THE IMPLICATIONS OF DECLINING RETIREE HEALTH INSURANCE

Courtney Monk and Alicia H. Munnell*

Center for Retirement Research at Boston College
Hovey House
140 Commonwealth Avenue
Chestnut Hill, MA 02467
Tel: 617-552-1762   Fax: 617-552-0191

Abstract

A large number of retirees have employer-sponsored retiree health insurance (RHI). While RHI is a common source of supplemental coverage for Medicare beneficiaries, it is also the only affordable source of health insurance for many retirees under age 65 who have no access to Medicare. However, employers are scaling back their RHI benefits in response to rising health costs and changes in accounting rules, by either eliminating benefits which shifts costs to retirees, or tightening vesting requirements. Using data from the *Health and Retirement Study*, this paper examines the potential consequences of eliminating RHI for both pre-Medicare and Medicare-eligible retirees. For younger retirees the likely primary response is to work longer, and we find that number of workers age 55 to 64 would increase by 7 percent, as some of those who have their access to RHI eliminated would work rather than retire. Of those who still choose to retire, most lack any employer-sponsored health insurance option and would need to find an alternative source of coverage or go uninsured. For Medicare beneficiaries over 65, we estimate that about three quarters would replace RHI with another form of supplemental coverage. This shift would slightly reduce total spending and utilization for individuals who choose basic Medicare or a Medicare HMO as opposed to a Medigap plan, but health outcomes would probably be unaffected no matter which supplemental option is chosen. In short, a full elimination of RHI would primarily impact early retirees who must face the cost of much more expensive insurance or of financing illness without insurance. Policymakers may want to consider encouraging insurers to step in to provide more affordable plans for these early pre-Medicare retirees.

Introduction

Once relatively common in the United States, employer-sponsored retiree health insurance (RHI) is now on the decline. Rising health costs, higher life expectancies, and changes in accounting rules have all increased the pressure on companies like General Motors, Ford, Caterpillar, and IBM, as well as state and local governments.[1] As the health care liability for current and future retirees grows too big to manage, public and private employers alike are cutting these benefits.

Employers generally use three strategies to scale down their RHI benefits. The first strategy, popular among private employers, is to eliminate retiree health coverage for new retirees.[2] Indeed, the percentage of large employers offering RHI has nearly halved since 1988 (see Figure 1), and of the limited number remaining, about 10 percent are planning to terminate subsidized health benefits for future retirees (Claxton et al. 2008). The second common employer response in both the public and private sectors is to make retirees pay a larger portion of the costs of the insurance, in terms of premiums, co-payments, and deductibles. As Figure 2 shows, RHI premiums paid by the individual are rising quickly.[3] This increase in premiums has surely contributed to the decline in RHI coverage by reducing individual demand for the product.[4] Third, employers can tighten the vesting and eligibility requirements, for example by increasing the years of service employees must put in before becoming eligible for RHI. This tactic is most common among public sector employers, who are less likely to cut benefits (Hurley et al. 2006).[5] While Figure 3 hints that the first strategy may be stabilizing, as the rate of RHI offering by employers appears to be leveling off, the other two trends seem to be gaining momentum. Altogether, the prevalence of RHI is waning.

---

[1] Accounting rules for both private and public employers now require the reporting of retiree health costs on an accrual basis rather than a cash basis. Financial Accounting Standard (FAS) 106 was adopted in 1993. The Governmental Accounting Standards Board (GASB) Financial Statements 43 and 45 began affecting large governments in 2007 and are now applicable to state and local governments of all sizes (Clark 2009).

[2] Employers have the right to cut promised health care benefits under ERISA.

[3] This trend is strengthened further by employers who cap their RHI contributions, thereby making the retiree responsible for any future increases in premiums. So along with paying more of the premium comes an increase in the exposure to the risk of future cost increases.

[4] The demand for health insurance is relatively price inelastic; see e.g. http://www.cbo.gov/ftpdocs/66xx/doc6620/08-24-HealthInsurance.pdf.

[5] See also Fronstin et al. (2008), Figure 9.

In spite of the recent decline, RHI is still a major source of health insurance coverage for current retirees of all ages, as well as their spouses. Among *all* individuals age 55 to 64, 16 percent have RHI; of those 55 and 64 *who have retired* about 43 percent rely on RHI as their main insurance plan.[6] Among people age 65 and over who are eligible for Medicare, 27 percent have RHI that supplements their basic Medicare benefits. So the decline of RHI could have potentially important consequences for many young and old retirees.

This paper seeks to determine the potential impact of a full withdrawal of RHI for both those under and over 65. We acknowledge that a full withdrawal of RHI is an extreme outcome and may not happen for several decades, if ever. However for the purposes of this paper, we analyze the most severe change possible. The most important decision faced by workers under 65 is whether to delay retirement; for retirees over 65, the choice is over whether to buy supplemental coverage to top-up Medicare and if so, what kind.

The paper is organized as follows. Section 1 offers some background information on the nature of RHI for those with and without Medicare and outlines the research questions for each group. Section 2 explains the data, and Section 3 discusses the results. A final section concludes that for people under 65, the main impact of the withdrawal of RHI is to encourage delayed retirement. Our estimates, which are in line with other literature on the effect of RHI on retirement, imply that the elimination of RHI would have the largest effect on those under 65 who would retire even without RHI but would then find it difficult to get affordable health insurance. Conversely, the implications of an RHI withdrawal for older retirees are much more muted. People over 65 who have Medicare would have to either choose an alternative type of supplemental coverage or go

---

[6] An individual in the data is considered an RHI holder if he is retired and has health insurance from a former employer, or has health insurance from a retired spouse's former employer. Given the limitations of the HRS data, we know only the source of the insurance (the employer) rather than its exact nature and are therefore unable to distinguish between COBRA and RHI. We experimented with trying to use the distribution of premiums as an indicator of COBRA, since COBRA premiums are very high, but there was no obvious place at which to impose a cutoff, as the distribution of RHI premiums (as we defined RHI) was not bimodal. We acknowledge that our summary statistics citing the prevalence of RHI may be slightly overstated, but point out that COBRA is rare – under 10 percent of unemployed adults have it (Zuckerman et al. 2001).

onto basic Medicare, which may alter spending and encourage lower utilization. However, this change in insurance would be unlikely to alter their health outcomes.

I. The Role of Retiree Health Insurance – Before and After Medicare Eligibility

Because of the importance of Medicare, the subsequent analysis focuses on two groups of retirees: those 55 to 64, young retirees for whom RHI may be their only health insurance, and those 65 and over, Medicare-eligible individuals who use RHI as a supplement to their basic Medicare benefits.

A. Young Retirees – 55-64

Many people in their late 50s and early 60s have pre-existing health problems and/or are diagnosed with new health problems, so health insurance is generally quite important for this group. About one-sixth of individuals between ages 55 and 64 get their health insurance through RHI (see Figure 4). More importantly, just under half of those 55-64 who have retired rely on RHI that they obtain from either their or their spouse's former employer.

RHI plans for early retirees are similar to employer-sponsored plans for active workers, whereby RHI is the primary payer for medical care (assuming the person does not hold an additional insurance plan). Some employers treat retirees under 65 exactly like active employees, with the same plans to choose from (including vision and dental), the same premiums, and the same cost sharing. Other employers treat early retirees differently. For example, they may offer early retirees a reduced menu of plan choices; divide retirees and active workers into two groups for the purposes of insurance pooling, so that the plan for active workers is comprised of younger individuals and is thus less risky and cheaper; and/or alter the cost-sharing requirements. In either case, RHI offers retirees the very important advantage of continued access to group rates, which are much lower even with substantial employee cost sharing, than non-group rates in the individual health insurance market (Johnson and Crystal 2000).

If RHI no longer existed, a pre-Medicare retiree would have the following options, assuming he did not qualify for Medicaid: 1) go on a spouse's employer-sponsored policy; 2) go on COBRA; 3) get access to group coverage through an

organization like the AARP; 4) buy an individual non-group policy; or 5) go without insurance.[7] None of these options is particularly appealing, except spousal coverage, which is the easiest and cheapest choice. However, 94 percent of RHI holders would not have an employer-sponsored source of health insurance if RHI were terminated for them and their spouses. The second option, COBRA, is expensive, since former workers must assume full responsibility for up to 102 percent of the employer's group rate on the premiums. In addition, COBRA benefits expire after 18 months. Finding a group plan to join is difficult and expensive. Choice number four, buying an individual non-group policy, is expensive too: individuals spend about twice as much on premiums for individual private insurance than for employer-sponsored insurance.[8] Moreover, some unhealthy people in this market can end up "underinsured" due to pre-existing conditions clauses and medical underwriting, or they may be denied coverage altogether. Finally, being uninsured is risky and can be very costly if any health care is needed.

Accordingly, having the option of affordable health coverage in retirement provides a clear incentive to retire early. An extensive literature details the effect of access to RHI benefits on early retirement. The reduced form literature finds that retiree health insurance increases the probability of retirement by 30 percent to 80 percent (Karoly and Rogowski 1994; Rogowski and Karoly 2000; Johnson, Davidoff and Perese 2003; Gruber and Madrian 1995; Linsenmeier 2002; Marton and Woodbury 2006; Blau and Gilleskie 2001; Gruber and Madrian 2002). Papers that rely on structural models find lower effects of RHI on the probability of retirement, on the order of 15 percent to 30 percent (Gustman and Steinmeier 1994; Rust and Phelan 1997; French and Jones 2007; Blau and Gilleskie 2006, 2008). Regardless of method, nearly all researchers agree that RHI has a positive, statistically significant impact on retirement.

So if RHI were withdrawn, both the retirement behavior and the health insurance choices of retirees under 65 would be different. Our analysis for people between ages 55 and 64 focuses primarily on how the elimination of RHI would change the retirement decision. Specifically, we replicate the reduced form results in the literature with updated

---

[7] People with chronic illnesses may also qualify for entry into a high risk pool, available in certain states, but this option is expensive and relatively rare.

[8] See http://www.urban.org/health_policy/private_insurance/ for a concise discussion about employer-sponsored versus non-group health insurance premiums.

data, and then look specifically at how many individuals would keep working if RHI no longer existed. We would ideally like to follow this with an analysis of what retirees might do to replace RHI with alternative health insurance coverage. However, as discussed below, we are unable to address this question due to data limitations and leave further inquiry to future work.

B. Medicare Eligible Population Age 65 and Over

At age 65, individuals automatically become eligible for Medicare.[9] Medicare beneficiaries obtain hospital insurance (Part A) free of charge, and can purchase medical insurance (Part B) for a monthly premium and subsidized prescription drug coverage (Part D) sold through a private insurer. The standard services provided under Medicare require a combination of copayments, coinsurance, and deductibles, and some of these are quite substantial (see Table 1). In addition, Medicare does not provide an out-of-pocket cap for most services, so beneficiaries face substantial risk of large out-of-pocket medical expenses. Consequently, many purchase supplemental coverage to protect against high unexpected health spending (see Figure 5). Around 40 percent enroll in a Medicare Advantage plan (henceforth "Medicare HMO")[10] or a Medigap plan[11], and just over a quarter have RHI.[12]

The RHI benefit package for people 65 and over coordinates with Medicare, so that Medicare is the primary payer.[13] For ease of comparison with other supplemental options, it is simplest to think of all RHI policies for older individuals as wrap-around

---

[9] To be eligible for Medicare, one must be 65 years old and have worked at least 40 quarters in covered employment, or have a spouse who did. Nearly everyone qualifies under these rules. Individuals over age 65 who are ineligible for Medicare can still enroll in Parts A and B by buying into the program.

[10] Medicare Advantage plans are plans run by private insurers contracting with Medicare. They come in three main types: health maintenance organizations (HMOs), private fee-for-service plans (PFFSs), and preferred provider organizations (PPOs). Medicare HMOs are the most common form of Medicare Advantage plans.

[11] The Medigap category is taken from the RAND dataset. Due to questionnaire design in the HRS, for continuity across years this variable includes other private insurance, such as AARP coverage. This type of coverage for Medicare beneficiaries is uncommon and should not affect the results.

[12] Active workers over age 65 (or retirees who get their coverage from a spouse that is an active worker) stay on the employer's health insurance plan for current workers – not RHI.

[13] Though some contend that this is a form of age discrimination, the Equal Employment Opportunity Commission ruled in December 2007 that employers have the right to discriminate between Medicare beneficiaries and retirees under 65 when offering retiree health benefits. (The hope was to allow firms to enjoy cost savings on retirees over 65, thereby encouraging them not to drop RHI coverage).

plans that provide retirees with coverage of some of Medicare's out-of-pocket expenses such as coinsurance and deductibles.[14]

RHI benefits for Medicare beneficiaries are typically more generous than benefits of other types of supplemental coverage (see Table 2). RHI is similar in scope to the most extensive and expensive Medigap J plans[15], but often covers even more services, such as prescription drugs.[16] RHI also tends to cover services that Medicare does not cover like routine physicals. Vision and dental coverage may be available as part of an RHI package.[17] Although the coverage is comprehensive, RHI premiums paid by the individual are usually lower than Medigap premiums, even with their recent increases, because RHI is usually subsidized by employers (see Figure 6).

If RHI were eliminated, Medicare beneficiaries would have several alternatives: 1) purchase a Medigap policy and a Part D plan; 2) purchase a Medicare HMO policy with prescription drug coverage[18]; or 3) choose not to get supplemental coverage but rely solely on basic Medicare (Parts A and B) and buy a Part D plan.[19] The advantages and disadvantages of each option reflect the tradeoff between higher premiums and larger health care outlays. Typically, insurance plans with higher premiums have lower co-payments, co-insurance, and deductibles.[20] Similarly, supplemental insurance requires expensive premiums but offers more financial protection by covering Medicare cost sharing and, in some cases, setting an out-of-pocket limit. In contrast, basic Medicare is much cheaper because it requires no additional premium above Part B, but exposes one to substantial financial risk.

Figures 6 and 7 demonstrate this tradeoff more explicitly in terms of health care spending and the variation in that spending. Total spending is defined as the sum of Part

---

[14] RHI's coordination with Medicare is quite heterogeneous. The wrap-around plan is the second most common type of post-Medicare RHI plan, behind carve-out plans (see Jensen and Morrissey 1992).

[15] For a chart of Medigap plan benefits, see http://www.medicare.gov/Publications/Pubs/pdf/02110.pdf, p. 11.

[16] Even after the establishment of Part D, employers have mostly kept their prescription drug benefits unchanged in exchange for a subsidy (Gabel et al. 2008).

[17] Sometimes vision and dental plans are offered independently from health plans, but retirees still have access to group rates.

[18] Most Medicare HMOs include prescription drug coverage but may require an additional premium for it (GAO, 2008b). If prescription drug coverage is not included, a separate Part D plan can be purchased.

[19] People could also choose to drop their Medicare Part B coverage and self-insure, but this option is exceedingly rare and is not modeled here.

[20] This insurance model can often result in moral hazard and an overconsumption of medical care when the price at the point of service is reduced to a minimal co-payment.

B premiums; private health insurance premiums for Medicare HMOs, RHI, Part D, or Medigap; and any other out-of-pocket (OOP) spending on health care.[21] Out-of-pocket (OOP) spending is defined as the sum of copayments, deductibles, and any other payments for health care, excluding insurance premiums, made by the individual.[22] Figure 6 shows that, on the one hand, average total spending is low for basic Medicare enrollees and Medicare HMO holders, while Medigap holders pay much more on average, mostly due to high premiums. On the other hand, the variance of OOP spending is lower for supplemental insurance holders, regardless of the type of supplemental coverage, than for those on basic Medicare (see Figure 7). This reflects the financial protection provided by the insurance.

Health expenditures are likely to be a significant portion of total spending in old age (Fronstin et al. 2008; French and Jones 2004). Thus, the choice of what kind of supplemental coverage to buy is clearly an important one. Therefore, the first research question is what type of supplemental coverage RHI holders would buy if RHI were no longer available. The next step is to consider the secondary impacts on spending, utilization, and health outcomes of a change in the take-up of supplemental insurance.

II. Data

This study uses data from the *Health and Retirement Study* (HRS), a nationally representative, biennial, panel survey of older Americans and their spouses.[23] The HRS began in 1992 with a cohort of people born between 1931 and 1941. They were interviewed every two years from 1992 through 2006. In 1998, the HRS was expanded to include several other birth cohorts, creating a sample of Americans over age 50. In 2004, an additional cohort of people born between 1948 and 1953 was also added.

For the purposes of this project, we are interested in people who are at least 55. To create a larger sample, we use the data from 1998 to 2006 and include anyone aged 55

---

[21] Spending is recorded on a biennial basis in the HRS. Because Medicare Part D began at the start of 2006, the premiums spending figure for 2006 includes only one year of Part D premiums. Note that all Medicare beneficiaries (excluding dual-eligibles for Medicaid) pay Part B premiums.

[22] The data we use from the *Health and Retirement Study* records OOP spending on a many categories of medical care including doctor visits, hospital visits, nursing home use, outpatient surgery, special facility use, dental visits, and prescription drugs.

[23] Many variables used in this project are from the RAND version of the HRS. Variables used that were not available in the RAND version were extracted from the raw datasets and merged with the RAND dataset.

or older at any point in these years. Therefore, wherever possible, we use observations from all of the HRS cohorts. Cross-section sample weights are available for every wave of the survey and are used here.

The HRS is very well suited to our questions, since it contains detailed information on retirement, health insurance, utilization, health care spending, and health outcomes. Moreover, the HRS collects data that can be used to measure risk aversion, which is often missing in other datasets.

The analysis separates the observations into two age groups: under 65 and 65 and over. Table 3 presents summary statistics for each. Individuals in the younger group are, as expected, more likely to be working, married, and homeowners. Most of them get their health insurance from their employer (this statistic is above 80 percent among non-retired working people age 55 to 64). The older group is generally less healthy, and though they have a lower probability of only one chronic illness, they are more likely to have two or more conditions, where chronic conditions are high blood pressure, cancer, diabetes, stroke, heart problems, lung disease, and arthritis.

III. Results

A. RHI and the Retirement Decision

For individuals aged 55 to 64, we are interested in the effect of RHI on the retirement decision, controlling for observable characteristics, in order to predict what retirement choices these people might make without RHI, *ceteris paribus*. We exploit the panel nature of the data to find out for working individuals how retiring at time *t+2* is affected by characteristics at time *t*. We consider those employed full-time and part-time as "working." We drop those who are already retired or otherwise out of the labor force. We include the self-employed because although they do not have their own employer-provided RHI, they may have RHI coverage through a spouse. We treat the data across years 1998 to 2006 as a repeated cross section and cluster standard errors at the individual level.[24] Because retirement decisions may be fundamentally different if one has a spouse, the sample of 55 to 64-year-olds is split into married and single people.

---

[24] The alternative is to run a hazard model on the time it takes for each individual to reach retirement.

The dependent variable is a binary indicator of whether someone is retired or working at *t+2*, where "retired" is defined as being partly or fully retired. Individuals are considered partly retired if they mention retirement and they are either working part-time, not working and not looking for work, or looking for a part-time job. Individuals are considered fully retired if they mention retirement and are not working. By "mention retirement," we mean that they report being retired when asked about employment status or about whether they consider themselves retired. However, we treat people who report working full-time who also mention retirement as workers and not retirees.

Because having access to RHI is only one of many reasons that people choose to retire, a multivariate analysis is required to find the conditional probability of retirement.[25] The regressions control for several factors that affect the decision to retire, such as gender, wealth, health, and pension coverage; we also include a measure of self-assessed life expectancy, as we would expect someone with a longer life expectancy to work longer.[26] The focus is on having access to an RHI plan; the "RHI offer" is defined as having a plan from a current or former employer, or a spouse's current or former employer, that covers the respondent up to age 65.[27] Given results in the existing literature cited in Section 1, we expect the RHI offer to precipitate retirement.

We use age dummies, since specific ages may be associated with varying probabilities of retirement. For example, reaching age 62, the earliest eligibility age for claiming Social Security benefits, may trigger retirement differently than other ages. In addition, it is reasonable to think that the effect of an RHI offer on retirement could vary by age, as the present discounted value of the stream of RHI benefits declines as one nears Medicare eligibility. Therefore, the equations include an interaction between the

---

[25] These retirement regressions assume that the offer of RHI through one's own or a spouse's employer is exogenous. This may be wrong if those with RHI consider it in their job choice, or if employers that offer RHI also encourage early retirement, for example through offering a defined benefit (DB) pension or higher quality pension benefits (Gruber and Madrian 2002). Unobserved job conditions can also create endogeneity issues. We have tried to assuage these criticisms by including control variables for job history and pension type, though we acknowledge that bias may still remain.
[26] The variable is the self-assessed probability of living to 75. It is weighted by the true life expectancy from mortality tables for the respondent's age and gender.
[27] There is likely to be some misreporting associated with the offer of RHI. For example, people may be unaware that their employer offers such benefits. However, for the purposes of this paper, it is the expectation of RHI in retirement that should matter.

age dummies and the dummy for an RHI offer. This specification is more flexible than assuming a constant effect.

The equation that we estimate for individual i working in period t is thus:

$$R_{i,t+2} = \alpha + \gamma_1 age56_{i,t} + \gamma_2 age56_{i,t} + ... + \gamma_{10} age64_{i,t} + \theta_1(age55_{i,t} * ro_{i,t}) +$$
$$... + \theta_{10}(age64_{i,t} * ro_{i,t}) + \beta' X_{i,t} + \tau' J_{i,t} + \varepsilon_{it}$$

(1)

where $R_{i,t+2}$ is the binary indicator of being retired in period $t+2$, and the right hand side variables are all observed in period t. $X_{i,t}$ is a vector of individual characteristics, and $J_{i,t}$ is a vector of job characteristics. The age dummies are denoted by $age56_{i,t}$ through $age64_{i,t}$ (age 55 is the reference category), and $ro_{i,t}$ is a binary variable for having the RHI offer from one's own or a spouse's employer.

Table 4 presents the results of these probit regressions. The coefficients reported are marginal effects, evaluated at the means of the other variables. These marginal effects show the change in the probability of retirement as a result of each factor; positive (negative) coefficients mean that the variable is associated with a higher (lower) probability of retirement. The magnitudes and directions of the control variables are as expected.[28] Wealthier individuals are more likely to retire at any age, and those in good health are less likely to retire. Single people differ somewhat from married individuals but on the whole are relatively comparable. Retirement rates are low for people in their mid to late 50s, and then increase as they enter their 60s.

The more important finding is the strong positive effect of the availability of RHI on retirement hazard. RHI has the greatest impact at ages 57 to 62. In general, the magnitude of the RHI offer effect is relatively consistent across the age spectrum, though it does fluctuate somewhat for the singles. The interaction terms (RHI offer and age) are jointly significant in the both the singles and married regressions.[29] The findings imply that the average marginal effect of the RHI offers at each age is between 6 and 7 percentage points, for both single and married individuals. In other words, if we use just one dummy for the RHI offer, rather than the RHI offer at each age, the coefficient is about .07 for singles and .06 for married individuals. To put this in perspective, the size of this effect on retirement is similar to the impact of having a defined benefit pension.

---

[28] If missing, the most recent observations for risk aversion and the probability of living to 75+ are used.
[29] Joint significance of $age* ro_{i,t}$ variables: P-value for singles = .0029; P-value for marrieds = .0001.

Table 5 shows how the predicted probability of retirement differs by having the RHI offer, based on observable characteristics and the point estimates from the regressions in Table 4. The average of the probability of retiring at each of the 10 ages goes up by about 37 percent for married people and 49 percent for single people.[30] These effects are consistent with estimates in other reduced form literature, as cited above.

These results are then used to calculate the effect of an RHI withdrawal on the number of people working. First, we calculate the number of workers between 55 and 64 with an RHI offer who are expected to retire at each age. To do so, we predict the probability of retirement at each age (holding the other covariates at their means), using the coefficients estimated in Equation 1.[31] Next we calculate the number expected to retire without the extra incentive from RHI, by again predicting the probability of retirement at each age but setting the RHI offer dummy variables to zero. This allows us to predict the change in the expected probability of retirement (and continued work) when the RHI offer is withdrawn from those who currently have it, and weight it by the number of single and married individuals. The simulation shows that among those with the RHI offer, an elimination of RHI would lower the conditional retirement rate from an average of 26 percent to 18 percent. Given the proportion of workers with an RHI offer at each age, the total number of people who are working at the ages of 55 to 64 would increase by about 7 percent.

In short, an RHI withdrawal could cause a shift in labor force participation among older workers. But a sizable number of individuals would still decide to retire in spite of the elimination of the RHI offer, and they would need to find some source of protection. Just over a quarter of them could go on their spouse's employer-provided plan, but the rest would need to find a non-employer source of health coverage.[32] Thus the elimination of RHI would have the biggest impact on those who would still retire even without RHI but then have to turn to COBRA or private non-group insurance upon retiring, or risk going without health insurance.

---

[30] This is not weighted by the number of workers at each age.
[31] The prediction is done only for those with an RHI offer.
[32] 29 percent of those who retire and have an RHI offer have a spouse with his/her own employer-based coverage that is not RHI. Our calculation assumes that this figure would be the same for those who do not choose to keep working in response to the RHI withdrawal. However, the worker's retirement decision may be altered if the spouse has his/her own coverage, though this variable is insignificant when added to the retirement regressions.

Assuming the number of people aged 55 to 64 who are working (and are also not partly retired) is roughly 17 million,[33] our results imply that the withdrawal of RHI would increase this figure by 1.1 million (=17*.067). Because our calculation ignores the non-working spouses and dependents of these retirees who would also need to attain some other health insurance coverage, it therefore underestimates the impact of an RHI withdrawal for the near elderly. On the other hand, considering that about 10 percent of all employees in 2006 worked for public sector employers who offered RHI to retirees under 65,[34] and these employers are unlikely to ever eliminate it, the figure may be an overestimate.

The logical next step would be to determine which type of health insurance these early retirees might then choose, if they do not have RHI. However, we are restricted in our ability to take this step, for two important reasons. First, among retirees we cannot distinguish between COBRA and RHI due to data limitations (see footnote 6). This should not affect the main results of this section because our analysis focuses on *workers* with the offer of RHI, whereas COBRA is generally for the unemployed. However, this shortcoming would render any further analysis of health insurance choices very incomplete. Second, early retirees (before age 65) without insurance or with private non-group insurance are likely to be very different from early retirees with RHI. For example, minorities account for 14 percent of RHI holders, 9 percent of private insurance enrollees, and 29 percent of the uninsured. The uninsured also have worse self-assessed health status and about two fewer years of education on average. Given the divergence along observable characteristics, we anticipate a similar divergence along unobservable characteristics. Thus our set of observable characteristics would probably be insufficient to explain how retirees under 65 go about choosing a primary insurance plan. In any case, while the question of how to replace RHI with alternative health insurance coverage once retired is an important one, it is secondary to the decision of whether or not to retire.

---

[33] The number of workers in this age range is about 20 million (see http://www.census.gov/compendia/statab/tables/09s0581.pdf). However, some of them are "partly retired" using our definition, i.e. they work part-time but consider themselves retired. So we calculate that about 55% of the 31 million people age 55-64 fall into our "working" category.
[34] Calculated using data from the Medical Expenditure Panel Survey, http://www.meps.ahrq.gov. These statistics are not available by age group.

B. RHI and Supplemental Insurance Coverage for Retirees

For Medicare beneficiaries, an elimination of RHI would affect first and foremost choices about supplemental coverage. To determine what type of supplemental coverage RHI holders would choose if RHI were not available, a multinomial logit for insurance choice is used. The regression creates a sorting mechanism which, based on observable characteristics, predicts the probability of choosing each type of supplemental coverage.[35] The supplemental insurance options, which exclude RHI, are: 1) basic Medicare (no supplemental); 2) Medicare HMO[36]; and 3) Medigap.[37]

The control variables used are those meant to affect the demand for health insurance. They include demographics, employment history characteristics, risk aversion, and financial planning horizon.[38] Risk aversion is a dummy variable that takes a value of one if the individual is in the third or fourth most risk-averse category, and zero otherwise. The risk aversion categories are derived from the respondent's choice between a hypothetical job with guaranteed income and a job with a chance of an income loss or gain.[39] Financial planning horizon is captured by two dummies, one for a medium-term horizon and one for a long-term horizon.[40] Existing literature has found evidence of adverse selection into Medigap (see Finkelstein 2004; Ettner 1997; and Wolfe and Goddeeris 1991); so to evaluate the presence of adverse selection, health

---

[35] Our assumption is that Medicare HMOs are available to everyone, which is not strictly true, since the supply of such plans is lower in rural areas, though they are rapidly expanding (see http://www.cbo.gov/ftpdocs/82xx/doc8268/06-28-Medicare_Advantage.pdf). The Census division dummies should help to control for regional differences, but there is likely to be some bias remaining.

[36] The HRS information about Medicare HMOs relies on a question about whether one receives Medicare coverage through an HMO. This means that our category of "Medicare HMO" may not include other types of Medicare Advantage plans (see footnote 11). HMO plans are by far the most common type of Medicare Advantage policies, however, and are also the most homogeneous.

[37] Fang et al. (2008) contend that Medicare HMOs are not supplemental coverage, since the majority of HMO enrolees do not pay premiums and trade off limitations on provider choice for additional coverage. However, the fact that Medicare HMOs provide additional benefits is a strong reason to consider them supplemental. In addition, the selection of individuals into basic Medicare versus Medicare HMOs is different and therefore must be accounted for in our multinomial logit approach.

[38] See Fang et al. (2008) for a detailed theoretical discussion of the importance of risk aversion and financial planning horizon for Medigap demand. The authors also claim that longevity expectations are a driver of Medigap demand; however, this variable is too often missing in the HRS due to questionnaire design, so we do not include it in our analysis.

[39] For more details, see the RAND HRS Data Documentation, Version I, p. 882-886.

[40] These variables are constructed based on the question: "In planning your (family's) saving and spending, which of the following time periods is most important to you [and your] [you/husband/wife/partner], the next few months, the next year, the next few years, the next 5-10 years, or longer than 10 years?" The medium-term horizon dummy equals one if the horizon is a few years or 5-10 years, and the long-term horizon dummy equals one if the horizon is longer than 10 years.

controls are also added.[41] A few additional variables, like union status, are included as fundamental characteristics of RHI holders that may be important in their choice.[42] The regressions also incorporate controls for year and regional effects.[43]

We estimate a multinomial logit model of insurance choice for individual i with insurance type j, where j is 1 if basic Medicare, 2 if Medicare HMO, and 3 if Medigap (time t and individual i subscripts are suppressed for simplicity). The log odds of being in insurance j relative to the baseline insurance 1 (basic Medicare) is:

$$\ln(P_j / P_1) = \alpha_j + \beta_j' X_j + \tau_j' E_j + \delta_j' F_j + \omega_j r_j + \lambda_j c_{1j} + \xi_j c_{2j} + \varepsilon_{i,j} \quad j=2,\,3 \quad (2)$$

where P_j is the probability of having insurance type j. X_j is a vector of individual characteristics, E_j is a vector of the individual's employment history characteristics, F_j is a vector of financial planning dummies (medium-term and long-term), and r_j is the risk aversion dummy. We use two variables to measure the presence of chronic health conditions, c_{1j} and c_{2j}, which denote dummy variables indicating one chronic condition and two or more chronic conditions, respectively.

Table 6 presents the results from the multinomial logit, with both coefficients and relative risk ratios (RRRs) reported. The base category is basic Medicare. The coefficients are the log odds of being in a given group relative to the reference category. While the coefficients' signs indicate the general effect of a variable on choosing supplemental insurance over basic Medicare, their magnitudes are difficult to interpret; therefore we convert the coefficients to RRRs by taking their exponents. If the RRR is greater (less) than 1, the variable is associated with a greater (lower) probability of being in one insurance category as compared to the baseline. So the probability of choosing Medigap over basic Medicare is about 1.4 times higher for females, for example. One more year of education increases the odds of being in a Medicare HMO (a Medigap plan)

---

[41] During the open enrollment period, a 6-month window beginning with Part B enrolment, an insurer cannot deny Medigap coverage, place conditions on a policy, or medically underwrite the plans (Fang et al. 2008). Individuals can easily select insurance plans based on their private health knowledge, hence the potential for adverse selection.

[42] Fang et al. (2008) argue that subjective life expectancy also affects demand for Medigap. However, the subjective probability of living to 75 or more is often missing for people over age 65 due to questionnaire design. Also, about half of the individuals are over 75 so the variable is meaningless for many respondents.

[43] The 2006 year dummy is strongly significant and has a negative coefficient, indicating that the introduction of Part D led many to forgo supplemental coverage and go onto basic Medicare. The percentage of Medicare beneficiaries age 65 and over who report having Part D coverage in the 2006 wave is about 41 percent. A further investigation of Part D requires the next wave of data, which is not yet available.

relative to the odds of being in basic Medicare by 6.6 (4.9) percent. The results show that in general, those who are white, educated, wealthier, and non-smoking are more likely to choose Medigap in preference to basic Medicare. Interestingly, the results also reveal evidence of adverse selection into both Medicare HMOs and Medigap, which is identified through a large, positive, and significant effect of chronic conditions on the probability of choosing a supplemental plan. The implication is that those who are sick carry more insurance coverage.

In addition, the regression results show that being risk-averse is associated with a greater likelihood of buying Medigap coverage. Looking at the summary statistics of the prevalence of health problems by level of risk-aversion, we also find that more risk-averse individuals also tend to be healthier.[44] We interpret this cautiously as advantageous selection (de Meza and Webb 2001), which occurs when more risk-averse individuals have a higher demand for insurance but also happen to be low risk. This interpretation fits in well with existing literature that finds that advantageous selection is an important factor in the market for supplemental insurance (Fang et al. 2008), and for insurance markets more generally (see e.g. Finkelsein and McGarry 2006).

These multinomial results make it possible to determine, based on observables, the relative likelihood of the RHI holders choosing one of the alternative insurance categories if they did not have RHI. In our analysis, we ignore any general equilibrium effects by which an increase in demand could affect the price, and thereby the demand, for the various products.[45] We also assume that RHI holders age 65 and over are not unobservably different, in a non-random way, from other Medicare beneficiaries. This assumption is violated if RHI holders have systematically different but unobserved preferences for a certain type of health insurance. Two possible reasons for such systematic differences are: 1) RHI holders are more risk averse, as exhibited in their steady employment histories with one employer and/or a union, which makes them more likely to purchase supplemental insurance; or 2) RHI holders have some underlying "taste" for insurance, which made them more likely to seek jobs with RHI and also to

---

[44] We also tested and confirmed that risk averse individuals with illnesses and risk averse individuals without illnesses do not differ in their insurance choices.

[45] It is possible that with a shift in demand for supplemental plans, premiums may go down, which could further boost demand. However, the pricing policies of supplemental insurance plans are extremely complex (Maestas et al. 2009).

prefer one supplemental insurance type over another. However, since we control for certain job history characteristics, health, risk aversion, and wealth, the set of problematic, unobservable characteristics is limited. Thus our assumption may be strong but not unreasonable.

This computation predicts that about one quarter of RHI holders would go into basic Medicare, one quarter would choose a Medicare HMO, and about half would go into a Medigap plan (see Appendix A for more details).[46] Intuitively, these numbers seem reasonable, since the average current RHI holder looks most like the average Medigap holder in terms of demographic characteristics.

With the sorting knowledge from the multinomial logit, we can make some informed predictions about what might happen to spending and utilization after switching insurance. To do so, we take the actual spending figures (on Part B premiums, private health insurance premiums, and OOP) for those with basic Medicare, a Medicare HMO, and Medigap (from Figure 6) and compare them to the actual figures for the RHI holders that have been assigned to that group by the sorting mechanism.

One can do this exercise using medians or means. Because of the skewed nature of the total and OOP spending distributions, the means are pushed upwards by outliers and pushed downwards by zeros, and can therefore be misleading. We present results using both means and medians, and note that while the medians are more easily interpreted, the means offer a more conservative estimate.

The changes in spending are not conditioned on observables, so therefore reflect some of the existing differences in the types of individuals who choose these plans. For example, basic Medicare enrollees tend to be less wealthy and also face the cost sharing incentives of the Medicare program; these are two important reasons why they spend less, on average. Therefore in our analysis, we may overestimate some of the effects because we implicitly assume a small change in average characteristics as well as a change in insurance. An alternative method is to predict spending for the RHI holders with their new insurance type, controlling for observables like demographic characteristics (included in Appendix B). However, the problem with this approach is that predicting

---

[46] The predictive power of the multinomial logit is not perfect. It predicts the insurance choice correctly in about half of the cases. So the sorting mechanism imposes some level of error.

spending is difficult because of the inability to predict the large observed values, resulting in an underestimation of the true values.[47] More importantly, however, the qualitative conclusions using both conditional and unconditional figures are the same.

The figures in Table 8 show that total spending would fall for those who take up basic Medicare and a Medicare HMO. Conversely, the Medigap group would see a rise in total spending. Most of the change in spending would come from a change in premiums: downward for basic Medicare and HMOs, but upward for Medigap (see Figures 8 and 9). OOP spending would rise for everyone except those in a Medicare HMO. Ultimately, our sorting mechanism picks up some of the adverse selection and moral hazard associated with supplemental plans (Atherly 2001), and our results confirm findings of other studies that show that Medigap holders have higher spending (Wolfe and Goddeeris 1991; Cartwright et al. 1992; Ettner 1997; French and Kamboj 2003; Goldman and Zissimopoulos 2003; Atherly 2001, 2002; Fang, Keane and Silverman 2008).

To estimate the long-term impact of the change in spending, the changes were projected over the expected lifetimes of the participants, assuming that health care spending increases in line with projected increases in Medicare costs. Table 8 implies that the projected effect on spending is small relative to the total amount one might expect to spend on health care in old age.

The next question is what impact the shift in coverage would have on utilization. As we do with spending, we compare the actual utilization of people in various insurance categories to the actual utilization of RHI holders assigned to those categories by the multinomial logit. We do so because, like spending, observables do not explain much of the variation in utilization. We looked at several different measures of utilization: doctor visits, hospital visits, outpatient services, and special facility use. In addition, we checked on some extra procedures that RHI holders might have to "go without" when they no longer have their employer-sponsored coverage: flu shots, cholesterol tests, pap smears, mammograms, and prostate checks.[48]

---

[47] This is confirmed by the fact that the mean of the predicted residuals from a regression of out-of-pocket spending on several covariates is negative, and the R^2 is 0.33.
[48] These variables are not available in the 2006 wave of the HRS, so we use the 2004 wave.

The differences are presented in Table 9. The results show that, in general, RHI holders would use less medical care once they switched to a different insurance category. Although the number of doctor visits would mostly stay the same, the use of most other kinds of services would drop. For the majority of services, the differences are statistically significant. Some of the declines are large in magnitude, although most are less than 15 percent in absolute value.[49] These findings are consistent with an extensive literature that has established that supplemental insurance is associated with higher utilization (Gibbons and Wilcox-Gok 1998; McCall et al. 1991; Lillard and Rogowski 1995; Ettner 1997; Strumpf 2007).

The sizes of the declines are largest for those who choose basic Medicare. As noted earlier, however, this finding probably overestimates the effect of switching into basic Medicare, since individuals with basic Medicare have worse health outcomes, are poorer, and use less medical care than RHI holders. Nevertheless, even if we control for observables, this downward pressure on utilization in the basic Medicare group is still present.

The last question of interest is how the elimination of RHI could affect health outcomes. The difficulty in answering this query is that various measures of health, both self-assessed health and illness indicators, are functions of a multitude of observable and unobservable factors. Using regression results to predict health therefore incurs considerable error and is not a very accurate way to deal with this question.

Instead, we argue that health should not be affected by a change in supplemental insurance for two key reasons. First, health is a persistent, auto-regressive process. Prior health is the most important driver of current health and dwarfs most other factors. So health today is more a function of health yesterday than of type of insurance, especially when Medicare acts as a safety net for the elderly. Indeed, if we look at the probability of being in good health as a function of several covariates, including RHI, there is no statistical relationship between insurance coverage and self-reported health once we control for prior health.

---

[49] The withdrawal of RHI could therefore reduce Medicare spending by reducing utilization, thereby lowering the volume of health care consumed for which Medicare pays a large proportion; however, this effect may depend on the size of any increase in Medicare HMO enrolment, since the Medicare Advantage program is more expensive to the government than Medicare fee-for-service (GAO, 2008a). Further analysis of these policy implications are left for future work.

Second, existing research shows that although going from no insurance coverage to some can affect health (Card, Dobkin and Maestas 2007; Lichtenberg 2002; and Decker 2005), a change from one type of insurance to another does not. The most convincing evidence of this is the RAND Health Insurance Experiment, the only randomized experiment with health insurance, which found no significant effects on health of different types of insurance coverage, even though utilization varied (Newhouse, 1993). This is further supported by the findings of the Dartmouth Atlas Project, which finds that more utilization does not necessarily lead to better health (Fisher et al. 2009). For RHI holders age 65 or over who already have Medicare, any small change in utilization is therefore unlikely to matter much for their health.

IV. Conclusion

This paper offers a prediction about what might happen to retirees both under 65 and 65 and over if RHI were eliminated. Two important conclusions emerge from the analysis. First, for the near elderly, without the added incentive of RHI to retire early, about 7 percent of workers between ages 55 and 64 would choose to work longer. A large group who previously would have had RHI would still retire early but be left with little in the way of secure health insurance coverage. Second, Medicare beneficiaries who do not have the luxury of RHI would have to choose an alternative type of supplemental coverage, which may be more expensive; however, this change in insurance would be unlikely to alter their health outcomes.

In sum, this paper finds that the loss of RHI would have profound effects on younger retirees, whereas the effects on retirees aged 65 and over would be relatively small in scale. An important caveat is that this finding is for individuals "at the average," so it may hide more significant effects for specific groups. Accordingly, future research should examine the potential impacts on certain groups that are not considered here, such as the near elderly in poor health who would find it very difficult to work longer but would have extremely limited insurance options in the non-group market.

These conclusions have implications for policymakers who are concerned with the ramifications of the decline of RHI. First, if individuals work longer, this could produce improvements in retirement security in general (see Munnell and Sass, 2008).

Second, if the employer-sponsored model of health insurance persists, as it is very likely to do, then a continued decline in RHI would create a large pool of early retirees with a substantial, untapped demand for health insurance. At some point, it would seem logical for insurers to step in to provide more affordable plans for these early pre-Medicare retirees. Policymakers may want to consider encouraging insurers to do so.

References

Atherly, Adam. 2001. "Supplemental Insurance: Medicare's Accidental Stepchild." *Medical Care Research and Review* 58(2): 131-161.

Atherly, Adam. 2002. "The Effect of Medicare Supplemental Insurance on Medicare Expenditures." *International Journal of Health Care Finance and Economics* 2: 137-162.

Blau, David and Donna Gilleskie. 2001. "Retiree Health Insurance and the Labor Force Behavior of Older Men in the 1990s." *Review of Economics and Statistics* 83(1): 64-80.

Blau, David and Donna Gilleskie. 2006. "Health Insurance and Retirement of Married Couples." *Journal of Applied Econometrics* 21: 935-953.

Blau, David and Donna Gilleskie. 2008. "The Role of Retiree Health Insurance in the Employment Behavior of Older Men." *International Economic Review* 49(2): 475-514.

Card, David, Carlos Dobkin and Nicole Maestas. 2007. "The Impact of Nearly Universal Insurance Coverage on Health Care Utilization: Evidence From Medicare." Unpublished Working Paper.

Cartwright, William and Teh-wei Hu and Lien-fu Huang. 1992. "Impact of Varying Medigap Insurance Coverage on the Use of Medical Services of the Elderly." *Applied Economics* 24(5): 529-539.

Clark, Robert. 2009. "Will Public Sector Retiree Health Benefit Plans Survive? Economic and Policy Implications of Unfunded Liabilities." Working Paper, presented at the Annual Meeting of the AEA, January 2009.

Claxton, Gary, Bianca DiJulio, Benjamin Finder, Marlan Jalenski, Megan McHugh, Samantha Hawkins, Jeremy Pickreign, Heidi Whitmore, and Jon Gabel. 2008. "Employer Health Benefits 2008: An Annual Survey." Menlo Park, CA: Kaiser Family Foundation. Available at http://ehbs.kff.org/pdf/7790.pdf.

de Meza, David and David Webb. 2001. "Advantageous Selection in Insurance Markets." *RAND Journal of Economics* 32(2): 249-262.

Decker, Sandra. 2005. "Medicare and the Health of Women with Breast Cancer." *Journal of Human Resources* 40(4): 948-968.

Ettner, Susan. 1997. "Adverse Selection and the Purchase of Medigap Insurance by the Elderly." *Journal of Health Economics* 16: 543-562.

Fang, Hanming, Michael Keane and Dan Silverman. 2008. "Sources of Advantageous Selection: Evidence from the Medigap Insurance Market." *Journal of Political Economy* 116(2): 303-350.

Finkelstein, Amy. 2004. "Minimum Standards, Insurance Regulation and Adverse Selection: Evidence from the Medigap Market." *Journal of Public Economics* 88(12): 2515-2547.

Finkelstein, Amy and Kathleen McGarry. 2006. "Multiple Dimensions of Private Information: Evidence from the Long-Term Care Insurance Market." *American Economic Review* 96(4): 938-958.

Fisher, Elliot, David Goodman, Jonathan Skinner and Kristen Bronner. 2009. "Health Care Spending, Quality, and Outcomes: More Isn't Always Better." *A Dartmouth*

Atlas Project Topic Brief. Lebanon, NH: The Dartmouth Institute for Health Policy and Clinical Practice.

French, Eric and John Bailey Jones. 2004. "On the Distribution and Dynamics of Health Care Costs." *Journal of Applied Econometrics* 19: 705-721.

French, Eric and John Bailey Jones. 2007. "The Effects of Health Insurance and Self-Insurance on Retirement Behavior." Working Paper. Ann Arbor, MI: University of Michigan Retirement Research Center.

French, Eric and Kirti Kamboj. 2002. "Analyzing the Relationship between Health Insurance, Health Costs, and Health Care Utilization." *Economic Perspectives* 3Q: 60-72.

Fronstin, Paul, Dallas Salisbury, and Jack VanDerhei. 2008. "Savings Needed to Fund Health Insurance and Health Care Expenses in Retirement: Findings from a Simulation Model." EBRI Issue Brief 317.

Gabel, Jon, Heidi Whitmore, and Jeremy Pickreign. 2008. "Retiree Health Benefits After Medicare Part D: A Snapshot of Prescription Drug Coverage." The Commonwealth Fund Issue Brief 1162.

Gibbons, Robert and Virginia Wilcox-Gok. 1998. "Health Service Utilization and Insurance Coverage: A Multivariate Probit Analysis." *Journal of the American Statistical Association* 93 (441): 63-72.

Goldman, Dana and Julie Zissimopoulos. 2003. "High Out-of-Pocket Health Care Spending by the Elderly." *Health Affairs* 22(3): 194-202.

Government Accountability Office. 2008a. "Medicare Advantage: Characteristics, Financial Risks, and Disenrollment Rates of Beneficiaries in Private Fee-for-Service Plans." Washington, DC: Report number GAO-09-25.

Government Accountability Office. 2008b. "Medicare Advantage: Increased Spending Relative to Medicare Fee-for-Service May Not Always Reduce Beneficiary Out-of-Pocket Costs." Washington, DC: Report number GAO-08-359.

Gruber, Jonathan and Brigitte Madrian. 1995. "Health Insurance Availability and the Retirement Decision." *American Economic Review* 85(4): 938-948.

Gruber, Jonathan and Brigitte Madrian. 2002. "Health Insurance, Labor Supply, and Job Mobility: A Critical Review of the Literature." NBER Working Paper 8817.

Gustman, Alan and Thomas Steinmeier. 1994. "Employer-Provided Health Insurance and Retirement Behavior." *Industrial and Labor Relations Review* 48(1): 124-140.

Hurd, Michael and Kathleen McGarry. 1997. "Medical Insurance and the Use of Health Care Services by the Elderly." *Journal of Health Economics* 16: 129-154.

Hurley, Robert, Laurie Felland, Anneliese Gerland, and Jeremy Pickreign. 2006. "Public Employees' Health Benefits Survive Major Threats, So Far." *Health Affairs* Web Exclusive, April 28.

Jensen, Gail and Michael Morrissey. 1992. "Employer-Sponsored Postretirement Health Benefits: Not Your Mother's Medigap Plan." *The Gerontologist* 32(5): 693-703.

Johnson, Richard, and Stephen Crystal. 2000. "Uninsured Status and Out-of-Pocket Costs at Midlife." *Health Services Research* 35(5): 911-932.

Johnson, Richard, Amy Davidoff and Kevin Perese. 2003. "Health Insurance Costs and Early Retirement Decisions." *Industrial and Labor Relations Review* 56(4): 716-729.

Karoly, Lynn and Jeannette Rogowski. 1994. "The Effect of Access to Post-Retirement Health Insurance on the Decision to Retire Early." *Industrial and Labor Relations Review* 48(1): 103-123.

Lichtenberg, Frank. 2002. "The Effects of Medicare on Health Care Utilization and Outcomes." *Forum for Health Economics & Policy* 5(3): 1-26.

Lillard, Lee and Jeannette Rogowski. 1995. "Does Supplemental Private Insurance Increase Medicare Costs?" Labor and Population Program Working Paper Series 95-16, July 1995.

Linsenmeier, David. 2002. "Do Retiree Health Benefits Cause Early Retirement?" Mimeo, November.

Maestas, Nicole, Mathis Schroeder, and Dana Goldman. 2009. "Price Variation in Markets with Homogeneous Goods: The Case of Medigap." NBER Working Paper 14679.

Marton, James and Stephen Woodbury. 2006. "Retiree Health Benefits and Retirement." Upjohn Institute Staff Working Paper 06-128.

McCall, Nelda and Thomas Rice and James Boismier and Richard West. "Private Health Insurance and Medical Care Utilization: Evidence from the Medicare Population." *Inquiry* 28: 276-287.

Munnell, Alicia and Steve Sass. 2008. *Working Longer: The Solution to the Retirement Income Challenge*, Brookings Institution Press: Washington, DC.

Newhouse, Joseph. 1993. *Free for All? Lessons from the Rand Health Insurance Experiment*. Harvard University Press: Cambridge, MA.

Rogowski, Jeannette and Lynn Karoly. 2000. "Health Insurance and Retirement Behavior: Evidence from the Health and Retirement Study." *Journal of Health Economics* 19(4): 529-539.

Rust, John and Christopher Phelan. 1997. "How Social Security and Medicare Affect Retirement Behavior In a World of Incomplete Markets." *Econometrica* 65(4): 781-831.

Strumpf, Erin. November 2007. "Employer-Sponsored Health Insurance for Early Retirees: Impacts on Retirement, Health, and Health Care." Unpublished Working Paper.

University of Michigan. "Health and Retirement Study, 1992-2006." Retrieved October 2008. Available at: http://hrsonline.isr.umich.edu.

Wolfe, John and John Goddeeris. 1991. "Adverse Selection, Moral Hazard, and Wealth Effects in the Medigap Insurance Market." *Journal of Health Economics* 10: 433-459.

Zuckerman, Stephen, Jennifer Haley and Matthew Fragale. 2001. "Could Subsidizing COBRA Health Insurance Coverage Help Most Low-income Unemployed?" *Health Policy Online*, No. 2, Urban Institute.

Table 1: *2009 Medicare Cost-Sharing Requirements*

Medicare Benefits	Monthly Premium	Annual Deductible	Copayments/ Coinsurance	OOP Maximum
Part A	None			None
Inpatient hospital stay		$1,068		
<60 days			None	
61-90 days			267/day	
Lifetime reserve days (60)			534/day	
Skilled Nursing Facility		None		
<20 days			None	
21-100 days			133.50/day	
Hospice			5%	
Part B	96.40	135	20%	None
Part D	28	295	25%-100%	$4,350

Sources: Centers for Medicare and Medicaid Services; Claxton et al. (2008).

Table 2: *Supplemental Coverage for Medicare Beneficiaries*

	Basic Medicare (Parts A & B)	RHI	Medicare Advantage (HMO)	Medigap	Part D
Standard Medicare	Yes				
Medicare cost-sharing		Yes	Yes	Yes	
Prescription drugs		Yes	Yes		Yes
Extra services (dental, etc.)		Yes	Yes		
Out-of-pocket Maximum		Yes	Yes		

Note: RHI plan assumed to be a wrap-around plan. Medigap plan assumed to be Plan F (the most popular) that does not offer prescription drug coverage. Not all Medicare HMOs have an out-of-pocket maximum.
Source: Authors' analysis.

Table 3: *Summary Statistics, 1998-2006*

	Age 55-64		Age 65+	
	Mean	St. Dev.	Mean	St. Dev.
Demographics				
Female	0.52	(0.50)	0.57	(0.49)
Age (years)	59.5	(2.9)	75.2	(7.1)
Married	0.70	(0.46)	0.56	(0.50)
Widowed	0.07	(0.25)	0.32	(0.47)
Non-white	0.20	(0.40)	0.15	(0.36)
Education (years)	13.0	(3.0)	12.0	(3.3)
Debt (=1 if total household assets<0)	0.04	(0.20)	0.02	(0.14)
Total household assets (100,000s, 2006 dollars)	1.19	(0.93)	1.18	(0.91)
Total household income (100,000s, 2006 dollars)	0.50	(0.37)	0.32	(0.27)
House owner (=1 if has asset value in housing)	0.84	(0.36)	0.79	(0.41)
Employment				
Tenure on longest job (years)	17.1	(10.9)	18.7	(14.2)
Ever self-employed	0.20	(0.40)	0.15	(0.36)
Ever in a union	0.22	(0.42)	0.07	(0.26)
Currently works	0.62	(0.48)	0.18	(0.38)
Retired	0.31	(0.46)	0.78	(0.42)
Health				
Private health insurance	0.08	(0.27)	0.27	(0.44)
Employer-sponsored insurance from current employer or spouse's employer	0.54	(0.50)	0.07	(0.26)
Retiree health insurance from former employer or spouse's former employer	0.17	(0.38)	0.28	(0.45)
Total 2-year health insurance premiums (private or HMO + Part D, 2006 dollars)	2,463	(4,041)	2,088	(3,055)
Total 2-year out-of-pocket spending (not including premiums, 2006 dollars)	2,818	(9,087)	3,384	(11,797)
Good health (=1 if self-assessed health is good, very good, or excellent)	0.77	(0.42)	0.69	(0.46)
One chronic condition	0.33	(0.47)	0.25	(0.43)
Two or more chronic conditions	0.41	(0.49)	0.64	(0.48)

Note. Statistics are calculated using cross section analytic weights. Number of observations varies by variable.

Source: Authors' calculations from the 1998-2006 HRS.

Table 4: *Probit Results for Retiring at t+2, 1998-2004 (Marginal Effects Reported)*

	Single		Married	
	Coefficient	St. Error	Coefficient	St. Error
Demographics				
Female	-0.024	(0.022)	-0.016	(0.014)
Non-white	-0.022	(0.018)	-0.024	(0.014)*
Debt	-0.029	(0.030)	-0.043	(0.031)
Log HH assets	0.033	(0.014)**	0.033	(0.008)***
Own house	-0.004	(0.020)	0.045	(0.017)***
Widowed	0.008	(0.018)		
Age Dummies				
Age 56	0.094	(0.063)	0.048	(0.035)
Age 57	-0.019	(0.047)	0.035	(0.032)
Age 58	0.19	(0.069)***	0.044	(0.035)
Age 59	0.227	(0.075)***	0.104	(0.038)***
Age 60	0.322	(0.074)***	0.31	(0.044)***
Age 61	0.399	(0.079)***	0.269	(0.043)***
Age 62	0.245	(0.079)***	0.244	(0.047)***
Age 63	0.379	(0.083)***	0.285	(0.049)***
Age 64	0.431	(0.082)***	0.398	(0.052)***
RHI Offer Dummies for Each Age				
RHI offer * Age 55	0.147	(0.084)*	0.069	(0.040)*
RHI offer * Age 56	-0.034	(0.049)	0.018	(0.038)
RHI offer * Age 57	0.165	(0.086)*	0.104	(0.039)***
RHI offer * Age 58	-0.029	(0.042)	0.098	(0.044)**
RHI offer * Age 59	0.134	(0.068)**	0.068	(0.038)*
RHI offer * Age 60	0.092	(0.056)*	0.045	(0.033)
RHI offer * Age 61	0.117	(0.063)*	0.083	(0.034)**
RHI offer * Age 62	0.113	(0.067)*	0.082	(0.040)**
RHI offer * Age 63	0.029	(0.055)	0.073	(0.040)*
RHI offer * Age 64	0.077	(0.065)	0.059	(0.042)
Health				
Medicaid	0.047	(0.077)	-0.081	(0.053)
Uninsured	-0.029	(0.032)	-0.012	(0.025)
Employer-sponsored coverage	-0.057	(0.039)	-0.081	(0.021)***
Good to excellent health	-0.04	(0.024)	-0.057	(0.020)***
Smokes now	0.059	(0.020)***	0.022	(0.015)
Difficulty with ADL	0.064	(0.044)	0.052	(0.028)*
Preferences				
Risk averse	0.031	(0.017)*	0.001	-(0.012)
Self-assessed probability of living to 75+	-0.046	(0.022)**	-0.028	(0.014)**
Worker Characteristics				
Self-employed	-0.019	(0.028)	-0.048	(0.016)***
Ever observed in union	0.002	(0.019)	0.039	(0.014)***
Log wage	-0.05	(0.015)***	-0.012	(0.009)
Hours worked per week	-0.003	(0.001)***	-0.003	(0.001)***
Part time	0.046	(0.030)	0.044	(0.020)**
Job physically demanding	-0.014	(0.017)	-0.011	(0.013)
Tenure on current job	0.002	(0.001)**	0.002	(0.000)***
DB pension	0.044	(0.024)*	0.03	(0.017)*
DC pension	-0.064	(0.018)***	-0.015	(0.014)
DB/DC pension	-0.04	(0.041)	-0.019	(0.024)
Spouse's Characteristics				
Spouse good to excellent health			0.011	(0.013)
Spouse's earnings (1,000s)			0.0001	(.00008)*
Spouse works			-0.032	(0.014)**
Spouse's tenure on current job			0.001	(0.001)
Observations	2692		6944	

Note. Standard errors clustered at the individual level in parentheses. * significant at 10%; ** significant at 5%;
*** significant at 1%. Cross section weights used. Regressions also include dummies for year, Census division,
current occupation, and current industry.

(Continued from Table 4) *Source*: Authors' calculations from the 1998-2006 HRS.

Table 5: *Predicted Probability of Retiring in 2 Years Conditional on Observables, by RHI Offer*

	Single		Married	
Age	Without RHI offer	With RHI offer	Without RHI offer	With RHI offer
55	0.03	0.09	0.07	0.11
56	0.07	0.05	0.09	0.10
57	0.03	0.09	0.08	0.15
58	0.12	0.09	0.09	0.17
59	0.17	0.32	0.13	0.19
60	0.22	0.34	0.31	0.37
61	0.29	0.45	0.27	0.38
62	0.16	0.29	0.24	0.34
63	0.25	0.29	0.26	0.36
64	0.31	0.42	0.38	0.46

Note. Based on regression results in Table 4. Calculated only for those with RHI offer (see text).
Source: Authors' calculation from the 1998-2006 HRS.

Table 6: *Multinomial Logit Results for Supplemental Coverage, 1998-2006 (Base Category: basic Medicare)*

	Medicare HMO			Medigap		
	RRR	Coefficient	St. Error	RRR	Coefficient	St. Error
Demographics						
Female	1.108	0.103	(0.069)	1.386	0.327	(0.060)***
Age	1.543	0.433	(0.065)***	1.239	0.214	(0.053)***
Age squared	0.749	-0.289	(0.042)***	0.875	-0.134	(0.034)***
Married	1.357	0.305	(0.103)***	1.148	0.138	(0.092)
Widowed	0.966	-0.035	(0.096)	1.168	0.155	(0.084)*
Non-white	0.686	-0.377	(0.070)***	0.249	-1.389	(0.070)***
Education	1.066	0.064	(0.010)***	1.049	0.048	(0.009)***
Debt	0.818	-0.200	(0.143)	0.598	-0.514	(0.131)***
Log wealth	1.172	0.159	(0.046)***	1.563	0.447	(0.040)***
Log income	0.904	-0.101	(0.138)	1.563	0.172	(0.129)
Owns house	1.270	0.239	(0.074)***	0.977	-0.024	(0.062)
Smoker	0.783	-0.245	(0.085)***	0.660	-0.416	(0.076)***
Job Characteristics						
Spouse's longest tenure	1.002	0.002	(0.003)	1.004	0.004	(0.002)
Longest tenure	1.003	0.003	(0.002)	1.008	0.008	(0.002)***
Ever self-employed	0.721	-0.328	(0.085)***	0.966	-0.034	(0.068)
Ever in a union	1.184	0.169	(0.107)	0.863	-0.147	(0.112)
Financial Planning Horizon						
Medium term	1.128	0.120	(0.058)**	1.210	0.190	(0.051)***
Long term	0.898	-0.108	(0.110)	0.917	-0.086	(0.099)
Risk Aversion						
Risk averse	1.121	0.115	(0.089)	1.166	0.153	(0.081)*
Adverse Selection						
One chronic condition	1.190	0.174	(0.090)*	1.224	0.202	(0.080)**
Two or more chronic conditions	1.263	0.234	(0.087)***	1.463	0.380	(0.076)***
Log pseudolikelihood			-24619.5			
Observations			27034			

Note. Standard errors are those for the coefficients and are clustered at the individual level in parentheses. * significant at 10%; ** significant at 5%;

*** significant at 1%. Cross section sample weights used. Regressions also include dummies for year and Census division, and for risk aversion

and horizon missing.

Source: Authors' calculations from the 1998-2006 HRS.

Table 7: *Allocation of RHI Holders to Supplemental Insurance Categories (Based on Results in Table 6)*

	Percent of RHI Holders Assigned Insurance
Basic Medicare	23%
Medicare HMO	29%
Medigap	48%

Source: Authors' calculations from the 2006 HRS.

Table 8: *Change in Spending for RHI Holders at Age 65*

	RHI Holders' Supplemental Insurance Choice		
	Basic Medicare	Medicare HMO	Medigap
MEANS			
OOP Spending			
Change in Biennial Spending	$1,793	-$290	$672
Discounted PV (2007 Dollars)	16,441	-2,664	6,167
Total Spending			
Change in Biennial Spending	-$481	-$1,824	$1,308
Discounted PV (2007 Dollars)	-4,413	-16,727	11,993
MEDIANS			
OOP Spending			
Change in Biennial Spending	$449	-$231	$390
Discounted PV (2007 Dollars)	4,120	-2,117	3,575
Total Spending			
Change in Biennial Spending	-$1,543	-$1,671	$1,590
Discounted PV (2007 Dollars)	-14,148	-15,323	14,580

Note. Based on results of multinomial logit. PV refers to present value, calculated from age 65
to death. Assumes real interest rate of 3 percent. Growth in real medical costs taken from
Centers for Medicare and Medicaid Services. Represents a weighted average of men and women.
Source: Authors' calculations from the 2006 HRS.

Table 9: *Change in Utilization for RHI Holders, 2006 (2004 for flu, cholesterol, pap smear, mammogram and prostate)*

|	**RHI Holders' Supplemental Insurance Choice**		
Treatment/Service	Basic Medicare	Medicare HMO	Medigap
Number of doctor visits	-5%	-7%	-5%
Number of hospital visits	**-15%**	**-17%**	-5%
Prescription drug use	**-4%**	**-6%**	**-3%**
Outpatient surgery	**-28%**	**-14%**	**-15%**
Special facility use	9%	**-25%**	-11%
Dentist visit	**-24%**	**-20%**	**-12%**
Flu shot	**-16%**	**-8%**	**-4%**
Cholesterol test	**-9%**	-2%	**-3%**
Pap smear	**-13%**	**-18%**	**-17%**
Mammogram	**-17%**	**-10%**	**-11%**
Prostate exam	**-11%**	0%	-4%

Note. Based on results of multinomial logit. Other than doctor visits and hospital visits, variables fall in [0,1].
Bold indicates statistically significant at the 10% level or below (two-tailed t test).
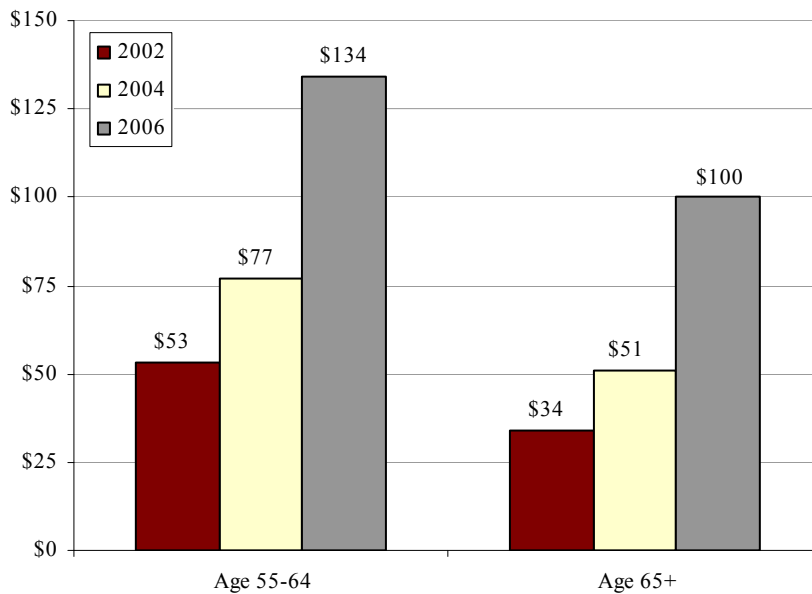*Source*: Authors' calculations from the 2004-2006 HRS.

Figure 1: *Percent of Large Employers Offering RHI to Active Employees, Selected Years, 1988-2006*
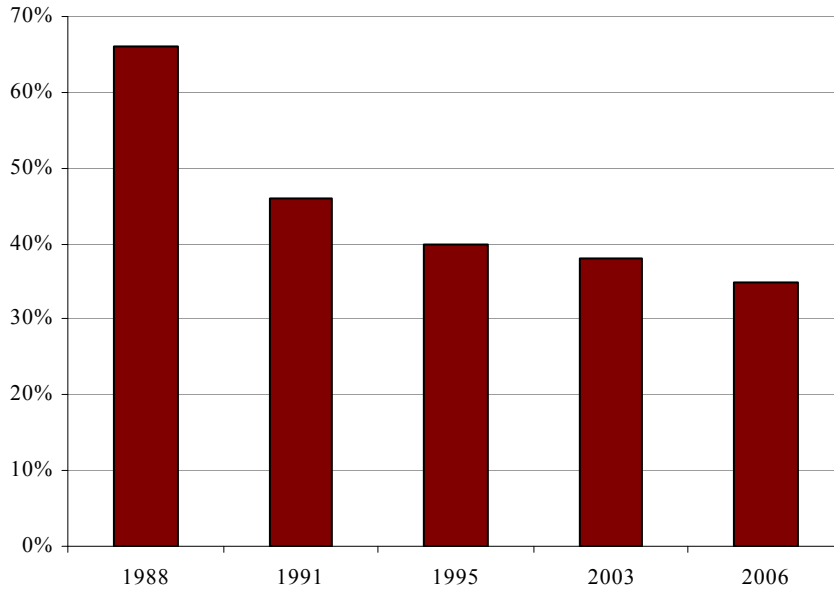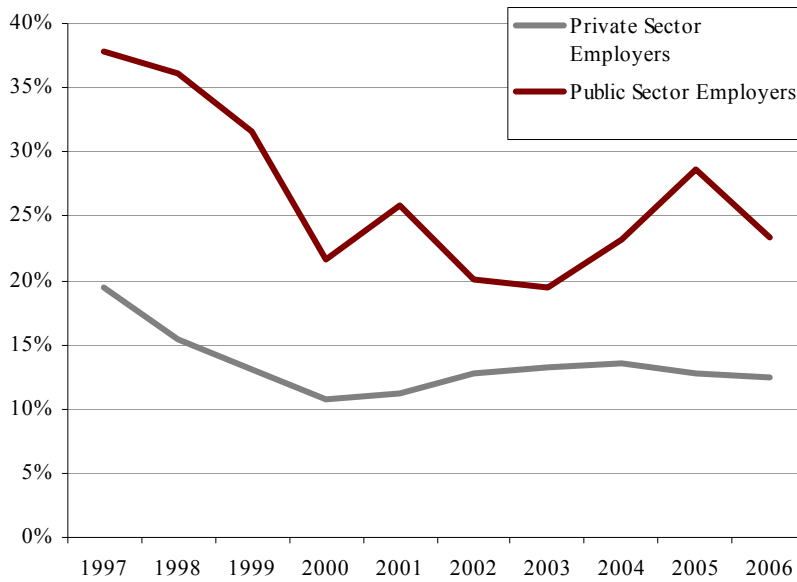

Source: Claxton et al. (2008).

Figure 2: *Median Monthly RHI Individual Out-of-Pocket Premiums, 2002-2006 (2006 Dollars)*
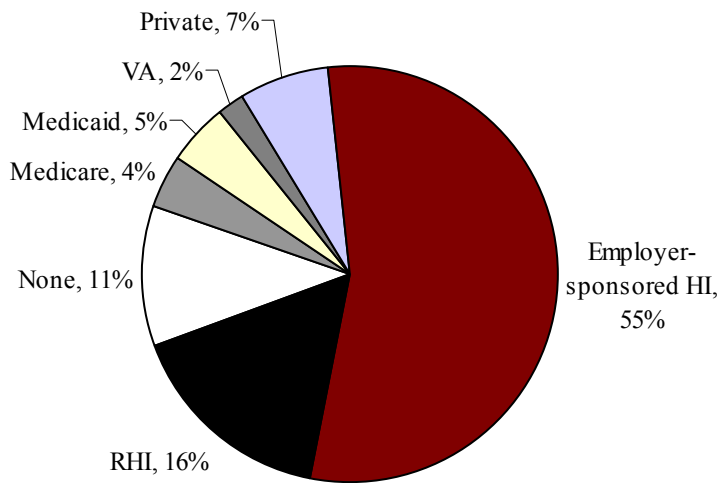

Source: Authors' calculations from the HRS, using cross section sample weights.

Figure 3. *Percent of Employers Offering RHI, Public and Private, by Age of Enrollee, 1997-2006*

Source: Agency for Healthcare Research and Quality, Insurance Component National-Level Summary Tables from MEPS Data.
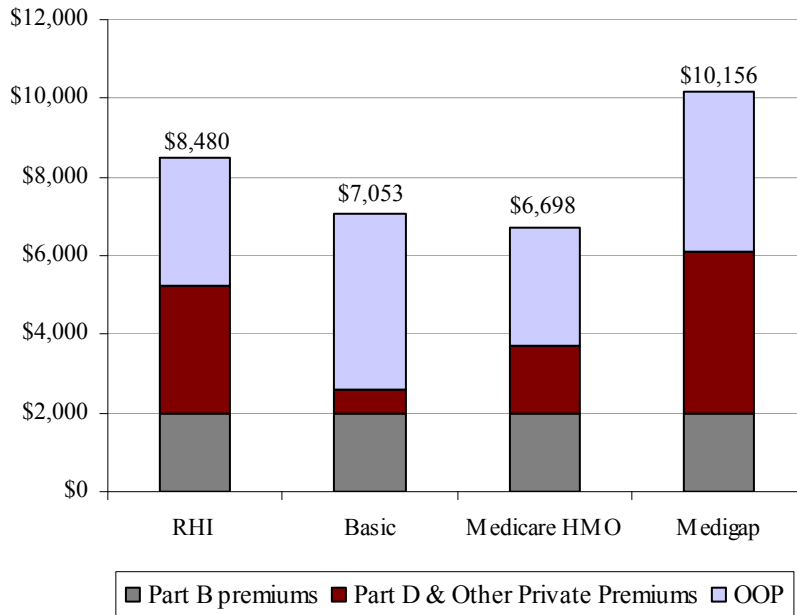
Figure 4: *Sources of Coverage, Ages 55-64, 2006*

Source: Authors' calculations from the HRS, using cross section sample weights.

Figure 5: *Sources of Coverage, Ages 65+, 2006*
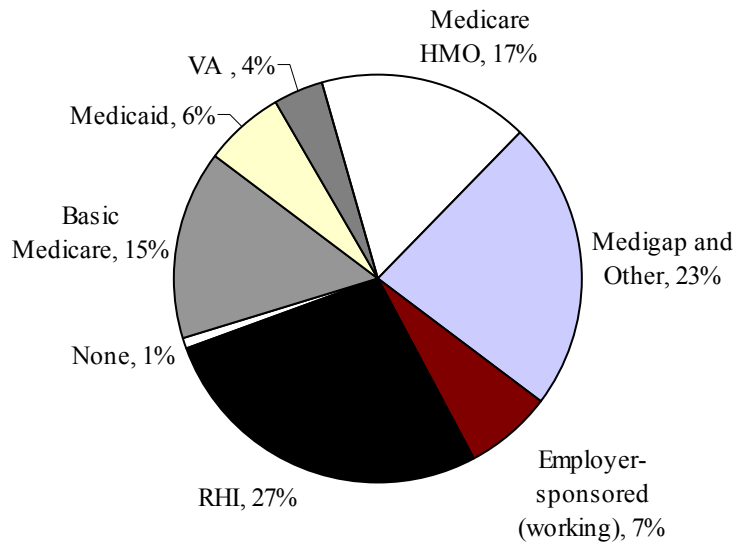
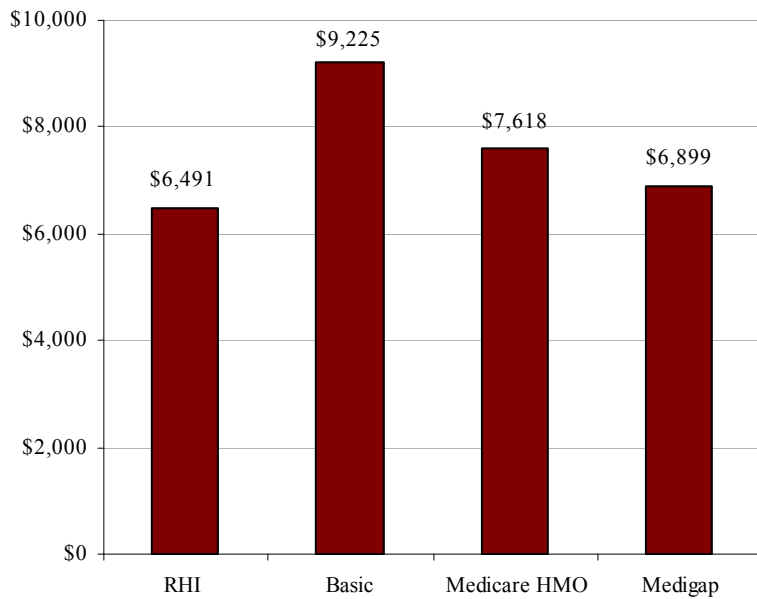*Source*: Authors' calculations from the HRS, using cross section sample weights.

Figure 6: *Mean 2-Year Spending by Insurance Type, Excluding Medicaid, 2006 (2006 Dollars)*

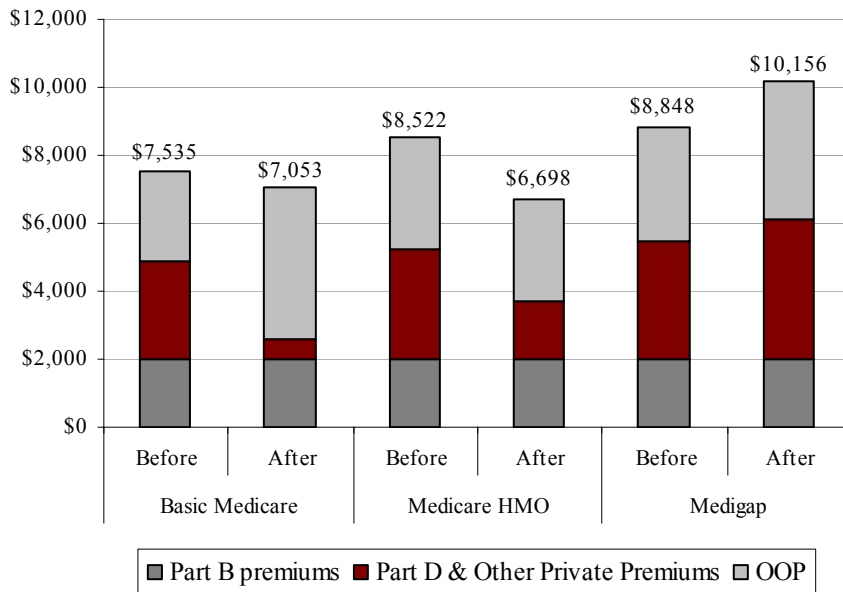*Source*: Authors' calculations from the HRS, using cross section sample weights.
Note: Excludes Medicaid enrollees and those with VA coverage.

Figure 7: *Standard Deviation in OOP Spending, Excluding Medicaid, 2006 (2006 Dollars)*
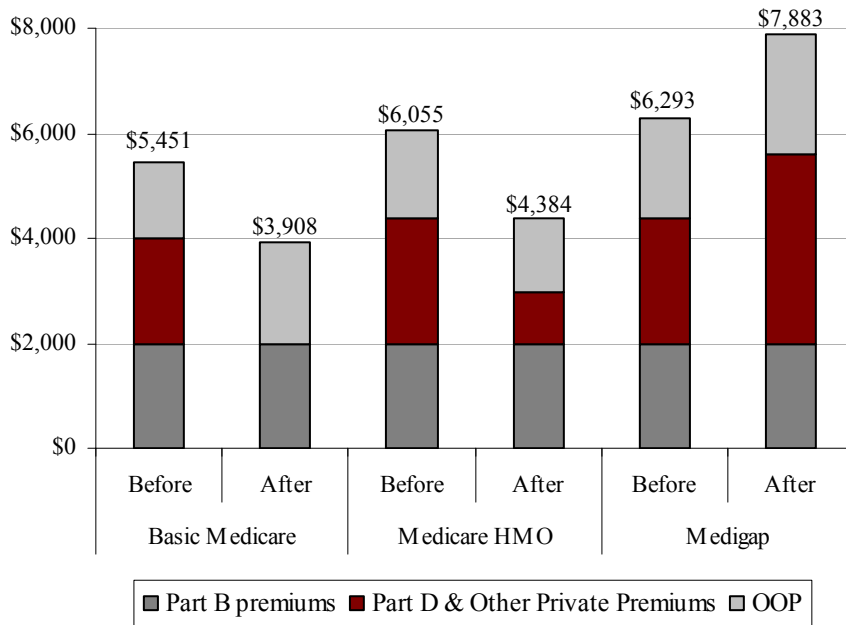

Source: Authors' calculations from the HRS, using cross section sample weights.

Figure 8: *Mean 2-Year Spending For RHI Holders Before and After Switching, 2006 (2006 Dollars)*

Source: Authors' calculations from the HRS, using cross section sample weights.

Figure 9: *Median 2-Year Spending For RHI Holders Before and After Switching, 2006 (2006 Dollars)*

Source: Authors' calculations from the HRS, using cross section sample weights.

Appendix A. *Assigning RHI Holders to Insurance Categories*

Using the regression results, we predict the conditional probability of being in basic Medicare, a Medicare HMO, or Medigap for RHI holders.[50] These three probabilities sum to 1. Rather than picking the choice with the highest predicted probability, we use a slightly more sophisticated allocation mechanism to put each individual into an insurance category. We give everyone a random draw from the zero-one uniform distribution. Then, based on the value of this random draw compared to their probabilities, we can put them into the correct category.

For example, suppose Barry has the following predicted probabilities -- 80 percent basic Medicare, 12 percent Medicare HMO, and 8 percent Medigap -- and his random draw from the uniform distribution is x (which is between 0 and 1). If x is less than .8, Barry gets basic Medicare; if x is between .8 and .92, he gets a Medicare HMO; and if x is greater than .92, he gets Medigap. That way we avoid assigning a probability of 1 to an event (having basic Medicare) that only occurs with an 80 percent chance.

---

[50] In the interest of sample size, the multinomial logit is run on a sample of Medicare beneficiaries between 1998 and 2006. The simulations use only the 2006 wave of RHI holders to make sure that we use data that reflects the introduction of Part D.

Appendix B. *Spending Comparison Using Conditional Means*

We regress OOP spending on a set of covariates that include demographics, insurance type, parental and sibling characteristics (age, whether living), health, and utilization (results available upon request). The R^2 of this regression is 0.33. Using these regression results, we then predict conditional OOP spending. Note that we do not predict premium spending with a regression but take actual unconditional means for private insurance premiums, as we did for the unconditional means. A comparison of predicted spending by group is presented in Table A1.

Table A1: *Change in Spending for RHI Holders at Age 65, Using Conditional Means*

	RHI Holders' Supplemental Insurance Choice		
	Basic Medicare	Medicare HMO	Medigap
CONDITIONAL MEANS			
OOP Spending			
Change in Biennial Spending	$176	-$406	$253
Discounted PV (2007 Dollars)	1,612	-3,723	2,322
Total Spending			
Change in Biennial Spending	-$2,098	-$1,939	$888
Discounted PV (2007 Dollars)	-19,242	-17,786	8,147

Note. Based on results of multinomial logit and a regression for OOP spending. PV refers to present value, calculated from age 65 to death. Assumes real interest rate of 3 percent. Growth in real medical costs taken from Centers for Medicare and Medicaid Services. Represents a weighted average of men and women.

RECENT WORKING PAPERS FROM THE

CENTER FOR RETIREMENT RESEARCH AT BOSTON COLLEGE

Capital Income Taxes With Heterogeneous Discount Rates
Peter Diamond and Johannes Spinnewijn, June 2009

Are Age-62/63 Retired Worker Beneficiaries At Risk?
Eric R. Kingson and Maria T. Brown, June 2009

Taxes and Pensions
Peter Diamond, May 2009

How Much Do Households Really Lose By Claiming Social Security at Age 62?
Wei Sun and Anthony Webb, April 2009

Health Care, Health Insurance, and the Relative Income of the Elderly and Nonelderly
Gary Burtless and Pavel Svaton, March 2009

Do Health Problems Reduce Consumption at Older Ages?
Barbara A. Butrica, Richard W. Johnson, and Gordon B.T. Mermin, March 2009

Financial Hardship Before and After Social Security's Early Eligibility Age
Richard W. Johnson and Gordon B.T. Mermin, March 2009

Rising Tides and Retirement: The Aggregate and Distributional Effects of Differential Wage Growth on Social Security
Melissa M. Favreault, February 2009

Accounting for the Heterogeneity in Retirement Wealth
Fang Yang, January 2009

Labor Supply Elasticity and Social Security Reform
Selahattin Imrohorolu and Sagiri Kitao, January 2009

Evaluating Micro-Survey Estimates of Wealth and Saving
Barry P. Bosworth and Rosanna Smart, January 2009

All working papers are available on the Center for Retirement Research website (http://www.bc.edu/crr) and can be requested by e-mail (crr@bc.edu) or phone (617-552-1762).