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### **ABSTRACT**

We study the interplay between congressional politics and health care spending in the U.S. by examining events leading up to and following the passage of the 2003 Medicare Modernization Act (MMA). The MMA, which Congress narrowly approved, created prescription drug coverage for seniors. We focus on a provision in the law - Section 508 - which allowed hospitals to apply for Medicare payment increases that were awarded based on rules written after the MMA was passed. This paper provides evidence of a feedback loop that illustrates why provisions, like Section 508, which are common, get added to laws, raise spending, and then become exceedingly hard to eliminate. We present evidence that the Section 508 program was used to win political support for the MMA. We find that Representatives who voted 'Yea' to the MMA were more likely to have a hospital in their district awarded a Section 508 waiver. The Section 508 program led to large increases in health spending (approximately 18 percent at treated hospitals) and the creation of hundreds of local jobs. The Section 508 program was slated to expire three years after it was introduced. However, millions were spent lobbying to extend the program. After the program was extended, we observe that members of Congress with recipient-hospitals in their district received large increases in campaign contributions. Ultimately, the marginal increase in health spending generated by the Section 508 program dramatically exceeded what Congress initially authorized for the program and dwarfed the amount spent on lobbying to extend the program.

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*“In the past, decisions on health care delivery were largely professional ones. Now the decisions will be largely political.”* – John G. Veneman, undersecretary of the Department of Health, Education and Welfare (HEW) in the Nixon administration discussing the effect of the growing role of the federal government in the US health care system.<sup>1</sup>

## 1 Introduction

In 2018, the United States (US) spent \$3.6 trillion on health care, of which more than \$1 trillion was funded by the federal government (Centers for Medicare and Medicaid Services 2018). From the 1970s to present, in each successive decade, health spending grew more quickly than gross domestic product (GDP) (Kamal and Cox 2018). Both because of the scale of government spending on health care in the US and evidence that that US health system is inefficient relative to other countries, the level of health spending and the growth in health spending over time represent significant policy challenges domestically (Garber and Skinner 2008). Until now, most research has focused on studying the influence of technocratic factors - e.g., provider incentives, the diffusion of new technologies, provider consolidation, and differences in demographics across regions - on the variation and growth in U.S. health spending (for example, see Finkelstein, Gentzkow, and Williams (2016), Chandra and Skinner (2011), Smith, Newhouse, and Freeland (2009), Cutler et al. (2013)). In this paper, we present the first work to formally explore how congressional politics influence health care spending in the US. In particular, we study whether members of Congress received benefits - increases in health spending, jobs in their district, and campaign contributions - in the wake of votes they took which raised Medicare reimbursement rates to hospitals in their districts, and we study the political dynamics that allow provisions that increase health care spending to persist as law.

To analyze the influence of politics on health spending, we study events leading up to and following passage of the Medicare Modernization Act (MMA) of 2003, a law which

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<sup>1</sup>Quoted in Iglehart (1971) as cited in Starr (1983).

gave government-funded prescription drug coverage to seniors via the introduction of the Medicare Part D program. The MMA of 2003 was politically challenging to pass. It involved a large increase in government spending and required support from Democratic legislators reticent about supporting an initiative championed by a Republican president and support from Republican lawmakers that were not naturally in favor of expansions of government programs. The MMA of 2003 was ultimately approved by Congress in November 2003 by a 5 vote margin in a vote that involved significant political bartering (Oliver, Lee, and Lipton 2004).

Whereas most of the literature on the MMA of 2003 has analyzed the impact of the law on individuals who received Part D drug insurance (for example, see Abaluck and Gruber (2011), Abaluck and Gruber (2016), Joyce et al. (2009)), we use the law to examine how the political process necessary to pass sweeping health care legislation impacts long-run health spending, local employment, and campaign contributions. We focus on the impact of a provision inserted into the MMA of 2003 - Section 508 - which created a process through which hospitals could apply to receive an increase in their regulated Medicare payments. Crucially, the rules governing which hospitals received increases in their reimbursements from Section 508 were written by the executive branch after the MMA was passed, allowing officials to steer funds to specific hospitals and regions (that would then benefit specific politicians).

Our analysis proceeds in four stages. First, we present evidence that Medicare hospital payment increases generated by the Section 508 program were used as a bartering tool to win political support. We identify, via a Freedom of Information Act (FOIA) request, the hospitals that applied for and were granted a Section 508 waiver. We find evidence that hospitals represented by a member of Congress who voted 'Yea' to the MMA of 2003 were significantly more likely to receive a payment increase than hospitals represented by a member of Congress who voted 'Nay' to the law. In addition, hospitals that received a payment increase and were represented by a member of Congress who voted 'Yea' also

received larger payment increases than hospitals represented by a member who voted ‘Nay’.

Second, we show that these Medicare payment increases generated by the Section 508 program materially impacted hospital behavior and led to a large aggregate increase in health care spending from 2005 to 2010. We identify, via difference-in-difference analysis, that hospitals that received a payment bump increased the number of inpatient Medicare cases they delivered by approximately 12 percent and raised inpatient Medicare spending by 18 percent. We also find suggestive evidence that hospitals that received this payment increase also invested in new technology. Collectively, we find that hospitals that won a Section 508 waiver spent an additional \$26 million on Medicare inpatient care from 2005 to 2010. Across the 88 Section 508-recipient hospitals that were continuously in our data from 2002 to 2010, we observe that the receipt of a Section 508 waiver resulted in over \$2 billion in additional Medicare inpatient spending from 2005 to 2010. It is notable that original language in Section 508 in the MMA only allocated \$900 million to fund the program.

Third, we show that the Section 508 program, which appears to have been used to persuade members of Congress to vote for the MMA, brought tangible benefits to members’ districts. This is informative about why the Section 508 program (and programs like it) are added to laws in the first place. We find that federal health spending went up by millions and there was the creation of 600 or more new health care jobs in congressional districts with a Section 508-recipient hospital. The number of net health care jobs added and the increases in health care spending went up as the number of Section 508-recipient hospitals per district increased. We did not observe any change in net jobs added in other unrelated sectors (e.g. the construction industry), suggesting that the increase in jobs was a direct result of the Section 508 program.

Finally, we show how provisions, like the Section 508 program, once signed into law, become extremely difficult to eliminate. While the payment changes created by

the Section 508 program were originally written to expire three years after they were introduced, the hospitals and wider constituencies that benefited from the waivers had a considerable interest in seeing the program extended. Indeed, their shared financial interest in the continuance of the program was so great that Section 508-recipient hospitals joined together to form a political action committee (PAC) called the Section 508 Hospital Coalition.<sup>2</sup> Using data from the Center for Responsive Politics, we find that the Section 508 Hospital Coalition spent significant resources lobbying members of Congress to extend Section 508 program. Using data on campaign contributions from the Database on Ideology, Money in Politics, and Elections (DIME), we find that legislators who had one or more Section 508 hospitals in their district nearly doubled their campaign contributions after the Section 508 program was reauthorized.

There may be concerns that the increases in campaign contributions were caused by something other than the Section 508 program. However, we find that the gains in campaign contributions that members received went up linearly with the number of Section 508-recipient hospitals per district. We also find suggestive evidence that there were increases in campaign contributions from individuals and PACs affiliated with the American Hospital Association, but not from individuals and PACs affiliated with other unrelated trade associations (e.g. the American Bankers Association).

This paper makes three distinct contributions to the literature. First, as far as we are aware, this is the first work to formally show a link between the US political process and domestic health spending. This paper provides suggestive evidence of a feedback loop that illustrates why provisions like the Section 508 program get added to laws and then become exceedingly hard to eliminate. Our evidence suggests that politicians use Medicare payment increases as a form of logrolling to win votes from members of Congress. It is clear from our analysis that increases in Medicare payments can lead to large increases in hospital spending and substantive changes in local labor markets.

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<sup>2</sup>See: <https://www.opensecrets.org/lobby/clientsum.php?id=D000056560&year=2012>.

The benefits of narrow provisions, like the Section 508 program, are substantive enough that they precipitate the formation of PACs and substantial lobbying efforts to see them extended. Moreover, members of Congress see an increase in campaign contributions once these types of programs are extended. This feedback loop may help explain, in part, why it is so challenging to reduce US health spending in the long-run. Simply put, we observed that legislators were rewarded for votes that raised health spending in their districts.

Our results also help explain how seemingly inefficient Medicare programs (for example the funding of long-term care hospitals as noted by Einav et al. 2018) remain funded despite widespread concerns about differentially high health spending in the US.<sup>3</sup> Our evidence suggests that providers need to spend relatively little in lobbying dollars and on campaign contributions in exchange for exceptionally large increases in health spending. For example the Section 508 Coalition spent approximately \$1 million across 2005, 2006, and 2007 lobbying to have the Section 508 program extended. The American Hospital Association spent approximately \$54 million during that period lobbying on behalf of all US hospitals (some portion of that total spending went towards lobbying on behalf of Section 508 hospitals). Likewise, following 2007 extension of the Section 508 program, across all members of Congress with a Section 508-recipient hospital in their district, total campaign contributions increased cumulatively by \$14 million. By contrast, after the Section 508 program was extended, we estimate that hospitals that were awarded a waiver spent approximately \$1.5 billion more on inpatient Medicare services from 2008 to 2010 than they would have were the program to have been allowed to expire. These results are particularly notable because from 2000 to 2019, the health care industry (physicians, hospitals, and device and pharmaceutical manufacturers) spent more on lobbying annually than any other industry and have spent more than double what other industries have spent

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<sup>3</sup>Einav, Finkelstein, and Mahoney (2018) study the efficacy of Medicare funding for long-term care hospitals (LTCHs). The authors find that LTCHs offer no clinical benefits relative to other providers, but lead to approximately \$30,000 in higher costs per admission. Eliminating the program and reimbursing LTCHs at the same rate as other post-acute providers could save approximately \$5 billion annually. However, despite numerous attempts, policy-makers have not been able to eliminate differentially high payments to LTCHs.

during that period (The Center for Responsive Politics 2019a).

Second, we add to the literature analyzing the link between legislators' actions and campaign contributions. A large body of theoretical work has posited that, in an effort to increase their chances of being re-elected, politicians are incented to steer federal funding to constituents in their districts (see, for example, Weingast, Shepsle, and Johnsen (1981), Weingast (1979), Mayhew (1974), Shepsle and Weingast (1982)). One strand of the literature has argued that campaign contributions serve as an ex-post reward for legislators' actions on behalf of their district (Rocca and Gordon 2013). We find support that donations increase to members of Congress who take votes that increased federal spending (health spending) and created health care jobs in their district.

Third, while not the primary focus of this analysis, we add to the literature assessing how hospitals respond to payment increases (see, for example: Baicker and Staiger (2005), Dafny (2004), Kaestner and Guardado (2008), Foo, Lee, and Fong (2017), Duggan (2000), Chang and Jacobson (2011)). Because Section 508 waivers appeared to be politically motivated, the payment increases they generated can be viewed as plausibly exogenous. We use the receipt of a Section 508 waiver to show that hospitals respond to a Medicare payment increase via increasing their activity. We also find suggestive evidence that our sample of hospitals (which were mostly non-profits) also invested the added funds in the adoption of new technologies.

While this research focuses on a narrow provision written in the MMA, we highlight numerous other similar examples where legislative leaders have used the Medicare program as a tool to direct funds to particular elected officials. Collectively, given that four out of ten hospitals in the US has had their Medicare wage index altered by laws voted on in Congress, there is significant scope for political bartering to have impacted a large share of the Medicare budget (and hence the federal budget) (Government Accountability Office 2013). While targeted Medicare payment increases are often meant to be temporary, they can prompt significant lobbying efforts from firms that benefit, which can make

them challenging to remove. To that end, the U.S. Government Accountability Office has highlighted a number of similar, politically motivated Medicare hospital payment increases that have been in place for decades (Government Accountability Office 2013). Moreover, beyond directly shaping Medicare policy and payments, members of Congress also vote on laws that define the scope and structure of insurance markets, influence pharmaceutical pricing, and regulate medical devices. These responsibilities further entwine the health care system and the electoral process and give more opportunity for politics to influence health care spending in the US. Going forward, we hope this analysis inspires more work analyzing the influence of politics and lobbying on health spending variation and growth in the US.

This paper is structured as follows. In Section 2, we provide background information on the Medicare program and the Medicare Modernization Act of 2003. In Section 3, we describe the Section 508 program, identify recipient hospitals, and quantify the payment increases they received from receiving a Section 508 waiver. Section 4 describes the impact of the 508 program on hospital behavior. In Section 5, we analyze how the Section 508 program impacted Congressional districts. In Section 6, we explore whether members of Congress were rewarded for reauthorizing the Section 508 program. We conclude in Section 7.

## **2 Background**

### **2.1 The Medicare Program and the Medicare Modernization Act of 2003**

Medicare is a near-universal program that provides health insurance coverage to individuals age 65 and older and covers a subset of individuals with disabilities who are under age 65. Most Medicare funds are allocated across the US via formula-based payment programs for physicians and hospitals. The majority of hospitals in the US are paid for treating Medicare patients under the formula-based prospective payment system (PPS). The PPS reimburses

hospitals a fixed payment per inpatient case. Medicare payments vary across hospitals in the US by a factor of approximately three and are set to approximate hospital input costs for delivering care (Institute of Medicine 2012). The main factor that determines the level of hospitals' regulated payments is their wage index, which is a measure of local health care labor costs. A hospital's wage index is based on the hospital's physical location and is a measure of the local labor costs a hospital faces.

On December 8, 2003, President George W. Bush signed the MMA into law, which, for the first time, provided prescription drug coverage to seniors via the Medicare Part D program. The MMA was the largest expansion in the Medicare program's 38-year history. The law, which cost approximately \$400 billion over 10 years, was a political priority for the George W. Bush White House, who thought the coverage expansion would bolster the senior vote that he had lost to Al Gore in the 2000 presidential election (Oliver, Lee, and Lipton 2004). According to Bruce Bartlett, "George W. Bush strongly supported this effort [to pass Medicare Part D]. Looking ahead to a close re-election in 2004, he thought a new government giveaway to the elderly would increase his vote share among this group" (Bartlett 2013).

The passage of the MMA of 2003 was politically fraught. The bill was introduced in the US House of Representatives by Speaker Dennis Hastert on June 25, 2003. Early roll call votes in the House indicated that the bill was unlikely to pass. The key vote that moved the bill from the House to the Senate (roll call vote 332) passed by a one-vote margin, 216 to 215, and was split along party lines. Democrats voted 9 'Yea' and 195 'Nay' while Republicans voted 207 'Yea' and 19 'Nay.' This vote, in breach of congressional rules, was kept open for an abnormally long period during which time Vice President Cheney visited the House floor, and there was substantial arm-twisting (Oliver, Lee, and Lipton 2004). Ultimately, passage of the law hinged on keeping Republican members of the House from voting against the legislation and mustering support from conservative Democrats (Oliver, Lee, and Lipton 2004). As a result, because the vote was so close, every member's vote

could be considered a marginal vote. Section 508 was added immediately after this vote.<sup>4</sup> We focus on this vote and examine whether there are links between members' votes and whether hospitals in the members' districts received Section 508 waivers.

After the Senate passed the bill, the final vote on the reconciled legislation in the House of Representatives (roll call vote 669) was also extremely close. As was the case during the first House vote, rather than adhering to the standard 15-minute vote period and in contravention of the Rules of the House of Representatives, the vote was kept open for an extended window during which time Health and Human Services (HHS) Secretary Tommy Thompson visited the House floor and President Bush phoned reluctant members of Congress (Oliver, Lee, and Lipton 2004). In the end, the law passed by a vote of 220 to 215.

Consistent with Evans' 2004 argument that targeted policies can be inserted to garner votes in the passage of sweeping legislation, the MMA contains a number of provisions, in addition to Section 508, that provide targeted benefits in an effort to win over particular legislators (Lee 2003; Abelson 2003). As Christopher Lee wrote in the Washington Post in 2003:

“The \$395 billion Medicare bill passed by the House yesterday, advertised as a way to provide a long-awaited prescription drug benefit for seniors, also has become a vehicle for scores of narrower provisions tailored to benefit special interests. Such measures, dubbed ‘rifle shots’ for their narrowly targeted effects, are commonly attached to complex, high-profile legislation in the crunch as a way to both build support for the larger bill and to provide an avenue to passage for provisions that likely would not succeed on their own.” (Lee 2003)

Lee (2003) notes a number of specific provisions including a large increase in funding added to the MMA for physicians in Alaska, the home state of Senator Ted Stevens, the chairman of the Senate Appropriations Committee. Another provision, championed by

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<sup>4</sup>We spoke to individuals working on the staffs of members of Congress during the passage of the MMA, who indicated that Section 508 waivers were used as sweeteners during roll call vote 332.

Senator Charles Grassley from Iowa, contained significant funding for trials to determine whether the Medicare program should fund chiropractic services. Iowa is the home of a leading chiropractic educational institution (Lee 2003).

## **2.2 The Medicare Program and Political Logrolling**

While the Medicare program is supposed to allocate funding based on local needs and not politics, the control and influence that Congress has over the program allows members to narrowly focus funds to specific districts and key constituencies. There are a number of examples of where legislators have used the Medicare program to reward their constituents. For example, within the 1999 federal budget, Representative Rob Portman successfully lobbied for an increase in Medicare payments for brachytherapy, a treatment for prostate cancer in which radioactive seeds are implanted in the prostate. The radioactive seeds subjected to the funding increase were produced by Indigo Medical, a firm based in Congressman Portman's district (Pear 1999). Similarly, the 1999 budget also increased funding for radioactive dye used to sharpen the precision of imaging studies (Pear 1999). The provision for this funding increase was inserted by William Roth, the junior senator from Delaware, the state where the largest manufacturer of this product is headquartered.

Policymakers and journalists have argued that these types of narrowly directed funds have been used to curry favor from lawmakers and nudge them to vote for laws that were successfully passed including the Children's Health Insurance Program, the Affordable Care Act (ACA), and the MMA (Vladeck 1999; Aaron and Reischauer 2015; Pear 1999; Cohn 2010; Abelson 2003). These kinds of logrolling efforts can involve significant sums of money. For example, a recent article on Senate Majority Leader Mitch McConnell's efforts to repeal the ACA and pass the Better Care Reconciliation Act of 2017 (BCRA) stated, "Using a combination of hardball politics, personal persuasion and lots of money – hundreds of billions of dollars were available to pay for more add-ons to the bill in order to get some votes – the Kentucky Republican scrambled to round up 50 Republicans to

support the motion to proceed to the bill” (Bresnahan 2017).

Hospital payment rules, in particular, have been used to steer additional funding to particular hospitals and regions. While payment changes cannot be explicitly political, officials at CMS can write rules at the direction of legislative leaders that are crafted to steer funds narrowly to specific hospitals or groups of hospitals. Indeed, a significant portion of hospitals paid under the Medicare PPS have experienced a payment change.

Between 1997 and 2012, 16 statutory provisions were introduced that raised hospital reimbursements for small groups of providers (Government Accountability Office 2013).<sup>5</sup> As a result, by 2012, 37.6 percent of hospitals received some form of wage index reclassification that raised their reimbursement rate above what was originally set by the PPS formula (Government Accountability Office 2013). While some of these changes were merit based, a number of provisions have produced large changes in hospital payments that are often credited to a particular lawmaker or were used to direct funds very narrowly.<sup>6</sup> For example, “Lugar counties,” authorized and named after Indiana Senator Richard Lugar, were introduced in the Omnibus Reconciliation Act of 1987 and generated 10 percent increases in hospital payments for providers located in a small number of counties (American Hospital Association 2011). Likewise, within the 1999 budget, hospitals in districts represented by Representative Tom DeLay, the House Republican Whip and Representative Dennis Hastert, the Speaker of the House, were reclassified into other regions, which significantly increased the hospitals’ Medicare payment rates (Pear 1999). These changes resulted in annual increases in hospital funding of \$380,000 and \$750,000, respectively (Pear 1999). More recently, in what became popularly known as the “Bay State Boondoggle,” John Kerry, then Senator from Massachusetts, lobbied to prohibit

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<sup>5</sup>For a detailed description of the statutory provisions that have increased hospital payments, see the US 2013 Government Accountability Offices report to Congress (Government Accountability Office 2013).

<sup>6</sup>For example, because hospital payments are, to a large extent, based on the metropolitan statistical area (MSA) where the hospital is located, hospitals located near one another but on other sides of an MSA border can face substantial differences in payment rates. To address this issue, for example, the Omnibus Budget Reconciliation Act of 1989 created a process for hospitals to apply to have their wage index changed if the hospital was located within a short distance of another hospital that was paid at a substantially higher rate.

Medicare from paying urban hospitals below the rate paid to the rural hospital with the highest reimbursement rate in the state (Keane 2013; Jan 2013). Because the only rural hospital in Massachusetts is located in Nantucket, a wealthy island town, urban hospitals across the state saw a substantial increase in payments from this change.<sup>7</sup>

There have also been larger-scale payment changes similar to the Section 508 program that were inserted into wider legislation and designed to win votes from reluctant legislators. For example, the ACA created the Frontier States provision, which raised the minimum wage index of hospitals in Montana, Nevada, North Dakota, South Dakota, and Wyoming. This payment change was reported to be a vehicle to win support for the Affordable Care Act from senators in these rural states (Cohn 2010).

### **3 The Section 508 Program**

#### **3.1 Background on the Section 508 Program**

The Section 508 program created a process through which, in the months after the MMA was passed, hospitals could appeal their current wage index assignment and receive a time-limited change in their wage index that would increase their PPS payment rate. The provision was open to hospitals that were paid using the PPS that did not qualify for other changes in their wage index. According to the Federal Register (2004a), “a qualifying hospital. . . does not qualify for a change in wage index classification under paragraphs (8) or (10) of section 1886(d) of the Act on the basis of requirements relating to distance or commuting” (pg. 7341). The legislation did not specify the specific criteria hospitals would need to meet to qualify. Instead, the law stated that a qualifying hospital “meets other criteria, such as quality, as the Secretary may specify by instruction or otherwise.”

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<sup>7</sup>Ironically, in 2016, CMS discovered a mistake in calculating the wage index for Massachusetts that accidentally led to higher hospital payments for Nantucket than should have been allowed. When the mistake was discovered and subsequently corrected, because of the 2012 law that linked statewide urban hospital payments to the payment rate for Nantucket, updating Nantucket’s hospital payment rate led to cuts in hospital funding across all of Massachusetts that totaled approximately \$160 million (Kuhn and Schencker 2016).

Ultimately, the specific rules and regulations that determined how Section 508 waivers were to be granted were written after the MMA was passed and members of Congress had cast their votes. The broad language in Section 508 of the MMA created flexibility for the executive branch to write rules that favored specific hospitals.<sup>8</sup> Originally, the law budgeted \$900 million to fund the wage index changes from the Section 508 waivers, which were to run from April 1, 2004 to March 31, 2007. However, the program was extended several times until it finally expired on March 31, 2012 (Government Accountability Office 2013).

Approximately two months after the MMA was passed, the first set of rules for judging Section 508 waiver requests was published in the Federal Register (Federal Register 2004a). A month later, the rules were updated with more detail and justification (Federal Register 2004b). In practice, the Section 508 program relaxed the criteria for hospitals to get their wage index changed. Historically, the Medicare Geographic Classification Review Board, the body responsible for assessing hospital wage index appeals, would allow hospitals to reclassify their wage index to an adjacent region if an urban hospital was within 15 miles of another hospital that was paid substantially more or a rural hospital was within 35 miles of a hospital paid substantially more (Federal Register 2004a). The Section 508 program allowed hospitals that did not meet those standard criteria to get a wage index change based on one of eight new criteria (Federal Register 2004a). These new criteria were quite specific and allowed policy-makers to target funds narrowly to specific groups of hospitals. For example, the program allowed urban hospitals in states with fewer than 10 people per square mile to get a reclassification. Likewise, the program allowed hospitals to change their assigned wage index to a wage index from a region in another state if the hospital's average hourly wages were at least 108% of the average hourly wages at a hospital in the area where the hospital was arguing it should be reclassified.<sup>9</sup> While

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<sup>8</sup>In 2014, we spoke to officials at CMS when the Section 508 program was introduced. They described how the program allowed them to write 'rifle shot' provisions to target funds at specific hospitals.

<sup>9</sup>The Federal Register, Volume 69, Number 30, printed on February 13, 2004 includes a detailed description

the Section 508 program was written with very specific criteria that allowed benefits to be directed to specific hospitals, other hospitals that were represented by politicians who were not part of the logrolling process around the MMA could apply and potentially get a waiver.

### **3.2 Quantifying Medicare Payments and Gains from the Section 508 Program**

We submitted a FOIA request to CMS and requested for the criteria on which hospitals that applied for a Section 508 waiver were judged, a definitive list of hospitals that applied for and received a Section 508 waiver, and a list of hospitals that applied for but were rejected for a Section 508 reclassification. Within a year of our submission, we received a detailed reply from CMS with the information we requested including the identities of the 498 hospitals that applied for a waiver and the 120 hospitals that had their applications approved.

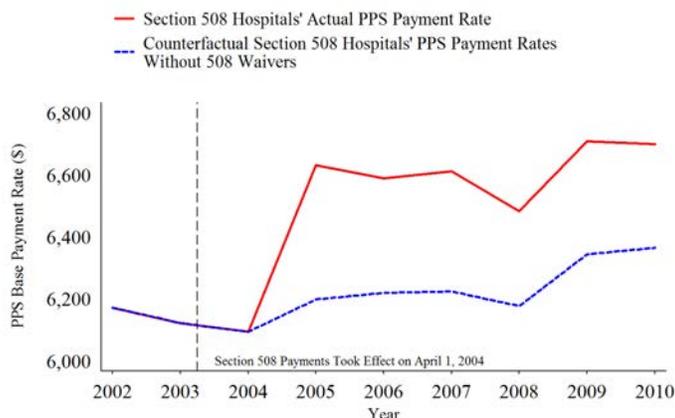
We followed the CMS payment rules presented in the Federal Register to construct hospital PPS payments for each inpatient case for each hospital in each year from 2002 through 2010.<sup>10</sup> Using this formula to calculate hospitals' Medicare PPS payments allowed us to create counterfactual payments and identify what hospitals would have been paid with and without the wage index change generated by the Section 508 program. In Figure 1, we show Section 508-recipient hospitals' base Medicare PPS payment rate with and without the wage index change generated by the program. Because of the immediate payment rules change, as we illustrate in the figure, the Section 508 program created a sharp and immediate increase in hospitals' payments in 2005 that persisted for the next five years. We find that the mean Section 508-recipient hospital received a 7.03 percent increase in their Medicare PPS payment rates in 2005.

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of the quality criteria hospitals had to meet to receive a Section 508 waiver. Per federal law, the Federal Register also includes justifications for these changes.

<sup>10</sup>See Appendix A.2 for more details about how we calculated Medicare PPS payments per hospital.

**Figure 1: The Impact of Medicare Payment Increases on Hospitals' Base PPS Payment Rates**



**Notes:** This figure shows the Medicare PPS payment rates in 2010 dollars for the 88 hospitals in our balanced analytic sample that received a Section 508 waiver. The PPS payment is then multiplied by a DRG weight to get a payment rate per case. We show the actual PPS payment rates (red solid line) and the payment rates the hospitals would have received were they not to have received a 508 waiver (blue dashed line). We assume that absent receiving a Section 508 waiver, hospitals would have continued to have a payment rate constructed using their original wage index.

### 3.3 Hospital Receipt of Section 508 Waivers and Votes for Medicare Modernization Act of 2003

In Table 1, we examine the relationship between the vote on the MMA by each member of Congress and whether the hospitals in their district received a Section 508 waiver. Data on members' votes was obtained from Voteview, and data on whether hospitals received a 508 waiver came from our FOIA request (details on our data sources are included in Appendix A.1). Note that this table examines 118 Section 508-recipient hospitals because two hospitals with a Section 508 waiver were represented by members of Congress who did not vote in roll call vote 332. Among the universe of hospitals paid using the PPS in 2005, 3.0 percent received a Section 508 waiver. Among the universe of hospitals eligible to receive a waiver (e.g. those that did not already have a wage index reassignment), 5.0 percent received a Section 508 waiver. Of hospitals that applied for a waiver (498

hospitals), 24.1 percent (120) had their application approved.

In Columns (1) and (2) in Table 1, we find that, among all hospitals in our sample eligible to receive a Section 508 waiver, hospitals represented by a member of Congress who voted ‘Yea’ to roll call vote 332 on the MMA were more likely to receive a waiver than hospitals represented by a member of Congress who voted ‘Nay’ (6.0 percent versus 4.2 percent;  $p < 0.10$ ). Among hospitals that applied for a waiver, hospitals represented by a member who voted ‘Yea’ to the MMA were 1.4 times more likely to have their applications approved than hospitals represented by a member who voted ‘Nay’ (27.6 percent/19.9 percent;  $p < 0.05$ ).<sup>11</sup>

The political calculus and electoral risks associated with voting in favor of the legislation varied substantially by party with Republicans choosing between angering fiscal conservatives in their base and opposing a president from their own party, while Democrats who may have liked the policy were loath to provide legislative support that could help reelect the Republican president. Therefore, we also split the analysis by the political party of the congressional representative in each hospital district. In Columns (4) and (5) in Table 1, we find that among hospitals that were eligible to receive a waiver, hospitals represented by a Republican member of Congress who voted ‘Yea’ to the MMA were nearly 7 times more likely to receive a Section 508 waiver than those represented by a Republican member of Congress who voted ‘Nay’ (= 5.6 percent/0.8 percent;  $p < 0.01$ ). Among hospitals that applied for a Section 508 waiver, those represented by a Republican member of Congress who voted ‘Yea’ were 4 times more likely (= 26.3 percent/6.7 percent;  $p < 0.01$ ) to receive a waiver than those represented by a Republican member of Congress who voted ‘Nay’. Likewise, hospitals represented by a Democratic member of Congress who voted ‘Yea’ were also significantly more likely to receive a waiver than hospitals represented by

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<sup>11</sup>Note that two hospitals that received a Section 508 waiver were excluded from this analysis because the members representing those hospitals abstained from voting in roll call vote 332. We lose one additional hospital that applied for a waiver because their members also abstained from voting. We also lose a hospital that applied for a Section 508 waiver because it was no longer in the CMS data in 2005.

**Table 1: Congressional Votes for the Medicare Modernization Act of 2003 and Section 508 Waivers**

	Hospitals Represented by All Members of Congress		Hospitals Represented by Republicans		Hospitals Represented by Democrats				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Yea	Nay	Yea-Nay	Yea	Nay	Yea-Nay	Yea	Nay	Yea-Nay
<b>Share of 508 Recipient Hospitals</b>	0.060	0.042	0.017*	0.056	0.008	0.048***	0.110	0.046	0.064*
<b># of 508 Recipient Hospitals</b>	71	47		62	1		9	45	
<b>Total Hospitals</b>	1,193	1,111		1,111	121		82	982	
<b>Votes</b>	198	185		189	19		9	165	
	<b>Hospitals that Applied for a Section 508 Waiver</b>								
	Yea	Nay	Yea-Nay	Yea	Nay	Yea-Nay	Yea	Nay	Yea-Nay
<b>Share of 508 Recipient Hospitals</b>	0.276	0.199	0.077**	0.263	0.067	0.196***	0.429	0.206	0.222**
<b># of 508 Recipient Hospitals</b>	71	47		62	1		9	45	
<b>Total Hospitals</b>	257	236		236	15		21	218	
<b>Votes</b>	116	106		110	8		6	97	
	<b>Hospitals that Received a Section 508 Waiver</b>								
	Yea	Nay	Yea-Nay	Yea	Nay	Yea-Nay	Yea	Nay	Yea-Nay
<b>Size of PPS Payment Gains (\$)</b>	440.07	390.57	49.51	433.23	0.00	433.23***	487.20	384.79	102.41***
<b>Total Hospitals</b>	71	47		62	1		9	45	
<b>Votes</b>	28	19		27	1		1	17	
	<b>Share of All Hospitals that Received a Section 508 Waiver: 0.030<sup>†</sup></b>								
	<b>Share of Eligible Hospitals that Received a Section 508 Waiver: 0.050<sup>†</sup></b>								
	<b>Mean Base PPS Payment Rate of 508 Hospitals in 2005: \$6,197.25<sup>‡</sup></b>								
	<b>Mean Increase in Base PPS Payment Rate from Section 508 Waiver: \$433.43<sup>‡</sup></b>								

**Notes:** \*p<0.05, \*\*p<0.01, \*\*\*p<0.001. p-values are based on wild-bootstrap standard errors. This table describes the likelihood hospitals received a Section 508 waiver and the size of hospitals' gains from the Section 508 program as a function of whether or not their member of Congress voted in favor of the Medicare Modernization Act of 2003 during roll call vote 332. All statistics are calculated for 2005 using our full sample of hospitals unless otherwise noted. In comparing the fraction of hospitals that received a Section 508 waiver and the size of PPS payment gains, we include all hospitals in our data except those who were represented by a member of Congress who abstained from voting. This excludes 2 of the 120 hospitals that received a Section 508 waiver and 104 of 3,982 hospitals who are in our data in 2005. † Calculated with our full sample of hospitals. ‡ Calculated with our balanced analytic sample of hospitals.

a Democratic member who voted ‘Nay’ ( $p < 0.10$ ). Note that in Columns (4) through (9), we rely on a sample of 117 Section 508-recipient hospitals because an additional recipient hospital was represented by a member of Congress that was not registered as a Democrat or a Republican.

While the average gain in PPS payments for hospitals that received a Section 508 waiver were \$433.43 off of a mean PPS base payment rate of \$6,197.25 in 2005, there was significant heterogeneity in the size of the PPS payment gains. According to the MMA, the Secretary of HHS had influence over the size of the gains hospitals could obtain from a Section 508 waiver. Within the rules for the MMA, the Federal Register (2004a) stated, “Under this [Section 508] process, a qualifying hospital may appeal the wage index classification otherwise applicable to the hospital and apply for reclassification to another area of the State in which the hospital is located (or, at the discretion of the Secretary, to an area within a contiguous State)” (pg. 7341). Therefore, the Secretary of HHS was able to decide whether hospitals that received a Section 508 waiver could be reclassified to areas in other states with higher wage indexes.

In Table 1, we also examine whether there were larger PPS payment gains among Section 508-recipient hospitals represented by members of Congress who voted ‘Yea’ relative to ‘Nay.’ In Columns (1) and (2), we show that hospitals represented by a member of Congress who voted ‘Yea’ received larger gains than those represented by a member of voted ‘Nay’ (\$440.07 versus \$390.57;  $p < 0.24$ ). These differences are statistically significant when we analyze the votes by party. The lone Section 508-recipient hospital represented by Republican member of Congress who voted ‘Nay’ received virtually no increase in PPS payments (the difference in gains between that hospital and the other Section 508-recipient hospitals represented by Republican members who voted ‘Yea’ is significant at  $p < 0.01$ ). Likewise, we also find that hospitals represented by Democratic members of Congress who voted ‘Yea’ to the MMA received \$102.41 more from the program than hospitals represented by Democratic members of Congress who voted ‘Nay’

( $p < 0.01$ ).

## 4 Section 508 Waivers and Hospital Behavior

### 4.1 Estimating the Impact of the Section 508 Medicare Payment Increases

In this section, we examine the impact of the Medicare payment increase generated by the Section 508 program on hospital behavior, hospital spending, and hospital investments. We use difference-in-difference regression to identify the outcomes for the hospitals that received a Section 508 waiver before and after they received their March 31, 2004 onward payment increase relative to the outcomes at various groups of control hospitals. Our difference-in-difference specification takes the form:

$$Outcome_{h,t} = \beta_t Section\_508\_Recipient_h \cdot \tau_t + \vartheta_h + \tau_t + \varepsilon_{h,t} \quad (1)$$

where we measure outcomes  $Outcome_{h,t}$ , such as inpatient Medicare discharges, at hospital  $h$  in year  $t$ . We interact our treatment indicator ( $Section\_508\_Recipient_h$ ) with a vector of year fixed effects  $\tau_t$ . We also include a vector of year fixed effects  $\tau_t$  and hospital fixed effects  $\vartheta_h$ , which capture the main effects of each interaction. Following Cameron, Gelbach, and Miller (2008), we report wild-bootstrapped standard errors (although our results are robust to clustering our standard errors around hospitals). We present our estimates of Equation (1) graphically and in tables. The omitted category in our regressions is 2002.

Our FOIA request revealed that 498 hospitals applied for a Section 508 waiver. Of those hospitals that applied for a waiver, 378 had their applications rejected and 120 hospitals had their applications approved. Among the 120 hospitals that had their waiver applications approved, we lose 17 hospitals from our analysis because they were not registered with the American Hospital Association (AHA) in at least one year. A further

15 hospitals dropped out during our sample period because they either were involved in a merger, closed during our period of analysis, or ceased being listed in the CMS impact files (which identify how hospitals are paid). This leaves 88 hospitals in our treated sample that remained registered with the AHA, and were reimbursed by the Medicare program from 2002 through 2010. While we rely on a balanced panel of hospitals in our main analysis, we also illustrate that our results are robust when we rely on an unbalanced panel of hospitals.<sup>12</sup>

In any difference-in-difference analysis, the identifying assumption is that the control group represents what would have occurred at the treated group absent any intervention (in our setting, the intervention is the payment increase generated by the Section 508 program). Because the payment increases generated by the Section 508 program were not a function of random assignment, there is no ‘perfect’ control group for our analysis. The main control group we use in this analysis include the 284 hospitals that applied for a Section 508 waiver, but had their application rejected. As we illustrate in Appendix Table A.2, these hospitals have similar characteristics to treated hospitals, but are less likely to be represented in Congress by a member of Congress who voted ‘Yea’ to the MMA of 2003 ( $P < 0.05$ ).<sup>13</sup> In addition, we illustrate that our results are robust to using three alternative control groups: 1) hospitals that were eligible to apply for the Section 508 program, but did not submit an application; 2) hospitals that were ineligible for the Section 508 program; and 3) all hospitals that did not receive a Section 508 waiver. We also use propensity score matching to construct a control group drawn from hospitals that were eligible for a Section 508 waiver but did not receive one. We illustrate that there was

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<sup>12</sup>There are 19 hospitals in our treatment group and 101 hospitals in our control group that have missing or zero outcomes in one year or another. We dummy out these missing values and zeros. Our results are also robust to excluding these observations from our analysis.

<sup>13</sup>In Appendix Table A.2, we compare the characteristics of Section 508-recipient hospitals, hospitals that applied for a waiver and were rejected, those that were eligible but did not apply, ineligible hospitals, and all hospitals registered with the AHA from 2002 to 2010 that were paid using the PPS. Section 508-recipient hospitals were slightly larger than the average AHA hospital, more likely to be a non-profit, teaching hospital, and less likely to be located in a rural area. Hospitals that unsuccessfully applied for a Section 508 waiver were larger than Section 508-recipient hospitals, had more Medicaid discharges, and were less likely to be non-profit providers.

no statistically significant difference in pre-trends between the treated and all the control groups in the period prior to the introduction of the Section 508 program.

#### **4.2 Section 508 Waivers, Hospital Activity, and Health Care Spending**

To test the impact of the increase in Medicare payments on hospital activity and health care spending, we utilize data from the 100 percent sample of Medicare claims data. We analyze how the Medicare payment increases generated by the Section 508 program impacted inpatient Medicare discharges and hospitals' annual inpatient Medicare spending.<sup>14</sup> We measure the amount of technology per hospital following the approach of Acemoglu and Finkelstein (2008) using data from the AHA. The AHA data includes binary indicators for whether a hospital has various technologies, such as computed-tomography (CT) scanners, electron beam computed tomography, or proton beam therapy. We sum the number of these technologies present at each hospital to arrive at a count of technologies per hospital per year.

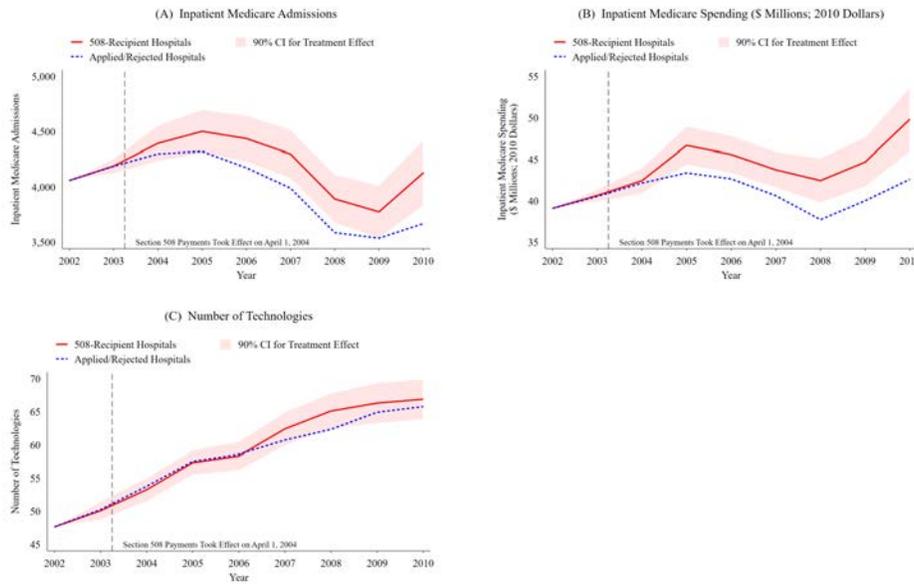
Within our sample, eighty-eight percent of Section 508-recipient hospitals are non-profit facilities. Newhouse (1970) has argued that private, nonprofit hospitals maximize output and prestige. If hospitals maximize output, then an increase in Medicare payment rates should also generate an increase in the number of Medicare patients treated at Section 508-recipient hospitals, assuming Medicare reimbursements are greater than hospital per case marginal costs.

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<sup>14</sup>We accessed the 100 percent sample of Medicare claims via the American Hospital Directory (AHD). Our measure of annual hospital inpatient spending captures the total amount the Centers for Medicare and Medicaid Services paid each hospital for all inpatient care delivered to Medicare beneficiaries. Our spending measure is constructed in three steps. First, we identify the regulated DRG PPS payment for each DRG at each hospital in each year in our data and we identify the count of each DRG delivered at each hospital in each year. Second, we multiply the number of each case performed per hospital per year times the annual hospital-DRG-specific payment rate. Third, we sum the spending per DRG across hospitals each year to produce a measure of total inpatient spending per year per hospital. To comply with data masking rules from the Centers for Medicare and Medicaid Services, the AHD data does not release cells with fewer than ten observations. As a result, we do not capture spending on DRGs, for example, that were performed fewer than ten times per year at a given hospital. Therefore, our spending measure captures spending on the most common DRGs. We inflation adjust our spending measure into 2010 dollars using the seasonally-adjusted Consumer Price Index for All Urban Consumers (CPI-U).

Consistent with these predictions, while there was a national reduction in the share of hospital services performed in an inpatient setting in the 2000s, as we observe in Panel A of Figure 2, inpatient quantities went down less at Section 508-recipient hospitals than they did in control hospitals (McDermott, Elixhauser, and Sun 2017). Our estimates of Equation (1) presented in Column (1) of Table 2 show that the number of inpatient discharges were 460.10 higher in our treated hospitals by 2010 than what occurred at hospitals that applied for a Section 508 waiver, but had their applications rejected ( $p < 0.05$ ). The mean number of discharges in our treated group in the base year (2002) was 3,991.20 implying a difference in inpatient discharges between our treated and control hospitals of approximately 11.5 percent.

**Figure 2: The Impact of Section 508 Waivers on Hospitals' Inpatient Medicare Admissions, Inpatient Medicare Spending, and Technology Adoption**



**Notes:** These panels present estimates of Equation (1) where we regress hospital outcomes on a vector of hospital fixed effects, year dummies, and interactions between the Section 508-recipient hospital indicator and year dummies. 2002 is our omitted year. 90% confidence intervals are based on wild-bootstrapped standard errors clustered around hospitals. Control hospitals include those that applied for the Section 508 waiver but were rejected.

The Medicare payment increases generated by the Section 508 program induced a

large increase in Medicare inpatient spending at treated hospitals (Panel B of Figure 2) without any evidence of differential pre-trends. This spending increase was the result of both the mechanical payment increase generated by the Section 508 program and the volume increase we identified in Column (1). In Column (2) in Table 2, we show that in the first full year that the payment increases were in place (2005), inpatient Medicare spending increased at treated hospitals by \$3.29 million off of a mean in inpatient spending of \$39.28 million at treated hospitals in 2002 (implying an 8 percent increase) ( $p < 0.05$ ). By 2010, treated hospitals were spending \$7.21 million more on inpatient care than hospitals in our control group (an increase of approximately 18 percent) ( $p < 0.005$ ).

From 2005 to 2010, the Section 508 program raised inpatient spending at treated hospitals by approximately \$26 million.<sup>15</sup> Collectively, this resulted in more than \$2.2 billion in additional spending from 2005 to 2010 across the 88 treated hospitals in our analysis.<sup>16</sup> This amount is notable because the original legislative language in Section 508 of the MMA only authorized \$900 million in spending on the program that was to occur between April 1, 2004 and April 1, 2007. Moreover, this is a conservative estimate because we do not quantify the impact of the Section 508 program on outpatient care or estimate any spillover effects on individuals with private insurance.

In addition, since the complexity of care hospitals provide and their use of technology can be interpreted by some as a signal of quality, we also should expect technology adoption to increase after the payment increases took effect (Pope 2009). In Panel C of Figure 2, we present trends in the hospital technology count generated from estimates of Equation (1). We observe suggestive evidence that the introduction of the Section 508 program led hospitals to adopt more technology. Treated and untreated hospitals had nearly identical pre-trends prior to the passage of the MMA of 2003. After treatment hospitals received the payment increase generated by the Section 508 program, there was

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<sup>15</sup>This number is obtained by summing the 2005 to 2010 interaction terms.

<sup>16</sup>We obtain this by multiplying 88 (the number of treated hospitals) by the \$26 million in added spending per treated hospital.

**Table 2: The Impact of Section 508 Waivers on Hospitals' Inpatient Medicare Admissions, Inpatient Medicare Spending, and Technology Adoption**

	Inpatient Medicare Admissions	Inpatient Medicare Spending (\$ Millions, 2010 Dollars)	Number of Technologies
	(1)	(2)	(3)
<i>2002 - Pre-Treatment Year - Omitted Category</i>			
2003*Treated Group	1.84 (41.92)	0.11 (0.46)	-0.17 (0.85)
2004*Treated Group	94.46 (98.65)	0.28 (0.96)	-0.51 (1.08)
<i>Section 508 Payments Took Effect on April 1, 2004</i>			
2005*Treated Group	181.09 (119.45)	3.29** (1.41)	-0.20 (1.14)
2006*Treated Group	262.79** (127.48)	2.94** (1.37)	-0.26 (1.31)
2007*Treated Group	307.83** (134.13)	3.12** (1.33)	1.69 (1.55)
<i>Section 508 Program Reauthorized on December 19, 2007</i>			
2008*Treated Group	305.86** (134.18)	4.72*** (1.63)	2.77* (1.64)
2009*Treated Group	239.43 (146.46)	4.67** (1.82)	1.39 (1.88)
2010*Treated Group	460.10** (180.33)	7.21*** (2.37)	1.11 (1.86)
Hospital FE	X	X	X
Year FE	X	X	X
N	3,348	3,348	3,348
<i>Mean of the Dependent Variable in 2002</i>			
508 Hospitals	3,991.20	39.28	49.18
Control Hospitals	4,080.88	39.03	46.65

**Notes:** \*p<0.10, \*\*p<0.05, \*\*\*p<0.01. This table presents estimates of Equation (1) where we regress hospital outcomes on a vector of hospital fixed effects, year dummies, and interactions between the Section 508-recipient hospital indicator and year dummies. 2002 is our omitted year. Wild-bootstrapped standard errors that are clustered around hospitals are presented in parentheses. Observations (N) are hospital-years. Control hospitals are those who applied for a Section 508 waiver but were rejected.

an increase in the count of technology at those hospitals. Yet, as we illustrate in Table 2, these changes are generally not precisely estimated at conventional levels other than the 2008 interaction term ( $p < 0.10$ ). However, as we illustrate later, these effects become precisely estimated when we focus on the Section 508-recipient hospitals that received the largest payment increases from the Section 508 program.

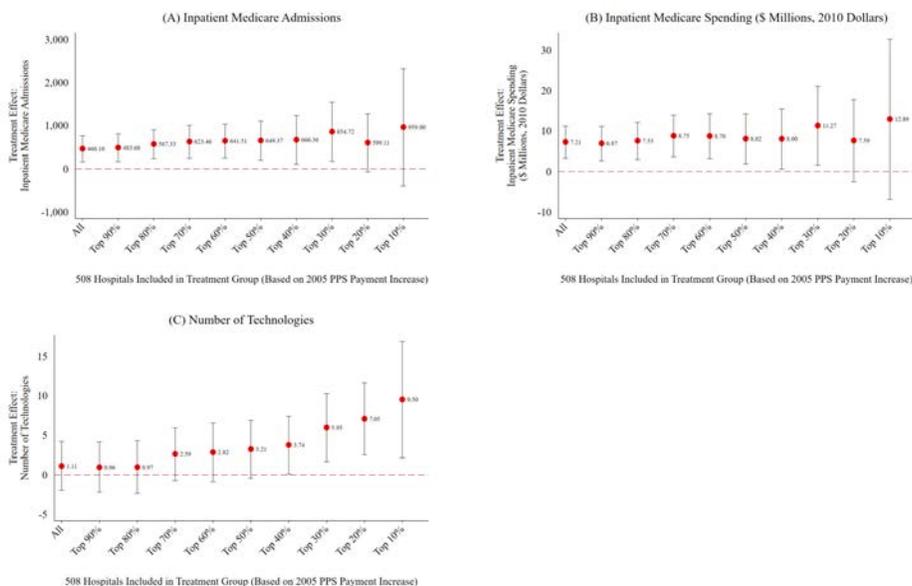
#### **4.3 Section 508 Waivers and Hospital Behavior - Varying the Composition of Treatment Groups**

As we demonstrate in Appendix Table A.1, there was significant heterogeneity in payment increases generated by the Section 508 program. The median PPS base payment rate to hospitals in our analytic sample (e.g. payments to hospitals when the DRG weight is 1) was \$5,860.10 in 2005. The median payment increase generated from the Section 508 program was \$416.66 and the standard deviation in the gains across Section 508-recipient hospitals in our analytic sample was \$222.97.

In Figure 3, we show how the size of our treatment effects vary as we alter the composition of our treated group and focus on treatment groups composed of hospitals that received increasingly large payment increases from the Section 508 program. Each group, moving from left to right, is composed of hospitals that received increasingly large payment increases from the Section 508 program. In each panel in Figure 3, the point estimate closest to the Y-axis shows the treatment effects when all Section 508-recipient hospitals are included in the treatment group. The next point is the treatment effect including hospitals that received payment increases from the Section 508 program in the 10th percentile (\$147.60) and upwards. The next point includes hospitals that received payment increases in the 20th percentile (\$254.80) and upwards, and so forth.

In Panel A of Figure 3, we show that the effect of the Section 508 program on inpatient cases in 2010 is increasing as the size of the payment increase from the Section 508 program grows. While the differences between the groups is not statistically significant,

**Figure 3: The Impact of Section 508 Waivers on Hospitals' Inpatient Medicare Admissions, Inpatient Medicare Spending, and Technology Adoption - Dose Response Estimates of Treatment Effects**



**Notes:** Each figure plots the coefficient of the year 2010 interaction term from Equation (1) where we regress hospital outcomes on a vector of hospital fixed effects, year dummies, and interactions between the Section 508-recipient hospital indicator and year dummies. Moving left to right in each panel, each specification involves a treated group composed of hospitals that received increasingly large payment increases from the Section 508 program. 2002 is our omitted year. Wild-bootstrapped standard errors that are clustered around hospitals are presented as 90% confidence intervals. Control hospitals include those that applied for the Section 508 waiver but were rejected.

the difference in magnitudes of the treatment effects implies that the effect size nearly doubles when we focus on the group of hospitals with the highest payment increases. In Panel B, we observe a similar increase in inpatient spending in 2010 as the size of the payment increase generated by the Section 508 program goes up. In Panel C, which presents the effect of Section 508 payment increases on the count of hospital technologies in 2010, the effect of the Section 508 program on hospital technology adoption becomes precisely estimated when we focus on the 20 percent of Section 508-recipient hospitals that had the largest payment increases from the program. The difference in magnitudes of the treatment effects on technology adoption between the group of all 88 Section 508

hospitals and the 20 percent of hospitals with the largest PPS gains from the Section 508 program is statistically significant.

#### **4.4 Section 508 Waivers and Hospital Behavior - Robustness**

We conducted a large number of robustness tests on the results presented in Table 2, some of which we describe here. First, as we illustrate in Appendix Figure A.1, our main results remain robust when we rely on an unbalanced panel of treated hospitals. Second, in lieu of using hospitals that applied for a Section 508 waiver, but had their applications rejected as our control group, we show the robustness of our results to using three alternative control groups. In Appendix Figure A.2, we show event studies derived from estimates of Equation (1) and dose response graphs for the 2010 Section 508 treatment effects when we construct a control group that is composed of hospitals that were eligible to apply for the Section 508 program but did not submit an application. In Appendix Figure A.3, we show event study graphs and dose response estimates for the 2010 treatment effects when the control group is composed of hospitals ineligible for the Section 508 program because they already received a wage index increase. In Appendix Figure A.4, we construct a control group composed of the universe of hospitals paid via the PPS program that did not receive a Section 508 waiver. Our main results are qualitatively unchanged when we use these three alternative control groups. Finally, we show in Appendix Figure A.5 that our treatment effects remain similarly scaled and precisely estimated when we use propensity score matching to construct our control group from the universe of hospitals eligible for a Section 508 waiver who did not receive one.<sup>17</sup>

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<sup>17</sup>We use a probit model to construct propensity scores that match Section 508-recipient hospitals to their 10 nearest neighbors. We estimate our probit to predict Section 508 receipt based on 2002/2003 mean Medicare discharges, Medicaid discharges, for-profit status, teaching hospital status, the bed count, a rural indicator, and the 2002 and 2003 (pre-treatment) mean value of the dependent variables (inpatient spending, Medicare admissions, and the technology count).

## 5 Section 508 Waivers and Congressional District-Level Outcomes

### 5.1 Estimating the Gains to Congressional Districts

A significant body of work has found that members of Congress devote substantial time and effort to steering benefits (e.g. jobs and federal dollars) to their district (Mayhew 1974; Weingast 1979; Shepsle and Weingast 1982; Weingast, Shepsle, and Johnsen 1981; Levitt and Snyder Jr. 1997). In this section, we focus on testing whether the Section 508 program led to increases in Medicare spending and new jobs in congressional districts with one or more hospitals that received a Section 508 waiver.

We again rely on a difference-in-difference estimator that takes the form:

$$Outcome_{d,t} = \beta_1 CD\_With\_Section\_508\_Hospital_d \cdot \tau_t + \vartheta_d + \tau_t + \varepsilon_{d,t} \quad (2)$$

and analyze changes in congressional-district level outcomes  $Outcome_{d,t}$  in each district  $d$  by year  $t$ . We interact our treatment indicator,  $CD\_With\_Section\_508\_Hospital_d$ , which denotes whether a congressional district has a Section 508-recipient hospital, with a vector of year fixed effects  $\tau_t$ . We also include a vector of year fixed effects  $\tau_t$  and Congressional district fixed effects  $\vartheta_d$ . We again report wild-bootstrapped standard errors (although our results are robust to clustering around congressional districts).

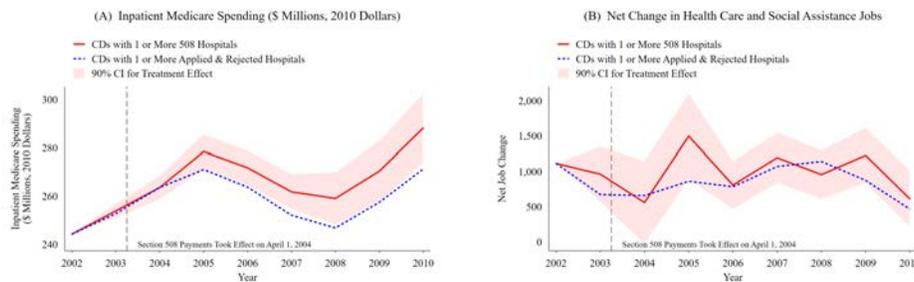
We focus on two dependent variables. First, we aggregate Medicare inpatient spending across every hospital in each congressional district (including hospitals that did not receive a Section 508 waiver) in order to get a measure of Medicare inpatient spending per district. Second, we measure the net change in health care jobs per year per congressional district using data from the Census Bureau's Quarterly Workforce Indicators (QWI).<sup>18</sup>

<sup>18</sup>See: <https://www.census.gov/data/developers/data-sets/qwi.html> to access the QWI data. The QWI data is measured at the county-level. We aggregate this data to the Congressional district level

We compare outcomes in treated districts (e.g. those with one or more hospitals that received a Section 508 waiver) with outcomes in four sets of control districts: 1) districts with one or more hospitals that applied for a Section 508 waiver but had their application rejected; 2) districts with one or more hospitals that were eligible for the Section 508 program, but did not apply; 3) districts with one or more hospitals that were ineligible for the Section 508 program; 4) and districts without any hospitals that were awarded a Section 508 waiver, but had one or more hospitals paid via the PPS. We also use propensity score matching to construct a control group of congressional districts without a Section 508-recipient hospital. We illustrate that there were no differences in trends between treated and control congressional districts before the Section 508 program was introduced.

## 5.2 The Section 508 Program, Congressional District-Level Medicare Spending, and Job Creation

**Figure 4: The Impact of the Section 508 Program on Congressional District-Level Inpatient Medicare Spending and Labor Market Outcomes**



**Notes:** These figures present estimates of Equation (2) where we regress congressional district outcomes on a vector of congressional district fixed effects, year dummies, and interactions between the treated congressional district indicator and year dummies. 2002 is our omitted year. Control congressional districts are those that have hospitals that applied for a Section 508 waiver but were rejected. 90% confidence intervals are based on wild-bootstrapped standard errors clustered around congressional districts. Net job change figures are for full-quarter jobs in NAICS Sector 62 ("Health Care and Social Assistance"). QWI data is aggregated from the county-quarter to the congressional district-year level.

by mapping each county to a Congressional district using crosswalks from the Missouri Census Data Center (<http://mcdc.missouri.edu/applications/geocorr.html>). If a county falls within more than one Congressional district, we proportionally distribute the county's net job change figures to each Congressional district based on population.

Figure 4 presents estimates of Equation (2) and demonstrate that there was a large increase in Medicare inpatient spending in congressional districts with one or more hospitals that received a Section 508 waiver. Notably, there is no meaningful difference in Medicare inpatient spending between treated and control congressional districts prior to the introduction of the Section 508 program. The point estimates presented in Table 3 show that the Section 508 program led to a \$7.39 million increase in Medicare inpatient spending per treated congressional district in 2005 ( $p < 0.1$ ). To give a sense of the magnitude of the effect of the Section 508 program, Medicare spending in treated districts was \$244 million in 2002. So, the 2005 treatment effects imply that the Section 508 program led to an increase in Medicare inpatient spending at the congressional district level of approximately 3 percent in the first year post implementation. By 2010, spending in treated congressional districts was \$16.87 million higher than it was in control districts (a 7 percent increase in spending) ( $p < 0.1$ ).

As we illustrate in Panel B of Figure 4, congressional districts with one or more Section 508-recipient hospitals also experienced a sharp, discrete increase in health care jobs in 2005 (the first year when the Section 508 payment increases were in effect for all 12 months). Results in Column (2) of Table 3 show that districts with one or more Section 508 hospitals had a net increase in new health care jobs of 635.60 in 2005 ( $p < 0.1$ ). In the intervening years (2006 to 2010), there is very little change in net health care jobs and none of the point estimates are precisely estimated. As a result, our estimates imply that the Section 508 program led to an increase in health care jobs in 2005 and those newly created jobs persisted for the next five years.

### **5.3 Section 508 Waivers and Congressional District-Level Outcomes - Varying the Composition of Treatment Groups**

There is significant heterogeneity in the number of Section 508-recipient hospitals per congressional district. Appendix Table A.3 shows that the modal district had zero Section

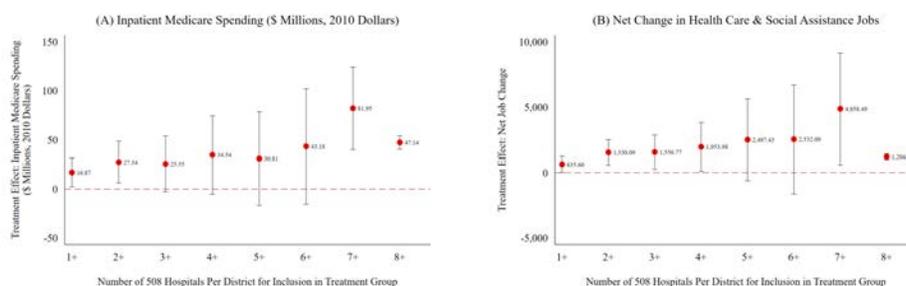
**Table 3: The Impact of the Section 508 Program on Congressional District-Level Medicare Inpatient Spending and Labor Market Outcomes**

	Inpatient Medicare Spending (\$ Millions, 2010 Dollars) (1)	Net Change in Health Care and Social Assistance Jobs (2)
<i>2002 - Pre-Treatment Year - Omitted Category</i>		
2003*Treated Group	1.13 (1.97)	290.28 (240.42)
2004*Treated Group	-0.05 (3.06)	-98.93 (361.06)
<i>Section 508 Payments Took Effect on April 1, 2004</i>		
2005*Treated Group	7.39* (4.45)	635.60* (371.73)
2006*Treated Group	8.01* (4.42)	23.50 (210.81)
2007*Treated Group	9.74** (4.50)	122.51 (218.28)
<i>Section 508 Program Reauthorized on December 19, 2007</i>		
2008*Treated Group	12.28* (6.68)	-186.68 (211.79)
2009*Treated Group	12.96* (7.72)	352.58 (239.71)
2010*Treated Group	16.87* (8.84)	146.41 (247.51)
CD FEs	X	X
Year FEs	X	X
N	1,764	1,764
<i>Mean of the Dependent Variable in 2002</i>		
Treated CDs	244.43	957.39
Control CDs	244.14	1,176.93

**Notes:** \*p<0.10, \*\*p<0.05, \*\*\*p<0.01. This table presents estimates of Equation (2) where we regress congressional district outcomes on a vector of congressional district fixed effects, year dummies, and interactions between the treated congressional district indicator and year dummies. 2002 is our omitted year. Control congressional districts are those that have hospitals that applied for a Section 508 waiver but were rejected.

508-recipient hospitals. There were 42 districts with one or more Section 508-recipient hospitals; 25 districts that had one Section 508-recipient hospital and the remainder had more than one. There was also a single congressional district with 9 Section 508-recipient hospitals. In Figure 5, we show how our treatment effects vary as the number of Section 508-recipient hospitals in each congressional district increases. The left-most point in both panels shows the treatment effect for congressional districts with one or more Section 508-recipient hospitals. The adjacent point shows the treatment effect for congressional districts with two or more Section 508-recipient hospitals and so on.

**Figure 5: The Impact of Section 508 Program on Congressional District-Level Medicare Inpatient Spending and Labor Market Outcomes - Dose Response Estimates of Treatment Effects**



**Notes:** Each figure plots the coefficient of the year interaction term from Equation (2) where we regress congressional district outcomes on a vector of congressional fixed effects, year dummies, and interactions between the treated congressional district indicator and year dummies. We show the 2010 interaction term for Inpatient Medicare Spending and the 2005 interaction term for Net Job Change. Moving left to right in each panel, each specification involves a treated congressional district composed of increasing numbers of Section 508-recipient hospitals. 2002 is our omitted year. Wild-bootstrapped standard errors that are clustered around congressional districts are presented as 90 % confidence intervals. Control congressional districts are those that have hospitals that applied for a Section 508 waiver but were rejected.

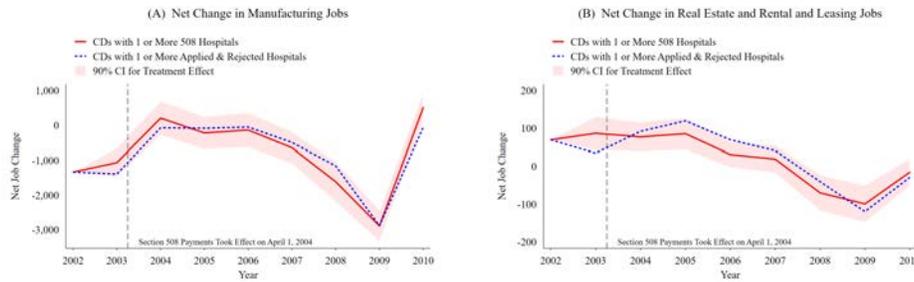
In Panel A, our results suggest that inpatient Medicare spending per treated district in 2010 more than doubled as the number of treated hospitals per district increased. In Panel B, the net job change in 2005 visible in treated districts was even more notable as the number of treated hospitals per district increased, although the differences in treatment effects across groups is not statistically significant. That we observe such a marked increase in treatment effects as the number of treated hospitals per district increases helps

illustrate that the effect we are measuring is indeed a function of the gains produced from the Section 508 program and not for some other concurrently occurring policy event.

#### 5.4 Placebo Analysis - Net Jobs Change in Non-Health Industries

There may be concerns that the spike in net health care jobs added that we observe in treated districts in 2005 could be a function of wider economic shocks concurrently impacting those districts, rather than the Section 508 program. To allay those concerns, we carry out a series of placebo tests and analyze whether we observe changes in net jobs for non-health sectors in 2005 in congressional districts that had a Section 508-recipient hospital relative to what occurred in control congressional districts that had one or more hospitals that applied for a Section 508 waiver but had their application rejected.

**Figure 6: (Placebo Test) The Impact of Section 508 Program on Congressional District-Level Labor Market Outcomes in Other Industries**



**Notes:** These figures are estimates of Equation (2) where we regress congressional district level outcomes on a vector of congressional district fixed effects, year dummies, and interactions between the treated congressional district indicator and year dummies. 2002 is our omitted year. Control congressional districts include congressional districts that have hospitals that applied for a Section 508 waiver but were rejected. The 90 % confidence intervals are based on wild-bootstrapped standard errors clustered around congressional districts. Net job change figures are for full-quarter jobs in NAICS Sectors 31-33 ("Manufacturing") and 53 ("Real Estate and Rental and Leasing"). QWI data is aggregated from the county-quarter to the congressional district-year level.

For example, in Figure 6, we show estimates of Equation (2) and explore whether there were changes in net jobs in the manufacturing industry (Panel A) or real estate industry (Panel B) in 2005 in treated districts. These industries are unlikely to be directly impacted by the MMA or the payment increases generated by the Section 508 program. Notably,

we do not observe any changes in net jobs in these two unrelated sectors or in any other sectors included in the QWI data (see Appendix Figure A.6 where we show the change in net jobs in the 17 other non-health sectors included in the QWI data). That treated congressional districts only experienced a gain in net jobs in the health sector suggests that the Section 508 program was what was driving our treatment effects and not some other economy-wide shock.

### **5.5 Section 508 Waivers and Congressional District-Level Outcomes - Robustness**

Our main results presented in Table 3 rely on a control group composed of congressional districts with one or more hospitals that applied for a Section 508 waiver, but had their application rejected. In Appendix Figure A.7, we present an event study graph and our dose response estimates for our main outcomes when we rely on a control group composed of congressional districts that have one or more hospitals that were eligible for the Section 508 program, but did not apply. In Appendix Figure A.8, we repeat this exercise, but rely on a control group composed of congressional districts with one or more hospitals that were ineligible for the 508 program. In Appendix Figure A.9, we construct a control group of congressional districts that do not include any Section 508-recipient hospitals. Again, we find that our results remain qualitatively unchanged using these alternative control groups. Finally, in Appendix Figure A.10, we construct a control group drawn from districts without a Section 508-recipient hospital using propensity score matching.<sup>19</sup>

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<sup>19</sup>We construct propensity scores of each district's probability of being treated (e.g. having a Section 508-recipient hospital) using probit. Our probit estimator includes the number of hospitals per district, the share of non-profit hospitals per district, the share of teaching hospitals per district, and the average of the 2002 and 2003 district-level Medicare inpatient spending and net health jobs change measure. We utilize ten matched control districts for every treated district.

## 6 Section 508 Waivers and Political Donations

### 6.1 Background, Data, and Estimation

The Medicare payment increases created by the Section 508 program were written to expire on March 31, 2007, three years after they were introduced. In this section, we explore lobbying efforts to extend the Section 508 program, describe the votes in Congress for the re-authorization of the program, and test whether the members of Congress who had a Section 508-recipient hospital in their district received larger campaign donations after the Section 508 program was reauthorized. The evidence we present underscores the wider challenges associated with ending a government program that brings substantial revenue to specific health care providers. This analysis is directly related to the wider political science literature that has examined whether members of Congress receive benefits when they use distributive policies to steer funds to their district. As Levitt and Snyder Jr. (1997) note, it is widely accepted by academics, the media, and politicians that members of Congress are rewarded for bringing additional federal funding to their districts. However, few studies have established a causal link between distributive policies championed by members of Congress and changes in fundraising.

From an identification perspective, establishing a causal link between donations and distributive policies is challenging because donations could both lead members to push for specific policies that benefit donors and come as a reward for past actions.<sup>20</sup> However,

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<sup>20</sup>Two studies have used instrumental variable (IV) analysis to get around endogeneity issues and have found a causal link between federal funding and donations, and federal funding and votes. Rocca and Gordon (2013) analyze whether representatives who allocate more defense-related earmarks receive more donations from political action committees (PACs) representing defense manufacturers. The authors instrument for defense industry earmarks using the total number of earmarks a representative makes, and they find that every \$10,000 in defense earmarks raises PAC campaign contributions by \$3.00. It is debatable whether instrumenting for defense earmarks using total earmarks (including defense earmarks) satisfies the exclusion restriction. Levitt and Snyder Jr. (1997) analyze whether increasing federal funding for a district raises vote margins for the incumbent. The authors instrument for federal funding in the district using federal spending outside the district but inside the state and find that a \$100 increase in per-capita federal spending (approximately \$50 million per district) leads to a 2% gain in the popular vote for incumbents. We add to this literature by analyzing the impact of the Section 508 program on campaign contributions.

the Section 508 program offers a unique opportunity to test the link between campaign contributions and targeted distributive policies because we can look at donations before and after the re-authorization, which, as we illustrate, was salient to politicians and many of their constituents. Lee (2003) and Rocca and Gordon (2013) have argued the extent to which a particular distributive policy will yield electoral gains and higher donations to a legislator will be a function of the extent to which the legislator can credit claim for the benefit (e.g. whether his or her efforts are salient to voters). While formula-based distributive policies are often opaque to constituents (such as the initial passage of the Section 508 program), extending the Section 508 program was remarkably important and easily observable to hospitals that previously received a Section 508 payment increase. For example, a 2007 Modern Healthcare article noted that "selected hospitals and systems stand to lose millions of dollars under a provision of the Medicare Modernization Act of 2003 that's set to expire in September [2007]" (Lubell 2007b). The author continued, "Executives for hospitals and systems say that losing that extra Medicare reimbursement under Section 508 would be devastating. Layoffs and cutbacks would likely occur at St. Luke's Cornwall Hospital, said Allan Atzrott, president and CEO of the 282-bed hospital, which has campuses in Cornwall and Newburgh, N.Y."

There is also evidence that politicians were aware of the Section 508 program and that they viewed supporting it as politically advantageous. For example, as the 508 program was coming up for a re-authorization vote in 2007, Senator Charles Schumer's office issued a press release that stated, "In light of today's [sic] announcement that Senate leaders will pursue an extension of Section 508 of the Medicare Modernization Act, US Senator Charles E. Schumer, a member of the Senate Finance Committee, pledged today to work to include all New York Section 508 hospitals. . ." (Office of Senator Charles Schumer 2006). In the remainder of the statement, the senator's office reiterated his commitment to increasing funding for New York hospitals.

## **6.2 Section 508-Recipient Hospitals and Political Lobbying**

According to data from the Center for Responsive Politics, over the last 20 years, the US health care industry spent more annually in absolute dollars on lobbying than was spent by virtually any other industry (for more details on this data set, see Appendix A.1). In 2006, for example, cumulatively, hospitals and nursing homes, pharmaceutical and device manufacturers, and health professionals spent over \$338 million on lobbying activities. By contrast, that same year, the oil and gas industry spent approximately \$75 million, the real estate industry spent approximately \$82 million, and the auto industry spent approximately \$59 million (The Center for Responsive Politics 2019a). In particular, the American Hospital Association spent approximately \$18 million in 2006 lobbying on behalf of hospitals' interests.

In 2005, two years before the Section 508 program was slated to expire, hospitals that received Section 508 waivers came together to form the Section 508 Hospital Coalition PAC. The stated goal of the PAC was to lobby on behalf of Section 508-recipient hospitals. We obtained the amount the Section 508 Hospital Coalition spent lobbying members of Congress each year from 2005 through 2010 (see Appendix Figure A.11). In 2005, 2006, and 2007, the period before the Section 508 program was reauthorized, the coalition cumulatively spent approximately \$829 thousand lobbying members of Congress (The Center for Responsive Politics 2019d). The American Hospital Association spent approximately \$54 million on lobbying throughout that same period (although the AHA funding included lobbying for the extension of the Section 508 program and lobbying on behalf of the interests of non-Section 508-recipient hospitals) (The Center for Responsive Politics 2019b). Rocca and Gordon (2013) note that although individual voters may not observe and reward members of Congress for contributing to distributive policies that benefit their district, interest groups, such as the Section 508 Hospital Coalition can sharpen the incentives for members of Congress to act.

On December 20, 2006, President Bush signed H.R.6111, the Tax Relief and Health Care Act of 2006. In addition to a range of other health care and tax policy changes, the law included a six-month extension of the Section 508 program. The law was voted out of the House of Representatives by a vote of 367 to 45 in roll call vote 533. Of the 230 Republicans in the House in the 109th Congress, 212 (92.17 percent) voted 'Yea'; of the 202 Democrats, 155 (76.73 percent) voted 'Yea'. Members of Congress with a Section 508-recipient hospital in their district were more likely than members without to vote for H.R.6111 (31 of the 42 members of Congress with a Section 508 hospital in their district voted for the law - 95.45 percent of the Republican members with a Section 508-recipient hospital in their districts voted for H.R.6111 and 77.78 percent of Democratic members with a Section 508 hospital voted for it).

On September 31, 2007, the Section 508 program expired and payment increases to hospitals were eliminated. Hospital CEOs reported that the cuts were leading them to immediately lay off workers (Lubell 2007a). On December 29, 2007, the President signed S.2499 - the Medicare, Medicaid, and SCHIP Extension Act of 2007. This law included a long-term extension of the Section 508 program and also retrospectively restored the Section 508 payment increases retrospectively for October, November, and December. The law passed out of the House of Representatives via a 411 to 3 margin (roll call vote 1184). Forty of the 42 members of Congress with a Section 508-recipient hospital in their district voted for the long-term extension of the Section 508 program. Two members of Congress abstained from voting for the re-authorization; those members had among the smallest gains from the Section 508 program.<sup>21</sup>

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<sup>21</sup>The members who abstained from voting for the Section 508 extension represented districts that gained \$350 thousand and \$1.54 million respectively from the program. The mean gain across all recipients was \$7.91 million.

### 6.3 Estimating the Impact of the Section 508 Re-authorization On Campaign Contributions

To analyze whether members of Congress with a hospital in their district received an increase in campaign contributions after the Section 508 program was extended in roll call vote 1184, we estimate:

$$Donations_{c,t} = \beta_t Candidate\_With\_Section\_508_c \cdot \tau_t + \vartheta_c + \tau_t + \varepsilon_{c,t} \quad (3)$$

where we observe campaign contributions  $Donations_{c,y}$  from donors to a candidate for Congress  $c$  in year  $t$ , all measured in 2010 dollars. We include a vector of year fixed effects  $\tau_t$  and a vector of candidate fixed effects  $\vartheta_c$ . We use 2002 as our omitted category and interact a vector of year dummies with our treatment indicator  $Candidate\_With\_Section\_508_c$  which takes a value of "1" when a candidate has a Section 508-recipient hospital in her district. We focus on contributions from donors living in the same state as the candidate to whom they are donating and donors from across the country. We utilize donation data from from the DIME database (see Appendix A.1 for more information on the data source). We limit our analysis to candidates for office from 2002 to 2010 that were serving as members of Congress in 2003 when the Section 508 program was initially authorized and were serving again in 2007 when the Section 508 program was reauthorized (later we show our results are robust to not including the 2003 restriction). We observe candidates even if they did not win and remain as members of Congress between 2003 and 2007.<sup>22</sup> We calculate wild-bootstrapped standard errors (although our results are robust to clustering around candidates).

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<sup>22</sup>There is no statistically significant difference between the rates members of Congress with and without a Section 508-recipient hospital were reelected to office. Likewise, among those voted out of office, there is no statistically significant difference in the rates that they run again as a function of whether or not they have a Section 508-recipient hospital in their district. Finally, there is no statistically significant difference in whether a member of Congress decides to no longer seek reelection as a function of whether or not a member had a Section 508-recipient hospital in her district. Our results are robust to limiting our analysis to candidates who were in Congress or ran for office each electoral cycle or including candidates who decided not to seek reelection. When a candidate is not in the data for a given year, we dummy out their missing observation.

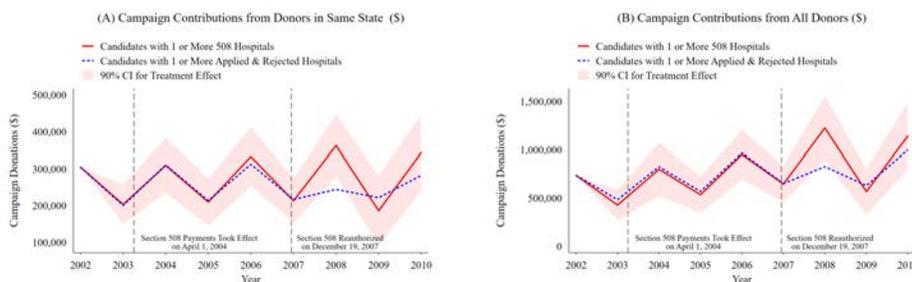
As was the case in previous sections, there is no ‘perfect’ control group, so we show our main results are robust across different control groups. Our main control group is composed of candidates who were in office in 2003 (when the Section 508 was initially authorized), had a hospital in their district that unsuccessfully applied for a Section 508 waiver, and were in office in 2007 when the Medicare, Medicaid, and SCHIP Extension Act of 2007 was passed. We also compare our treated group to several alternative control groups including: 1) candidates for Congress who were sitting members of the House in 2003 and 2007 with hospitals in their district that were paid using the PPS program, but no Section 508 hospitals; 2) candidates for Congress with one or more hospitals that were eligible for the Section 508 program but did not apply who were sitting members of the House in 2003 and 2007; and 3) candidates for Congress with hospitals in their district that were ineligible for the Section 508 program who were sitting members of the House in 2003 and 2007. We also show our results are robust to limiting our analysis to individuals who were in office in 2007. Finally we construct a control group of candidates using propensity score matching. As we illustrate, our treated and control group have virtually identical trends in campaign contributions from 2002 to 2007.

#### **6.4 Section 508 Re-Authorization And Campaign Contributions**

During our period of analysis, members of Congress raised approximately \$1.28 million per election cycle. Campaigns tend to bring in substantially larger donations as elections approach (e.g. in years with an election). For example, \$1.14 million was brought in during the 2003/2004 congressional cycle. In the 2004 election year, the average member raised \$720 thousand; in the 2003, a non-election year, that total was \$420 thousand. In general, the majority of a candidate’s campaign contributions (63 percent) come from donors living outside their district.

Panel A of Figure 7 shows estimates of Equation (3) where the dependent variable is the total campaign contributions to members of Congress and candidates from donors

**Figure 7: The Impact of the Re-Authorization of the Section 508 Program on Campaign Contributions**



**Notes:** The figures in each panel present estimates of Equation (3) where we regress campaign contributions on a vector of candidate fixed effects, year dummies, and interactions between the treated candidate indicator and year dummies. Control candidates are those that have hospitals in their district that applied for a Section 508 waiver but were rejected. 2002 is our omitted year. 90% confidence intervals are based on wild-bootstrapped standard errors clustered around candidates.

living in the same state as the candidate to whom they are donating. The solid red line shows donations to candidates and members of Congress with one or more Section 508 hospitals in their districts; the hashed blue line shows donations to members of Congress and candidates with a hospital that applied, but had their application rejected. Results from Figure 7 clearly illustrate that donations to members of Congress with a Section 508-recipient hospital in their district increased dramatically in 2008, shortly after the Section 508 program was extended in December 2007. Notably, there are no differences in pre-trends between the treatment and control group prior to the 2007 re-authorization of the Section 508 program.

Our estimates of Equation (3) presented in Table 4 show that in 2008, campaign contributions to a member of Congress with a Section 508 hospital in their district increased by \$118 thousand off a mean contribution in 2002 (an election year) of \$265.5 thousand ( $p < 0.05$ ). As we illustrate in Column (2) of Table 4, we find similar effects when we focus on donations from individuals across the country. All told, we estimate that the re-authorization of the Section 508 program led all members with a recipient hospital in their district to receive a cumulative \$13.92 million increase in campaign contributions in

**Table 4: The Impact of the Re-Authorization of the Section 508 Program on Campaign Contributions**

	Campaign Contributions from Donors in Same State (\$ Thousands) (1)	Campaign Contributions from All Donors (2)
<i>2002 - Pre-Treatment Year - Omitted Category</i>		
2003*Treated Group	3.10 (33.58)	-56.06 (99.20)
2004*Treated Group	-1.39 (45.76)	-26.49 (170.78)
<i>Section 508 Payments Took Effect on April 1, 2004</i>		
2005*Treated Group	-3.85 (40.11)	-33.26 (117.96)
2006*Treated Group	20.58 (49.22)	-15.99 (158.98)
2007*Treated Group	-3.46 (37.86)	-5.11 (116.41)
<i>Section 508 Program Reauthorized on December 19, 2007</i>		
2008*Treated Group	118.34** (52.19)	397.73* (207.89)
2009*Treated Group	-35.53 (58.82)	-61.86 (148.64)
2010*Treated Group	61.50 (63.30)	142.34 (213.12)
Candidate F.E.s	X	X
Year F.E.s	X	X
N	1,368	1,368
<i>Mean of the Dependent Variable in 2002</i>		
Treated Candidates	265.54	754.88
Control Candidates	316.43	730.76

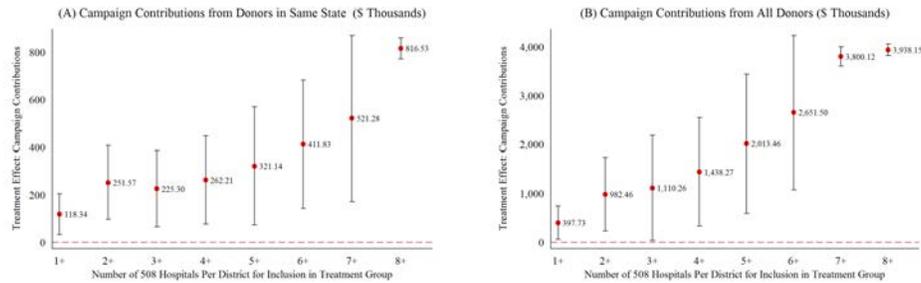
Notes: \*p<0.10, \*\*p<0.05, \*\*\*p<0.01. This table presents estimates of Equation (3) where we regress campaign contributions on a vector of candidate fixed effects, year dummies, and interactions between the treated candidate indicator and year dummies. Control candidates are those that have hospitals in their district that applied for a Section 508 waiver but were rejected. 2002 is our omitted year. Wild-bootstrapped standard errors clustered around candidates are in parentheses. Observations (N) are Candidate-years.

2008 (= 35 members of Congress \* \$397,730 in added donations in 2008).

### 6.5 Section 508 Re-authorization And Campaign Contributions Varying the Composition of Treatment Groups

As we have illustrated, there is significant heterogeneity in the number of Section 508-recipient hospitals per congressional district. In Figure 8, we document how the 2008 treatment effect changes as the number of Section 508 hospitals per treated district increases. Our results provide strong support that these changes in campaign contributions were a function of the Section 508 program. As we illustrate, campaign contributions increased markedly as the number of Section 508-recipient hospitals per district increased. Whereas campaign contributions increased by \$118.34 thousand in districts with a single Section 508-recipient hospital, they increased by \$816.53 thousand in the one district with 8 or more Section 508-recipient hospitals. This pattern is also visible when we focus on donations from all donors, which we present in Panel B of Figure 8.

**Figure 8: The Impact of the Re-Authorization of the Section 508 Program on Campaign Contributions - Dose Response Estimates of Treatment Effects**



**Notes:** Each figure plots the coefficient of the year 2008 interaction term from Equation (3) where we regress campaign contributions on a vector of candidate fixed effects, year dummies, and interactions between the treated candidate indicator and year dummies. Moving left to right in each panel, each specification involves a candidate with treated congressional district composed of increasing numbers of Section 508-recipient hospitals. 2002 is our omitted year. Wild-bootstrapped standard errors that are clustered around candidates are presented as 90% confidence intervals. Control candidates are those that have hospitals in their district that applied for a Section 508 waiver but were rejected.

## **6.6 Section 508 Re-Authorization And Campaign Contributions by Industry Group**

There may still be concerns that the increases in campaign contributions we observe in Figure 7 are a function of the characteristics of the members of Congress we are analyzing (e.g. their political power) and not the direct result of the Section 508 program. To address these concerns, we utilize data from the Center for Responsive Politics, which tracks campaign contributions from individuals and PACs affiliated with industry trade groups (e.g. donations from individuals affiliated with the American Hospital Association or the American Bankers Association). We analyze whether members of Congress with a Section 508-recipient hospital received increases in campaign contributions from individuals affiliated with a trade group that was tied to the Section 508 program (e.g. the American Hospital Association), but not from individuals affiliated with trade groups that would be unaffected by the Section 508 Program (e.g. donations from individuals affiliated with the American Bankers Association, the National Auto Dealers Association, and the Credit Union National Association.).

The data from the Center for Responsive Politics captures campaign contributions per two-year congressional cycle from trade groups. As the Center notes, "the organization itself [e.g. the American Hospital Association] did not donate, rather the money came from the organization's PACs, their individual members or employees or owners, and those individuals' immediate family members" (The Center for Responsive Politics 2019c). We downloaded data on donations affiliated with the American Hospital Association, the American Bankers Association, the National Auto Dealers Association, and the Credit Union National Association. In the 2007/2008 congressional cycle, these organizations donated \$1.7 million, \$2.8 million \$2.6 million, and \$2.1 million respectively to candidates for Congress.

We estimate a difference-in-difference regression to see whether candidates for Congress with a Section 508-recipient hospital in their district received an increase in campaign

contributions after the Section 508 program was launched in 2003 and reauthorized in 2007. In practice, we estimate:

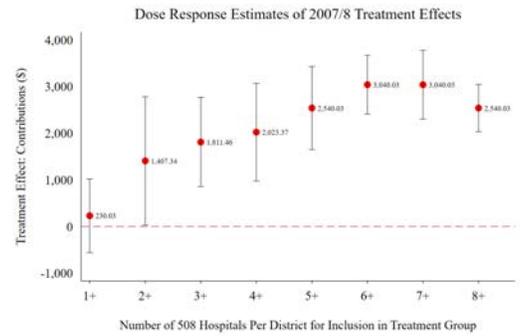
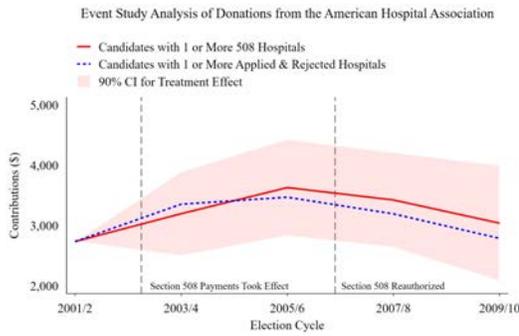
$$Donations_{c,e} = \beta_e Candidate\_With\_Section\_508\_Hospital_c \cdot \tau_e + \vartheta_c + \tau_e + \varepsilon_{c,e} \quad (4)$$

where we observe campaign contributions  $Donations_{c,e}$  from donors to a candidate for Congress  $c$  in election cycle  $e$ , all measured in 2010 dollars. We include a vector of election cycle fixed effects  $\tau_e$  and a vector of candidate fixed effects  $\vartheta_c$ . We use the 2001/2002 election cycle as our omitted category and interact a vector of election cycle dummies with our treatment indicator  $Candidate\_With\_Section\_508\_Hospital$  which takes a value of "1" when a candidate has a Section 508-recipient hospital in her district. We limit our analysis to candidates for office from 2002 to 2010 that were serving as members of Congress in 2003 when the Section 508 program was initially authorized and were serving again in 2007 when the Section 508 program was reauthorized. As in previous sections, we observe candidates even if they did not win and remain as members of Congress between 2003 and 2007. Our control group is composed of candidates for Congress that were in office in 2003 and 2007 and had a hospital in their district that applied for a Section 508 waiver, but had their application rejected. We again rely on wild-bootstrapped standard errors, but are results are also robust to clustering around candidates.

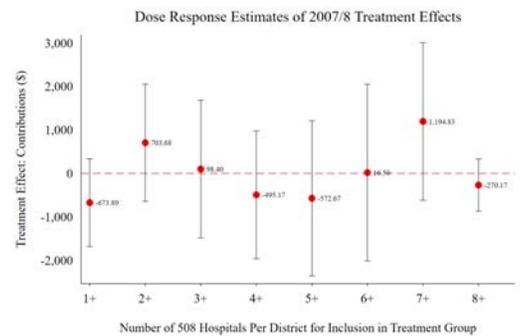
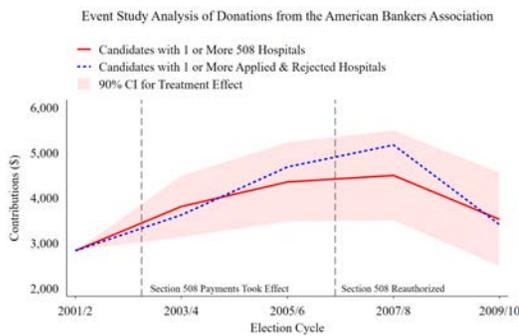
In Figure 9, we present event study graphs based on estimates of Equation (4) that track donations from the American Hospital Association and the three unaffected (placebo) associations to treated candidates (e.g. those with a Section 508-recipient hospital in their district) and untreated candidates (those with a hospital that unsuccessfully applied for a Section 508 waiver). In Panel A, we show that when we analyze all candidates with a Section 508-recipient hospital, they experienced small, but statistically insignificant increases in campaign contributions from AHA affiliated donors in the 2005/2006, 2007/2008, and 2009/2010 election cycles. However, as we illustrate, the donations

**Figure 9: The Impact of the Section 508 Program on Campaign Contributions from Industry Group Affiliates**

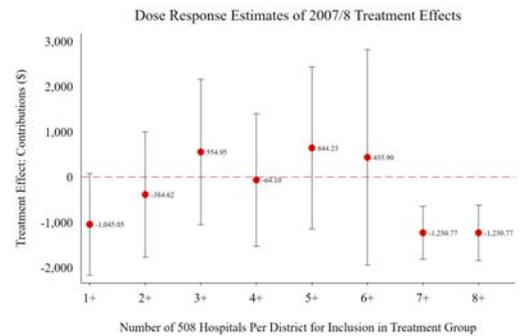
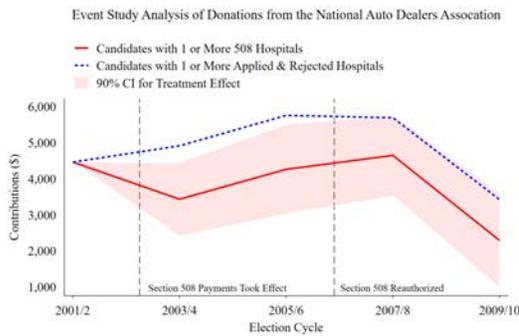
**Panel A: Donations from Affiliates of the American Hospital Association**



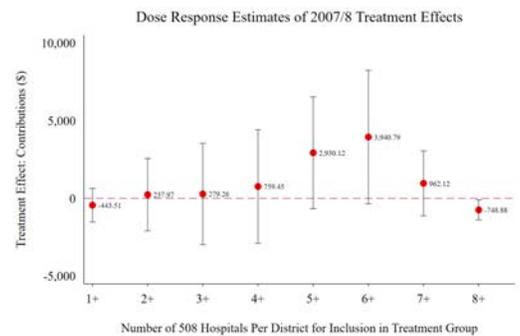
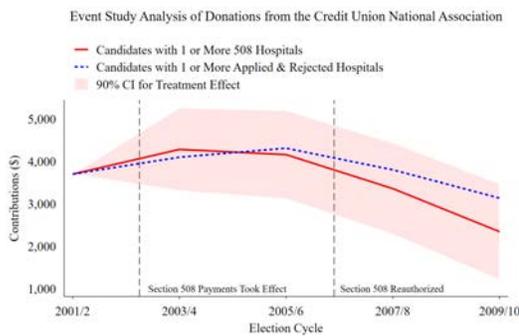
**Panel B: (Placebo Test) Donations from Affiliates of the American Bankers Association**



**Panel C: (Placebo Test) Donations from Affiliates of the National Auto Dealers Association**



**Panel D: (Placebo Test) Donations from Affiliates of the Credit Union National Association**



**Notes:** The figures in each panel present estimates of Equation (4) where we regress campaign contributions on a vector of candidate fixed effects, year dummies, and interactions between the treated candidate indicator and year dummies. Control candidates are those that have hospitals in their district that applied for a Section 508 waiver but were rejected. 2002 is our omitted year. 90% confidence intervals are based on wild-bootstrapped standard errors clustered around candidates. The rightmost figures plot the coefficient of the 2007/8 election cycle interaction term from Equation (4) as we vary the definition of the treatment group.

to candidates from AHA affiliated individuals and PACs in 2007/2008 increase and become statistically significant as we focus on candidates with more than one Section 508-recipient hospital (by contrast, as we illustrate in Appendix Figure A.12, we do not observe an increase in the size of the 2005/2006 treatment effect as the number of Section 508-recipient hospitals per district increases). In Appendix Figure A.13, we show an event study graph analyzing campaign contributions from the American Hospital Association to candidates with two or more Section 508-recipient hospitals in their district. It shows there is a large and precisely estimated increase in campaign contributions in the 2007/2008 election cycle.

By contrast, in Panels B, C, and D of Figure 9 (our placebo analysis), we show event study and dose response graphs based on estimates of Equation (4), where we focus on donations to treated and control candidates from the American Bankers Association, the National Auto Dealers Association, and the Credit Union National Association, respectively. These are organizations that should not have been directly impacted by the Section 508 program. As we illustrate, we do not observe the any increase in donations in treated districts nor do we observe that candidates with more Section 508-recipient hospitals per district received larger donations from those unaffected industries. This suggests that the extension of the Section 508 program led to an increase in campaign contributions from voters affected by the program, but not from voters in unrelated industries.

### **6.7 Robustness of Our Campaign Contribution Analysis to Different Sample Restrictions and the Use of Alternative Control Groups**

In our main analysis, we limited our sample to candidates for Congress who were in office in 2003 (when the Section 508 program was introduced) and in 2007 (when the program was reauthorized). In Appendix Figure A.14, we show estimates of Equation (3) where we relax that assumption and only require that an individual was a sitting member of Congress when the Section 508 program was reauthorized in December 2007 (the leftmost

graphs in Panel A and Panel B present an event study graph; the rightmost graphs in Panel A and Panel B present a dose response graph showing how the 2008 treatment effect changes as the number of Section 508-recipient hospitals per treated candidate increases). As we illustrate, this does not qualitatively change our results. We also illustrate our results are robust across several alternative control groups. In Appendix Figure A.15, we show an event study graph for estimates of Equation (3) and our dose response estimates for 2008 when we construct a control group composed of candidates for Congress with hospitals in their district that were paid using the PPS program, but with no Section 508-recipient hospitals and were in office in 2003 and 2007. In Appendix Figure A.16, we construct a control group composed of candidates for Congress with one or more hospitals that were eligible for the Section 508 program but did not apply and were in office in 2003 and 2007. In Appendix Figure A.17, we construct a control group composed of candidates for Congress with hospitals in their district that were ineligible for the Section 508 program and were in office in 2003 and 2007. Finally, we construct a control group of candidates using propensity score matching and present results in Appendix Figure A.18.<sup>23</sup> Across these alternative control groups, we observe that our main result - that members of Congress with a Section 508-recipient hospital in their district received an increase in campaign contributions after the program was reauthorized - remains qualitatively unchanged.

## **7 Conclusion**

In the long term, improving the productivity of spending on the Medicare program represents one of the most significant policy priorities in the US. Until now, most academic research on health care spending has focused on the role of monetary and non-monetary

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<sup>23</sup>We construct our control group of 10 candidates for each treated candidate using propensity score matching where we use a probit model to estimate a candidate's probability of having a hospital in her district that received a Section 508 waiver. In our probit, we control for the party of the candidate, the winning vote margin in the 2001/2002 house election, the number of hospitals per district, the share of non-profit hospitals per district and the share of teaching hospitals per district.

provider incentives, the adoption and diffusion of new technology, and differences in patient characteristics in driving variation and growth in health care spending. In this paper, we present, to our knowledge, the first work that formally assesses how political dynamics in the US influence health care spending. We show that policies that raised hospitals' Medicare reimbursements were used to win members' votes on controversial legislation and that politicians received higher campaign contributions when they voted on the extension of these higher payments.

Legislators struggled to pass the Medicare program in 1965 and, in the ensuing decades, there have been numerous political fights over altering and expanding the program (Marmor 2000). The pressure members of Congress face to be re-elected makes it challenging for the House of Representatives to pass large pieces of sweeping legislation (Mayhew 1974). Evans (2004) argues that logrolling is imperative to pass sweeping legislation in Congress. Nowhere was the role of logrolling more visible than in efforts to pass the MMA of 2003 (Lee 2003). We study how one distributive policy added to the MMA of 2003 – the Section 508 program – affected hospital behavior and health spending and influenced campaign contributions.

We show that hospitals represented by a member of Congress of voted 'Yea' to the MMA were more likely to receive a Section 508 waiver. Section 508 waivers increased hospitals' Medicare reimbursement rates substantially. In turn, we observe that hospitals that received a waiver increased their activity and invested in more technology and services. This led hospitals that received a Section 508 waiver to dramatically increase their Medicare inpatient spending in the six years after the program was introduced. We also show that Congressional districts with Section 508-recipient hospitals had large increases in health spending and an increase in new health care jobs in the first full year the Medicare payment increases took effect.

The Section 508 program was written to expire three years after it was introduced. However, we show that hospitals spent millions lobbying to have the Section 508 program

extended. The bill to extend the Section 508 payments was passed by a substantial margin in the House of Representatives and members of Congress with a Section 508-recipient hospital in their districts were more likely to vote for the extension of the program. After the program was extended, members of Congress with a Section 508-recipient hospital in their district received larger increases in campaign contributions. As we illustrate, the increases in campaign contributions came from voters directly impacted by the reforms (e.g. individuals affiliated with the AHA), but not from individuals affiliated with unrelated industry groups.

The extension of the Section 508 program highlights how inefficient and/or cost increasing programs continue to be readily funded by Medicare. We observe that the total dollars spent lobbying for the extension of the Section 508 program and the added campaign contributions to members after the program was extended summed to approximately \$69 million. By contrast, we estimate that the extension of the Section 508 program raised inpatient Medicare spending by nearly \$1.5 billion.

The critical finding from this work is that there is a close link between electoral politics and the Medicare program. While we focus on a narrow program that was inserted into the MMA to illustrate the relationship between politics and health spending, the type of provision we analyzed in this paper is present in virtually every piece of major health care legislation. For example, the Government Accountability Office identified 16 statutory provisions passed between 1997 and 2012 that modified Medicare payment policies and increased payments to specific subsets of hospitals (Government Accountability Office 2013). Moreover, while we focus this analysis on the impact of politics on spending in the Medicare program, lawmakers vote on provisions that impact private insurance markets, the pricing of pharmaceuticals, and the regulation of medical devices. As a result, there is scope for politics to have a large impact on US health spending in aggregate. Going forward, we hope this paper motivates future work in this area, including testing how lobbying dollars influence health care spending, examining which stakeholders benefit

from health care spending growth, and considering how the role that Congress plays in defining the structure of the health system impacts health care outcomes and health care spending variation and growth across the nation.

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## **Appendix – For Online Publication**

## Appendix A Description of Data and Data Cleaning

### A.1 Datasets and Sources

**American Hospital Association Annual Survey:** We obtained data on hospital staffing from the American Hospital Association (AHA) annual survey. The AHA has surveyed hospitals annually since 1946. More information on the AHA survey data can be viewed at: <http://www.ahadataviewer.com/book-cd-products/AHA-Survey/>.

**American Hospital Directory Data:** We use data on hospitals' Medicare activity that we obtained from the American Hospital Directory (AHD). The AHD is a for-profit data vendor that sells cleaned Medicare claims data derived from the Medicare Provider Analysis and Review limited access database. This includes claims records for 100% of Medicare fee-for-service inpatient claims. Details on the AHD data can be found at [www.ahd.com](http://www.ahd.com).

**Center for Responsive Politics Data:** We identified the Section 508 Coalition via data on congressional lobbying presented by the Center for Responsive Politics <https://www.opensecrets.org/lobby/clientsum.php?id=D000056560&year=2009>.

**Database on Ideology, Money in Politics, and Elections (DIME) Database:** We accessed data on campaign contributions from the DIME database. The database was constructed by Adam Bonica. More information on the data is available at <https://data.stanford.edu/dime>. Their information on campaign contributions was collected from the Federal Election Commission.

**Freedom of Information Act Request:** We filed a Freedom of Information Act (FOIA) request to the Centers for Medicare and Medicaid Services to obtain a list of hospitals that applied for a Section 508 waiver, a list of applications that had their applications approved, and the criteria on which hospitals' applications were judged. Our FOIA request was filed

on December 1, 2014. We received a reply on March 3, 2015.

**The United States Census Quarterly Workforce Indicators:** We accessed data on county-level job hiring annually from the Quarterly Work Force Indicators dataset. The data itself and more information is available at: <https://www.census.gov/data/developers/data-sets/qwi.html>.

**Voteview Database:** We accessed data on the votes by members of Congress for the Medicare Modernization Act from the Voteview database. The database includes roll call votes for every vote taken by Congress and can be accessed at [voteview.com](http://voteview.com). The database is hosted and maintained by UCLA's Department of Political Science.

## **A.2 Calculating Medicare PPS Payment Rates**

To calculate payments, we followed payment rules outlined each year in the Federal Register. We began by calculating the PPS operating payments and the PPS capital payments, which were adjusted using the hospital operating wage index, non-labor share, operating cost-of-living adjustment, disproportionate share payments, indirect medical education payments, geographic adjustment factors, and capital cost of living adjustments. We then used diagnosis related group (DRG) and ambulatory payment classification (APC) weights to calculate the standard payment amount for each inpatient and outpatient case exclusive of outlier payments. Outlier payments are additional payments made to hospitals if specific cases involve atypically long stays in the hospital.

## **A.3 Calculating Hospitals' Case Mix Index**

The Case Mix Index (CMI) is the average diagnosis-related group (DRG) weight of a hospital's inpatient discharges. We calculate a CMI for each hospital by summing the DRG weights per case at a hospital and then dividing the sum by the number of cases that were delivered. We used Medicare claims data from the American Hospital Directory

to calculate a CMI for each hospital in each year in our sample period. The higher the CMI, the higher the average complexity and resource-intensive care provided by the hospital. For more information on the CMI, see <https://healthdata.gov/dataset/case-mix-index>.

**Table A.1: Distribution of PPS Payment Increases from the 508 Waiver Program**

	<b>Mean</b>	<b>S.D.</b>	<b>Min.</b>	<b>P5</b>	<b>P10</b>	<b>P25</b>	<b>Median</b>	<b>P75</b>	<b>P90</b>	<b>Max.</b>
PPS Payment Increase (\$)	433.43	222.97	0	81.76	146.07	317.29	416.66	574.14	706.36	1,040.94

**Note:** The PPS Payment increase is the amount each hospital gained in 2010 dollars from the receipt of the Section 508 waiver.

**Table A.2: Hospital Characteristics**

	<b>All 508 Hospitals</b>		<b>Applied and Rejected</b>		<b>Eligible But Didn't Apply</b>		<b>Ineligible</b>		<b>All AHA Hospitals</b>	
	<i>Mean</i>	<i>Std. Dev.</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Mean</i>	<i>Std. Dev.</i>
Medicare Discharges	5,022	4,198	5,498	4,190	4,258	3,951	3,853**	3,074	4,245	3,688
Medicaid Discharges	1,681	1,959	2,105*	2,071	1,937	2,497	1,638	2,022	1,825	2,261
For-Profit Hospital	0.06	0.23	0.21***	0.41	0.13***	0.34	0.18***	0.38	0.16	0.36
Not-for-Profit Hospital	0.88	0.33	0.69***	0.46	0.64***	0.48	0.65***	0.48	0.66	0.48
Teaching Hospital	0.40	0.49	0.38	0.49	0.29*	0.46	0.23***	0.42	0.28	0.45
Beds	235	184	274*	210	226	203	194**	164	218	190
Urban Area	0.81	0.40	0.79	0.41	0.73	0.44	0.57***	0.50	0.68	0.47
Member Voted Yea - MMA	0.61		0.49*		0.51*		0.53		0.52	
N	88		284		1,278		1,125		2,775	

**Notes:** All statistics are calculated using 2004 data. We exclude critical access hospitals, hospitals that are not registered with the AHA for all of 2002 to 2010, and hospitals that are not in our sample for all of 2002 to 2010. Asterisks indicate that the group's mean is statistically significantly different from the 508 hospitals' mean based on a t-test (\*\*\*p<0.01, \*\*p<0.05, \*p<0.1). We do not conduct t-tests for the "All AHA Hospitals" group.

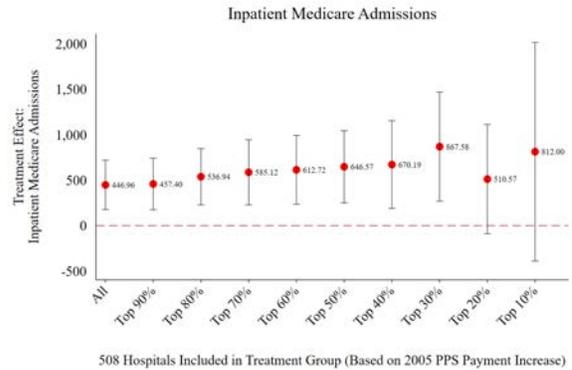
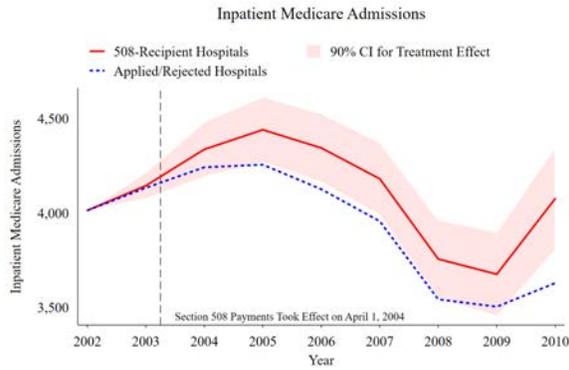
**Table A.3: Distribution of the Number of Hospitals Per Congressional District**

<b>A. All Hospitals</b>											
	<b>Obs.</b>	<b>Mean</b>	<b>S.D.</b>	<b>Minimum</b>	<b>P5</b>	<b>P10</b>	<b>P25</b>	<b>P50</b>	<b>P75</b>	<b>P90</b>	<b>Maximum</b>
Total Hospitals Per C.D.	414	6.70	3.58	1	2	3	4	6	8	12	21
<b>B. 508-Recipient Hospitals</b>											
	<b>Obs.</b>	<b>Mean</b>	<b>S.D.</b>	<b>Minimum</b>	<b>P5</b>	<b>P10</b>	<b>P25</b>	<b>P50</b>	<b>P75</b>	<b>P90</b>	<b>Maximum</b>
508 Hospitals Per C.D.	414	0.21	0.86	0	0	0	0	0	0	1	9
508 Hospitals Per Treated C.D.	42	2.10	1.85	1	1	1	1	1	3	4	9

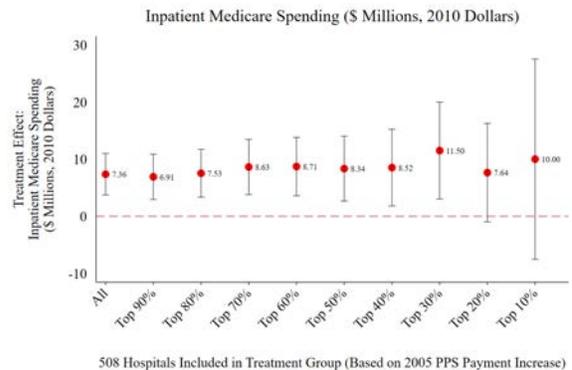
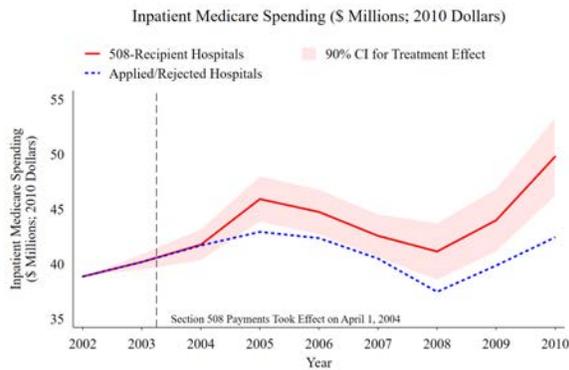
**Notes:** Observations are congressional districts. Treated congressional districts are those with at least one hospital who received a Section 508 waiver. Hospitals are only counted if they are in our balanced analytic sample.

**Figure A.1: The Impact of Section 508 Waivers on Hospitals' Inpatient Medicare Admissions, Inpatient Medicare Spending, and Technology Adoption (Unbalanced Panel)**

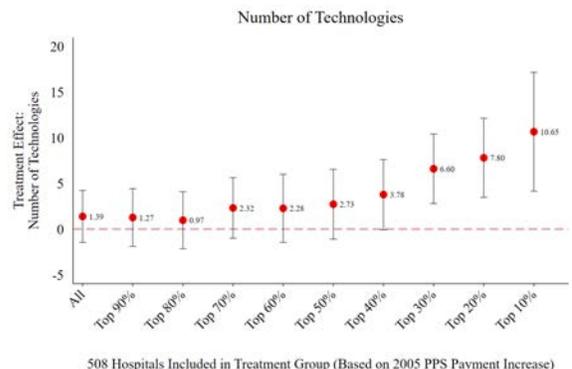
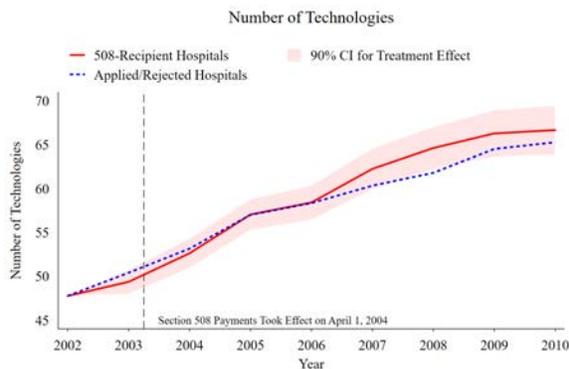
**(A) Inpatient Medicare Admissions**



**(B) Inpatient Medicare Spending**



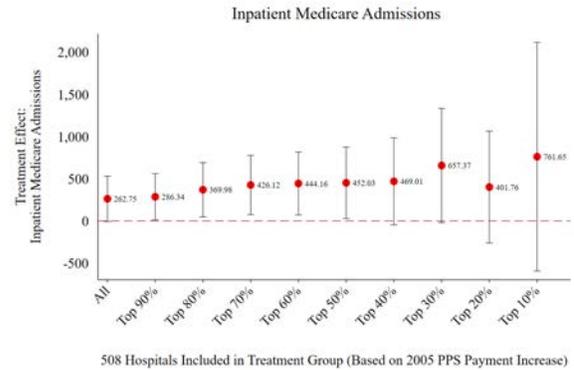
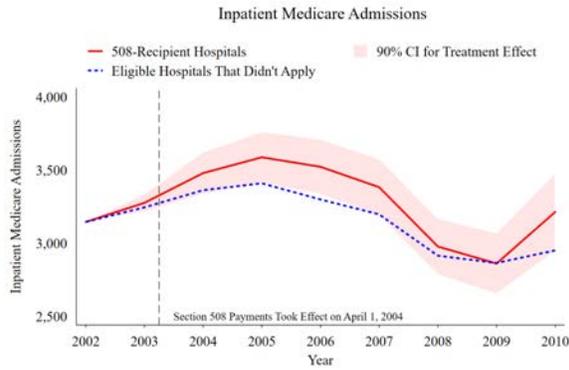
**(C) Number of Technologies**



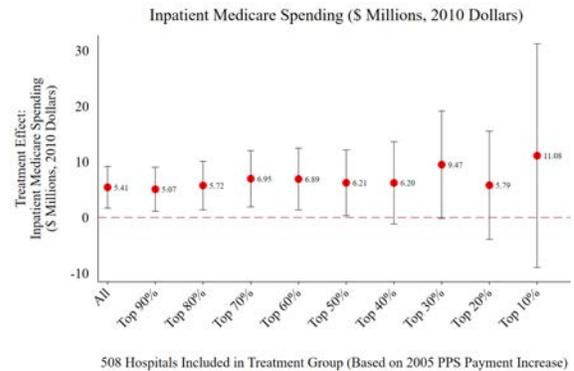
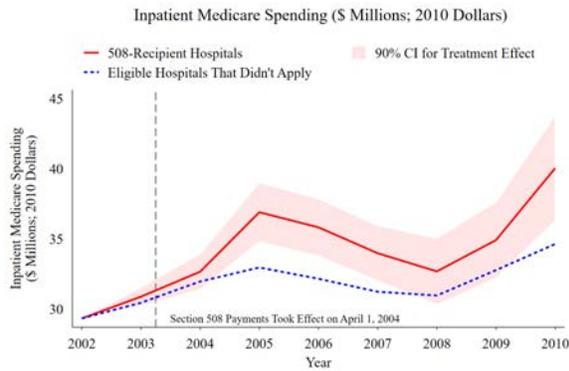
**Notes:** The leftmost figure in each panel presents estimates of Equation (1) where we regress hospital outcomes on a vector of hospital fixed effects, year dummies, and interactions between the 508-recipient hospital indicator and year dummies. The rightmost figure in each panel plots the coefficient of the year 2010 interaction term from Equation (1) for various definitions of the treatment group. In both panels, 2002 is our omitted year; 90% confidence intervals are based on wild-bootstrapped standard errors clustered around hospitals; and control hospitals include those that applied for the Section 508 waiver but were rejected. We limit our sample to hospitals that were registered with the AHA and not classified as a critical access hospital for at least 1 year before and after the Section 508 program took effect in 2004.

**Figure A.2: The Impact of Section 508 Waivers on Hospitals' Inpatient Medicare Admissions, Inpatient Medicare Spending, and Technology Adoption (Control: Eligible But Didn't Apply)**

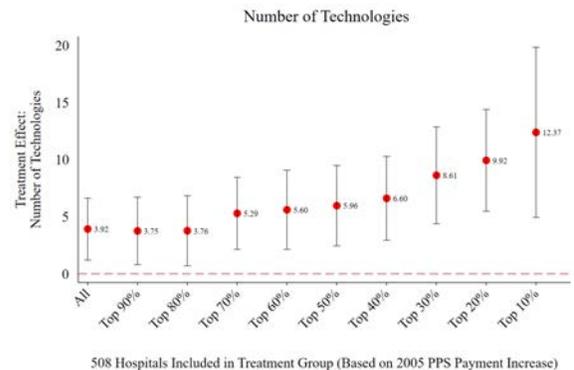
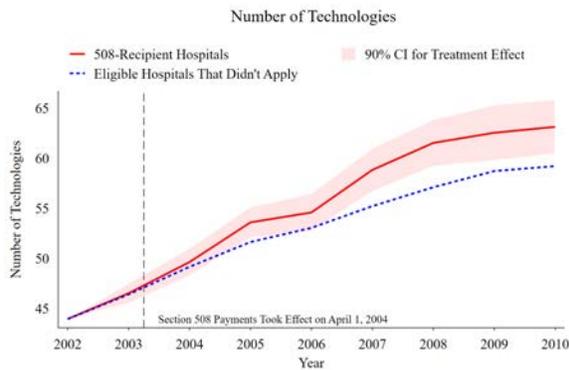
**(A) Inpatient Medicare Admissions**



**(B) Inpatient Medicare Spending**



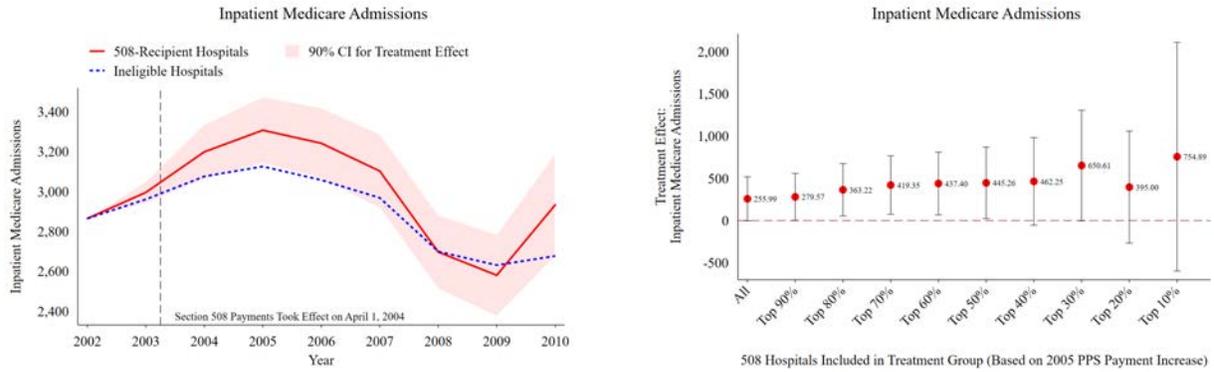
**(C) Number of Technologies**



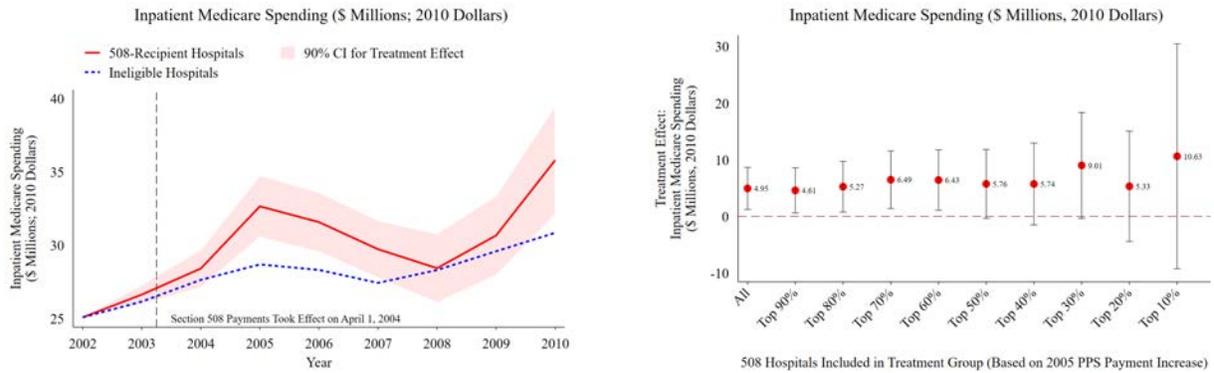
**Notes:** The leftmost figure in each panel presents estimates of Equation (1) where we regress hospital outcomes on a vector of hospital fixed effects, year dummies, and interactions between the 508-recipient hospital indicator and year dummies. The rightmost figure in each panel plots the coefficient of the year 2010 interaction term from Equation (1) for various definitions of the treatment group. In both panels, 2002 is our omitted year; 90% confidence intervals are based on wild-bootstrapped standard errors clustered around hospitals; and control hospitals include hospitals that were eligible for a 508 waiver but did not apply.

**Figure A.3: The Impact of Section 508 Waivers on Hospitals' Inpatient Medicare Admissions, Inpatient Medicare Spending, and Technology Adoption (Control: Ineligible)**

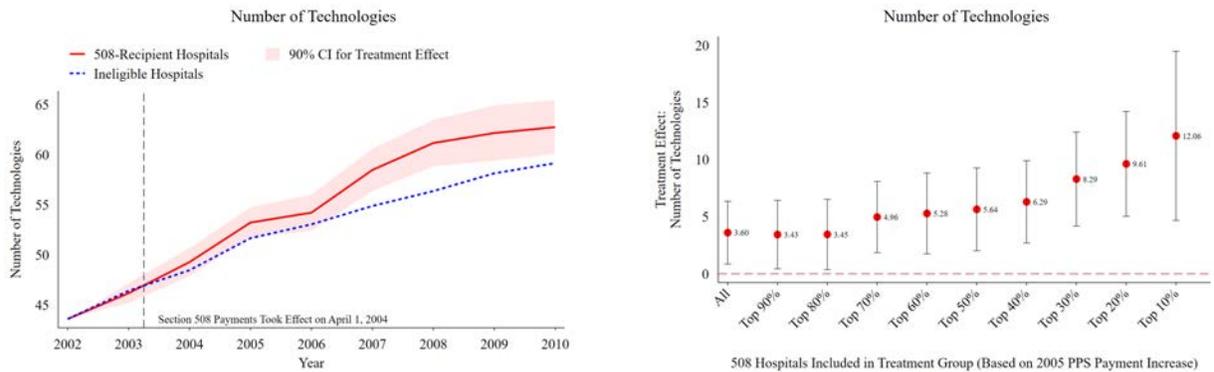
**(A) Inpatient Medicare Admissions**



**(B) Inpatient Medicare Spending**



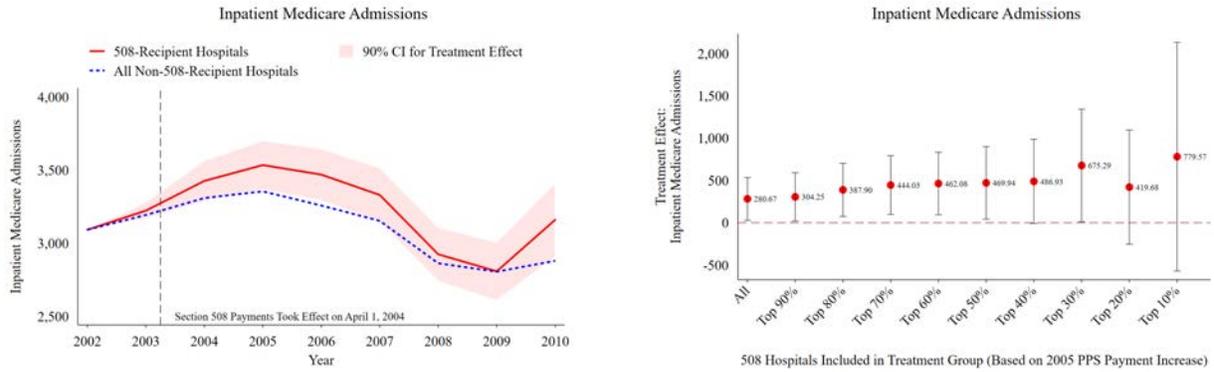
**(C) Number of Technologies**



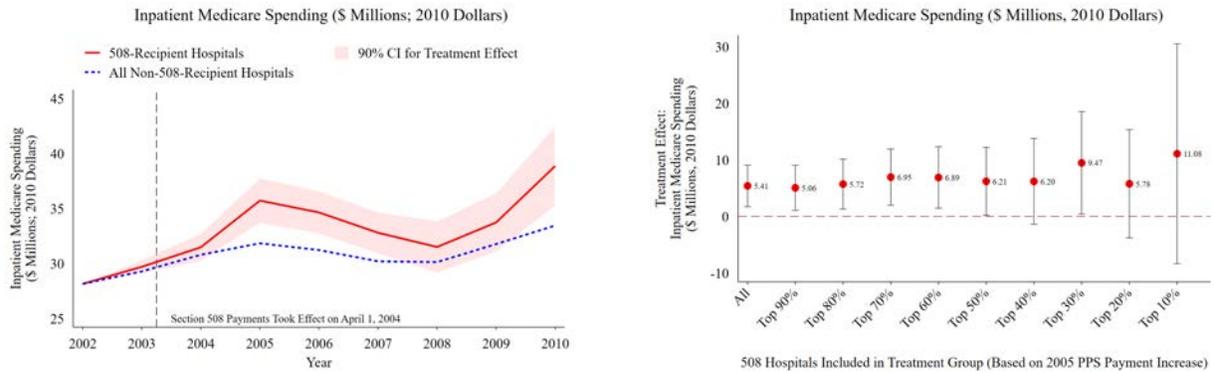
**Notes:** The leftmost figure in each panel presents estimates of Equation (1) where we regress hospital outcomes on a vector of hospital fixed effects, year dummies, and interactions between the 508-recipient hospital indicator and year dummies. The rightmost figure in each panel plots the coefficient of the year 2010 interaction term from Equation (1) for various definitions of the treatment group. In both panels, 2002 is our omitted year; 90% confidence intervals are based on wild-bootstrapped standard errors clustered around hospitals; and control hospitals include those that were not eligible for the Section 508 waiver.

**Figure A.4: The Impact of Section 508 Waivers on Hospitals' Inpatient Medicare Admissions, Inpatient Medicare Spending, and Technology Adoption (Control: All Non-508 Recipients)**

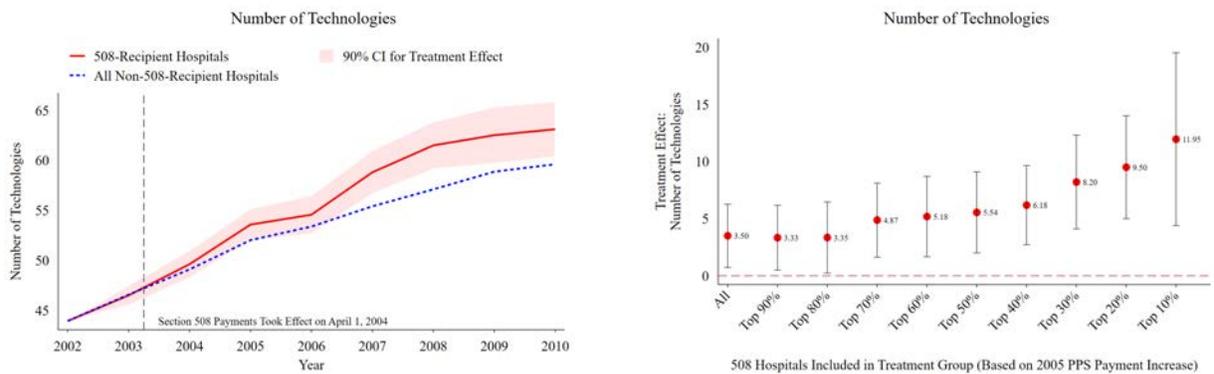
**(A) Inpatient Medicare Admissions**



**(B) Inpatient Medicare Spending**



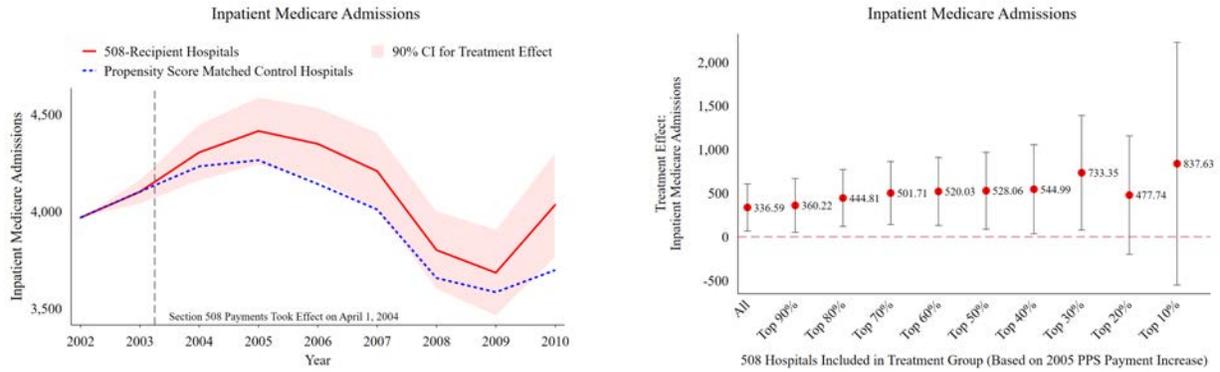
**(C) Number of Technologies**



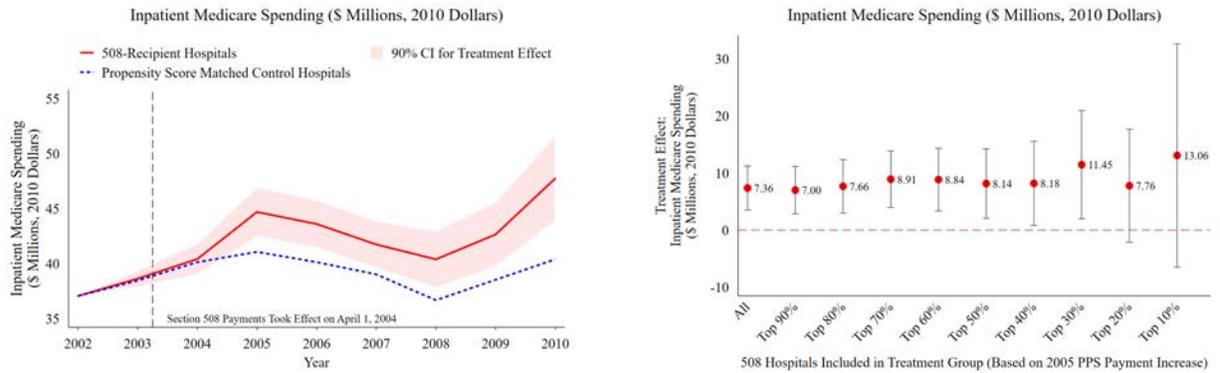
**Notes:** The leftmost figure in each panel presents estimates of Equation (1) where we regress hospital outcomes on a vector of hospital fixed effects, year dummies, and interactions between the 508-recipient hospital indicator and year dummies. The rightmost figure in each panel plots the coefficient of the year 2010 interaction term from Equation (1) for various definitions of the treatment group. In both panels, 2002 is our omitted year; 90% confidence intervals are based on wild-bootstrapped standard errors clustered around hospitals; and control hospitals include all hospitals that did not receive a 508 waiver.

**Figure A.5: The Impact of Section 508 Waivers on Hospitals' Inpatient Medicare Admissions, Inpatient Medicare Spending, and Technology Adoption (Control: Propensity Score Matched Hospitals)**

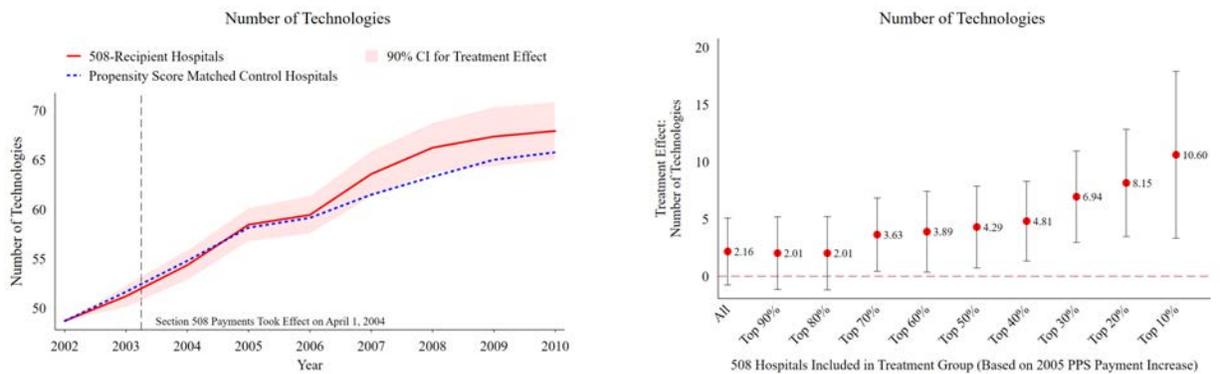
**(A) Inpatient Medicare Admissions**



**(B) Inpatient Medicare Spending**

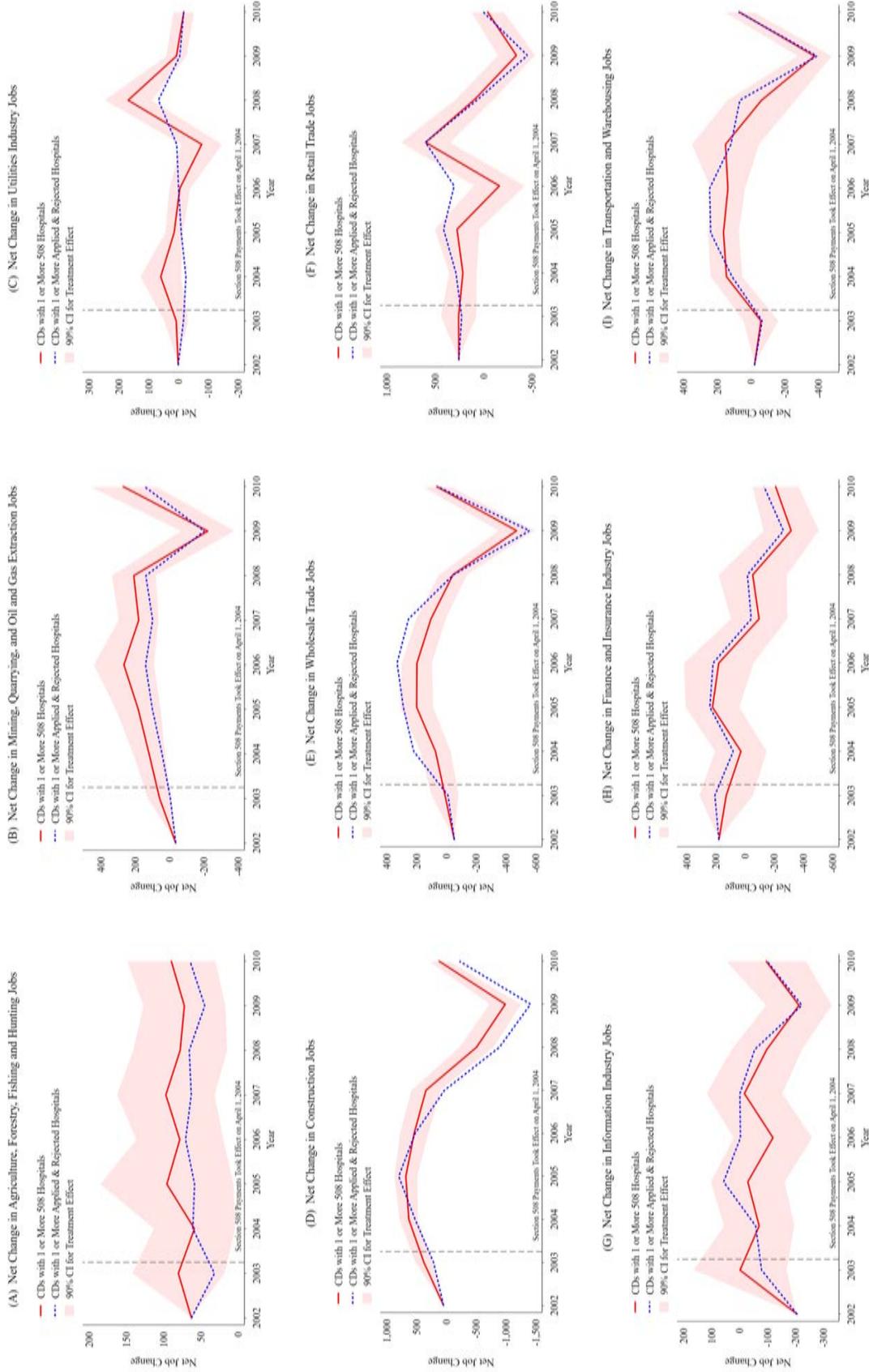


**(C) Number of Technologies**



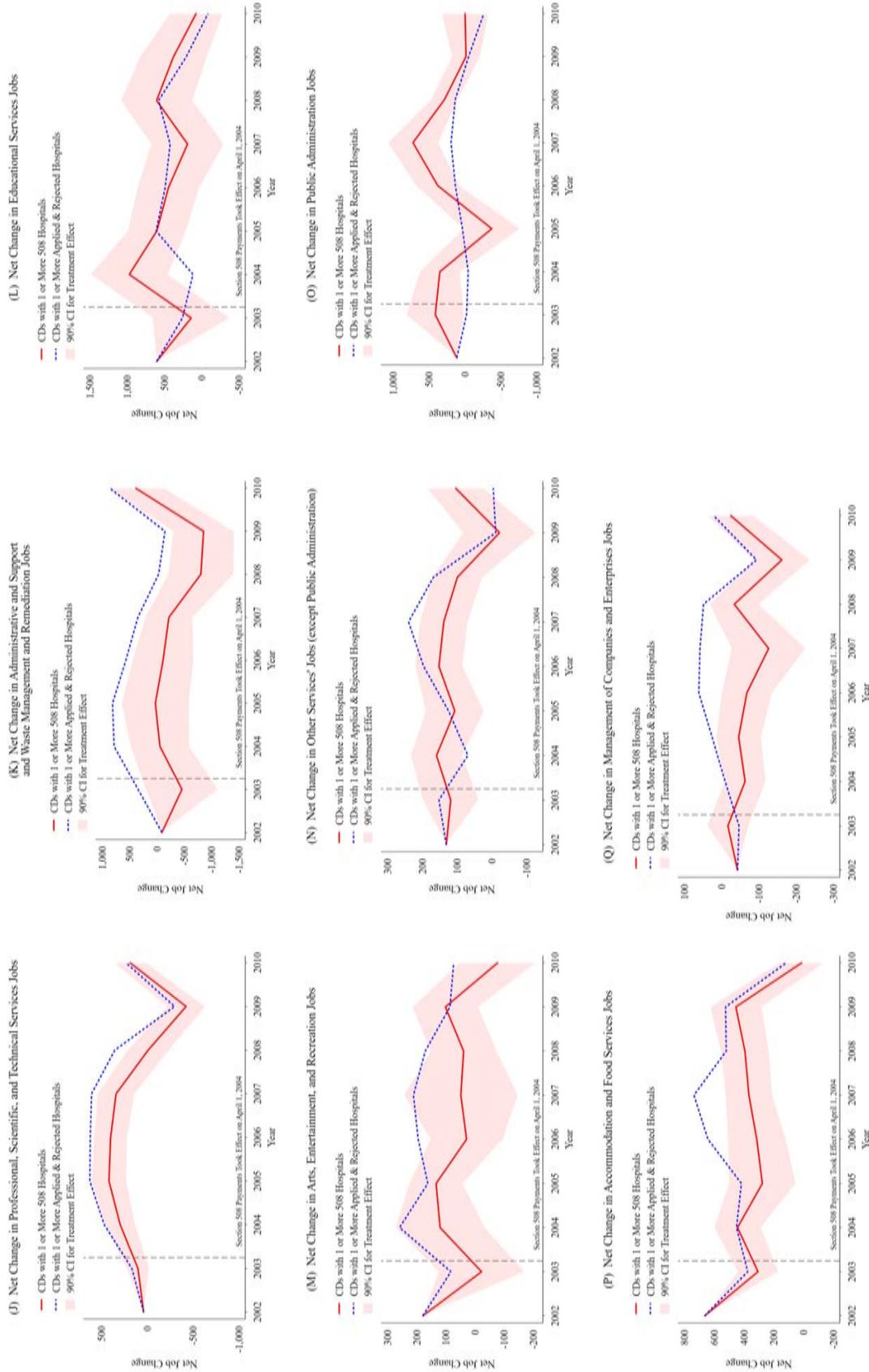
**Notes:** The leftmost figure in each panel presents estimates of Equation (1) where we regress hospital outcomes on a vector of hospital fixed effects, year dummies, and interactions between the 508-recipient hospital indicator and year dummies. The rightmost figure in each panel plots the coefficient of the year 2010 interaction term from Equation (1) for various definitions of the treatment group. In both panels, 2002 is our omitted year; 90% confidence intervals are based on wild-bootstrapped standard errors clustered around hospitals; and control hospitals include the 10 nearest neighbours according to the probit model of propensity score matching.

**Figure A.6: The Impact of the Section 508 Program on Congressional District-Level Labor Market Outcomes in Other Industries**



**Notes:** These figures are estimates of Equation (2) where we regress congressional district outcomes on a vector of congressional district fixed effects, year dummies, and interactions between the treated congressional district indicator and year dummies. Control congressional districts are those with hospitals that applied for a Section 508 waiver but were rejected. 2002 is our omitted year. 90% confidence intervals are based on wild-bootstrapped standard errors clustered around congressional districts. Net job change figures are for full-quarter jobs in the respective NAICS Sector. QWI data is aggregated from the county-quarter to the congressional district-year level.

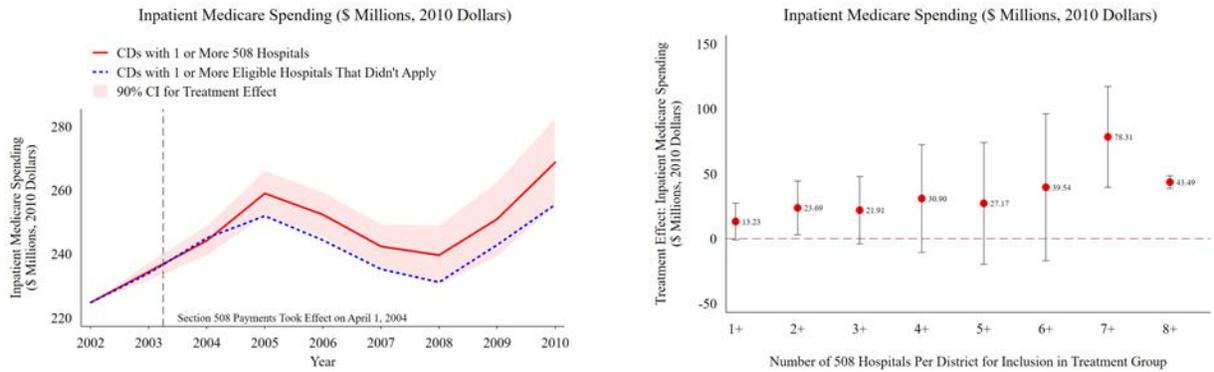
**Figure A.6: The Impact of the Section 508 Program on Congressional District-Level Labor Market Outcomes in Other Industries (cont.)**



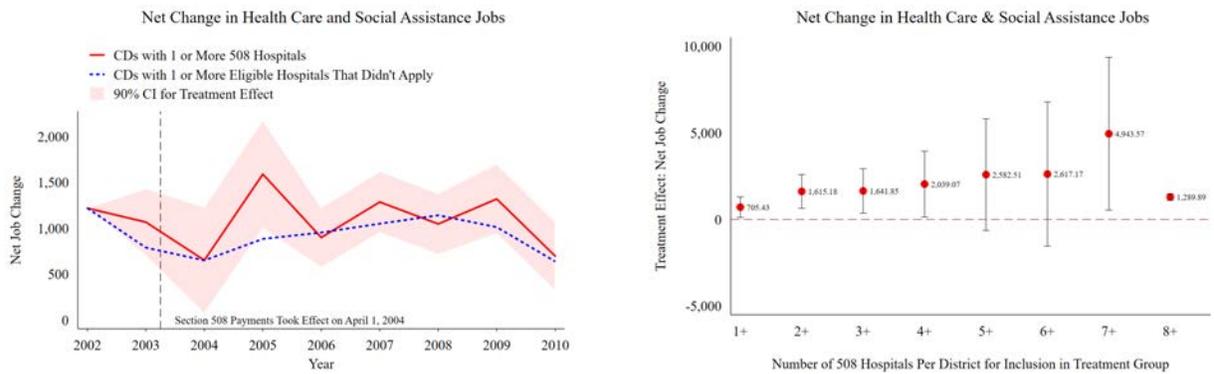
**Notes:** These figures are estimates of Equation (2) where we regress congressional district outcomes on a vector of congressional district fixed effects, year dummies, and interactions between the treated congressional district indicator and year dummies. Control congressional districts are those with hospitals that applied for a Section 508 waiver but were rejected. 2002 is our omitted year. 90% confidence intervals are based on wild-bootstrap standard errors clustered around congressional districts. Net job change figures are for full-quarter jobs in the respective NAICS Sector. QWI data is aggregated from the county-quarter to the congressional district-year level.

**Figure A.7: The Impact of the Section 508 Program on Congressional District-Level Inpatient Medicare Spending and Labor Market Outcomes (Control: Eligible But Didn't Apply)**

**(A) Inpatient Medicare Spending**



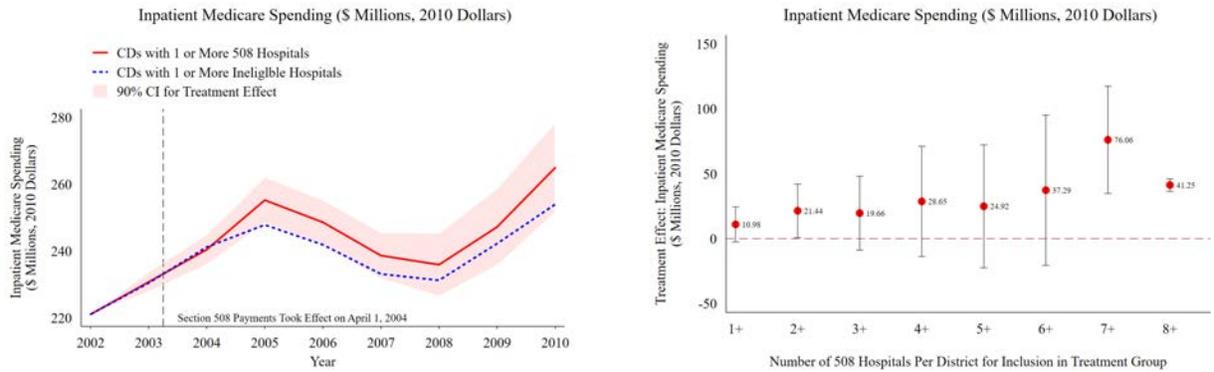
**(B) Net Change in Health Care and Social Assistance Jobs**



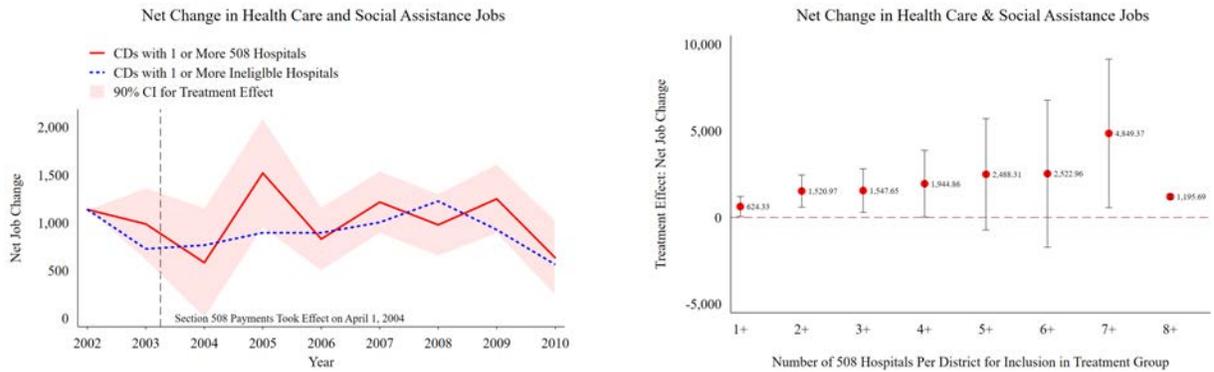
**Notes:** The leftmost figure in each panel presents estimates of Equation (2) where we regress congressional district outcomes on a vector of congressional district fixed effects, year dummies, and interactions between the treated congressional district indicator and year dummies. The rightmost figure in each panel plots the coefficient from the year interaction term from Equation (2) for various definitions of the treatment group. We show the 2010 interaction term for Inpatient Medicare Spending and the 2005 interaction term for Net Job Change. In both panels, control congressional districts are those with at least one hospital that was eligible for a Section 508 waiver but did not apply. 2002 is our omitted year. 90% confidence intervals are based on wild-bootstrapped standard errors clustered around congressional districts. Net job change figures are for full-quarter jobs in NAICS Sector 62 ("Health Care and Social Assistance"). QWI data is aggregated from the county-quarter to the congressional district-year level.

**Figure A.8: The Impact of the Section 508 Program on Congressional District-Level Inpatient Medicare Spending and Labor Market Outcomes (Control: Ineligible)**

**(A) Inpatient Medicare Spending**



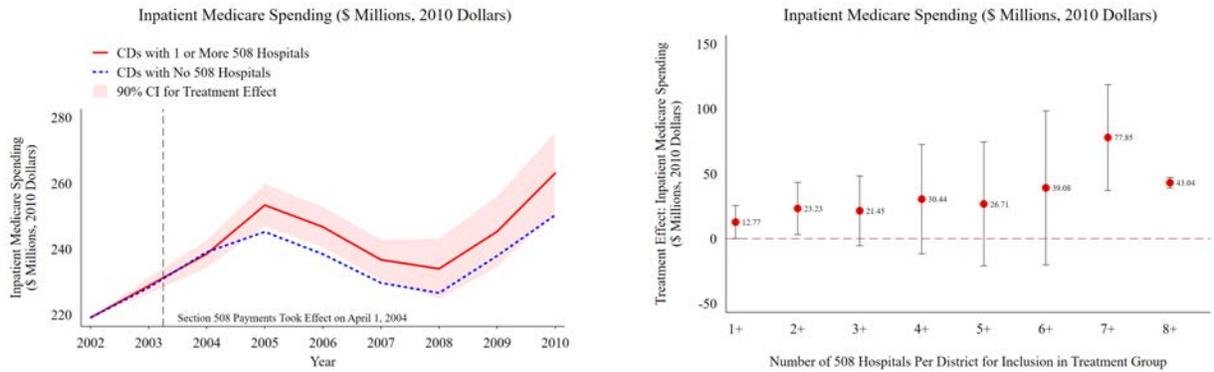
**(B) Net Change in Health Care and Social Assistance Jobs**



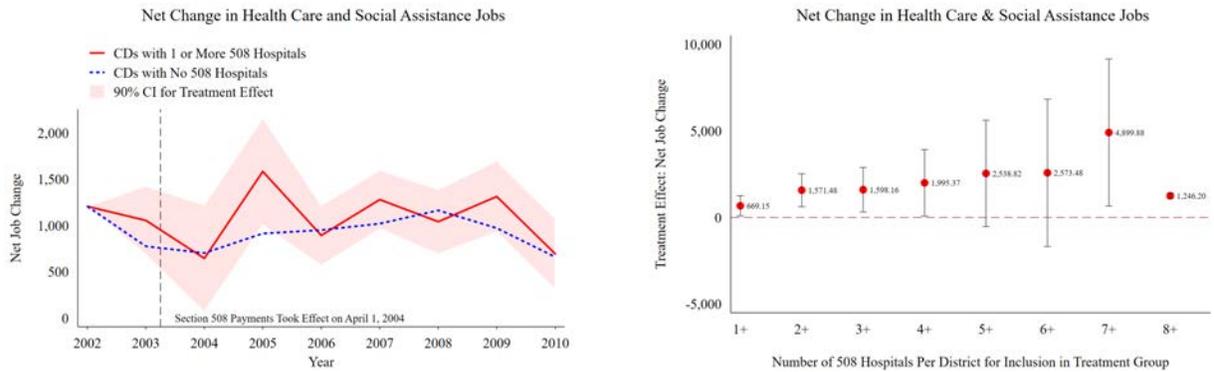
**Notes:** The leftmost figure in each panel presents estimates of Equation (2) where we regress congressional district outcomes on a vector of congressional district fixed effects, year dummies, and interactions between the treated congressional district indicator and year dummies. The rightmost figure in each panel plots the coefficient from the year interaction term from Equation (2) for various definitions of the treatment group. We show the 2010 interaction term for Inpatient Medicare Spending and the 2005 interaction term for Net Job Change. In both panels, control congressional districts are those with at least one hospital that was ineligible for a Section 508 waiver. 2002 is our omitted year. 90% confidence intervals are based on wild-bootstrapped standard errors clustered around congressional districts. Net job change figures are for full-quarter jobs in NAICS Sector 62 ("Health Care and Social Assistance"). QWI data is aggregated from the county-quarter to the congressional district-year level.

**Figure A.9: The Impact of the Section 508 Program on Congressional District-Level Inpatient Medicare Spending and Labor Market Outcomes (Control: No 508 Hospitals)**

**(A) Inpatient Medicare Spending**



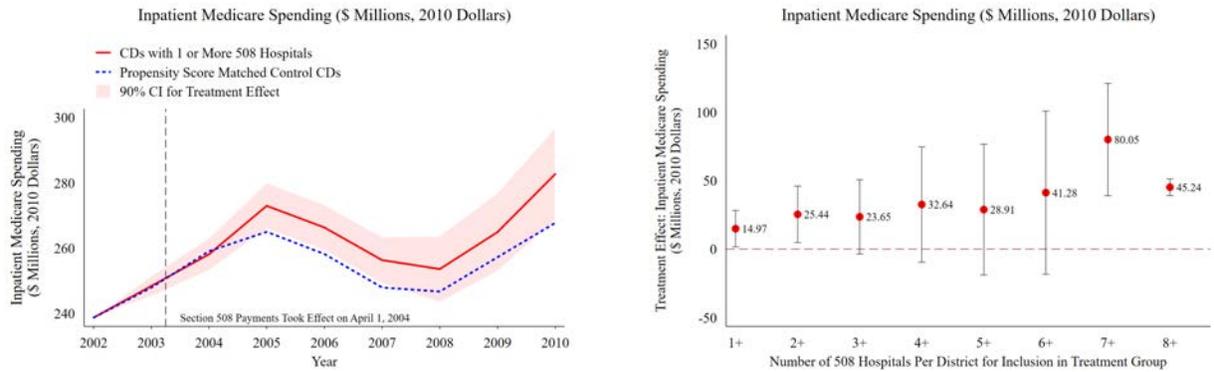
**(B) Net Change in Health Care and Social Assistance Jobs**



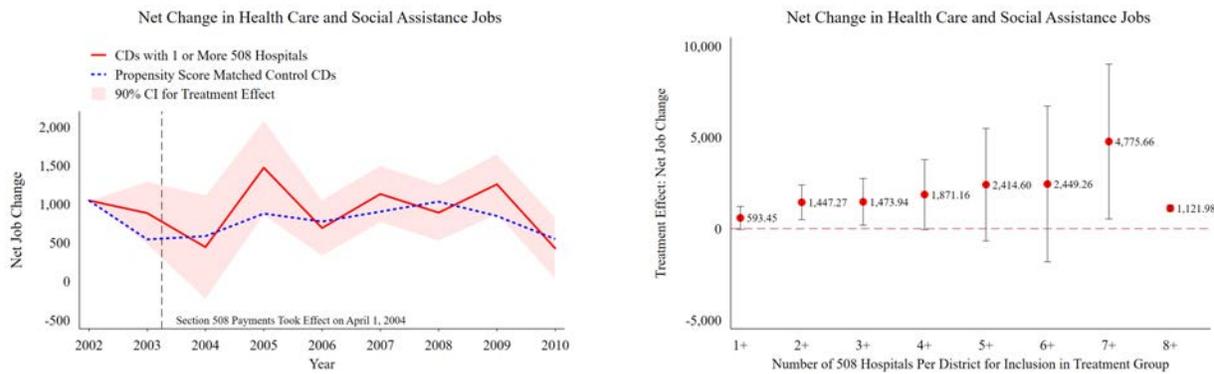
**Notes:** The leftmost figure in each panel presents estimates of Equation (2) where we regress congressional district outcomes on a vector of congressional district fixed effects, year dummies, and interactions between the treated congressional district indicator and year dummies. The rightmost figure in each panel plots the coefficient from the year interaction term from Equation (2) for various definitions of the treatment group. We show the 2010 interaction term for Inpatient Medicare Spending and the 2005 interaction term for Net Job Change. In both panels, control congressional districts are those that have no 508-recipient hospitals. 2002 is our omitted year. 90% confidence intervals are based on wild-bootstrapped standard errors clustered around congressional districts. Net job change figures are for full-quarter jobs in NAICS Sector 62 ("Health Care and Social Assistance"). QWI data is aggregated from the county-quarter to the congressional district-year level.

**Figure A.10: The Impact of the Section 508 Program on Congressional District-Level Inpatient Medicare Spending and Labor Market Outcomes (Control: Propensity Score Matched CDs)**

**(A) Inpatient Medicare Spending**

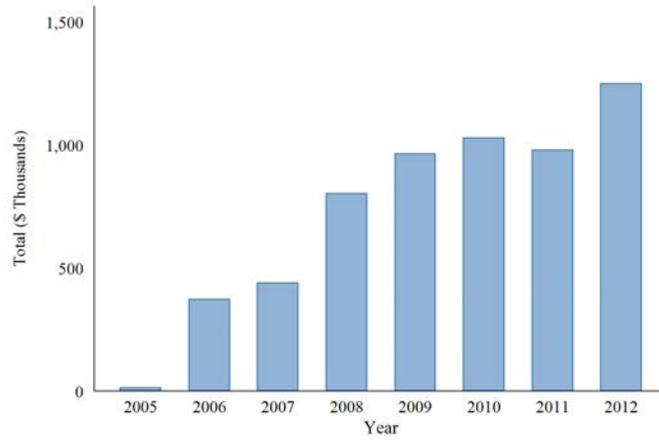


**(B) Net Change in Health Care and Social Assistance Jobs**



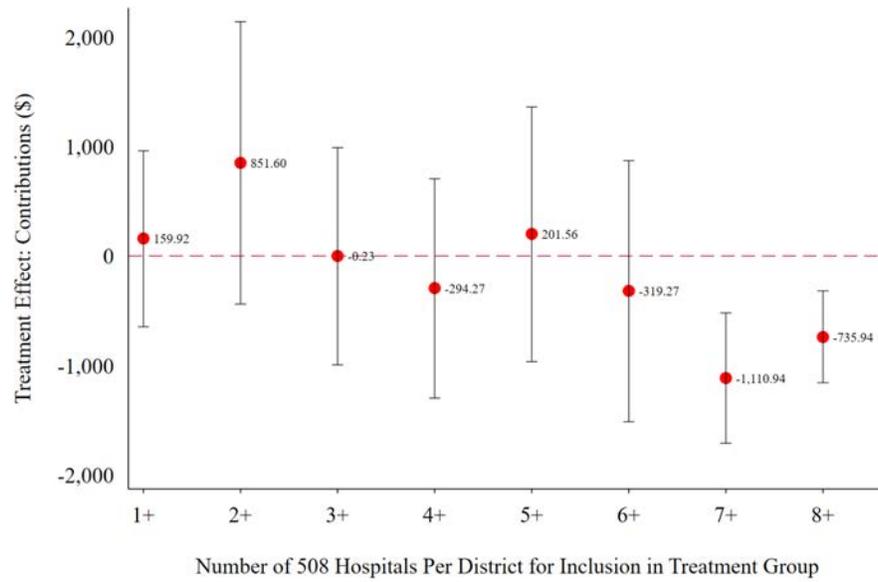
**Notes:** The leftmost figure in each panel presents estimates of Equation (2) where we regress congressional district outcomes on a vector of congressional district fixed effects, year dummies, and interactions between the treated congressional district indicator and year dummies. The rightmost figure in each panel plots the coefficient from the year interaction term from Equation (2) for various definitions of the treatment group. We show the 2010 interaction term for Inpatient Medicare Spending and the 2005 interaction term for Net Job Change. In both panels, control congressional districts are the 10 nearest neighbours according to the probit model of propensity score matching. 2002 is our omitted year. 90% confidence intervals are based on wild-bootstrapped standard errors clustered around congressional districts. Net job change figures are for full-quarter jobs in NAICS Sector 62 ("Health Care and Social Assistance"). QWI data is aggregated from the county-quarter to the congressional-district-year level.

**Figure A.11: Annual Lobbying Dollars from Section 508 Coalition**



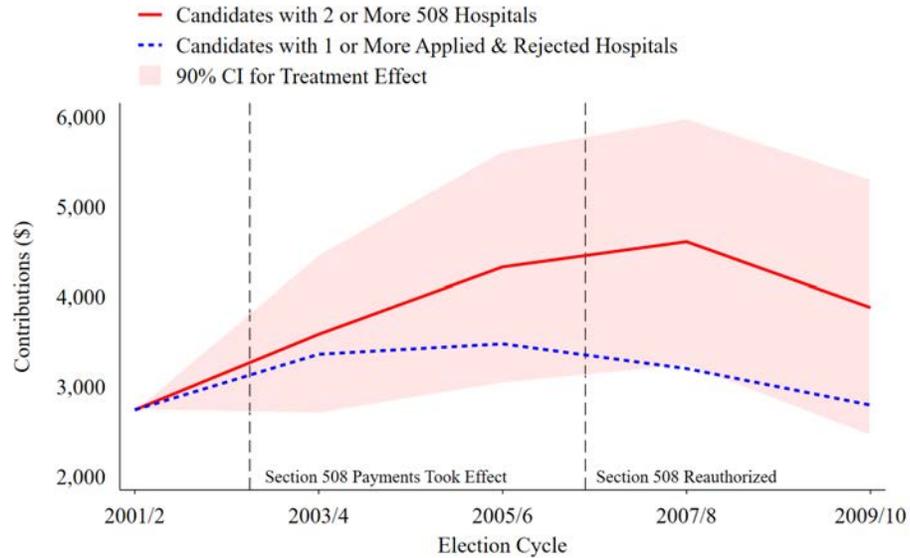
**Notes:** This figure presents the annual dollars spent lobbying by the Section 508 Coalition. Data was obtained from the Center for Responsive Politics.

**Figure A.12: Dose Response Estimates of 2005/6 Treatment Effects for Donations from the American Hospital Association**



**Notes:** This figure plots the coefficient of the 2005-2006 election cycle interaction term from Equation (4) for various definitions of the treatment group. We regress campaign contributions on a vector of candidate fixed effects, year dummies, and interactions between the treated candidate indicator and year dummies. Control candidates are those that have hospitals in their district that applied for a Section 508 waiver but were rejected. 2002 is our omitted year. 90% confidence intervals are based on wild-bootstrapped standard errors clustered around candidates.

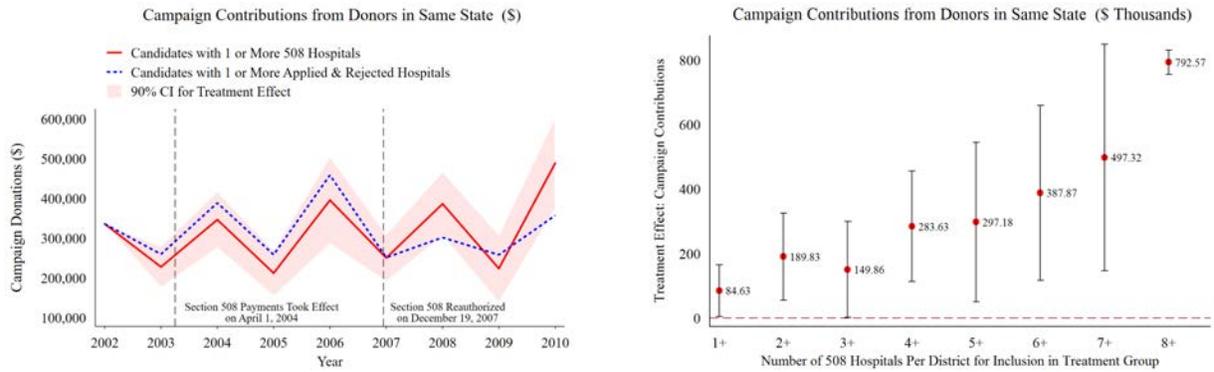
**Figure A.13: Event Study Analysis of Donations from the American Hospital Association to Candidates with 2 or More 508 Hospitals**



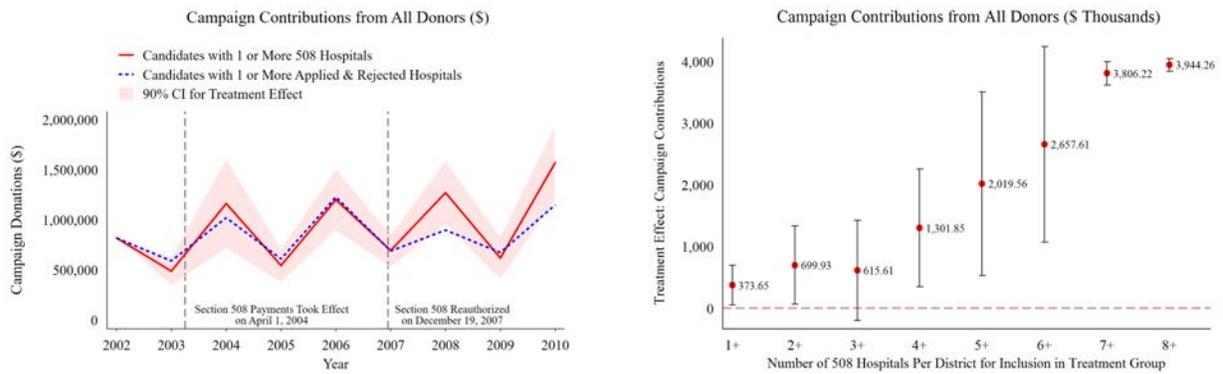
**Notes:** This figure presents estimates of Equation (4) where we regress campaign contributions on a vector of candidate fixed effects, year dummies, and interactions between the treated candidate indicator and year dummies. Control candidates are those that have hospitals in their district that applied for a Section 508 waiver but were rejected. 2002 is our omitted year. 90% confidence intervals are based on wild-bootstrapped standard errors clustered around candidates.

**Figure A.14: The Impact of the Re-Authorization of the Section 508 Program on Campaign Contributions (Without the Restriction that Candidates are in Office in 2003)**

**(A) Campaign Contributions from Donors in Same State**



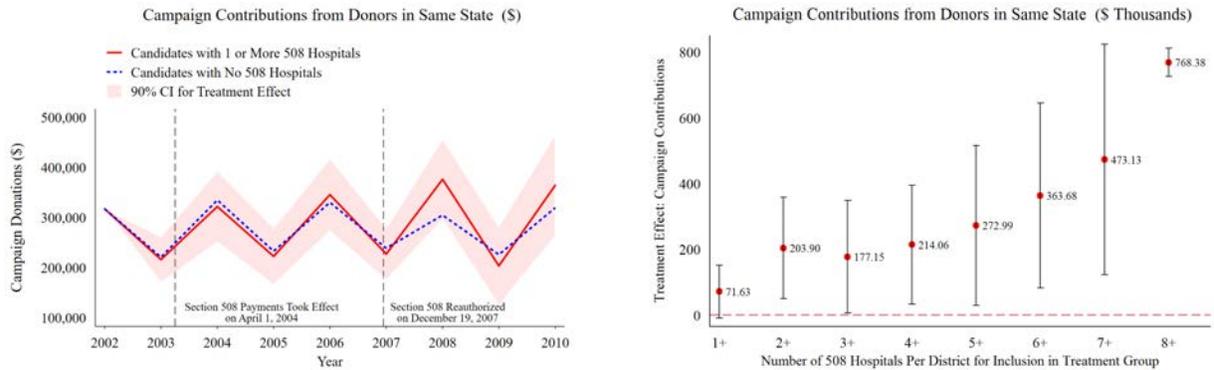
**(B) Campaign Contributions from All Donors**



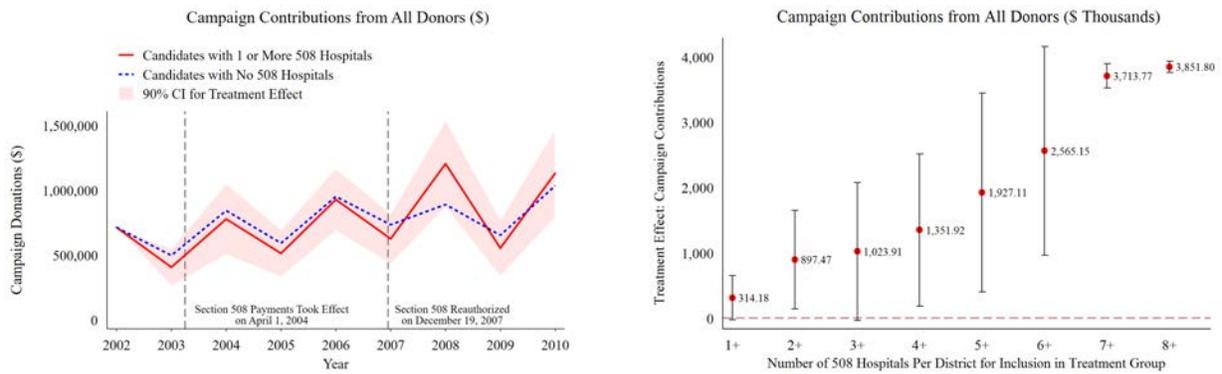
**Notes:** The leftmost figure in each panel presents estimates of Equation (3) where we regress campaign contributions on a vector of candidate fixed effects, year dummies, and interactions between the treated candidate indicator and year dummies. The rightmost figure in each panel plots the coefficient from the year 2008 interaction term from Equation (3) for various definitions of the treatment group. In both panels, control candidates are those that have hospitals in their district that applied for a Section 508 waiver but were rejected. 2002 is our omitted year. 90% confidence intervals are based on wild-bootstrapped standard errors clustered around candidates.

**Figure A.15: The Impact of the Re-Authorization of the Section 508 Program on Campaign Contributions (Control: No 508 Hospitals)**

**(A) Campaign Contributions from Donors in Same State**



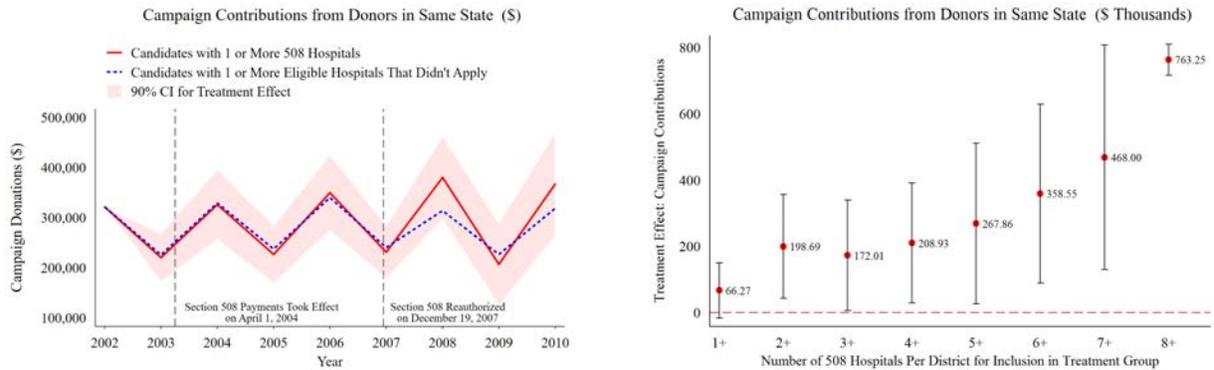
**(B) Campaign Contributions from All Donors**



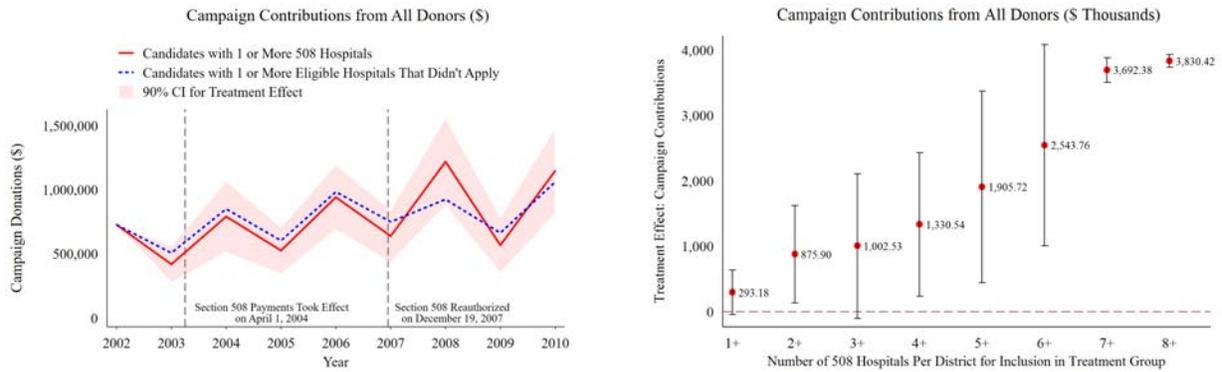
**Notes:** The leftmost figure in each panel presents estimates of Equation (3) where we regress campaign contributions on a vector of candidate fixed effects, year dummies, and interactions between the treated candidate indicator and year dummies. The rightmost figure in each panel plots the coefficient from the year 2008 interaction term from Equation (3) for various definitions of the treatment group. In both panels, control candidates are those that have hospitals in their district that did not receive a Section 508 waiver. 2002 is our omitted year. 90% confidence intervals are based on wild-bootstrapped standard errors clustered around candidates.

**Figure A.16: The Impact of the Re-Authorization of the Section 508 Program on Campaign Contributions (Control: Eligible But Didn't Apply)**

**(A) Campaign Contributions from Donors in Same State**



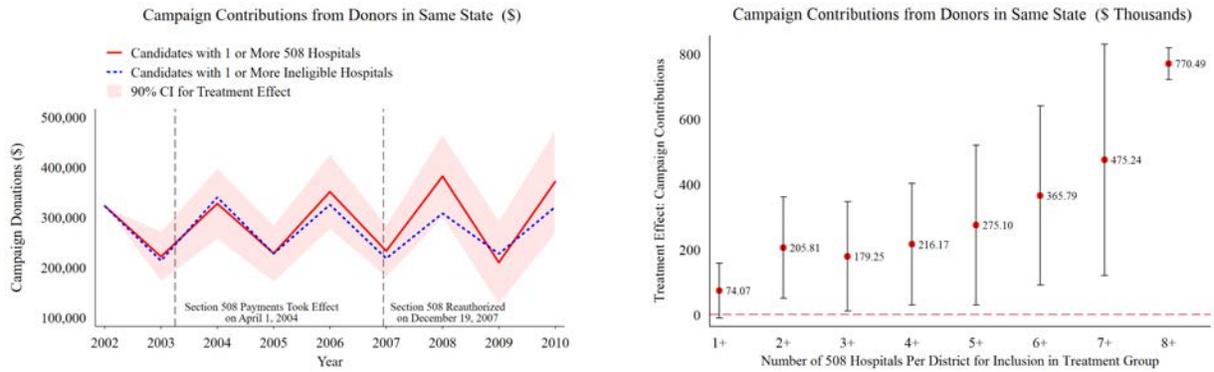
**(B) Campaign Contributions from All Donors**



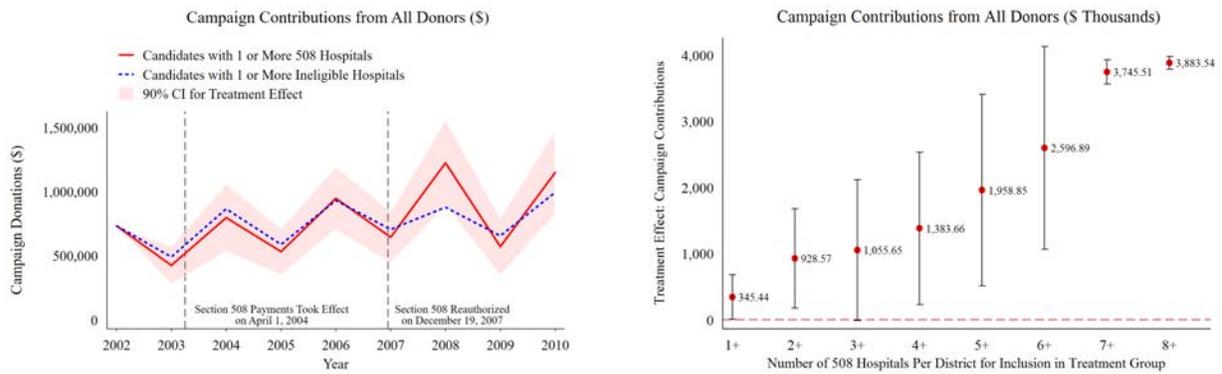
**Notes:** The leftmost figure in each panel presents estimates of Equation (3) where we regress campaign contributions on a vector of candidate fixed effects, year dummies, and interactions between the treated candidate indicator and year dummies. The rightmost figure in each panel plots the coefficient from the year 2008 interaction term from Equation (3) for various definitions of the treatment group. In both panels, control candidates are those that have hospitals in their district that were eligible for a Section 508 waiver but didn't apply. 2002 is our omitted year. 90% confidence intervals are based on wild-bootstrapped standard errors clustered around candidates.

**Figure A.17: The Impact of the Re-Authorization of the Section 508 Program on Campaign Contributions (Control: Ineligible)**

**(A) Campaign Contributions from Donors in Same State**



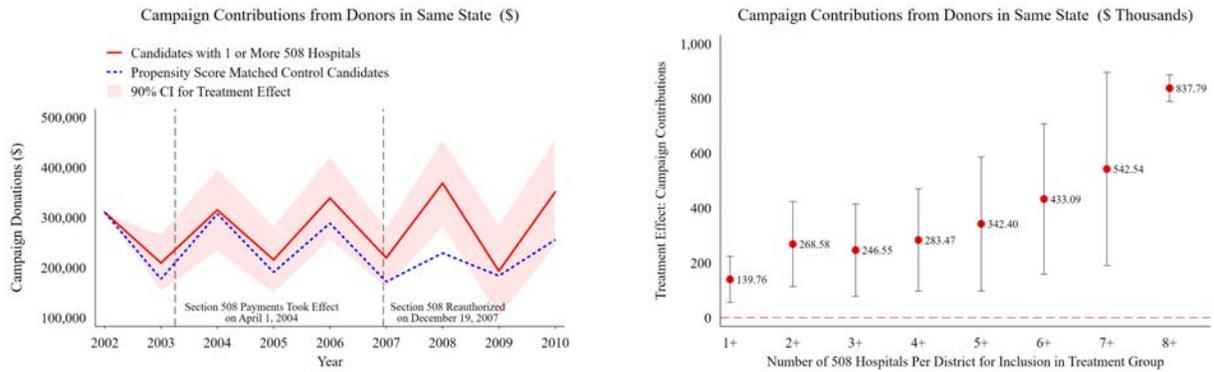
**(B) Campaign Contributions from All Donors**



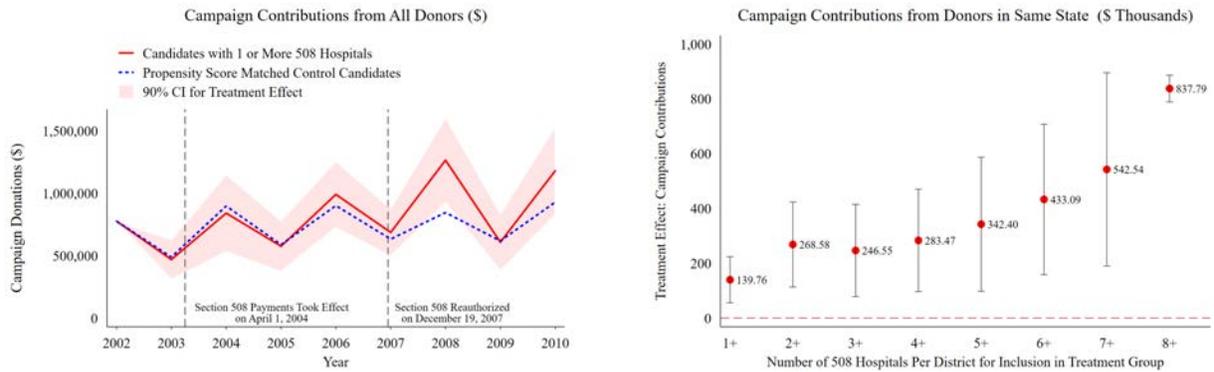
**Notes:** The leftmost figure in each panel presents estimates of Equation (3) where we regress campaign contributions on a vector of candidate fixed effects, year dummies, and interactions between the treated candidate indicator and year dummies. The rightmost figure in each panel plots the coefficient from the year 2008 interaction term from Equation (3) for various definitions of the treatment group. In both panels, control candidates are those that have hospitals in their district that were ineligible for a Section 508 waiver. 2002 is our omitted year. 90% confidence intervals are based on wild-bootstrapped standard errors clustered around candidates.

**Figure A.18: The Impact of the Re-Authorization of the Section 508 Program on Campaign Contributions (Control: Propensity Score Matched Candidates)**

**(A) Campaign Contributions from Donors in Same State**



**(B) Campaign Contributions from All Donors**



**Notes:** The leftmost figure in each panel presents estimates of Equation (3) where we regress campaign contributions on a vector of candidate fixed effects, year dummies, and interactions between the treated candidate indicator and year dummies. The rightmost figure in each panel plots the coefficient from the year 2008 interaction term from Equation (3) for various definitions of the treatment group. In both panels, control candidates are the 10 nearest neighbours according to the probit model of propensity score matching. 2002 is our omitted year. 90% confidence intervals are based on wild-bootstrapped standard errors clustered around candidates.