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

Amanda C. Stype

This paper examines whether a policy change that required retiring married service members to obtain spousal permission 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 Plan. Using administrative data on military retirees, I find that those retiring after the enactment of the policy are approximately 7 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.

Keywords: military retirement, survivor annuity, default change
JEL Codes: N42, H55, D19

I. 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, Under Secretary 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

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.

Amanda C. Stype: Department of Economics, Miami University, Oxford, OH, USA (stypeac@miamioh.edu)
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 consumption levels in retirement (Hamermesh, 1984; Banks, Blundell, and Tanner, 1998). Moreover, military spouses move frequently due to the nature of military service, negatively affecting their earnings potential (Hosek et al., 2002). Taken together, these survivor benefits are likely to represent a significant portion of a surviving spouse’s resources.

Third, understanding the effect of this change in the law can contribute to our understanding of pension policies. Several studies find that seemingly minor program design changes to the default option for pension and 401(k) plans make a large difference in people’s behavior at the time of the decision (Carroll 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.

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 II provides institutional details for SBP and a brief literature review. Section III 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. Section IV discusses the data. Section V tests the model from Section III, 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 VI discusses the results and concludes.

II. INSTITUTIONAL DETAILS AND LITERATURE REVIEW

A. Institutional Details

While many people serve in the military, not all veterans receive military pensions. To be vested in the military’s retirement plan, a non-disabled service member must have 20 years of service. At the time of retirement, military retirees begin to receive retirement

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2 Data availability makes studying the effect of REA on annuity elections difficult; as a result, only a few studies look specifically at REA.
Changing the Opt Out Procedure for the Military Survivor Benefit Plan

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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 50 percent of final basic pay if the service member retires at 20 years of service. The percentage increases by 2.5 percentage points for every year of service beyond 20 years, not to exceed 75 percent of final basic pay (Department of Defense, 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. 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 contribution to SBP increases monotonically with the chosen base amount. There are multiple types of beneficiaries the service member can select including spouses, children, and other insurable interests. This paper focuses on those eligible to enroll in spousal coverage. For details on coverage for beneficiaries other than spouses, see Appendix B.

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 age 62 at which point the survivor benefit is augmented by Social Security receipt. In 1985, this reduction was simplified so that all beneficiaries over age 62 receive 35 percent of the base amount as SBP (Department of Defense, Office of the Actuary, 2005). SBP covers the service member’s beneficiary spouse regardless of how long the beneficiary lives. 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. 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. Even with the subsidy for SBP, enrollment is not always the best option for a household. For example, if the household has private information that the life

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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.

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, enrollment for spouses was originally intended to be subsidized at a rate of 40 percent. My calculations show a lower rate of subsidization. However, my calculations are based on means and not a distribution.
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. 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 change in the law 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 (Donovan, 1985).^8

B. Literature Review

My paper is uniquely situated because the service member at retirement is forced into an annuity stream for his retirement income and then must choose between an individual and a joint and survivor annuity. Much of the literature on annuities focuses on the decision to enroll in individual annuities (e.g., Brown, 2001; Milevsky, 1998). Brown and Poterba (2000) provide an overview of the annuitization products and choices available to married couples.

This paper focuses on a change in enrollment procedure for SBP for married service members. There is a small literature examining the effect of REA and ERISA on retirement behavior and annuity decisions of individuals and couples outside of the military. The paper most closely related to this study is by Aura (2005), who 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 used in this paper, and finds that the REA increased enrollment in survivor annuities by approximately 7 percentage points, while at the same time life insurance holdings — as measured in the HRS-AHEAD data — increased by around $5,000 (Aura, 2005).^9

The third 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 401(k) or similar retirement plan. These studies conclude that defaults

^8 The requirements of REA went into effect for those who began receiving their pensions after January 1, 1985.

^9 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.
are sticky and people respond to nudges, in that they tend to choose the default (e.g., Madrian and Shea, 2001; 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 examining enrollment behavior 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. Arguably, the notarization requirement is different from the nudges seen in the 401(k) literature and the choice made by the service member is very difficult to change after the fact. This may lead me to expect a larger response to the notarization policy than what is found in the default literature for 401(k) plans.

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 expectations: 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.

III. 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. 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.

The Survivor Benefit Plan (SBP) is a joint life insurance 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

\[
S^i_t = \prod_{g=1}^{t} (1 - q^i_g)
\]

and \( q^i_g \) 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

\[
EB^s = \sum_{t=h}^{T} R^{t-h} [S^r_t A] - C^s
\]

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

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10 This assumes risk neutrality. Also implicit in this assumption is 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 or how the decision changes with wealth because data on other income sources and wealth is not available.
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

\[
EB^j = \sum_{t=h}^{T} R^{-h} [S^j_t (1 - \gamma) A + S^s_t (1 - S^j_t) \theta A + S^s_t (1 - S^j_t) A] - C^j,
\]

where \( \gamma \) denotes the portion taken out of retirement pay while the service member is alive to finance the spousal benefit, \( \theta \) 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 (2). For details about \( \gamma \) and \( \theta \) set by programmatic details for the time frame covered in this paper, see Appendix A.

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

\[
EB^j - EB^s - C = \sum_{t=h}^{T} R^{-h} [-\gamma S^j_t S^s_t A + \theta S^s_t (1 - S^j_t) A] - C \geq 0
\]

\[
C = C^j - C^s,
\]

where \( C \) is the net cost of enrolling in SBP.\(^{11}\) From (4), note 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.\(^{12}\)

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 VI.

I conduct a back of the envelope calculation for income streams for an example household, closely based on the average service member, enrolling in this program. Over the lifetime of the household, enrolling yields $990 more paid out to the household than

\(^{11}\) This option value is not considered in this model. Once a service member opts out they cannot opt in for the same spouse. Divorce is another concern. However, SBP provision can be mandated by the courts at time of divorce.

\(^{12}\) Note that this holds in cooperative bargaining models where there is efficient bargaining.
not enrolling in today’s dollars, which as a percentage of the expected amount paid in for the program is approximately 10 percent.\textsuperscript{13}

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

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, $C$ can be interpreted as being arbitrarily large enough that the service member enrolls in the program.\textsuperscript{14}

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.

\textbf{IV. 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 1, 1983 and December 31, 1989 who were still alive at the time of the April 2010 data extract.\textsuperscript{15} Because those who have already died are not in the data set, I am missing the population that would benefit the most from survivor benefits since their spouses will have longer, on average, to collect benefits.\textsuperscript{16} If one assumes death is anything other than random and people have some private knowledge about their mortality risk, those

\textsuperscript{13} I assume that the service member is male, retires at age 42 after 20 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 percent, which is in the range of the Federal Reserve’s discount rate during 1986, and use the March 1986 three-month T-bill rate of 6.5 percent as the interest rate. I suspect much of the difference between this calculation and the approximate 40 percent subsidy that is the goal of the program comes from the fact I am looking at the average service member in my data set, rather than a distribution. Also, those who would have benefited the most from SBP are not in my data set.

\textsuperscript{14} Note that the policy change also changes the threat point for the spouse within the bargaining framework.

\textsuperscript{15} The dataset was obtained through a Freedom of Information (FOIA) request to the Office of the Secretary of Defense and Joint Staff FOIA Requester Service Center.

\textsuperscript{16} Comparing my data to that in the Department of Defense, Office of the Actuary Report, there are attrition rates of approximately 30 percent between the population of retirements and my data set. However, 75 percent or more of this difference can be explained using survival probabilities from the Social Security cohort life tables for the 1940 cohort. Most of these people likely died before the April 2010 data extract.
who have died were more likely to enroll in survivor benefits but are not observed in my data.

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, the data record SBP election, service, rank, monthly gross pay at time of retirement, and date at 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 1 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 there is an error in the coding of the data.

Table 1 provides summary statistics on this group over the entire sample period, April 1984 to March 1988, which indicate that 61 percent of the sample retires after the policy change, 37 percent of the service members are in the Army, 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.17 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 which would not include coverage for a spouse.

Columns 2 and 3 of Table 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. Officers and warrant officers also make statistically significantly more money, and retire at a statistically significantly higher age. Also, officers and warrant officers are typically more highly educated than their enlisted peers. There is not an economically significant difference in the other characteristics in the data within these groups before and after the policy change.

V. 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 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 before and after the policy change; it is clear that the enrollment rate increases

17 A warrant officer is a technical expert but is not necessarily commissioned.
### Table 1
Summary Statistics

<table>
<thead>
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<th>Variables</th>
<th>(1) Full Sample</th>
<th></th>
<th>(2) Enlisted Mean</th>
<th></th>
<th>(3) Officers/Warrant Officers Mean</th>
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<td></td>
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<td>Mean (Standard</td>
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<td>(4.12)</td>
<td>(3.57)</td>
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<td>(0.436)</td>
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<td>(0.348)</td>
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<td>Observations</td>
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<td>45,689</td>
<td>19,254</td>
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Notes: Standard errors are in parentheses. Column 1 is the means for all married service members with an eligible beneficiary retiring between April 1, 1984 and March 1, 1988. Column 2 is all married enlisted personnel with an eligible beneficiary retiring between April 1, 1984 and March 1, 1988. Column 3 is all officers/warrant officers married at the time of retirement with an eligible beneficiary retiring between April 1, 1984 and March 1, 1988.
after the policy change. There is also significant seasonality in retirements, with more service members retiring during the summer and early fall months. This may be due to enlistment and commissioning patterns, the timing of the end of the government fiscal year, or timing retirement to be least disruptive to service members in households with school aged children. There is also a seasonality in the SBP enrollment rate, which will be addressed in the statistical model.

Figure 2 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

\[
Pr[\text{EnrollJoin}] = f(\beta_0 + \beta_1 \text{RetirementAge}_i + \beta_2 \text{PayAtRetirement}_i \\
+ \beta_3 \text{Law}_i + m_i + g(t_i)),
\]

where \( \text{Law}_i \) is binary and equal to one if the service member retired on or after March 1, 1986 and equal to zero otherwise, and \( \beta_3 \) is the parameter of interest. The comparative statics in Appendix A indicate that \( \beta_1 \) and \( \beta_2 \) are expected 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 and 2 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 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 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. These results are similar in magnitude to those found by Aura (2005) in his study of the REA. As can be seen in Table 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 9 percentage point increase in the probability of SBP enrollment.

Tables 3 and 4 separate enlisted personnel from warrant officers and officers to examine the differential effects suggested in Figure 2. For enlisted personnel there is

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Marginal Effect from Probit for All Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
<td>(1) Enroll in SBP</td>
</tr>
<tr>
<td></td>
<td>(m=24)</td>
</tr>
<tr>
<td>Law</td>
<td>0.0756***</td>
</tr>
<tr>
<td></td>
<td>(0.00873)</td>
</tr>
<tr>
<td>Age at retirement</td>
<td>0.00563***</td>
</tr>
<tr>
<td></td>
<td>(0.000685)</td>
</tr>
<tr>
<td>Annual gross pay (($10,000))</td>
<td>0.0879***</td>
</tr>
<tr>
<td></td>
<td>(0.00182)</td>
</tr>
<tr>
<td>Month indicator</td>
<td>Yes</td>
</tr>
<tr>
<td>Time trend</td>
<td>Linear</td>
</tr>
<tr>
<td>Observations</td>
<td>64,943</td>
</tr>
</tbody>
</table>

Notes: Asterisks denote significance at the 1% (***) and 5% (**), and 10% (*) levels. Standard errors are in parentheses, and \(m\) 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. The marginal effect for Law reports the effect of changing Law from 0 to 1.

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18 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.

19 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.
### Table 3
Marginal Effect from Probit for Enlisted Personnel

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1) Enroll in SBP (m=24)</th>
<th>(2) Enroll in SBP (m=24)</th>
<th>(3) Enroll in SBP (m=24)</th>
<th>(4) Enroll in SBP (m=24)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law</td>
<td>0.0760*** (0.0102)</td>
<td>0.0855*** (0.00452)</td>
<td>0.0771*** (0.0101)</td>
<td>0.0781*** (0.00658)</td>
</tr>
<tr>
<td>Age at retirement</td>
<td>0.0122*** (0.000905)</td>
<td>0.0122*** (0.000905)</td>
<td>0.0112*** (0.00130)</td>
<td></td>
</tr>
<tr>
<td>Annual gross pay ($10,000)</td>
<td>0.0438*** (0.00433)</td>
<td>0.0438*** (0.00433)</td>
<td>0.0517*** (0.00621)</td>
<td></td>
</tr>
<tr>
<td>Month indicator</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Time trend</td>
<td>Linear</td>
<td>None</td>
<td>Linear</td>
<td>None</td>
</tr>
<tr>
<td>Observations</td>
<td>45,689</td>
<td>45,689</td>
<td>45,689</td>
<td>22,272</td>
</tr>
</tbody>
</table>

Notes: Asterisks denote significance at the 1% (***) and 5% (**), and 10% (*) levels. Standard errors are in parentheses, and \(m\) 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. The marginal effect for Law reports the effect of changing Law from 0 to 1.

### Table 4
Marginal Effect from Probit for Warrant Officers and Officers

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1) Enroll in SBP (m=24)</th>
<th>(2) Enroll in SBP (m=24)</th>
<th>(3) Enroll in SBP (m=24)</th>
<th>(4) Enroll in SBP (m=12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law</td>
<td>0.0350** (0.0148)</td>
<td>0.0378*** (0.00639)</td>
<td>0.0387*** (0.0144)</td>
<td>0.0341*** (0.00934)</td>
</tr>
<tr>
<td>Age at retirement</td>
<td>0.00821*** (0.00139)</td>
<td>0.00820*** (0.00139)</td>
<td>0.00915*** (0.00200)</td>
<td></td>
</tr>
<tr>
<td>Annual gross pay ($10,000)</td>
<td>0.0544*** (0.00372)</td>
<td>0.0544*** (0.00372)</td>
<td>0.0523*** (0.00534)</td>
<td></td>
</tr>
<tr>
<td>Month indicator</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Time trend</td>
<td>Linear</td>
<td>None</td>
<td>Linear</td>
<td>None</td>
</tr>
<tr>
<td>Observations</td>
<td>19,254</td>
<td>19,254</td>
<td>19,254</td>
<td>9,235</td>
</tr>
</tbody>
</table>

Notes: Asterisks denote significance at the 1% (***) and 5% (**), and 10% (*) levels. Standard errors are in parentheses, and \(m\) 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. The marginal effect for Law reports the effect of changing Law from 0 to 1.
a statistically significant increase in probability of enrollment in SBP after the policy change of approximately 8 percentage points. As a share of the 62.6 percent of enlisted personnel who were not enrolling prior to the policy change, this is approximately a 13 percent increase. For warrant officers and officers the effect is also statistically significant but smaller, at about 3.5 percent, even after conditioning on age and income. Compared to the 32.2 percent of officers and warrant officers who are not enrolling in SBP, this is approximately an 11 percent increase.\(^{20}\)

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. 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.\(^{21}\) However, as can be seen from Figure 1, there are several months with low take-up around December of 1984; if I specify a placebo policy in September 1984, for example, the placebo test fails.\(^{22}\)

To examine if this December 1984 effect is of concern, I consider 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; I am not aware of any contemporaneous policy that may explain the lower take up rate. Column 4 of Table 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.

Endogenous timing of retirement is another concern for identification because military personnel have some discretion as to 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, this would appear as an increase in enrollment after the policy change even if the policy change did not change behavior. Table 5 shows 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.\(^{23}\)

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\(^{20}\) 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.

\(^{21}\) Using a 12-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 12-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 12-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 2.

\(^{22}\) Using a 12-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 \(0.005\)).

\(^{23}\) This may be due to a lack of information about the policy change. A cursory search of archives of The New York Times and The Washington Post found no coverage of this policy change in the mainstream news media.
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. 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 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.

VI. 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

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24 Length of service is available for most of the Army and the Navy service members but for none of the Air Force personnel.
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 than for officers and warrant officers, 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 found by Aura (2005) 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 warrant officers/officers initially had a much higher enrollment rate in SBP. Warrant officers and officers are more highly educated on average, as officers must have a college education before they are commissioned. Referring to Table 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, in terms of percentage point increase in enrollment, 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 age 42, 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 sample is not representative of all military retirees. My data only include those who were alive when the data were retrieved in 2010. Those who would have benefited the most from SBP, who passed away prior to the data collection, are not included in my data.

ACKNOWLEDGMENTS AND DISCLAIMERS

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DISCLOSURES

The author has no financial arrangements that might give rise to conflicts of interest with respect to the research reported in this paper.

REFERENCES


APPENDIX A: COMPARATIVE STATICS AND ACTUAL PARAMETER VALUES

We 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

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

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, the probability of opting in to SBP increases as the difference between wife and husband’s survival probability (and ages) increases (with the husband being older).

Differentiating (A1) with respect to age at retirement \( h \) yields

\[
\sum_{t=h}^{T} R^{t-h} \ln(R) \left[ -\gamma S_t^s S_t^r A + \theta S_t^s (1 - S_t^r) A \right] = 0.
\]

This derivative is positive for the values of \( \gamma \) and \( \theta \) used by the policy. As retirement age increases, the probability of enrollment increases holding survival probabilities and retirement income constant.

Differentiating (A1) with respect to retirement pay \( A \) yields

\[
\sum_{t=h}^{T} R^{t-h} \left[ -\gamma S_t^s S_t^r + \theta S_t^s (1 - S_t^r) \right] = 0.
\]

The sign on this derivative depends on the relationship between \( \gamma \) and \( \theta \), as well as survival probabilities. Using actual values from the policy and survival probabilities from the cohort life tables for the 1940 cohort (Bell and 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.

Finally, note that for the program for the time frame covered in this paper, the formula used to calculate the amount paid in was 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 percent of the first $595 of the base amount of retired pay plus 10 percent 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, (5) becomes

\[
\sum_{t=h}^{T} R^{t-h} \left[ S_t^s S_t^r (-0.65 A - 44.625) + S_t^r (1 - S_t^r) 0.55 A \right] + C \geq 0, \text{ for } R > 7,140, \text{ and } R \text{ is positive.}
\]

\[25\) 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 percent of the entire dataset fails to meet this requirement.

\[26\) \( A \) is greater than $7,140, the survival probabilities are restricted to be between 0 and 1, and \( R \) is positive.
APPENDIX B: PROGRAM DETAILS FOR CHILD AND OTHER INSURABLE INTEREST COVERAGE

When completing DoD 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 III. 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 18, or age 22 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.