ESSAYS IN DEFENSE ECONOMICS

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ABSTRACT

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This dissertation contains three independent chapters focusing on a common theme—the behavior of military retirees and veterans at middle and old age. Chapter one focuses on a retirement benefit for military retirees and how a change in enrollment policy affected enrollment behavior. Chapters two and three focus on health care access and usage among older veterans.

Chapter one examines whether a policy that required retiring married service members to obtain spousal permission before being allowed to opt out of survivor benefits, similar to a provision in the Retirement Equity Act of 1984, affected the decision to enroll in the Survivor Benefit Program. Using administrative data on military retirees, we find that those retiring after the enactment of the policy are approximately seven percentage points more likely to choose pension survivor benefits, with the increase in enrollment larger among enlisted personnel. This study contributes to the growing literature regarding how arguably minor policy changes substantially affect pension enrollment behavior.

Many recent news reports have raised the concern that health care for veterans may be inadequate. Chapter two seeks to empirically shed light on the topic. Using Health and Retirement Study (HRS) data, I compare utilization rates of preventative care by male veterans and non-veterans around the near-universal health coverage that comes with Medicare eligibility. The change in consumption of preventative services with Medicare eligibility shows if unmet need exists. I use changes in usage rates around Medicare eligibility as a proxy for health care

adequacy, with a higher increase in usage rates associated with less adequacy before Medicare eligibility. Using a difference-in-differences (DID) strategy as well as a fixed effect (FE) strategy comparing veterans and non-veterans, results suggest that, while there is some unmet need for veterans below the age of 65, health care adequacy for veterans is at least as good as that of non-veterans and may be better.

Chapter three uses the HRS to answer three questions: How are veterans insured? How do veterans' sources of insurance vary with age? And where do veterans get their health care if they choose to consume health care? Veterans are more likely to be insured through their own employer than through a spouse's employer. They are less likely to receive Medicaid than non-veterans, but more likely to report government health insurance. As veterans age, they are more likely to have health insurance in some form than non-veterans. The majority of veterans (78.8%) receive health care only outside of the VA. About 1 in 5 respondents report using the VA for all of their health care services. A non-trivial 15% of veterans have not received any care in the last two years, although this group seems to be in relatively good health. The questions examined in this paper are critical when considering the future demand of VA care and potential reform to the VA health system and the health care system for military personnel more generally.

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CHAPTER ONE

SEEKING PERMISSION: THE EFFECT OF CHANGING THE OPT OUT PROCEDURE FOR
THE MILITARY SURVIVOR BENEFIT PLAN

Introduction

In March 1986, the procedure to opt out of pension survivor benefits for spouses at the
time of retirement changed for military retirees in the United States. The new law required
married military retirees to receive explicit spousal permission in the form of a notarized
signature to opt out of the program for pension survivor benefits for their spouses, the Survivor
Benefit Plan (SBP). SBP is a program designed to "insure that the surviving dependents of
military personnel who die in retirement or after becoming eligible for retirement will continue
to have a reasonable level of income" (Department of Defense, Undersecretary of Defense for
Personnel and Readiness, 2005, p. 902). This paper examines how this policy change affected
enrollment rates in this joint and survivor annuity for married military retirees.[1]

Understanding the effects of this policy change is important for several reasons. First,
tens of thousands of military personnel retire each year, implying many people were affected by
this policy change. As of FY2012, there were 1.47 million non-disabled non-reserve military
retirees in the United States. Approximately 267,000 survivors received survivor benefits
through SBP, with expenditures for survivors exceeding $3.5 billion that year.

Second, survivor benefits can represent an important source of income for the spouses of
retirees. Previous research has shown that many retirees save inadequately to maintain

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[1] A joint and survivor annuity is an annuity that provides one amount while the primary beneficiary is alive, and then
continues to provide a payout to the survivor after the primary beneficiary is deceased.

consumption levels in retirement (Hamermesh, 1984). Moreover, military spouses move frequently due to the nature of military service, negatively affecting their earnings potential (Hosek, Asch, Fair, Martin, & Mattock, 2002). Taken together, these survivor benefits are likely to represent a significant portion of a surviving spouse's income.

Third, understanding the effect of this law change can contribute to our understanding of pension policies. Several studies find that seemingly minor program design changes to the default option for pension and 401K plans make a large difference in people's behavior at the time of the decision (Caroll et al. (2009), Aura (2005), Madrian and Shea (2001)). In a case like this, where the decision affects another person, there may be large effects to the well-being of other members of the household as well as the retiree. Moreover, this policy change can provide insight into effects of the Retirement Equity Act (REA) of 1984, a similar policy that applied to civilian pensions.[2]

I find that the change in default for SBP substantially affects enrollment behavior. Married service members who retire after the implementation of the policy are approximately 6.9 percentage points, or 13.7 percent, more likely to enroll in SBP. Results also show that retiring at an older age makes a service member more likely to enroll in SBP, as does having a higher income. Results differ between officers and enlisted members, with enlisted personnel having a larger increase in enrollment after the policy change.

The paper is organized as follow. Section 1 provides institutional details for SBP and a brief literature review. Section 2 develops a basic model for the decision to enroll in SBP in the absence of the policy change and discusses how the model changes after the policy change.

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[2]Data availability makes studying the effect of REA on annuity elections difficult; therefore there are not a lot of studies looking specifically at REA.

Section 3 discusses the data. Section 4 tests the model from Section 2, examines how the change in the default for the survivor benefit plan affected the decision of whether or not to participate in SBP, and provides results. Section 5 discusses the results and concludes.

Institutional Details and Literature Review

Institutional Details

While many people serve in the military, not all veterans receive military pensions. To be vested into the military's retirement plan, a non-disabled service member must have twenty years of service. At the time of retirement, military retirees begin to receive retirement pay immediately. The amount of retirement pay, a single payer annuity, is a function of the service member's income immediately before retirement. For service members in the time period of this policy change, the amount of retirement pay is fifty percent of final basic pay if the service member retires at twenty years of service. The percentage increases by 2.5 percentage points for every year of service beyond twenty, not to exceed 75 percent of final basic pay (DoD Office of the Actuary, 2005).

At retirement, retirees can choose to participate in SBP, thereby turning their single payer annuity into a joint and survivor annuity. Enrollment in SBP at the time of retirement allows a service member to exchange some of his retirement income while alive for a continued income stream for his beneficiary upon his death.[3] The service member selects a base amount, which will be used to determine service member contributions and payouts to the beneficiary. The base amount is a percentage of the service member's retirement pay and can range from a minimum of $300 per month to the full monthly amount of retirement pay. The service member's monthly

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[3] Though there is a version of SBP available to reservists, the focus of this paper will be on the benefit for retirees from full-time active duty military service members.

contribution to SBP increases monotonically with the chosen base amount. There are multiple types of beneficiaries the service member can select. This paper focuses on those eligible to enroll in spousal coverage. For details on coverage for beneficiaries other than spouses, see Appendix D.

If the service member predeceases the beneficiary, the beneficiary will begin to receive payments. The payment to the spouse after the service member dies is 55 percent of the base amount, until the survivor is over 62 years of age at which point the survivor benefit is augmented by Social Security receipt.[4] In 1985, this reduction was simplified so that all beneficiaries over 62 years of age receive 35 percent of the base amount as SBP (DoD Office of the Actuary, 2005). SBP covers the service member's beneficiary spouse regardless of how long the beneficiary lives.[5] If the beneficiary predeceases the service member, then the service member is not refunded the amount they paid in and no benefit is paid out.

The formula for pay in and pay out for a spousal election does not depend on the age of the service member at retirement or the age of the spouse. The specific formula used to calculate the benefit for spouses at the time of the law change is discussed below.

SBP for spouses is jointly funded through service member contributions and government spending.[6] The proportion paid by each group is heavily reliant on the demographic makeup of the pool of retirees and survivors. However, the intention of the Department of Defense Office of the Actuary is for enrollment in SBP for spouses to be partially subsidized.[7] Even with the

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[4] Military spouses can also receive Social Security benefits of their own or Social Security survivor benefits.
[5] In the case of divorce, the service member has the option to suspend SBP coverage. However, the courts can mandate that coverage be maintained for the former spouse.
[6] For private pensions, survivor benefits are financed solely by employee contributions.
[7] Based on an internal memo it was originally intended to be subsidized at a rate of 40%. My calculations show a lower rate of subsidization. However, my calculations are based on means and not a distribution.

subsidy for SBP, enrollment is not always the best option for a household. For example, if the household has private information that implies that the life expectancy of the spouse is not very long or the life expectancy of the service member is longer than that of the spouse, then enrollment is not optimal. Likewise, one must consider the opportunity cost of enrollment. If the household has investment options with a higher return, then enrollment in SBP is not the best choice.

Prior to the 1986 law change, the service member could choose at the time of retirement whether or not to participate in SBP without consulting his spouse. However, in March 1986, the procedure to opt out of SBP changed. Specifically, the new law requires that SBP enrollment for the spouse be automatic for the married service member.[8] A notarized spousal signature is required if a retiring service member opts out of SBP, or opts in at a base amount less than full retirement pay. This law change thus made it more difficult for married retirees to decline survivor benefits for their spouse and brought the rules for SBP for military pensions into line with those for private companies and unions. The Retirement Equity Act (REA) and Employee Retirement Income Security Act (ERISA) establish rules for private company and union pensions. REA amends ERISA to require consent to forgo spousal survivor benefits just as the law change discussed in this paper amends the rules to opt out of SBP (Social Security Administration, 1985).[9]

Literature Review

Although no previous papers have examined this change to military SBP, several studies have examined related topics. The first set of studies examines how similar policy changes such

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[8] Legislation for the Survivor Benefit Plan can be found in Title 10, US Code, Chapter 73. The amendment is in the 1985 code.
[9] The requirements of REA went into effect for those who began receiving their pensions after January 1, 1985.

as REA and ERISA affect retirement behavior and annuity decisions of individuals and couples. The paper most closely related to this study is Aura's (2005) paper which exploits the notarized signature requirement of REA to examine which model of the household best fits household behavior when making decisions about survivor annuities. In one specification, Aura estimates a single difference model, similar to the strategy that will be used in this paper, and finds that the REA increased enrollment in survivor annuities by approximately seven percentage points, while at the same time life insurance holdings (as measured in the HRS-AHEAD data) increased by around $5,000 (Aura, 2005).[10]

The second set of studies related to this analysis is those that examine default options. Most of the behavioral and experimental economic research on retirement behavior focuses on natural experiments where companies change the default option or choice structure of a 401K or similar retirement plan. These studies conclude that defaults are sticky and people respond to nudges, in that people tend to choose the default (see for example Madrian and Shea (2001) and Carroll et al. (2009)).

Because the 1986 policy is a change in the default for SBP, it provides another way to examine how decisions are affected by nudges. Most of the papers in this behavioral literature are experimental papers, with challenges of generalizability. A benefit of this study is that I can examine the whole population and estimate a population effect of the policy change. One drawback to my study is that I am unable to disaggregate the effect of the nudge from the increase in cost imposed by the notarization requirement.

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[10] Holden and Nicholson (1998) examine the effect of ERISA which required a joint and survivor pension option to be the default pension for married employees. Using self-reported data they find husbands are 27.1 percentage points more likely to elect a joint and survivor benefit after the enactment of ERISA.

Despite these differences between the policy change examined in this paper and the larger literature on defaults and retirement savings, the results are in line with what I expect: implementing a default results in a significant increase in enrollment in SBP. While I cannot say that all of this change is due to the nudge of the default and not the cost of finding a notary, evidence suggests that the change in default has an effect on how households behave.

Modeling the Decision to Enroll in SBP for Spousal Coverage

Assume that households seek to maximize the total expected present discounted value of retirement income.[11] A household will then enroll in SBP if the expected present discounted value of the benefit stream is larger than the benefit stream from not enrolling. In keeping with the literature on military retirement, income streams are examined rather than expected utility. See for example, Daula and Moffitt (1995) .

The Survivor Benefit Plan (SBP) is a joint life policy with a contingent survivor benefit. Following Brown and Poterba (2000), define S^r and S^s, the cumulative survival probability of retirees and survivors respectively, where

$$S_t^i = \prod_{g=h}^{t}(1 - q_g^i) \tag{1}$$

and q_g^i is the probability that the person dies at age g, conditional on being alive at age g-1, $i \in (r,s)$.

If the service member chooses not to enroll in SBP, the expected present discounted value (PDV) of benefits at his time of retirement, the single payer annuity, denoted EB^s, is

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[11] Implicit in this assumption is the idea that the service member cares about the well-being of the spouse after his/her death. This assumption also abstracts from examining any annuitized income that may be available outside of SBP because data on other income sources is not available.

$$EB^s = \sum_{t=h}^{T} R^{t-h}[S_t^r A] - C^s \tag{2}$$

where h is the time period in which the service member retires, R is the discount rate, T is maximum life expectancy, A is the pay the service member receives in retirement, and C^s is the cost associated with selecting the single payer annuity. Note in time periods before h (before retirement), the income stream from retirement for the service member is zero.

If the service member enrolls in SBP for spousal benefits, the PDV at the time of retirement for the stream of payments from the joint annuity, denoted EB^j, is

$$EB^j = \sum_{t=h}^{T} R^{t-h}[S_t^r S_t^s (1 - \gamma)A + S_t^s (1 - S_t^r)\theta A + S_t^r (1 - S_t^s)A] - C^j \tag{3}$$

where γ denotes the portion taken out of retirement pay while the service member is alive to finance the spousal benefit, θ denotes the proportion of retirement pay the spouse receives after the service member's death, and C^j is the cost associated with selecting the joint and survivor annuity. Should the spouse predecease the service member, he stops paying into SBP and receives his original retirement pay A. All other variables are defined as in equation 2. For details about γ and θ set by programmatic details for the time frame covered in this paper, see Appendix C.

Given my assumption that service members seek to maximize the benefit stream from retirement and SBP for their household, the service member will then opt into SBP whenever the benefits from the program less the costs of opting in (3) are greater than the benefits from not being enrolled in the program less the costs of not enrolling (2). After some algebra, this condition becomes:

$$EB^j - EB^s - C = \sum_{t=h}^{T} R^{t-h}[-\gamma S_t^r S_t^s A + \theta S_t^s (1 - S_t^r)A] - C \geq 0, \tag{4}$$

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$$C = C^j - C^s \tag{5}$$

is the net cost of enrolling in SBP.[12] From equation 4 I can see that the service member will opt

in when the PDV of the expected deduction from retirement pay while the service member is

alive is less than PDV of expected payout to the surviving spouse after the service member is

deceased.[13]

In the appendix I derive the relationship between certain characteristics and enrollment

behavior which delivers the expected results: the probability of opting in increases with an

increase in retirement pay, increases with the age at which the service member retires, and

increases with the age difference between a service member and his younger female spouse. I

will test the first two of these implications in the empirical specification in Section 4.

I conduct a back of the envelope calculation for income streams for an example

household enrolling in this program. Over the lifetime of the household, enrolling yields $990

more paid out to the household than not enrolling in today's dollars, which as a percentage of the

expected amount paid in for the program is approximately 10 percent.[14] The amount paid into the

program in expectation in a year becomes less than the amount paid out to the spouse in

expectation in the same year around 9 years after retirement.

The amount of the subsidy changes with the characteristics of the service member and the

spouse. The subsidy to the household will become larger as the service member's age increases,

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[12] This option value is not considered in this model.

[13] Note that this holds in cooperative bargaining models where there is efficient bargaining.

[14] I assume that the service member is male, retires at age 42 after twenty years of service, has a retirement income of $15,900 per year, and has a spouse who is three years younger. I use the Social Security cohort life tables for the 1940 cohort to determine the conditional survival probabilities for both the service member and his spouse. I also assume a discount rate of 6%, which is in the range of the Federal Reserve's discount rate during 1986, and use the March 1986 3-month T-bill rate of 6.5% as the interest rate.

the age gap between a male service member and younger female spouse increases, or retirement income increases.

I expect that the March 1986 policy change will increase the net cost C of choosing the single payer annuity. Rather than simply checking a box, one must now get their spouse to sign a notarized form. One could think of this cost change, C, as arising from obtaining spousal approval or from the need to get a form notarized. If the spouse refuses the sign the form, I can think of C as being arbitrarily large enough that the service member enrolls in the program.[15]

Thus far this framework has considered primarily transaction costs. There is another possible interpretation of this model, one that is rooted in behavioral economics. It is possible that the requirement of a notarized signature to opt out of the program may make the service member consider more deeply the choice they are making and serve as a "nudge" toward enrollment. This "nudge" could also be thought of as an increase in C, arising from the service member's belief he should enroll in the program.

Data

This paper uses an administrative dataset from the Department of Defense comprised of the Survivor Benefit Plan elections for all military members retiring between January 1st, 1983 and December 31st, 1989, who were still alive at the time of the April 2010 data extract**.**[16] As with most administrative data, the military records the variables used to administer the program with a high degree of accuracy, but very little other information is collected reliably. For example, data record SBP election, service, rank, monthly gross pay at time of retirement, and date at

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[15] Note that the policy change also changes the threat point for the spouse within the bargaining framework.
[16] The dataset was received through FOIA request to the Office of the Secretary of Defense and Joint Staff FOIA Requester Service Center.

retirement for all of the observations. In contrast, race is only available for about 45 percent of the sample, mostly after the policy change and educational information is only available for about one percent of the sample. Therefore neither race nor education is utilized in this paper.

Because the policy change examined in this paper only affects people who are married and have an eligible beneficiary at the time of retirement, I restrict my data to this group. This excludes approximately 15 percent of the married service members coded as not having an eligible beneficiary. It is possible some of these service members were married for less than the year required to enroll for spousal coverage upon retirement. It is also possible that it is an error in the coding of the data.

For summary statistics on this group over the entire sample period, April 1984 to March 1988, see Table 1.1. Sixty one percent of the sample retires after the policy change. Thirty seven percent of the service members are in the Army, while 33 percent are in the Air Force, and the rest are in the Navy, which includes the Marine Corps. The majority of the sample (70.4 percent) is enlisted personnel, with the remainder split between warrant officers and officers. Annual gross pay at time of retirement is an average of $31,800. The average age of retirement for this population is low compared to private sector retirees, at 42.8 years. Just over half (50.1 percent) of the population opts in to SBP in some form. Note that due to data limitations, this includes those married personnel enrolling for child only coverage.

Columns two and three of Table 1.1 compare enlisted personnel to officers and warrant officers. Enlisted and officer/warrant officer personnel differ in that officers and warrant officers enroll in SBP at higher rates, make more money, and retire at a slightly higher age. Also, officers and warrant officers are typically more highly educated than their enlisted peers. There is not a

significant difference in the other characteristics in the data within these groups before and after the policy change.

Assessing the Effect of the Policy Change on SBP Enrollment

I use a differencing strategy to identify the effects of the policy change. Figure 1.1 shows the SBP enrollment rate by month for all married personnel with an eligible beneficiary. The policy change occurs at time zero. The horizontal lines fit the mean enrollment rates for before and after the policy change and it is clear that the enrollment rate increases after the policy change. There is also significant seasonality in retirements (Figure 1.2) and the SBP enrollment rate, which will be addressed in the statistical model.

Figure 1.3 plots this relationship separately for officers/warrant officers and enlisted personnel. Officers/ warrant officers are on the left panel and enlisted personnel are on the right panel. From this examination of the data, it appears the effect of the policy change was larger for eligible enlisted personnel than for officers and warrant officers. This is expected because officers retire at an older age and make more money at the time of retirement than their enlisted counterparts, making their expected PDV from enrollment larger.

To formally test whether the policy change affected enrollment, consider the statistical model

$$\Pr[EnrollJoint|\ ] = f(\beta_0 + \beta_1 RetirementAge_i + \beta_2 PayAtRetirement_i + \beta_3 Law_i + m_i + g(t_i)), \quad\quad (6)$$

where Law_i is binary and equal to one if the service member retired on or after March 1, 1986 and equal to zero otherwise and β_3 is the parameter of interest. From the comparative statics in Appendix A, I expect β_1 and β_2 to be positive. The probability of enrolling in SBP and the

expected PDV of enrolling is increasing in both retirement age and pay at retirement. The variables m_i are month indicator variables and $g(t_i)$ is a time polynomial in month that controls for the seasonality in SBP enrollment seen in Figures 1.1 and 1.3 and for changes in retention policy over the time period examined and varies by specification. I estimate (6) using a probit specification on observations within 12 and 24 months before and after the policy change. The average partial effects are reported in Table 1.2. Linear time trends are reported in the tables, but quadratic time trends have no significant effect on the point estimates up to the point of rounding at five decimal places.

According to Table 1.2, military members retiring after the implementation of the law are 7 percentage points more likely to enroll in SBP, approximately a 14 percent increase.[17] These results are similar in magnitude to those found by Aura (2005) in his study of the REA. As can be seen in Table 1.2, the signs on retirement age and annual gross pay are both positive and statistically significant, as the conceptual model suggests. A one year increase in age at the time of retirement makes a service member 0.56 percentage points, or 1.1 percent, more likely to enroll in SBP at the time of retirement. A $10,000 increase in annual income at the time of retirement is associated with a nine percentage point increase in the probability of SBP enrollment.[18]

Tables 1.3 and 1.4 separate enlisted personnel from officers and warrant officers to examine if the differential effects suggested in Figure 1.3. For enlisted personnel there is a statistically significant increase in probability of enrollment in SBP after the policy change of approximately eight percentage points. For officers and warrant officers the effect is also

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[17] The average number of retirees affected by this policy change in 1986 was 1,371, which implies this policy led to approximately 96 more spouses being covered each month.
[18] Note that the coefficient on retirement pay should not be interpreted causally as income can also serve as a proxy for military rank and education.

statistically significant but smaller, at about three and a half percent, even after conditioning on age and income.[19]

To assess if this differencing strategy is valid, or whether I am picking up a time trend in the data, I examine the effects of assuming that the policy is enacted at a different time and see whether there appears to be a similar effect on enrollment in SBP among married personnel. The outcome of such placebo date tests can be seen in Figure 1.1. If, for example I test whether there appears to be a policy effect when assuming the policy was adopted in March of 1985, I find no evidence of a change. Similarly, if I instead examine if there is an effect for July of 1988, I find no effect.[20] However, as can be seen from Figure 1.1, there are several months with low take-up around December of 1984; if I specify a placebo policy in September of 1984, for example, the placebo test fails.[21]

To examine if this December 1984 effect is of concern, I examine the people retiring around this time. After extensive analysis of the data I can find no systematic difference between the retirees in these months and the other months that would explain the difference in take-up rates. These points are data anomalies with no clear demographic explanation, nor am I aware of any contemporaneous policy that may explain the lower take up rate. Column 4 of Table 1.2 restricts the data to one year on either side of the policy change and does not include most of these months with low take-up. In this case, my identification strategy passes the placebo test.

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[19] I also looked at the effect of this policy change specifically on female retirees. However, the results are noisy due to small sample size. There are 498 women in this sample who are married and have an eligible beneficiary at the time of retirement.

[20] Using a twelve month window on either side of a March 1985 placebo policy, I get a point estimate for the average partial effect of -0.0005 (with a standard error of 0.005). Using a twelve month window on either side of a July 1988 placebo policy, I get a point estimate for the average partial effect of 0.008 (with a standard error of 0.005). Comparing this to examining a twelve month window on either side of the March 1986 policy change, I find an average partial effect of 0.0653 (with a standard error of 0.005) as seen in column 4 of Table 1.2.

[21] Using a twelve month window on either side of the placebo policy, I get a point estimate for the average partial effect of -0.0478 (with a standard error of 0.005).

Endogenous timing of retirement is another concern for identification because military personnel have some say in when they retire, as long as it is after 240 months of service. If many people choose to retire before the policy change to avoid the change in default and not enroll in SBP, then it would appear there was an increase in enrollment after the policy change even if the policy change did not change behavior. The first two columns of Table 1.5 show the results of a regression of the number of retirements on the law change, with month indicators and time trends. There is no statistically significant increase in retirements immediately before the policy change.

Using micro level data for length of service to continue to examine whether there is endogenous retirement, evidence continues to suggest that this policy did not lead to service members choosing an earlier retirement.[22] Restricting the sample to those who retire between March 1985 and February 1986, the average number of months served beyond 240 is 42.3 months. For those retiring between March 1986 and February 1987, the average number of months served beyond 240 is 43.1 months. If retirement timing were an issue I would expect the average number of months served beyond 240 to be lower before the policy change.

While there are strong and significant results when examining the change in SBP enrollment around the policy change, there are several threats to the validity of the identification strategy that should be noted. Furthermore, there may be endogeneity of the policy itself. If this policy were put into effect because fewer service members were enrolling in the program than the military considered ideal, then one would expect the method above to incorrectly estimate the

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[22] Length of service is available for most of the Army and the Navy service members but for none of the Air Force personnel.

effect of the policy. This policy may also have been implemented in reaction to ERISA, in order to bring military pensions regulations in line with other pension regulations.

Discussion and Conclusion

This paper examines how a change in the default that made opting out of the Survivor Benefit Plan more difficult affected enrollment rates. Specifically, the requirement that military service members could opt out of SBP only with a notarized spousal signature increased enrollment rates, and therefore increased the number of beneficiaries covered by this program. This increase in enrollment is larger among enlisted personnel, even after controlling for income and age at retirement. Not surprisingly, enrollment in SBP increases as both age of the service member and income increase. The magnitudes of my estimates are similar to those Aura (2005) found in his study of the REA.

The difference in effects between enlisted personnel and officers after controlling for income and age was unexpected. Note that officers/warrant officers initially had a much higher enrollment rate in SBP. Officers and warrant officers are more highly educated on average, as officers must have a college education before they are commissioned. Referring to Table 1.1, officers and warrant officers also have higher incomes at retirement than their enlisted counterparts. One possible explanation for this difference in the effect of the policy change is that those with higher incomes may be more likely to seek out financial planners or financial advice. In the officer/warrant officer population, those who have not enrolled may have set up other options for saving for their spouse. If this policy was enacted to strengthen the income security of beneficiaries of military retirees, it is reassuring that the effect was larger for enlisted

personnel as they are lower income. Another possible explanation is that enlisted personnel are more likely to respond to the change in the default option as a nudge.

I close with two caveats. One is that receipt of military retirement benefits begins at time of retirement from the service, which on average in my data is at about 42 years of age, which is quite a bit lower than the typical retirement ages observed in the civilian workforce. These estimates should thus not be extrapolated to the population at large. Retiring at a young age implies there is more uncertainty about the future for the retiree as the service member can expect to live for a longer period of time than the typical civilian retiree. Unlike the usual population of retirees, most military retirees will have a second career after their time in the military, and will receive retirement income from the military throughout this second career.

The second caveat is that this analysis does not include retirees that have died, the population that would benefit the most from survivor benefits since their spouses will have longer, on average, to collect benefits.[23] If one assumes death is anything other than random and people have some private knowledge about their mortality risk, those who have died were more likely to enroll in survivor benefits but are not observed in my data.

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[23] Comparing my data to the DoD Office of the Actuary Report, there are attrition rates of approximately 30% between the population of retirements and my data set. However, 75% or more of this can be explained using survival probabilities. Most of these people likely died before the April, 2010 data extract.

APPENDICES

APPENDIX A

TABLES

Table 1.1: Summary Statistics

VARIABLES	(1) Full Sample Mean (sd)	(2) Enlisted Mean (sd)	(3) Officers/Warrant Officers Mean (sd)
Enroll in SBP	0.501	0.418	0.699
	(0.500)	(0.493)	(0.459)
Do Not Enroll in SBP	0.495	0.578	0.299
	(0.500)	(0.494)	(0.458)
Annual Gross Pay in $10,000	3.180	2.436	4.946
	(1.595)	(0.745)	(1.683)
Age at Retirement	42.83	41.83	45.22
	(4.128)	(3.570)	(4.373)
Retire After Law	0.520	0.517	0.527
	(0.500)	(0.500)	(0.499)
Male	0.997	0.997	0.994
	(0.0569)	(0.0515)	(0.0803)
Female	0.00325	0.00188	0.00649
	(0.0569)	(0.0433)	(0.0803)
	(0.482)	(0.474)	(0.495)
Army	0.368	0.341	0.431
	(0.482)	(0.474)	(0.495)
Air Force	0.325	0.335	0.303
	(0.469)	(0.472)	(0.460)
Enlisted	0.704		
	(0.457)		
Warrant	0.0419		0.141
	(0.200)		(0.348)
Officer	0.255		0.859
	(0.436)		(0.348)
Observations	64,943	45,689	19,254

Note: Column one is the means for all married service members with an eligible beneficiary retiring between April 1, 1984 and March 1, 1988. Column two is all married enlisted personnel with an eligible beneficiary retiring between April 1, 1984 and March 1, 1988. Column three is all officers/warrant officers married at the time of retirement with an eligible beneficiary retiring between April 1, 1984 and March 1, 1988.

Table 1.2: Marginal Effect from Probit for All Personnel

VARIABLES	(1) Enroll in SBP m=24	(2) Enroll in SBP m=24	(3) Enroll in SBP m=24	(4) Enroll in SBP m=12
Law	0.0756***	0.0695***	0.0682***	0.0653***
	(0.00873)	(0.00371)	(0.00833)	(0.00541)
Age at Retirement		0.00563***	0.00563***	0.00575***
		(0.000685)	(0.000685)	(0.000982)
Annual Gross Pay in $10,000		0.0879***	0.0879***	0.0871***
		(0.00182)	(0.00182)	(0.00262)
Month Indicator	Yes	Yes	Yes	Yes
Time Trend	Linear	None	Linear	None
Observations	64,943	64,943	64,943	31,507

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: m is a window around the policy change. For m=24, the analysis is restricted to those who retire between April 1984 and March 1988. Law is a binary variable equal to one if the service member retires after the policy change. Marginal Effect for Law reports effect of changing from 0 to 1.

Table 1.3: Marginal Effect from Probit for Enlisted Personnel

VARIABLES	(1) Enroll in SBP m=24	(2) Enroll in SBP m=24	(3) Enroll in SBP m=24	(4) Enroll in SBP m=24
Law	0.0760***	0.0855***	0.0771***	0.0781***
	(0.0102)	(0.00452)	(0.0101)	(0.00658)
Age at Retirement		0.0122***	0.0122***	0.0112***
		(0.000905)	(0.000905)	(0.00130)
Annual Gross Pay in $10,000		0.0438***	0.0438***	0.0517***
		(0.00433)	(0.00433)	(0.00621)
Month Indicator	Yes	Yes	Yes	Yes
Time Trend	Linear	None	Linear	None
Observations	45,689	45,689	45,689	22,272

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: m is a window around the policy change. For m=24, the analysis is restricted to those enlisted personnel who retire between April 1984 and March 1988. Law is a binary variable equal to one if the service member retires after the policy change. Marginal Effect for Law reports effect of changing from 0 to 1.

Table 1.4: Marginal Effect from Probit for Officers and Warrant Officers

VARIABLES	(1) Enroll in SBP m=24	(2) Enroll in SBP m=24	(3) Enroll in SBP m=24	(4) Enroll in SBP m=12
Law	0.0350**	0.0378***	0.0387***	0.0341***
	(0.0148)	(0.00639)	(0.0144)	(0.00934)
Age at Retirement		0.00821***	0.00820***	0.00915***
		(0.00139)	(0.00139)	(0.00200)
Annual Gross Pay in $10,000		0.0544***	0.0544***	0.0523***
		(0.00372)	(0.00372)	(0.00534)
Month Indicator	Yes	Yes	Yes	Yes
Time Trend	Linear	None	Linear	None
Observations	19,254	19,254	19,254	9,235

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: m is a window around the policy change. For m=24, the analysis is restricted to those warrant officers and officers who retire between April 1984 and March 1988. Law is a binary variable equal to one if the service member retires after the policy change. Marginal Effect for Law reports effect of changing from 0 to 1.

Table 1.5: Number of Retirements on Law Change

VARIABLES	(1) Obs	(2) Obs
Law Change	1.603	34.83
	(49.15)	(29.21)
Month Indicators	Yes	Yes
	(53.71)	(71.55)
Time Trend	Linear	Linear
Observations	47	24
R-squared	0.964	0.977

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: This table regresses number of retirements on the law change for those service members who were married and had an eligible beneficiary at the time of retirement. Column one examines April 1984 through March 1986. Column two looks at twelve months on either side of the policy change.

APPENDIX B

FIGURES

Figure 1.1: SBP Enrollment Before and After Policy for Full Target Group
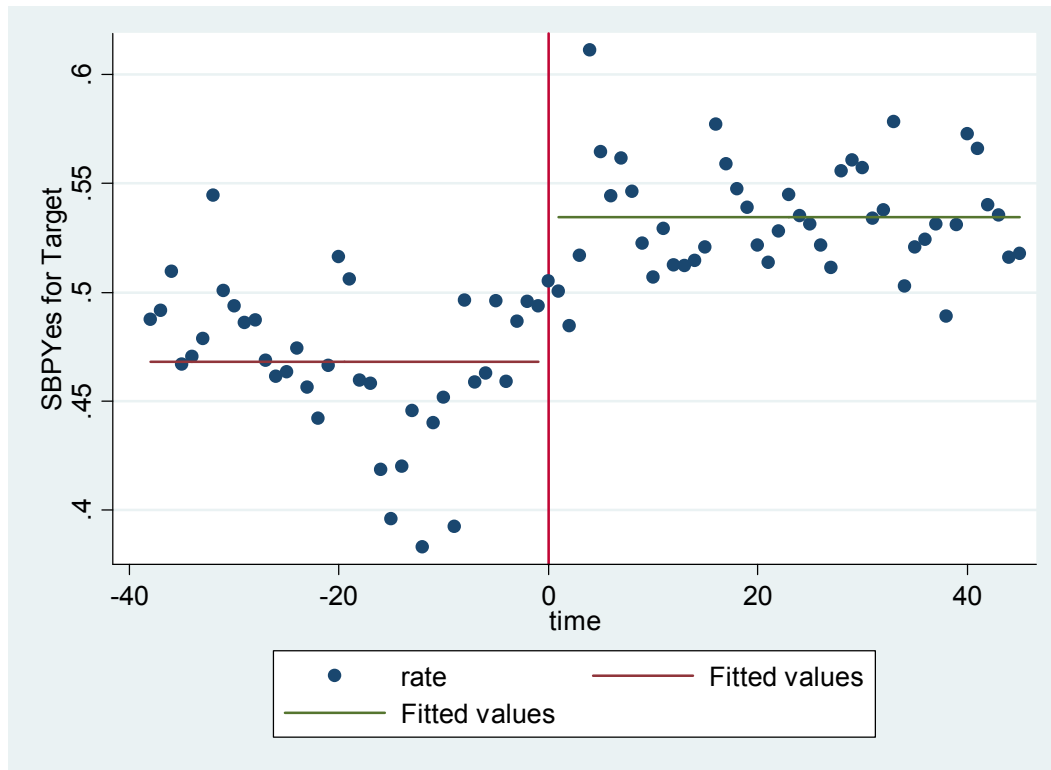
Note: The dots represent the enrollment rate at each month for the whole population of married retirees with an eligible beneficiary. The policy change occurs when time is zero.

Figure 1.2: Seasonality of Retirements
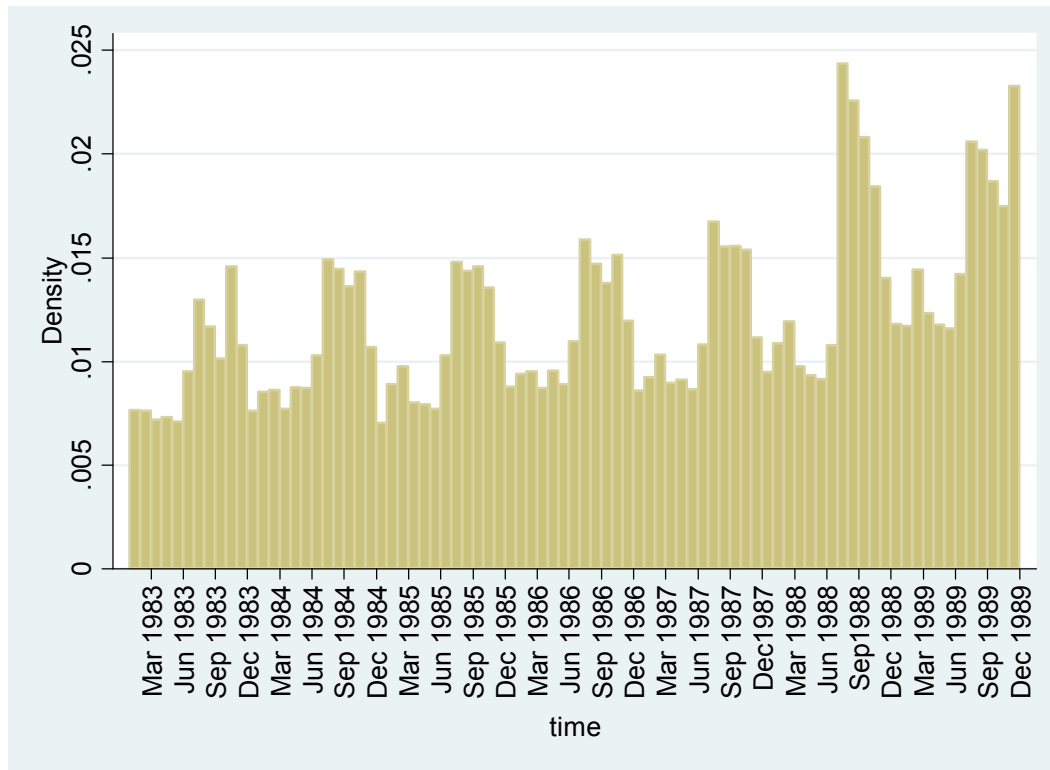
Figure 1.3: SBP Enrollment by Enlisted Status
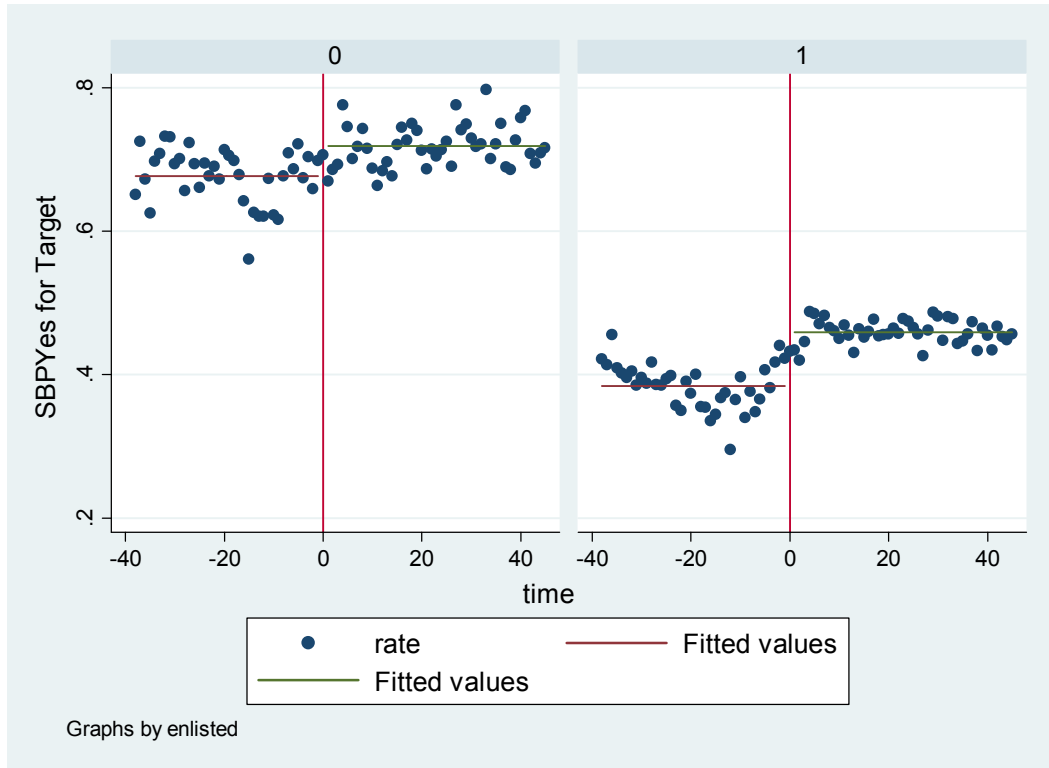
Note: The dots represent the enrollment rate at each month for the population of married retirees with an eligible beneficiary. The left hand panel is warrant officers/officers. The right hand panel is enrollment rates for enlisted personnel. The policy occurs when time is zero.

APPENDIX C

COMPARATIVE STATICS AND ACTUAL PARAMETER VALUES

COMPARATIVE STATICS AND ACTUAL PARAMETER VALUES

I want to see how the probability of opting in varies with difference in surviving spouse and retiree survival probabilities, age at retirement, and retirement pay. Recall that under the assumption that the household seeks to maximize income from retirement and the survivor benefit, the service member will opt in if:

$$\sum_{t=h}^{T} R^{t-h}[-\gamma S_t^r S_t^s A + \theta S_t^s (1 - S_t^r)A] \geq 0 \tag{A1}$$

A. Difference between surviving spouse and retiree age:

Simple partial derivatives show that enrollment in SBP is positively correlated with survival probability of the spouse and negatively correlated with survival probability of the service member. Given the signs on the survival probabilities for each member of the couple, it is easy to see that as the difference between wife and husband's survival probability (and ages) increases (with the husband being older), the probability of opting in to SBP increases.

B. Age at retirement:

$$\frac{\partial}{\partial h}: \sum_{t=h}^{T} R^{t-h}\ln(R)[-\gamma S_t^r S_t^s A + \theta S_t^s (1 - S_t^r)A] \tag{A2}$$

This derivative is positive for the values of γ and θ used by the policy. As retirement age increases, the probability of enrollment increases holding survival probabilities and retirement income constant.

C. Retirement pay:

$$\frac{\partial}{\partial A}: \sum_{t=h}^{T} R^{t-h}[-\gamma S_t^r S_t^s + \theta S_t^s (1 - S_t^r)] \tag{A3}$$

The sign on this derivative depends on the relationship between gamma and theta, as well as the survival probabilities. Using actual values from the policy and survival probabilities from the cohort life tables for the 1940 cohort (Bell & Miller, 2005), this derivative is found to be positive. That is, as retirement income increases, for the given policy values, the probability of opting in increases, holding the discount rate constant and survival probabilities constant.

D. Actual Parameter Values:

In the details of the program for the time frame covered in this paper, the formula used to calculate the amount paid in γ was a little more complicated than it is today. At that point in time, the amount deducted from an enrollee's retirement pay was calculated as "2.5% of the first $595 of the base amount of retired pay plus 10% of the remaining base amount of retired pay" (Burrelli, 2004).

Plugging in the actual values used to calculate payments from the policy at this time, equation 5 becomes:

$$\sum_{t=h}^{T} R^{t-h}[S_t^r S_t^s(-0.65A - 44.625) + S_t^s(1 - S_t^r)0.55A] + C \geq 0 \qquad (A4)^{24\ 25}$$

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²⁴ This formula holds for all service members receiving $7,140 or more per year in retirement pay, which is equivalent to $595 per month. Less than 4% of the entire dataset fails to meet this requirement.
²⁵ A is greater than $7,140, the survival probabilities are restricted to be between 0 and 1, and R is positive.

APPENDIX D

PROGRAM DETAILS FOR CHILD AND OTHER INSURABLE INTEREST COVERAGE

PROGRAM DETAILS FOR CHILD AND OTHER INSURABLE INTEREST COVERAGE

When completing DD Form 2656, service members may elect into spouse, spouse and children, child only, or other insurable interest coverage. The details for spousal coverage are provided in Section 2. Details for other forms of coverage are as follows:

For child election or spouse and child election, the amount paid in for child coverage is determined by actuarial tables and is a function of the service member's age and the age of the youngest child. Child beneficiaries receive survivor benefits until marriage, age eighteen, or age twenty two if they remain a fulltime student. The amount paid in for child coverage is less than that paid for spousal coverage because the duration of coverage is generally shorter. The amount paid for child coverage is added to the amount paid for spousal coverage if spouse and child coverage is selected.

Other Insurable Interest coverage may only be elected if the service member has no eligible spouse or child beneficiary. An Other Insurable Interest may include other relatives of the service member, such as a parent or sibling (Burrelli, 2004). Other Insurable Interest coverage can be suspended at any time by the service member.

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CHAPTER TWO

AN EXAMINATION OF VETERAN HEALTH ACCESS AROUND THE MEDICARE
ELIGIBILITY AGE

Introduction

Veterans' health care access through the Veterans Health Administration (VHA or VA)

often enters the policy dialogue and headlines the nightly news. Stories of long wait times,

crumbling infrastructure, and poor care inundate the news media. More than just harrowing news

stories, these deficiencies could prove fatal for veterans waiting for care.[26] These isolated

incidents give rise to concern about the adequacy of health care for the nearly 22 million veterans

of the United States armed forces.[27]

While scandals within parts of the VA are certainly troublesome, regional scandals do not

prove there is a widespread problem. Moreover, VA facilities are only one of many places

veterans can receive health care. Poor conditions at the VA or within part of the VA system,

while less than desirable, do not necessarily imply veterans' health care is inadequate overall or

any worse than non-veterans.

Others are concerned about the growth in federal spending on veteran health care while

quality of care remains questionable. In FY 2015, 59.1 billion dollars was allocated for medical

services through the VA, making up approximately 86 percent of the VA's discretionary funding

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[26] The 2014 scandal involving the Phoenix VHA where at least 40 veterans died waiting for care is an example
(Bronstein & Griffin, 2014) .
[27] According to the Census Bureau, there were 21.8 million veterans of the armed forces as of 2014.

appropriation.[28]

There are studies that descriptively examine veterans' health, health care utilization, and access (Brezinski (2007) and Haley and Kenney (2012)). This paper is one of the first to examine the health care adequacy of veterans compared to non-veterans and the first to attempt to obtain causal estimates of adequacy.

Health care adequacy refers to the extent that individuals are able to obtain the health care they desire. The main assumption of this paper is that a disproportionate increase in consumption of a preventative procedure or test after Medicare eligibility is due to unmet need for that service. I compare the change in usage between the two groups around Medicare eligibility to assess the relative health care adequacy of veterans and non-veterans.

This study uses the Health and Retirement Study (HRS), a nationally representative sample, to examine the consumption of preventative health care services of veterans and non-veterans between the age of 56 and 75. I use the near universal health insurance coverage provided by Medicare at age 65 to estimate how many people in each category had inadequate health care prior to age 65. I additionally use a difference-in-differences (DID) and fixed effect (FE) strategies to control for differences in taste for health care and health status between veterans and non-veterans.

Following previous studies such as McWilliams et al. (2003), I focus on preventative care that are generally recommended for all people and consumed in a set quantity. The basic assumption is that the use of such services is more closely determined by access to health care than by health itself. The preventative care I examine are prostate exams, cholesterol tests, and

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[28] This excludes funding for special programs such as mental health and women's health. Number from: http://www.va.gov/budget/docs/summary/fy2015-fastfactsvabudgethighlights.pdf accessed September 25, 2015.

whether or not a person has been to the doctor in the last two years.[29] The last measure may not

be purely preventative care, but is included because while a respondent may not remember

whether or not they received a specific procedure, they may remember if they have seen a doctor.

To minimize the dependence of doctor visits on health, I use a dichotomous variable for whether

or not the person has visited a doctor in the last two years.

Results suggest that veterans consume more preventative health care services such as

cholesterol tests and prostate exams before and after Medicare eligibility than non-veterans. Both

veterans and non-veterans consume more of these services after Medicare eligibility suggesting

that both groups have less than adequate access to health care before age 65. However, veterans

see a smaller increase in consumption of preventative services after age 65 for prostate exams

and cholesterol tests, providing weak evidence they have less unmet need, and therefore better

health care adequacy, before age 65. At the same time, it appears that adequacy for doctor visits

is comparable between veterans and non-veterans.

The paper proceeds as follows: section 1 provides institutional details about health care

resources available to veterans, section 2 is a brief literature review, section 3 discusses the data,

section 4 discusses empirical methodology and results, and section 5 provides a discussion and

conclusion.

Institutional Details

Veterans may use multiple avenues to access health care. Some of these access points are

unique to veterans while others are the same as those available to non-veterans. The primary

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[29] I also examined flu shots. However, there were changes made to who was recommended to get a flu shot over the period covered in this paper. For the first part of the period, flu shots were recommended for individuals over the age of 65. Flu shots are not a good measure to use with our identification strategy which is the difference in consumption around the Medicare eligibility age (also 65). Results are available upon request.

points of access which may be available only to veterans are the VA and TRICARE, which is military health insurance, though not all veterans are eligible for these services.[30]

Accessibility to VA care changed widely in the last 25 years, as has the type of care emphasized by the VA. Prior to the mid-1990's, the VA system focused on hospital based care for veterans with service connected disabilities. In 1996, the VA switched its focus to outpatient and preventative care and opened enrollment to all veterans regardless of disability status (Boyle & Lahey, 2010). In 2003, the VA returned to restricting access to some priority groups while continuing to allow access to care for veterans who enrolled during the open enrollment between 1996 and 2003.[31] The VA defines priority groups by disability status and then income.[32]

TRICARE is military health insurance that began in 1998 and is available for active duty service members and military retirees.[33] Military retirees are veterans who left the military after twenty years of service or were retired due to a service-related injury. Recipients of TRICARE can choose between TRICARE Prime and TRICARE Standard/Extra. Depending on which type of TRICARE is chosen, the beneficiary may use the Military Health System or private facilities

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[30] Only military retirees with 20 years of service or those medically retired are eligible for TRICARE. Veterans with no service connected disability and high income may be excluded from receiving VA services, depending on VA budget allocations

[31] There were also changes to eligibility for those who have served in active duty combat operations since November 1998. Initially they were eligible for two years of VA services after ending their active duty military service. In 2008, this policy was changed to make those who had served in combat operations since November 1998 eligible for five years of free medical care for service connected illness before being placed in a priority group and possibly paying copays for care. For more information on these policies see Amara (2013) These policies do not affect the population examined in this paper.

[32] Those who qualify due to low income with no disability pay copays as do those above the income threshold. Those who qualify based on income level are in priority group 7. Those above the income cutoff are in priority group 8. For more information on priority groups see the VA website at
http://www.va.gov/HEALTHBENEFITS/resources/priority_groups.asp

[33] Prior to TRICARE, military retirees had access to CHAMPUS. The HRS question about military health insurance was amended to explicitly mention TRICARE after wave 6 in 2002. Prior to this amendment, the questions asked about CHAMPUS or any other military health insurance.

that accept TRICARE.[34] At age 65, Military retirees with TRICARE who have Medicare Part B become eligible for TRICARE for Life (TFL), a Medicare wraparound insurance intended to cover all copays of Medicare when they become eligible for Medicare.[35]

Along with VA and TRICARE, veterans may be eligible for the same sources of health care access as non-veterans. The main sources of health care access for non-veterans are private insurance, Medicare, and Medicaid. Private insurance typically comes from an employer or spouse's employer. Some private insurance continues to cover people after age 65, however not all do.[36] Medicare is a government insurance program for Americans over age 65 that pay payroll taxes for at least 40 quarters and those with certain disabling conditions such as renal failure. Medicare, like most private insurance plans, requires some payment of premiums.[37] Medicaid is a government insurance program for low-income individuals, including those over age 65.[38]

Literature Review

This paper joins together two strands of literature, one focusing on changes in insurance status, health, and health utilization around the Medicare eligibility age of 65 and the other focusing on veterans' health and health care utilization compared to their non-veteran counterparts.

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[34] TRICARE prime is managed care and uses the military health system as its primary network. TRICARE standard/extra is a fee for service plan and accepts any point of service, though costs may vary based on whether the provider is in the TRICARE network. TRICARE Prime has a higher deductible. TRICARE standard/extra has higher copays.

[35] According to the FY 2013 report from the DoD Office of the Actuary, there are approximately 1,957,000 retirees. This implies that less than 9 percent of all veterans could be eligible for Tricare for Life after age 65.

[36] Larger employers are required to provide continued private health insurance coverage for employees over age 65.

[37] Individuals who have paid taxes for 40 quarters or have a spouse who paid taxes for 40 quarters receive Medicare Part A (hospitalization) without paying premiums. Those who cannot qualify based on payroll taxes pay a premium for Medicare Part A. For Medicare Part B, which includes preventative services, there is a monthly premium. For 2015, for most individuals, Medicare Part B has a premium of $104.90.

[38] Income cutoffs for Medicaid eligibility are set on a state by state basis.

Several papers examine the change in health, health utilization, and health insurance coverage around age 65, the Medicare eligibility age (Cafferty and Himes (2008), Card et al. (2008, 2009), and McWilliams et al. (2003)). Researchers examine health and health care usage around the Medicare eligibility age to gather insight about potential effects of universal health care and to look at insurance and health care inadequacy in older populations. These papers utilize the Medicare eligibility age because health care coverage is nearly universal at age 65. Prior to the implementation of the Patient Protection and Affordable Care Act (PPACA) in 2014, access to health insurance was far from universal for those under the age of 65.[39]

These papers typically utilize one of two empirical methodologies. One set utilize regression discontinuity design around age 65 to estimate a causal effect of Medicare eligibility and widespread insurance access on a wide variety of outcomes. The other methodology, a difference-in-differences design (DID), is typically used when comparing consumption of services as a proxy for access between two groups. Generally these studies of health access across Medicare eligibility find that health care consumption and access increase at age 65, with larger increases for people who are less educated, minorities, and those uninsured before age 65 (Card et al. (2008), McWilliams et al. (2003)).

Card et al. (2008) use the National Health Interview Survey (NHIS) and a regression discontinuity design and find that less educated and non-white populations are less likely to have insurance prior to age 65. Looking at health care utilization, they find a modest increase in the number of doctor visits after Medicare eligibility, concentrated among those without insurance before age 65.

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[39] Health insurance is still far from universal, but it is now easier for individuals to decouple insurance from employment and receive insurance through the exchanges.

Using the HRS, McWilliams et al. (2003) estimate a difference-in-differences strategy (DID) to examine the gap between the insured and uninsured before age 65 in receiving preventative care before and after the Medicare age. They find an increase in the consumption of preventative care for both insured and uninsured individuals. However, this increase in consumption is larger for those uninsured prior to Medicare eligibility. Previously insured individuals continue to receive prostate exams and cholesterol tests at a higher rate than those who were uninsured prior to Medicare eligibility. My paper uses the same data set and a similar estimation strategy to consider how access to health care affects health care utilization for veterans and non-veterans.

Past studies compare veterans' health status and insurance coverage to non-veterans. Haley and Kenney (2012) do a descriptive study of veterans' health insurance status among non-elderly veterans using the 2010 American Community Survey (ACS). In the 2010 ACS, 1 in 10 non-elderly veterans are uninsured and do not use the VA. They find that veterans are more likely to be insured than non-veterans. Their data indicate that the 55-64 age group is the most likely (8.2 percent) to report using the VA as their sole source of health care. Of those who report using only the VA for health care, 49.4 percent fall within the 55-64 age group, further emphasizing that adequacy is a big issue for this age group.

Brezinski (2007) uses a subset of the HRS, the AHEAD cohort (those born before 1923) and data from 1993-2004 to examine differences in health status, physician utilization, and hospital utilization between veterans and non-veterans. He finds that this subgroup of veterans has both a better health status and higher physician utilization, but not higher hospital usage.

Although the VA is not health insurance, it does provide an additional network of access for some services, including preventative care. Combining this additional point of access for veterans with the higher insurance rates among veterans before Medicare eligibility, I expect to see similar results for veterans that McWilliams et al. (2003) found for the insured, with veterans consuming more preventative care than non-veterans both before and after the Medicare eligibility age.

Data

I use data on health care consumption by men ages 56 to 75 from the HRS waves from 1995 through 2010. The HRS is a nationally representative longitudinal survey conducted by the University of Michigan and sponsored by the National Institute on Aging.

The HRS began as two separate surveys, the HRS and AHEAD. The original HRS cohort is individuals born between 1931 and 1941. The AHEAD survey focused on individuals born in 1923 or before. The two surveys merged and since 1998, the HRS (which contains the AHEAD cohort) fields surveys biennially. HRS refreshed the sample at several points to introduce younger cohorts and fill in gap between the two original cohorts. The HRS now provides survey responses from individuals 50 years of age and above and his or her spouse.

To construct my data files, I start with the RAND HRS Fat file.[40] I restrict my sample to individuals ages 56 to 75 who were interviewed in waves between 1995/1996 and 2010 (wave 3 and wave 10). Wave 3 questions were asked in 1995 and 1996 to the AHEAD and HRS cohorts respectively. Wave 4 is when the next cohort entered the sample and all cohorts are surveyed at

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[40] The RAND HRS Data file is a longitudinal data set based on the HRS data put together by the RAND Corporation. It was developed with funding from the National Institute on Aging and the Social Security Administration.

the same time in even numbered years from wave 4 onward.[41] I use data from wave 3 forward due to a change in the phrasing of the government insurance question that occurred between wave 2 and wave 3. Prior to wave 3, respondents were asked if they were covered by any government health insurance program, then asked which one. From wave 3 forward, respondents are asked about the types of government insurance separately.

I identify veterans in the HRS by their response to the question, "Have you ever served in the active military of the United States?" Due to the large proportion of veterans who are male in this older population, I restrict the sample to men.[42] Summary statistics of veteran characteristics and outcome variables can be found in Table 2.1. Fitting with previous literature on these cohorts of veterans (for example, Morgan et al. (2005)), I find that the veterans in my sample are more likely than non-veterans to be white (87 percent compared to 79 percent), have more wealth ($8,000 more on average), and have finished high school (85 percent versus 66 percent).

The insurance status patterns for veterans in the HRS are similar to what Haley and Kenney (2012) found when examining the ACS. Veterans in the HRS are less likely to report being uninsured than non-veterans before age 65. They are also more likely to have access to private health insurance when asked in the wave before they become Medicare eligible.[43] Furthermore, people are least likely to be insured right before Medicare eligibility regardless of veteran status (Caffrey & Himes, 2008).

The outcome variables of interest are prostate exams, cholesterol tests, and whether or not the individual has gone to the doctor. I primarily focus on preventative procedures because

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[41] Note the years used in the data avoid any confounding effects that may have been introduced with changes in health care access associated with the Patient Protection and Affordable Care Act (PPACA).
[42] 96.9 percent of veterans age 56 to 75 in this sample are male.
[43] The HRS question about insurance explicitly states that the VA is not a form of health insurance.

they are less confounded with need and consumed in a uniform amount- for procedures such as prostate exams and cholesterol tests a patient in my sample should receive the test once a year regardless of health status.

The prostate exam variable is binary and results from the question, "in the last two years have you had any of the following medical tests or procedures? – an examination of your prostate to screen for cancer."[44] If the respondent indicated that they have had a prostate exam, then the dependent variable is equal to one.[45] Over the time period studied in this paper, the recommendation of the American Cancer Society was for men to get a DRE and PSA yearly for men over the age of 50.

For cholesterol tests, the dependent variable is binary and results from the question, "in the last two years have you had any of the following medical tests or procedures? – a blood test for cholesterol." If the respondent indicates they have had a cholesterol test the dependent variable is equal to one.

The final health service I examine is whether or not the individual has been to the doctor in the last two years. While this is not a preventative service, this question is less likely to have recall issues than if a respondent has had a specific procedure. It is also asked every two years in the HRS instead of every four years. Generally it is recommended that people get an annual checkup.

As can be seen in Table 2.1, veterans are more likely than non-veterans to report receiving these preventative services. This result is expected, given the literature, because

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[44] The question may also ask "since we talked to you last in response month and year" for those who have previously answered the question.

[45] Note that this question would be likely to receive a yes response from those who receive a digital rectal exam (DRE) but less likely to receive a yes response for the prostate specific antigen blood (PSA) test.

veterans are more educated, more likely to have private insurance before Medicare, and wealthier. All of these differences imply veterans should consume health care at a higher rate than non-veterans, all else equal. My empirical strategy will control for these differences.

The HRS asks if the procedure has been received in the last two years. This raises several issues. The first is the issue of recall. Some respondents may not be able to remember exactly when or even if they received a procedure. The second is an issue of measurement. If a 66 year old responds affirmatively to receiving a test in the previous two years, the respondent could have received that test at ages 64, 65, or 66. Even if the respondent perfectly recalls when they received the test, it is not clear from their response at exactly what age they received it. This is significant because my identification strategy is based off of the change around age 65. Using age at time of interview would put a number of procedures received at ages 63 and 64 after Medicare eligibility. For this reason, I code "age" as age when interviewed lagged one year.[46]

Graphical representations of the fraction of individuals at each age who receive the various procedures by veteran status are in Figures 2.1-2.3. In Figure 2.1, I examine the proportion of veterans (the purple X's) and non-veterans (the orange dots) receiving a prostate exam in the last two years by age. For all ages, veterans are more likely than non-veterans to report receiving a prostate exam. Figure 2.2 examines cholesterol tests, which veterans are more likely to receive than non-veterans are most ages. Figure 2.3 examines doctor visits (yes or no) and once again veterans are more likely to report a doctor visit in the last two years for most ages.

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[46] Someone interviewed at age 65 is labeled as age 64, even though they may have received the procedure at age 63, 64, or 65. From this point forward "age" refers to lagged age.

Empirical Methodology

This section presents estimates from two models: a difference-in-differences (DID) specification and a fixed effects (FE) specification to examine how health care access varies by veteran status and Medicare eligibility age.

In order to estimate a DID specification, I need to have two groups and two time periods. In this case I will examine veterans and non-veterans, both before and after the Medicare eligibility cutoff at age 65. The treatment can be thought of as being a veteran below the age of 65 who has access to VA facilities and possibly TRICARE in addition to possibly private insurance, Medicare, Medicaid or other government insurance. After Medicare eligibility, access for veterans and non-veterans is nearly identical. Veterans over the age of 65 are encouraged to go to Medicare accepting facilities for all non-service connected disability related services such as preventative care. Non-veterans are the control group.

DID requires a common trend assumption: in the absence of the treatment, the increase in consumption of preventative services at age 65 would have been the same for both veterans and non-veterans. I also assume that no one is switching their veteran status as they age. Given that the veteran status question is asked in a respondent's first wave of the survey, and people in this age group do not join the military, this assumption holds.

I estimate the following equation using OLS:

$$y_i = \beta_0 + \beta_1 Nonveteran + \beta_2 MedicareElig + \beta_3 Nonveteran * MedElig + \sum_j \beta_j Dem + \gamma(Age) + \varepsilon_i \quad (1)$$

The variable y_i is the binary response variable for individual i. These include whether the person has had a prostate exam, cholesterol test, or been to the doctor in the last two years. *Nonveteran*

is an indicator variable equal to one if the respondent is not a veteran. $MedicareElig$ is an indicator variable equal to the one if the individual is over age 65 at the time of the interview. With this specification, the coefficient β_2 provides a direct estimate of the effect of Medicare eligibility on consumption of these services for veterans. Age is the individual's age lagged one year to accommodate the questions asking if a procedure was received in the last two years.

I also control for a set of j demographic variables (Dem) that includes indicator variables for race and high school completion. For some specifications Dem also includes non-housing wealth, labor force participation, and census division of residence. Labor force participation is a dummy variable coded one if the individual reported working for pay at the time of the interview and zero otherwise. Labor force participation increases the probability the individual is insured via their employer. It also is correlated with better health status. Dem also includes census division to control for the effect of geographic variation in consumption of preventative services and health care access.[47]

Several specifications include a quadratic trend in wealth. I include wealth to control for health care utilization differences that arise from differences in socio-economic status. The wealth variable used is household level non-housing wealth and includes wealth from stocks, savings accounts, and treasury bonds. The RAND version of the HRS uses the structure of the HRS questions for wealth and imputation to arrive at an imputed value when a specific value is not provided by the respondent.[48] I use wealth rather than income because income is highly influenced by the individual's labor supply choices, which are also confounded with health.

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[47] Census divisions are a subset of census regions. There are eight census divisions. Controlling for census division helps to control for differences such as culture which may affect the likelihood of receiving preventative care.
[48] For more information on how wealth is imputed in the RAND HRS see Hurd, Meijer, Moldoff, and Rohwedder (2013)

I estimate these regressions with a quadratic in age ($\gamma(Age)$) to control for the effect of aging on receiving these services. I chose a quadratic and quartic age trend after looking at the raw data displayed in Figures 2.1 through 2.3. Tables 2.2 through 2.4 report the coefficients and standard errors.[49]

The coefficients of interest are β_1, β_2, and β_3. The coefficient β_1 measures the difference in care received between veterans and non-veterans. The coefficient β_2 measures the difference in utilization for veterans who are Medicare eligible compared to those who are not. β_3 measures if there are differences in unmet need before Medicare eligibility between veterans and non-veterans.

If veterans have better health care access because they have more places to get health care, then I may expect $\beta_1 < 0$. However, this assumes that veterans and non-veterans have the same taste for health care and that the only difference between the two groups not controlled for by the demographic variables is access points for health care services. β_1 may also pick up a difference in taste for health care between veterans and non-veterans as well as other differences such as better or worse health for veterans than non-veterans or various adverse environmental exposures as a result of military service. A negative β_1 may indicate that non-veterans prefer to access health care less than veterans. These preferences or non-age-varying differences in health status between veterans and non-veterans are differenced out in my DID strategy.

Based on prior literature, I expect $\beta_2 > 0$ because health care usage increases with Medicare eligibility, indicating that there tends to be unmet need for health care services before age 65.

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[49] For estimates with a quartic age trend, see Table 2.A.1.

The main focus of this paper is the sign on β_3. A positive coefficient on the interaction term ($\beta_3 > 0$) would indicate that there are more non-veterans than veterans with unmet need prior to Medicare eligibility, and therefore worse health care adequacy for non-veterans.

A difference-in-differences strategy helps to address many of the issues of differences in health care tastes or health for veterans compared to non-veterans. After Medicare eligibility, everyone is able to access facilities that accept Medicare, decreasing the difference in access points and price of care between veterans and non-veterans. After Medicare eligibility, both veterans and non-veterans have nearly universal health care access.

In the difference-in-differences specifications, I treat the data as a cross-section. Standard errors are clustered at the individual level because I have multiple observations per individual and the error terms are correlated within each individual.

I also use an alternative specification with individual fixed effects to control for unobservable characteristics that may affect an individual's demand and receipt of these preventative health care services. This strategy allows me to take advantage of the panel nature of the HRS.

$$y_{it} = \delta_1 MedicareElig_{it} + \delta_2 Nonveteran_i * MedicareElig_{it} + v_i + \gamma(\text{age}) + \varepsilon_{it} \qquad (2)$$

As in equation 1, equation 2 includes a binary variable for Medicare eligibility, which varies over time, and the treatment term ($Nonveteran * Medicare$). Veteran status is not changing over time and is absorbed by the individual fixed effect and therefore is not included in this specification. I also include age trends. My parameters of interest are δ_1 and δ_2. v_i is a dummy variable for each individual. One caveat for the fixed effect analysis is that because

preventative care questions are only asked every four years, I have many observations for which I estimate the effect based on two points per person. The next section discusses results.

Results

I provide results for each of the three different outcome variables separately in Tables 2.2 through 2.4: Table 2.2 looks at prostate exams, Table 2.3 examines cholesterol tests, and Table 2.4 considers whether or not the individual has been to the doctor. Within tables, estimates and significance of the estimates vary slightly by specification. The estimates and significance change with what control variables are included in the model as well as what ages are included in the estimate. Overall the estimates are relatively stable across specifications.

Table 2.2 presents results for prostate exams. Examining the results in Table 2.2, I find that veterans are more likely to report receiving a prostate exam, as indicated by the negative coefficient on Non-veteran. This descriptive result is stable across specifications. Looking at specification 2, which allows for the most flexibility in wealth, age trends, and a large number of control variables, I find that veterans are 3.6 percentage points (4.9 percent of the mean for both groups) more likely to receive a prostate exam compared to non-veterans across all ages.

The coefficient on Medicare indicates if there is the difference in demand for the service around age 65 for veterans. The lack of a statistically significant coefficient on Medicare indicates that there is not a significant difference in the probability a veteran receives a prostate exam before and after age 65.

The coefficient on non-veteran interacted with Medicare (β_3) provides an estimate of differences in the change in utilization around Medicare eligibility between veterans and non-veterans. In the second specification, the coefficient on the interaction term indicates that the

change in prostate exam rates with Medicare eligibility for non-veterans is 2.2 percentage points larger than for veterans. The jump at age 65 for veterans is statistically significantly smaller than that for non-veterans.

The fixed effects coefficient estimate of γ_2 in columns five and six have the same signs as the other specifications, and for column five is statistically significant. This specification shows no statistically significant effect of Medicare eligibility, but a larger positive effect of around three percentage points on the interaction term between Medicare eligibility and non-veteran status.

Table 2.3 uses the same general specifications as Table 2.2 but presents results for cholesterol tests.

Looking across specifications, I generally find that veterans are more likely than nonveterans to receive a cholesterol test. Those who are Medicare eligible (over the age of 65) are more likely to receive a cholesterol test regardless of veteran status. Veterans who are Medicare eligible are around two percentage points more likely to have their cholesterol tested, however estimates for β_2 are not always statistically significant. The coefficient on the interaction between Medicare eligibility and non-veteran status is positive, indicating that veterans have a smaller change in receipt of cholesterol tests than non-veterans at Medicare eligibility and therefore less unmet need before age 65. In my preferred specification, specification 2, the coefficient on the interaction term implies that the increase in receipt of cholesterol testing after Medicare eligibility is 2.3 percentage points larger for non-veterans than veterans.

Table 2.4 suggests that there is no statistically significant difference between veterans and non-veterans in their likelihood of going to the doctor. Consistent with the previous literature about health care utilization around the Medicare eligibility age, I do see an increase in doctor visit rates after age 65. The coefficient on the interaction term between veteran status and Medicare eligibility is also statistically insignificant, implying no difference in unmet need between the two groups prior to Medicare eligibility.

Discussion and Conclusion

Using a sample of veterans and non-veterans around age 65, I estimate adequacy using self-reported measures of consumption of preventative services.[50] Preventative care is less confounded by health status than other services such as number of doctor visits or hospitalization. If veterans have more points of access or ways to access care through multiple forms of coverage, I may expect their health care adequacy to be better than that of non-veterans. However, any difference seen in consumption of health care between veterans and non-veterans might be attributed to a difference in tastes, differences in health, or other differences between the two groups. One way to account for differences in taste and health is to examine not only the initial level of care received, but also how much care is received after age 65 when there is near universal eligibility for Medicare.

This paper has three key results: veterans are more likely to consume preventative care than non-veterans, doctor visits and cholesterol tests are more likely to be consumed after Medicare eligibility regardless of veteran status, and veterans have slightly less change in

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[50] Note there are many other changes that happen around age 65 such as the ability to receive discounts and pension eligibility. For most of these changes there is little reason to believe there would be an appreciable difference between veterans and non-veterans. Veterans may have access to special geriatric care through the VA at age 65, but it is not clear that this care would affect receipt of the preventative services examined in this paper.

consumption of preventative care with Medicare eligibility than non-veterans for prostate exams, cholesterol tests, and doctor visits. The evidence about health care adequacy for veterans is mixed. My results suggest veterans may have better adequacy for some forms of preventative care than non-veterans (prostate exams and cholesterol testing). However, veterans and non-veterans are similarly likely to have seen a physician in the last two years.

Given the negative publicity and scandals at the VA, it is encouraging that I do not see less health care utilization from near-elderly veterans compared to non-veterans. It appears that health care adequacy for veterans and non-veterans is comparable for preventative services for those near the Medicare eligibility age and that veterans have better health care adequacy for some forms of preventative services than non-veterans.

One caveat to this study stems from the reliance on survey data. Survey respondents may not remember exactly when or if they received a form of preventative care (recall issues). Furthermore, the nature of the preventative care questions in the HRS, asking if a service has been received in the last two years and asking most preventative care questions every four years makes this data less comprehensive than I would like.

Another caveat is that this paper only examines older veterans and cannot speak to the adequacy of health care for younger veterans, including those who have served in the conflicts since September 11.

Furthermore, I have no proof that health care access for non-veterans is at an ideal level within the population I study (those ages 56-75) even after Medicare eligibility. What is the ideal level for preventative services? Is it that everyone receives these tests and screenings? Or is it that everyone who would like to receive these tests has access to them at an affordable cost? I

use differences in the utilization of health care services to proxy for health care adequacy. Short

of asking individuals if they feel their health care access is adequate or asking other survey

questions about whether or not individuals have delayed care, this is the best way to measure

adequacy.

APPENDICES

APPENDIX E

TABLES

Table 2.1: Summary Statistics for Males Age 56-75

Variables	(1) All Mean	(2) Veterans Mean	(3) Non-veterans Mean
White	0.839	0.886	0.787
Black	0.136	0.0979	0.177
Finished HS	0.755	0.848	0.655
Working	0.514	0.513	0.516
Wealth ($1,000)	124.1 (534.9)	127.5 (486.5)	120.4 (582.5)
Private Health Insurance at 63	0.711	0.737	0.683
Prostate Exam	0.733	0.764	0.699
Cholesterol Test	0.795	0.816	0.772
Doctor Visit	0.915	0.924	0.905
New England	0.0380	0.0428	0.0328
Mid-Atlantic	0.112	0.111	0.113
E.N. Central	0.154	0.154	0.154
W.N. Central	0.0846	0.0861	0.0830
South Atlantic	0.260	0.264	0.255
E.S. Central	0.0658	0.0626	0.0692
W.S. Central	0.108	0.0884	0.129
Mountain	0.0517	0.0598	0.0430
Pacific	0.120	0.125	0.114
Veteran	0.518		
Observations	12,892	6,677	6,215

Table 2.2: Prostate Exams

VARIABLES	(1) Prostate Exam a=10	(2) Prostate Exam a=10	(3) Prostate Exam a=5	(4) Prostate Exam a=5	(5) Prostate Exam FE a=10	(6) Prostate Exam FE a=5
Nonveteran	-0.0359***	-0.0356***	-0.0315**	-0.0312**		
	(0.00982)	(0.00981)	(0.0125)	(0.0124)		
Medicare	0.0169	0.0153	0.0273*	0.0247	0.0177	0.0229
	(0.0118)	(0.0117)	(0.0163)	(0.0162)	(0.0128)	(0.0183)
Nonveteran*Medicare	0.0204*	0.0223*	0.0125	0.0133	0.0326**	0.0139
	(0.0124)	(0.0123)	(0.0152)	(0.0151)	(0.0141)	(0.0166)
Black	0.0258**	0.0297***	0.0423***	0.0434***		
	(0.0105)	(0.0107)	(0.0135)	(0.0135)		
Other Race	-0.105***	-0.103***	-0.115***	-0.125***		
	(0.0213)	(0.0216)	(0.0294)	(0.0297)		
Finished HS	0.149***	0.136***	0.155***	0.141***		
	(0.00902)	(0.00914)	(0.0118)	(0.0120)		
Work		0.00422		-0.00158		
		(0.00710)		(0.00893)		
Age Trend	Quadratic	Quadratic	Quadratic	Quadratic	Quadratic	Quadratic
Wealth		Quadratic		Quadratic		
Census Division Controls		Yes		Yes		
Number of Individuals	22,107	22,107	11,181	11,181	13,012	8,385
R-squared	0.040	0.047	0.036	0.045	0.016	0.011

Robust standard errors in parentheses, except for column 5 and 6
*** p<0.01, ** p<0.05, * p<0.1

Note: a is a window around the Medicare eligibility age. a=10 corresponds to ages 55 to 74. a=5 corresponds to ages 60 to 69. Nonveteran is an indicator variable equal to 1 if the respondent is not a veteran. Medicare is an indicator variable equal to 1 if the respondent is age 65 or older at time of survey. Prostate exam is a binary variable equal to 1 if the respondent indicates they have received a prostate exam in the last 2 years. The corresponding survey question is asked in every other wave of the HRS. Standard errors are clustered at the individual level. For the fixed effects regression, a total of 3,939 unique individuals are included.

VARIABLES	(1) Cholesterol Test a=10	(2) Cholesterol Test a=10	(3) Cholesterol Test a=5	(4) Cholesterol Test a=5	(5) Cholesterol Test FE a=10	(6) Cholesterol Test FE a=5
Nonveteran	-0.0156*	-0.0171*	-0.0123	-0.0123		
	(0.00923)	(0.00923)	(0.0116)	(0.0116)		
Medicare	0.0224**	0.0198*	0.0228	0.0214	0.0245**	0.0165
	(0.0109)	(0.0109)	(0.0151)	(0.0150)	(0.0115)	(0.0166)
Nonveteran*Medicare	0.0196*	0.0226**	0.0135	0.0144	0.00428	0.00467
	(0.0114)	(0.0114)	(0.0140)	(0.0139)	(0.0126)	(0.0150)
Black	-0.0171*	-0.0169	-0.00550	-0.00511		
	(0.0102)	(0.0103)	(0.0126)	(0.0128)		
Other Race	-0.0237	-0.0315	-0.0400	-0.0513*		
	(0.0204)	(0.0208)	(0.0264)	(0.0266)		
Finished HS	0.111***	0.103***	0.107***	0.0993***		
	(0.00843)	(0.00852)	(0.0109)	(0.0110)		
Work		-0.0189***		-0.0235***		
		(0.00664)		(0.00844)		
Age Trend	Quadratic	Quadratic	Quadratic	Quadratic	Quadratic	Quadratic
Wealth		Quadratic		Quadratic		
Census Division Controls		Yes		Yes		
Person-Year Observations	22,097	22,097	11,177	11,177	13,012	8,384
R-squared	0.029	0.035	0.021	0.029	0.049	0.035

Robust standard errors in parentheses, except for columns 5 and 6
*** p<0.01, ** p<0.05, * p<0.1

Note: a is a window around the Medicare eligibility age. a=10 corresponds to ages 55 to 74. a=5 corresponds to ages 60 to 69. Nonveteran is an indicator variable equal to 1 if the respondent is not a veteran. Medicare is an indicator variable equal to 1 if the respondent is age 65 or older at time of survey. Cholesterol test is a binary variable equal to 1 if the respondent indicates they have received a cholesterol test in the last 2 years. The corresponding survey question is asked in every other wave of the HRS. Standard errors are clustered at the individual level. For the fixed effects regression, a total of 3,938 unique individuals are included.

Table 2.4: Doctor Visits

VARIABLES	(1) Doctor Visit a=10	(2) Doctor Visit a=10	(3) Doctor Visit a=5	(4) Doctor Visit a=5	(5) Doctor Visit FE a=10	(6) Doctor Visit FE a=5
Nonveteran	-0.00619	-0.00533	-0.00274	-0.00253		
	(0.00555)	(0.00553)	(0.00671)	(0.00669)		
Medicare	0.0170***	0.0167***	0.0170**	0.0168**	0.0247***	0.0205***
	(0.00566)	(0.00565)	(0.00720)	(0.00719)	(0.00562)	(0.00735)
Nonveteran*Medicare	0.00124	0.00152	-0.00247	-0.00186	-0.00870	-0.00513
	(0.00631)	(0.00629)	(0.00739)	(0.00737)	(0.00621)	(0.00716)
Black	0.00463	0.00756	0.0116	0.0149*		
	(0.00612)	(0.00620)	(0.00749)	(0.00761)		
Other Race	-0.0571***	-0.0510***	-0.0629***	-0.0597***		
	(0.0136)	(0.0136)	(0.0182)	(0.0181)		
Finished HS	0.0573***	0.0546***	0.0651***	0.0617***		
	(0.00538)	(0.00545)	(0.00691)	(0.00698)		
Work		-0.0194***		-0.0189***		
		(0.00373)		(0.00479)		
Age Trend	Quadratic	Quadratic	Quadratic	Quadratic	Quadratic	Quadratic
Wealth		Quadratic		Quadratic		
Census Division Controls		Yes		Yes		
Person-Year Observations	40,735	40,735	21,334	21,334	25,522	16,560
R-squared	0.016	0.020	0.016	0.021	0.006	0.006

Robust standard errors in parentheses, except for column 5 and 6
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Note: a is a window around the Medicare eligibility age. a=10 corresponds to ages 55 to 74. a=5 corresponds to ages 60 to 69. Nonveteran is an indicator variable equal to 1 if the respondent is not a veteran. Medicare is an indicator variable equal to 1 if the respondent is age 65 or older at time of survey. Doctor Visit is a binary variable equal to 1 if the respondent indicates they have been to the doctor in the last 2 years. The corresponding survey question is asked in every wave of the HRS. Standard errors are clustered at the individual level. For the fixed effects regression, a total of 3,943 unique individuals are included.

APPENDIX F

FIGURES

Figure 2.1: Prostate Exams

Figure 2.1 corresponds to the specification in Table 2.A.1 and allows for a quartic age trend Data are from the 1995-2010 waves of the RAND HRS.

Figure 2.2: Cholesterol Tests
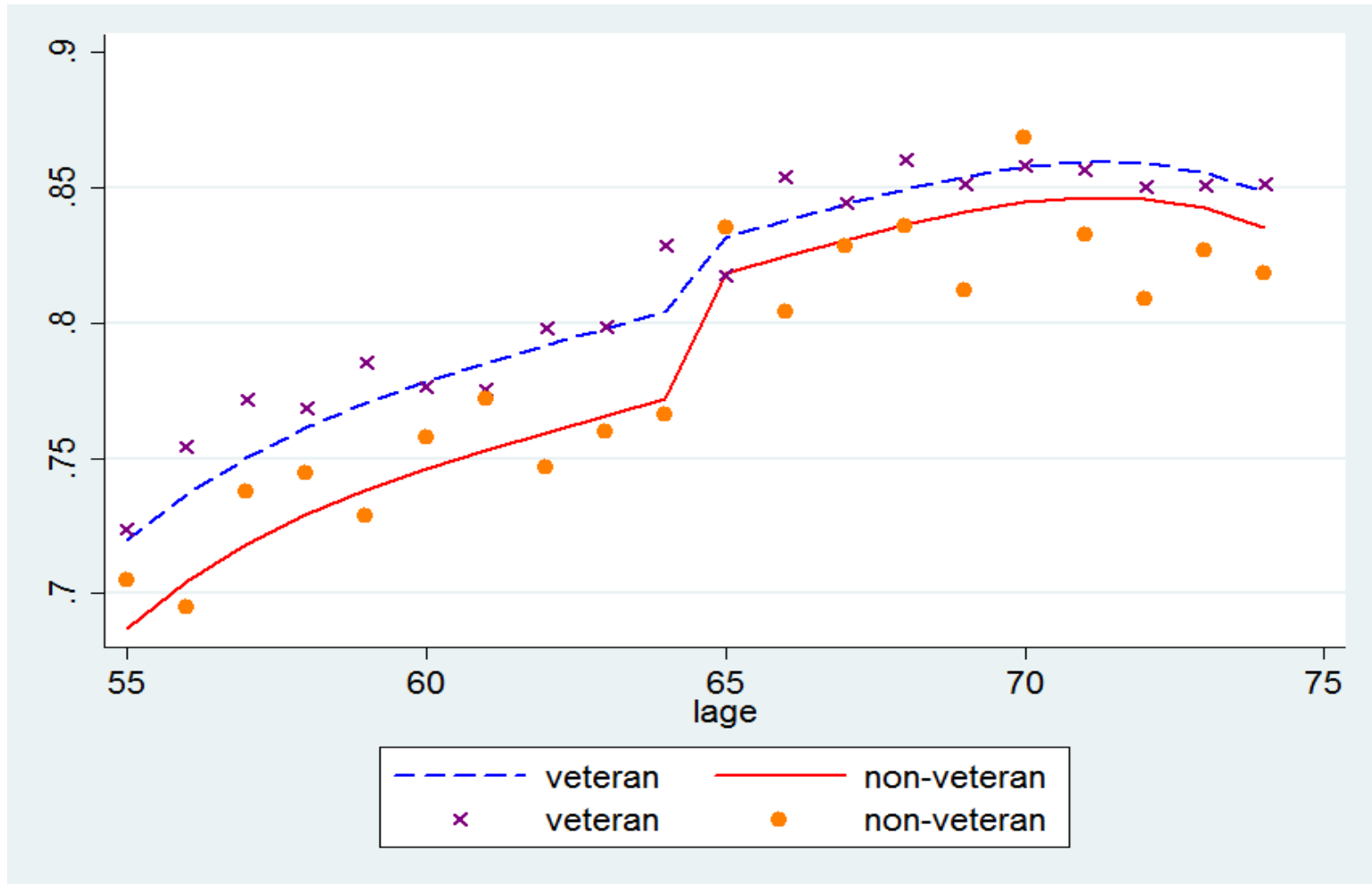
Figure 2.2 corresponds to the specification in Table 2.A.1 and allows for a quartic age trend Data are from the 1995-2010 waves of the RAND HRS.

Figure 2.3: Doctor Visit (Y/N)
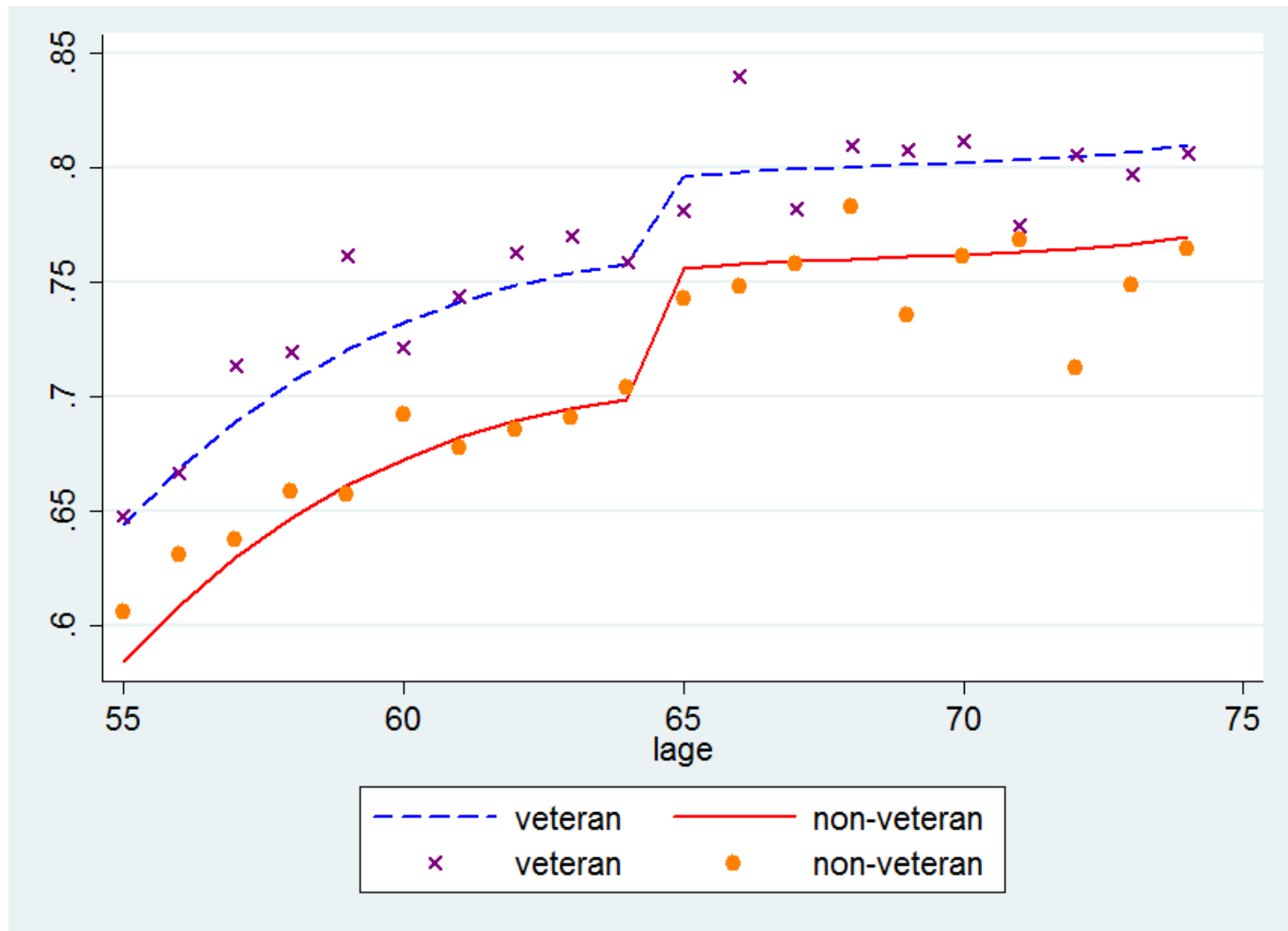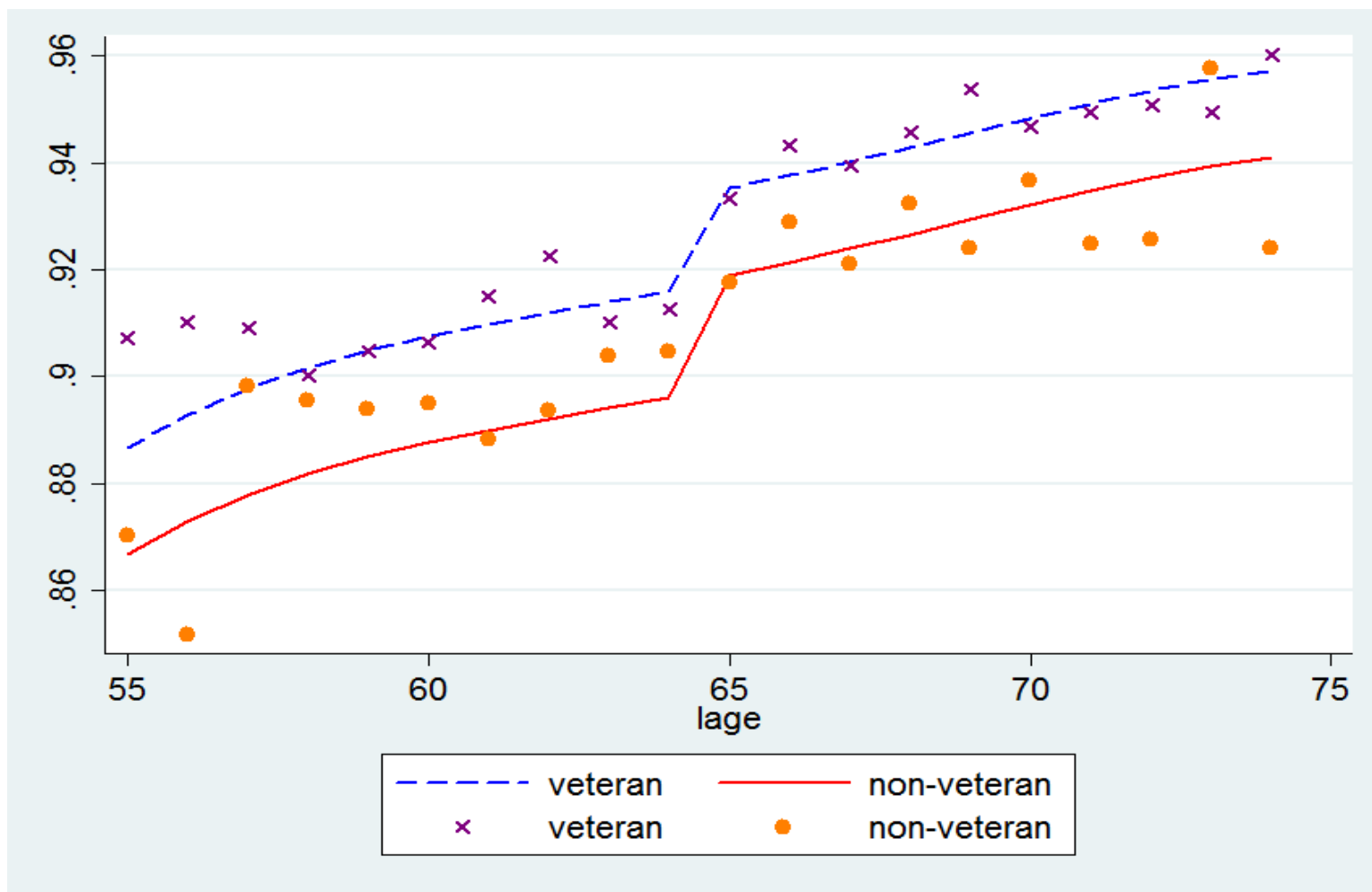

Figure 2.3 corresponds to the specification in Table 2.A.1 and allows for a quartic age trend Data are from the 1995-2010 waves of the RAND HRS.

APPENDIX G

ESTIMATES WITH QUARTIC TIME TREND

Table 2.A.1: Effects with Quartic Time Trends

	Panel 1: Prostate Exam		
	(1) a=10	(2) a=10	(3) a=10 FE
Nonveteran	-0.0358*** (0.00982)	-0.0355*** (0.00981)	
Medicare	0.0348** (0.0154)	0.0332** (0.0153)	0.0218 (0.0166)
Nonveteran*Medicare	0.0203* (0.0124)	0.0222* (0.0123)	0.0326** (0.0141)

	Panel 2: Cholesterol Tests		
Nonveteran	-0.0156* (0.00923)	-0.0171* (0.00923)	
Medicare	0.0212 (0.0141)	0.0205 (0.0141)	0.00766 (0.0149)
Nonveteran*Medicare	0.0199* (0.0114)	0.0229** (0.0114)	0.00404 (0.0127)

	Panel 3: Doctor Visit		
Nonveteran	-0.00621 (0.00555)	-0.00536 (0.00553)	
Medicare	0.0188*** (0.00680)	0.0186*** (0.00680)	0.0249*** (0.00691)
Nonveteran*Medicare	0.00132 (0.00632)	0.00160 (0.00630)	-0.00874 (0.00622)

Note: specifications 1 and 2 include race controls and education controls. Specification 2 includes working control, household wealth, and census division controls. Specification 3 Estimates a Fixed Effect. All specifications use a quartic age trend.

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CHAPTER THREE

OLDER VETERANS' HEALTH INSURANCE, ACCESS PATTERNS, AND THE VA

Introduction

The aging of the population and rising health care costs are very real concerns in the

United States. Although much research has examined how near-universal health care at the

Medicare eligibility age affects the consumption patterns of health care among older Americans

(Card et al. (2008), McWilliams et al. (2003)) and how having access to both VA and Medicare

affects quality of care (Wolinsky et al. (2006)), little research has examined veteran insurance

status at older ages before Medicare eligibility. One exception is Haley & Kenney (2012), who

look at this issue using the American Community Survey (ACS).[51]

Veterans may consume health care at the U.S. Department of Veterans Affairs

(VA/VHA) or through the same points of access as non-veterans. The literature is relatively

silent on how veterans at older ages split their health care consumption between the VA and

other sources of health care services.[52] This issue is important when considering potential

reforms to the VHA system and forecasting health care costs.

This paper uses the Health and Retirement Study (HRS) to examine how veterans

between the ages of 50 and 79 are insured, how this source of insurance varies with age, and

where they get their health care. To examine how veterans are insured, I look at veteran

responses to the 2010 wave of the HRS. I then use HRS waves from 1995/1996-2010 to look at

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[51]The ACS treats the VA as a form of health insurance. One contribution of this paper is that the data allow me to abstain from treating VA access as a form of health insurance and to examine VA usage as a separate issue from insurance access.

[52] One exception is Fang et al (2015).

health insurance status across ages. I am able to compare how insurance coverage for veterans compares to that of non-veterans.[53] I then utilize the Veterans Mail Survey (VMS) module administered in 2013 within the HRS to examine where a subset of these veterans go for health care services, and what factors correlate with receiving health care services at various providers.

Institutional Details

Veterans can receive health insurance from several different sources. Military retirees can continue to be insured through military-provided health insurance, CHAMPUS/TRICARE (hereafter referred to as TRICARE).[54] Veterans, like nonveterans, also may receive private insurance through their employer or their spouse's employer. They may also receive Medicaid or Medicare if they qualify. Many veterans also have access to the Veterans Health Administration (VHA or VA), which is not a form of health insurance, but rather a network of access. A veteran may be required to pay premiums for care received at a VA facility depending on their income level.

How veterans are insured is one factor that impacts where a veteran receives care. Depending on the density of physicians or facilities that accept a veteran's insurance plan and the deductibles and copays, VA care may seem more or less appealing to a veteran. For uninsured veterans, VA care may be especially appealing. On the other hand, sometimes the VA has long wait times or may not be geographically convenient to the veteran. In these cases, VA care would be less appealing. Furthermore, not all veterans are eligible to receive VA care. VA eligibility is determined by VA disability status and income.

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[53] The 2010 version of the HRS is used to avoid the changes in the insurance market that occurred as a result of the Patient Protection and Affordable Care Act (PPACA).

[54] In order to be a military retiree, generally a veteran has to have twenty years of military service or be medically retired. Occasionally service members are offered early retirement with health care benefits when force structure issues require such incentives.

Data

The HRS is a longitudinal survey with a nationally representative sample sponsored by the National Institute of Aging and the Social Security Administration that began as two separate surveys, HRS and AHEAD in 1992 and 1993. Waves of the survey are conducted every two years. The HRS surveys both the respondent and their spouse on a wide variety of topics related to aging. Among the many topics covered in the survey are household finances, cognitive ability, health care consumption, and insurance status. The HRS is refreshed with new cohorts to maintain a nationally representative sample of the population over the age of 50. For this paper I will include data from the 1995/1996 wave through the 2010 wave.

Along with the core HRS survey administered biennially, the HRS also administers off year modules. These modules focus on a specific topic and often are sent to a subsample of the HRS sample. In 2013, the HRS administered an off-year module known as the Veteran Mail Survey (VMS). The VMS asks a wide variety of questions of veterans. Many of these questions establish if the veterans are using the VA and ask about quality of VA care. The survey also asks why veterans are not using VA services and asks veterans to compare the quality of VA services to the services they receive outside of the VA network.

The HRS has several advantages for looking at how veterans are insured and where they receive care. Administrative data from the VA only records veterans that use the VA. It also does not provide any information on care received outside the VA. The VA administers its own survey of veterans, the VA Survey of Veteran Enrollees' Health and Use of Health Care, that

looks at similar topics to those covered in this paper.[55] Unlike this survey, the HRS allows for comparisons between veterans and non-veterans.

The rest of this paper proceeds as follows. First I will discuss how veterans are insured. Next I will examine how their source of insurance varies by age and compares to non-veterans. Finally I will look at where veterans are getting their care and what factors are correlated with receiving care inside the VA, outside of the VA, and abstaining from care.

How Are Veterans Insured?

Veterans may receive private insurance, government insurance, both, or neither. For this section, I will focus on the 2010 wave of the HRS. Summary statistics for veterans in this wave can be found in column 2 of Table 3.1. Consistent with previous literature such as Morgan et al. (2005), the veterans in my sample are more likely to be male, white, and have higher household wealth. They are also more likely to have finished high school and report working.

It is important to consider how or why a veteran is eligible for the insurance they have. For private insurance, a person can be insured through their own employer, previous employer, or, if married, a spouse's employer or previous employer. Government insurance also comes from different sources of eligibility. Those who are below a certain income threshold or have certain disabilities are eligible for Medicaid. Those who are over age 65 or have certain disabilities are eligible for Medicare. Military retirees are eligible to receive TRICARE.

Columns 1 and 2 of Table 3.2 shows what percentage of veterans responding to the 2010 wave of the HRS report having government insurance and private insurance before and after age

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[55] The VHA has been administering this survey since 1999. The most recent report for this survey available is 2015 and can be accessed at http://www.va.gov/healthpolicyplanning/analysis.asp (Last accessed July 28, 2016)

65. Columns 3 and 4 provide the same information for non-veterans from the 2010 wave for comparison.

Private insurance can come from a respondent's own employer or their spouse's employer.[56] Veterans are slightly less likely to report private insurance prior to age 65 than non-veterans (61.2% compared to 64.9%). After age 65 veterans are more likely to report private insurance access (51.7% compared to 47.2%). Veterans are more likely to report private insurance through their own employer than non-veterans both before (46.9% compared to 42.4%) and after age 65 (27.6% compared to 16.6%). They are less likely to report private insurance through a spouse's employer before (11.6% compared to 18.2%) and after age 65 (5.3% compared to 11.7%).

Government insurance includes Medicare, Medicaid, and TRICARE. Veterans are more likely than non-veterans to have government insurance. Prior to age 65, 34.4% of veterans report having government insurance, compared to just 17.2% of non-veterans. There is a large increase in government insurance receipt for those over the age of 65 regardless of veteran status because of Medicare eligibility. Veterans are less likely to report receiving Medicaid (about 5% for veterans compared to about 10% for non-veterans) both before and after age 65. The rate of Medicaid receipt is relatively stable across age 65. About 23.4% of veteran respondents below age 65 report having TRICARE. After Medicare eligibility, this decreases to 16.5%. A small number of non-veterans report having access to TRICARE. These are likely the spouses of military retirees who have TRICARE coverage through their spouse.

In order to determine how these various sources of insurance are associated with factors

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[56] Self-employed veterans who provide their own insurance are considered to have insurance through their employer.

such as race, educational attainment, and self-reported health, I show estimates from an OLS regression of the sources of health insurance on a set of characteristics, separating veterans into under 65 and 65 and older. The results for sources of private insurance are presented in Table 3.3. The results for government insurance are presented in Table 3.4.

Columns 1 and 2 of Table 3.3 examine the determinants of private health insurance for veterans before and after age 65. Generally, being male, finishing high school, having more wealth, and working is positively correlated with private health insurance, regardless of age. Working is more positively associated with private insurance prior to age 65. Columns 3 and 4 look at the determinants of a veteran having insurance through their own employer. For veterans under the age of 65, not surprisingly, having insurance through their own employer is strongly and positively associated with working. Columns 5 and 6 look at insurance through a spouse's employer. Being female is positively associated with a veteran having health insurance through a spouse's employer after age 65.

Table 3.4 examines government provided health insurance. This table looks at all government insurance, then further breaks government insurance down into Medicaid, TRICARE, and early recipients of Medicare. Columns 1 and 2 look at all government health insurance. For veterans under the age of 65, finishing high school is negatively associated with government insurance. Working is also strongly negatively associated with government insurance. When government insurance is broken down into Medicaid, TRICARE, and Medicare some differences in determinants emerge. Being a black veteran is positively associated with both Medicaid and TRICARE, regardless of whether they are above or below age 65. Finishing high school is negatively associated with Medicaid and early Medicare receipt, but has no

statistically significant association with TRICARE receipt. Medicaid, TRICARE, and early Medicare receipt are all negatively associated with working.

How Do Veterans' Sources of Insurance Vary with Age?

The data for this section comes from waves 3 through 10 (1995/1996-2010) of the core HRS. The data are treated as a cross-section. Veterans may have different insurance trajectories than their civilian counterparts due to different labor market outcomes, different educational attainment, or disability as a result of service. Summary statistics for this sample by veteran status are in Table 3.5. As when looking only at wave 10, veterans in this expanded sample are more likely to be male, more likely to be white, and more wealthy than non-veterans. They are also more likely to have finished high school and to report working.

Figure 3.1 shows how private insurance status varies with veteran status by age. The vertical line indicates age 65 when most individuals become Medicare eligible. Veterans near age 65 are more likely (about 10 percentage points) to have access to private insurance than nonveterans. Previous literature has shown that this age group is the most likely to not have health care access (Card et al., 2008). Veterans are also more likely to maintain access to private insurance after Medicare eligibility. This could be employer provided health insurance or a privately purchased Medicare supplement or wraparound plan.

Figure 3.2 examines what percentage of respondents report having government insurance. Included in this category are Medicare, Medicaid, and TRICARE. Prior to age 65, veterans are approximately 3 percentage points more likely to report having government insurance access. Examining Figure 3.2, I see a convergence in government insurance coverage for both groups after age 65. This is because there is near-universal coverage by Medicare at age 65.

Figure 3.3 shows the percentage of veterans that have TRICARE at each age. This is health care available to military retirees and their dependents. Figure 3.3 does not seem to have a discernible pattern of coverage for those under the age of 65. It appears as veterans age beyond Medicare eligibility, they are less likely to report military insurance. Less than 25% of veterans at any age report having TRICARE. Retiring from the military requires twenty years of service, and many service members do not stay in the service long enough to retire.

Where Do Veterans Get Health Care, if They Get Health Care?

Veterans can go to the same doctors as non-veterans. They also have the option to go to the VA or to not go to the doctor at all. Table 3.1 columns 3 and 4 compare the veterans who responded to the 2013 Veterans Mail Survey to non-respondent veterans in the sample in 2010 to look for selection bias in response to the off-year module. Module respondents are more likely to be white, more highly educated, more likely to report some kind of health insurance, and wealthier compared to those veterans who do not respond to the off year module. Previous research demonstrates that blacks are more likely to rely on the VA for medical care (Fang et al., 2015). If those without insurance are more likely to utilize VA services or avoid care, there is some concern that the VMS is missing respondents most likely to utilize the VA or go without care.

The VMS asks respondents about where they have received care in the last two years. Respondents may fall into one of four categories: received no care in the last two years, VA only care in the last two years, non-VA care only in the last two years, or both VA and outside of VA care in the last two years.

I assign respondents to these categories by their responses to questions in the VMS module. Those who respond yes to the question, "Do you receive all of your health care services from the VA?" are assigned to the VA only group. The other categories are based on responses to the questions, "Have you obtained medical care or prescription drugs from a Veterans Affairs (VA) facility in the last two years?" and "Have you obtained any health care services from non-VA providers in the last two years?"

Among respondents to the VMS who answered all questions about sources of care, 15.5% of veterans report that they have not used VA or non-VA facilities in the last two years. 19.8% report using the VA for all of their health care. 78.8% report using only care outside of the VA system. 21.3% report using both the VA and health care services outside the VA. Table 3.6 provides summary statistics for these four groups. Those who use no care are more likely to report having excellent health (6.75%), very good health (28.7%), or good health (34.6%) than those in other groups. Among veterans who use VA only, they are more likely to be black (28.4%). They are also more likely to have TRICARE (48.6%) and report fair or poor health than other groups. Those who use only non-VA care are the most likely to have private insurance (67.6%) and have the highest household wealth. Those veterans who utilize both VA and non-VA care are the group most likely to report having Medicare (78.2%).

In Table 3.7, I show results from a linear regression of the veterans' usage group (no care, VA only, VA and non-VA, and non-VA only) on the respondent's demographic characteristics, insurance status, and Medicare eligibility in 2010 to examine what demographic factors correlate with the four types of usage. I also included self-reported measures of health collected during the VMS.

Veterans who report that they received neither VA services nor non-VA services in the

last two years are examined in column 1 of Table 3.7. Medicaid participation is positively correlated (coefficient 0.11) with receiving no care in the last two years. TRICARE participation is negatively associated (coefficient -0.113) with receiving no care. Being married is also negatively correlated with having received no care. Fair and poor self-reported health is negatively associated with no care. These results imply that many of those who receive no care still enjoy good health. Furthermore, those who have access to TRICARE are likely to receive some form of care.

Column 2 shows the determinants of those who receive care exclusively through the VA. Being black is positively associated (coefficient .0975) with a veteran using VA for all of their care. Private health insurance is negatively correlated with using the VA for all health care (coefficient -0.108), implying that those who have some coverage for health services outside of the VA are less likely to use only the VA. Medicare eligibility is also negatively associated with using the VA for all care. Having TRICARE is positively correlated with using the VA for all care. Since some VA facilities are TRICARE providers, this is not surprising. Being married, working, and more wealth are all negatively correlated with using only the VA for health care.

Many veterans use both VA care and non-VA care. Column 3 of Table 3.7 examines this group. Being black is positively correlated with using both VA care and non-VA care. Medicare and TRICARE access are also positively correlated with using both VA care and non-VA care. Excellent and very good self-reported health, wealth, and working are negatively correlated with using both VA and non-VA care.

The majority of veterans report using exclusively non-VA care. This group is examined in column 4 of Table 3.7. Being white is positively associated with using only non-VA care.

Being married is associated with a 12.1% increase in the probability of utilizing only non-VA care. Being male is negatively associated (-0.126) with utilizing only non-VA care.

The VMS questions provide further opportunities to look at patterns of usage of the VA. Veterans who report having a VA disability rating are more likely to report using the VA in the last two years. 69.6% of veterans with a disability rating used VA services. However, most of those who report using the VA (53.6%) do not have a disability rating. 191 of these 543 individuals who used VA services articulated what services they used at the VA. The most used VA service was outpatient care, such as doctor visits, with 95 individuals (about 50% of respondents) reporting using the VA for outpatient care. The next most used services were prescription drug services (77 individuals, or about 40%), hearing aids/audiology (58 individuals), eye care (50 individuals), and emergency room services (43 individuals). Mental health services were utilized by 21 of the respondents. Most individuals report using more than one VA service.

Another factor that must be considered is how many of those surveyed are eligible to go to the VA if they so choose. By looking at those who report being eligible and those who received services (and therefore are clearly eligible), 819 of the 1,871 veterans (43.7%) surveyed self-report eligibility for VA services and 218 report receiving all of their health care through the VA (11.6%). Many veterans do not know about the state of their eligibility. 557 of the 1,871 veterans (30%) do not know if they are eligible to receive services at the VA.

The number of veterans who do not use VA care or do not know their eligibility status is surprising. When asked why they do not use the VA for all of their care, the most common reason veterans give is that they have other coverage. 162 respondents give this reason. Other

reasons for utilizing care outside of the VA system include not eligible or denied coverage (39 respondents), long VA wait times (30 respondents), the VA being too far away (28 respondents) and preferring non-VA facilities and services (20 respondents). These descriptive results are not out of line with what one might expect. Many of the negative news stories about VA care revolve around long VA wait times and long travel distances to the nearest VA (Bronstein & Griffin, 2014).

While the number of veterans utilizing the VA may be lower than expected, this does not necessarily mean veterans are going without care. As shown above, veterans have relatively good access to health insurance. 1,303 respondents (70% of respondents) report receiving care outside of the VA system. The most common kind of care received by the 393 respondents who articulated the type of care they received outside of the VA system is outpatient visits to the doctor. 301 individuals report such visits. The next most common types of care that veterans seek outside of the veteran system are prescriptions (241 respondents), eye exams (173 respondents), hospitalization (145 respondents), and emergency room visits (99 respondents). Less common services veterans report receiving outside of the VA system are physical therapy (81 respondents), dental services (21 respondents), audiology services (15 respondents), and the least common is mental health services (12 respondents).

Conclusion

This paper examines how veterans are insured. The HRS allows for a comparison of insurance trajectories between veterans and nonveterans. Wealthier, white, and more highly educated veterans are more likely to have access to insurance. Minority veterans with less wealth who are not working are more likely to report having TRICARE. Regardless of source of

insurance, veterans are more likely than nonveterans to have access to some form of insurance prior to Medicare eligibility. Not only are veterans more likely to be insured than nonveterans prior to Medicare eligibility, they also may have access to the VA.

Some veterans do not know if they are eligible to receive services at the VA. Many veterans report that their main reason for not using the VA is that they have other coverage. At the same time, there are a number of older veterans (19.8% of VMS respondents) who report receiving all of their care through the VA. The factors that make a veteran likely to utilize VA care include disability, being black, having less wealth, being less educated, and being out of the labor force. Any reform to the VA health care system would need to consider the potential effect of veterans' utilization of health care both inside and outside of the VA system.

APPENDICES

APPENDIX H

TABLES

Table 3.1: Veteran Summary Statistics for 2010 Wave and By Module Response

VARIABLES	(1) Non-veterans Mean (sd)	(2) All Veterans Mean (sd)	(3) Veterans not in 2013 Module Mean (sd)	(4) Veterans in 2013 Module Mean (sd)
Male	0.301	0.957	0.955	0.960
White	0.723	0.813	0.777	0.853
Black	0.202	0.155	0.187	0.119
Age	64.60 (11.83)	70.73 (10.92)	70.79 (11.64)	70.67 (10.05)
Finished HS	0.769	0.860	0.836	0.886
Married	0.559	0.682	0.650	0.718
Work	0.423	0.334	0.321	0.348
Private Insurance	0.613	0.589	0.575	0.604
Government Insurance	0.539	0.776	0.762	0.792
Medicare	0.495	0.700	0.685	0.718
Household Wealth ($1,000)	101,939 (448,193)	147,005 (535,232)	131,613 (564,712)	164,365 (499,485)
Observations	17,563	3,858	2,045	1,813

Data from 2010 wave of the HRS

Table 3.2: Source of Insurance

VARIABLES	(1) Veteran Under 65 Mean (sd)	(2) Veteran Over 65 Mean (sd)	(3) Non-Veteran Under 65 Mean (sd)	(4) Non-Veteran Over 65 Mean (sd)
Private Insurance	0.612	0.517	0.649	0.472
Own Employer	0.469	0.276	0.424	0.166
Spouse's Employer	0.116	0.0534	0.182	0.117
Government Insurance	0.344	0.976	0.172	0.968
Medicaid	0.0525	0.0515	0.100	0.119
Medicare	0.117	0.970	0.0939	0.963
TRICARE	0.234	0.165	0.0145	0.0422
Observations	1,219	2,582	9,509	7,919

Author's calculations from waves 10 of the RAND HRS.

Table 3.3: Correlates to Private Health Insurance for Veterans

VARIABLES	(1) Private Insurance Under 65	(2) Private Insurance 65 and Older	(3) Own Insurance Under 65	(4) Own Insurance 65 and Older	(5) Spouse Insurance Under 65	(6) Spouse Insurance 65 and Older
Male	0.0888*	-0.0176	0.0503	0.0558	0.00845	-0.139***
	(0.0465)	(0.0625)	(0.0489)	(0.0569)	(0.0334)	(0.0290)
Age	0.0104***	0.00242*	0.00699**	0.000378	0.00133	-0.00204***
	(0.00266)	(0.00144)	(0.00279)	(0.00131)	(0.00191)	(0.000669)
Black	-0.122***	-0.0864**	-0.0319	0.0320	-0.0663***	0.0196
	(0.0283)	(0.0336)	(0.0297)	(0.0306)	(0.0203)	(0.0156)
Other Race	-0.128**	-0.294***	-0.0927*	-0.153**	0.00442	-0.0445
	(0.0501)	(0.0752)	(0.0524)	(0.0686)	(0.0358)	(0.0350)
Finished HS	0.138***	0.146***	0.0957*	0.108***	0.0382	0.0182
	(0.0475)	(0.0257)	(0.0500)	(0.0234)	(0.0342)	(0.0119)
Household Wealth	5.44e-05**	6.51e-05***	5.26e-05**	2.79e-05	-2.21e-06	-3.63e-06
($1,000)	(2.26e-05)	(1.86e-05)	(2.36e-05)	(1.71e-05)	(1.61e-05)	(8.73e-06)
Work	0.363***	0.0700***	0.358***	0.0366	0.0377**	-0.000435
	(0.0257)	(0.0247)	(0.0270)	(0.0224)	(0.0184)	(0.0114)
Observations	1,316	2,667	1,308	2,629	1,312	2,629
R-squared	0.175	0.032	0.137	0.014	0.015	0.015

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Data restricted to veterans who responded to questions in wave 10 of the RAND HRS

Table 3.4: Correlates to Government Health Insurance for Veterans

VARIABLES	(1) Gov. Insurance Under 65	(2) Gov. Insurance 65 and Older	(3) Medicaid Under 65	(4) Medicaid 65 and Older	(5) TRICARE Under 65	(6) TRICARE 65 and Older	(7) Medicare Under 65
Male	-0.0904*	0.0124	-0.00682	0.0380	-0.0808*	0.00465	0.0370
	(0.0474)	(0.0193)	(0.0228)	(0.0276)	(0.0439)	(0.0470)	(0.0353)
Age	0.0104***	0.00149***	-0.00225*	0.000450	0.00202	-0.00360***	0.0129***
	(0.00270)	(0.000446)	(0.00130)	(0.000640)	(0.00250)	(0.00108)	(0.00202)
Black	0.136***	-0.00543	0.0587***	0.0992***	0.0948***	0.0922***	0.0190
	(0.0288)	(0.0104)	(0.0139)	(0.0149)	(0.0267)	(0.0253)	(0.0215)
Other Race	0.0940*	0.00370	0.0538**	0.0523	0.0283	0.0358	0.0224
	(0.0511)	(0.0235)	(0.0246)	(0.0335)	(0.0470)	(0.0572)	(0.0379)
Finished HS	-0.114**	0.00839	-0.0694***	-0.0711***	0.0581	0.0138	-0.0944***
	(0.0485)	(0.00797)	(0.0233)	(0.0115)	(0.0449)	(0.0194)	(0.0361)
Household Wealth	-2.06e-05	4.28e-06	-7.17e-06	-2.25e-05***	-1.46e-05	-3.37e-06	-5.32e-06
($1,000)	(2.29e-05)	(5.76e-06)	(1.10e-05)	(8.32e-06)	(2.12e-05)	(1.40e-05)	(1.71e-05)
Work	-0.308***	-0.0323***	-0.0973***	-0.0224**	-0.0845***	-0.0683***	-0.277***
	(0.0261)	(0.00766)	(0.0126)	(0.0110)	(0.0242)	(0.0186)	(0.0195)
Observations	1,310	2,657	1,309	2,627	1,310	2,655	1,310
R-squared	0.145	0.016	0.075	0.042	0.025	0.013	0.197

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Data restricted to veterans who responded to questions in wave 10 of the RAND HRS

Table 3.5: Summary Statistics for Veterans and Non-Veterans Waves 3 Through 10

VARIABLES	(1) Veterans Mean (sd)	(2) Non-Veterans Mean (sd)
Male	0.975	0.316
Age	62.68 (6.143)	61.85 (6.262)
White	0.798	0.643
Black	0.181	0.307
Finished HS	0.728	0.552
Work	0.204	0.166
Wealth (in $1,000)	52.31 (269.0)	36.23 (403.5)
Private Health Ins.	0.454	0.379
Gov. Health Ins.	0.819	0.785
TRICARE	0.158	0.0220
Observations	2,784	11,566

Author's calculation using data from waves 3 through 10 of the RAND HRS. Veteran status identified by the answer to the question, "Have you ever served in the active military of the United States?"

Table 3.6: Summary Statistics by Source of Care

VARIABLES	(1) No Care (sd)	(2) VA Only (sd)	(3) Both VA and Non-VA (sd)	(4) Non-VA Only (sd)
Male	0.966	0.942	0.968	0.956
Black	0.131	0.284	0.153	0.0739
Other Race	0.0675	0.0577	0.0265	0.0168
Finished HS	0.865	0.851	0.882	0.915
Household Wealth ($1,000)	147.7 (358.7)	38.87 (133.1)	123.1 (302.9)	190.1 (535.0)
Married	0.671	0.495	0.737	0.770
Work	0.359	0.284	0.265	0.403
Private Insurance	0.624	0.284	0.540	0.676
Medicaid	0.0717	0.0529	0.0383	0.0280
Medicare	0.717	0.500	0.782	0.714
TRICARE	0.0506	0.486	0.398	0.122
Excellent Health	0.0675	0.0337	0.0206	0.0560
Very Good Health	0.287	0.111	0.189	0.289
Good Health	0.346	0.308	0.333	0.319
Fair Health	0.122	0.356	0.245	0.157
Poor Health	0.0295	0.0865	0.0737	0.0459
Observations	237	208	339	893

Data are restricted to veterans in the 2010 wave of the HRS who responded to questions about source of care in the 2013 VMS.

Table 3.7: Correlates of VA Usage

VARIABLES	(1) No Care	(2) VA Only	(3) Both VA and Non-VA	(4) Non-VA Only
Male	0.0415	-0.0179	0.0204	-0.126**
	(0.0468)	(0.0611)	(0.0522)	(0.0635)
Over 65	0.0424*	-0.182***	0.0494**	0.0228
	(0.0217)	(0.0264)	(0.0242)	(0.0299)
Black	0.0487	0.0975***	0.0734**	-0.175***
	(0.0300)	(0.0328)	(0.0334)	(0.0435)
Other Race	0.238***	0.0578	0.00934	-0.314***
	(0.0553)	(0.0637)	(0.0617)	(0.0762)
Finished HS	-0.0399	-0.0231	-0.0127	0.0604
	(0.0302)	(0.0335)	(0.0337)	(0.0429)
Household Income	-6.74e-06	-6.79e-05	-3.70e-05*	4.05e-05
($1,000)	(2.01e-05)	(4.32e-05)	(2.24e-05)	(2.59e-05)
Married	-0.0418**	-0.110***	0.0258	0.121***
	(0.0209)	(0.0248)	(0.0233)	(0.0288)
Work	-0.00142	-0.0527**	-0.0455**	0.0346
	(0.0207)	(0.0260)	(0.0231)	(0.0283)
Private Insurance	0.00220	-0.108***	0.0105	0.0364
	(0.0169)	(0.0202)	(0.0188)	(0.0236)
Medicaid	0.110**	-0.0733	0.0137	-0.0123
	(0.0499)	(0.0580)	(0.0556)	(0.0710)
TRICARE	-0.133***	0.116***	0.292***	-0.0463
	(0.0237)	(0.0251)	(0.0264)	(0.0378)
Excellent Health	0.0600	-0.0118	-0.135**	-0.0656
	(0.0474)	(0.0667)	(0.0528)	(0.0623)
Very Good Health	0.00699	-0.0565	-0.0691**	0.00387
	(0.0302)	(0.0392)	(0.0337)	(0.0415)
Good Health	-0.00444	-0.00760	-0.0181	-0.0180
	(0.0291)	(0.0364)	(0.0324)	(0.0405)
Fair Health	-0.0686**	0.0894**	0.0305	-0.00614
	(0.0326)	(0.0393)	(0.0364)	(0.0466)
Poor Health	-0.0830*	0.0597	0.0743	0.0695
	(0.0475)	(0.0521)	(0.0530)	(0.0699)
Observations	1,560	1,072	1,560	1,221
R-squared	0.053	0.196	0.108	0.069

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

All care from the VA assigned from the answer to the question "Do you receive all of your health care services from the VA?" Both care assigned to those who respond yes to both "Have you obtained medical care or prescription drugs from a Veterans Affairs (VA) facility in the last two years?" and "Have you obtained any health care services from non-VA providers in the last two years?" No care is all veterans who answer both of the previous questions "no."

APPENDIX I

FIGURES

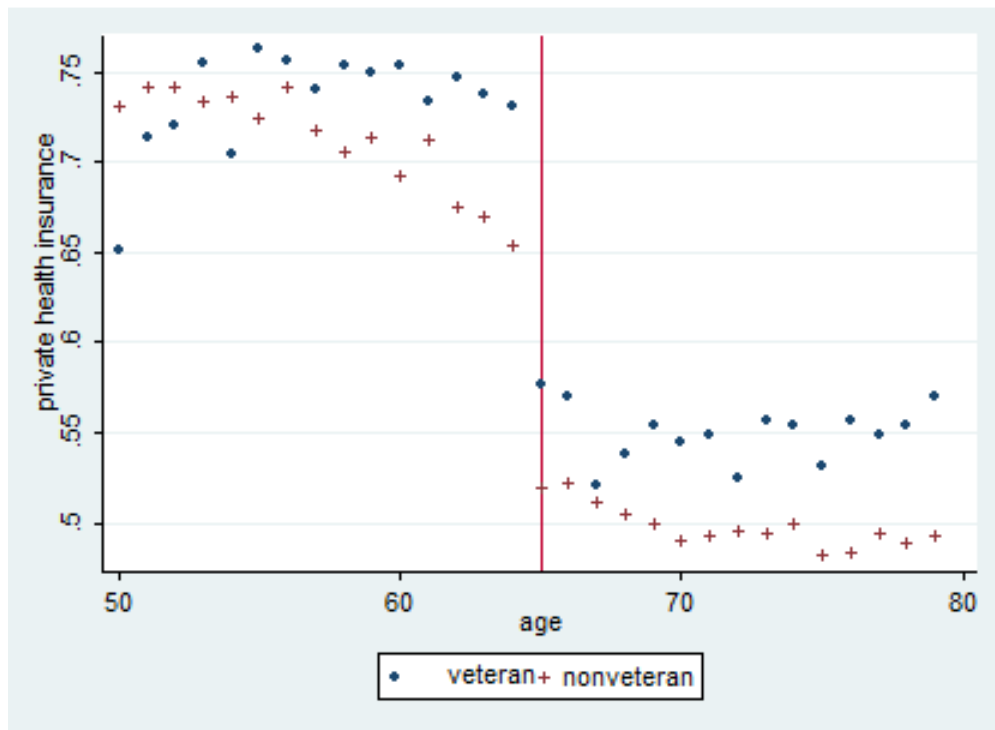**Figure 3.1: Private Health Insurance by Veteran Status**

Figure created by author using data from waves 3 through 10 of the HRS.

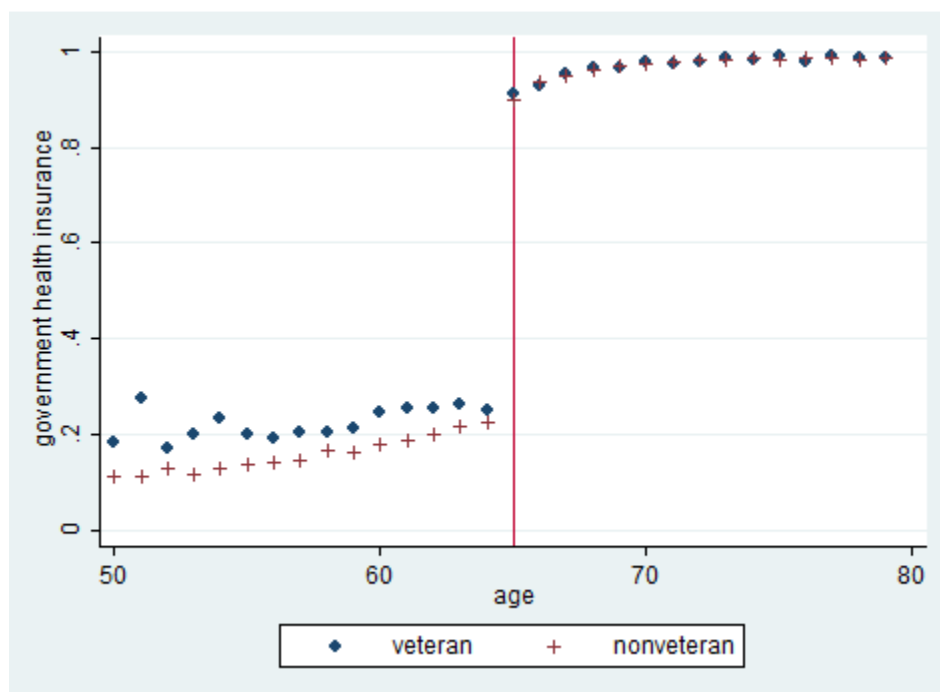**Figure 3.2: Government Provided Health Insurance by Veteran Status**

Figure created by author using data from waves 3 through 10 of the HRS.

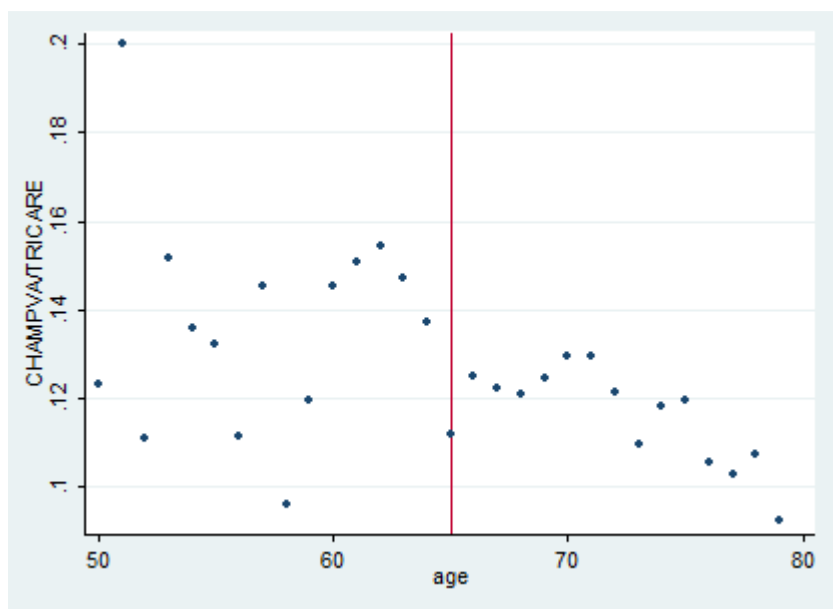**Figure 3.3: Veterans Reporting CHAMPUS/CHAMPVA/TRICARE**

Figure created by author using data from waves 3 through 10 of the HRS.

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