How does Medicare Eligibility affect Choice and Utilization? Evidence from Veterans

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Abstract

We examine how Medicare enhances health insurance benefits for those who age in with a more narrow health insurance network and the subsequent effects on health care utilization. To so this, we study veterans enrolled in the Veterans Health Administration (VA) as they age into Medicare eligibility. Given the limited geographic density of VA hospitals, we posit that Medicare expands the insurance network for VA enrollees. Using regression discontinuity methods, we find that inpatient hospitalizations increase by approximately 3.3 percent at 65. Further, there are large reallocations across health insurance payers. Individuals increasingly use Medicare for hospitalizations once it becomes available (a 65 percent increase) while VA, commercial, and other federal insurance programs are used less, with declines of approximately 6, 49, and 68 percent, relative to pre-65 means, respectively. We also find substantial reallocations among individuals that gain access to hospitals closer to their homes and among those who visit the hospital for more postponeable medical procedures. However, we do not find evidence that the average quality rating of the hospital selected at 65 changes nor do we find evidence that VA hospital wait times affect the move to Medicare; rather, individuals choose hospitals that are relatively closer. Lastly, our results suggest that Medicare may compete with other federal programs to provide health care for select populations, such as veterans.

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1 Introduction

Medicare is one of the largest US public programs, comprising nearly 3.7 percent of GDP (CMS (2023)). Many studies have examined different dimensions of Medicare, often focusing on the financial protections and health benefits that it provides (e.g., Card et al. (2009) and Finkelstein and McKnight (2008)), particularly for those who were previously uninsured (Anderson et al. (2026)). However, a less well understood feature of Medicare is how it expands the provider network for those who were insured prior to Medicare enrollment, and the subsequent effects on health care utilization. This is an important consideration given that a sizeable share of adults, ages 45 – 64 years, have health insurance.[1] Yet, the literature analyzing how Medicare expands the insurance network of those who were insured prior to 65 is limited, with recent exceptions (e.g., Ackley et al. (2024)). This is likely due in part to data limitations that do not allow researchers to identify and compare individuals' prior-held plan features, such as their insurance network, to that of Medicare.

We approach this question by focusing on US veterans, a large group that makes up between 6–7% of the US adult population (Schaeffer, Katherine (2023)). Specifically, we begin our examination by studying how the onset of Medicare eligibility affects the health insurance benefits and health care utilization for veterans enrolled in the Veterans Health Administration (VHA). This is a novel setting in which to examine this question given that access to the VA health care system is a benefit that is independent of age and employment, thereby, ensuring insurance continuity before and after 65.[2][3] As such, the stability of VA health benefit/insurance allows us to better identify the plan features of individuals, prior to Medicare eligibility so that we can determine how Medicare enhances health insurance benefits.

We then explore mechanisms that may explain our results, and propose a specific channel, which is that Medicare enhances VA health insurance through the expansion

[1] According to Bunch and Ketema (2025), in 2024, approximately 90 percent of adults ages 45 - 64 years had health insurance coverage, with approximately 76 percent having private health insurance.

[2] We describe the circumstances under which a Veteran is eligible to receive health care benefits through the Veterans Health Administration in Section 2.

[3] Note that health care coverage through the VA is a benefit. We refer to veterans with this health benefit as having "insurance" through the VA.

of hospital networks. This expansion occurs because health care through the VA is provided through an integrated health care system with limited geographic density; thus Medicare eligibility likely expands the number of physical locations where eligible veterans can receive health care (i.e., hospitals that accept Medicare as payment). As such, we highlight a specific pathway by which Medicare eligibility may confer benefits even to those who enter the program with health insurance coverage, particularly those with more narrow insurance networks.

We make use of rich data that consists of detailed veteran electronic medical records linked to state-level inpatient hospitalization claims across six states. The linked data allows us to observe the entirety of inpatient health care utilized by the veterans in our sample as well as the agency paying for the hospitalization. We employ a regression discontinuity design (RD) to exploit the change in veterans' Medicare eligibility at age 65 in order to examine if there are changes in the consumption of inpatient health care and if there are shifts in which agency pays for/finances the health care used.

We find that overall hospital utilization rates increase by approximately 3.3 percent at 65. This estimate is less than half the size of that found by Card et al. (2008), which is likely driven by the fact that the veterans in our sample age into Medicare with existing health insurance, minimizing utilization increases due to pent-up health care demand. As such, our results demonstrate that those who age into Medicare with a narrow insurance network are *also* responsive to newfound Medicare eligibility, albeit to a smaller extent. Moreover, our findings imply that non-monetary prices affect health decisions among the Medicare-eligible population we examine, given that VA health care is heavily subsidized and near-free for the majority of our sample.

There is also evidence of strategic postponement of medical procedures. Specifically, we find that for more postponeable procedures (i.e., non-emergent hospitalizations), there are larger increases in overall hospitalization rates and sharper reallocations to Medicare, compared to non-postponeable procedures (i.e., emergent procedures). This is consistent with the findings of Card et al. (2008) who find increases in overall hospitalization rates for hip and knee procedures at age 65, particularly among individuals who are most likely to have insurance before becoming Medicare eligible. Thus, the veterans in our sample

may postpone health care utilization to periods of post-Medicare eligibility when access to CMS hospitals greatly expands.[4]

Consistent with the importance of hospital proximity/network access, we find evidence that geographic proximity to hospitals may help explain the observed behaviors. For example, we find that individuals who live closest to a CMS hospital (0 – 5 miles) have larger increases in their Medicare utilization rate at 65 than those living farther away. Similarly, individuals who live farthest from a VA hospital (25 – 50 miles) also appear to experience a larger increase in Medicare utilization share at 65 than those who are closer to a VA. Interestingly, we do not find evidence that wait times, as measured by primary care appointment wait times, affects the move to Medicare. Nor, do we find evidence that the increased use of CMS hospitals is driven by a move to higher-rated hospitals, where ratings are captured by a 1 - 5 hospital rating system.

Lastly, given that we examine two very large public programs, the VA and Medicare, we investigate how access to the Medicare network affects payer shifting. We find that there is a *reallocation* in which agency pays for health care. Focusing on the three most common payers for pre-65 hospitalizations, we find that the share of hospitalizations paid for by the VA decrease by approximately 6.2 percent, the share of hospitalizations paid for by Medicare increases by 65.3 percent, and the share of hospitalizations paid for by commercial insurance (i.e., private health insurance) declines by 49.2 percent, relative to the pre-65 means, indicative of the approximately one-third of VA enrollees, younger than 65, who also have private health insurance (Wagner et al. (2024)). Additionally, the share of hospitalizations paid for by other federal programs, including Medicaid and the military health insurance, TRICARE , declines by 68.3 percent. Thus, our results suggest that the onset of Medicare eligibility results in *reallocations* of which agency pays for health care. Specifically, we find that Medicare may compete with other federal programs to provide health care to veterans, likely due, in part, to CMS hospital accessibility.[5]

Our work contributes to several strands of literature. The first is the extensive

[4]We use the term, "CMS hospitals," to refer to all public and private hospitals that are not VA hospitals.

[5]Moreover, given the observed VA advantage in mortality outcomes, relative to non-VA hospitals (Chan et al. (2023)), understanding if and when veterans decide to receive health care outside of the VA health system is important, particularly if it could result in worsened health outcomes.

literature that discusses the impacts of Medicare eligibility on a variety of outcomes. This literature includes examinations of the impact of Medicare on health insurance access (Card et al., 2008), mortality (Finkelstein and McKnight (2008) and Card et al. (2009)) as well as the impacts on individuals' financial well-being (Barcellos and Jacobson (2015) and Chatterji et al. (2022)). However, prior studies are limited in their ability to isolate the effect of Medicare eligibility for those who age into the program with insurance, often mixing the responses of the previously uninsured and insured. Instead, we examine the impacts of Medicare eligibility for those aging into the program with insurance by focusing on the VA setting where health insurance access and the insurance network is stable, thereby better allowing us to home in on what aspect of Medicare enhances insurance coverage.

Further, we posit a specific pathway by which Medicare may enhance benefits, which is through an expanded insurance network. As in previous studies, we cannot longitudinally observe all forms of health insurance coverage (i.e., whether a veteran maintains or loses other forms of pre-65 health insurance aside from the VA benefit at 65). However, our results can still provide meaningful insights since there is at least partial insurance coverage continuity beyond 65 through the VA and we can identify the plan features of the VA. In support of this mechanism, we find that relative distance between a CMS and VA hospital is correlated with increased use of Medicare (i.e., individuals who live relatively closer to a CMS hospital versus a VA hospital increasingly use Medicare at 65 versus individuals who live close to both a CMS *and* VA hospital). This provides suggestive evidence that improved network access is an important reason for the increased use of Medicare/CMS hospitals.

We also contribute to literature that examines how changes to the size of health insurance networks affect health care utilization (e.g., Dafny et al. (2015, 2017); Atwood and Lo Sasso (2016)). A more recent study by Ackley et al. (2024) studies a similar question of how Medicare expands the insurance network of Medicaid Fee-For-Service/FFS dual eligible enrollees, and find that core outpatient utilization increases by 20 percent once individuals are Medicare eligible. While most of the above studies focus on the impacts of narrowing insurance networks (e.g. Ho and Lee (2019)), we study the im-

pacts of expanding insurance networks, particularly among individuals with a financially generous, but narrow network, such as the VA. Additionally, in contrast to Ackley et al. (2024) who study outpatient utilization, we focus on an inpatient setting where health care decisions and outcomes likely differ. We also use more recent years of data, 2010 - 2019 versus 2011 - 2014, which include more years of the post-Affordable Care Act legislative environment when there was a growth in the prevalence of narrow network plans, particularly in the ACA marketplace. As such, our findings can help inform how insurance network expansions currently affect individuals' health care behaviors, particularly inpatient utilization, including if the presence of new options results in utilization changes (e.g., Duggan et al. (2022)) and the reasons for those changes.

Lastly, through our investigation of the network expansion effects of Medicare among veterans, we show that a resulting outcome is the crowd-out of other public insurance programs (e.g., Li (2023)). Here, we focus on crowd-out in health care utilization across *public* insurance programs, rather than program take-up, since veterans are eligible for both Medicare and VA benefits.[6] This stands in contrast to most discussions of crowd-out, which focus on insurance take-up across public versus private insurance options (e.g., Cutler and Gruber (1996a) and Cutler and Gruber (1996b)). We find that increases in Medicare utilization are largely offset by reductions in the use of the VA and other federal programs. Depending on the similarity of provider pricing across these programs, our results suggest that the increases in Medicare spending at 65 may be largely offset by reductions in spending by the VA and other federal programs.[7]

This is an important issue from a public finance perspective as the VA congressional funding formula accounts for VHA enrollment and utilization of the VA health care system in its disbursement of funds. Moreover, the VA budget, which is set annually by Congress, is sizable. For example, in 2022, the VA budget was nearly $269 billion with approximately $98 billion allocated to medical care (Panangala and Sussman (2022)). Thus, understanding changes in the reliance of elderly veterans on the VA health care system is important for the correct forecasting of VA budgets, especially as the size of

[6]McInerney et al. (2017) and Carey et al. (2020) study crowd-out, with regard to capacity constraint spillovers, by focusing on how Medicare beneficiaries receipt of health care services is affected by new health care demand among those made newly eligible for Medicaid through program expansions.

[7]Our study is able to observe health care utilization but not prices.

veteran cohorts changes and also because the VA does not uniformly track if veterans have other forms of health insurance.

The rest of our paper will proceed as follows: Section 2 discusses the institutional background of the VA, while Section 3 describes our data. Section 4 discusses our methods and we present our results and discussion in Sections 6. We conclude in Section 7.

2 VA Institutional Background

The US Department of Veterans Affairs (VA) through its Health Administration is charged with providing health care to eligible veterans. Each year, approximately 9 million veterans are enrolled and more than 6 million receive VA medical services. Historically, VA eligibility meant "a person who served in the active military, naval, or air service, and who was discharged or released under conditions other than dishonorable" (U.S. Department of Veterans Affairs (2019)). Recent efforts, notably the COMprehensive Prevention, Access to Care, and Treatment (Compact Act) broaden eligibility criteria and make VA responsible for any veteran who presents at an emergency department in psychiatric distress. This includes veterans who were discharged other than honorably and historically would not have qualified for VA support.

The VA is the largest integrated health care system in the US. It operates a network of 171 VA medical centers and 1298 VA outpatient facilities across the United States and US territories, and hires physicians and hospital personnel directly. In general, only veterans can access the system.[8] Figure 1a provides a map of the location of VA medical centers and CMS hospitals across the continental US. The VA provides extensive services that include primary care, mental health care, specialty care and long-term rehabilitation. Additionally, medical care provided through the VA is classified as a benefit, rather than health insurance coverage. As such, veterans can be enrolled in VA benefits and simultaneously enrolled in another insurance plan (e.g., Medicare, Medicaid, commercial health insurance).

The VA also pays for care for veterans in non-VA hospitals (i.e., VA purchased

[8]There are a limited number of instances where non-veterans may use VA health care (e.g., at joint Department of Defense/VA facilities).

care), when deemed medically necessary and efficient, or if the veteran needs care that the VA does not provide, such as organ transplants. In the event of an emergency, the VA covers emergent care and encourages enrollees to seek care at the nearest medical facility. The VA will also pay for non-emergent care at a non-VA medical institution if a veteran lives far from a VA medical facility or if the VA wait times are long; these changes were legislated through the 2014 Choice Act, which was followed by the MISSION Act in 2018.[9] These laws resulted in more veterans receiving VA-purchased care (Rose et al. (2021) and Graham et al. (2022)).

Eligible veterans are classified into one of eight "priority group" (1 through 8) to determine patient cost-sharing levels. The priority group reflects the veteran's service-connected disability and income.[10] Approximately two-thirds of veterans who receive VA care each year are exempt from any co-payments or co-insurance due to a service-connected disability or an income means test (i.e., their priority group assignment). Among those who face a co-pay, there is a uniform set of co-payments, but in general, the amounts are small compared to the typical health insurance plan in the US. For example, for a veteran with the least generous cost-sharing arrangement (priority group 8), a 90-day inpatient stay at a VA hospital would cost approximately $2600. For a veteran with the second least generous cost-sharing arrangement (priority group 7), a 90-day inpatient stay a a VA hospital would cost approximately $515.[11]

2.1 VA Coordination with non-VA Providers and Insurers

The VA and Centers for Medicare and Medicaid Services (CMS) operate independently. Thus, when a VA enrollee enrolls in either Medicare or Medicaid, the government does not coordinate benefits. The VA may only bill private insurers; it cannot bill Medicare

[9]The MISSION Act changes the eligibility criteria for the program from distance to drive time, and the current criteria make veterans eligible if they live farther than 30 minutes for primary care and mental health care, and 60 minutes for specialty care. See U.S. Department of Veterans Affairs Fact Sheet (2019) for more details about veteran community care eligibility

[10]The term, priority, does not connotate an individual's priority for medical service; once enrolled, all individuals are treated according to medical need. Rather, the priority groups are organized to designate which individuals would be denied enrollment should Congress choose to cut funding for the VA. Full information on priority group classification can be found at: https://www.va.gov/health-care/eligibility/priority-groups/

[11]See U.S. Department of Veterans Affairs (2024) for copay details.

or insurers that manage Medicare Advantage plans. For example, if a veteran is enrolled in a private health insurance plan, and receives care from the VA, the VA can bill the veterans' private health insurance plan for the provided care. However, this does not affect the veteran's cost-sharing arrangement at the VA.[12] Note, the VA does not seek any reimbursement from the veteran if the insurer imposes additional cost sharing.

Since the passage of the Choice Act, the VA has operated an office that supports the purchase of care from community providers for eligible enrollees (known as *Community Care*). The VA is expected to coordinate this care and all cost sharing to the enrollee remains the same. In such cases, the enrollee will have received a referral for the non-VA care, and the non-VA provider will bill the VA directly. If an enrollee receives non-emergent care outside a VA facility under other circumstances, VA will not participate in cost sharing. More recently, the VA has revised its rules on whether it can pay for third party (including Medicare Part A) coinsurance and copayment incurred during emergency visits. However, this was not the case during our study period, as the final rule came into effect in 2023.[13]

3 Data Description

We combine administrative electronic health records data from the VA with state inpatient claims databases for veterans over the age of 18 – this allows us to observe the entirety of inpatient health care utilization, consisting of hospitalizations within the VA (via VA electronic health records) and outside the VA (via state inpatient claims databases). Our data consists of veterans who ever resided in Florida, Missouri, New York, Oregon, Pennsylvania, or South Carolina between the years 2010 and 2019.[14] For these veterans, we observe all of their inpatient hospitalizations within the above mentioned states. This merged dataset captures patient demographic characteristics, including age, sex, race,

[12]Monies collected are part of the Medical Care Collections Fund (U.S. Department of Veterans Affairs (2025)).

[13]The final rule – including more information on why this policy changed – is available at: https://www.federalregister.gov/documents/2023/02/22/2023-03339/reimbursement-for-emergency-treatment

[14]We focus on these states as these states were willing to merge their data with VA records. We also focus on inpatient hospitalizations as this was the state data available.

priority group (reflecting VA disability rating and subsequent VA copays) as well as the zip code of residence. Also captured is clinical information, including the procedure codes and diagnostic codes associated with an inpatient encounter, as well as encounter dates and location of *all* inpatient hospitalizations for veterans in our sample.

The dataset also captures the agency (i.e., payer) who pays for the inpatient hospitalization. In our setting, if a hospitalization occurs at a VA hospital, the payer is, by definition, the VA. For hospitalizations occurring outside of a VA hospital, we also observe the agency paying for the hospitalization, which include Medicare (Medicare fee-for-service and Medicare Advantage), Medicaid, commercial health insurers such as Blue Cross, Anthem, and Kaiser, as well as other federal programs (e.g., TRICARE or the Indian Health Service). We also observe health care that is paid for/purchased by the VA, but provided at non-VA hospitals.[15] We refer to this health care as VA Community Care per its designation by the VA.

Additionally, we use data from the Veteran Survey of Enrollees (SoE) for veterans ages 60 to 70 between the years 2010 to 2021. The SoE is a cross-sectional, annual survey that is administered nationally to veterans who are enrolled in the VA. It captures a number of veteran outcomes related to health care utilization including all sources of health insurance coverage (i.e., the VA and other sources). As such, this survey allows us to examine and understand patterns of health insurance coverage for the general veteran population, before and after age 65, including estimates of the share who hold more than one form of health insurance coverage prior to and after age 65.

3.1 Outcomes

We examine two primary outcomes of interest. The first is inpatient utilization rates, which represent the number of distinct inpatient hospitalizations occurring for a given age group divided by age-group specific denominators.[16] Age-group specific denominators

[15]The VA pays for health care provided outside of VA hospitals in either emergency situations or if the veteran experiences the select circumstances discussed in Section 2.

[16]Examining rates is essential for generating precise estimates as there is substantial variation in the size of the different age cohorts in our sample. This cohort size variation is due to the sharp increase in birth rates just after the end of the Second World War as well as the large increase in VA enrollment of individuals that served during the Vietnam War.

provide a count of the number of VA-enrolled population within each age group of veterans ever residing in the six states of interest observed between 2010 and 2019, for the relevant group of interest. We calculate these age-group specific denominators by counting the number of veterans who are ever of a certain age, in months, in every month of our study period, between the years 2010 and 2019, as observed in the VA administrative enrollment records.[17] For each age-month cell, we construct utilization rates by dividing the number of hospital admissions by the number of veterans who are ever of that age-month during our study period. The rates are expressed as the number of visits per 10,000 person-months.

The second outcome of interest is payer shares. This outcome represents the share of hospitalizations attributable to a given payer (e.g., Medicare, Medicaid, commercial insurance, and the VA).

3.2 Summary Statistics

Table 1 presents the summary of our data above and below age 65. The majority of the sample consists of men who are White, consistent with veteran demographics. Additionally, the majority of our sample lives in urban areas (approximately 70 percent) and nearly 84 percent qualify for free inpatient health care. The latter implies that financial costs (i.e., patient cost-sharing) should not be a barrier to health care access prior to 65 for the majority of our sample. The remaining individuals face copays only when receiving care for conditions not related to service-connected disabilities. For these visits, individuals that are below income limits paid \$281 + \$2 per day in 2019, while the remaining paid \$1,408 + \$10 per day.

Additionally, we present estimates of the change in the share of individuals with these demographic characteristics in the *Change at 65* column. Across the groups examined, we do not find evidence of statistically significant changes in characteristics at 65. This

[17]Note that this approach mirrors that of (Card et al., 2008), who use population estimates from each year from the census to calculate the number of individuals of a certain age alive each year and rates as per 10,000 person-years. VA enrollment data allow us to be more precise and calculate the number of individuals enrolled of a certain age (in months) for each month of the study period. These data also allow use to be more precise when examining outcomes by subgroups. For example, when calculating rates by race, the age-group specific denominators are constructed separately for each race.

is consistent with the "as-good-as-random" assignment of individuals across the age 65 threshold.

Lastly, a potential concern with our analysis is that individuals move around the time of their 65th birthday due to retirement or other factors. Appendix figure A1 shows that the age profile of age-months lived is smooth across the threshold, indicating that the underlying denominator does not change at age 65. The corresponding estimate (McCrary, 2008) is not statistically significant (Table 1).

4 Empirical Strategy

We examine the change in inpatient utilization rates and payer shares associated with individuals becoming eligible for Medicare and estimate the following equations:

$$Y_a = \beta_0 + \beta_1 D_a + \beta_2 \tilde{x}_a + \beta_3 \tilde{x}_a^2 + \beta_4 \tilde{x} \times D_a + \beta_5 \tilde{x}_a^2 \times D_a + \epsilon_a \tag{1}$$

$$Y_i = \beta_0 + \beta_1 D_i + \beta_2 \tilde{x}_i + \beta_3 \tilde{x}_i^2 + \beta_4 \tilde{x} \times D_i + \beta_5 \tilde{x}_i^2 \times D_i + \epsilon_i \tag{2}$$

In Equation 1, we collapse VA hospitalization (encounter) records over a ten-year period spanning 2010 – 2019 at the age cell level, a. Here, Y_a represents the outcome of interest at the month-age cell level, a. D is a binary variable such that $\mathbb{1}\big(a \geq 65\big)$; that is, if the observed month-age level observed is greater than or equal to 65 years, D_a takes the value of one, and is zero otherwise. We center the monthly age cells at 65 years, which are represented by $\tilde{x}_a$ in Equation 1. Thus, $\tilde{x}_a$ represents the number of months until/since age 65 (e.g., 64 years and 1 month will appear as -11 months and 65 years and 8 months will appear as 8 months). We use a quadratic fit and a bandwidth of 24 months, with bandwidth and polynomial robustness shown in Figures A4 and A5 for utilization rates and payer shares, respectively.

Equation 2 is used to estimate the share of hospitalizations attributable/paid for by a given payer. The observed payers include Medicare, the VA (i.e., health care received at a VA hospital or health care received through the VA Community Care program), Medicaid, commercial insurance (i.e., private health insurance), other federal insurance,

such as TRICARE, as well as an other category, which captures sources not included in the former groupings.[18]

5 Results

5.1 Change in Insurance Coverage at Age 65

Figure 2a details the changes in insurance coverage at age 65 among veterans enrolled in the VA between 2010 and 2021. We find changes in insurance coverage at 65 across several insurance types. For example, the share with Medicaid increases by 27 percent (1.84 p.p) while there are declines in the share with private health insurance by 21 percent (-6.9 p.p). We interpret these changes as likely reflecting changes in Medicaid eligibility as individuals exit the labor force or increased salience of Medicaid program eligibility as individuals age into the Medicare program.

As expected, VA coverage remains steady, at approximately 93 percent across the 65 threshold. Additionally, we find a more than doubling of the share with Medicare, specifically there is an approximately 56 percentage point (p.p.) increase. Consistent with this finding, Figure 2b shows that the share of veterans with health insurance outside the VA jumps from approximately 63 percent to 85 percent at age 65. Our results indicate that while VA coverage remains stable, Medicare coverage dramatically increases for the majority of the veteran population at age 65.

5.2 Health Care Utilization

Our main estimates are presented in Tables 2 and 3, along with Figure 3. Estimates are of β_1 from Equations 1 and 2 and indicate changes in inpatient hospitalization rates and payer shares, respectively. We further estimate changes in the utilization rate and shares by insurance payer type.

We find that total inpatient utilization increase by 3.3 percent at age 65. Our effect is notably smaller compared to estimates by Card et al. (2008), who find an approximate

[18]TRICARE is a health care program provided through the Department of Defense for which some military retirees may be eligible.

increase of 7.6 percent in hospital admissions for individuals turning 65. This contrast is consistent with the fact that there should be less pent-up health care demand in our setting since health care coverage and access exists prior to age 65.

Our results indicate that there is a *reallocation* in which agency pays for health care as shown in Table 3. In particular, we find that the share of hospitalizations which are paid for by Medicare increases by 65.3 percent (16.1 p.p) relative to the pre-65 mean share. In contrast, the share of hospitalizations paid for by the VA system as a whole decrease by approximately 6.2 percent (-3 p.p), where the share paid for by the VA community program decreases by 25.2 percent (-1.8 p.p). Additionally, the share of hospitalizations paid for by commercial insurance decreases by 49.2 percent (-7.1 p.p); the share paid for by other federal programs, such as TRICARE, decreases by 66.2 percent (-2.2 p.p); and the share paid for by Medicaid decreases by 72 percent (-1.4 p.p), all relative to the pre-65 mean share.

We also observe heterogeneity in the payer share shifts at age 65. This is despite similar hospitalization rate increases at 65 – approximately 3 percent – across several of the different groups examined. For example, we find that veterans with the least generous VA benefit/copayments experience the largest increases in the share of hospitalizations paid for by Medicare. Specifically, veterans in Priority groups 7 and 8 experience an 87.9 percent increase (24.2 p.p) in the share of hospitalizations paid for by Medicare at 65, relative to the pre-65 mean. This shift occurs alongside large decreases in the share of hospitalizations paid for by commercial insurance (50.2 percent, relative to the pre-65 mean share) as well as declines in the VA hospitalization share of approximately 12.2 percent. In contrast, veterans with zero VA copayments/coinsurance (Priority groups 1 through 4) experience an approximately 58.4 percent increase in Medicare's share of hospitalizations at 65, a 49.4 percent decrease in the commercial hospitalization share and a 4.9 percent decrease in the VA hospitalization share. Additionally, reliance on the VA system remains relatively high among the veterans with zero copayments after 65, at approximately 50.3 percent. Only Black veterans rely on the VA more after age 65, with more than half (57.2 percent) of their hospitalizations continuing to occur with the VA. This stands in contrast to veterans with the least generous copayment whose share

of hospitalizations at the VA after 65 is much smaller at approximately 31 percent.

5.3 Procedure Heterogeneity and Strategic Behavior

We also investigate whether there is heterogeneity in health care utilization based on the deferrability of the procedure (Card et al. (2008)). If there are larger shifts in the Medicare utilization share for deferrable procedures (vs. non-deferrable), this suggests that veterans strategically wait and postpone deferrable procedures until they become Medicare eligible. Postponing deferrable procedures, that otherwise could have been received at a VA hospital, could be driven by VA hospital quality perceptions, VA hospital wait times, or patients' distance to VA hospitals, for example.

To address this question, we create two measures of procedure deferrability under the hypothesis that deferrable procedures can accommodate forward-looking behavior – by way of deferred consumption/demand – while non-deferrable procedures cannot. For our first deferrable group, we define emergency procedures as non-deferrable and non-emergency procedures as deferrable.[19] For our second measure of deferrability, we consider hospitalizations for three Diagnosis-Related Groups (DRGs): mental health and substance abuse, acute myocardial infarction/AMI (i.e., heart attack) and strokes, and hip and knee procedures.[20] Mental health and substance abuse hospitalizations as well as AMI and stroke hospitalizations are considered non-deferrable because of their likely as-good-as-random onset (e.g., see Fadlon and Nielsen (2019)), while hip and knee procedures are considered deferrable (e.g., see Card et al. (2008)). We then separately estimate Equations 1 and 2 for these two groupings.

Our results are presented in Table 2 (Figure A2a) for emergency and non-emergency admissions and in Table 4 for the three DRGs examined. We find that hospitalization rates for emergency admissions increase little (0.64 percent), but this increase is not statistically different from zero. However, we find an approximately 8 percent increase in

[19]In our sample, emergency admissions are hospitalizations for which the admission source for the hospitalization is an emergency room or admissions for which there is an emergency department claim on the day of or the day prior to an inpatient admission. Approximately 64 percent of hospitalizations in our sample are classified as emergency admissions by this definition.

[20]The DRG codes for mental health and substance abuse include codes 876, 880 – 887, 894 – 897. The DRG codes for AMI and stroke include codes 280 – 285 and 061 – 066. The DRG codes for hip and knee replacement include codes 469 and 470.

non-emergency admissions at 65. This increase may suggest that veterans may strategically postpone deferrable procedures until they become Medicare eligible.

We see similar patterns across the three DRGs examined. Mental health and substance abuse admissions do not experience meaningful nor statistically significant increases and AMI/stroke admissions increase moderately at 10 percent. In contrast, we find a much larger and statistically significant 33 percent increase in the utilization rate of hip and knee procedures at 65. However, we are cautious in interpreting this increase as conclusive evidence for the strategic postponement of a deferrable procedure. This is because Figure 5c, which depicts the utilization rate for hip and knee procedures before 65, shows a relatively steady utilization rate prior to 65. Thus, the lack of a pre-65 "dip" in utilization suggests that those near Medicare eligibility do not strategically postpone the procedure.

5.3.1 Payer Shifting

To explore the potential crowd-out implications of Medicare eligibility for veterans with access to the VA health system, we study how the increases in Medicare utilization are "financed" by reductions in the use of other insurers/payers. Specifically, we characterize the increases in the Medicare share (i.e., the share of hospitalizations paid for by Medicare) by how much other payer shares are reduced. Using Equation 3, below, we estimate the change in the payer share attributable to other payers as a fraction of the change in the payer share attributable to Medicare. In doing so, we create a proxy estimate for the "crowd-out" in insurance programs that occurs when veterans become Medicare eligible. We interpret our result as a crowd-out estimate for overall inpatient utilization because there is relatively little change in the overall health care utilization rate. Thus, shifts in payer shares represent re-allocations across payers, holding the overall health care utilization roughly fixed.

$$\Delta\text{Medicare}+\Delta\text{VA}+\Delta\text{Commercial}+\Delta\text{VA-Community}+\Delta\text{Other Fed}+\Delta\text{Medicaid}+\Delta\text{Other} = 0 \tag{3}$$

where Δ represents the change in the share of utilization attributable to a given payer

source at 65. We can rearrange Equation 3 to show the following:

$$1 = -\frac{\Delta \text{VA}}{\Delta \text{Medicare}} - \frac{\Delta \text{Commercial}}{\Delta \text{Medicare}} - \frac{\Delta \text{VA-Community}}{\Delta \text{Medicare}} - \frac{\Delta \text{Other Fed}}{\Delta \text{Medicare}} - \frac{\Delta \text{Medicaid}}{\Delta \text{Medicare}} - \frac{\Delta \text{Other}}{\Delta \text{Medicare}}$$

We present these results in Figure 4, which depicts the change in payer shares as a fraction of the increase in Medicare's share of total inpatient utilization. It is evident that the largest shifts in payer shares contributing to the increase in Medicare's payer share, come from reductions in commercial insurance and the VA. Specifically, 44 percent of the increase in Medicare's payer share comes from declines in the commercial insurance share and 19.1 percent of Medicare's payer share increase comes from declines in the VA payer share. Thus, while commercial insurance was a smaller payer than the VA before veterans turned 65, this payer experiences the biggest relative share decline compared to the increase in Medicare. This may be a function of labor market transitions that move individuals away from employer-sponsored health insurance.

Interestingly, we also find a sizeable decline in the payer share attributable to government programs as a whole. Specifically, approximately 41.3 percent of the change in the Medicare utilization share comes from decreases in the share attributable to the VA, Medicaid, and other federal programs. This reallocation across federal agencies suggests that Medicare may crowd out the use of other government health care programs.

6 Mechanisms

In this section, we explore several factors that may explain the observed movement to Medicare among veterans, highlighting the importance of hospital distance and hospital network density.

6.1 Hospital Distance & Network Density

We examine the importance of distance for veterans' move to Medicare at 65. To motivate our analysis, we present Figures 1a and 1b. Figure 1a shows the geographic location of VA hospitals and CMS hospitals across the continental US. VA hospitals are geographically

dispersed, but CMS hospitals cover more areas and are much more geographically dense in concentration by comparison. Figure 1b depicts the distribution of the nearest VA and CMS hospitals within 100 miles of veterans in our sample. More than 50 percent of the veterans in our sample live within 5 miles of a CMS hospital, while fewer than 25 percent live within 5 miles of a VA hospital, indicating that veterans tend to live relatively closer to CMS hospitals.

To understand the importance of hospital distance for the increase in Medicare utilization, we perform two tests. We first test if the actual distance traveled to a hospital decreases at 65 under the hypothesis that if hospital distance is important in the decision to move to Medicare, distance traveled should decrease. This is motivated, in part, by the documented positive correlation between hospital proximity and hospital demand (Gowrisankaran et al. (2015)). To perform this test, we estimate the actual distance traveled for hospital visits in Florida, New York, and Pennsylvania as these are the states for which we observe hospital names and geo-coordinates. We then estimate Equation 2 where the outcome is distance from a veteran's residence to the hospital they visited.[21]

We also test the importance of distance by examining how relative distance affects shifts in payer shares. Specifically, we test the hypothesis that if distance matters for veterans' move to Medicare at 65, the increase in Medicare's share as a payer source will be larger for individuals who live *relatively* closer to CMS hospitals versus VA hospitals, all else equal. To perform this test, we determine how the payer share varies for individuals who live within a fixed distance to a CMS hospital, while varying the distance to the nearest VA hospital. We focus on the group of veterans who live 0 – 5 mile from a CMS hospital as this represents the majority of veterans in our sample (i.e., more than half), while the distance to the nearest VA hospital is allowed to vary between 0 – 5 miles, 5 – 10 miles, 10 – 25 miles or 25 – 50 miles.

The results for our first test are presented in Figure 6. We find that distance traveled decreases slightly by approximately 0.7 miles, translating to a travel reduction of approximately 3.4 percent from the pre-65 mean. This result appears to be driven by emergency admissions, as shown in Figure 6b, where we find a reduction in miles trav-

[21] We trim our sample at the 99th percentile and subsequently limit our observations to distances traveled that are fewer than 250 miles.

eled of approximately 1.3 miles (-8.3 percent), with no statistically significant effects for non-emergent admissions. We interpret these findings to reflect decreased willingness to travel for emergency care combined with information frictions and complexity regarding obtaining VA payment for emergency care, despite it typically being a covered benefit.[22]

We also find evidence that relative distance matters, as shown in Figure 7. For example, the change in the share of hospitalizations paid for by Medicare nearly triples for individuals who live within 25 – 50 miles from a VA versus 0 – 5 miles from a VA; respectively, the coefficient estimates for β_1 are 0.21 and 0.08. These increases seem to come from declines in the use of both commercial insurers and the VA community program. This is evidenced by the 2 p.p. decline in the commercial share for those living 0 – 5 miles from a VA versus a 6 p.p. decline for those 25 – 50 miles from a VA. Interestingly, we also observe a 3 p.p. decline in the use of the VA community share for individuals who live 25 – 50 miles from a VA. This result is particularly interesting given that VA community care is received outside of the VA in a non-VA hospital setting, but is paid for by the VA. This suggests that people may still prefer to use Medicare over health care that is paid for by the VA but delivered outside of the VA. This may occur because of perceived complexities associated with using the VA to pay for non-VA health care (e.g., see States (2024).)

6.2 Hospital Ratings

We examine the importance of quality, as measured by hospital star ratings, in veterans' choice to increasingly use Medicare. We focus on the 1- 5 hospital ratings as the quality measure, as these are salient and visible hospital quality markers when individuals visit Medicare.gov's Care-Compare website. The hypothesis underlying this examination is that if veterans select hospitals, in part, based on succinct, observable quality metrics like a 1 - 5 rating, we expect their increased use of Medicare to coincide with an increased

[22]While the VA has routinely paid for non-VA emergency care since 1999, the VA requires enrollees to have at least one visit every two years to be eligible for non-VA emergency care. Further, there is a history of the VA denying claims that should not have been rejected (Department of Veterans Affairs Office of Inspector General, 2019). Additionally, the determination of whether the VA could act as a secondary payer in certain circumstances has only been clarified more recently (see *Wolfe v. McDonough*, case #20-1958 in the U.S. Court of Appeals). Thus, some patients may have uncertainty about whether a non-VA emergency department visit would leave them with a financial liability.

use of higher-rated hospitals. Thus, if this does not occur, it suggests that hospital quality, as captured by the 1 - 5 rating system, does not drive the observed move to Medicare.

To test our hypothesis, we collect hospital ratings data for hospitalizations occurring in Florida, New York, and Pennsylvania as these are the states in which we can identify hospitals' ratings. The ratings data come from two sources. The first source is VA's Strategic Analytics for Improvement and Learning Value Model (SAIL), which provides VA hospital ratings data between 2016 and 2019. The second source is CMS Care Compare, which we use to obtain CMS hospital ratings for the same years, 2016 – 2019.[23] We then match the CMS ID (VA hospital name) of the CMS hospital (VA hospital) visited by veterans to the respective hospital ratings dataset. Of note, both hospital systems assign a 1 – 5 rating, but during this time period, the VA used its own internal rating methodology, which was different from CMS. This is observed, in part, in Figure 9, which shows that the ratings distribution for VA hospitals tends to be further to the right than that of CMS hospitals, with a 2016 – 2019 average of 3.38 for VA hospital versus 2.51 for CMS hospitals. However, we believe the rating comparison across CMS and VA hospitals is still meaningful as both systems use the same numeric scale, 1 – 5. Furthermore, if CMS hospitals are lower-rated on average and if veterans increasingly use CMS hospitals at 65, this suggests that the move is not driven by a move to higher-rated hospitals.

We next compute the average hospital rating over the period 2016 – 2019, and assign this average to the VA/CMS hospital visited by a veteran and re-estimate Equation 2. Our results are presented in Figure 8. We do not find a change in the average rating of the hospital selected at age 65, nor is this result sensitive to distinctions between emergent and non-emergent hospital admissions, as shown in Figure 8b. Thus, the move to CMS hospitals is not motivated by a move to higher-rated hospitals as captured by the 1 - 5 rating system. This implies that there may be other quality measures or other factors, such as distance, driving the move to CMS hospitals.

[23]More information on the CMS hospital rating methodology can be found at Centers for Medicare and Medicaid Services (2024).

6.3 Variation in Procedure Prices across the VA and Medicare

We also investigate the importance of procedure pricing for veterans' shift to Medicare at 65. To do this, we focus on services that are not covered by traditional Medicare, but that may be covered by the VA, specifically audio/hearing exams and dental exams, and re-estimate Equation 1. We are not able to observe the use of these services outside of the VA since these are outpatient procedures. As a result, we examine if these services have steady utilization within the VA. The hypothesis underlying this test is that if the utilization rate for these services is steady at 65, there should not be a utilization break within the VA at 65. If there is no break in utilization, this suggests that veterans continue to use the VA when it is cheaper to do so.

Our results are presented in Figure 10. We do not find statistically significant changes in the utilization rates for these two procedures. This case setting suggests that the veterans in our sample are aware, to some degree, of procedure pricing and choose to continue using the VA when it is cheaper to do so.

6.4 VA Wait Times

Veterans may also move to Medicare due to VA wait times. For example, the VA has been criticized for excessive wait times and some VA medical centers were even caught falsifying records to meet appointment wait time targets (The Arizona Republic, 2014). Thus, patients may be sufficiently deterred from using the VA due to the wait time scandal or from their own experiences.[24]

We investigate the importance of VA wait times for the move to Medicare by examining the relationship between wait times and the change in Medicare utilization at 65. To operationalize this, we use data from Feyman et al. (2021), who collect data on appointment wait times at VA facilities and at non-VA providers (where the VA pays for health care received). Using data from fiscal year 2018, we create a proxy for VA wait times in a specific area by taking the difference in the average wait time for a primary care appointment, defined as the difference between when the appointment was requested

[24]Note, no health care system publishes wait times for inpatient procedures and the VA is the only provider to make outpatient wait times public.

and when it was completed, for non-VA providers and VA providers in a hospital referral region (HRR).

Figure 11 shows the correlation between wait times and our RD estimates. Here, we plot the difference in wait time between non-VA and VA providers in an HRR against the RD estimate of payer share in that region. The difference is constructed such that a positive value indicates the wait time for a non-VA provider is longer than for a VA provider. Additionally, we weight the correlation according to how many inpatient hospitalizations are in our sample for each HRR. As shown by the blue lines in the figures, there is a slight upward trend for Medicare, meaning Medicare gains a larger payer share when VA wait times increase relative to non-VA alternatives. However, this correlation is not statistically significant. This is similarly the case for the VA and commercial payer shares. This implies that wait times, as measured, do not appear to be driving the observed shift to Medicare.

7 Robustness Checks

We test the robustness of our estimations to several choices of model specification. Optimal bandwidth procedures produce a range from 12 to 33 months depending on the outcome (Calonico et al. (2020)). Figures A4 and A5 show robustness to bandwidth choice for estimates of changes in utilization rates and payer shares, respectively. Both show that results are unaffected by changes to bandwidth, with estimates largely unchanged even when extending the bandwidth out to 60 months. Figure A6 additionally considers other specifications. Results are qualitatively similar with different polynomial choices, and point estimates are nearly identical even after adding patient-level controls, time fixed effects, and state fixed effects.

8 Conclusion

This study examines the effect of aging into Medicare for those who age in with health insurance coverage and its effects on inpatient health care behaviors. We focus on the population of veterans enrolled in the Veterans Health Administration (VA), which provides

a relatively generous health benefit independent of age and employment. Specifically, we employ regression discontinuity methods and use detailed veteran electronic medical record data linked to six state inpatient claims databases to analyze how the onset of Medicare eligibility at age 65, and the subsequent changes to the health insurance network, affects inpatient health care utilization.

We find that overall inpatient utilization increases by approximately 3.3 percent and find large re-allocations across payers. Specifically, the share of hospitalizations paid for by Medicare increases by 65.3 percent relative to the pre-65 mean, while the share of hospitalizations paid for by the VA and commercial insurers declines by approximately 6.2 and and 49.2 percent, respectively. Additionally, the share of hospitalizations paid for by other federal programs, such as Medicaid and TRICARE, declines by approximately 68.3 percent.

The increased use of Medicare appears to be driven mainly by hospital distance, as we find that the average distance traveled to a hospital falls by approximately 0.7 miles (3.4 percent) with no observed change in the average quality rating of the selected hospital. Further, we find that individuals' relative distance to a CMS vs. VA hospital matters – among veterans living 0 –5 miles from a CMS hospital, the change in the share of hospitalizations paid for by Medicare nearly triples for individuals who live within 25 – 50 miles from a VA versus 0 – 5 miles from a VA. However, prices may matter as well, as observed with the stable utilization of services within the VA that are not typically covered by traditional Medicare (i.e., audio and dental exams).

Taken together, our results suggest that Medicare is valued beyond the basic provision of health insurance. Specifically, the density of insurance network providers is important. Thus, our results indicate that the value of Medicare for vulnerable groups, such as veterans, is not necessarily the basic provision of health insurance, but an improvement in hospital network access.

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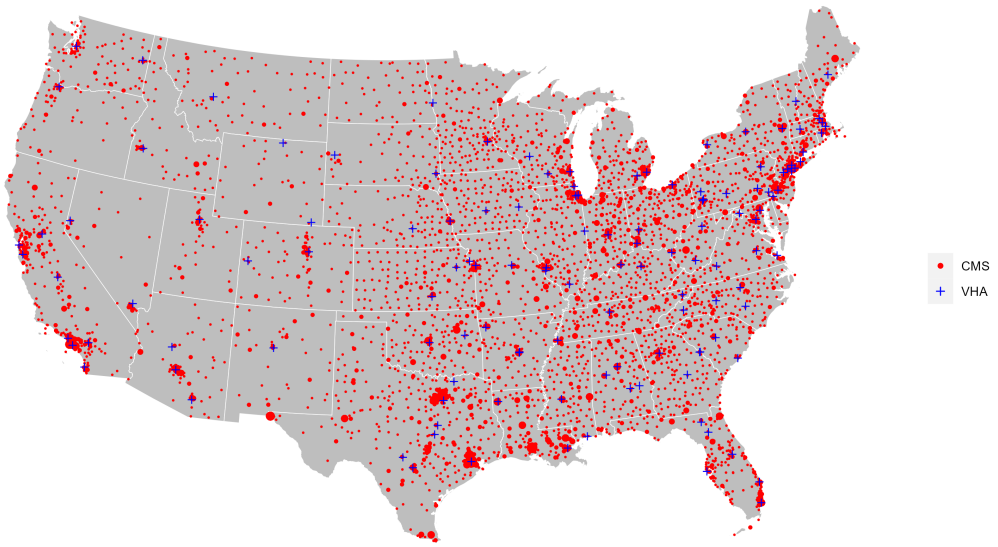
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Figure 1: Geography of CMS and VA Hospital

(a) CMS and VA Hospital Locations



(b) Nearest CMS or VA hospital within 100 miles

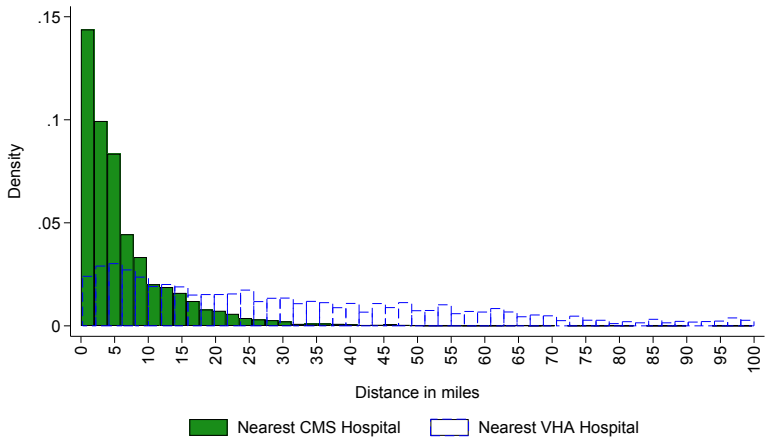
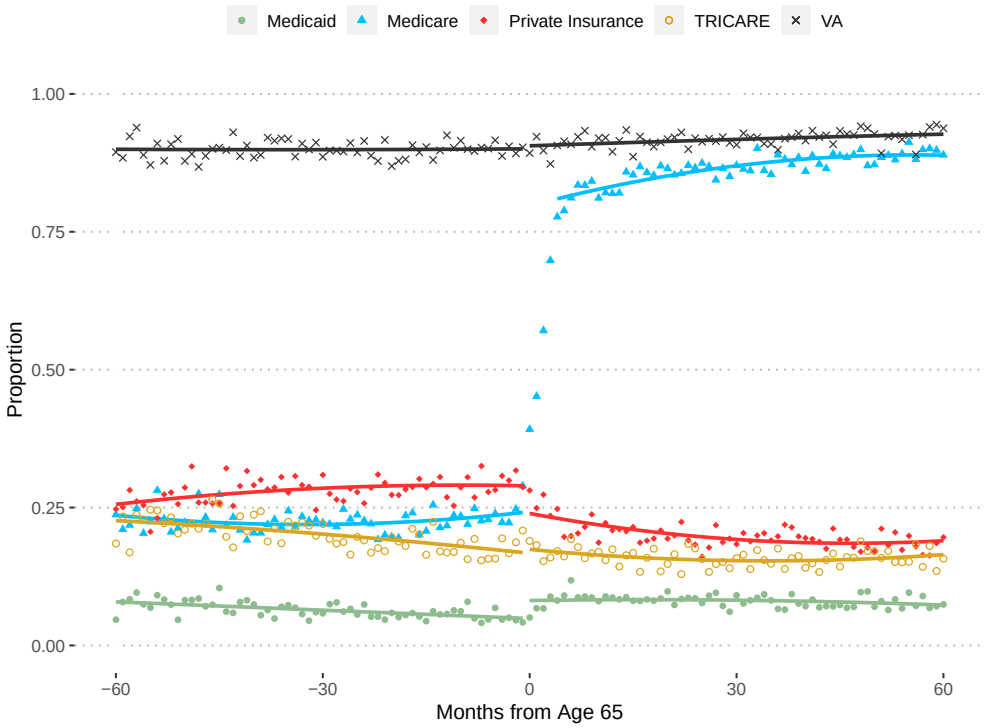


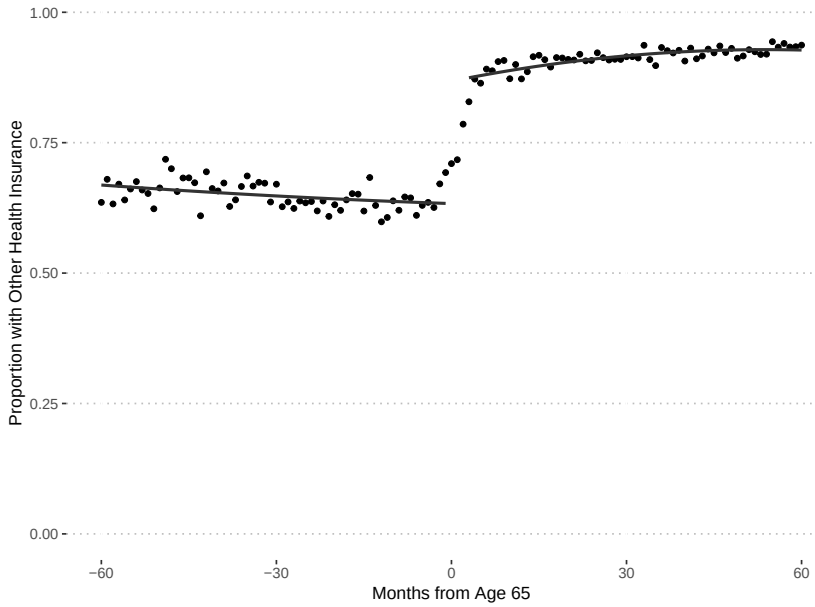
Figure 1a depicts the locations of CMS and VA hospitals between 2009 – 2019. Figure 1b depicts the distribution of the nearest CMS and VA hospitals within 100 miles of veterans in our sample, ages 65 – 67 years.

Figure 2: Age Profile of Health Insurance

(a) All Sources



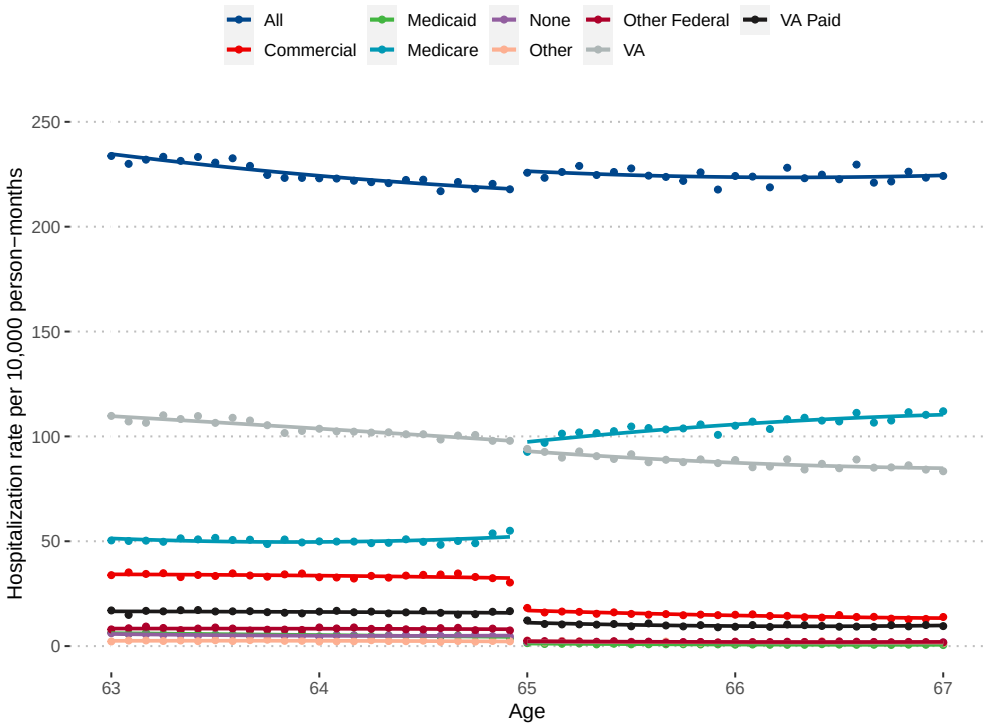
(b) Any Health Insurance Aside from VA



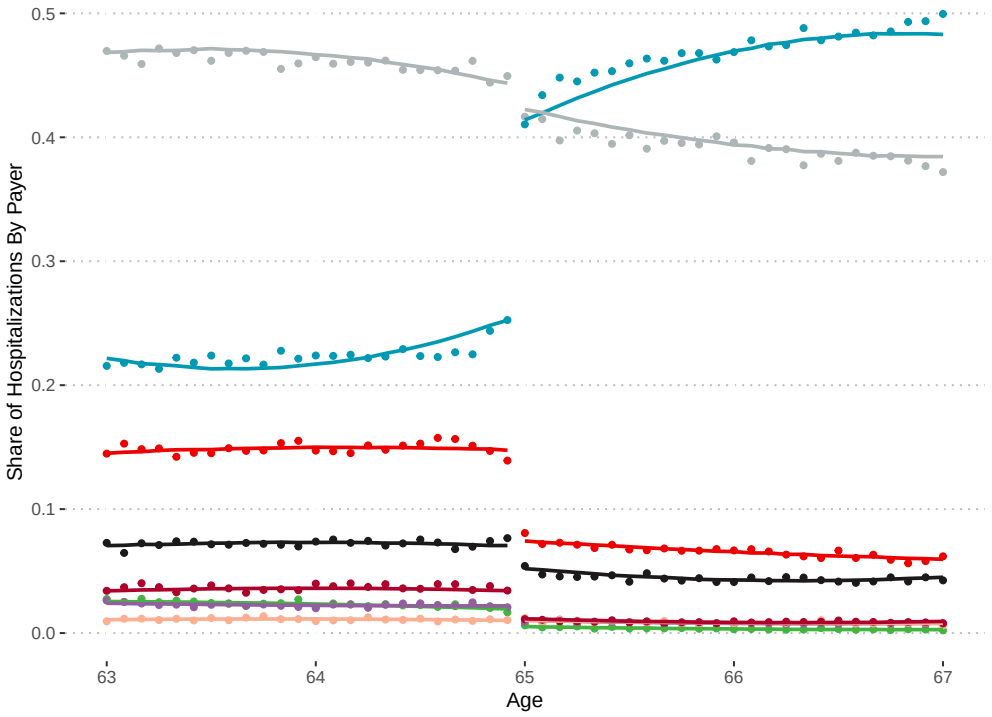
Notes: Age profile of different insurance sources from the VA survey of enrollees 2010 – 2021. Categories are not mutually exclusive. *Medicare* refers to either traditional Medicare or Medicare Advantage, and *TRICARE* includes any TRICARE plan. Fitted lines do not include the four month period immediately after age 65 due to missing information on exact survey completion date. See Table A3 for regression estimates.

Figure 3: Age Profile of Hospitalization Rate and Payer Share

(a) Hospitalization Rate

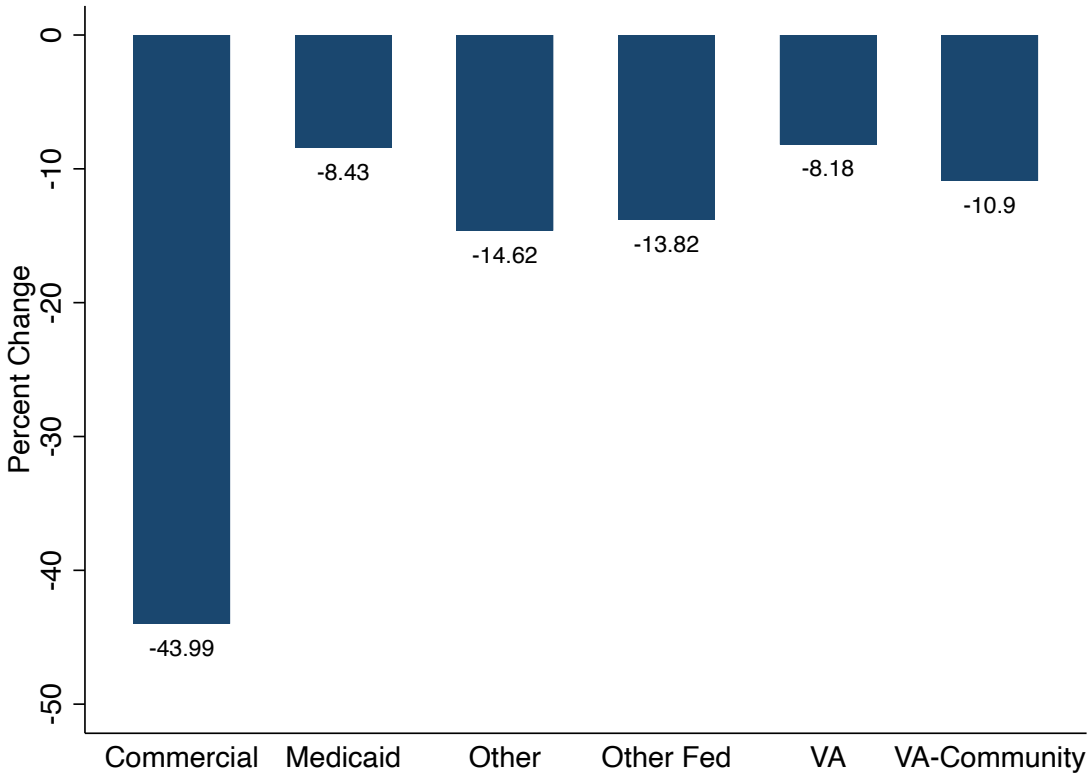


(b) Share of Hospitalizations Paid by Payer



Notes: Age profile of the hospitalization rate per 10,000 person months overall and by payer (Figure 3a) and share of hospitalizations paid by specified payers (Figure 3b). See Tables 2 and 3 for regression estimates.

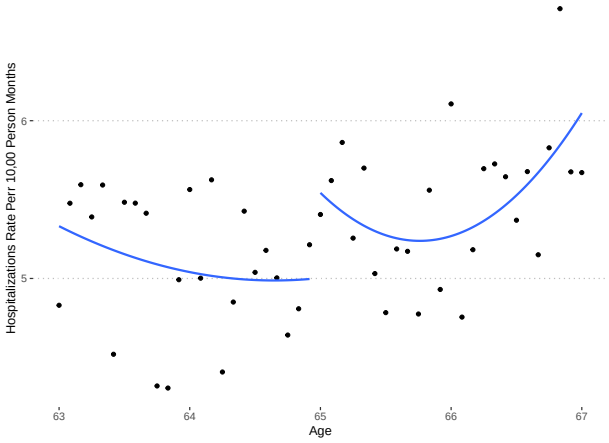
Figure 4: Payer Shift Relative to Medicare Share Increase



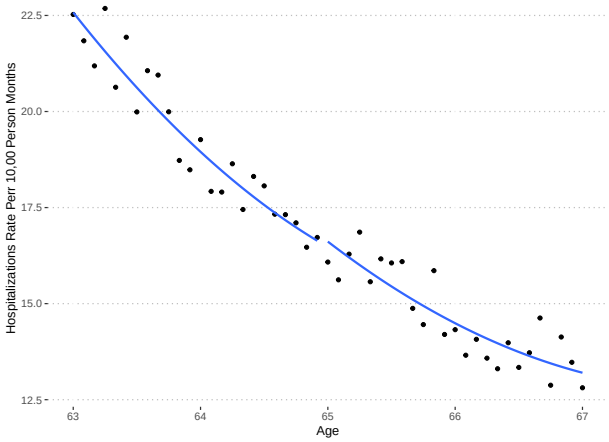
This figure depicts the change in the share of utilization for each payer group J as a change in the share of utilization paid for by Medicare at age 65 (i.e., $\frac{\Delta \text{Payer } J \text{ share}}{\Delta \text{Medicare share}}$ from Equation 3).

Figure 5: Age Profile of Hospitalization Rate by Procedure

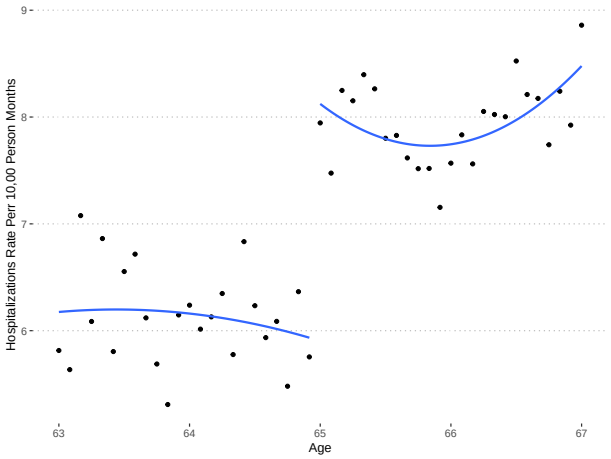
(a) AMI and Stroke



(b) Mental Health and Substance Abuse



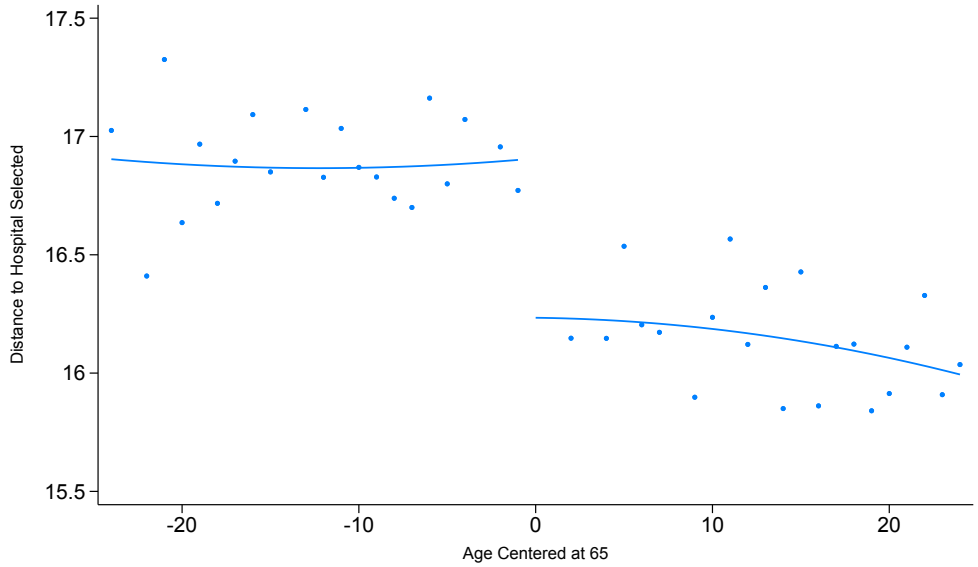
(c) Hip and Knee Surgery



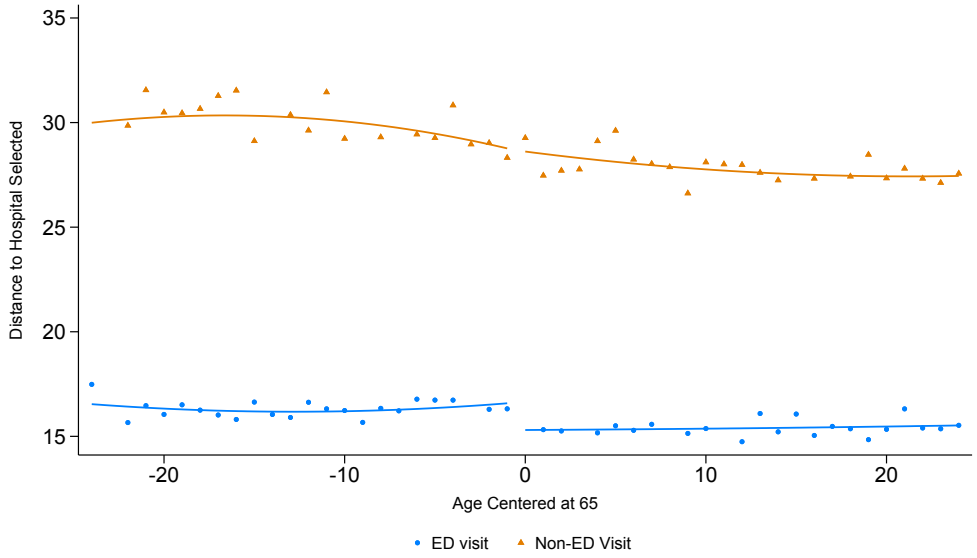
Age profile of the hospitalization rate per 10,000 person months for hospitalizations due to acute myocardial infarction (AMI) and stroke, mental health, and substance abuse. Hospitalizations types are identified by DRG code. See Table 4 for regression estimates.

Figure 6: Distance Traveled to Selected Hospital

(a) All Hospitalizations



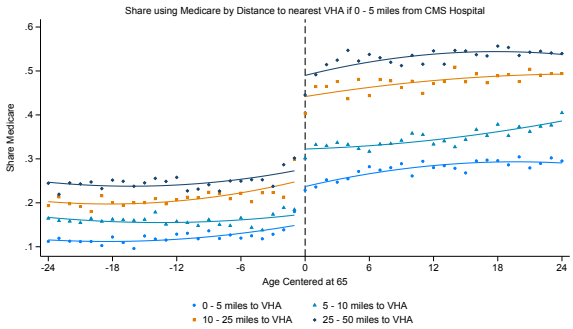
(b) Emergent and Non-Emergent Admission



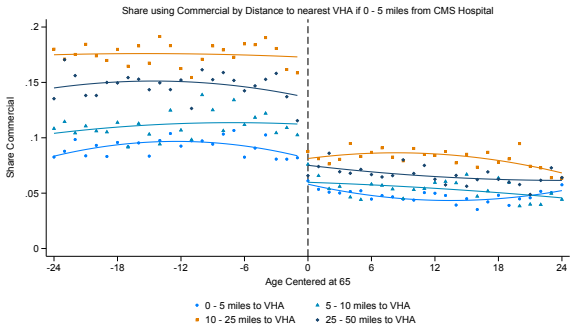
This figure depicts the estimate of β_1 from Equation 2 where the outcome is distance traveled in miles for hospitalizations occurring in Florida, New York, or Pennsylvania. See Table A1 for regression estimates.

Figure 7: Payer Share Shifts by Relative Distance between CMS and VA Hospitals

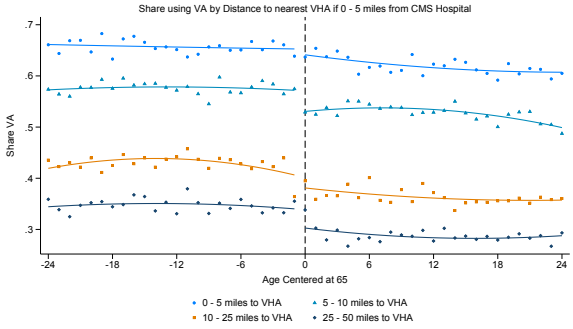
(a) Share using Medicare



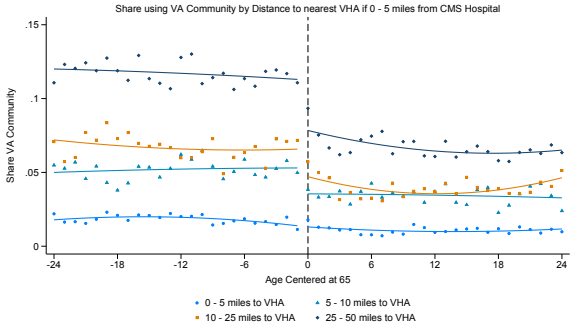
(b) Share using Commercial Insurance



(c) Share using the VA

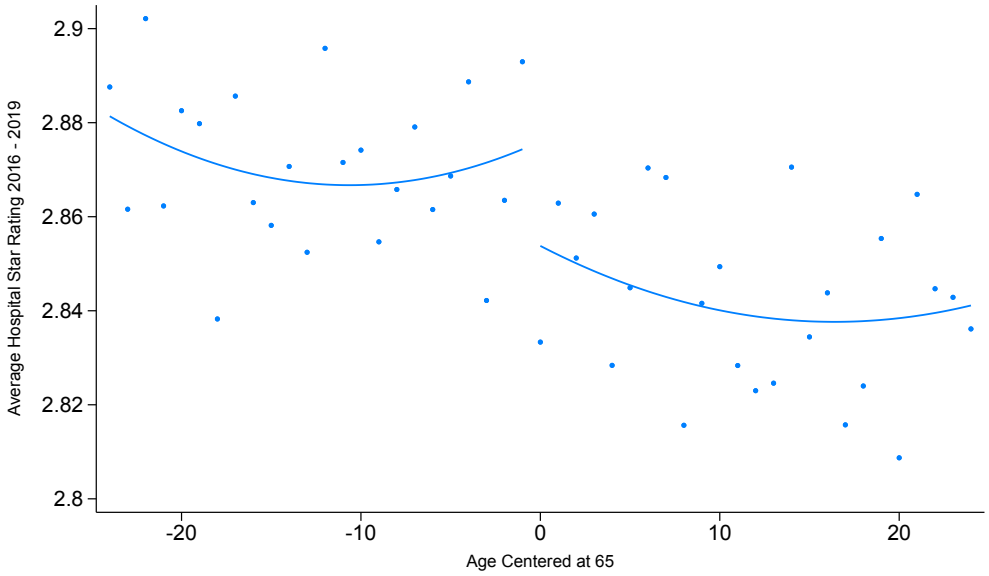


(d) Share using VA Community Care

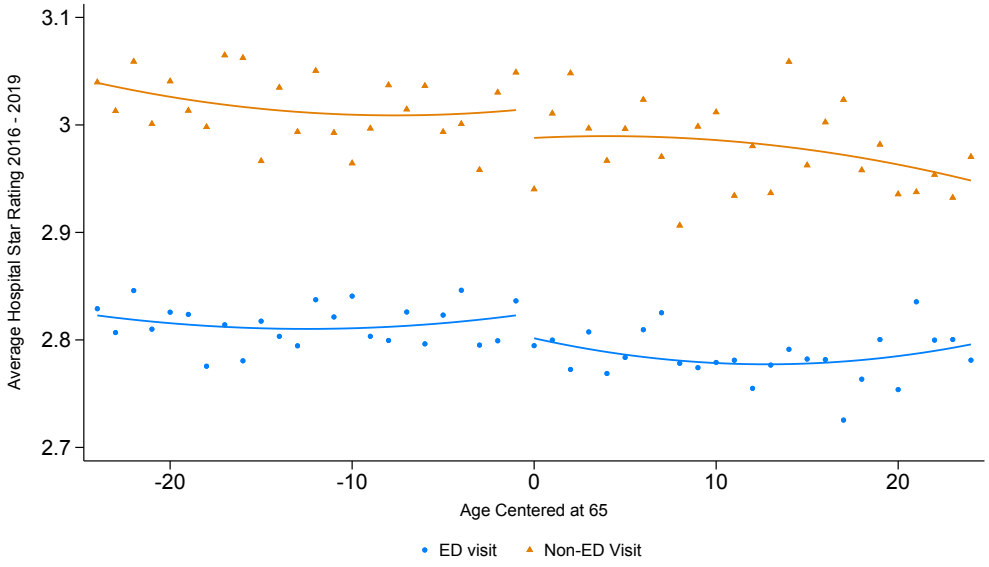


This figure presents estimates of β_1 from Equation 2 where the veteran sample lives between 0 – 5 miles from a CMS hospital, but varied distances from a VA hospital (i.e., 0 – 5 miles, 5 – 10 miles, 10 – 25 miles, and 25 – 50 miles). Coefficient estimates are provided in Table A2.

Figure 8: Average Rating of Selected Hospital



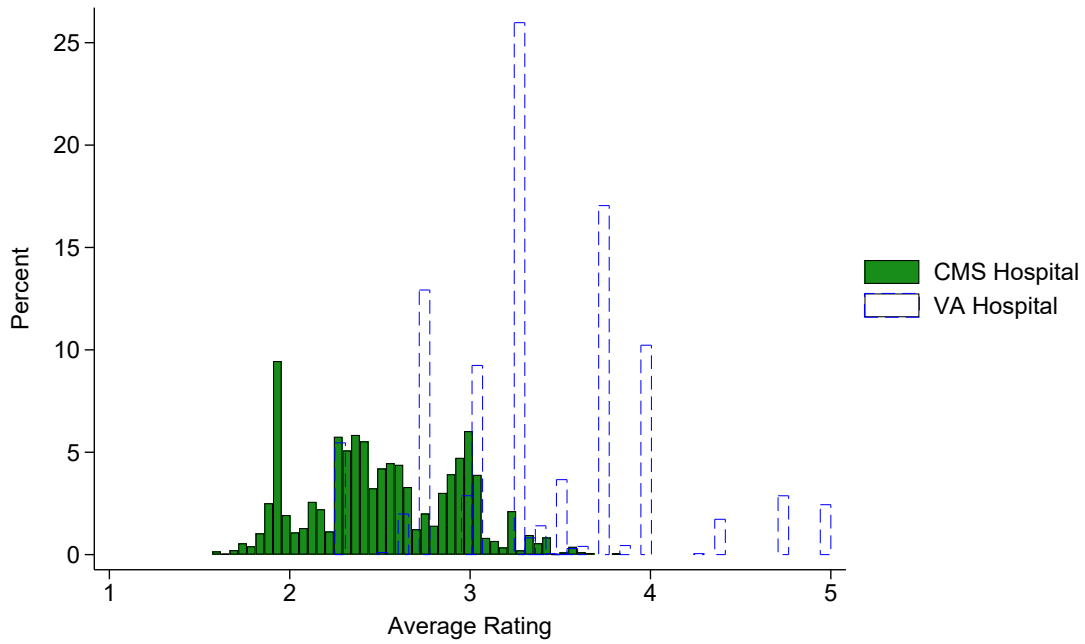
(a) All Hospitalizations



(b) Emergent and Non-Emergent Admission

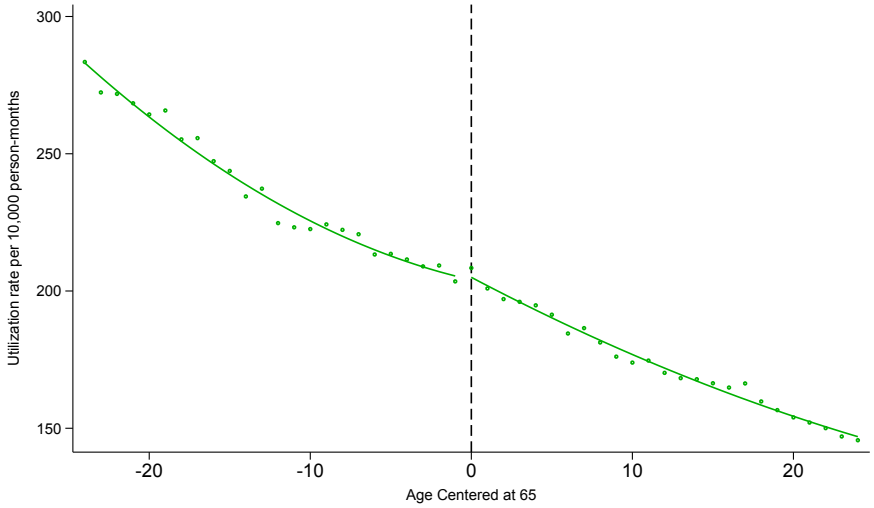
This figure depicts the estimate of β_1 from Equation 2 where the outcome is the star rating $(1-5)$ for hospitalizations occurring in Florida, New York, or Pennsylvania between 2016 – 2019. See Table A1 for regression estimates.

Figure 9: Average Rating of Hospitals within 25 miles of Veterans

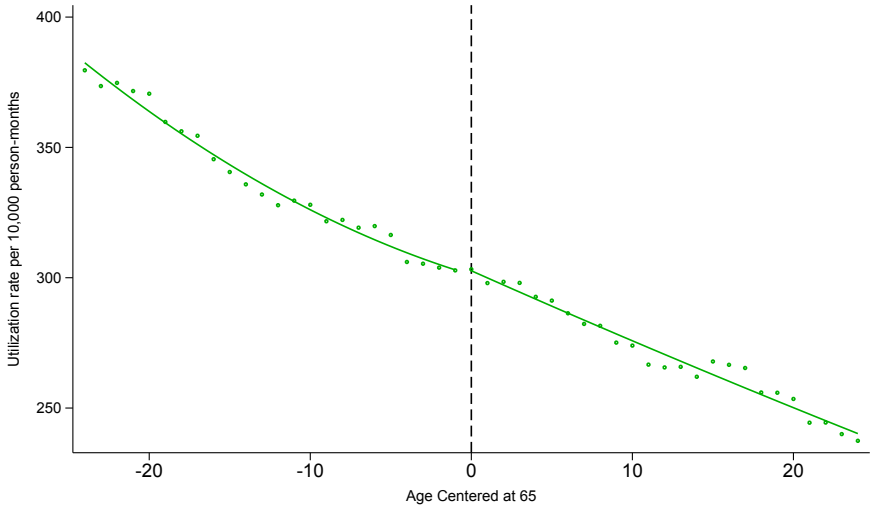


This figure depicts the average hospital rating, between 2016 to 2019, for VA and CMS hospitals located within 25 miles of veterans residing in Florida, New York, or Pennsylvania.

Figure 10: Procedure Utilization Variation



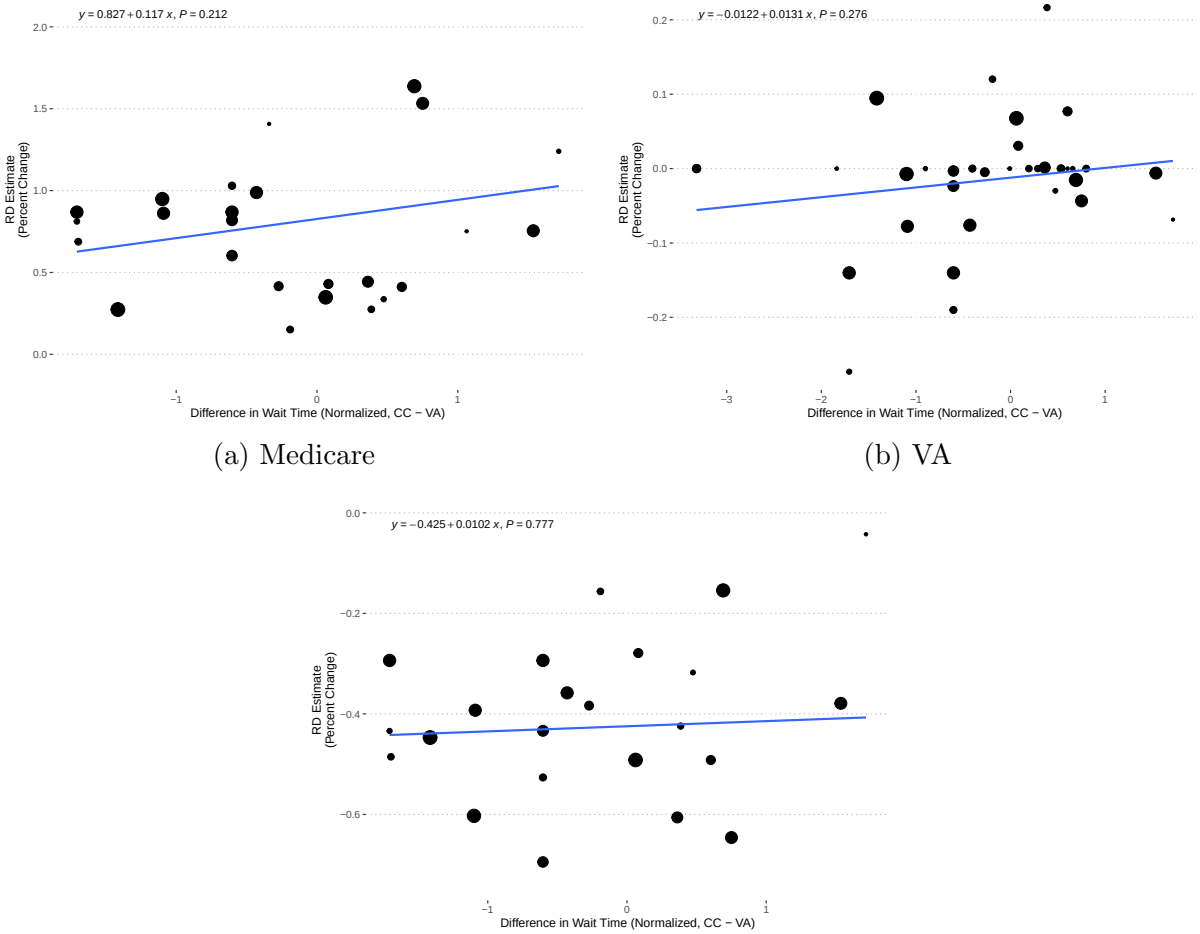
(a) Audiology Exams



(b) Dental Exams

This figure presents estimates of β_1 from Equation 1 for veterans who have obtained (a) audiology or (b) dental exams within the VA between 2010 – 2019.

Figure 11: Correlation Between Primary Care Wait Times and Change in Payer Shares at 65



(a) Medicare

(b) VA

(c) Commercial

Notes: Correlation between the (normalized) difference between the average VA wait time for a VA-paid primary care appointment with a non-VA provider and a VA primary care appointment (x-axis) and the RD estimate of the percent change in payer share (y-axis). The difference is constructed such that a positive value indicates the wait time for a non-VA provider is longer than for a VA provider. Each point represents a health care referral region, with the size of the point representing the number of inpatient admission in that HRR in our sample. Appointment wait time data are from fiscal year 2018 from Feyman et al. (2021). The line in each plot is from an OLS regression as displayed in the top left.

Table 1: Summary Statistics and McCrary Test

Characteristic	63-65	65-67	Change at 65	Std. Error
Share Male	0.955	0.965	-0.0001	0.0020
Share White	0.724	0.755	0.0033	0.0029
Share Black	0.193	0.162	-0.0012	0.0029
Share Urban	0.693	0.692	0.0028	0.0037
Share Rural	0.307	0.308	-0.0027	0.0037
Priority Group				
Share PG 1 – 4	0.562	0.581	0.0069	0.0045
Share PG 5	0.275	0.238	-0.0078	0.0043
Share PG 7 – 8	0.124	0.135	0.0018	0.0024
McCrary Test	480,550	536,870	-86.3434	2351.4650

Notes: Summary statistics at the person-year level for individuals in the sample that were ages 63 – 67 during the study period. The *change in 65* column gives the coefficient estimate for β_1 from Equation 1 with the indicated characteristic as the outcome variable. The final row shows results from a McCrary test (McCrary, 2008) in which the outcome is the count of person-months lived by VA enrollees in the sample, estimated using Equation 1.

Table 2: Regression Estimates of the Change in Hospital Admission Rates at Age 65

	All Hospitalizations	Emergent	Non-Emergent	Urban	Rural	Black	White	PG 1-4	PG 5	PG 7-8
Change at Age 65	7.33	0.91	6.33	9.12	3.58	11.11	7.51	8.96	4.68	4.16
	(1.67)	(1.32)	(1.18)	(2.57)	(3.99)	(4.72)	(2.66)	(2.29)	(3.80)	(2.96)
Rate Just Before 65	222.86	143.28	79.50	241.47	186.54	261.04	216.95	272.80	250.43	123.14
% Change at 65	3.29	0.64	7.96	3.78	1.92	4.26	3.46	3.28	1.87	3.38
Observations	48	48	48	48	48	48	48	48	48	48

Notes: Changes in inpatient admission rates per 10,000 person-months at age 65 estimates from equation 1. For *Urban*, *Rural*, *Black*, *White*, and Priority Groups, rates are calculated within group. *Emergency* admissions are those that came through the emergency department, and *Non-Emergent* are those that did not. Robust standard errors are in parentheses below the estimates. *Rate Just Before 65*gives the rate just before the age 65 cutoff, and *% Change at 65* scales the estimate by dividing it by the pre-65 rate.

Table 3: Regression Estimates of the Change in Payer Share for Hospital Admissions at Age 65

	All Hospitalizations	Emergent	Non-Emergent	Urban	Rural	Black	White	PG 1-4	PG 5	PG 7-8
Medicare	16.14	15.47	17.34	15.58	17.63	12.36	16.56	13.87	12.80	24.18
	(0.36)	(0.49)	(0.59)	(0.43)	(0.70)	(0.86)	(0.43)	(0.48)	(0.72)	(1.18)
pre-65 share	24.73	25.65	23.09	24.58	25.13	21.96	24.65	23.74	25.02	27.50
VA	-1.32	-1.65	-0.72	-1.04	-2.07	-0.97	-1.45	-1.22	-0.22	-2.91
	(0.39)	(0.49)	(0.65)	(0.47)	(0.71)	(0.98)	(0.46)	(0.53)	(0.79)	(1.16)
pre-65 share	42.53	42.67	42.31	42.93	41.45	51.88	41.82	45.43	47.55	31.45
VA Community Care	-1.76	-2.20	-0.85	-2.14	-0.91	-1.75	-1.86	-1.39	-2.73	-1.42
	(0.19)	(0.27)	(0.25)	(0.25)	(0.29)	(0.41)	(0.23)	(0.29)	(0.40)	(0.48)
pre-65 share	6.99	8.64	4.04	8.09	4.45	5.35	7.28	7.47	8.12	4.03
Commercial	-7.10	-5.74	-9.63	-6.48	-8.60	-3.90	-7.64	-6.19	-2.86	-13.83
	(0.25)	(0.29)	(0.46)	(0.30)	(0.48)	(0.51)	(0.30)	(0.32)	(0.35)	(1.02)
pre-65 share	14.43	12.04	18.71	13.65	16.35	9.14	15.23	12.52	6.53	27.50
Other Federal	-2.23	-1.95	-2.75	-2.30	-2.11	-1.67	-1.93	-2.74	-1.02	-1.13
	(0.12)	(0.15)	(0.22)	(0.15)	(0.21)	(0.25)	(0.14)	(0.18)	(0.19)	(0.31)
pre-65 share	3.37	3.00	4.03	3.56	2.98	2.51	3.10	4.09	2.02	1.80
Medicaid	-1.36	-1.48	-1.15	-1.38	-1.32	-1.70	-1.24	-0.67	-3.06	-1.29
	(0.09)	(0.12)	(0.13)	(0.11)	(0.16)	(0.27)	(0.10)	(0.10)	(0.25)	(0.24)
pre-65 share	1.89	2.12	1.49	1.93	18.2	2.58	1.69	1.28	3.92	1.52
Other	-2.36	-2.46	-2.23	-2.24	-2.62	-2.36	-2.43	-1.67	-2.91	-3.60
	(0.17)	(0.21)	(0.30)	(0.19)	(0.37)	(0.44)	(0.21)	(0.23)	(0.36)	(0.53)
pre-65 share	6.05	5.87	6.38	5.26	7.82	6.59	6.22	5.63	6.84	6.21
Observations	570839	362038	208484	397294	170468	95154	412355	321302	143860	57289

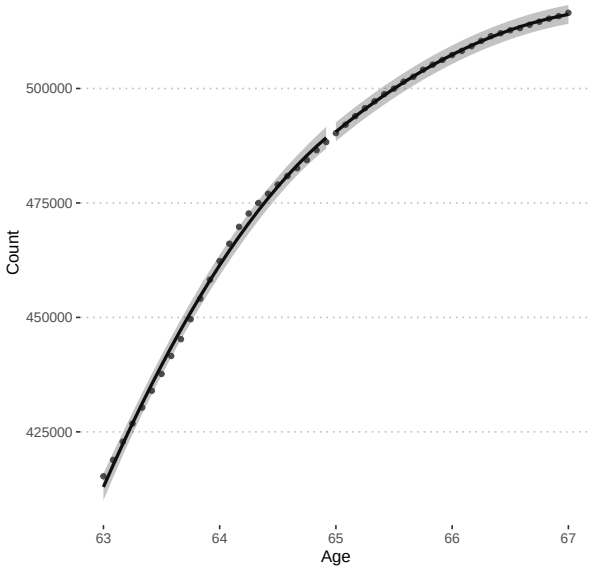
Table 4: Regression Estimates of the Change in Hospital Admission Rates for Specific Procedures at Age 65

	Hip and Knee	Mental Health & Substance Abuse	AMI & Stroke
Change at Age 65	1.95	0.13	0.50
	(0.33)	(0.44)	(0.27)
Rate Just Before 65	5.90	16.38	4.96
% Change at 65	33.10	0.80	10.1
Observations	48	48	48

Notes: Changes in inpatient admission rates per 10,000 person-months at age 65 estimates from equation 1. Procedures are identified by DRG for the admission. Robust standard errors are in parentheses below the estimates. *Rate Just Before 65* gives the rate just before the age 65 cutoff, and *% Change at 65* scales the estimate by dividing it by the pre-65 rate.

A Appendix

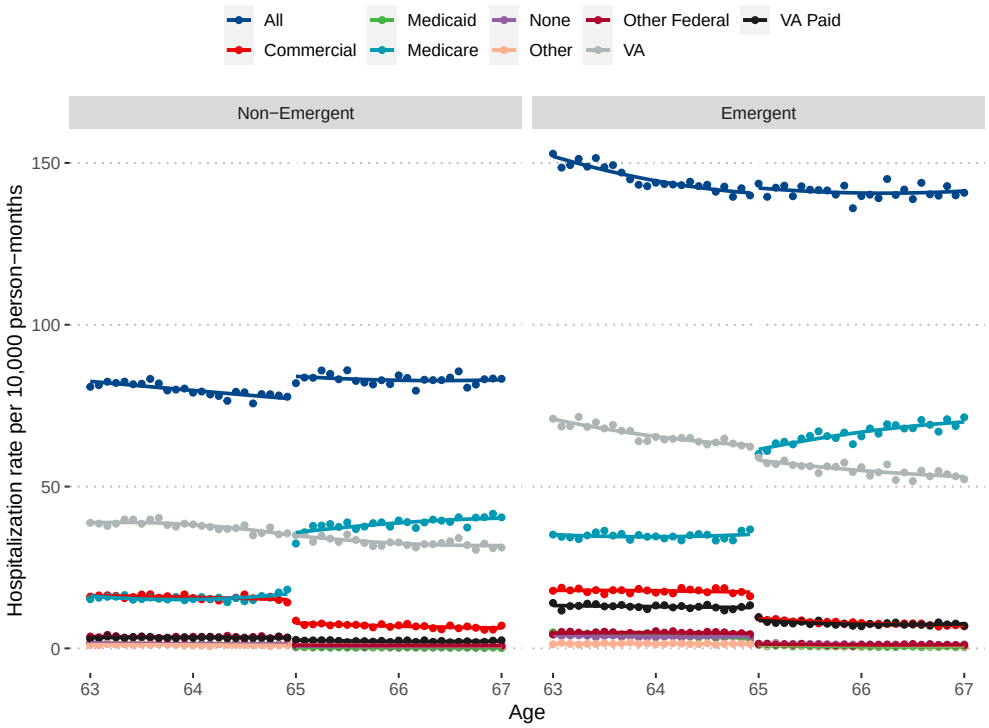
Figure A1: Count of Age-Months Lived in Sample



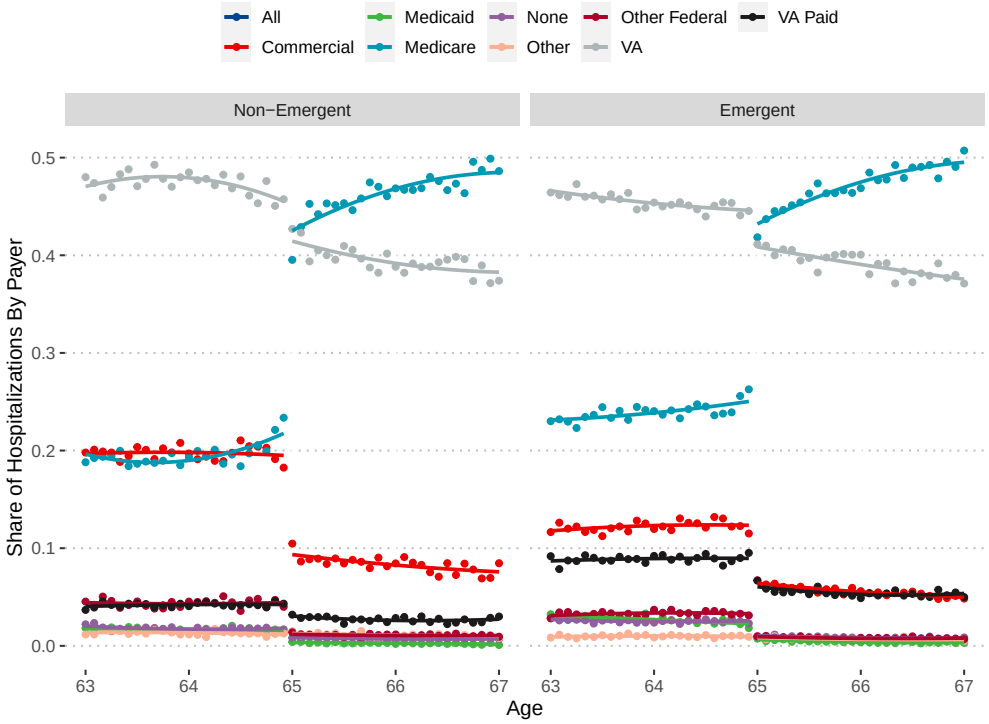
Notes: Age profile of the count of age-months lived in the sample as used for construction of the denominator of hospitalization rates. Data is taken from the VA enrollment files between 2010 and 2019. The estimate for the McCrary Test (McCrary, 2008) is shown in Table 1.

Figure A2: Age Profile of Hospitalization Rate and Payer Share for Emergent and Non-Emergent Hospitalizations

(a) Hospitalization Rate

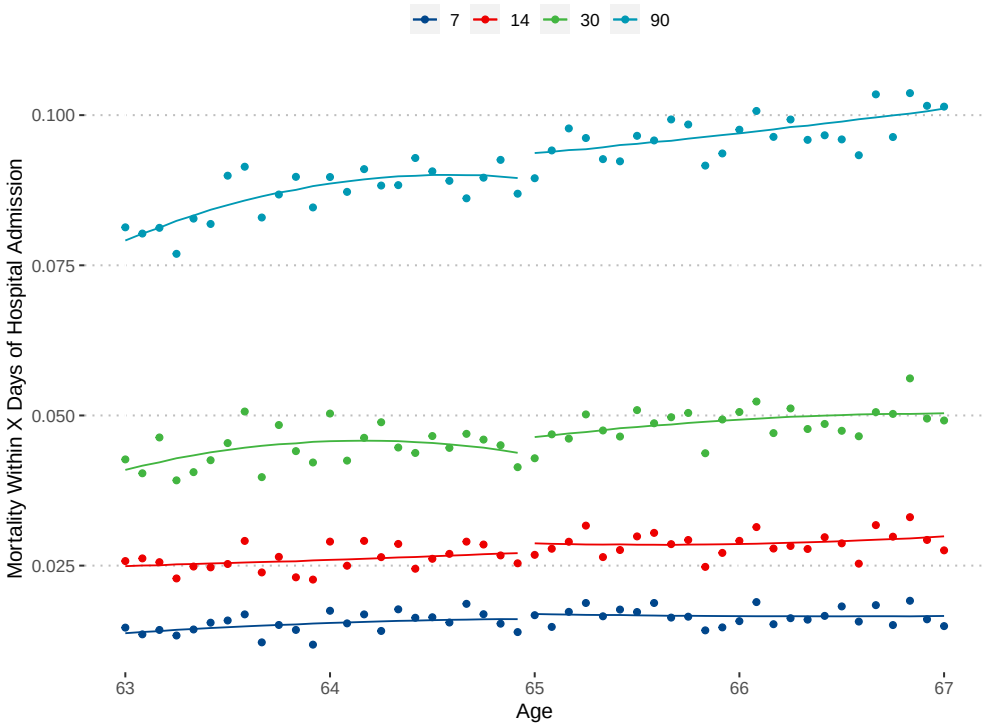


(b) Share of Hospitalizations Paid by Payer



Notes: Age profile of the hospitalization rate per 10,000 person months overall and by payer (Figure A2a) and share of hospitalizations paid by specified payers (Figure A2b). "Emergent" refers to the admission originating from the emergency department. See Tables 2 and 3 for regression estimates.

Figure A3: Age Profile of Mortality



Notes: Age profile of mortality after emergent hospitalization within 7, 14, 30, and 90 days. See Table **??** for regression estimates.

Figure A4: Bandwidth Robustness of Regression Discontinuity Estimates (Utilization Rates)

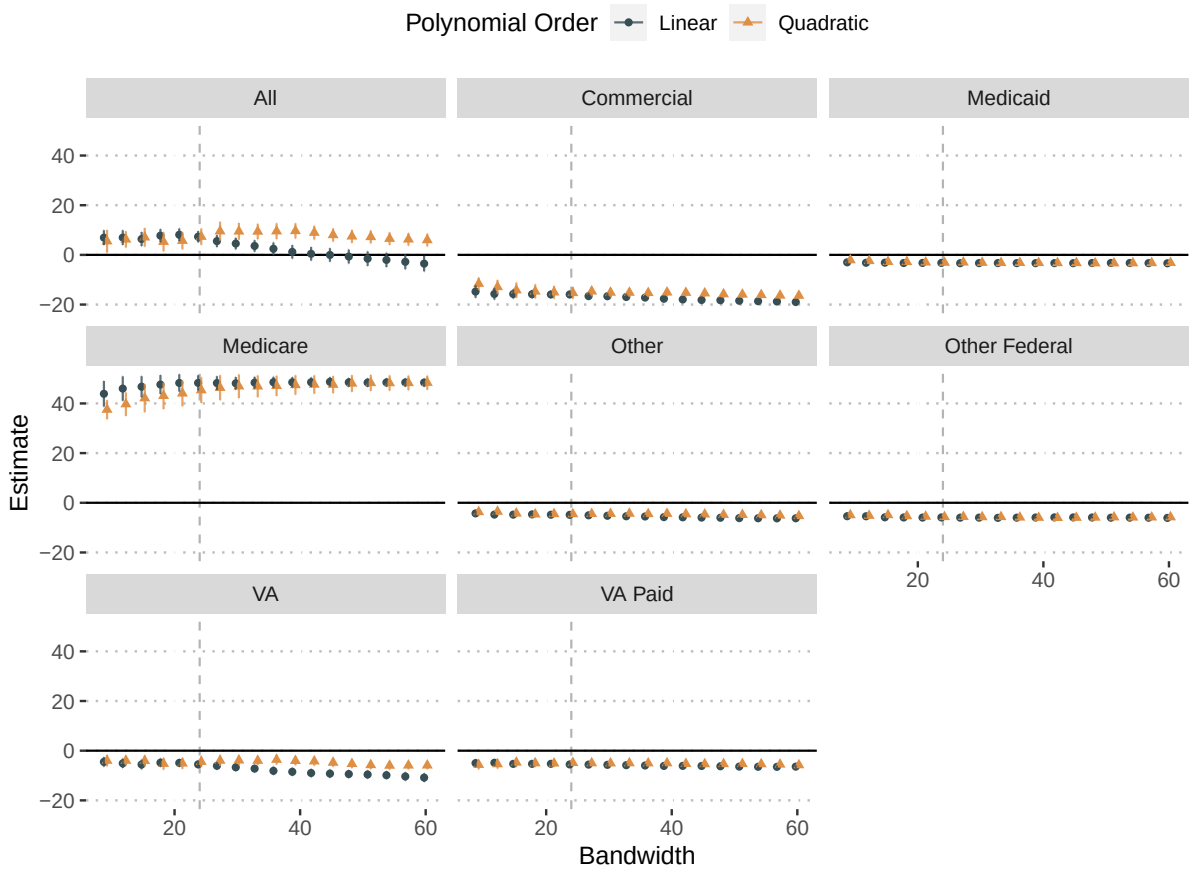


Figure A5: Bandwidth Robustness of Regression Discontinuity Estimates (Insurer Shares)

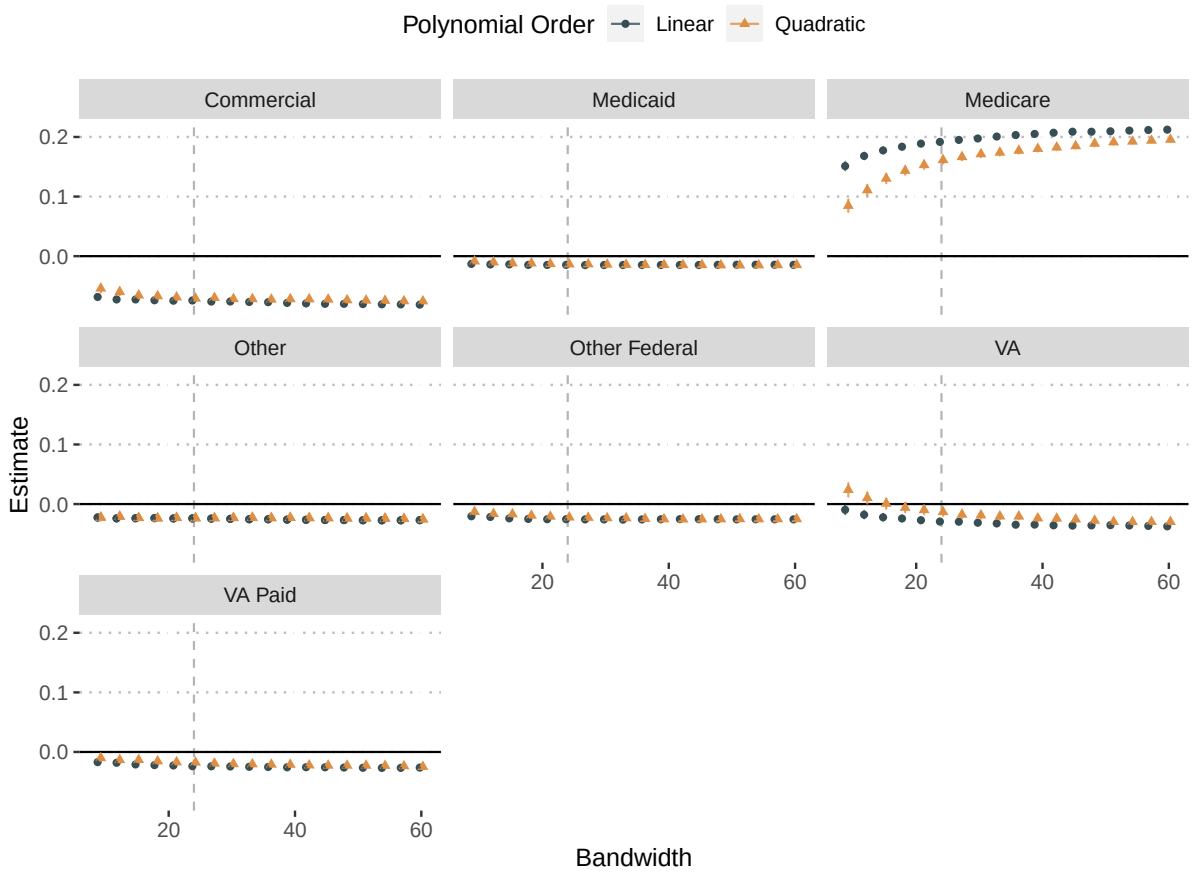
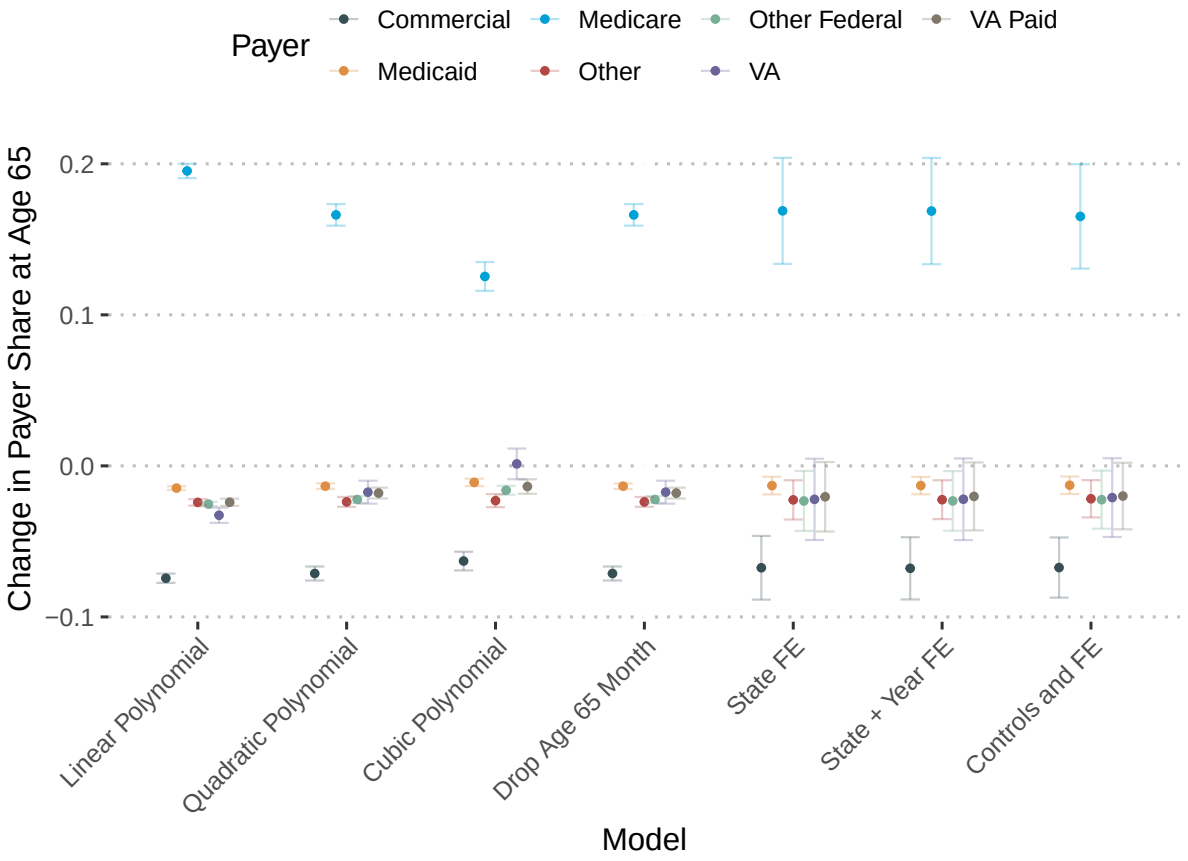


Figure A6: Robustness to Model Specification



Notes: Robustness of estimates of the change in payer share at age 65 to various RD model specifications."Linear Polynomial" refers to a linear RD specification, "Quadratic Polynomial" refers to a quadratic specification and matches our main results, and "Cubic Polynomial" introduces a cubic fit to the RD. The remaining models revert to the quadratic fit. "Drop Age 65 Month" drops the age 65 and 0 months age cell. "State FE" includes a fixed effect for state, and "State + Year FE" adds a fixed effect for the year of the hospitalization. "Controls and FE" includes both fixed effects and includes patient-level controls for drive time to a VA facility, being male, being white, living in an urban area, and being in priority group 1-4.

Table A1: Regression Estimates of Distance Traveled and Star Rating of Selected Hospital

	Distance Traveled			Star Rating Selected		
	All	Emergent	Non-Emergent	All	Emergent	Non-Emergent
Change at 65	-0.684	-1.348	0.057	-0.022	-0.024	-0.028
	(0.365)	(0.240)	(0.619)	(0.015)	(0.015)	(0.031)
Mean just before 65	20.03	16.32	28.32	2.89	2.84	3.05
Observations	85,645	85,645	85,645	85,645	85,645	85,645

Estimates are of the change in the distance traveled and of the star rating of the hospital selected using Equation 2. Note that distance sample consists of hospitalizations occurring in Florida, New York or Pennsylvania with the maximum distance of 250 miles. The hospital star rating sample consists of hospitalizations occurring in Florida, New York or Pennsylvania between 2016 and 2019.

Table A2: Regression Estimates of Change in Insurer Share by Relative Distance between CMS and VA Hospitals

	Veterans Living 0 – 5 miles from CMS Hospital			
Distance from Nearest VA Hospital	0 – 5 miles	5 – 10 miles	10 – 25 miles	25 – 50 miles
Share Medicare	0.084	0.148	0.188	0.212
	(0.014)	(0.122)	(0.027)	(0.021)
Share VA	-0.011	-0.040	-0.020	-0.036
	(0.010)	(0.007)	(0.021)	(0.015)
Share Commercial Insurance	-0.023	-0.052	-0.091	-0.061
	(0.004)	(0.009)	(0.009)	(0.011)
Share VA Community Care	0.000	-0.018	-0.019	-0.034
	(0.002)	(0.004)	(0.006)	(0.007)
Observations	81,181	64,918	82,535	72,862

Estimates are of β_1 using Equation 2. Estimates represent the change in the share of hospitalizations paid for by each payer (insurer) type at age 65.

Table A3: Change in Insurance at Age 65

	Medicare	Medicaid	Private Insurance	TRICARE	VA	Medicare (CMS Match)	Any Other Health Insurance
Change at 65	55.78	1.84	-6.90	0.76	0.98	40.37	21.98
	(1.35)	(1.67)	(2.76)	(2.31)	(1.61)	(0.16)	(1.74)
Mean Age 64	24.33	6.70	32.78	16.33	93.28	21.04	63.34

Notes: Estimates of changes in health insurance type at age 65. Data for the first five columns comes from years 2010-2021 of the VA survey of enrollees (n = 14,609), and the data for the last column comes from a yearly match with administrative data from CMS (n = 2581558). Estimates from survey data do not include the four month period immediately after age 65 due to missing information on exact survey completion date. Robust standard errors are in parentheses below the estimates. *Mean Age 64* gives the proportion of individuals reporting that type of insurance coverage just before the age 65 cutoff.