

Hospital Charity Care & The Hill-Burton Act

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Abstract

Hospital provision of charity care plays a crucial role in ensuring healthcare access for uninsured and low-income patients, yet the factors influencing this provision remain poorly understood. This paper examines how hospital charity care responds to regulatory changes by analyzing the long-term effects of the Hill-Burton Act of 1946, which allocated \$6 billion to over 3,500 hospitals in exchange for those facilities providing free and reduced-cost care to uninsured patients for 20 years. Using detailed hospital financial data from four large states, patient discharge data from the Healthcare Cost and Utilization Project, and event studies around the expiration of Hill-Burton charity care obligations, I analyze the impact of these regulatory expirations on hospital conduct and patient access to care. I find that Hill-Burton hospitals decrease charity care provision by 30% and reduce admissions of likely charity-eligible patients by 14% after their obligations expire. These patients are subsequently shifted to neighboring public and non-profit hospitals, where they are required to pay for care. While county-level access to hospital care remains stable, county-level charity care spending drops by 20% after the first expiration of Hill-Burton obligations in the county. These results reveal strategic behavior in hospital charity care provision and highlight the importance of considering hospital objectives and responses when designing policies to improve healthcare access for underinsured populations.

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1 Introduction

Charity care—the provision of free or discounted medical services to patients who are unable to pay—is a vital yet poorly understood component of the US healthcare system. Unlike many nations with universal health insurance, the US has significant health insurance coverage gaps that necessitate charity care as a critical component of the healthcare safety net. In 2022, almost 10% of non-elderly Americans were completely uninsured, another 11% faced insurance coverage gaps throughout the year, and an additional 23% were underinsured with high out-of-pocket costs that they could not afford (Collins, Haynes, and Masitha, 2022). Despite lacking insurance or ability to pay, many of these individuals still require medical care and many providers choose to serve them. Hospitals have become the de facto safety net for this population, providing \$26 billion in free or discounted care annually and earning these institutions the moniker of “insurers of last resort” (Roth, Naber, Metz, and Nikolova, 2021; Garthwaite, Gross, and Notowidigdo, 2018).¹

Hospitals have significant discretion in deciding how much charity care they provide and to whom. Hospitals receive minimal reimbursement for charity care costs and face few regulatory requirements.² Beyond knowing the aggregate magnitude of hospital charity care provision, little is understood about the factors that motivate hospitals’ charitable behavior. Further, it is not well understood how this behavior affects patient access to healthcare and their health outcomes. These questions are particularly important given ongoing debates around healthcare and health insurance reform.³

This paper examines these questions by analyzing how hospitals respond to changes in charity care regulations following the Hospital Survey and Construction Act of 1946 and how these responses affect patient access to care. The Hospital Survey and Construction Act of 1946—more commonly known as the “Hill-Burton” Act—was a landmark federal program that provided \$6 billion to over 3,500 hospitals to expand and renovate hospital facilities across the country. In exchange for this federal support, the Act required hospitals to provide free and reduced-cost care to uninsured members of their communities for a period of 20 years. The Act represented the federal government’s first major intervention in the healthcare system,

¹Of this \$26 billion, hospitals provide \$20 billion to uninsured patients and \$6 billion to low-income insured individuals.

²For example, only private non-profit hospitals currently have regulatory charity care requirements at the federal level. Prior to 2016, such hospitals simply had to meet a “community benefit standard” of charitably promoting health to a broad class of persons in their communities, which could include activities such as charity care, medical research, and teaching. Beginning in 2016, these hospitals became explicitly required to have a written financial assistance policy for charity care, though the details of those policies were left to the hospitals.

³For example, at the time of this writing, there are several options under consideration in Congress that would significantly alter the US Medicaid program (Williams, Burns, Euhus, and Rudowitz, 2025).

using grants, loans, and guarantees to address critical access shortages in poor and rural areas following the Great Depression and World War II. This program had a wide impact; by 2020, 35% of US hospital beds had once received funding and been obligated to provide charity care under this Act, with most of these obligations expiring in the 1980s and 1990s.

I begin by analyzing how hospitals change their provisions of charity care when their federal Hill-Burton obligations to provide such care expire. Using detailed hospital financial data paired with hospital patient discharge data and an administrative list of when each hospital's Hill-Burton charity care obligations expired, I find that Hill-Burton hospitals significantly reduce their charity care provision after their obligations expire: charity care spending drops 30%, charity-recipient patient admissions fall 27%, and even likely charity-eligible patient admissions decline 14%. These reductions occur in both elective and non-elective care, with particularly large effects for patients diagnosed with trauma, mental health, or pregnancy-related health concerns.

I next examine how neighboring hospitals respond to these reductions in Hill-Burton hospital charity care spending and treatment of charity-eligible patients. Ex-ante, neighboring hospitals may respond to these reductions in two ways: (1) they could increase their own charity care provision to fill in local gaps, thereby acting as strategic substitutes, or (2) they could maintain or even decrease their own charity care provision to avoid unprofitable patients who are now looking for new hospitals, thereby serving as strategic complements. I find the response of neighboring hospitals varies systematically by hospital ownership. While non-Hill-Burton private non-profit and public hospitals increase their charity care provision and admissions of likely charity-eligible patients, for-profit facilities reduce theirs. Non-profit and public hospitals absorb most of the displaced patients but increasingly classify them as paying rather than charity cases.

Thus, total patient access to healthcare does not change, but patient access to charity care decreases significantly. County-level charity care spending falls 20% after the first local Hill-Burton charity expiration and charity-recipient patient admissions drop 21%. Patients are also shifted across hospitals, which may affect patient health outcomes. I find preliminary evidence that patient outcomes suffer: when the share of county beds under Hill-Burton obligation drops by one standard deviation, in-hospital mortality for charity-eligible patients rises by 0.07 percentage points (or 5% relative to the mean). This is driven by increases in mortality at non-profit non-Hill-Burton hospitals, where many charity-eligible patients are shifted after Hill-Burton obligations expire. While these mortality increases could be due to changing patient compositions (e.g., non-profit hospitals may start serving sicker patients after their neighbors no longer admit them), they could also be the result of a decrease in the quality

of care that these patients receive now that they receive care at different hospitals. These mortality results underscore the need for future research examining how changes in charity care obligations affect not only access to care but also quality of care and ultimately health outcomes for vulnerable populations.

Overall, these findings reveal how charity care policy fundamentally shapes healthcare delivery. My results demonstrate that hospitals behave strategically in charity care provision, with regulatory changes affecting not just whether patients receive care but where they receive it, how they pay for it, and even their health outcomes. By documenting these strategic responses to charity care obligations, this analysis enhances our understanding of healthcare provider behavior while offering important insights for policymakers seeking to improve healthcare access for vulnerable populations.

Related Literature This paper contributes to three areas of literature. First, I build on research examining hospital objectives and provision of charity care. Previous work shows that hospitals respond strongly to financial incentives when deciding whether to provide services that attract uninsured and low-income patients. For example, Duggan (2000) finds that private hospitals engaged in cream-skimming more profitable indigent patients after the introduction of Disproportionate Share Hospital (DSH) payments, while Baicker and Staiger (2005) demonstrates that these payments improved patient care and outcomes outside of California. Horwitz (2005) and Horwitz and Nichols (2007) show that charity care provision varies systematically by hospital ownership type and market composition. This literature is divided on whether hospitals act as strategic substitutes or complements in charity care provision. Supporting substitution, Newhouse (1970) and Weisbrod (1988) show that hospitals are altruistic and meet community needs in theory, while Garthwaite et al. (2018) find that hospitals absorb uninsured patients' costs when other nearby hospitals close. In contrast, evidence for complementarity comes from Frank and Salkever (1991), Hsuan et al. (2019), and Sachs (2019), who show that hospitals often mirror their neighbors' decisions when reducing charity care and unprofitable services. This paper advances this literature by analyzing a quasi-random shock to charity care regulations in order to identify hospital responses.

Second, I contribute to research examining how charity care affects patients. Most existing work is cross-sectional, such as Herring (2005) and Lo Sasso and Meyer (2006) studying the relationship between charity care availability and insurance coverage. Several other papers also explore how uncompensated care affects insurance coverage decisions. For example, Mahoney (2015) shows that bankruptcy protection reduces insurance take-up, while Finkelstein, Mahoney, and Notowidigdo (2018) hypothesizes that charity care availability may de-

press insurance demand among low-income individuals. A notable recent paper is Adams et al. (2022), which uses a regression discontinuity design around Kaiser hospitals' financial assistance policies to evaluate the effect of charity eligibility on healthcare demand. My paper adds to this prior work by providing one of the first large-scale natural experiments for studying how changes in charity care availability affect patient access to care and health outcomes.

Finally, I add to the sparse economics literature on the Hill-Burton Act. Although this Act was a landmark healthcare policy, few papers have analyzed its effects on the healthcare market. Chung, Gaynor, and Richards-Shubik (2017) examine the Hill-Burton Act's impact on hospital capacity, while Almond, Currie, and Simeonova (2011) study its effects on charity care provision and obstetric access in Florida. I extend Almond et al. (2011) by examining healthcare access and outcomes across multiple states and hospital service lines, providing a more comprehensive assessment of this major federal policy's long-term effects on hospital charity care and patients.

Outline The remainder of the paper is structured as follows: Section 2 introduces the Hill-Burton Act, while Section 3 describes my data sources. Section 4 details my empirical strategies for analyzing the effect of Hill-Burton charity care obligation expirations on hospital conduct and patient access to care. Section 5 presents the results of these empirical strategies for Hill-Burton hospitals, for non-Hill-Burton hospitals, and at the total county level. Section 6 concludes.

2 Setting: The Hill-Burton Act

The Hospital Survey and Construction Act of 1946, more commonly known as the Hill-Burton Act, marked one of the US federal government's first major interventions in the healthcare industry. Motivated by a shortage of health resources following diminished infrastructure investments during the Great Depression and World War II, the Act authorized federal grants, low-interest loans, and loan guarantees to assist states and local communities in constructing and renovating public and non-profit hospitals and other health centers.⁴ The Federal Hospital Council at the US Department of Health, Education and Welfare administered the program, distributing funds to states using a formula that favored lower-income regions while ensuring

⁴The original authorizing legislation focused on grants for hospitals; subsequent amendments added new categories of funding recipients (e.g., nursing homes, rehabilitation facilities, outpatient facilities, and health centers) as well as authorization for loans, loan guarantees, and loan interest subsidies (Congressional Research Service, 2006; Wing, 1981).

a minimum allocation to each state.⁵

The Hill-Burton Act had a large impact on healthcare facility capacity across the US, particularly hospital capacity. Prior to the Act's passage, over 20% of counties in the US had no short-term general acute care hospital (Chung et al., 2017). Between 1947 and 1971, the program funded nearly 10,500 projects across 6,800 healthcare facilities in 4,000 communities (Almond et al., 2011) at a total federal cost of \$3.7 billion (nominal; \$27.3 billion in 2012 dollars; Chung et al., 2017). Short-term general hospitals received more than half of this funding: approximately 5,600 projects and \$2.6 billion (\$19.5 billion in 2012 dollars; Chung et al., 2017). The program continued distributing funds through 1997, ultimately providing an additional \$2.5 billion in federal grants and loans (nominal; Almond et al., 2011).⁶ The Act proved quite effective at addressing its founding purpose, as counties in the lowest income quintile saw an increase of 2.3 beds per 1,000 people and nationwide disparities in hospital capacity decreased by 23% from 1948 to 1975 (Chung et al., 2017).⁷

In exchange for this federal support, recipient facilities committed to providing a “reasonable volume” of free or reduced-cost healthcare to people in their communities who were unable to pay for themselves. This charity care obligation lasted for 20 years after the completion of funded construction.⁸ A 1979 amendment explicitly defined “reasonable volume” as the lesser of: (1) 3% of annual operating costs, minus the amount of reimbursement received from Medicare and Medicaid or (2) 10% of inflation-adjusted federal assistance (Congressional Research Service, 2006).⁹ Facilities that failed to meet annual requirements had to address

⁵The Hill-Burton Act targeted funding for hospital and other healthcare facility construction in places where both where they were needed and also where they would be sustainable. Federal funds were distributed to states for projects based on a formula incorporating state population, current hospital utilization, and hospital occupancy rates, as well as state fiscal capacity and per capita income. These funds covered up to one-third of the costs for construction or renovation, thus requiring matching state, local, and private funds for the remainder. As a result, middle-income counties received the largest share of funds (Chung et al., 2017; Tian, 2016).

⁶While lesser-known, the Hill-Burton Act also played an important role in hospital segregation, allowing the construction and enhancement of segregated hospitals via federal funds by invoking the “separate but equal” principle. Thus, the Hill-Burton Act was the only piece of federal legislation to codify racial segregation since the 19th century. This aspect of the law was ultimately overturned for new Hill-Burton projects by a federal appeals court in 1963. Passage of the Civil Rights Act in 1964 then banned discrimination and segregation in hospitals receiving federal funds, including all prior Hill-Burton awardees (Almond, Chay, and Greenstone, 2006).

⁷Chung et al. (2017) calculate this 23% reduction in disparities as the percent decrease in the standard deviation of beds per 1,000 population across counties, which fell from 3.0 in 1948 to 2.3 in 1975.

⁸Technically, the length of time for which a facility was required to provide charity care varied according to the type of federal assistance the facility received. Those facilities that received grants under Title VI of the Public Health Service Act (i.e., the original funding stream for the Hill-Burton Act) were obligated to provide charity services for a period of 20 years. Those that received loans were required to provide charity services until the loan was repaid. And those that received grants under Title XVI of the Public Health Service Act—which started distributing Hill-Burton funds in 1975—had to provide charity services in perpetuity (Congressional Research Service, 2006).

⁹The 1979 amendment also established notification guidelines to track compliance with this obligation (Or-

deficits in subsequent years, potentially extending obligations beyond 20 years. In contrast, if a facility provided more than the minimum for any year, then the excess could be credited toward future obligations and potentially shorten the total obligation period (Congressional Research Service, 2006). These requirements persisted through any hospital ownership changes; even facilities converting to for-profit status remained obligated unless they fully repaid their grants.¹⁰

3 Data

To analyze how hospital conduct and patient access to care changes with the expiration of charity care obligations under the Hill-Burton Act, I draw on three types of data: (1) lists of Hill-Burton Act funding and charity care obligation dates, (2) data on hospital finances and characteristics, and (3) data on inpatient hospital stays.

3.1 Data on Hill-Burton Act

I use two primary data sources on the Hill-Burton Act. The first is the Hill-Burton Project Register, which documents all projects approved under the Hill-Burton program from 1947-1971 (U.S. Department of Health, Education and Welfare, 1971), recording each project facility's name, location, type, federal funding amount, construction cost, and approval date. My analysis centers on non-federal short-term general hospitals, which comprised over half of all Hill-Burton projects and received \$19.5 billion (2012 dollars) in federal funding. I supplement the Register with a second crucial dataset: a comprehensive list of Hill-Burton funding recipients and their charity care obligation expiration dates.¹¹ Since obligation durations often stretched beyond the mandated 20-year period due to hospitals experiencing construction implementation delays and compliance extensions, this administrative record is necessary.

The Hill-Burton Act had substantial reach across US communities. Figure 1 shows that 35% of hospital beds still in operation in the US in 2020 had previously received Hill-Burton funding and thus had at one point been obligated to provide charitable care under the Act. In some counties, this percentage reaches 100%.¹² For the 3,465 total hospitals that received

mond, 1995).

¹⁰Almond et al. (2011) finds that very few hospitals opted to return the grant money rather than continue their charity care obligations following ownership changes.

¹¹I obtained this list through a Freedom of Information Act request to the Health Resources and Services Administration (HRSA).

¹²I define hospitals as “under Hill-Burton obligation” in all years preceding their charity care obligation expiration dates, and as “Hill-Burton hospitals” if they were ever under obligation. I define “non-Hill-Burton hospitals”

Hill-Burton funding, Figure 2 shows that their charity care obligations expired mostly in the late 1980s and early 1990s. As of March 2020, 25 hospitals in the country were still under charity care obligations.

3.2 Data on Hospital Finances

To examine how Hill-Burton obligation expirations affected hospital charity care provision, I use hospital financial records from four states with particularly detailed historical data: (1) California's Hospital Financial Reports from the California Department of Health Care Access and Information (1975-2020); (2) Florida's Hospital Financial Reports from the Florida Agency for Health Care Administration (1979-2020); (3) Washington's Hospital Financial Reports from the Washington State Department of Health (1990-2020); and (4) Wisconsin's Hospital Fiscal Surveys from the Wisconsin Hospital Association Information Center (1987-2020).¹³ These four states contain 394 Hill-Burton hospitals (156 in California, 95 in Florida, 57 in Washington, and 86 in Wisconsin), with the financial data covering obligation expirations for 284 of these facilities (136 in California, 83 in Florida, 12 in Washington, and 54 in Wisconsin; Appendix Table A1). The timing of obligation expirations across these facilities mirrors the national pattern (Appendix Figure A2). I supplement these financial records with detailed data on hospital characteristics from the American Hospital Association (AHA) Annual Survey from 1980 to 2019.

Hill-Burton hospitals differ markedly from their counterparts in these states (Table 1, Panel A). While over 40% of non-Hill-Burton hospitals operate as for-profits, Hill-Burton facilities remain almost exclusively non-profit or public entities.¹⁴ Hill-Burton hospitals also operate at larger scales, with more beds, admissions, and operating expenses on average. Before the expirations of their obligations, these hospitals dedicated 2.9% of their total expenditures to charity care on average (equivalent to \$3.6 million annually), with Hill-Burton-specific care comprising 45% of this amount.¹⁵

as those that never received Hill-Burton funding and thus were never under Hill-Burton charity care obligations.

¹³National hospital financial data are sparse for the years in which many of the Hill-Burton hospital charity care obligations expire. At the time of this writing, the best source of data on hospital finances and hospital provision of charity care are the Medicare Cost Reports (i.e., HCRIS), which unfortunately do not begin reporting information on charity care until 2002. These four states are the only states with detailed financial information available for the years in which many Hill-Burton hospital charity care obligations expire.

¹⁴Hill-Burton hospitals were required to be either non-profit or public at the time of funding. There have been minimal for-profit conversions in this group following funding.

¹⁵Records of hospital charity care spending for the Hill-Burton program specifically are only available in California and Florida.

3.3 Data on Inpatient Hospital Stays

To assess how the expiration of Hill-Burton charity care obligations influenced patient access to hospital care, I use the Healthcare Cost and Utilization Project’s National Inpatient Sample (HCUP-NIS) maintained by the Agency for Healthcare Research and Quality. This patient encounter-level administrative data captures all inpatient hospital stays regardless of patient payer type (e.g., Medicare, Medicaid, private insurance, self-pay, or no-charge), recording patient demographics, insurance type, diagnoses, procedures, outcomes, and charges. The data are drawn from a sample of US states that grew from 8 states in 1988 to 46 states by 2010. Before 2012, HCUP-NIS contains all discharges from a 20% sample of all hospitals in each participating state (roughly 1,000 facilities annually); after 2012, it contains a 20% sample of discharges from all participating hospitals (about 4,500 facilities). To maintain consistency, I restrict my analysis to 1988-2011. This sample period covers approximately 6-8 million hospitalizations annually.¹⁶

My HCUP sample includes 363 Hill-Burton hospitals with obligation expirations during the sample period (Appendix Table A1). Though these expirations begin in 1988, their distribution across remaining years reflects national patterns (Appendix Figure A2). Before expiration, Hill-Burton hospitals served more uninsured patients than their counterparts: 5.28% of inpatient visits were self-pay or no-charge patients at Hill-Burton hospitals compared to 4.88% at non-Hill-Burton hospitals, with self-pay accounting for 90% of these cases (Table 1, Panel B). Uninsured patients concentrate in non-elective care (6% of non-elective hospital admissions are for uninsured patients, compared to 3% of elective hospital admissions) as well as certain diagnoses such as alcohol/drug and mental disorders (19% of these diagnoses are uninsured patients), injuries/poisons/toxins (12%), burns (11%), trauma (10%), and HIV (9%) (Appendix Figure A3).¹⁷

4 Empirical Strategy

4.1 Effects on Hill-Burton Hospitals

To examine how the expiration of Hill-Burton charity care obligations affects hospital behavior and patient access to care, I use several difference-in-differences specifications. I begin

¹⁶Appendix Figure A1 shows the growth of HCUP participation over time for states (Panel A), hospitals (Panel B), and patient discharges (Panel C). While the number of participating states has grown rapidly, the numbers of participating hospitals and patient discharges have grown more slowly due to the size of the added states. Not all states provide hospital identifiers; I limit my sample to hospitals with identifiers.

¹⁷I define “uninsured” as the combined group of self-pay patients and no-charge patients.

by analyzing how expirations affect Hill-Burton hospitals directly. Restricting the sample of hospitals to Hill-Burton facilities, I estimate a difference-in-differences regression around changes in whether each hospital is under Hill-Burton obligation:

$$Y_{ht} = \beta * \mathbf{1}_{\{ObligationExpired\}_{ht}} + \alpha_h + \gamma_t + \delta X_{ct} + \epsilon_{ht}. \quad (4.1)$$

Here, the outcome variable Y_{ht} represents the log of one of four measures for Hill-Burton hospital h in year t : (1) Hill-Burton charity care spending, (2) total charity care spending, (3) self-pay patient and no-charge patient admissions, and (4) no-charge patient admissions. The specification includes hospital fixed effects (α_h) and year fixed effects (γ_t). The key independent variable $\mathbf{1}_{\{ObligationExpired\}_{ht}}$ is an indicator for whether hospital h 's Hill-Burton obligations have yet expired by year t . While my baseline specification excludes controls (i.e., X_{ct} is empty), I explore robustness to adding county-level covariates including the unemployment rate and population. I cluster the standard errors at the hospital level.

Causal interpretation of these estimates requires the assumption that no time-varying hospital-specific factors correlate with both changes in regulatory status and outcomes. In other words, absent expiration, Hill-Burton hospitals would have experienced similar trends in charity care spending and charity-eligible patient admissions as those whose obligations had not yet expired during my sample period. To support this assumption, I implement an event study specification:

$$Y_{ht} = \left(\sum_{r=-5}^5 \beta_r \mathbf{1}_{\{t=e_h+r\}} \right) + \alpha_h + \gamma_t + \delta X_{ct} + \epsilon_{ht}, \quad (4.2)$$

where r denotes years relative to Hill-Burton obligation expiration (which occurs in year e_h). I bin relative year endpoints ($r \geq 5$ and $r \leq -5$) and exclude $r = -2$ as the reference period. All other parameters are the same as in Equation 4.1. The coefficients β_r capture hospital outcome dynamics in the five years before and after obligation expiration, relative to the second year before the expiration, and thus allow visual inspection for any potential pre-trends. Even without visible violations of the parallel trends assumption, other identification challenges may remain including concurrent hospital-level or county-level changes. Section 5 addresses these concerns using multiple robustness checks.

4.2 Spillovers to Non-Hill-Burton Hospitals

Hill-Burton charity care obligation expirations may affect not only the behavior of Hill-Burton hospitals but also the behavior of nearby non-Hill-Burton hospitals. To examine poten-

tial spillover effects to non-Hill-Burton hospitals, I analyze how such hospitals respond when Hill-Burton obligations expire at other hospitals in their counties. Limiting the sample to non-Hill-Burton hospitals, I estimate the following difference-in-differences regression around each county's first Hill-Burton obligation expiration:

$$Y_{ht} = \beta * \mathbf{1}_{\{FirstExpiration\}_{ct}} + \alpha_h + \gamma_t + \delta X_{ct} + \epsilon_{ht}. \quad (4.3)$$

This specification parallels the previous approach for Hill-Burton hospitals but focuses on the timing of each county's first Hill-Burton expiration instead of own-hospital expiration. The key independent variable $\mathbf{1}_{\{FirstExpiration\}_{ct}}$ is thus an indicator for whether county c in which hospital h is located has yet had its first Hill-Burton obligation expiration by year t . The hospital-level outcomes remain the same as in Equation 4.1 but now reflect the behavior of non-Hill-Burton facilities. Similarly, I estimate an event study around these county-level changes:

$$Y_{ht} = \left(\sum_{r=-5}^5 \beta_r \mathbf{1}_{\{t=e_c+r\}} \right) + \alpha_h + \gamma_t + \delta X_{ct} + \epsilon_{ht}, \quad (4.4)$$

where r measures years relative to the county's first Hill-Burton obligation expiration (which occurs in year e_c). The main identification assumption mirrors that of the Hill-Burton analysis: no time-varying county or hospital-specific factors correlate with both the timing of the county's first Hill-Burton expiration and non-Hill-Burton hospital outcomes.

To leverage additional variation in Hill-Burton charity care obligation exposure, I also estimate an alternative difference-in-differences specification using a continuous measure of such exposure rather than a binary measure:

$$Y_{ht} = \beta * ShareBedsObligated_{ct} + \alpha_h + \gamma_t + \delta X_{ct} + \epsilon_{ht}. \quad (4.5)$$

Here, $ShareBedsObligated_{ct}$ represents the share of hospital beds in county c that are under Hill-Burton obligation to provide charity care in year t . This continuous measure captures more variations in local charity care obligations over time, providing additional identification power beyond that from the binary indicator for first local expiration. All other parameters are the same as in Equation 4.3, including the sample restriction to only non-Hill-Burton hospitals.

4.3 Total County-Level Effects

Finally, I examine the aggregate effects of Hill-Burton charity care obligation expirations on hospital conduct and patient access to care by estimating county-level versions of the previous

specifications. Specifically, I first estimate the following difference-in-differences and event study regressions around each county's first Hill-Burton obligation expiration:

$$Y_{ct} = \beta * \mathbf{1}_{\{FirstExpiration\}_{ct}} + \alpha_c + \gamma_t + \delta X_{ct} + \epsilon_{ct}, \quad (4.6)$$

$$Y_{ct} = \left(\sum_{r=-5}^5 \beta_r \mathbf{1}_{\{t=e_c+r\}} \right) + \alpha_c + \gamma_t + \delta X_{ct} + \epsilon_{ct}. \quad (4.7)$$

These equations maintain the same structure as Equations 4.3 and 4.4, respectively, but aggregate all variables to the county level. As with the hospital-level analyses, I next supplement these specifications with one using a continuous measure of Hill-Burton charity care obligations:

$$Y_{ct} = \beta * ShareBedsObligated_{ct} + \alpha_c + \gamma_t + \delta X_{ct} + \epsilon_{ct}, \quad (4.8)$$

where $ShareBedsObligated_{ct}$ again represents the share of hospital beds in county c that are under Hill-Burton obligation to provide charity care in year t . All other parameters are the same as in Equation 4.6. These complementary approaches provide a comprehensive analysis of how changes in Hill-Burton obligations affect charity care provision and patient access at various levels of aggregation.

5 Results

This section presents the results of how Hill-Burton charity care obligation expirations affect hospital behavior and patient access to care for Hill-Burton hospitals themselves, for neighboring non-Hill-Burton hospitals, and at the total county level. This analysis allows us to better understand not only how hospitals directly respond to changes in their own regulatory requirements but also how these changes more broadly affect local healthcare markets.

5.1 Effects on Hill-Burton Hospitals

Figure 3 presents event study estimates from Equation 4.2, revealing substantial changes in both charity care provision and patient access at Hill-Burton hospitals following their own charity care obligation expirations. Panel A shows Hill-Burton-designated charity care spending essentially drops to zero after obligations expire. This sharp decline serves as a validation check, confirming that hospitals indeed stop classifying charity care for the Hill-Burton program

once they are no longer obligated under said program.¹⁸ This result shows no evidence of pre-trends and is robust to multiple specification checks including using levels rather than logs, adding county-level controls, implementing the Callaway and Sant’Anna (2021) methodology to address potential negative weights from staggered adoption, and restricting the sample of hospitals to a balanced panel (Appendix Figure A4).

More importantly, Panel B next demonstrates that total charity care spending at Hill-Burton hospitals drops by nearly 30% after their obligations expire. This decline represents approximately a one percentage point reduction in charity care as a share of total operating expenses (from a baseline of about 3%) or roughly \$1.1 million less in annual charity care spending per hospital. The effect appears particularly pronounced among private non-profit hospitals, which reduce charity care by 31% compared to a 20% reduction at public hospitals (Panel A of Table 2). These estimates also remain stable across various robustness checks (Appendix Figure A5).

The reduction in charity care coincides with decreased access for uninsured patients. Panels C and D show that Hill-Burton hospitals reduce admissions of likely charity-eligible patients (i.e., self-pay and no-charge patients) by 14% and admissions of charity recipients (i.e., no-charge patients only) by 27% following obligation expirations. These patient access effects are especially pronounced for private non-profit hospitals (Panels B and C of Table 2), with estimates for public hospitals too imprecise to draw conclusions. These declines span across both elective and non-elective hospitalizations (Table 3), with particularly large effects for patients with trauma, mental health, or pregnancy-related diagnoses.

The reduction in non-elective admissions is especially notable given the 1986 passage of EMTALA, which required hospitals to provide emergency care regardless of patient ability to pay. This pattern, combined with the concentration of effects in trauma, mental health, and pregnancy-related cases, suggests that hospitals may be responding to the expiration of their charity care obligations by closing or downsizing departments that disproportionately serve uninsured patients—such as emergency departments, psychiatric units (consistent with evidence found by Sachs, 2019), or maternity wards (as found in Almond et al., 2011). Altogether, these findings raise a crucial next question: do these patients find care at other nearby facilities, or does their access to hospital care diminish? The following subsections explore this question by examining spillover effects on non-Hill-Burton hospitals as well as county-level impacts.

¹⁸The dip in Hill-Burton charity care in the year before expiration is largely the result of data limitations. My analysis converts hospital fiscal year data to calendar years for consistency across facilities. When examining the data in its original fiscal year format, this pre-expiration decline largely disappears (see Panel D of Appendix Figure A4).

5.2 Spillovers to Non-Hill-Burton Hospitals

I next analyze how neighboring hospitals respond when Hill-Burton facilities reduce their provision of charity care after their obligations expire. Figure 4 presents event study estimates examining this spillover effect following Equation 4.4. Panel A shows that non-Hill-Burton hospitals do not on average significantly change their charity care expenditures following the first Hill-Burton obligation expiration in their counties. This estimate remains robust across multiple specification checks (Appendix Figure A6). Yet, beneath this stable average lies substantial heterogeneity across hospital ownership types. Table 4 shows that both non-Hill-Burton private non-profit and public hospitals increase their charity care provision, while for-profit facilities actually reduce theirs. This strategic reduction by for-profit hospitals is consistent with findings from Sachs (2019), who documents that hospitals often respond to a competitor closing psychiatric services by similarly reducing their own psychiatric capacity. Rather than risk an influx of unprofitable patients who they might need to turn away, these hospitals—particularly profit-motivated ones—may preemptively curtail unprofitable services to avoid inheriting costly patient populations. This strategic response suggests that Hill-Burton obligation expirations may reshape healthcare access beyond directly affected hospitals, as some neighboring facilities adjust their service provision in ways that could further limit care for vulnerable populations.

Examining patient admissions reveals additional nuances in these spillover effects. Panel B of Figure 4 documents an 18% average increase in charity-eligible patient admissions at non-Hill-Burton hospitals following the first local expiration (though this estimate is statistically imprecise), while Panel C shows a 26% average decrease in charity-recipient admissions. These patterns suggest that neighboring hospitals absorb displaced uninsured patients from no-longer-obligated Hill-Burton hospitals but reclassify them as paying patients rather than charity recipients. This response again varies markedly by ownership type (Table 4). For-profit hospitals reduce both types of admissions, aligning with their decreased charity care spending and indicating strategic reductions in unprofitable services. Conversely, private non-profit and public hospitals boost their intake of charity-eligible patients while also reducing charity-recipients.¹⁹

Alternative specifications using continuous variation in Hill-Burton obligation exposure following Equation 4.5 reinforce these findings. When the share of county-level hospital beds under Hill-Burton obligation declines by one standard deviation (i.e., 0.06), Appendix Table A2 shows that non-Hill-Burton hospitals decrease charity-eligible admissions by 3.5% and charity-recipient admissions by 14.2%. Ownership structure continues to drive response magnitudes:

¹⁹These results are statistically significant only for non-profit hospitals due to the small sample size of public hospitals.

for-profit hospitals exhibit steeper reductions of 12.1% and 33% respectively, while non-profit hospitals show more modest declines of 2.6% and 10%.²⁰

These results illustrate distinct strategic responses across hospital types for non-Hill-Burton hospitals. Non-profit and public hospitals generally accommodate displaced uninsured patients but reclassify them from charity recipients to paying patients, thereby transferring financial responsibility for the care back to the patients. For-profit hospitals, however, appear to actively avoid this patient influx, potentially by scaling back services in unprofitable departments that typically serve these populations. This heterogeneity underscores the importance of hospital ownership structures in shaping both healthcare access and financial obligations for vulnerable populations.

5.3 Total County-Level Effects

Finally, I explore how Hill-Burton obligation expirations affect overall charity care provision and healthcare access within local markets. Figure 5 presents event study estimates at the county level following Equation 4.6. Panel A shows that total charity care spending falls by 20% at the county level following the first Hill-Burton obligation expiration in that county, an effect that is quite robust across multiple specifications (Appendix Figure A7). While Panel B shows no significant change in county-level charity-eligible patient admissions, Panel C documents a 21% decrease in charity-recipient admissions after the first Hill-Burton expiration. These results suggest that while uninsured patients continue to receive hospital care within their counties, they increasingly do so as paying patients rather than charity recipients.

Alternative specifications using the continuous measure of Hill-Burton charity care obligation exposure reinforce these findings. Appendix Table A3 shows that when the share of county-level hospital beds under Hill-Burton obligation drops by one standard deviation, county-level charity care spending decreases by 13.3%, charity-eligible admissions remain stable, and charity-recipient admissions fall by 10.5%.²¹ Overall, these county-level results show that while the total volume of uninsured patient hospitalizations remains stable—as neighboring non-Hill-Burton hospitals absorb displaced patients from Hill-Burton hospitals after their obligations expire—both charity care spending and the number of charity-recipient patients drop substantially. These patterns suggest that Hill-Burton obligation expirations primarily affect where uninsured patients receive care and how they pay for it rather than whether they receive it,

²⁰The small decline in charity-eligible admissions at non-profit hospitals contrasts with their increased admissions following first obligation expiration in the county, though the former effect is relatively small in magnitude.

²¹One standard deviation represents 0.24 in the county-level financial data sample and 0.10 in the county-level patient data sample, reflecting differences in sample periods between the two datasets.

with previously non-paying patients increasingly facing payment obligations for their hospital care.

The market-level changes in charity care provision and patient allocation across hospitals naturally raise questions about whether patient health outcomes are also affected by Hill-Burton obligation expirations. Table 5 examines how expirations affect in-hospital mortality for likely charity-eligible patients using the difference-in-differences frameworks described above. Panel A shows no significant mortality changes at Hill-Burton hospitals following their obligation expirations, nor at non-Hill-Burton hospitals or the county level after the first local expiration. However, specifications using the continuous measure of Hill-Burton exposure paint a more nuanced picture. When the share of county hospital beds under Hill-Burton obligation falls by one standard deviation, in-hospital mortality for charity-eligible patients increases by 0.07 percentage points (5% relative to the mean of 1.4%). This effect is driven primarily by mortality increases at non-profit non-Hill-Burton hospitals. While modest in magnitude, these mortality effects suggest that charity care obligation expirations may affect patient health outcomes. These changes could stem from changing patient compositions across hospitals—even as county-level admission volumes remain stable—with sicker patients potentially concentrating in certain facilities. Alternatively, quality of care may vary when patients who were previously treated at Hill-Burton hospitals are now treated at non-Hill-Burton hospitals. These mortality findings underscore the need for future research examining how changes in charity care obligations affect not only access to care but also quality of care and ultimately health outcomes for vulnerable populations.

6 Conclusion

This paper examines how hospitals strategically respond to charity care regulations by analyzing the end of charity care obligations under the Hill-Burton Act—one of the federal government’s first major interventions in healthcare delivery and one of the only federal regulations of hospital charity care. When Hill-Burton obligations expire, previously obligated hospitals significantly reduce their charity care provision. Total charity care spending at these hospitals falls by 30% and likely charity-eligible patient admissions drops by 14%. While neighboring non-profit and public hospitals absorb many of these displaced patients, these hospitals increasingly classify them as paying rather than charity cases. Despite maintaining overall access to hospital care for likely uninsured patients, this leads to a 20% reduction in county-level charity care spending. Preliminary evidence suggests these changes may affect patient outcomes, with a small but significant increase in hospital mortality for charity-eligible patients at

non-Hill-Burton hospitals to which many are shifted after these regulatory charity care obligations expire.

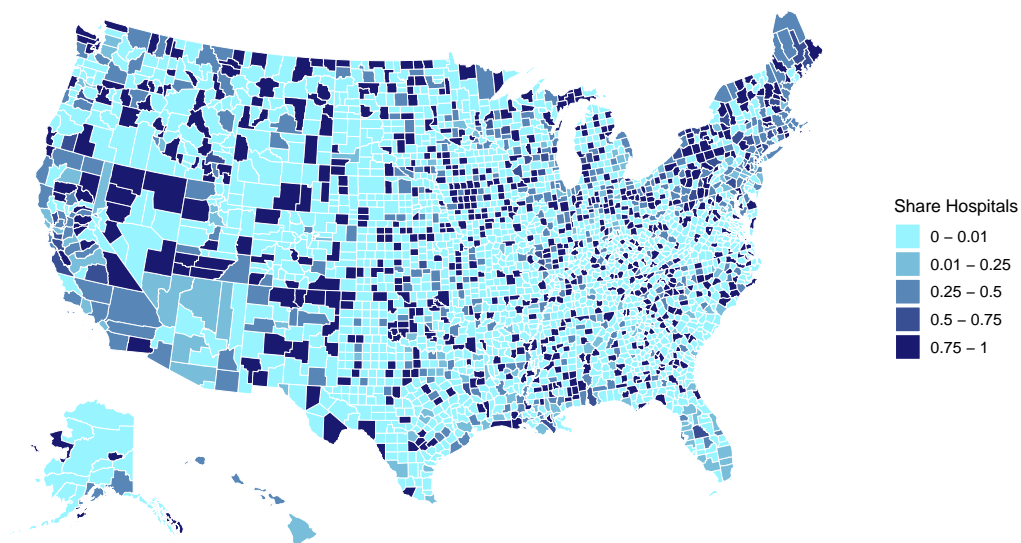
These findings reveal how regulatory incentives shape both the total level of charity care and its distribution across hospitals. When obligations expire, neighboring hospitals often maintain access to care for uninsured patients but shift the financial burden onto those patients rather than continuing to provide them with free care. The heterogeneous responses across hospital ownership types—with for-profit facilities actively avoiding charity-eligible patients while non-profits and public hospitals treat them—underscore how market structure and hospital objectives influence the provision of care to vulnerable populations.

This analysis suggests several important directions for future research. A key next step is exploring the specific mechanisms through which hospitals reduce their charity-eligible patient admissions, such as closing emergency departments that disproportionately serve uninsured patients. Additionally, more work is needed to understand how patient reallocation across hospitals following regulatory changes affects patient health outcomes, particularly given the mortality findings in this paper. This research would offer crucial insights into designing effective policies to ensure healthcare access for underserved communities.

Figure 1: Share of Hospital Beds Ever Obligated to Provide Charity Under Hill-Burton Act



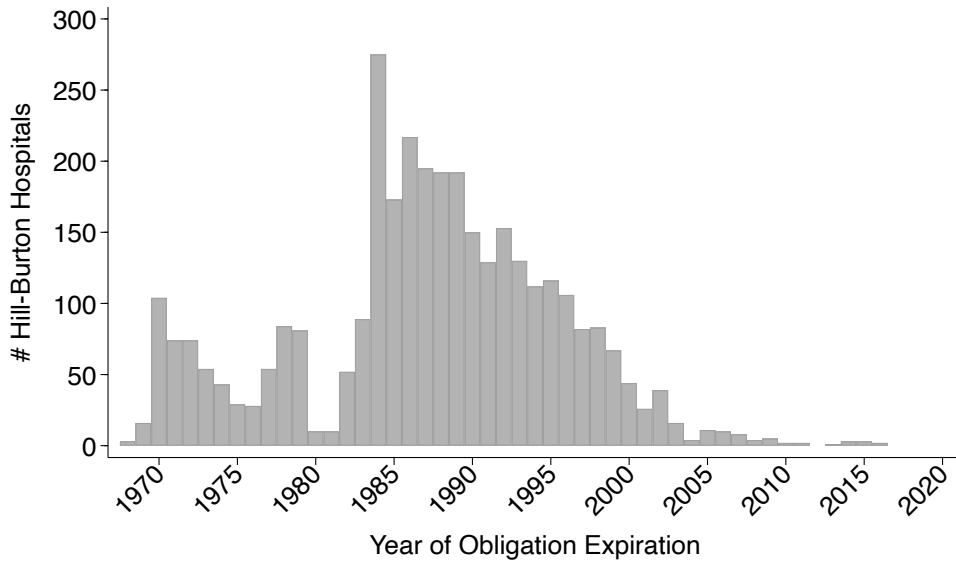
(a) By Year



(b) By County

Notes: Panel A plots the share of existing hospital beds in each year that were ever obligated to provide charity care under the Hill-Burton Act through that year. The share increases over time from 1970-2000 due to additional Hill-Burton funding allocations, then decreases starting in 2000 due to the construction of new hospitals that never received Hill-Burton funding. Panel B shows the geographic distribution of the share of hospital beds in each county that were ever obligated to provide Hill-Burton charity care as of 2020.

Figure 2: Distribution of Charity Care Obligation Expirations



Notes: Figure plots the distribution of expiration years for Hill-Burton charity care obligations across all hospitals that ever received Hill-Burton funding. The majority of obligations expired between 1985-1995. As of March 2020, 25 hospitals remained under obligation (not shown in figure).

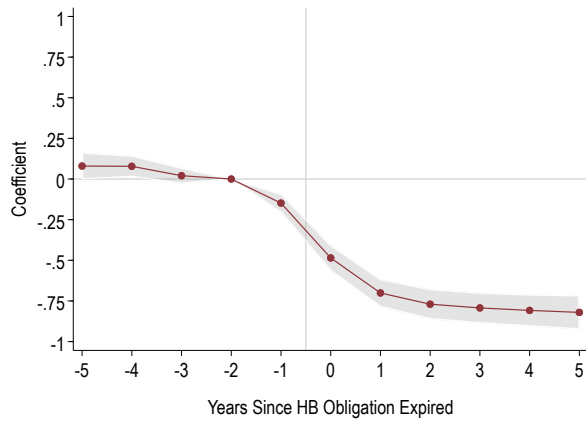
Table 1: Hospital Summary Statistics

	(1) Hill-Burton Hospitals Pre-Expiration	(2) Non-Hill-Burton Hospitals
<i>Panel A. Finance Data Sample</i>		
Share Non-Profit	62.57	45.64
Share For-Profit	0.94	42.34
# Beds	298.81 (285.76)	183.45 (132.42)
# Annual Admissions	9,348.02 (9,645.12)	7,132.45 (6,132.59)
Annual Operating Expenses (\$ million)	123.43 (185.37)	121.28 (378.68)
Charity Care (% expenditures)	2.92 (6.87)	2.81 (4.51)
HB Charity Care (% expenditures)*	1.31 (3.57)	0.06 (1.12)
Observations	4,439	18,187
Unique Hospitals	284	508
<i>Panel B. Patient Data Sample</i>		
Share Non-Profit	81.08	61.66
Share For-Profit	0.28	20.60
# Beds	203.83 (225.76)	185.37 (183.12)
# Annual Admissions	8,020.48 (9,046.15)	7,473.83 (9,921.00)
Share Self-Pay or No-Charge Patients	5.28 (6.70)	4.88 (6.31)
Share Self-Pay	4.76 (6.26)	4.51 (6.16)
Share No-Charge	0.52 (2.03)	0.37 (1.05)
Observations	1,442	9,896
Unique Hospitals	363	1,810

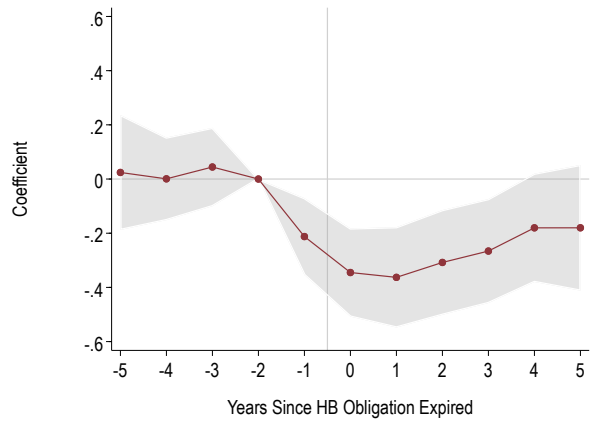
Notes: Table presents summary statistics comparing Hill-Burton hospitals (pre-expiration of their charity care obligations; Column 1) to non-Hill-Burton hospitals (Column 2). Panel A shows operational and financial characteristics from the sample constructed from state-level financial reports. Panel B shows operational and patient composition characteristics from the sample constructed from HCUP. Standard deviations shown in parentheses.

* Hill-Burton charity care spending records are only available for California and Florida.

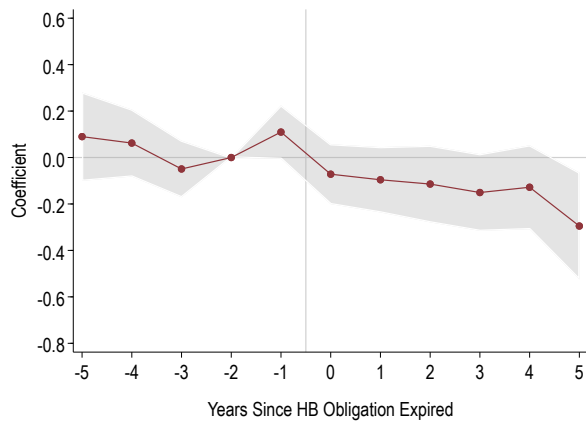
Figure 3: Effect of Obligation Expirations on Hill-Burton Hospitals



(a) ln(Hill-Burton Charity Care)



(b) ln(Total Charity Care)



(c) ln(Self-Pay and No-Charge Patients)



(d) ln(No-Charge Patients)

Notes: Figures plot event study estimates based on Equation 4.2 examining the effect of Hill-Burton obligation expiration on outcomes for Hill-Burton hospitals. Panel A shows Hill-Burton-designated charity care spending, Panel B shows total charity care spending, Panel C shows admissions of self-pay and no-charge patients, and Panel D shows admissions of no-charge patients only; all four outcomes are logged. All regressions include hospital and year fixed effects. Standard errors are clustered at the hospital level. Shaded regions show 95% confidence intervals.

Table 2: Heterogeneity in Effect on Hill-Burton Hospitals by Ownership Type

	(1) All	(2) Non-Profits	(3) Publics
Panel A. $\ln(\text{Total Charity Care})$			
$\text{ObligationExpired}_{ht}$	-0.2829** (0.0903)	-0.3085** (0.0847)	-0.1993** (0.0714)
Observations	11330	7882	2872
Panel B. $\ln(\text{Self-Pay and No-Charge Patients})$			
$\text{ObligationExpired}_{ht}$	-0.1412* (0.0722)	-0.1435** (0.0606)	-0.2307 (0.2531)
Observations	4120	3205	834
Panel C. $\ln(\text{No-Charge Patients})$			
$\text{ObligationExpired}_{ht}$	-0.2678** (0.1363)	-0.1651** (0.0644)	-0.6653 (0.4947)
Observations	4120	3205	834

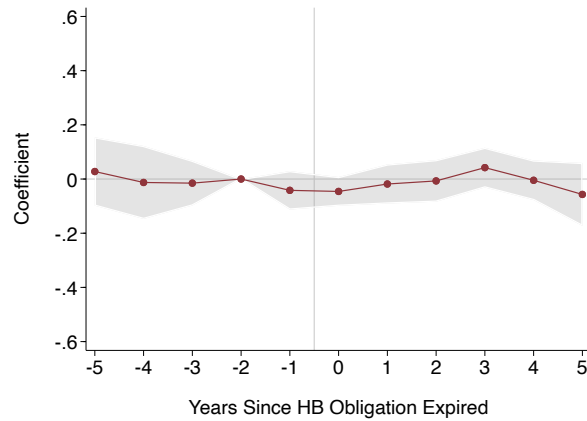
Notes: Table presents estimates of the effect of Hill-Burton obligation expiration on Hill-Burton hospitals based on Equation 4.1, separately by hospital ownership type. Column 1 includes all hospitals, Column 2 restricts the sample to only private non-profit hospitals, and Column 3 restricts the sample to only public hospitals. Panel A shows effects on total charity care spending, Panel B shows effects on self-pay and no-charge patient admissions, and Panel C shows effects on no-charge patient admissions; all three outcomes are logged. All regressions include hospital and year fixed effects. Standard errors are clustered at the hospital level and shown in parentheses. * $p < 0.10$, ** $p < 0.05$.

Table 3: Heterogeneity in Effect on Hill-Burton Hospitals by Patient Admission Type

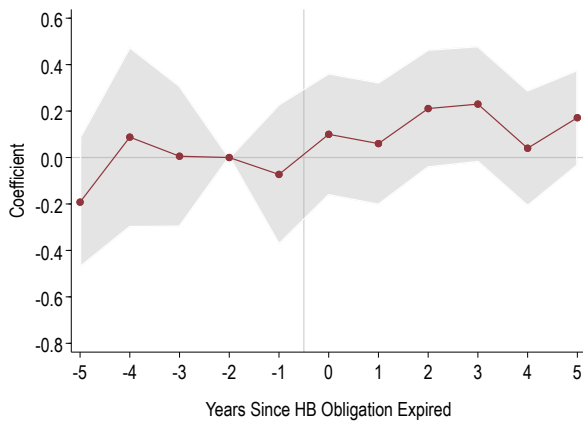
	Hospitalization Type		Primary Diagnosis		
	(1) Non-Elective	(2) Elective	(3) Trauma/Mental	(4) Pregnancy+	(5) Other
Panel A. <i>ln(Self-Pay and No-Charge Patients)</i>					
<i>ObligationExpired_{ht}</i>	-0.1375* (0.0785)	-0.2194* (0.1291)	-0.2011* (0.1128)	-0.2174* (0.1314)	-0.1385 (0.1365)
Observations	4093	4093	4093	4093	4093
Panel B. <i>ln(No-Charge Patients)</i>					
<i>ObligationExpired_{ht}</i>	-0.2553** (0.1272)	-0.2091** (0.0963)	-0.2315** (0.0930)	-0.2100* (0.1026)	-0.1940* (0.1062)
Observations	4093	4093	4093	4093	4093

Notes: Table presents estimates of the effect of Hill-Burton obligation expiration on Hill-Burton hospitals based on Equation 4.1, separately by patient admission type. Panel A shows effects on self-pay and no-charge patient admissions, while Panel B shows effects on no-charge patient admissions; both outcomes are logged. Results are broken down by patient hospitalization type (Columns 1-2) and by primary patient diagnosis categories (Columns 3-5). All regressions include hospital and year fixed effects. Standard errors are clustered at the hospital level and shown in parentheses. * $p < 0.10$, ** $p < 0.05$.

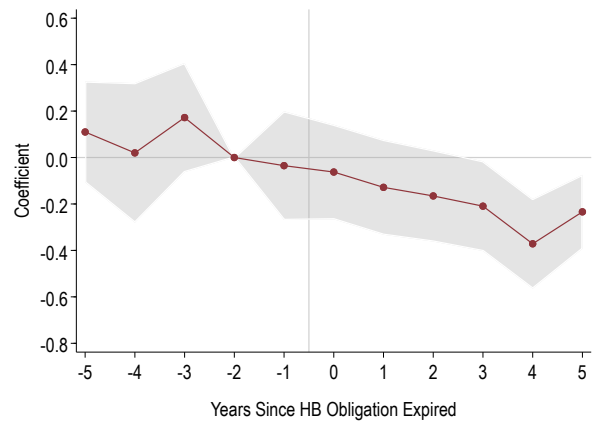
Figure 4: Effect of Obligation Expirations on Non-Hill-Burton Hospitals



(a) ln(Total Charity Care)



(b) ln(Self-Pay and No-Charge Patients)



(c) ln(No-Charge Patients)

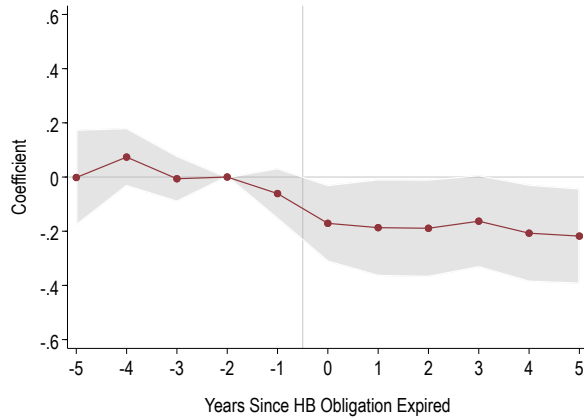
Notes: Figures plot event study estimates based on Equation 4.4 examining spillover effects of the first Hill-Burton obligation expiration in a county on non-Hill-Burton hospitals in that county. Panel A shows total charity care spending, Panel B shows admissions of self-pay and no-charge patients, and Panel C shows admissions of no-charge patients only; all three outcomes are logged. All regressions include hospital and year fixed effects. Standard errors are clustered at the hospital level. Shaded regions show 95% confidence intervals.

Table 4: Heterogeneity in Effect on Non-Hill-Burton Hospitals by Ownership Type

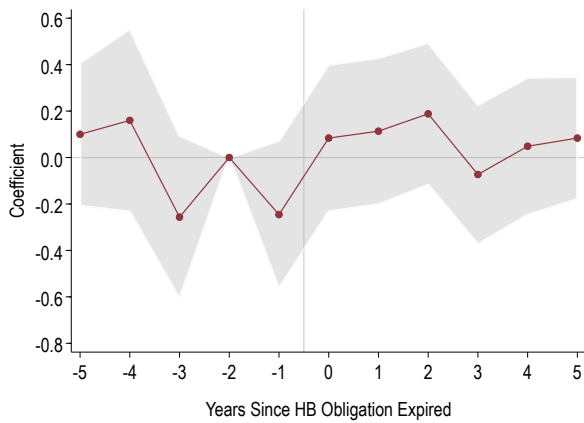
	(1) All	(2) For-Profits	(3) Non-Profits	(4) Publics
Panel A. $\ln(\text{Total Charity Care})$				
$FirstExpiration_{ct}$	-0.0460 (0.0638)	-0.1640* (0.0944)	0.1018* (0.05938)	0.1438 (0.1924)
Observations	17404	7424	7954	1952
Panel B. $\ln(\text{Self-Pay and No-Charge Patients})$				
$FirstExpiration_{ct}$	0.1792 (0.1170)	-0.1945 (0.1739)	0.2654** (0.1338)	0.1256 (0.1320)
Observations	7355	1421	4539	1395
Panel C. $\ln(\text{No-Charge Patients})$				
$FirstExpiration_{ct}$	-0.2584** (0.1267)	-0.5329* (0.3121)	-0.2542** (0.1284)	-0.2544 (0.3075)
Observations	7355	1421	4539	1395

Notes: Table presents estimates of spillover effects on non-Hill-Burton hospitals following the first Hill-Burton obligation expiration in their county based on Equation 4.3. Results are shown separately by hospital ownership type. Column 1 includes all hospitals, Column 2 restricts the sample to only private for-profit hospitals, Column 3 restricts the sample to only private non-profit hospitals, and Column 4 restricts the sample to only public hospitals. Panel A shows effects on total charity care spending, Panel B shows effects on self-pay and no-charge patient admissions, and Panel C shows effects on no-charge patient admissions; all three outcomes are logged. All regressions include hospital and year fixed effects. Standard errors are clustered at the hospital level and shown in parentheses. * $p < 0.10$, ** $p < 0.05$.

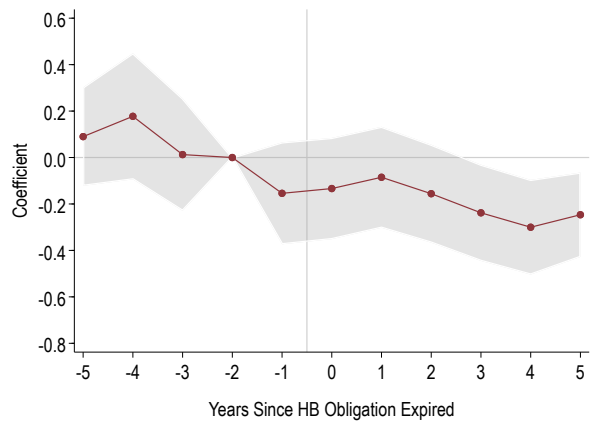
Figure 5: Effect of Obligation Expirations on County



(a) ln(Total Charity Care)



(b) ln(Self-Pay and No-Charge Patients)



(c) ln(No-Charge Patients)

Notes: Figures plot county-level event study estimates based on Equation 4.7 examining the effects of the first county-level Hill-Burton obligation expiration. Panel A shows total charity care spending, Panel B shows admissions of self-pay and no-charge patients, and Panel C shows admissions of no-charge patients only; all three outcomes are logged. All regressions include county and year fixed effects. Standard errors are clustered at the county level. Shaded regions show 95% confidence intervals.

Table 5: Effect of Obligation Expirations on Self-Pay/No-Charge Patient Mortality

	(1) County	(2) Hill-Burton	(3) Non-HB All	(4) Non-HB For-Profits	(5) Non-HB Non-Profits	(6) Non-HB Publics
Panel A. First Expiration in County						
$FirstExpiration_{ct}$	0.0013 (0.0017)	-0.0016 (0.0019)	0.0016 (0.0043)	-0.0054 (0.0192)	0.0028 (0.0043)	-0.0028 (0.0049)
Panel B. Fraction of Hospital Beds Under HB Obligation in County						
$ShareBedsObligated_{ct}$	-0.0041* (0.0023)		-0.0305*** (0.0113)	0.0150 (0.0533)	-0.0419*** (0.0112)	-0.0159 (0.0149)
Observations	8,351	4,093	7,355	1,421	4,539	1,395
Mean of Outcome (SD)	0.014 (0.037)	0.014 (0.030)	0.014 (0.037)	0.014 (0.031)	0.014 (0.037)	0.015 (0.038)
Mean of $ShareBedsObligated_{ct}$ (SD)	0.047 (0.18)		0.02 (0.07)	0.02 (0.07)	0.02 (0.07)	0.02 (0.07)

Notes: Table presents estimates of the effect of Hill-Burton obligations on in-hospital mortality for self-pay and no-charge patients. Panel A shows effects of the first obligation expiration in the county (or own expiration) based on Equations 4.6 (Column 1; county-level), 4.1 (Column 2; Hill-Burton hospital-level), and 4.3 (Columns 3-6; non-Hill-Burton hospital-level). Panel B shows effects of the fraction of county hospital beds under obligation based on Equations 4.8 (Column 1; county-level) and 4.5 (Columns 3-6; non-Hill-Burton hospital-level). Results for non-Hill-Burton hospitals are shown separately by ownership type (Columns 4-6). All regressions include unit (hospital or county) and year fixed effects. Standard errors are clustered at the unit level and shown in parentheses. * $p < 0.10$, ** $p < 0.05$.

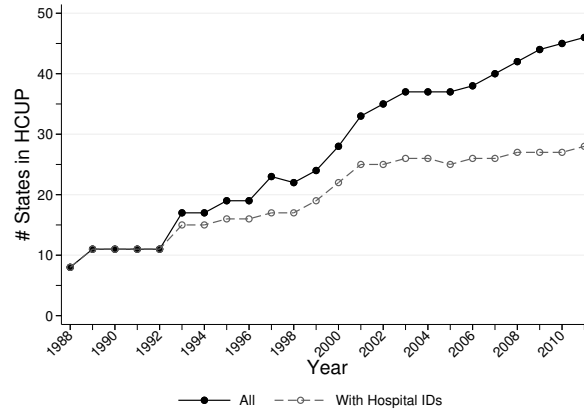
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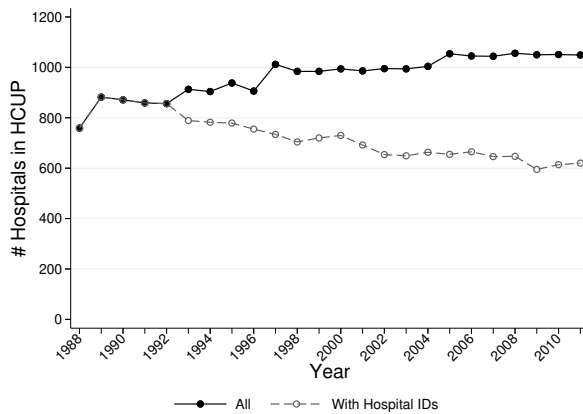
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A Additional Figures & Tables

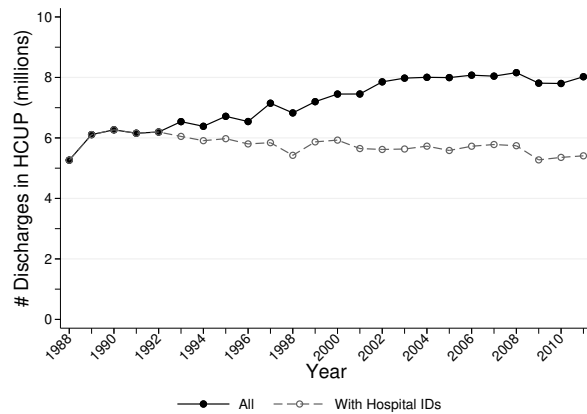
Figure A1: HCUP Participation Over Time



(a) States



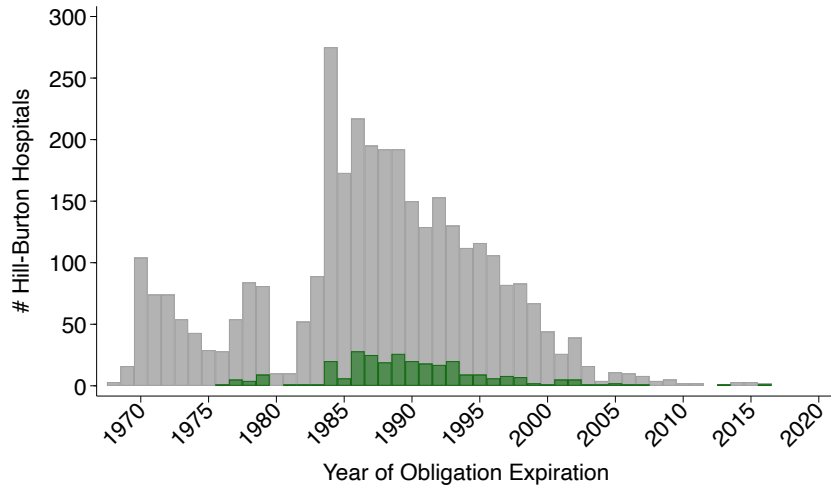
(b) Hospitals



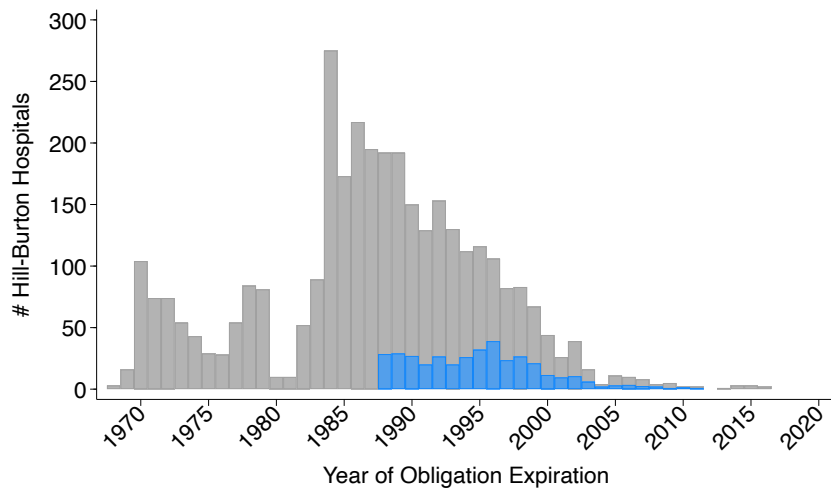
(c) Discharges

Notes: Figures plot the growth in HCUP-NIS participation over time. Panel A shows the number of states participating in HCUP, Panel B shows the number of hospitals included in HCUP, and Panel C shows the number of patient discharges (in millions) captured in HCUP. For each panel, the solid line shows all participants while the dashed line shows only those with hospital identifiers available.

Figure A2: Distribution of Charity Care Obligation Expirations: Data Coverage



(a) Financial Data



(b) Patient Data

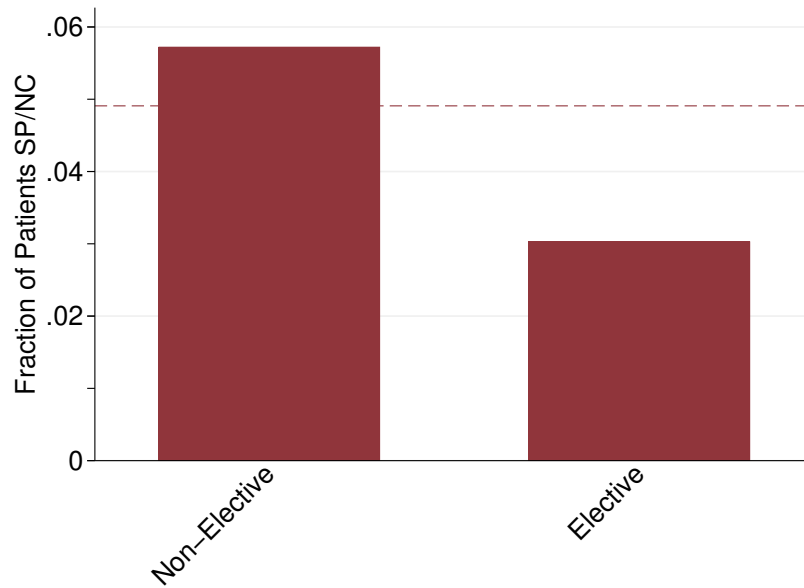
Notes: Figures plot the distribution of years in which hospitals' Hill-Burton charity care obligations expired. Panel A shows in green the expirations for which financial data are available for this paper (284 hospitals). Panel B shows in blue the expirations for which patient discharge data are available for this paper (363 hospitals). Gray bars show the full distribution of all Hill-Burton hospital obligation expirations for comparison.

Table A1: Hospital Observations by Data Source

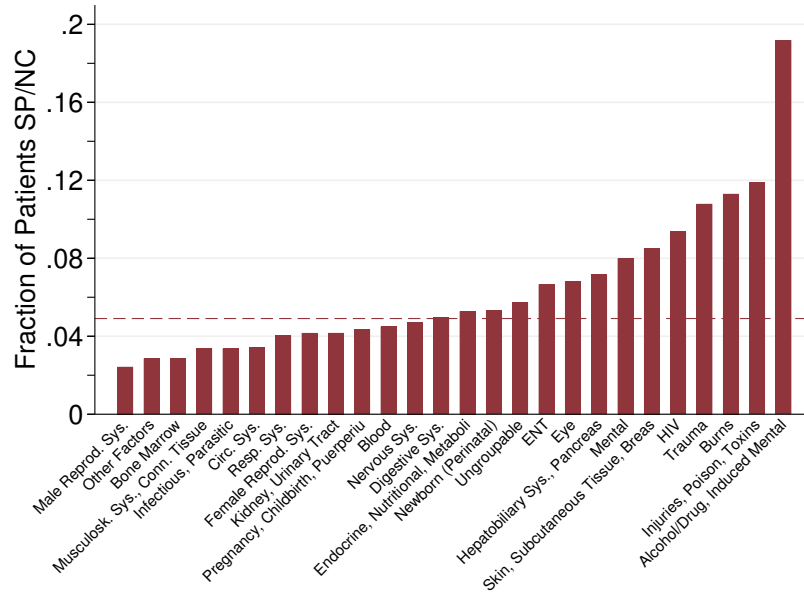
	(1)	(2)
	Financial Reports	HCUP
<i>N</i> hospital-year observations	30,780	16,868
Average per year	716	703
<i>N</i> unique hospitals	902	2976
Hill-Burton	394	1166
observed before expired	284	363
Non-Hill-Burton	508	1810

Notes: Table presents the sample composition of the financial report data (Column 1) and the HCUP data (Column 2). For each column, the table shows the total number of hospital-year observations, the average number of hospital observations per year, and the number of unique hospitals broken down by Hill-Burton status.

Figure A3: Patient Discharge Summary Statistics



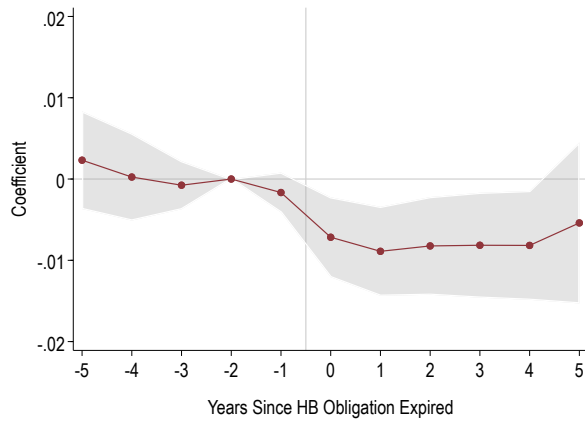
(a) Type of Hospitalization



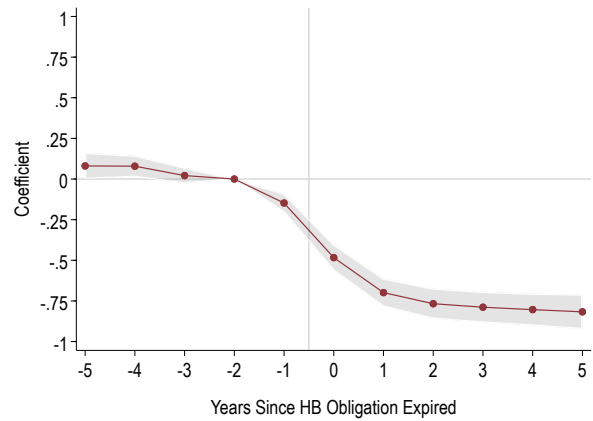
(b) Primary Diagnosis

Notes: Figures plot the share of patients who are self-pay or no-charge by different patient hospital admission characteristics. Panel A shows shares by hospitalization type (elective vs non-elective). Panel B shows shares by patient primary diagnosis category. The dashed line in each panel indicates the overall share of self-pay/no-charge patients across all hospitalizations in all years of the HCUP data.

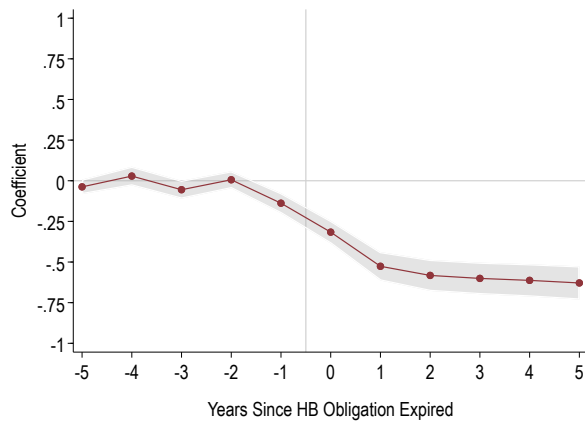
Figure A4: Robustness for Effect on Hill-Burton Hospitals: $\ln(\text{Hill-Burton Charity Care})$



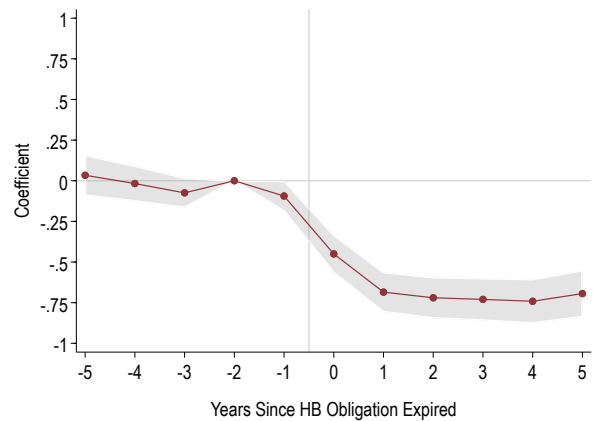
(a) Levels (% Exp.)



(b) Add County-Level Controls



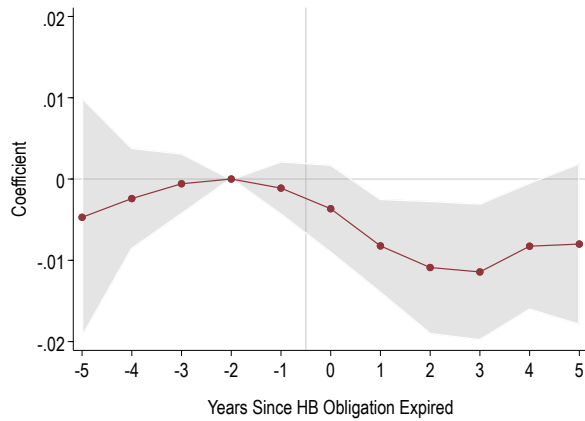
(c) Callaway and Sant'Anna (2021)



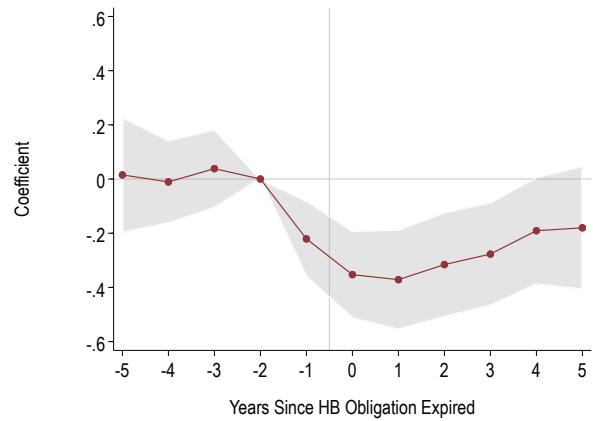
(d) Survey Year

Notes: Figures plot robustness checks for the effect of Hill-Burton obligation expiration on Hill-Burton-designated charity care spending based on variations of Equation 4.2. Panel A shows effects using levels (as percent of expenditures) rather than logs, Panel B adds county-level controls for unemployment and population, Panel C implements the Callaway and Sant'Anna (2021) estimator, and Panel D uses survey rather than calendar years. All regressions include hospital and year fixed effects. Standard errors are clustered at the hospital level. Shaded regions show 95% confidence intervals.

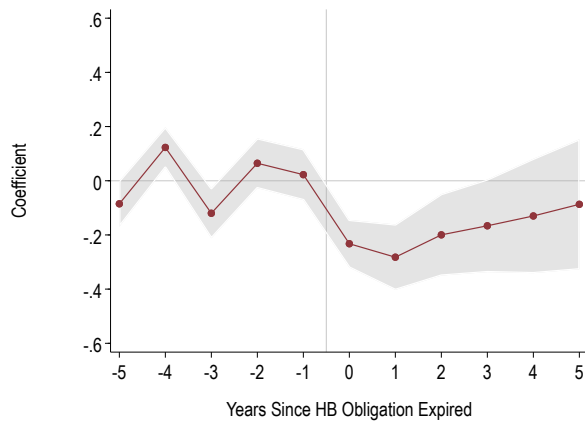
Figure A5: Robustness for Effect on Hill-Burton Hospitals: $\ln(\text{Total Charity Care})$



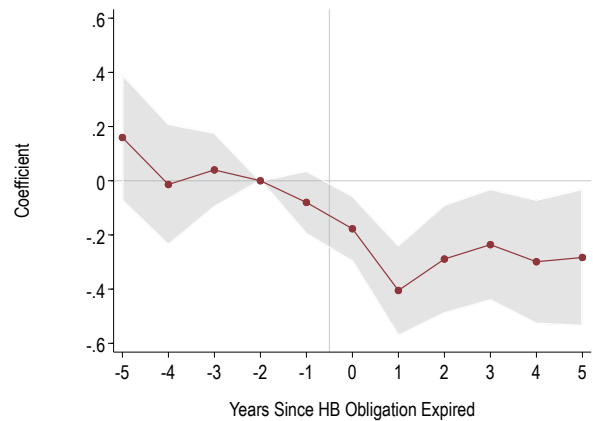
(a) Levels (% Exp.)



(b) Add County-Level Controls



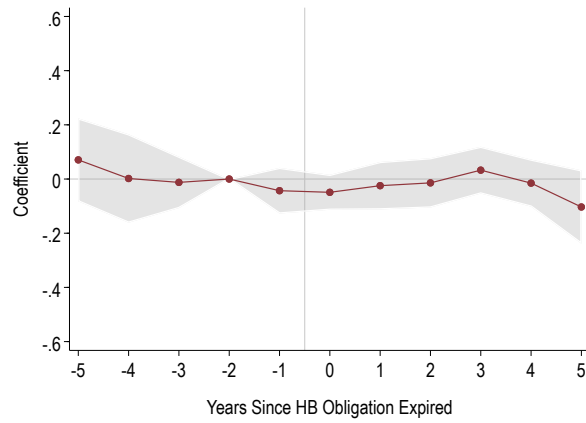
(c) Callaway and Sant'Anna (2021)



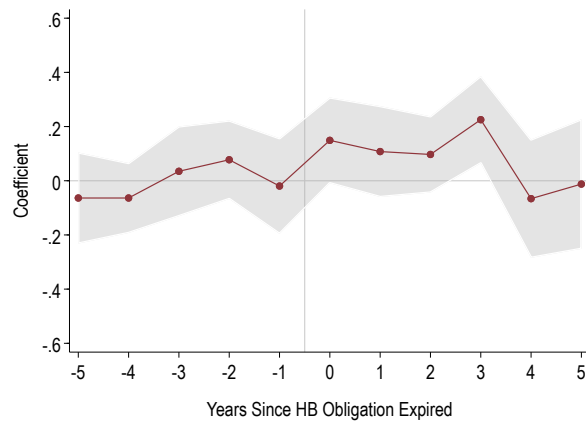
(d) Survey Year

Notes: Figures plot robustness checks for the effect of Hill-Burton obligation expiration on Hill-Burton hospital total charity care spending based on variations of Equation 4.2. Panel A shows effects using levels (as percent of expenditures) rather than logs, Panel B adds county-level controls for unemployment and population, Panel C implements the Callaway and Sant'Anna (2021) estimator, and Panel D uses survey rather than calendar years. All regressions include hospital and year fixed effects. Standard errors are clustered at the hospital level. Shaded regions show 95% confidence intervals.

Figure A6: Robustness for Effect on Non-Hill-Burton Hospitals: $\ln(\text{Total Charity Care})$



(a) Add County-Level Controls



(b) Callaway and Sant'Anna (2021)

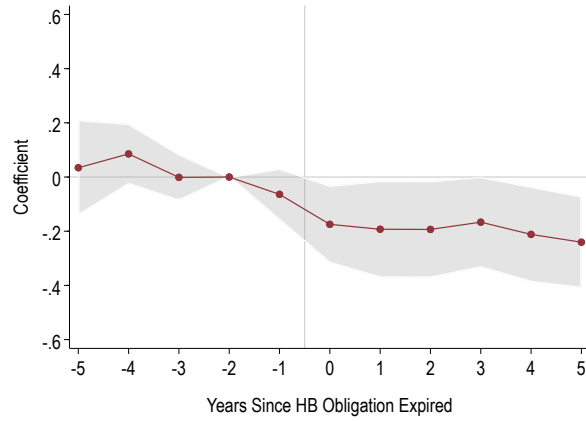
Notes: Figures plot robustness checks for spillover effects on non-Hill-Burton hospital total charity care spending following the first Hill-Burton obligation expiration in their county based on variations of Equation 4.4. Panel A adds county-level controls for unemployment and population, and Panel B implements the Callaway and Sant'Anna (2021) estimator. All regressions include hospital and year fixed effects. Standard errors are clustered at the hospital level. Shaded regions show 95% confidence intervals.

Table A2: Heterogeneity in Effect on Non-Hill-Burton Hospitals by Ownership Type

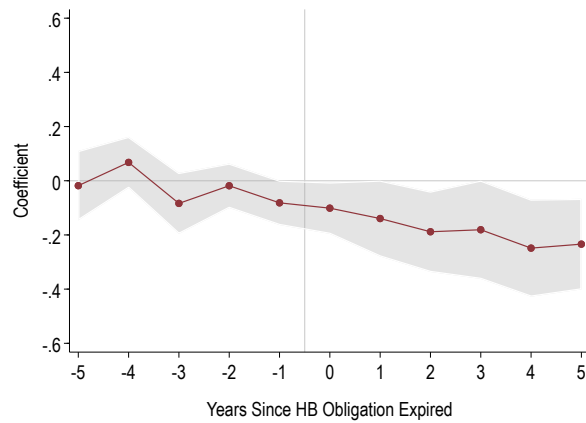
	(1) All	(2) For-Profits	(3) Non-Profits	(4) Publics
Panel A. <i>ln(Total Charity Care)</i>				
<i>ShareBedsObligated_{ct}</i>	0.3663 (0.2362)	0.6099 (0.6420)	-0.2852 (0.1840)	0.2308 (0.3943)
Observations	17404	7424	7954	1952
Panel B. <i>ln(Self-Pay and No-Charge Patients)</i>				
<i>ShareBedsObligated_{ct}</i>	0.5767** (0.1649)	2.0100** (0.4789)	0.4319* (0.2511)	0.3732 (0.2474)
Observations	7355	1421	4539	1395
Panel C. <i>ln(No-Charge Patients)</i>				
<i>ShareBedsObligated_{ct}</i>	2.3728** (0.1776)	5.5083** (0.4620)	1.7138** (0.2382)	1.0224** (0.1397)
Observations	7355	1421	4539	1395

Notes: Table presents estimates of spillover effects on non-Hill-Burton hospitals from changes in the fraction of county hospital beds under Hill-Burton obligation based on Equation 4.5. Results are shown separately by hospital ownership type. Column 1 includes all hospitals, Column 2 restricts the sample to only private for-profit hospitals, Column 3 restricts the sample to only private non-profit hospitals, and Column 4 restricts the sample to only public hospitals. Panel A shows effects on total charity care spending, Panel B shows effects on self-pay and no-charge patient admissions, and Panel C shows effects on no-charge patient admissions; all outcomes are logged. All regressions include hospital and year fixed effects. Standard errors are clustered at the hospital level and shown in parentheses. * $p < 0.10$, ** $p < 0.05$. The mean (SD) fraction of county hospital beds under Hill-Burton obligation in Panel A is 0.08 (0.14); that in Panels B and C is 0.03 (0.06).

Figure A7: Robustness for Effect on County: $\ln(\text{Total Charity Care})$



(a) Add County-Level Controls



(b) Callaway and Sant'Anna (2021)

Notes: Figures plot robustness checks for county-level total charity care spending effects following the first Hill-Burton obligation expiration based on variations of Equation 4.7. Panel A adds county-level controls for unemployment and population, and Panel B implements the Callaway and Sant'Anna (2021) estimator. All regressions include county and year fixed effects. Standard errors are clustered at the county level. Shaded regions show 95% confidence intervals.

Table A3: Effect on County: Summary Table

	(1) ln(Total Charity Care)	(2) ln(Self-Pay and No-Charge Patients)	(3) ln(No-Charge Patients)
Panel A. First Expiration in County			
<i>FirstExpiration_{ct}</i>	-0.2009** (0.0749)	0.0575 (0.0888)	-0.2149** (0.0917)
Panel B. Fraction of Hospital Beds Under HB Obligation in County			
<i>ShareBedsObligated_{ct}</i>	0.5440** (0.1873)	0.2257 (0.1402)	1.0451** (0.1713)
Observations	4676	8351	8351

Notes: Table presents county-level estimates of the effect of Hill-Burton obligations on hospital behavior. Panel A shows effects of the first obligation expiration in the county based on Equation 4.6. Panel B shows effects of the fraction of county hospital beds under obligation based on Equation 4.8. The outcome in Column 1 is total charity care spending, that in Column 2 is self-pay and no-charge patient admissions, and that in Column 3 is no-charge patient admissions; all outcomes are logged. All regressions include county and year fixed effects. Standard errors are clustered at the county level and shown in parentheses. * $p < 0.10$, ** $p < 0.05$. The mean (SD) of fraction of county hospital beds under Hill-Burton obligation in Column 1 is 0.13 (0.24); that in Columns 2 and 3 is 0.04 (0.10).