we extend research on healthcare and consumer financial health, which documents that health shocks impose large financial burdens on consumers (Gertler and Gruber 2002; Dobkin et al. 2018; Himmelstein et al. 2019) and that public programs like Medicare and Medicaid reduce such risks (Gross and Notowidigdo 2011; Engelhardt and Gruber 2011; Goldsmith-Pinkham, Pinkovskiy, and Wallace 2023). We show that CBRs—an indirect form of consumer protection linked to hospitals' tax status—also meaningfully reduce consumer financial distress.

Second, we contribute to the literature on consumer financial protection laws that spans a vast array of regulations from bankruptcy protection (e.g., Gross et al., 2021) to specific consumer finance markets (e.g., credit card market, Agarwal et al., 2015). In this line of academic inquiry, Fedaseyeu (2020) and Fonseca (2023) are closest to us as they focus on the unintended consequences of 3rd party debt collector regulations. We extend this literature by developing three novel legal indices capturing CBRs, FAPs, and hospital billing restrictions laws, and by extending the existing 3rd party debt collector regulation index. We document that these healthcare-related consumer financial protection laws positively affect consumer financial health. We also highlight the tradeoffs between uniform and nonprofit-hospital-specific regulations.

Third, we contribute to the hospital ownership-type literature. Prior studies have largely focused on the differences in the governance of for-profit and nonprofit hospitals (Adelino, Lewellen, and Sundaram, 2015; Hansen and Sundaram, 2018; Herpfer, Lin, and Maturana, 2024) or explored the impact of private equity ownership (Aghamolla, Jain, and Thakor 2023; Gupta et al. 2024; Gao, Sevilir, and Kim 2025). These studies largely focused on hospital-level outcomes, including pricing (e.g., Aghamolla, Jain, and Thakor, 2023), quality of healthcare services (e.g., Gupta et al. 2024), and investments (e.g., Adelino, Lewellen, and Sundaram 2015). We add to this literature by exploring the effect of an important regulatory mechanism that affects for-profit and non-profit hospitals—CBRs—distinct from governance or PE ownership. We also focus on consumer financials rather than physical health, and bring to light economic channels that extend beyond the effects of healthcare pricing or quality of service.

Finally, we contribute to growing literature on the geography of health and economic outcomes (e.g., Keys, Mahoney, and Yang, 2022). Prior work has documented the geographic heterogeneity in healthcare utilization and spending (Finkelstein, Gentzkow, and Williams, 2016),

mortality (Finkelstein, Gentzkow, and Williams, 2021), and financial strain (Goldsmith-Pinkham, Pinkovskiy, and Wallace, 2023). Our finding suggests that the heterogeneity in the local hospital revenue recovery-related regulations contributes to the geographic heterogeneity in consumer defaults. Moreover, the results indicate that CBRs contribute to for-profit hospitals serving financially vulnerable consumers and undermining their financial health. Uniform regulations of revenue-recovery practices, on the other hand, do not yield a similar effect.

II. Regulation of Nonprofit and For-Profit Hospitals

Federal and state governments have long recognized that rising healthcare costs can severely harm financially vulnerable individuals, particularly those with low incomes. As a result, both federal and state laws have established protections to shield these consumers from excessive medical debt.

II.1 Federal Nonprofit Hospitals Community Benefit Requirements

At the federal level, nonprofit hospitals receive tax-exempt status in exchange for providing community benefits—financial assistance and other activities that address local health needs. Section 501(c)(3) of the Internal Revenue Code, enacted in 1954, grants federal tax exemption to organizations operated exclusively for religious, charitable, scientific, or educational purposes. In 1969, hospitals were further required to demonstrate that they deliver measurable benefits to the communities they serve. To enhance transparency, the IRS introduced Schedule H to Form 990 in 2008, mandating nonprofit hospitals to disclose detailed information about their community benefit activities in annual filings. These disclosures include the net costs of charity care, subsidized services, participation in means-tested programs such as Medicaid, education of health professionals, health services research, community health initiatives, and contributions to local

organizations.[7] In effect, the IRS allows expenditures that promote public health to qualify toward meeting the Community Benefit Requirements (CBRs) for tax exemption.

The Patient Protection and Affordable Care Act (ACA), Pub. L. No. 111-148, 124 Stat. 119 (2010), further refined and codified the community benefit obligations applicable to tax-exempt hospitals. Specifically, Section 9007 of the ACA added subsection 501(r) to the IRS statutes. 501(r) delineates additional requirements that hospitals *must* meet to qualify for, and maintain, federal tax-exempt status under § 501(c)(3).[8]

26 U.S.C. § 501(r)(4) requires each hospital to adopt and publicizes a financial assistance policy (FAP) that specifies the eligibility criteria for free or discounted care, describes the basis for calculating amounts charged to patients, and outlines the process for applying for such assistance, including any payment plans or other relief mechanisms available.

Under § 501(r)(6), hospitals must also comply with restrictions on billing and collection activities. Before engaging in any "extraordinary collection actions" (ECAs)—including, but not limited to, selling medical debt, garnishing wages, or placing liens on a patient's property—hospitals must make "reasonable efforts" to determine whether the individual is eligible for financial assistance under the FAP. Federal regulations further require hospitals to refrain from initiating ECAs for at least 120 days following the issuance of the first post-discharge billing statement, and must accept financial assistance applications for up to 240 days thereafter. All collection activities must be suspended while an application for financial assistance is pending.[9]

[7] The IRS finalized regulations implementing these rules on December 31, 2014, after a five-year rulemaking process.

[8] Kona and Raimugia (2023) provide a succinct summary of requirements embedded in Section 501(r) as well as dimensions that are not covered by the federal statutes.

[9] Although bad medical debt and Medicare shortfalls had to be disclosed, the IRS does not consider them as community benefits.

Finally, §501(r)(3) mandates that hospital organizations conduct a community health needs assessment (CHNA) at least once every three years and adopt an implementation strategy to address the health needs identified therein. This provision effectively reinforces the obligation of nonprofit hospitals to maintain accessible emergency medical services and to operate in a manner consistent with their charitable purpose of promoting community health.

CBRs imposed by federal law have created substantial financial obligations for nonprofit hospitals, particularly those serving communities with a high concentration of low-income or otherwise financially vulnerable patients. Bai, Yehia, and Anderson (2020) estimate that in 2017, 2,563 nonprofit hospitals collectively provided approximately $14.2 billion in charity care, amounting to nearly 29.6% of their total net income. The vast majority of these expenditures capture costs of providing medical services for which hospitals are not fully reimbursed. James (2016) reports that 45% of these costs stem from unreimbursed costs of means-tested government programs, 25% from charity care, and 15% from subsidized health services. The remaining 15% is attributed to community contributions, education, and research. Notably, it is hard for researchers to estimate costs associated with delayed billing, medical debt restructuring, and conservative collections practices.

Although CBRs impose measurable financial strain on U.S. hospitals, they also yield considerable fiscal advantages. The federal tax exemptions yielded significant tax benefits to U.S. hospitals, imposing an annual cost of $113 per capita to U.S. taxpayers (Plummer, Socal, and Bai 2024).

For-profit hospitals are not subject to the federal CBRs. While it prevents their ability to capitalize on the tax benefits, it also relieves the pressure to offer subsidized care or adhere to mandated patient billing and collection practices (Bruch and Bellamy, 2021)..

II.2 State Nonprofit Hospitals Community Benefit Requirements

U.S. *state* legislatures also recognized the ever-growing pressure of medical debt on consumers and introduced their own state-level CBR statutes. After all, states also offer sales, property, and corporate income tax exemptions to 501(c)(3) organizations, and more than half of the nonprofit hospitals' tax benefits stem from the state and local taxes (Plummer, Socal, and Bai, 2024). States also oversee hospital licenses or partial reimbursement for charity care. They have the right to govern this tax-exempt status.

The resulting state-level CBRs vary widely in scope and reporting requirements. 6 states merely reinforced the existing federal-level CBRs by requiring an additional layer of community benefit reporting to state authorities empowered to supervise nonprofit hospitals.[10] 19 states took more extensive steps, imposing additional CBR on nonprofit hospitals.[11] Table A1 summarizes our hand-collected data on state-level CBR statutes as of July 2025. It also offers the enactment year and the CBR intensity (reporting vs additional requirements) of each adopted statute.

State-level CBR legislature led to a higher level of charity-care provided by nonprofit hospitals (Valdovinos, Le, and Hsia, 2015; Lamboy-Ruiz, Cannon, and Watanabe, 2019). States with CBR legislation also seem to be more effective supervisors capable of pulling tax-exempt status from non-compliant nonprofit hospitals (Kona and Raimugia, 2023). In 2011, Illinois revoked property tax exemptions from major hospitals, including Prentice Women's Hospital in Chicago, Edward Hospital in Naperville, and Decatur Memorial Hospital, arguing they provided too little charity care.[12] In 2019, Pennsylvania's Pottstown School District successfully challenged

[10] Georgia, for example, in 2016 required each hospital to prominently post, on its main website, links to a variety of state-specific supplemental disclosures, such as the community benefit report.

[11] In 2021, New Jersey began requiring nonprofit hospitals to pay an annual community service contribution to the municipality where they are located.

[12] "State of Illinois is Challenging Hospitals' Tax Exemptions - The New York Times" 2011

the nonprofit status of its local hospital after it was acquired by Tower Health, resulting in more than $900,000 in lost annual property tax revenue.[13] In contrast, there is little evidence of the federal-level supervisory actions. Between 2013 and 2022, the U.S. Government Accountability Office did not find a single nonprofit hospital's status being revoked for failing to meet CBR standards.[14] Our search yielded only one unidentified hospital losing its nonprofit status in 2017 due to non-compliance.[15]

We construct a time-varying state-year-level index of CBR statutes that takes values from zero to two. This index is set to one for states that merely introduced an additional level of supervision of nonprofit hospitals' CBR activities by requiring hospitals to formally report on CBR activities to state authorities. The index is set to two for states that, in addition to state-level reporting requirements, also impose additional (relative to federal statutes) CBRs affecting non-profit hospitals' charitable care, FAPs, billing, or collection practices.

Three states, Maine, Nevada, and New Mexico, impose CBR on both for-profit and nonprofit hospitals. We omit these states in our CBR analysis. This filter does alter the external validity of our results, as these states represent only 2.7% of the ZIP codes in the U.S.

II.3 State Regulations of (All) Hospitals' Financial Assistance Policies (FAPs)

While some states pursued the path of reinforcing CBRs attached to the nonprofit hospitals' tax-exempt status, others chose to regulate various revenue recovery practices of *all* hospitals without differentiating between nonprofit and for-profit players. 11 states chose to impose

[13] "As Nonprofit Hospitals Reap Big Tax Breaks, States Scrutinize Their Required Charity Spending - KFF Health News" 2023

[14] https://www.gao.gov/products/gao-23-106777

[15] "No Paper Tiger: IRS Revokes Non-Profit Hospital's Tax-Exempt Status for Failure to Comply with Section 501(r)" – Lewis Rice LLC

stringent financial assistance obligations on all hospitals, regardless of their tax status. These state-level Financial Assistance Policies (FAPs) regulations were introduced to address inconsistencies in patients' access to free or discounted care and aimed to narrow the regulatory gap between nonprofit and for-profit hospitals (Stark, Bosco, and Haynes 2023). .

These statutes are summarized in Table A2 and detailed in the National Consumer Law Center study (Stark, Bosco, and Haynes 2023).

State FAPs laws address one core issues – criteria for free or subsidized care eligibility. State legislatures, however, approach this issue in a variety of different ways. For example, California, Colorado, and Connecticut require all hospitals to provide or at least screen patients for discounted or free care, typically targeting uninsured or underinsured patients below specified income thresholds. Illinois mandates both free and discounted care, offering full relief to uninsured patients up to 200% of the federal poverty level (FPL) and scaled discounts up to 600% FPL, with additional protections limiting annual payments to 20% of family income. Maryland requires free care for patients with incomes up to 200% FPL. Maryland also mandates reduced-cost care and structured payment plans for patients with incomes as high as 500% FPL.

In our setting, FAP statutes are expected to alleviate the comparative advantage of for-profit hospitals in revenue recovery, level the playing field, and equate the impact of nonprofit and for-profit hospitals on consumer financial health. We build a zero-one FAPs state-level legal index that captures the presence of regulations. It is hard to unequivocally quantify the FAP statutes' intensity given the diversity and complex nature of these laws.

II.4 State Regulations of (All) Hospitals' Billing Practices

While some states pursued FAP laws, others focused their attention on hospital billing and collection practices. 21 states introduced such legislation focusing on extraordinary collection

actions. The state-level hospital billing statutes differ in the extent of coverage and depth of requirements, even within a legislative category. For example, Arizona imposes a ceiling on interest rates for all medical debt, whereas Connecticut prohibits interest charges for patients earning up to 250% of the federal poverty level ineligible for public insurance programs. Illinois requires hospitals to offer reasonable payment plans before initiating collections, while Colorado bars debt *buyers* (not hospitals) from initiating home foreclosures to recover unpaid medical bills.

Legal scholars (e.g., Kona and Raimugia, 2023) identify four dimensions in these state-level protections: (i) requirement to offer payment plans, (ii) limitations on interest charged on unpaid medical debt, (iii) preconditions before debts are sent to collections, and (iv) restrictions on the sale of medical debt to third-party debt collectors. These dimensions naturally led us to create the hospital billing and collection legal index that varies from 0 (no adopted statutes) to four (all four of the abovementioned protections offered).

Table A3 reports the hand-collected list of state-level hospital billing and collection statutes. Panels A through D present statutes related to payment plans, interest rate limits, preconditions for sending bills to collections, and restrictions on selling medical debt, respectively. As in the case of state-level FAPs, state-level billing regulations apply to all hospitals and do not discriminate based on a hospital's ownership type.

21 states have at least one hospital billing regulation dimension. 15 states adopted both hospital billing regulations and state-level CBRs. 10 states have CBR regulations, but no hospital billing regulations. 3 states (Arizona, Minnesota, and North Dakota) adopted billing practice regulations, but not additional CBR regulations (Maine, Nevada, and New Mexico adopted billing practices but have additional state CBR laws that apply to both nonprofit and for-profit hospitals).

18 states chose to have neither CBR nor hospital billing-related legislation.[16] 10 states adopted both FAPs and at least one of the four dimensions of hospital billing-related laws. We address the latter overlap in our empirical tests.

II.5 State Regulations of Third-Party Debt Collectors

Third-party debt collections represent the last step at which medical debt can affect consumers' financial health. Hospitals frequently sell medical debt to third-party debt collectors not bound by CBR or hospital billing regulations. These debt collectors are known for aggressive practices (Cheng, Severino, and Townsend 2021) and contribute to consumer financial defaults. Looser regulations of third-party debt collectors should increase the value of uncollected medical debt and hospitals' incentives to sell said debt to collectors.

To capture the collection channel, we build on the state-level third-party debt collection regulation index first introduced by Fedaseyeu (2020) and later expanded by Fonseca (2023). We extended the third-party debt-collector regulation index to 2025. Between 2016 (the end of coverage by both studies) and 2025, 17 states and D.C. introduced additional third-party debt collection regulations. These statutes are summarized in Table A4. It offers the year the statutes were enacted, as well as their tightening or loosening regulatory effect on the third-party debt collectors. All states are assigned the index value of 0 in 1998, the baseline year reported by Fedaseyeu (2020). We follow Fonseca (2023) in assigning the index values between 1998 and 2016. We then extend the index based on state statutes adopted after 2016. The first additional third-party debt collector statute results in an increase of the legal index to one; all additional

[16] These states include Alabama, Alaska, Arkansas, Delaware, Hawaii, Iowa, Kansas, Kentucky, Louisiana, Michigan, Mississippi, Missouri, Nebraska, Oklahoma, South Carolina, South Dakota, Tennessee, Wisconsin, and Wyoming.

tightening of the regulation results in the index value of two. A loosening of third-party debt collector restrictions yields a negative change in the index (e.g., Colorado).

Armed with the above legal indices, this paper explores the impact of for-profit hospitals on the local consumer financial health through the prism of four types of regulations: (i) CBRs; (ii) FAPs, (iii) hospital billing restrictions, and (iv) third-party debt collector regulations. We start our analysis by exploring the impact of federal and then state-level CBRs. We then evaluate whether the impact of CBR is mitigated by the state-level hospital billing restrictions that apply to all hospitals and by the third-party debt collector regulations.

III. Data and Sample Selection

III.1 Hospital Data

Our data comes from multiple sources. The American Hospital Association's (AHA) Annual Survey offers data on a wide set of hospital characteristics and is one of the most comprehensive sources of information about U.S. hospitals and health systems. AHA data offer the most important hospital characteristics for this study—their nonprofit and for-profit status. We treat government-owned hospitals (e.g., Veterans Administration hospitals) as non-profit hospitals, as the boundary between government-owned and nonprofit hospitals is vague.[17] . AHA Survey also provides comprehensive data on hospital financials, facilities, payroll, the number and utilization of hospital beds, etc.

Table 1 summarizes the key hospital characteristics used in our analysis. Panel A presents descriptive statistics separately for nonprofit and for-profit hospitals. Of the 4,271 hospitals in our

[17] For example, University of Virginia Hospital System is classified as government-owned (affiliated with state university) but is part of the nonprofit university and is subject to federal and state CBRs.

sample, approximately 13% operate as for-profit entities. Consistent with prior literature (e.g., Herpfer, Lin, and Maturana, 2024), for-profit hospitals tend to be smaller in scale, with lower overall expenses—both facility and payroll-related—fewer intensive care unit (ICU) beds, and fewer emergency departments compared to nonprofit hospitals. Changes in tax-exempt status are infrequent during our sample period: between 2012 and 2023, only 66 hospitals converted from nonprofit to for-profit status, while 78 hospitals transitioned in the opposite direction. These patterns suggest a high degree of persistence in hospitals' organizational form over time.

Because the available data do not permit precise matching between individual consumers (from the credit panel described below) and the hospitals they patronized, the analysis focuses instead on consumer exposure to hospitals of different ownership types. Exposure is defined as the proportion of for-profit hospitals located within a 25-mile radius of each ZIP code's representative consumer. Panel B of Table 1 summarizes these measures. On average, 12.19% of hospitals within a 25-mile radius of ZIP codes are for-profit. When weighing hospitals by the number of beds, the average exposure measure declines to 10.11%, reflecting the relatively smaller capacity of for-profit institutions. These estimates remain stable when the radius is expanded to 50 or 100 miles, suggesting that the spatial distribution of for-profit hospitals is relatively uniform across different geographic scales.[18] The analysis reported in this paper relies on hospital-bed-weighted share of for-profit hospitals. The results based on the equal weighted share of for-profit hospitals are quantitatively and qualitatively similar and are available upon request.

[18] Our analysis, however, is robust to considering hospitals within 50 miles, within the county, or the Core Based Statistical Area boundaries.

III.2 Consumer Credit Panel

To capture consumer financial characteristics, we rely on data from one of the three major U.S. credit bureaus. Specifically, we utilize a 5% representative random sample of about 17 million U.S. consumers observed at the end of March and the end of September each year from 2012 to 2023. The data offer detailed information about consumer debt, including delinquent and derogatory events, credit scores, consumer income level, debt-to-income ratios, etc.

Using this data, we construct a panel of representative ZIP code-level consumers' financial characteristics (e.g., incomes, credit scores, debt-to-income ratios, etc.) and non-financial characteristics (e.g., consumer age). These data also provide the representative ZIP-code consumer default rates captured by the share of consumers in a given ZIP-code that have delinquent or derogatory accounts exceeding 5% of their outstanding debt balances in the subsequent six (or twelve) months. Our baseline sample consists of approximately 34,369 ZIP codes and 751,561 ZIP-code semiannual observations.

Panel A of Table 2 reports the summary statistics of the core variables of interest provided by these data. We report full sample characteristics and then conduct the mean difference comparison across ZIP codes with high (above median) and low (below median) exposure to for-profit hospitals. The latter analysis indicates that greater exposure to for-profit hospitals is adversely associated with consumers' financial health. For example, the sample average default rate is 5.35%.[19] Among consumers in ZIP codes with above-median exposure, the average default rate is 6.22%, compared to 4.49% for those in below-median exposure areas. The differential, 1.73% (6.22 - 4.49%), is statistically significant at the 1% level. We find similar patterns for credit

[19] Default rate is defined as the percentage of consumers whose delinquent or derogatory debt exceeds 5% of their outstanding debt balance.

scores and income, with higher exposure corresponding to lower credit scores and lower incomes, suggesting poorer overall financial health.

III.3 Local Economic Fundamentals

We complement the hospital and consumer characteristics with a wide range of data that capture the local (county-level) economic conditions and health insurance coverages. First, we account for the variation in the local access to health insurance by utilizing (a) the share of the local population that is older than 65 and has access to Medicare; and (b) the county-level share of the local insured population under age 65 provided by the U.S. Census Bureau's Small Area Health Insurance Estimates (SAHIE). Second, we employ an extensive set of local economic conditions based on the U.S. Bureau of Labor Statistics' Quarterly Census of Employment and Wages (QCEW): local average wages, employment growth, etc. The QCEW also provides local industry composition, captured by the employment shares of two-digit NAICS industries, which enables us to control for the regional growth options. Panel B of Table 2 summarizes the county-level local economic characteristics.

IV. Empirical Tests and Results

IV.1 CBR and consumer defaults

We start our analysis by exploring the impact of federal and then state-level CBR legislation on consumer defaults. Our identification strategy primarily rests on the heterogeneity in the state CBR legislature. However, we also exploit the premise that even in the absence of enforceable state-level obligations to provide charity care or to limit aggressive billing and collection practices, the exposure to for-profit hospitals should predominantly affect the financially vulnerable local populations. High-borrowing-constraint (i.e., low-credit-score) and low-income

individuals are more likely to experience adverse financial outcomes when residing in areas served predominantly by for-profit hospitals.

Baseline result

We start our analysis by documenting the baseline result that does not rely on cross-state heterogeneity in CBR statutes but rather sets the stage by documenting that exposure to for-profit hospitals has a differential impact on financially vulnerable consumers relative to their more financially secure counterparts.

Figure 1 illustrates our baseline results graphically by plotting the unconditional default rates across consumer financial conditions and by the exposure to for-profit hospitals, measured as the proportion of for-profit hospitals within a 50-mile radius. Panels A and C plot the default rates across consumer credit scores and income deciles, respectively. Panels B and D focus on the default rate *differentials* within each consumer financial condition (e.g., within a credit score decile) by plotting the differences in the default rates between consumers in the top and bottom quartiles of for-profit hospital exposure.

Panel A shows that, within each credit score bin, consumers with greater exposure to for-profit hospitals exhibit consistently higher default rates. Panel C further indicates that the default rate differential between the top-quartile and the bottom-quartile for-profit exposure is largest among low-credit-score consumers, peaking at 1.2%. The differential monotonically decreases and reaches its lowest levels for consumers in the highest credit score decile (0.35% for the 10^{th} credit score decile). We observe similar patterns when consumers are sorted into deciles based on income (Panels B and D).

These findings are consistent with the federal CBR improving the financial health of the financially vulnerable consumers through their exposure to nonprofit hospitals, relative to the observationally comparable consumers with larger exposure to for-profit hospitals.

We further explore whether for-profit hospitals disproportionately affect financially vulnerable consumers using the following regression specification:

$$Default_{ZIP,t+1} = \boldsymbol{\beta_1} For\text{-}profit_{ZIP,t} + \boldsymbol{\beta_2}\, ConsumerFin\ Cond_{ZIP,t} \times ForProfit_{ZIP,t} + \beta_0 Consumer\ Fin\ Cond_{ZIP,t} + Controls + \gamma_t + \vartheta_S + \varepsilon_{ZIP,t+1}. \quad (1)$$

where $Default_{ZIP,t+1}$ is the share of consumers in a ZIP code that have delinquent or derogatory accounts exceeding 5% of their outstanding debt balances in the subsequent six (or twelve) months. $For\text{-}profit_{ZIP,t}$ is the proportion of for-profit hospitals within a 25-mile radius of a given ZIP code and captures representative consumers' for-profit hospital exposure. $Consumer\ Fin\ Cond_{ZIP,t}$, which measures consumers' financial conditions, is captured by either the consumer credit score or the level of income. We expect that the exposure to for-profit hospitals will contribute to consumer defaults ($\beta_1 > 0$), more so for financially vulnerable consumers, those with lower credit scores and lower incomes ($\beta_2 < 0$).

Regression analysis allows us to eliminate various alternative explanations for our results via a set of control variables. First, we control for a wide set of representative ZIP-code consumer financial characteristics that capture access to credit markets and default likelihoods. This set of controls includes the ZIP-code averages of credit score, debt-to-income ratio, the natural logarithm of income, and the natural logarithm of the age of the oldest credit account (a proxy for consumers' age).

Second, we include an extensive set of controls that capture local economic conditions. To account for differences across localities due to wage and employment differences, rely on the

(natural logarithm of) total local employment and average wage. To account for potential differences in the local county-level economic growth option, we include employment and wage growth, as well as control for the local industry composition via digit NAICS industry labor shares. Further, to account for the exposure of consumers to workplace-provided health insurance, we include the proportion of employment in businesses with fewer than 50 employees, which are least likely to provide health insurance to their workers.

Finally, time fixed effects (γ_t) control for macroeconomic conditions such as overall consumer credit conditions, business cycles. State fixed effects (ϑ_S) account for differences in local legislature and Medicare policies and reimbursement rates. To ensure that some unobserved local economic heterogeneity drives our results, in a subset of tests, we include county-year fixed effects ($\mu_{County \times year}$). To account for likely correlation in the core variable of interest – for-profit hospital exposure – across neighboring ZIP codes, the standard errors are clustered at the county level.

Table 3 presents the baseline results. Panel A (B) exploits credit scores (incomes) as a measure of consumers' financial health. All regression specifications uniformly show that representative ZIP code consumers with higher exposure to for-profit hospitals experience higher rates of default. This adverse effect is amplified among financially vulnerable consumers, those with lower credit scores and lower income. The effects are economically significant. Column 2 of Panel A suggests that a 100-point decline in credit score increases the default-rate differential between areas with and without for-profit hospitals by 1.60%. For comparison, the average default rate differential across top and bottom for-profit hospital exposure is 0.77% (against a 5.35% unconditional sample average default rate). Similarly, Panel B suggests that a one-standard-deviation reduction in income increases the default differential by 0.65%. These findings highlight

the adverse effects of for-profit hospital exposure, particularly on financially vulnerable consumers.

Our results are robust to alternative measures of consumer financial health. Goldsmith-Pinkham, Pinkovskiy, and Wallace (2023) consider debt collection balances alongside defaults and delinquencies when exploring the impact of Medicare on consumers' financial health. We have evaluated the impact of for-profit hospital exposure on consumers' accumulation of collection balances and found results to be qualitatively and quantitatively similar to those reported in Tables 3 and 4.

The Impact of State-level CBR Regulation

The results presented in Table 3 provide evidence consistent with federal CBRs enhancing the financial health of financially vulnerable consumers. Yet these results can also be driven by other economic mechanisms spanning beyond CBRs—altruistic goals of nonprofit hospitals and their donors (Glaeser and Shleifer 2001); or for-profit hospitals' governance structure and associated profit-driven objectives. To confirm the role of the CBRs, in this subsection we exploit the state-level heterogeneity in the CBR statutes described in Section II.2. We lean on Table 3 as the foundation of our empirical approach and explore whether our baseline effects reported in Table 3 are more pronounced in states that introduced additional CBR regulations.

Figure 2 offers the unconditional analysis of the default rate *differentials* (i) across the top and bottom quartiles of for-profit hospitals' exposure and (ii) across states with and without additional state-level CBR regulations (Table A1). Figure 2 offers three important observations. First, consumers residing in the top quartile of for-profit hospital exposure experience higher default rates, irrespective of the state they reside in or their financial health (credit scores or incomes). Second, in states with additional CBR statutes, this default rate differential is

meaningfully larger. Finally, the state-level CBR affects low-income and low credit score consumers to a greater extent: the default rate differential across states with and without additional CBR statutes is largest for these financially vulnerable consumers.

This unconditional evidence is consistent with state-level CBRs benefiting financially vulnerable consumers more in areas with greater exposure to nonprofit hospitals than in those more exposed to for-profit hospitals.

We further evaluate these conclusions using the regression analysis. Specifically, we incorporate the intensity of state-level CBR statutes into our regression framework as follows:

$$Default_{ZIP,t+1} = \beta_1 For\text{-}profit_{ZIP,t} + \boldsymbol{\beta_1^{CBR}} For\text{-}profit_{ZIP,t} \times CBR_{State,t} + \beta_2\, Fin\ Cond_{ZIP,t} \times ForProfit_{ZIP,t} + \boldsymbol{\beta_2^{CBR}}\, Fin\ Cond_{ZIP,t} \times ForProfit_{ZIP,t} \times CBR_{State,t} + Controls + \gamma_t + \vartheta_S + \varepsilon_{ZIP,t+1}. \quad (2)$$

The state-level CBR index, $\text{CBR}_{State,t}$ varies from zero to two and captures two degrees of state legislation: (i) state-level reporting requirements ($\text{CBR}_{State,t} = 1$), and (ii) state-imposed CBR ($\text{CBR}_{State,t} = 2$). We expect the state-level CBR to amplify the effects we initially attribute to the federal CBRs.[20] The regressions incorporate all interaction terms omitted in the equation above for brevity.

Table 4 reports the results with Panel A exploiting credit scores as a measure of consumers' financial health and Panel B focusing on the consumer incomes. All specifications reported in Table 4 uniformly suggest that the majority of the effects documented in Table 3 stem from states that adopted additional CBR regulations. The effects of for-profit hospital exposure are 1.5 to 3

[20] We drop Maine, Nevada, and New Mexico from the sample when analyzing CBR regulations because these states require both nonprofit and for-profit hospitals of some form of CBR.

times higher in states with additional CBR regulations and significantly more pronounced for financially vulnerable consumers.

Notably, the effects in non-CBR states are about half in magnitude relative to the effects in the states with CBR regulations. This difference in magnitude can be attributed to longstanding criticism that CBRs imposed by *Federal* statutes have several weaknesses. IRS and the ACA did not mandate a minimum level of community benefits to be provided. The law also did not clearly define eligibility for financial assistance, leaving it at hospitals' discretion (Fuse Brown, 2015). Federal statutes also did not provide clear guidelines for CBRs' violators. The weak enforcement was likely going hand-in-hand with weak compliance (Kona and Raimugia 2023). Young et al. (2018) show that despite imposing more stringent CBRs, ACA failed to generate higher community benefits related expenditures among nonprofit hospitals.

IV.2 Impact of Financial Assistance Policies, Billing, and Collections Regulations

Results presented in Tables 3 and 4 are consistent with the argument that CBR enhances the financial health of financially vulnerable consumers. There are several possible economic channels through which CBRs, and by extension, for-profit hospital exposure, might affect consumers' financial health. The literature to date has largely focused on the impact of *for-profit hospitals* on the pricing (Aghamolla, Jain, and Thakor 2023; Beniwal and Shakya 2024) and quality of the local healthcare services (Gupta et al. 2024; Kannan et al. 2025). More expensive medical services should directly affect consumer balance sheets, undermining financial health. Inferior quality or limited medical services are likely to increase the time spent seeking medical care or in recovery, reducing work hours, and affecting consumers' balance sheets indirectly. We acknowledge these channels and do not test them empirically.

In this paper, we advocate and empirically test *three additional* channels through which CBRs can affect consumer financial health. Specifically, we explore whether (a) hospitals' financial assistance policies (FAPs), (b) hospital billing restrictions, and (c) third-party debt collection practices contribute to consumers' financial health.

Hospital Financial Assistance Policies (FAPs)

To confirm the financial assistance channel behind our core results, we exploit the heterogeneous state-level FAPs laws that apply uniformly to all hospitals (Table A2). FAPs effectively reduce cross-ownership variation in hospitals' capacity to determine eligibility for and provision of free or discounted care, thereby diminishing the relative adverse effect of for-profit hospitals on consumer financial outcomes. Conceptually, FAPs should erode the comparative advantage of for-profit hospitals in limiting uncompensated care. Accordingly, if the effects documented in Tables 3 and 4 are partly driven by CBR-induced nonprofit hospital obligations to provide financial assistance, we expect the estimated impact of for-profit hospital exposure to be weaker in states with FAPs regulations.

Figure 3 provides unconditional evidence on the association between exposure to for-profit hospitals and consumer default rates, contrasting states with and without FAPs. The figure offers three key insights. First, differences in default rates linked to for-profit hospital exposure are notably smaller in states implementing uniform FAPs, implying that such regulations help equalize access to affordable or free care. Second, the divergence between regulated and unregulated states is most pronounced among low-income and low-credit-score borrowers, suggesting that financially vulnerable populations experience the greatest relief from these protections. Third, the overall pattern holds consistently across consumer groups when segmented by credit scores (Panel A) or income levels (Panel B).

We evaluate these arguments in a regression setting by utilizing our FAP legal index, $\text{FAP}_{State,t}$, which varies from zero to 1 and captures the existence of state-level FAPs statutes. We conduct two types of regression analysis. First, we augment regression specification (1) with the billing regulation index cross-effects, similar to the approach we utilized with CBR legal index:

$$Default_{ZIP,t+1} = \beta_1 For\text{-}profit_{ZIP,t} + \boldsymbol{\beta_1^{FAP}} For\text{-}profit_{ZIP,t} \times FAP_{State,t} + \beta_2\, Fin\ Cond_{ZIP,t} \times ForProfit_{ZIP,t} + \boldsymbol{\beta_2^{FAP}}\, Fin\ Cond_{ZIP,t} \times ForProfit_{ZIP,t} \times FAP_{State,t} + Controls + \gamma_{county \times t} + \varepsilon_{ZIP,t+1}. \quad (3)$$

We argue that FAP regulations erode the comparative advantage of for-profit hospitals and, as such, should mitigate the adverse effects of the for-profit hospital exposure on consumer defaults. Consequently, we expect $\beta_1^{\text{FAP}} < 0$ and $\beta_2^{\text{FAP}} > 0$. (Note that the direct effects of the FAP regulations are absorbed by the county × year fixed effects.)

Table 5 reports the results with Panels A (B) utilizing the credit score (income) heterogeneity for identification. We find that state-level FAPs almost fully negate the adverse effects of the for-profit hospital exposure on consumer defaults. The interaction coefficients with the FAP index are uniformly of the opposite sign as compared to the baseline coefficients. For example, the coefficients reported in the second specification of Panel A suggest that in a state that adopted a uniform FAP, the main adverse effect of exposure to for-profit hospitals is about 83% lower.

In the second regression analysis, we explore the joint effects of the state-level CBR regulations and FAP regulations. We argue that for-profit hospitals—free from CBR obligations—have a comparative advantage by having no obligation to provide financial assistance to financially vulnerable consumers. This advantage is attenuated when states impose uniform FAPs.

Consistently, we expect FAPs to mitigate the adverse effects of for-profit hospital exposure only in states with CBR statutes.

We test this hypothesis by running the regression equation (3) within the sub-samples of states *with* and *without* CBR statutes. The results are reported in Table 6. The results show that the main effects of exposure to for-profit hospitals are stronger in states with CBR regulations. These effects are significantly attenuated in states with uniform FAPs. Both effects are weaker or even non-existent in states without CBR regulations.

Hospital Billing Regulations

The second economic channel through which CBRs can affect consumer financial health is CBR restrictions on hospital billing practices. Similar to the previous section, we exploit heterogeneous, time-varying adoption of hospital billing regulations (Table A3). Like FAP statutes, these state-level hospital-specific billing regulations apply uniformly to all healthcare providers. These hospital-specific billing restrictions can be viewed as regulatory shocks that erode the comparative advantage of for-profit hospitals in revenue recovery. Accordingly, if the effects documented in Tables 3 and 4 are partly attributable to CBRs-induced nonprofit hospital billing constraints, we expect the estimated impact of for-profit hospital exposure to be weaker when uniform billing regulations are in force.

Figure 4 presents unconditional evidence on the relationship between exposure to for-profit hospitals and consumer default rates, comparing states with and without additional hospital billing regulations. Three patterns emerge. First, default rate differentials associated with for-profit hospital exposure are substantially smaller in states that impose uniform billing regulations, suggesting that these policies attenuate for-profit hospitals' ability to pursue aggressive collection practices. Second, the gap between regulated and unregulated states is concentrated among low-

income and low-credit-score borrowers, consistent with financially vulnerable individuals bearing the greatest risk of aggressing billing practices. Third, the patterns are similar whether consumers are stratified by credit scores (Panel A) or incomes (Panel B). Taken together, these results indicate that the adverse financial effects of for-profit hospital exposure are mitigated when uniform billing regulations constrain billing behavior.

We confirm these conclusions in a regression setting by utilizing the newly built index of hospital billing regulations. The index—$\text{Billing}_{State,t}$—varies from zero to four and captures four dimensions of the billing regulations adopted by individual states: (i) requirement to offer payment plans and limitations on interest charged on unpaid medical debt, (ii) preconditions before debts are sent to collections, and restrictions on the sale of medical debt to third-party debt collectors.

Using this index, we conduct three types of regression analysis. First, we augment regression specification (1) with the billing regulation index cross-effects:

$$Default_{ZIP,t+1} = \beta_1 For\text{-}profit_{ZIP,t} + \boldsymbol{\beta_1^{Billing}} For\text{-}profit_{ZIP,t} \times Billing_{State,t} + \beta_2\, Fin\ Cond_{ZIP,t} \times ForProfit_{ZIP,t} + \boldsymbol{\beta_2^{Billing}}\, Fin\ Cond_{ZIP,t} \times ForProfit_{ZIP,t} \times Billing_{State,t} + Controls + \gamma_{county \times t} + \varepsilon_{ZIP,t+1}. \quad (3)$$

We argue that billing regulations erode the comparative advantage of for-profit hospitals and, as such, should mitigate the adverse effects of the for-profit hospital exposure on consumer defaults: $\beta_1^{\text{Billing}} < 0$ and $\beta_2^{\text{Billing}} > 0$.

Table 7 reports the results. As in the case of FAPs, we find that state hospital billing regulations almost fully negate the adverse effects of the for-profit hospital exposure on consumer defaults. The interaction coefficients with the billing regulation index are uniformly of the opposite sign as compared to the baseline coefficients. The state billing regulations also fully negate the economic magnitudes of the effects documented in Tables 3 and 4. For example, the coefficients

reported in the second specification of Panel A suggest that in a state that adopted at least one hospital billing restriction statute, the main adverse effect of exposure to for-profit hospitals is about 53% lower.

Second, we implement the above regression analysis within the sub-samples of states *with* and *without* CBR statutes. The results reported in specifications (1) and (2) of Table 8 show that the main effects of exposure to for-profit hospitals are stronger in states with CBR regulations. These effects are significantly attenuated in states with hospital billing restriction regulations. Both effects are weaker or even non-existent in states without CBR regulations. These results are consistent with the notion that uniform billing regulations attenuate the "aggressive billing" comparative advantage of for-profit hospitals induced by CBRs.

Finally, one can argue that the analysis above might be driven by FAP requirements, as states with all 10 FAP regulations have adopted at least one hospital billing restriction regulation. To confirm the unique role of the billing regulations, we also implement the analysis in CBR states that *did not adopt* FAP regulations (specification (3) of Table 8). The results are almost identical to those reported in specification (2) based on a sample of ZIP codes in CBR states. These results confirm the unique role billing restrictions play as they effectively reduce cross-ownership variation in hospitals' ability to engage in aggressive billing practices, thereby attenuating the differential impact of for-profit hospitals on consumer financial health.

Third-Party Debt Collector Regulations

Finally, we explore the CBR-related collection restrictions channel by exploiting the state-level laws imposing restrictions on third-party debt collector practices. Fedaseyeu (2020) finds that stricter state-level regulation of third-party debt collectors significantly reduces the number of collection accounts and lowers delinquency rates, particularly among low-income borrowers.

Fonseca (2023) similarly shows that enhanced consumer protection laws governing debt collection curb aggressive recovery practices and improve household financial outcomes without materially restricting access to credit.

In our setting, CBR statutes mandate nonprofit hospitals' obligations to adopt patient collection practices, creating a wedge in nonprofit and for-profit hospitals' ability to recover revenue via collections. When in force, third-party debt collector laws effectively tighten the regulatory environment for the collection conduct of all hospitals and attenuate the competitive edge for-profit hospitals have. If CBRs contribute to consumer financial health via imposing collection restrictions, then uniform 3rd party debt collector regulations should weaken the for-profit hospitals' comparative advantage in collection practices (created by CBRs).

To evaluate this argument, we exploit the cross-state heterogeneity in the third-party debt collector regulations outlined in Table A4. Figure 5 presents unconditional evidence comparing the default rate differentials (between top and bottom-quartile for-profit exposure ZIP codes) across states *with* and *without* third-party debt collection restrictions. Two patterns emerge. First, default rate differentials associated with for-profit hospital exposure are smaller in states that restrict or regulate third-party debt collectors. Second, the attenuation is concentrated among low-income and low-credit-score borrowers. These conclusions are consistent irrespective of whether we stratify consumers by credit scores or by income levels. These statistics are consistent with 3rd party debt collector regulations attenuating for-profit hospitals' comparative advantage in aggressive collection practices implied by CBRs.

We confirm these findings in a regression framework. First, we evaluate whether the third-party debt collector restrictions attenuate the for-profit hospitals' default rate differential across all states. Table 9 reports the results. Consistent with our expectations, the adverse effects of for-profit

hospital exposure are attenuated in states with stronger collection regulations. This is consistent with 3rd party debt collection laws contributing to consumers' financial health.

Next, we examine the joint effect of the third-party debt collector laws and CBR regulations on consumer default by conducting the above analysis separately for subsamples of ZIP codes in states *with* and *without* CBR regulations. Table 10 reports the results. Consistent with our conceptual framework, we find that the attenuating impact of the third-party debt collector laws is most pronounced in states that have enacted explicit CBR mandates (specification 2), providing additional evidence consistent with CBRs related collection restrictions positively affecting consumer financial health. In states without CBR regulations, the magnitudes are smaller overall (specification 1), and the effects of the third-party debt collector law are largely statistically insignificant.

Finally, to ensure that the third-party debt collections represent a distinct channel from FAP, specification 3 replicates specification 2, excluding ZIP codes located in states with FAP regulations. The results remain robust, consistent with the collections channel representing a unique CBR channel.

IV.3 Geography of For-Profit Hospitals

Our results thus far support the notion that the CBR improves consumers' financial health by imposing significant wealth transfer from nonprofit hospitals to financially vulnerable consumers. This implies that CBRs provide significant comparative advantages to for-profit hospitals that are greater in markets with a higher share of the low-income population. This observation raises the question of whether, in equilibrium, for-profit hospitals serve markets where these revenue recovery advantages are the greatest. In this section, we aim to provide suggestive evidence to address this question.

Figure 6 offers unconditional evidence. Panel A reports the share of for-profit hospitals in states with and without CBR laws over time. It illustrates that states with CBRs regulations consistently have about 4.47% higher share of for-profit hospitals relative to 13.11% average share of for-profit hospitals across the U.S. Panels B and C compares the share of for-profit hospitals within a 50-mile radius of each ZIP code where ZIP codes are sorted alongside 2 dimensions – (i) CBR states; and (ii) credit-score (Panel B) or consumer income (Panel C) deciles. These figures offer two observations. First, states with CBR regulations have a higher share of for-profit hospitals. Second, we consistently observe more for-profit hospitals in the low-income and low-credit-score localities. These unconditional results are consistent with for-profit hospitals exploiting the revenue recovery advantages allowed to them by CBR regulations imposed on non-profit hospitals.

We further conduct regression analysis that aims to jointly characterize the for-profit hospitals' market conditions. In this analysis, we focus on hospitals instead of representative consumers (potential patients). We compare consumer financial characteristics, demographic characteristics, and local economic conditions within the serving area of each hospital (e.g., a county) using the following regression specification:

$$D(ForProfit)_{Hospital,t} = \beta_1 CBR_{State,t} + \beta_3 CBR_{State,t} \times FinCond_{Hospital,t} + \beta_2 FinCond_{Hospital,t} + Controls + \varepsilon_{Hospital,t}. \quad (4)$$

The dependent variable, $D(ForProfit)_{Hospital,t}$, is an indicator variable that equals 1 if the hospital is a for-profit hospital, and 0 otherwise. $FinCond_{Hospital,t}$ represents the financial condition of the hospital's patient base (credit score, income, etc.) averaged within a 25-mile radius of the hospital. We also include a wide set of local economic fundamentals described in Section III.3. Most notably, county-level wages, employment growth, share of population 65 and older

(eligible for Medicare), SAHIE estimates of county-level share of insured population. Finally, we include hospital characteristics employed by prior studies examining hospital-level decisions (Herpfer, Lin, and Maturana, 2024): log of the total number of hospital beds, the share of emergency beds, and the payroll to facility expense ratio, etc. Standard errors are clustered at the county level.

Results reported in Table 11 suggest that for-profit hospitals tend to operate in markets characterized by lower credit scores and lower incomes consumers, and in states with CBR regulations. Moreover, the for-profit hospitals' preference for (tolerance towards) the financially vulnerable local population is higher in CBR states. The latter finding is robust to the inclusion of state × time fixed effects (columns 2 and 4), which accounts for unobserved factors that incentivize for-profit orientation in certain states (Herpfer, Lin, and Maturana, 2024).

Table 11 results are consistent with for-profit hospitals capitalizing on their CBR-induced revenue recovery comparative advantage by serving markets where this advantage is greatest. Interestingly, we also find that for-profit hospitals tend to operate in more competitive healthcare markets as captured by county-level hospital HHI. In these locations, nonprofit hospitals are likely to struggle to increase prices to compensate for the CBR-induced financial costs.

While Table 11 focuses solely on CBR regulations, Table 12 reports similar analysis by adding: (i) FAP, (ii) billing, and (iii) collections regulation indices into the mix of variables of interest. This analysis aims to evaluate whether these uniform revenue recovery practices regulations attenuate the comparative advantage of for-profit hospitals and deter for-profit hospitals from operating in regulated markets.

Results reported in Table 12 suggest that for-profit hospitals are less likely to operate in states with consumer protection laws covering FAP, hospital billing, or third-party debt collection.

Importantly, the effects of legal statutes on the likelihood of a hospital being a for-profit entity are stronger in states with CBR regulations. The latter observation is consistent with uniform FAP, billing, and collection regulations attenuating the for-profit hospitals' market entry incentives created by CBRs. That is, FAPs, billing, and collections laws are leveling the playing field and effectively imposing an implicit financial burden on for-profit hospitals commensurate with ones nonprofits face.

These results also offer important policy observations. CBRs seem to encourage nonprofit hospital exits from markets with financially vulnerable consumers, those that would most benefit from these regulations. Uniform hospital revenue recovery regulations eliminate this incentive by leveling the playing field.

V. Conclusion

This paper provides evidence on how Community Benefit Requirements (CBRs) influence consumer financial health. By exploiting variation in hospital ownership and state-level regulatory environments, we show that consumers residing in areas with greater exposure to for-profit hospitals experience higher default rates and more collection activity. The effects are concentrated among low-income and low-credit-score individuals, indicating that CBRs effectively serve as a financial protection mechanism for vulnerable populations. These findings demonstrate that nonprofit hospitals' legal obligations produce measurable financial benefits for households.

We identify three mechanisms that explain these effects: financial assistance policies, billing restrictions, and collection restrictions. Each limits hospitals' ability to recover revenues from patients in financial distress. When states impose similar regulations on all hospitals, the financial disadvantage of consumers in for-profit hospital markets is substantially reduced. This pattern confirms that the financial protections embedded in CBRs operate primarily through these

revenue recovery channels, improving the financial position of consumers while moderating aggressive collection behavior.

We also show an important policy tradeoff. While CBRs improve the financial health of vulnerable consumers, they may discourage nonprofit hospitals from operating in economically disadvantaged areas where compliance costs are hardest to absorb. We find that for-profit hospitals are disproportionately located in low-income, high-debt, and low-credit-score regions, particularly in states with strong CBR regulations. Statutes governing all hospitals' billing and collection practices reduce this imbalance, suggesting that broad-based consumer protection can enhance both fairness and market competition in healthcare delivery.

Overall, our findings underscore that institutional design in healthcare regulation has significant implications for household financial outcomes. CBRs indirectly redistribute wealth from hospitals to consumers by restraining revenue recovery practices, and this mechanism complements existing welfare programs (e.g., Medicare and Medicaid). However, to maximize consumer benefits without exacerbating geographic inequities, policymakers may need to combine targeted nonprofit obligations with uniform hospital-level consumer protection standards. Future research should explore how enforcement intensity, market structure, and patient demographics shape the effectiveness of these regulatory tools.

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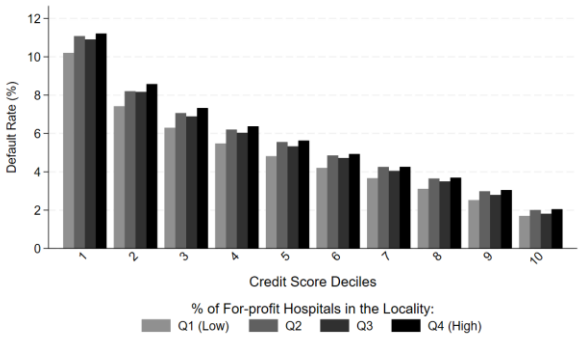
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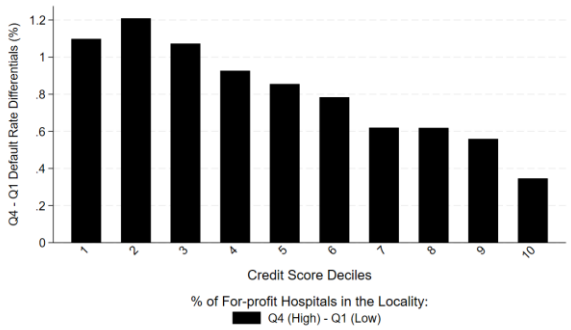
Figure 1
Consumer Default Rates and For-Profit Hospital Exposure

Panels A (C) plots the average ZIP-code representative consumer default rates by credit score deciles (income deciles) and quartiles of the for-profit hospital exposure, measured as the share of for-profit hospitals within a 50-mile radius of a given ZIP code. Default rates are the percentage of consumers whose delinquent or derogatory debt exceeds 5% of their outstanding balance. Panels B and D report the corresponding consumer default differentials across consumers with high (Q4) and low (Q1) exposure to for-profit hospitals. The sample is based on the 2012–2023 5% consumer credit panel.

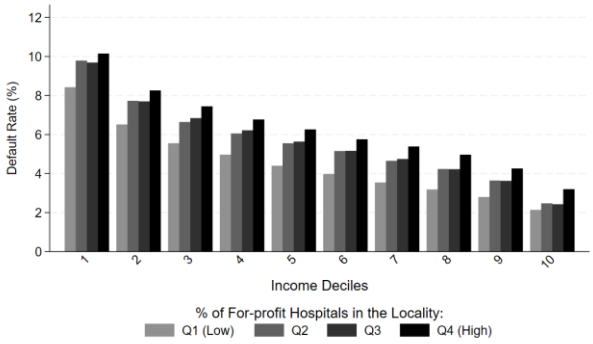
Panel A. Default Rates Across Credit Score Deciles



Panel B. Default Differentials Across Credit Score Deciles



Panel C. Default Rates Across Income Deciles



Panel D. Default Differentials Across Income Deciles

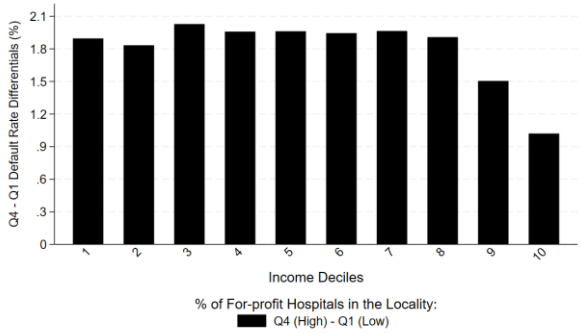
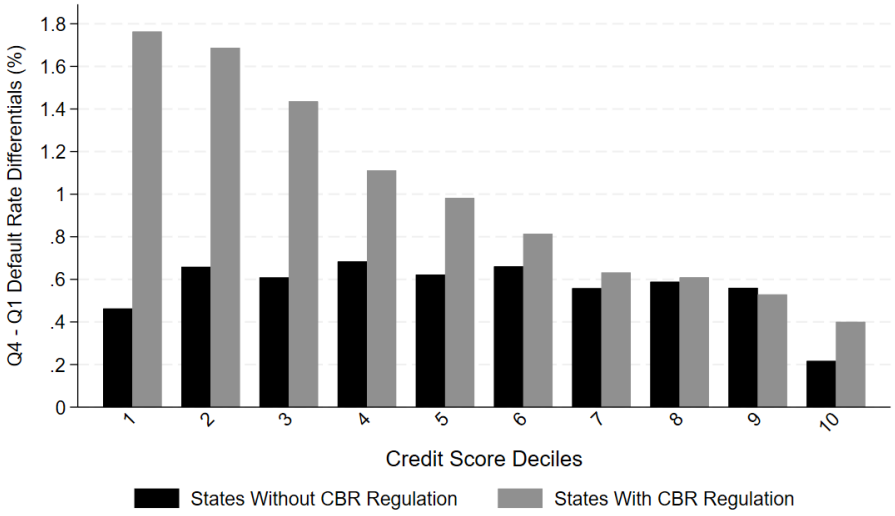


Figure 2
Default Differentials and Community Benefit Requirements

This figure plots default differentials across geographies with high (Q4) and low (Q1) exposure to for-profit hospitals across states with and without additional CBR regulations. Panel A plots default differentials across credit score deciles, and Panel B plots default differentials across income deciles. The exposure to for-profit hospitals is defined as the fraction of for-profit hospitals within a 50-mile radius of each ZIP code. The sample is based on the 2012–2023 5% consumer credit panel.

Panel A. Default Differentials Across Credit Score Deciles



Panel B. Default Differentials Across Income Deciles

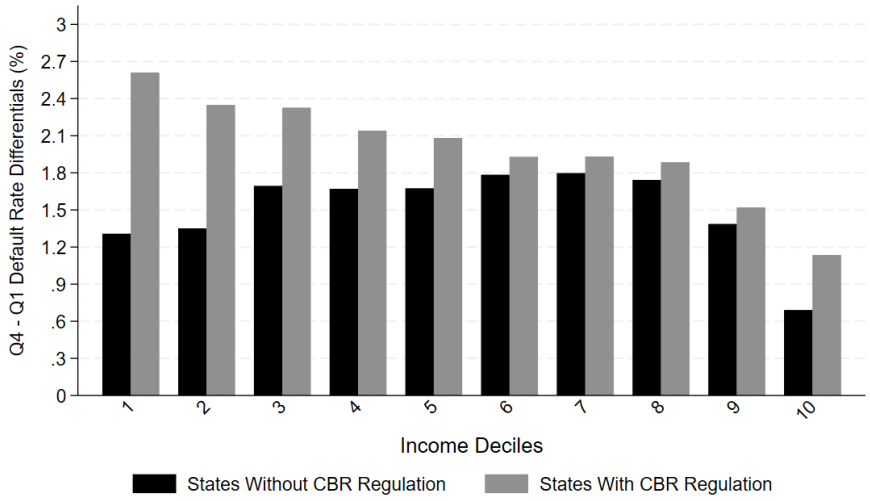
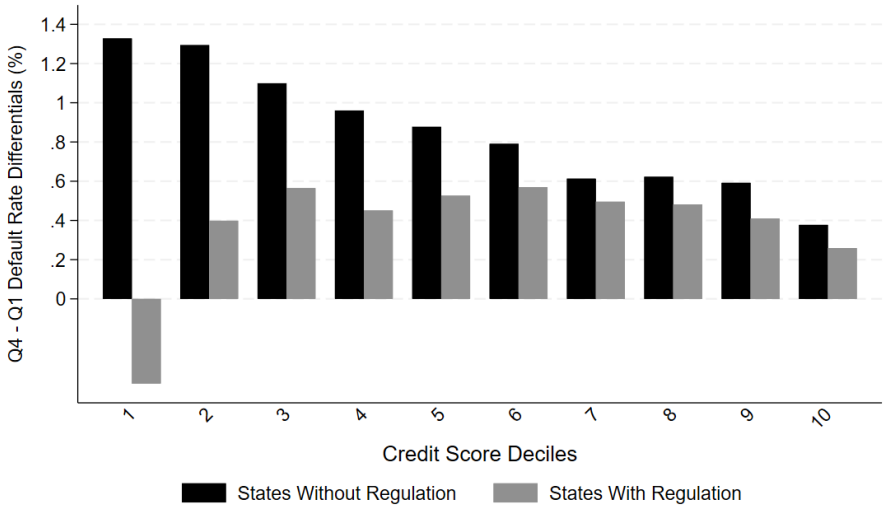


Figure 3
Default Differentials and Financial Assistance Policy Regulations

This figure plots default differentials across geographies with high (Q4) and low (Q1) exposure to for-profit hospitals across states with and without financial assistance policy regulations for both nonprofit and for-profit hospitals. Panel A plots default differentials across credit score deciles, and Panel B plots default differentials across income deciles. The exposure to for-profit hospitals is defined as the fraction of for-profit hospitals within a 50-mile radius of each ZIP code. The sample is based on the 2012–2023 5% consumer credit panel.

Panel A. Default Differentials Across Credit Score Deciles



Panel B. Default Differentials Across Income Deciles

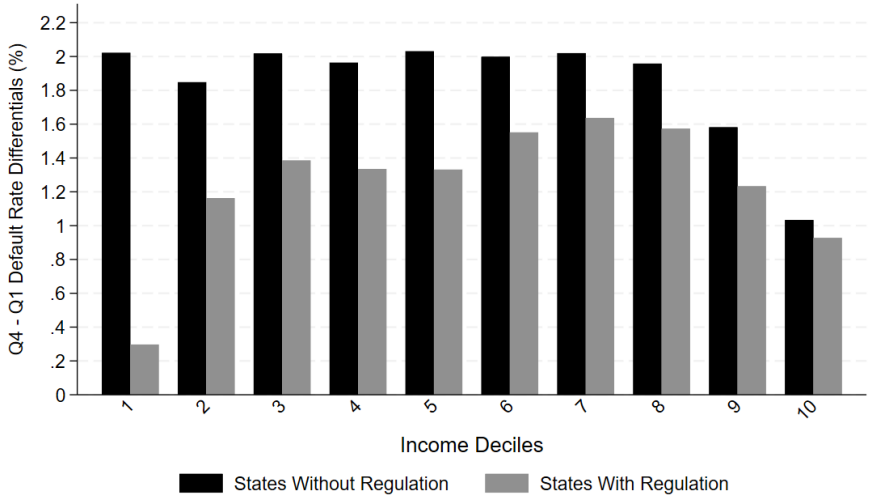
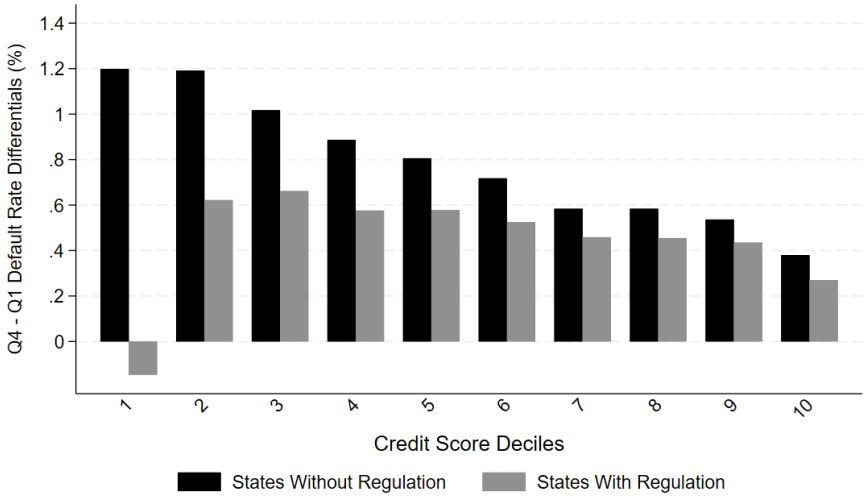


Figure 4
Default Differentials and Hospital Billing Regulations

This figure plots default differentials across geographies with high (Q4) and low (Q1) exposure to for-profit hospitals across states with and without billing regulations for both nonprofit and for-profit hospitals. Panel A plots default differentials across credit score deciles, and Panel B plots default differentials across income deciles. The exposure to for-profit hospitals is defined as the fraction of for-profit hospitals within a 50-mile radius of each ZIP code. The sample is based on the 2012–2023 5% consumer credit panel.

Panel A. Default Differentials Across Credit Score Deciles



Panel B. Default Differentials Across Income Deciles

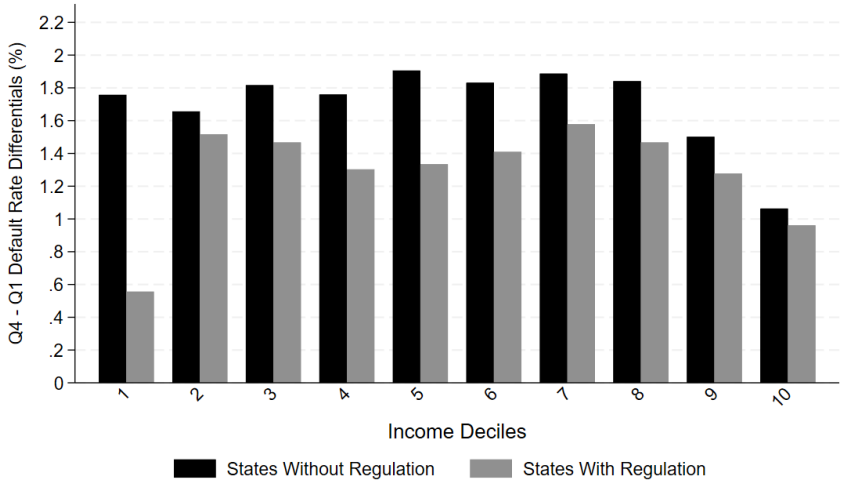
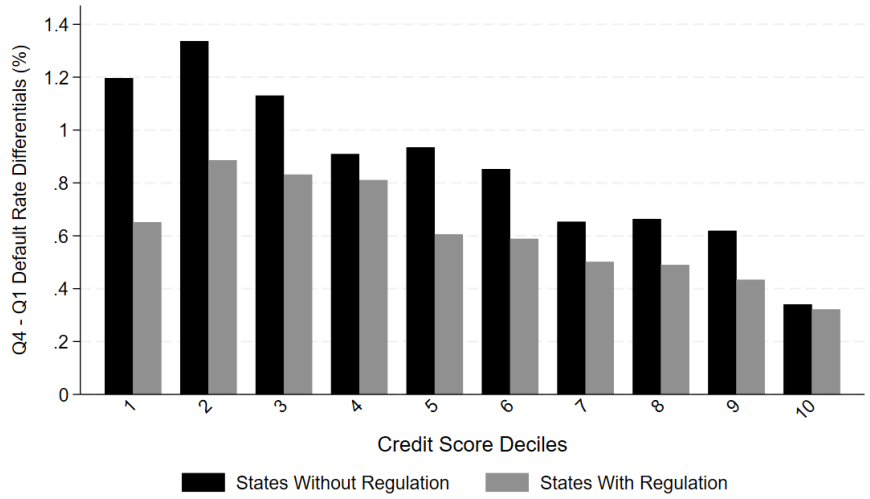


Figure 5
Default Differentials and Third-party Debt Collector Regulations

This figure plots default differentials across geographies with high (Q4) and low (Q1) exposure to for-profit hospitals across states with and without regulations on third-party debt collectors. Panel A plots default differentials across credit score deciles, and Panel B plots default differentials across income deciles. The exposure to for-profit hospitals is defined as the fraction of for-profit hospitals within a 50-mile radius of each ZIP code. The sample is based on the 2012–2023 5% consumer credit panel.

Panel A. Default Differentials Across Credit Score Deciles



Panel B. Default Differentials Across Income Deciles

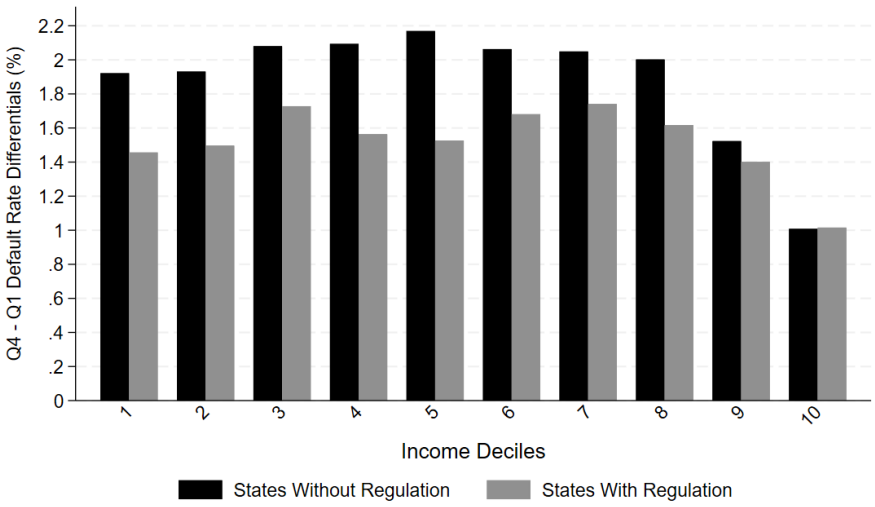
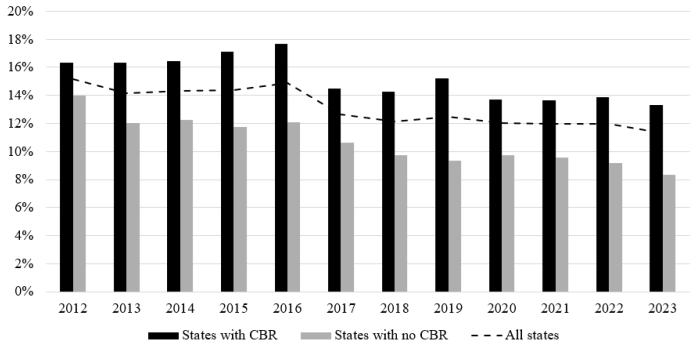


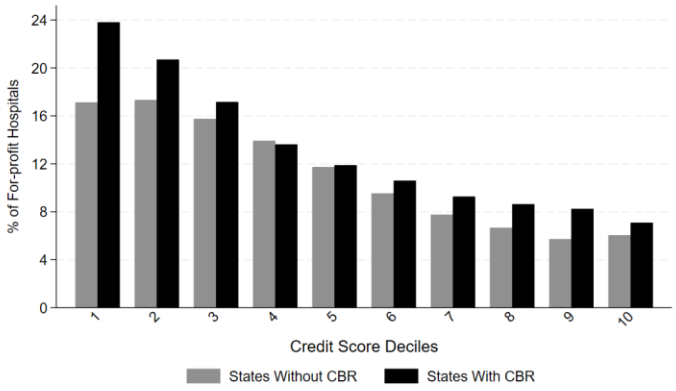
Figure 6
Share of For-Profit Hospitals and CBR

Panel A presents the time-series variation in the equal-weighted share of for-profit hospitals over our sample period across states with and without CBR. Panels B and C plot the equal-weighted exposure to for-profit hospitals of each ZIP code, by states with and without CBR, within a 50-mile radius across credit score and income deciles, respectively.

Panel A. Share of For-Profit Hospitals Over Time



Panel B. Exposure to For-Profit Hospitals Across Credit Score Deciles



Panel C. Exposure to For-Profit Hospitals Across Income Deciles

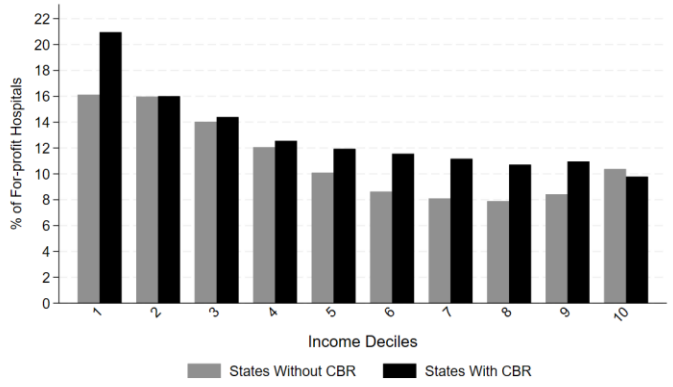


Table 1
Summary Statistics: Hospitals

The table reports summary statistics for hospital characteristics utilized in our baseline sample. Panel A presents statistics on hospital-level characteristics. Panel B presents the ZIP code-level exposure to for-profit hospitals. All shares and ratios are expressed in decimals unless otherwise indicated in parentheses.

		Full Sample		*For-Profit Hospitals*		*Non-Profit Hospitals*		*Diff*	*(t-stat)*
	# Observ.	*Mean*	*St.Dev*	*Mean (a)*	*St.Dev*	*Mean (b)*	*St.Dev*	*(a-b)*	
Panel A: Hospital Characteristics									
D(For-profit Hospital)	36,528	0.129	0.336	-	-	-	-	-	-
General Medical and Surgical Beds	36,528	97.9	116.0	80.9	79.5	100.5	120.3	-19.5	(14.59)
Total Facility Expenses (‘000,000)	36,528	237.0	422.0	115.0	135.0	256.0	446.0	-140.9	(44.27)
Total Payroll Expenses ('000,000)	36,528	89.2	162.0	40.3	48.8	96.4	172.0	-56.2	(46.93)
Medical/Surgical ICU Beds	36,528	13.1	18.2	11.6	15.6	13.3	18.6	-1.7	(6.98)
Emergency Department Visits (‘000)	36,528	32.8	36.2	26.0	30.0	33.8	36.9	-7.7	(16.03)
Herfindahl-Hirschman Index (HHI)	36,528	0.61	0.35	0.49	0.35	0.63	0.35	-0.14	(26.18)
	# Observ.	*Mean*	*St.Dev*	*P25*		*P50*		*P75*	
Panel B: For-profit Hospital Proximity at the ZIP code level									
# of Hospitals Within 25 Miles	804,707	7.83	11.44	2.00		4.00		9.00	
% of For-Profit Hospitals Within 25 miles (EW)	760,240	12.19	21.59	0.00		0.00		19.05	
% of For-Profit Hospitals Within 25 miles (VW)	760,240	10.12	20.95	0.00		0.00		9.55	
# of Hospitals Within 50 miles	804,707	22	20	6		9		15	
% of For-Profit Hospitals Within 50 miles (EW)	804,707	12.11	16.22	0.00		0.00		20.00	
% of For-Profit Hospitals Within 50 miles (VW)	804,707	10.12	15.89	0.00		0.00		14.16	
# of Hospitals Within 100 miles	804,707	64	40	22		38		57	
% of For-Profit Hospitals Within 100 miles (EW)	804,707	12.24	12.70	0.00		2.90		18.18	
% of For-Profit Hospitals Within 100 miles (VW)	804,707	10.29	12.06	0.00		1.52		15.42	

Table 2
Summary Statistics: Consumers

The table presents summary statistics for our baseline sample and compares ZIP codes with high versus low exposure to for-profit hospitals. *t*-statistics for the differences are reported in parentheses in the last column. Panel A presents ZIP code–level statistics on representative consumer characteristics; Panel B presents county-level statistics on local economic fundamentals. All shares and ratios are expressed in decimals unless otherwise indicated in parentheses.

		Share of For-profit Hospitals							
		Full Sample		*Above Median*		*Below Median*			
	# Observ.	*Mean*	*St.Dev*	*Mean (a)*	*St.Dev*	*Mean (b)*	*St.Dev*	*Diff (a-b)*	*(t-stat)*
Panel A: Representative Consumer Characteristics (ZIP Code level)									
% Delinquency or Default in the Next 6 Month	751,780	5.35	4.58	6.22	4.76	4.49	4.22	1.73	(166.9)
% Total Collection Balance in the Next 6 Months	751,780	1.67	12.86	2.07	17.75	1.28	4.20	0.80	(26.7)
Avg. Credit Score	751,780	698	37	689	38	707	35	-17.93	(213.9)
Avg. Debt-to-Income Ratio	751,780	0.11	0.03	0.12	0.03	0.11	0.03	0.00	(51.5)
ln (Avg. Income)	751,780	4.41	0.26	4.38	0.27	4.45	0.25	-0.07	(112.2)
Avg.Oldest Account Age (Years)	751,780	17.95	3.33	17.43	3.28	18.47	3.29	-1.04	(137.5)
ln (Avg. Total Debt Balance)	751,780	15.52	2.00	15.65	2.04	15.40	1.95	0.26	(55.6)
Panel B: Local Economic Fundamentals (County level)									
log(Total Local Employment)	75,066	11.37	1.61	11.48	1.61	11.28	1.60	0.20	(16.9)
Δ log (Total Local Employment)	75,066	0.81	7.41	0.82	5.99	0.80	8.55	0.02	(0.5)
Δ ln (Average Local Wages)	75,066	2.77	9.99	2.64	9.45	2.89	10.49	-0.25	(3.4)
SAHIE % of Insured Population Under 65	75,066	12.16	5.29	13.40	5.47	10.98	4.82	2.43	(64.4)
Share of Population Older Than 65	75,066	18.32	4.50	17.74	4.31	18.88	4.61	-1.14	(35.1)

Table 3
Consumer Default Rates and For-Profit Hospitals

The table presents results on the effect of exposure to for-profit hospitals on consumer default and its heterogeneity across consumer characteristics. Panel A uses the average credit score as the cross-sectional variable, and Panel B uses the average income. The dependent variable is the proportion of consumers in an area who are delinquent or in default on more than 5% of their total outstanding debt within the next six months. Consumer financial information (at the ZIP-code level) includes the credit score, the average debt-to-income ratio, the natural logarithm of average income, and the natural logarithm of the oldest account. Local economy controls (at the county-level) include employment, wage growth, employment growth, and the fraction of employment in the set of two-digit NAICS industries. Standard errors are clustered at the ZIP code level. *t*-statistics are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable (ZIP,t+1)	*% Default in the Next 6 Month*			
	(1)	*(2)*	*(3)*	*(4)*
Panel A: Credit Scores				
% For-Profit Hospitals $_{(ZIP,t)}$	0.004***	0.110***	0.117***	0.113***
	(4.35)	(5.12)	(6.25)	(4.80)
Credit Score/100 $_{(ZIP,\ t)}$ ×		-0.016***	-0.017***	-0.017***
% For-Profit hospitals $_{(ZIP,t)}$		(5.06)	(6.20)	(4.80)
Credit Score/100 $_{(ZIP,\ t)}$	-0.082***	-0.081***	-0.080***	-0.079***
	(89.46)	(81.84)	(81.63)	(80.21)
Consumer Financials $_{(ZIP,\ t)}$	Y	Y	Y	Y
Local Economy Controls $_{(County,\ t)}$	Y	Y	Y	Y
Time FEs	Y	Y	-	-
State x Time FEs	-	-	Y	-
County x Time FEs	-	-	-	Y
Observations	712,119	712,119	712,119	709,918
R-squared	0.38	0.38	0.40	0.41
Panel B: Consumer Incomes				
% For-profit hospitals $_{(ZIP,t)}$	0.004***	0.085***	0.110***	0.109***
	(4.35)	(4.53)	(6.47)	(5.21)
Consumer Income $_{(ZIP,\ t)}$ ×		-0.019***	-0.025***	-0.025***
% For-Profit hospitals $_{(ZIP,t)}$		(4.44)	(6.40)	(5.21)
Consumer Income $_{(ZIP,\ t)}$	0.001	0.003***	0.004***	0.004***
	(1.42)	(3.17)	(4.29)	(3.98)
Consumer Financials $_{(ZIP,\ t)}$	Y	Y	Y	Y
Local Economy Controls $_{(County,\ t)}$	Y	Y	Y	Y
Time FEs	Y	Y	-	-
State x Time FEs	-	-	Y	-
County x Time FEs	-	-	-	Y
Observations	712,119	712,119	712,119	709,918
R-squared	0.38	0.38	0.40	0.41

Table 4
Consumer Default Rates and Community Benefit Requirements

The table presents results on the heterogeneous effect of exposure to for-profit hospitals across ZIP codes in states with and without community benefit requirements. Panel A uses the average credit score as the cross-sectional variable, and Panel B uses the average income. The dependent variable is the proportion of consumers in an area who are delinquent or in default on more than 5% of their total outstanding debt within the next six months. Consumer financial information (at the ZIP-code level) includes the credit score, the average debt-to-income ratio, the natural logarithm of average income, and the natural logarithm of the oldest account. Local economy controls (at the county-level) include employment, wage growth, employment growth, and the fraction of employment in the set of two-digit NAICS industries. Standard errors are clustered at the ZIP code level. *t*-statistics are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable (ZIP,t+1)	*% Default in the Next 6 Month*			
	Main effect	*× State CBRs regulations index*	*Main effect*	*× State CBRs regulations index*
Panel A: Credit Scores				
% For-Profit Hospitals $_{(ZIP,t)}$	0.038**	0.075***	0.037*	0.074***
	(2.13)	(3.97)	(1.86)	(3.40)
Credit Score/100 $_{(ZIP,\ t)}$ ×	-0.006**	-0.011***	-0.005*	-0.011***
% For-Profit hospitals $_{(ZIP,t)}$	(2.16)	(3.89)	(1.82)	(3.42)
Credit Score/100 $_{(ZIP,\ t)}$	-0.080***	-0.001*	-0.079***	0.000
	(65.34)	(1.90)	(60.42)	(0.50)
Consumer Financials $_{(ZIP,\ t)}$	Y		Y	
Local Economy Controls $_{(County,\ t)}$	Y		Y	
Time FEs	Y		-	
County x Time FEs	-		Y	
Observations	694,006		691,834	
R-squared	0.39		0.41	
Panel B: Consumer Incomes				
% For-Profit Hospitals $_{(ZIP,t)}$	0.036**	0.049***	0.031*	0.068***
	(2.44)	(2.98)	(1.66)	(3.67)
Consumer Income $_{(ZIP,\ t)}$ ×	-0.008**	-0.011***	-0.007	-0.016***
% For-Profit Hospitals $_{(ZIP,t)}$	(2.49)	(2.84)	(1.62)	(3.69)
Consumer Income $_{(ZIP,\ t)}$	0.007***	-0.002***	0.003**	0.001
	(5.19)	(3.05)	(2.38)	(0.88)
Consumer Financials $_{(ZIP,\ t)}$	Y		Y	
Local Economy Controls $_{(County,\ t)}$	Y		Y	
Time FEs	Y		-	
County x Time FEs	-		Y	
Observations	694,006		691,834	
R-squared	0.39		0.41	

Table 5
Consumer Default Rates and Hospital Financial Assistance Policies

The table presents results on the heterogeneous effect of exposure to for-profit hospitals across ZIP codes in states with and without financial assistance policies for both nonprofit and for-profit hospitals. Panel A uses the average credit score as the cross-sectional variable, and Panel B uses the average income. The dependent variable is the proportion of consumers in an area who are delinquent or in default on more than 5% of their total outstanding debt within the next six months. Consumer financial information (at the ZIP-code level) includes the credit score, the average debt-to-income ratio, the natural logarithm of average income, and the natural logarithm of the oldest account. Local economy controls (at the county-level) include employment, wage growth, employment growth, and the fraction of employment in the set of two-digit NAICS industries. Standard errors are clustered at the ZIP code level. t-statistics are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable (ZIP,t+1)	*% Default in the Next 6 Month*			
	Main Effect	*× State Financial Assistance Policies*	*Main Effect*	*× State Financial Assistance Policies*
Panel A: Credit Scores				
% For-Profit Hospitals $_{(ZIP,t)}$	0.112***	-0.119***	0.125***	-0.145***
	(5.07)	(2.88)	(5.20)	(3.30)
Credit Score/100 $_{(ZIP,\ t)}$ ×	-0.016***	0.016***	-0.018***	0.021***
% For-Profit hospitals	(4.98)	(2.64)	(5.19)	(3.29)
Credit Score/100 $_{(ZIP,\ t)}$	-0.081***	0.001	-0.079***	-0.000
	(81.82)	(0.60)	(78.01)	(0.23)
Consumer Financials $_{(ZIP,\ t)}$	Y		Y	
Local Economy Controls $_{(County,\ t)}$	Y		Y	
Time FEs	Y		-	
County x Time FEs	-		Y	
Observations	712,119		709,918	
R-squared	0.38		0.41	
Panel B: Consumer Incomes				
% For-Profit Hospitals $_{(ZIP,t)}$	0.088***	-0.083**	0.122***	-0.128***
	(4.37)	(2.51)	(5.70)	(3.79)
Consumer Income $_{(ZIP,\ t)}$ ×	-0.019***	0.016**	-0.028***	0.029***
% For-Profit Hospitals	(4.25)	(2.14)	(5.69)	(3.78)
Consumer Income $_{(ZIP,\ t)}$	0.003***	-0.001	0.004***	-0.000
	(2.94)	(0.58)	(2.91)	(0.06)
Consumer Financials $_{(ZIP,\ t)}$	Y		Y	
Local Economy Controls $_{(County,\ t)}$	Y		Y	
Time FEs	Y		-	
County x Time FEs	-		Y	
Observations	712,119		709,918	
R-squared	0.38		0.41	

Table 6
Consumer Default Rates, FAPs, and CBR

The table presents results on the heterogeneous effect of exposure to for-profit hospitals across ZIP codes in states with and without financial assistance policies for both nonprofit and for-profit hospitals and CBR. Panel A uses the average credit score as the cross-sectional variable, and Panel B uses the average income. The dependent variable is the proportion of consumers in an area who are delinquent or in default on more than 5% of their total outstanding debt within the next six months. Consumer financial information (at the ZIP-code level) includes the credit score, the average debt-to-income ratio, the natural logarithm of average income, and the natural logarithm of the oldest account. Local economy controls (at the county-level) include employment, wage growth, employment growth, and the fraction of employment in the set of two-digit NAICS industries. Standard errors are clustered at the ZIP code level. t-statistics are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable (ZIP,t+1)	*% Default in the Next 6 Month*			
Subsample:	*States Without CBR*		*States With CBR*	
	Main Effect	× *State Financial Assistance Policies*	*Main Effect*	× *State Financial Assistance Policies*
Panel A: Credit Scores				
% For-Profit Hospitals $_{(ZIP,t)}$	0.054***	-0.093	0.177***	-0.202***
	(2.72)	(0.22)	(5.39)	(3.49)
Credit Score/100 $_{(ZIP,\ t)}$ ×	-0.008***	0.017	-0.026***	0.029***
% For-Profit hospitals $_{(ZIP,t)}$	(2.71)	(0.30)	(5.38)	(3.44)
Credit Score/100 $_{(ZIP,\ t)}$	-0.079***	-0.004	-0.079***	0.001
	(49.75)	(1.56)	(61.91)	(0.31)
Consumer Financials $_{(ZIP,\ t)}$	Y		Y	
Local Economy Controls $_{(County,\ t)}$	Y		Y	
County x Time FEs	Y		Y	
Observations	283,601		408,233	
R-squared	0.40		0.42	
Panel B: Consumer Incomes				
% For-Profit Hospitals $_{(ZIP,t)}$	0.044**	0.243	0.166***	-0.176***
	(2.41)	(0.94)	(6.32)	(4.31)
Consumer Income $_{(ZIP,\ t)}$ ×	-0.010**	-0.046	-0.038***	0.040***
% For-Profit Hospitals $_{(ZIP,t)}$	(2.39)	(0.83)	(6.32)	(4.27)
Consumer Income $_{(ZIP,\ t)}$	0.003**	-0.000	0.004**	0.001
	(2.27)	(0.14)	(2.11)	(0.50)
Consumer Financials $_{(ZIP,\ t)}$	Y		Y	
Local Economy Controls $_{(County,\ t)}$	Y		Y	
County x Time FEs	Y		Y	
Observations	283,601		408,233	
R-squared	0.40		0.42	

Table 7
Consumer Default Rates and Hospital Billing Regulations

The table presents results on the heterogeneous effect of exposure to for-profit hospitals across ZIP codes in states with and without billing regulations for both nonprofit and for-profit hospitals. Panel A uses the average credit score as the cross-sectional variable, and Panel B uses the average income. The dependent variable is the proportion of consumers in an area who are delinquent or in default on more than 5% of their total outstanding debt within the next six months. Consumer financial information (at the ZIP-code level) includes the credit score, the average debt-to-income ratio, the natural logarithm of average income, and the natural logarithm of the oldest account. Local economy controls (at the county-level) include employment, wage growth, employment growth, and the fraction of employment in the set of two-digit NAICS industries. Standard errors are clustered at the ZIP code level. t-statistics are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable (ZIP,t+1)	*% Default in the Next 6 Month*			
	Main Effect	*× State billing regulations index*	*Main Effect*	*× State billing regulations index*
Panel A: Credit Scores				
% For-Profit Hospitals $_{(ZIP,t)}$	0.113***	-0.063***	0.119***	-0.064***
	(4.89)	(3.53)	(4.78)	(3.39)
Credit Score/100 $_{(ZIP,\,t)}$ ×	-0.016***	0.009***	-0.017***	0.009***
% For-Profit hospitals $_{(ZIP,t)}$	(4.81)	(3.40)	(4.77)	(3.41)
Credit Score/100 $_{(ZIP,\,t)}$	-0.082***	0.002***	-0.080***	0.002***
	(79.30)	(2.59)	(76.09)	(2.64)
Consumer Financials $_{(ZIP,\,t)}$	Y		Y	
Local Economy Controls $_{(County,\,t)}$	Y		Y	
Time FEs	Y		-	
County x Time FEs	-		Y	
Observations	712,119		709,918	
R-squared	0.38		0.41	
Panel B: Consumer Incomes				
% For-Profit Hospitals $_{(ZIP,t)}$	0.091***	-0.046***	0.116***	-0.052***
	(4.33)	(3.07)	(5.19)	(3.52)
Consumer Income $_{(ZIP,\,t)}$ ×	-0.020***	0.010***	-0.027***	0.012***
% For-Profit Hospitals $_{(ZIP,t)}$	(4.22)	(2.82)	(5.19)	(3.56)
Consumer Income $_{(ZIP,\,t)}$	0.003**	0.001	0.001	0.002***
	(2.13)	(0.90)	(0.96)	(3.08)
Consumer Financials $_{(ZIP,\,t)}$	Y		Y	
Local Economy Controls $_{(County,\,t)}$	Y		Y	
Time FEs	Y		-	
County x Time FEs	-		Y	
Observations	712,119		709,918	
R-squared	0.38		0.41	

Table 8
Consumer Default Rates, Hospital Billing Regulations, and CBR

The table presents results on the heterogeneous effect of exposure to for-profit hospitals across ZIP codes in states with and without billing regulations for both nonprofit and for-profit hospitals and CBR. Panel A uses the average credit score as the cross-sectional variable, and Panel B uses the average income. The dependent variable is the proportion of consumers in an area who are delinquent or in default on more than 5% of their total outstanding debt within the next six months. Consumer financial information (at the ZIP-code level) includes the credit score, the average debt-to-income ratio, the natural logarithm of average income, and the natural logarithm of the oldest account. Local economy controls (at the county-level) include employment, wage growth, employment growth, and the fraction of employment in the set of two-digit NAICS industries. Standard errors are clustered at the ZIP code level. t-statistics are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable (ZIP,t+1)	*% Default in the Next 6 Month*					
Subsample:	*States Without CBR*		*States With CBR*		*States With CBR (Excluding FAP States)*	
	Main Effect	*× State Billing Regulations Index*	*Main Effect*	*× State Billing Regulations Index*	*Main Effect*	*× State Billing Regulations Index*
Panel A: Credit Scores						
% For-Profit Hospitals $_{(ZIP,t)}$	0.050**	0.043	0.156***	-0.083***	0.170***	-0.171***
	(2.46)	(0.66)	(4.58)	(3.44)	(5.24)	(4.45)
Credit Score/100 $_{(ZIP,\ t)}$ ×	-0.007**	-0.005	-0.023***	0.012***	-0.025***	0.025***
% For-Profit hospitals $_{(ZIP,t)}$	(2.45)	(0.54)	(4.58)	(3.42)	(5.24)	(4.57)
Credit Score/100 $_{(ZIP,\ t)}$	-0.079***	0.001	-0.082***	0.003***	-0.079***	0.006***
	(49.07)	(0.46)	(56.52)	(3.77)	(56.95)	(5.19)
Consumer Financials $_{(ZIP,\ t)}$	Y		Y		Y	
Local Economy Controls $_{(County,\ t)}$	Y		Y		Y	
County x Time FEs	Y		Y		Y	
Observations	283,601		408,233		254,936	
R-squared	0.40		0.42		0.43	
Panel B: Consumer Incomes						
% For-Profit Hospitals $_{(ZIP,t)}$	0.041**	0.046	0.145***	-0.065***	0.160***	-0.143***
	(2.15)	(1.09)	(5.29)	(3.80)	(6.09)	(4.54)
Consumer Income $_{(ZIP,\ t)}$ ×	-0.009**	-0.009	-0.033***	0.015***	-0.037***	0.033***
% For-Profit Hospitals $_{(ZIP,t)}$	(2.15)	(0.92)	(5.31)	(3.80)	(6.11)	(4.68)
Consumer Income $_{(ZIP,\ t)}$	0.003	0.003	-0.001	0.004***	0.001	0.006***
	(1.61)	(0.91)	(0.35)	(4.24)	(0.31)	(5.70)
Consumer Financials $_{(ZIP,\ t)}$	Y		Y		Y	
Local Economy Controls $_{(County,\ t)}$	Y		Y		Y	
County x Time FEs	Y		Y		Y	
Observations	283,601		408,233		254,936	
R-squared	0.40		0.42		0.42	

Table 9
Consumer Default Rates and Third-party Debt Collector Regulations

The table presents results on the heterogeneous effect of exposure to for-profit hospitals across ZIP codes in states with and without third-party debt collector regulations. Panel A uses the average credit score as the cross-sectional variable, and Panel B uses the average income. The dependent variable is the proportion of consumers in an area who are delinquent or in default on more than 5% of their total outstanding debt within the next six months. Consumer financial information (at the ZIP-code level) includes the credit score, the average debt-to-income ratio, the natural logarithm of average income, and the natural logarithm of the oldest account. Local economy controls (at the county-level) include employment, wage growth, employment growth, and the fraction of employment in the set of two-digit NAICS industries. Standard errors are clustered at the ZIP code level. t-statistics are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable (ZIP,t+1)	*% Default in the Next 6 Month*			
	Main Effect	*×Collection Regulations Index*	*Main Effect*	*×Collection Regulations Index*
Panel A: Credit Scores				
% For-Profit Hospitals $_{(ZIP,t)}$	0.109***	-0.012	0.120***	-0.031**
	(4.93)	(0.97)	(4.99)	(2.20)
Credit Score/100 $_{(ZIP,\ t)}$ ×	-0.015***	0.002	-0.018***	0.005**
% For-Profit hospitals	(4.86)	(0.97)	(4.98)	(2.21)
Credit Score/100 $_{(ZIP,\ t)}$	-0.081***	0.002***	-0.080***	0.002**
	(80.17)	(2.87)	(78.65)	(2.01)
Consumer Financials $_{(ZIP,\ t)}$		Y		Y
Local Economy Controls $_{(County,\ t)}$		Y		Y
Time FEs		Y		-
County x Time FEs		-		Y
Observations		712,119		709,918
R-squared		0.38		0.41
Panel B: Consumer Incomes				
% For-Profit Hospitals $_{(ZIP,t)}$	0.087***	-0.012	0.118***	-0.028**
	(4.50)	(1.27)	(5.43)	(2.27)
Consumer Income $_{(ZIP,\ t)}$ ×	-0.019***	0.002	-0.027***	0.006**
% For-Profit Hospitals	(4.41)	(1.20)	(5.43)	(2.28)
Consumer Income $_{(ZIP,\ t)}$	0.002*	0.001	0.003***	0.001
	(1.86)	(1.44)	(2.63)	(1.31)
Consumer Financials $_{(ZIP,\ t)}$		Y		Y
Local Economy Controls $_{(County,\ t)}$		Y		Y
Time FEs		Y		-
County x Time FEs		-		Y
Observations		712,119		709,918
R-squared		0.38		0.41

Table 10
Consumer Default Rates, Third-party Debt Collector Regulations, and CBR

The table presents results on the heterogeneous effect of exposure to for-profit hospitals across ZIP codes in states with and without third-party debt collector regulations and CBR. Panel A uses the average credit score as the cross-sectional variable, and Panel B uses the average income. The dependent variable is the proportion of consumers in an area who are delinquent or in default on more than 5% of their total outstanding debt within the next six months. Consumer financial information (at the ZIP-code level) includes the credit score, the average debt-to-income ratio, the natural logarithm of average income, and the natural logarithm of the oldest account. Local economy controls (at the county-level) include employment, wage growth, employment growth, and the fraction of employment in the set of two-digit NAICS industries. Standard errors are clustered at the ZIP code level. t-statistics are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable (ZIP,t+1)	*% Default in the Next 6 Month*					
Subsample:	*States Without CBR*		*States With CBR*		*States With CBR (Excluding FAP States)*	
	Main effect	*×Collection Regulations Index*	*Main effect*	*×Collection Regulations Index*	*Main Effect*	*×Collection Regulations Index*
Panel A: Credit Scores						
% For-Profit Hospitals $_{(ZIP,t)}$	0.035*	0.000	0.224***	-0.102***	0.220***	-0.082***
	(1.81)	(0.00)	(6.29)	(4.63)	(6.16)	(3.72)
Credit Score/100 $_{(ZIP,\ t)}$ ×	-0.005*	-0.000	-0.033***	0.015***	-0.032***	0.012***
% For-Profit hospitals $_{(ZIP,t)}$	(1.79)	(0.03)	(6.27)	(4.60)	(6.14)	(3.74)
Credit Score/100 $_{(ZIP,\ t)}$	-0.080***	0.005***	-0.080***	0.001	-0.080***	0.002**
	(51.74)	(5.07)	(59.69)	(0.91)	(47.80)	(2.20)
Consumer Financials $_{(ZIP,\ t)}$	Y		Y		Y	
Local Economy Controls $_{(County,\ t)}$	Y		Y		Y	
County x Time FEs	Y		Y		Y	
Observations	283,601		408,233		254,936	
R-squared	0.40		0.42		0.42	
Panel B: Consumer Incomes						
% For-Profit Hospitals $_{(ZIP,t)}$	0.030	-0.007	0.197***	-0.077***	0.195***	-0.058***
	(1.63)	(0.39)	(6.59)	(4.12)	(6.53)	(2.78)
Consumer Income $_{(ZIP,\ t)}$ ×	-0.007	0.002	-0.045***	0.018***	-0.045***	0.013***
% For-Profit Hospitals $_{(ZIP,t)}$	(1.61)	(0.37)	(6.59)	(4.09)	(6.53)	(2.78)
Consumer Income $_{(ZIP,\ t)}$	0.003*	0.005***	0.004***	0.000	0.003	0.002
	(1.82)	(4.42)	(2.61)	(0.42)	(1.56)	(1.31)
Consumer Financials $_{(ZIP,\ t)}$	Y		Y		Y	
Local Economy Controls $_{(County,\ t)}$	Y		Y		Y	
County x Time FEs	Y		Y		Y	
Observations	283,601		408,233		254,936	
R-squared	0.40		0.42		0.42	

Table 11
Local Market Conditions, CBR, and For-Profit Hospitals

The table presents results on the effect of state-level CBR on hospital allocation patterns and the heterogeneity across consumer characteristics. Other hospital controls include the natural log of the total number of beds, the share of emergency beds, and the payroll to facility expense ratio. Standard errors are clustered at the state level. *t*-statistics are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable(Hospital,t) :	*For Profit = 1*			
	(1)	*(2)*	*(3)*	*(4)*
States with $CBR_{(State,\ t)}$	0.483***	-	0.316**	-
	(2.80)		(2.00)	
States with CBR × 25-mile Credit Score/100	-0.069***	-0.077*		
	(2.81)	(1.84)		
States with CBR × Log(25-mile Consumer Income)			-0.070**	-0.105***
			(1.98)	(3.00)
25-mile $Credit\ Score/100_{(Hospital,t)}$	-0.122**	0.045	-0.160***	-0.016
	(2.35)	(0.50)	(3.19)	(0.24)
$Log(25\text{-mile Consumer Income})_{(Hospital,t)}$	-0.040	-0.119	0.025	0.004
	(0.55)	(1.18)	(0.30)	(0.04)
25-mile $DTI_{(Hospital,t)}$	0.657	-0.022	0.647	-0.080
	(1.56)	(0.05)	(1.52)	(0.19)
$Hospital\ HHI_{(County,t)}$	-0.018	0.030	-0.020	0.029
	(0.65)	(1.12)	(0.75)	(1.08)
$Wage\ Growth_{(County,t)}$	-0.001	0.041	-0.009	0.033
	-0.02	(0.87)	-0.15	(0.73)
$Employment\ Growth_{(County,t)}$	-0.107*	-0.049	-0.100	-0.043
	(1.69)	(0.79)	(1.56)	(0.69)
25-mile $Consumer\ Age_{(Hospital,t)}$	0.004	-0.002	0.003	-0.004
	(0.73)	(0.28)	(0.44)	(0.57)
$log\ (Employment)_{(County,t)}$	0.026**	0.042**	0.028**	0.043**
	(2.47)	(2.28)	(2.56)	(2.24)
Share of Population Older Than 65 $_{(County,t)}$	-0.082	0.082	-0.099	0.093
	(0.39)	(0.39)	(0.47)	(0.45)
SAHIE % of Insured Population Under 65 $_{(County,t)}$	1.218***	0.236	1.264***	0.255
	(7.91)	(1.44)	(7.90)	(1.58)
Housing Price Growth Rate $_{(County,t)}$	-0.000	0.000	-0.000	0.000
	-0.06	(0.23)	-0.11	(0.03)
Log(General Medical and Surgical beds) $_{(Hospital,t)}$	-0.024**	-0.026	-0.025**	-0.026
	(2.30)	(1.46)	(2.35)	(1.44)
Log(Emergency Room Visits) $_{(Hospital,t)}$	-0.034***	-0.032***	-0.034***	-0.032***
	(7.19)	(5.90)	(7.20)	(5.89)
% of Medical/Surgical Intensive Care Beds $_{(Hospital,t)}$	-0.022	-0.023	-0.025	-0.023
	(0.56)	(0.45)	(0.63)	(0.47)
Payroll to Total Expense Ratio $_{(Hospital,t)}$	-0.588***	-0.540***	-0.590***	-0.536***
	(8.11)	(3.95)	(8.10)	(3.90)
Local Business Compositions $_{(County,\ t)}$	Y	Y	Y	Y
Time FE	Y	-	Y	-
State × time FE	-	Y	-	Y
Observations	34,432	34,432	34,432	34,432
R-squared	0.20	0.23	0.20	0.23

Standard errors clustered at the county level

Table 12
Billing and Collection Regulations, CBR, and For-Profit Hospitals

The table presents results on the effect of state-level CBR and billing/collection regulations on hospital allocation patterns. Local consumer financial characteristics include the average credit score, the average debt-to-income ratio, the natural logarithm of average income, and the natural logarithm of consumer age within a 25-mile radius of a hospital. Local economy controls (at the county-level) include employment, wage growth, employment growth, proportion of population aged 65 and older, and the fraction of employment in the set of two-digit NAICS industries. Other hospital controls include the natural log of the total number of beds, the share of emergency beds, and the payroll to facility expense ratio. Standard errors are clustered at the state level. *t*-statistics are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

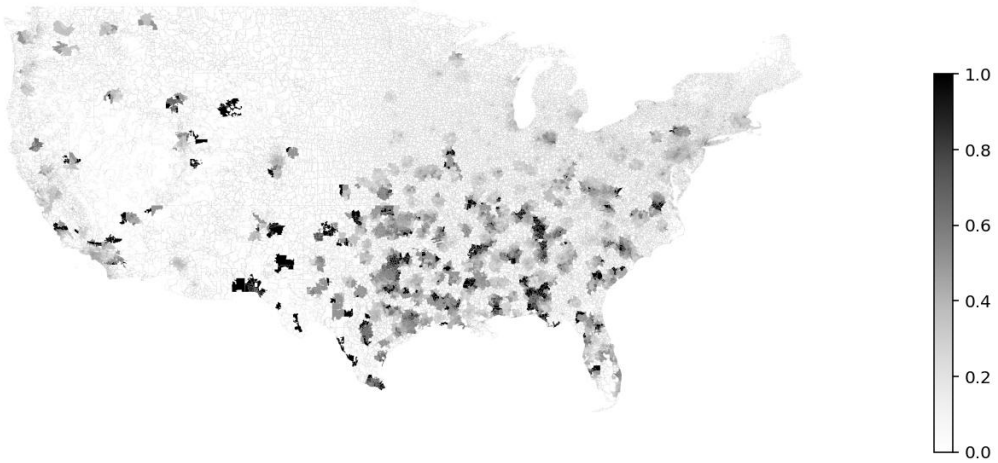
Dependent Variable (Hospital,t):	*FAP index*	*Billing regulations index*	*Restricted billing regulations index*	*3rd Party Debt Collector Regulations*
	(1)	*(2)*	*(4)*	*(6)*
Panel A: Impact of Individual Regulations				
Billing and Collection Regulations	-0.060***	-0.032***	-0.039***	-0.012***
	(3.61)	(3.96)	(4.05)	(2.64)
States with CBR (State, t)	0.015**	0.019**	0.020**	0.011
	(1.98)	(2.31)	(2.47)	(1.63)
Observations	34,415	34,415	34,415	34,415
R-squared	0.20	0.20	0.20	0.20
Panel B: Impact of Individual Regulations and CBR				
Billing or Collections Regulations × States with CBR	-0.050**	-0.022***	-0.025***	-0.014***
	(2.56)	(2.85)	(2.77)	(3.25)
Billing and collection regulations	0.026	0.004	0.003	0.001
	(0.77)	(0.32)	(0.23)	(0.22)
States with CBR (State, t)	0.020**	0.025***	0.026***	0.020**
	(2.39)	(2.75)	(2.80)	(2.56)
Observations	34,432	34,432	34,432	34,432
R-squared	0.20	0.21	0.21	0.20

Standard errors clustered at the county level

Figure A1
Heatmaps: Share of For-Profit Hospitals within a 25-mile Radius

Panels A and B show the geographic variation in the share of for-profit hospitals across ZIP codes. The share of for-profit hospitals is measured as the proportion of for-profit hospitals within a 25-mile radius. Panel A presents the variation for 2012, and Panel B presents the variation for 2023.

Panel A. Share of For-Profit Hospitals at the Start of the Sample Period, 2012



Panel A. Share of For-Profit Hospitals at the End of the Sample Period, 2023

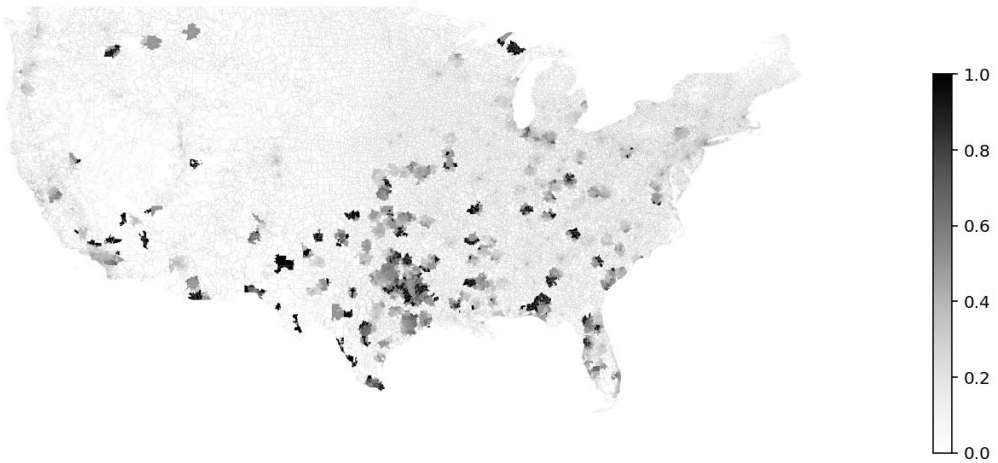


Table A1
State-level Nonprofit Hospitals Community Benefit Requirements

The table presents the state-level legal statutes that impose additional community benefit requirements on nonprofit hospitals, along with the corresponding adoption years and an indicator for statutes limited to reporting requirements.

State	Year	Statutes	Reporting Only
California	–	West's Ann.Cal.Health & Safety Code § 127345); (West's Ann.Cal.Health & Safety Code § 127350); West's Ann.Cal.Health & Safety Code § 127346; 22 CCR § 95100	
Colorado	2019	C.R.S.A. § 25.5	
Connecticut	–	C.G.S.A. § 19a-127k	**x**
Florida	–	Fla. Stat. §617.2002(2)	
Georgia	2019	Ga. Code Ann., § 31-7-22(b)(2)	**x**
Idaho	–	I.C. § 63-602D	**x**
Illinois	–	Illinois Community Benefits Act 210 ILCS 76/15, 210 ILCS 76/20):	
Indiana	–	IC 16-21-9	
Maryland	–	MD Code, Health - General, § 19-303	
Massachusetts	–	M.G.L.A. 111 § 51G	
Montana	–	Mont. Code Ann. §50-5-121 (2009)	
New Hampshire	–	N.H. Rev. Stat. § 7:32-d	
New Jersey	2021	N.J. Stat. §26:2H-18.59c(a)(1996) N.J. Stat. Ann. § 40:48J-1	
New York	–	New York Public Health Law § 2803	
North Carolina	–	N.C. Gen. Stat.§§131A-21; 131A-7; North Carolina Medical Care Commission, Community Benefits Report (Hospitals).	
Ohio	2016	ORC § 3701.981	**x**
Oregon	2019	O.R.S. § 442.624; OAR 409-023-0110	
Pennsylvania	–	*(See Notes in the Appendix)*	
Rhode Island	–	Gen.Laws 1956, § 23-17.14-15	
Texas	–	V.T.C.A., Health & Safety Code § 311.043-045	
Utah	–	*(See Notes in the Appendix)*	
Vermont	–	18 V.S.A. § 9405b, Vt. Admin. Code 4-5-17:4	**x**
Virginia	–	*(See Notes in the Appendix)*	**x**
Washington	–	West's RCWA 70.45.070, WAC 246-312-050	
West Virginia	–	W. Va. Code St. R. § 110-3-24	

– indicates the statute was enacted before our sample period (2012 ~ 2023)

Table A2
State-Level Financial Assistance Policy Regulations

The table presents the state-level legal statutes that impose financial assistance policies (FAPs) on both nonprofit and for-profit hospitals, along with the corresponding years of adoption.

State	*Year*	*Statutes*
California	--	Cal. Welf. & Inst. Code §§ 16900 to 16996.2; Cal. Health & Safety Code §§ 127400 to 127466; AB 1020
Colorado	2022	CICP - 25.5-3- 101, C.R.S. Hospital discounts (current) - 25-3-112, C.R.S. Hospital discounts (beginning July 1, 2022) - 25.5-3-501, C.R.S. et seq. Bill # HB21- 1198
Connecticut	--	Conn. Gen. Stat. §§ 19a- 7d, 19a-509b ("bed fund"), 19a-649, 19a-673
Illinois	--	210 Ill. Comp. Stat. §§ 89/1 to 89/20; IL LEGIS 102-581 (2021), 2021 Ill. Legis. Serv. P.A. 102-581 (S.B. 1840)
Maine	--	Me. Stat. tit. 22, § 1716; 10- 144 Me. Code R. ch. 150
Maryland	--	Md. Code Ann., Health-Gen. §§ 19-201 to 19- 227; Md. Code Regs. tit. 10, subtitle 37
New Jersey	--	N.J. Stat. Ann. §§ 26:2H- 18.58; N.J. Admin. Code § 10:52-11.8, -11.10
New York	--	N.Y. Pub. Health Law §§ 2803-l, 2805-a, 2807-c, 2807-k
Nevada	--	Nev. Rev. Stat. §§ 439B.260 to 439B.340
Rhode Island	--	R.I. Gen. Laws § 23-17-43
Vermont	2023*	18 V.S.A. §§ 9481 to 9487
Washington	--	Wash. Rev. Code § 70.170.060(5). Wash. Admin. Code §§ 246- 453-001 to 246-453-090

Table A3
State-level Hospital Billing Regulations

The table presents the state-level legal statutes that impose additional billing regulations on both nonprofit and for-profit hospitals, along with the corresponding years of adoption. Panel A reports regulations on hospital payment plans. Panel B reports regulations on limitations on interest charged for medical debt. Panel C reports regulations on preconditions before debts are sent to collections. Panel D reports regulations on restrictions on the sale of medical debt.

State	*Year*	*Statutes*
Panel A. Payment Plan Requirement		
California	–	California Health & Safety Code § 127405
Colorado	–	C.R.S. § 25-3-112
Illinois	–	210 ILCS 89/10
Maryland	–	COMAR 10.37.10.26
Minnesota	–	Minnesota Attorney General Hospital Agreement (not codified in statute, but enforced via agreements with hospitals)
New York	–	N.Y. Public Health Law § 2807-k
Vermont	2022	18 V.S.A. § 9483
Virginia	2022	Va. Code § 32.1-137.010
Panel B. Limits on Interest		
Arizona	2022	A.R.S. § 44-1201 (as amended by Proposition 209, 2022)
Colorado	2013	C.R.S. § 25-3-112
Connecticut	–	Conn. Gen. Stat. § 19a-673
Illinois	–	210 ILCS 89/10
North Dakota	–	N.D. Cent. Code § 13-01-14.1(5)(b)
Oregon	2019	Or. Rev. Stat. § 442.610
Vermont	2021	18 V.S.A. § 9483
Washington	–	RCW 70.170.060
Panel C. Preconditions Before Sending Bills to Collections		
California	–	Cal. Health & Safety Code § 127425
Colorado	–	C.R.S. § 12-14-108(1)(b)(II)
Connecticut	–	Conn. Gen. Stat. § 19a-673
Illinois	–	210 ILCS 89/20
Massachusetts	–	M.G.L. c. 118E, § 69
Minnesota	–	Minn. Stat. § 309.21
Nevada	–	NRS 449.757
New Jersey	–	N.J. Stat. Ann. § 26:2H-18.33
New Mexico	–	N.M. Stat. Ann. § 24-10E-3
New York	–	N.Y. Public Health Law § 2807-k(9-a)
North Carolina	2013	N.C. Session Law 2013-382
Oregon	2019	ORS 646A.677
Utah	2017	Utah Code Ann. § 26-21-28
Washington	–	RCW 70.170.060
Panel D. Limits on Selling Debt		
California	–	California Health and Safety Code § 127425
Colorado	–	C.R.S. § 6-20-202 (2016)
Idaho	2020	Idaho Code § 48-301 et seq.
Maryland	–	Md. Code Ann., Health-Gen. § 19-214.2
New Mexico	2021	N.M. Stat. Ann. § 57-32-3
Vermont	2022	18 V.S.A. § 9485
Washington	–	RCW 19.16.100

– indicates the statutes were enacted before our sample period (2012 through 2023).

Table A4
State-level Third-Party Debt Collector Regulations

The table presents the state-level legal statutes that impose regulations on third-party debt collectors between 2015 and 2025, applied to extend the third-party debt collector law index. Following Fonseca (2023), all states start with the value of 0 in 1997, and the index increases or decreases based on the laws from Fedaseyeu (2020), Fonseca (2023), and this table. The index is bounded above by 2.

State	*Year*	*Statutes*	*Direction*
Arkansas	2015	Ark. Code Ann. § 17-24-103	+
Arkansas	2023	Ark. Code Ann. §§ 17-24-101, 17–24–201	+
California	2022	Cal. Fin. Code §§ 100000 through 100025	+
Colorado	2018	CO ST § 24–34–104, CO ST § 12–14–103, CO ST § 12–14–124	-
Connecticut	2018	CT ST § 36a–800, CT ST § 36a–801, CT ST § 36a–802,	+
District of Columbia	2022	DC CODE § 28-3814	+
Georgia	2020	GA ST §§ 7–3–1 to 7–3–29	+
Indiana	2020	IN ST 25–11–1–3, IN ST 25–11–1–4	+
Maine	2018	ME ST T. 32 § 11002, ME ST T. 32 § 11013, ME ST T. 32 § 11019, ME ST T. 32 § 11031, ME ST T. 32 § 11053, ME ST T. 32 § 1105	+
Maine	2021	ME ST T. 32 § 11020, ME ST T. 32 § 11021	+
Minnesota	2021	MN ST §§ 332.31-42	+
Nevada	2023	NV ST 649, NV ST 649.010, NV ST 649.020, NV ST 649.375	+
New York	2018	NY GEN BUS § 601	+
New York	2019	NY GEN BUS § 601–a, NY GEN BUS § 600	+
New York	2021	NY GEN BUS § 600, NY GEN BUS § 601–b, NY GEN BUS § 602	+

Table A4 (Continued)

State	*Year*	*Statutes*	*Direction*
New York	2024	NY GEN BUS § 601	+
North Carolina	2024	NC ST § 58–70–90, NC ST § 58–70–130, NC ST § 58–70–145, NC ST § 58–70–150, NC ST § 58–70–155	+
North Dakota	2019	ND ST 13–05–04.1	+
Oregon	2018	OR ST § 646.639	+
Oregon	2019	OR ST 646.639	+
South Dakota	2015	S.D. Codified Laws § 54-4-77	+
South Dakota	2020	SDCL § 54-4-77	+
Texas	2019	TX FIN § 392.307	+
Washington	2015	WA ST 19.16.100	+
Washington	2019	WA ST 19.16.100, WA ST 19.16.250	+
Washington	2020	WA ST 19.16.100, WA ST 19.16.260, WA ST 19.16.440, WA ST 19.16.450	+
West Virginia	2015	WV ST § 46A-2-125, WV ST § 46A-2-126, WV ST § 46A-5-106, WV ST § 46A-5-128	+
West Virginia	2017	WV ST § 46A-5-128, WV ST § 46A-2-122, WV ST § 46A-5-101	+
West Virginia	2025	WV ST § 46A-2-122	+

Table A5
Consumer Total Collection Balances and For-Profit Hospitals

The table presents results on the effect of exposure to for-profit hospitals on consumer collection balance and its heterogeneity across consumer characteristics. Panel A uses the average credit score as the cross-sectional variable, and Panel B uses the average income. The dependent variable is the proportion of total balances in collections, measured as the total collection balance in the next 6 months scaled by the sum of total debt outstanding and total collection balance. Consumer financial information (at the ZIP-code level) includes the credit score, the average debt-to-income ratio, the natural logarithm of average income, and the natural logarithm of the oldest account. Local economy controls (at the county-level) include employment, wage growth, employment growth, and the fraction of employment in the set of two-digit NAICS industries. Standard errors are clustered at the ZIP code level. *t*-statistics are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable (ZIP,t+1)	*Total Collection (t+1) / Total Debt (t) + Total Collection (t)*			
	(1)	*(2)*	*(3)*	*(4)*
Panel A: Credit Scores				
% For-profit hospitals $_{(ZIP,t)}$	0.007***	0.162***	0.153***	0.163***
	(8.03)	(10.20)	(10.28)	(9.87)
Credit Score/100 $_{(ZIP,\ t)}$ ×		-0.023***	-0.022***	-0.024***
% For-profit hospitals $_{(ZIP,t)}$		(-9.66)	(-10.31)	(-9.83)
Credit Score/100 $_{(ZIP,\ t)}$	-0.034***	-0.031***	-0.030***	-0.028***
	(-18.60)	(-18.19)	(-14.16)	(-10.87)
Other borrower financials $_{(ZIP,\ t)}$	Y	Y	Y	Y
Local economy controls $_{(CBSA,\ t)}$	Y	Y	Y	Y
Time FEs	Y	Y	-	-
State x Time FEs	-	-	Y	-
County x Time FEs	-	-	-	Y
Observations	712964	712964	712964	710763
R-squared	0.01	0.01	0.04	-0.04
Panel B: Consumer Incomes				
% For-profit hospitals $_{(ZIP,t)}$	0.007***	0.139***	0.149***	0.157***
	(8.03)	(10.30)	(11.27)	(9.68)
Consumer Income $_{(ZIP,\ t)}$ ×		-0.030***	-0.034***	-0.036***
% For-profit hospitals $_{(ZIP,t)}$		(-9.86)	(-11.44)	(-9.76)
Consumer Income $_{(ZIP,\ t)}$	-0.013***	-0.009***	-0.009***	-0.010**
	(-4.28)	(-3.04)	(-2.91)	(-2.40)
Other borrower financials $_{(ZIP,\ t)}$	Y	Y	Y	Y
Local economy controls $_{(CBSA,\ t)}$	Y	Y	Y	Y
Time FEs	Y	Y	-	-
State x Time FEs	-	-	Y	-
County x Time FEs	-	-	-	Y
Observations	712964	712964	712964	710763
R-squared	0.01	0.01	0.04	-0.04

Standard errors clustered at the ZIP Code level

Table A6
Consumer Total Collection Balances and Community Benefit Requirements

The table presents results on the heterogeneous effect of exposure to for-profit hospitals across ZIP codes in states with and without community benefit requirements. Panel A uses the average credit score as the cross-sectional variable, and Panel B uses the average income. The dependent variable is the proportion of total balances in collections, measured as the total collection balance in the next 6 months scaled by the sum of total debt outstanding and total collection balance. Consumer financial information (at the ZIP-code level) includes the credit score, the average debt-to-income ratio, the natural logarithm of average income, and the natural logarithm of the oldest account. Local economy controls (at the county-level) include employment, wage growth, employment growth, and the fraction of employment in the set of two-digit NAICS industries. Standard errors are clustered at the ZIP code level. *t*-statistics are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable (ZIP,t+1)	*Total Collection (t+1) / Total Debt (t) + Total Collection (t)*			
	Main effect	*Incremental effect for States with CBR*	*Main effect*	*Incremental effect for States with CBR*
Panel A: Credit Scores				
% For-profit hospitals $_{(ZIP,t)}$	0.076**	0.153***	0.106***	0.094**
	(2.04)	(3.82)	(3.05)	(2.47)
Credit Score/100 $_{(ZIP,\,t)}$ ×	-0.011*	-0.021***	-0.016***	-0.013**
% For-profit hospitals $_{(ZIP,t)}$	(-1.92)	(-3.60)	(-3.00)	(-2.39)
Credit Score/100 $_{(ZIP,\,t)}$	-0.031***	0.001	-0.029***	0.001
	(-14.45)	(0.39)	(-8.66)	(0.65)
Other borrower financials $_{(ZIP,\,t)}$	Y		Y	
Local economy controls $_{(CBSA,\,t)}$	Y		Y	
Time FEs	Y		-	
County x Time FEs	-		Y	
Observations	694851		692679	
R-squared	0.01		-0.04	
Panel B: Consumer Incomes				
% For-profit hospitals $_{(ZIP,t)}$	0.089***	0.095***	0.117***	0.066*
	(3.43)	(3.09)	(4.42)	(1.95)
Consumer Income $_{(ZIP,\,t)}$ ×	-0.020***	-0.020***	-0.027***	-0.014*
% For-profit hospitals $_{(ZIP,t)}$	(-3.33)	(-2.82)	(-4.45)	(-1.86)
Consumer Income $_{(ZIP,\,t)}$	-0.009***	0.001	-0.013**	0.005**
	(-3.06)	(0.64)	(-2.38)	(2.24)
Other borrower financials $_{(ZIP,\,t)}$	Y		Y	
Local economy controls $_{(CBSA,\,t)}$	Y		Y	
Time FEs	Y		-	
County x Time FEs	-		Y	
Observations	694851		692679	
R-squared	0.01		-0.04	

Standard errors clustered at the ZIP Code level