MEDICARE, RETIREMENT COSTS, AND LABOR SUPPLY AT OLDER AGES

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Abstract

When workers retire, they forego the wages and many of the benefits they received while employed. By providing subsidized health insurance coverage to virtually every American at age 65, Medicare reduces the cost of retiring for workers who receive health benefits from their employers, especially when those benefits do not continue after retirement. As a result, an increase in the age of Medicare eligibility may lead many workers to delay retirement. This paper examines how a potential increase in the age of Medicare eligibility might affect retirement behavior by relating the health insurance costs of retirement to labor supply decisions. The insurance cost of retirement is the increase in health insurance premiums that workers face after they retire, relative to what they pay when working. We measure the effect of insurance costs on labor force withdrawals by including the net present value of premium costs in a multivariate model of retirement. We then simulate the impact of changes in the Medicare eligibility age by re-computing premium costs under the assumption that individuals could not receive Medicare coverage until age 67. We find that health insurance costs significantly discourage retirement, and that an increase in the age of Medicare eligibility would reduce retirement rates.

As the nation ages, relatively young workers will have to support a growing number of older retirees, threatening the welfare of both generations. Actuaries at the Social Security Administration predict that the number of elderly Americans will more than double by 2040, while the number of adults aged 20 to 64 will rise by only 21 percent (Board of Trustees 2001). One way to relieve these demographic pressures would be for individuals to delay retirement and work until older ages. As policymakers consider different approaches to encouraging work, the roles that public programs, such as Medicare, play in the retirement decision merit scrutiny. This paper examines how Medicare influences labor supply at older ages and how an increase in the age of Medicare eligibility would affect retirement decisions.

Although numerous studies have examined the effects of Social Security and employer-sponsored pensions on labor supply, the possible effects of Medicare have received less attention. However, Medicare's influence on retirement decisions may be substantial. When workers retire, they forego the wages and many of the benefits they received while employed. By providing subsidized health insurance coverage to virtually every American at age 65, Medicare reduces the cost of retiring for workers who receive health benefits from their employers, especially when those benefits do not continue after retirement. As a result, increases in the eligibility age might induce many workers to delay retirement.

This paper measures how a potential increase in the age of Medicare eligibility might affect retirement behavior by relating the health insurance costs of retirement to labor supply decisions. As developed by Johnson, Davidoff, and Perese (forthcoming), the insurance cost of retirement is the increase in health insurance premiums that workers face after they retire, relative to what they pay when working. We measure the effect of insurance costs on labor force withdrawals by including the net present value of premium costs in a multivariate model of

retirement. We then simulate the impact of an increase in the age of Medicare eligibility by re-computing premium costs under the assumption that nondisabled adults could not receive Medicare coverage until age 67. We find that health insurance costs significantly discourage retirement, and that an increase in the age of Medicare eligibility to 67 would reduce retirement rates.

BACKGROUND

Most research on the effects of retirement systems on labor supply at older ages has focused on the impact of pensions on retirement decisions. Several recent studies have shown that the level of wealth that workers accumulate in the Social Security program and in employer-sponsored pension plans has important effects on labor supply at older ages (Anderson, Gustman, and Steinmeier 1999; Coile and Gruber 2000; Gustman and Steinmeier 2001; Samwick 1998). Workers with more wealth tend to retire earlier than those with less wealth, because the promise of future streams of benefits after retirement enables them to withdraw from the labor force without reducing consumption in later life.

These studies have also shown that pensions introduce financial incentives that encourage workers to retire at particular ages. In Social Security and most defined benefit (DB) pension plans, retirement wealth does not accrue evenly over time. Instead, wealth profiles exhibit spikes and often begin to decline after certain ages. For example, wealth in employer-sponsored DB plans generally increases sharply at the early and normal retirement ages, when participants can begin receiving benefits. Vested workers who separate before the retirement age will eventually receive benefits, but inflation erodes their deferred payments. In addition, pension wealth often drops after the normal retirement age, because an additional year of work does not generally raise monthly benefits enough to offset the loss of a year of pension receipt. Until the recent

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increase in the delayed retirement credit, workers lost substantial amounts of Social Security

wealth when they waited until the normal retirement age to begin collecting benefits. Several

studies have shown that workers respond to these incentives by delaying retirement if continued

work would substantially increase their pension and Social Security wealth, and by accelerating

retirement once their wealth begins to decline (Coile and Gruber 2000; Gustman and Steinmeier

2001; Samwick 1998; Stock and Wise 1990).

Although the labor supply effects of Medicare have received less attention than those of

Social Security and employer-sponsored pension plans, the federal health insurance program

may also have important effects on retirement decisions. Most workers in late midlife receive

employer-sponsored health insurance. In 1994, for example, 68 percent of Americans aged 58 to

63 who worked 20 or more hours per week received health benefits from their own employers,

while another 15 percent received benefits through their spouses' employers (Loprest and

Uccello 1997). For many workers the loss of job-related health benefits is an important cost of

retiring before the age of Medicare eligibility. Some workers receive retiree health insurance

(RHI) from their employers or are covered through their spouses, but for others the alternatives

to employer-sponsored coverage after retirement are generally expensive. The Consolidated

Omnibus Budget Reconciliation Act (COBRA) entitles former employees at firms with 20 or

more workers to continuation coverage for up to 18 months. However, the worker is responsible

for 102 percent of the employer's premium costs during this period. Retirees are forced to turn

to the private nongroup market if they are still ineligible for Medicare when they exhaust their

COBRA coverage. Nongroup policies are generally expensive, especially for those with pre-

existing medical conditions (Chollet and Kirk 1998).

Even for workers with RHI benefits, health insurance costs often rise after retirement. Post-retirement health benefits are typically less generous than benefits provided to active workers. For example, large firms that offered health benefits in 1995 paid on average 77 percent of the health insurance premium costs for active workers but only 52 percent of premium costs for retired workers (Foster Higgins 1996). Moreover, the fraction of workers eligible for retiree health benefits has been declining in recent years. Between 1988 and 2001, the share of large employers (those with more than 200 employees) offering RHI benefits fell from 66 percent to 34 percent, among those providing health benefits to active workers (Kaiser Family Foundation and HRET 2002).

Delaying the Medicare eligibility age would raise the cost of retirement for workers with employer-sponsored health benefits but without RHI offers. It would increase the length of time during which these retirees would need to purchase expensive continuation coverage or nongroup coverage in order to avoid becoming uninsured. As a result, raising the eligibility age above 65 would likely discourage retirement for workers who receive health benefits from their employers but are not offered RHI benefits.

Medicare's ongoing financial problems have led to periodic calls to raise the age of eligibility above 65. In 1995, the Bipartisan Commission on Entitlement and Tax Reform (1995) proposed an increase in both the age of Medicare eligibility and the normal retirement age for Social Security to 70, after a 30-year transitional period. Two years later the U.S. Senate approved an increase in the Medicare eligibility age to 67, as part of the 1997 Balanced Budget Act (S.947, Section 5611). This provision, however, was dropped from the bill before it became law. Finally, the Congressionally chartered National Bipartisan Commission on the Future of Medicare (1999) recommended an increase in the eligibility age to 67, but Congress never acted

on the proposal. Medicare's ongoing financial problems, in combination with efforts to encourage older Americans to remain at work, may soon generate renewed calls to raise the age of eligibility.

A growing literature documents the effect of health insurance on retirement behavior. Several recent papers have found that the availability of health insurance after retirement encourages workers to withdraw from the labor force. Using longitudinal data from the Health and Retirement Study (HRS), Blau and Gilleskie (2001) found that men aged 51 to 61 eligible for post-retirement health benefits were substantially more likely to exit from employment than men without these benefits. Their estimated effects increased with age and were larger when employers paid the full cost of RHI coverage than when they shared costs with retired workers.

Rogowski and Karoly (2000) reached similar conclusions. They found that retirement rates in the HRS were 68 percent larger for men with RHI offers than for men who had health benefits while working but were not eligible for benefits during retirement. In earlier work using the Survey of Income and Program Participation (SIPP), Karoly and Rogowski (1994) found that the availability of RHI increased retirement rates by about 8 percentage points, representing a 50 percent increase in the baseline retirement probability. Gustman and Steinmeier (1994), however, found that the effects of post-retirement health benefits were quite modest, accelerating retirement for men by only 1.3 months.

Other studies have concluded that the availability of Medicare benefits and government-mandated continuation coverage can affect retirement behavior. Rust and Phelan (1997) found that individuals who would lose their employer-provided health insurance by retiring often wait until they become eligible for Medicare before withdrawing from the labor force. Madrian and Beaulieu (1998) found that retirement hazards among married men aged 55 to 69 were higher

for those with Medicare-eligible spouses than for those whose spouses had not yet reached age 65, perhaps because of the expense of purchasing health insurance for spouses not yet old enough to qualify for Medicare benefits. Government mandates requiring employers to continue insurance coverage for a specified period of time after workers leave the firm appear to encourage retirement as well. According to one estimate, continuation-of-coverage mandates increase retirement hazards by 32 percent (Gruber and Madrian 1995).

Finally, Johnson, Davidoff, and Perese (forthcoming) found that health insurance costs have important effects on retirement decisions. Instead of considering only the availability of post-retirement insurance coverage on retirement behavior, as most previous studies have done, they examined how changes in health insurance premium costs associated with retirement affect withdrawals from the labor force. They concluded that insurance costs significantly reduce retirement rates for full-time workers aged 51 to 61, with elasticities of –0.22 for men and –0.24 for women. None of these studies, however, measures the possible effect of an increase in the age of Medicare eligibility on retirement rates.

METHODS

Following Johnson, Davidoff, and Perese (forthcoming), we quantify the possible effects of changes in the Medicare eligibility age on labor force withdrawals by computing the premium cost associated with retirement. We define this cost as the monthly increase in premium expenses that workers would pay if they retired, compared to what they would pay if they remained at work, and compute the net present value of the stream of costs from the age at which workers consider retirement until they reach the Medicare eligibility age, adjusting for survival probabilities.

The net present value of the stream of costs, PCR, can be expressed as:

$$PCR = \sum_{i=j+1}^{T}(R_i - W_i)(\frac{1+c}{1+r})^{i-j} p_i$$

where R_i is the monthly premium cost in month i when retired, W_i is the monthly premium cost in month i when working, j is the worker's current age in months, c is the monthly projected increase in premium costs from the current period until the worker reaches the age of Medicare eligibility, r is the real interest rate, p_i is the probability that the worker will survive from the current age j (in months) to age i (in months), and T is the eligibility age for Medicare benefits, expressed in months. Under current law, when workers can begin receiving Medicare benefits at 65, T equals 780.[1] The value of c is set equal to 0.190 percent, the compound monthly real growth rate in private health insurance spending per insured person over the period 1990-98, computed from national health expenditure data (Levit et al 2000) and Census data on the number of insured persons.[2] Gender-specific survival rates are drawn from Social Security Administration (SSA) life tables for the 1936 birth cohort. Annual survival rates are transformed into monthly rates using linear interpolation. We use an annual interest rate, r, of 2.8 percent, corresponding to the intermediate assumptions used by SSA actuaries in 1998 when evaluating the OASDI trust funds (Social Security Administration 1999). This annual rate translates into a monthly real interest rate of 0.23 percent.

Retirement Models

The analysis measures the effect of premium costs on retirement decisions by including PCR among the covariates in probit models of retirement. We estimate the models for a sample of adults working for pay at baseline (in 1996), and set the dependent variable equal to one for

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[1] We assume that both R_i and W_i are paid with after-tax dollars, although some persons are able to make before-tax contributions to their health plans while working. Because we are unable to account properly for the preferred tax treatment that some health insurance costs receive, the analysis may underestimate PCR for some workers.

[2] Real private health insurance spending per insured person increased 2.3 percent *per year* from 1990 to 1998.

those who are retired two years later (in 1998). In addition to PCR, the models include measures

of health, economic, and demographic characteristics of workers, all measured at baseline. We

measure health by an index of physical impairments, with higher scores indicating worse health.

The model includes indicators of DB and defined contribution (DC) pension coverage and

measures of retirement wealth and the future stream of earnings that workers could expect to

receive if they remained at work until age 67. We assume that future earnings would increase at

a real annual rate of 0.9 percent per year, equal to the Social Security Administration's

intermediate wage growth assumption in 1998. We expect that retirement wealth and pension

coverage would increase retirement probabilities, by reducing the cost of stopping work, while

expected future earnings would reduce retirement probabilities, by raising the cost of stopping

work. The model also controls for age, marital status, race, gender, and education.

Simulations

We use the estimated parameters from our model to simulate retirement behavior under

an increase in the age of Medicare eligibility. We re-compute the premium cost to retire under

the assumption that the age of eligibility had increased from 65 to 67, and then use the new

premium costs to predict retirement behavior. We assume that the rules establishing retirement

ages for Social Security did not change. We assign retirement to a given respondent if the

predicted probability of retirement, based on the respondent's individual characteristics and the

model parameters, exceeds a certain threshold. The threshold is set so that the predicted rate

equaled the observed retirement rate at ages 57 to 66 in 1998 under current Medicare rules.

DATA AND MEASURES

The data for our study come primarily from the HRS, conducted by the University of

Michigan for the National Institute on Aging. It is a nationally representative longitudinal

survey of noninstitutionalized Americans born between 1931 and 1941 and their spouses (regardless of age). Baseline interviews were completed for 9,825 respondents aged 51 to 61 in 1992.[3] Follow-up interviews were completed for 8,843 respondents in 1994, 8,471 respondents in 1996, and 8,232 respondents in 1998. The survey collects data on many topics, including employment status, hours of work, health, health insurance, earnings, pensions, and demographics.

We restrict our sample to non-proxy respondents between the ages of 55 and 64 at the time of the 1996 survey who spent at least 20 hours per week working for pay and were re-interviewed in 1998. After eliminating cases with missing health insurance data, our sample consists of 3,566 respondents.

We define retirement as working fewer than 20 hours per week at the time of the 1998 interview. Although we could have used alternative definitions, we define retirement in this way because many employers offer health benefits only to those who work at least 20 hours per week. About 21 percent of the workers in our sample retire during the two-year observation period.

The HRS includes detailed information on health status. Respondents were asked a series of questions about their history of medical problems and physical impairments. In each wave, they reported whether a medical doctor ever diagnosed them with a number of different conditions. We define a serious health problem as a history of diabetes or high blood sugar; cancer or a malignant tumor, excluding minor skin cancers; chronic lung disease such as chronic bronchitis or emphysema, but excluding asthma; heart problems, such as coronary heart disease, angina, congestive heart failure, or a past heart attack; or stroke. We classify respondents as

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[3] Information was also collected from 2,827 individuals older than 61 or younger than 51 who were married to age-eligible respondents.

having no serious health problems, one serious health problem, or more than one serious health problem.

We also create an index measuring the severity of physical impairments reported by respondents. At each wave the survey asked respondents whether they had difficulty with any of the following activities: walking several blocks; walking one block; sitting for about two hours; getting up from a chair after sitting for long periods; climbing several flights of stairs without resting; climbing one flight of stairs without resting; stooping, keeling, or crouching; reaching or extending arms above shoulder level; pulling or pushing large objects; lifting or carrying weights more than 10 pounds; and picking up a dime from a table. We set the severity index equal to the number of activities with which the respondent reported having difficulty.

Health Insurance Coverage

A special strength of the HRS is the richness of its data on health insurance. At each wave, all respondents indicate whether they are covered by private nongroup health insurance, Medicare, Medicaid, any military health care plan, or employer-sponsored health insurance. The survey asks those with employer coverage whether they receive their benefits from current employers, former employers, or the current or former employers of their spouses. To verify uninsured status, the survey asks those who do not report any type of coverage if they lack health insurance altogether.

Unlike most other surveys, the HRS also asks respondents about the availability of retiree health insurance. Respondents with employer-sponsored insurance are asked whether they could continue their coverage until age 65 if they left the employer at the time of the interview. They are also asked if their plans could cover their spouses until they are 65 if they left the employer.

Health Insurance Premiums

Health insurance premium costs are an important part of our model. The HRS asks all respondents with health insurance coverage about the amount they pay for their plans. Those who report employment-based coverage, either as active or retired workers, provide information about their monthly contributions toward the cost of their plans. The survey asks workers whose health benefits could continue after retirement whether retirees pay all, some, or none of the costs. Respondents who report that they would pay some but not all of the premium costs after retirement are asked whether retired employees paid higher, lower, or the same health insurance costs as other employees.

The HRS also asks all respondents who purchase nongroup insurance about the premiums they pay for their plans. However, nongroup premium information is not available in the HRS for those who do not purchase coverage. Accurately imputing nongroup premiums from purchasers to nonpurchasers in the HRS is difficult, because the imputation procedure needs to account for the selectivity of the sample purchasing coverage. The level of premiums faced by those who do not purchase nongroup coverage may exceed the prices paid by policyholders.

Instead of relying on select nongroup premium data in the HRS, we collected premium data from insurance providers using an online service. The service provides premium quotes from a number of leading insurance companies around the country to consumers shopping for nongroup health insurance. To generate a premium quote, users access the service's website and input personal data, including sex, date of birth, marital status, number of dependents, occupation, tobacco use, height and weight, detailed medical history, state of residence, and zip

code. They can also specify preferred plan type (traditional fee-for-service or managed care) and

deductibles and copayments for their plan.[4]

We collected premium data for random respondents from the 1998 HRS and used them to

impute premiums for the entire sample. We stratified the HRS sample into 24 groups, defined by

age (57-59, 60-62, and 63-64), sex, tobacco use, and the presence of serious health problems.

We randomly selected 30 HRS respondents from each group and collected premiums for them by

entering their personal characteristics at the service's website.[5] We solicited quotes for fee-for-

services plans with $500 deductibles and 20 percent copays, but in some cases the service

offered only managed care plans or plans that require higher levels of cost-sharing. We then

assigned to all HRS respondents the median of the premiums collected for their particular group.

Because we collected quotes from the online service in November 1999, we deflated the

premium data by 4.4 percent, our estimate of the change in average premium costs from 1998 to

1999.[6]

However, we were able to generate quotes for only a few respondents with serious health

problems, because the service often reported that insurance quotes were unavailable for them.

Quotes were especially difficult to collect for those with more than one serious health problem.

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[4] When we collected our premium data in November 1999, the following ten insurers participated in the online service: Golden Rule Insurance, Hartford Life, Mutual of Omaha, Pacificare, Trigon, United Security Life Insurance, and Blue Cross/Blue Shield of California, Florida, New Jersey, and Virginia. Quotes were available for 41 states and the District of Columbia. We were unable to obtain quotes for residents in Kentucky, Idaho, Maine, Massachusetts, New Hampshire, New York, Vermont, Washington, and Wyoming.

[5] All data requested by the website is available in the HRS, except for state and zip code. The public-use release of the HRS provides geographical information only at the Census division level, to protect respondent confidentiality. We randomly assigned respondents to individual states within the nine Census divisions, adjusting for the relative size of each state. We also assigned each respondent to the first numerical zip code in the capital of the assigned state.

[6] Our estimates of premium inflation are based on the assumption that changes in premiums reflect changes in per-capita health insurance spending. We divide total private health insurance spending, reported in national health expenditure data (Heffler et al. 2001), by the number of persons with private insurance coverage, estimated from

Instead of basing our premium costs on a small and probably unrepresentative sample, we estimated nongroup premiums for persons with health problems by inflating premiums collected for healthy persons. For persons with one serious health problem, we set premiums equal to 150 percent of the median of premiums collected for respondents with no serious health problems in the appropriate age, gender, and smoking category. For persons with more than one serious health problem, we set premiums equal to 200 percent of the median for healthy respondents. These inflation factors roughly correspond to the ratios we observed across all groups for those with zero, one, and more than one health problem.

Table 1 reports nongroup premiums in 1998 for each of our different groups. Monthly premiums range from a low of $224 for female non-smokers aged 57 to 59 with no serious health problems to a high of $908 for male smokers aged 63 to 64 with more than one serious health problem. Premiums increase with age and health problems. They are also higher for smokers than non-smokers and for men than women.

Premium Cost of Retirement

We combine health insurance information from the HRS with data from other sources to create a measure of the monthly premium cost associated with retirement. As summarized in Table 2, the premium cost depends on available insurance coverage. We set the premium cost to retire equal to zero for workers who are uninsured, receive public insurance, receive coverage from their own former employers or their spouses' former employers, or purchase nongroup coverage, because insurance costs for these workers do not change when they retire.

Insurance costs generally rise after retirement for workers who receive benefits from their current employers. Workers who receive coverage from their own employers but are not offered

RHI benefits could receive COBRA continuation coverage for the first 18 months of retirement, after which they must purchase nongroup insurance policies if they are still not eligible for Medicare but wish to remain insured. COBRA costs equal 102 percent of total premiums for employer-sponsored insurance. Because the total cost of coverage for employer-sponsored plans is not available in the HRS, we use data from the 1996 KPMG Survey of Employer Sponsored Health Benefits to impute total premium costs, as a function of firm size, industry, region, and employee premium share. Workers with RHI offers often face higher premium costs upon retirement because RHI coverage often involves more cost sharing between the employer and employee than employer coverage provided to active workers. We compute RHI contributions for our sample by inflating the premium contributions paid while working, using data from the 1995 Foster Higgins National Survey of Employer-Sponsored Plans.[7]

For workers who receive coverage from the current employer of their spouses, the premium cost of retirement depends on how spouses coordinate their retirement decisions. If married workers make retirement decisions independently of their spouses, then the premium cost of retirement will be zero for workers who receive coverage from their spouses' current employers. Their coverage options do not depend on their own labor supply if retirement decisions are truly independent. However, there is substantial evidence that many spouses coordinate their retirement decisions and withdraw from the labor force at about the same time (Blau 1998; Coile 2000; Favreault and Johnson 2002; Gustman and Steinmeier 2000; Johnson and Favreault 2001). If spouses perfectly coordinate their decisions and retire at the same time,

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[7] As noted earlier, the HRS collects information about respondent contributions for their current coverage, as active or retired workers, but it does not collect information from active workers about the exact level of contributions they would make for their health benefits after retirement. Based on estimates from the Foster Higgins survey, which provides information on the fraction of total premium costs covered by employee contributions for employer plans for both actives and retirees, we set RHI contributions equal to 217 percent of contributions paid while working for those in firms with fewer than 500 employees, and to 242 percent of contributions paid while working for those in firms with 500 or more employees.

then the premium costs of retirement can be substantial for adults with spousal coverage, depending on whether the spouse has an RHI offer that can cover both workers. When RHI benefits are available, the premium cost will depend on the difference between required contributions for spousal coverage when retired and when working. When RHI benefits are not available, the worker can obtain COBRA coverage through the spouse's employer for 18 months, but then must purchase nongroup coverage.

The true premium costs of retirement for workers who receive coverage from their spouses' employers are difficult to measure, because they require better understanding of the joint retirement decisions of married couples than is currently available. We are, however, able to generate upper and lower-bound estimates of the true costs. Our lower-bound estimates assume that retirement decisions for husbands and wives are independent of each other, while the upper-bound estimates assume that husbands and wives retire at the same time. We examine the sensitivity of our results to these assumptions.

Social Security and Pension Wealth

Information from Social Security earnings records and employer-sponsored pension providers is available for many HRS respondents. About 75 percent of respondents gave permission to link their survey responses to administrative data from the Social Security Administration. HRS respondents with employer-sponsored pension plans were asked to report the name and address of their pension providers. Summary plan descriptions were then collected from the providers. Detailed plan information is available for about two-thirds of respondents participating in employer-sponsored pension plans.

We use Social Security earnings records and the pension parameters supplied by plan providers to estimate the value of retirement wealth for workers in the HRS. The level of wealth

is defined as the present value of the future stream of benefits that workers would receive from Social Security and employer-sponsored pensions if they left work at the time of the survey. We impute earnings records and pension plans for those with missing data. Estimates of retirement wealth based on administrative and provider data are generally superior to those based on respondent self-reports, because many workers have only limited knowledge of their future retirement benefits (Gustman, Mitchell, Samwick, and Steinmeier 1999; Mitchell 1988). However, we base estimates of wealth from DC pension plans on self-reports of the account balance in the plan, because provider data on DC plans do not appear to generate reliable estimates of the account balance (Johnson, Sambamoorthi, and Crystal 2000).

RESULTS

Table 3 reports mean monthly premiums by type of health insurance for workers in our sample aged 55 to 64 in 1996. Fully 60 percent of workers receive health benefits from their current employers, and 41 percent receive benefits that could continue after retirement. Thus, only 20 percent of workers have employer coverage that they would forfeit once they leave their current employers (and continuation coverage runs out). Another 19 percent of workers receive employment-based coverage from other sources, such as spouses' employment, that is unrelated to their current work status. Only 5 percent receive public insurance (through the military, Medicaid, or disability-related Medicare), and 8 percent purchase private nongroup coverage. About 7 percent of workers 55 to 64 are uninsured.

Workers who receive health benefits from their current employers face on average steep increases in premium costs when they retire. However, costs increase more modestly for those with RHI offers than for those without offers. We estimate that mean premium costs would rise by $82 in the first month of retirement for workers with RHI offers, compared with $127 for

those with employer coverage but without RHI offers. The mean cost differential is even larger

19 months after retirement, once mandated continuation coverage runs out for retirees without

RHI coverage. We estimate that at month 19 workers with RHI offers would pay on average $84

more per month for health insurance if retired than they would pay if they remained at work,

while those with employer coverage but without RHI offers would pay $280 more per month,

since they would have to purchase private nongroup coverage to remain insured. The mean

value of PCR is $5,032 for those with RHI offers, compared with $14,891 for those whose

employer coverage does not continue into retirement. For workers who received health benefits

from their spouses, mean PCR is $6,130 (assuming spouses coordinate their retirement

decisions).

Table 4 reports changes in the mean present value of the premium cost of retirement if

the Medicare eligibility age were increased to 67. Overall, PCR would increase by 35 percent

for workers in our sample if the eligibility age were increased from 65 to 67. Under the

assumption that husbands and wives retire at the same time, mean PCR would increase by

$1,971, from $5,595 to $7,566. The level of the increase would be somewhat smaller ($1,1772)

if spousal retirement decisions were completely independent of each other. However, premium

costs would not change at all for workers who do not receive health benefits from their current

employers (or from their spouses' current employers, under the assumption that spouses retire

together), and they would increase much more sharply for those with coverage from current

employers but without RHI offers. For workers in our sample with employer coverage who lack

RHI offers, an increase in the Medicare eligibility age would raise mean PCR by $5,419, from $14,891 to $20,310.[8]

Tables 5 and 6 report the parameters of our estimated retirement models. The first data column reports means for the estimating sample, the second column reports estimated coefficients, with standard errors in parentheses, and the last column reports estimated marginal effects on the probability of retiring. Statistically significant coefficients are denoted by asterisks. Table 5 presents results for models that assume that spouses always retire at the same time, and table 6 presents results for models that assume that retirement decisions of husbands and wives are independent of each other. Because the two models generate similar results, we limit our discussion to the results in Table 5.

The health insurance costs associated with retirement significantly reduce the probability of retirement. The model indicates that a $1,000 increase in PCR would reduce retirement rates by only 0.3 percentage points. The estimated elasticity of retirement with respect to the premium cost of retirement is –0.07.

Other financial variables in the model have similar effects on retirement. As expected, retirement wealth increases the probability of withdrawing from the labor force, while the expected value of future earnings if workers remain in the labor force reduces the probability of retiring. The elasticity of retirement with respect to Social Security and pension wealth is only 0.068, while the elasticity with respect to future earnings is only –0.098.

The effects of other variables in the model are consistent with previous studies. Retirement rates increase strongly with age and health problems, and workers with DB pension

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[8] We assume that employers who offered RHI benefits to workers until age 65 under current Medicare rules would provide coverage up to age 67 if the Medicare eligibility age were delayed. We do not model any behavioral responses on the part of employers with respect to RHI coverage.

plans are more likely to retire than those without DB plans. However, participation in DC plans does not significantly affect retirement decisions. Married workers and women are also significantly more likely to retire than other workers. Retirement rates did not differ significantly by race or education.

Simulating an Increase in the Medicare Eligibility Age

Table 7 reports the estimated effect on retirement decisions of an increase in the Medicare eligibility age from 65 to 67, based on the retirement models described in Tables 5 and 6. Assuming that husbands and wives retire together, raising the eligibility age would reduce aggregate retirement rates by 4.7 percent, as the proportion of workers aged 55 to 64 who retire in a two-year period would fall from 21.3 percent to 20.3 percent. The effects would be much larger for workers who would lose their job-related health benefits shortly after they leave work because their employers do not offer RHI coverage. Among workers with employer coverage and without RHI offers, an increase in the Medicare eligibility age to 67 would reduce retirement rates by 12.3 percent (from 18.7 percent to 16.4 percent). However, only one in five workers receive coverage from their current employers but lack RHI offers.

CONCLUSIONS

An increase in the Medicare eligibility age can raise the costs of retirement for many workers. Those who receive job-related health benefits from their current employers but who are not offered RHI coverage must replace their subsidized coverage with unsubsidized continuation coverage from their employers and eventually with expensive nongroup health insurance if they retire before becoming eligible for Medicare coverage and wish to remain insured. Even many of those with RHI coverage face increased insurance costs if they retire before becoming eligible for Medicare, because employers who offer RHI coverage generally provide less generous health

insurance subsidies to retirees than to active workers. We find that the insurance costs associated with retirement significantly reduce retirement probabilities. The estimated elasticity of retirement with respect to changes in the net present value of the stream of health insurance costs is –0.07.

We find that, among all workers aged 55 to 64, an increase in the Medicare eligibility age from 65 to 67 would reduce retirement rates by about 5 percent. However, for workers who receive coverage but not RHI offers from their current employers, delaying the Medicare age would reduce retirement rates by about 12 percent.

Our estimates of the impact of an increase in the age of Medicare eligibility are as large as estimates of the impact of other reform proposals on retirement rates. Most studies of Social Security reform find quite limited effects on retirement. Mitchell (1991), for example, concluded that raising the normal retirement age from 65 to 67 would lead men to delay retirement by about only three months, as would increasing the penalty for early retirement. And Gustman and Steinmeier (1991) estimated that increasing the Social Security delayed retirement credit from 3 percent to 8 percent per year and eliminating the Social Security earnings test would increase labor force participation rates by about 3.5 percent per year for adults aged 65 to 69 and would raise the average retirement age by only about three weeks.

Our analysis, however, may understate the effects of Medicare reform on retirement decisions, for a number of different reasons. The many imputations that we incorporate into the calculation of insurance costs limit the precision of our estimates of the premium cost of retirement. As a result, measurement error will bias downward the size of our estimated coefficients on the premium cost to retire. In addition, variation in premium costs does not capture all of the differences in types of insurance coverage. RHI coverage, employer coverage

for active workers, nongroup policies, and Medicare may vary by the types of services they cover and the level of deductibles and copayments they impose on plan participants. By assuming that Medicare and other types of coverage differ only in the premiums they charge, we may understate the effects of changes in Medicare coverage on retirement.

We also fail to account for risk aversion in our models. Workers not yet eligible for Medicare benefits may be concerned about their access to the nongroup insurance market after retirement. Although federal regulations now require insurers to cover persons who lose group coverage and forbids pre-existing condition exclusions, it does not limit the price that insurers can charge. As a result, workers may worry that their premiums may become unaffordable if they develop health problems during retirement, especially among those who are particularly risk averse. For these workers, a delay in the Medicare eligibility age to 67 may be quite alarming and lead them to postpone their retirement plans.

Finally, income effects associated with changes in the Medicare eligibility age may impact retirement for workers without job-related health insurance benefits, but we have only considered the effects on workers with employer coverage but without RHI offers. For example, workers who purchase private nongroup coverage and wish to maintain their coverage may be unable to afford to stop work before becoming eligible for Medicare and thus may substantially delay retirement if the eligibility age were raised. Our model, however, indicates that their retirement decisions would be unaffected by changes in the eligibility age.

Raising the age of Medicare eligibility would encourage labor supply among older adults, an important public policy goal as the nation ages. And it would reduce the cost of the Medicare program (Wittenburg, Stapleton, and Scrivner 2000). But it would also limit health insurance options, possibly reducing access to health care for some older adults. According to one

estimate, an increase in the age of Medicare eligibility to 67 would leave about 9 percent of adults aged 65 to 66 without health insurance (Johnson and Davidoff 2000). Additional research is needed to measure whether the benefits of raising the age of Medicare eligibility outweigh the social costs.

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Table 1: Estimated Monthly Nongroup Premiums in 1998

Age	Number of Serious Health Problems	Men		Women	
		Non-Smoker	Smoker	Non-Smoker	Smoker
57-59	**Zero**	358	420	224	361
	One	536	630	336	541
	Two or more	716	840	448	721
60-62	**Zero**	377	451	268	386
	One	565	676	401	579
	Two or more	753	902	535	771
63-64	**Zero**	395	454	270	396
	One	593	681	405	593
	Two or more	790	908	540	791

Note: A serious health problem is defined as diabetes, cancer, chronic lung disease, heat problems, or stroke.

Source: Author's tabulations of data collected from an online insurance service.

Table 2: Derivation of the Premium Cost to Retire

Baseline Health Insurance Coverage	Monthly Premium Cost to Retire
Employer-sponsored insurance from own employer, RHI available	Employee contributions when retired – Employee contributions when working, until Medicare eligibility age
Employer-sponsored insurance from own employer, RHI not available	COBRA premium – Employee contributions when working for first 18 months Nongroup premium – Employee contributions when working from month 19 until Medicare eligibility age
Employer-sponsored insurance from former employer (own or spouse)	Zero
Employer-sponsored insurance from spouse's current employer, RHI available	*If retirement decisions are independent:* zero *If spouses coordinate retirement:* spouse's contributions when retired – contributions when working, until eligibility age
Employer-sponsored insurance from spouse's current employer, no RHI	*If retirement decisions independent:* zero *If spouses coordinate retirement:* spouse's COBRA premium – contributions when working for 18 months Nongroup premium – contributions when working, from month 19 until Medicare eligibility age
Employer-sponsored insurance from other source	Zero
Private nongroup coverage	Zero
Public insurance	Zero
Uninsured	Zero

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Table 3: Health Insurance Premium Costs and Retirement Rates, by Type of Insurance Among Workers Aged 55 to 64

Type of insurance	Percentage of sample	Mean monthly premium when working	Additional mean monthly premium when retired, month 1	Additional mean monthly premium when retired, month 19	Mean present value of premium cost of retire	Percentage who retire within two years
Coverage from own employer, with RHI offer	40.6%	$45	$82	$84	$5032	20.3%
Coverage from own employer, no RHI offer	19.9	57	127	280	14891	18.7
Coverage from former employer	3.7	48	0	0	0	26.8
Coverage from spouse's employer	9.1					24.5
spouses coordinate retirement		49	98	145	6130	
spouses do not coordinate retirement		49	0	0	0	
Employer coverage from other source	6.4	61	0	0	0	21.3
Private nongroup coverage	7.9	319	0	0	0	20.3
Public insurance	5.0	0	0	0	0	33.5
Uninsured	7.4	0	0	0	0	20.1
All	100.0					21.3
spouses coordinate retirement		65	67	99	5595	
spouses do not coordinate retirement		65	59	87	5024	

Note: The sample is restricted to 3,566 HRS respondents aged 55 to 64 employed at least 20 hours per week in 1996. The analysis defines workers as retired if they were working fewer than 20 hours per week at the time of the 1998 interview. Costs and insurance status are measured at the time of the 1996 interview. Additional monthly premiums when retired are computed at the specified month after the 1996 interview. The analysis weights estimates to account for the sample design of the HRS. RHI = retiree health insurance.

Source: Author's computations from the 1996 and 1998 HRS.

Table 4: Mean Present Value of the Premium Cost to Retire Under Current Medicare Rules and Under an Increase in the Age of Eligibility To 67

	Age of Eligibility = 65 (Current rules)	Age of Eligiblity = 67
All workers		
spouses coordinate retireme nt	$5595	$7566
spouses do not coordinate retirement	5024	6796
Workers with coverage and RHI offers from own employer	5032	6723
Workers with coverage from own employer, but no RHI offer	14891	20310
Workers with coverage from spouse's employer (when spouses coordinate retirement)	6130	8266

Note: Estimates are based on a sample of 3,566 HRS respondents aged 55 to 64 in 1996 and employed at least 20 hours per week. Costs and insurance status are measured at the time of the 1996 interview. Our model assumes that premium costs would change after retirement only for workers with coverage from their own current employers or their spouses' current employers. Estimates were weighted to account for the sample design of the HRS. RHI=retiree health insurance.

Source: Author's computations.

Table 5: Estimates of the Retirement Decision, Assuming Spouses Coordinate Their Labor Supply

	Sample Means	Coefficient (standard error)	Marginal Effect
Present value of premium cost of retirement ($1,000)	5.216	–0.009** (.004)	–0.003
Present value of retirement wealth ($100,000)	2.413	0.020** (.009)	0.006
Present value of future earnings ($100,000)	2.608	–0.028** (.001)	–0.008
Covered by defined benefit pension plan	0.336	0.177*** (.052)	0.051
Covered by defined contribution pension plan	0.311	–0.035 (.054)	–0.010
Index of physical impairments	2.211	0.063*** (.011)	0.018
Age	58.713	0.093*** (.010)	0.026
Education			
[Reference: Did not complete high school]	0.211	…	…
Completed high school	0.362	–0.033 (.069)	–0.009
Some college	0.208	–0.085 (.079)	–0.023
Completed 4 or more years of college	0.219	–0.017 (.082)	–0.005
Race			
Black	0.146	–0.018 (.073)	–0.005
Hispanic	0.076	–0.064 (.103)	–0.018
[Reference: White or other race]	0.778	…	…
Male	0.560	–0.167*** (.053)	–0.047
Married	0.769	0.186*** (.063)	0.050
Intercept	1.000	–6.430*** (.626)	
Log Likelihood		–1,726.2	

Note: The sample is restricted to 3,566 men and women aged 55 to 64 working at least 20 hours per week in 1996. The dependent variable equals one if the respondent worked fewer than 20 hours per week in 1998, zero otherwise. Unless otherwise noted, all independent variables are measured in 1996. Asterisks denote statistically significant coefficients (*** $p < .01$; ** $.01 \leq p < .05$; * $.05 \leq p < .10$).
Source: Author's computations from the 1996 and 1998 waves of the HRS.

Table 6: Estimates of the Retirement Decision, Assuming Spouses Do Not Coordinate Their Labor Supply

	Sample Means	Coefficient (standard error)	Marginal Effect
Present value of premium cost of retirement ($1,000)	4.611	−0.010** (.004)	−0.003
Present value of retirement wealth ($100,000)	2.413	0.020** (.009)	0.006
Present value of future earnings ($100,000)	2.608	−0.027** (.001)	−0.008
Covered by defined benefit pension plan	0.336	0.179*** (.052)	0.051
Covered by defined contribution pension plan	0.311	−0.033 (.054)	−0.009
Index of physical impairments	2.211	0.063*** (.011)	0.018
Age	58.713	0.094*** (.010)	0.026
Education			
[Reference: Did not complete high school]	0.211	…	…
Completed high school	0.362	−0.033 (.069)	−0.009
Some college	0.208	−0.085 (.079)	−0.023
Completed 4 or more years of college	0.219	−0.017 (.082)	−0.005
Race			
Black	0.146	−0.016 (.073)	−0.005
Hispanic	0.076	−0.064 (.103)	−0.018
[Reference: White or other race]	0.778	…	…
Male	0.560	−0.163*** (.053)	−0.046
Married	0.769	0.178*** (.063)	0.048
Intercept	1.000	−6.472*** (.619)	
Log Likelihood		−1,726.0	

Note: The sample is restricted to 3,566 men and women aged 55 to 64 working at least 20 hours per week in 1996. The dependent variable equals one if the respondent worked fewer than 20 hours per week in 1998, zero otherwise. Unless otherwise noted, all independent variables are measured in 1996. Asterisks denote statistically significant coefficients (*** $p < .01$; ** $.01 \le p < .05$; * $.05 \le p < .10$).
Source: Author's computations from the 1996 and 1998 waves of the HRS.

Table 7: Estimated Impact of an Increase in the Medicare Eligibility Age on Retirement Decisions

Baseline Insurance Coverage	% of Sample	% of Workers Retiring During 2-Year Period		% Change in Retirement Rate
		Eligibility Age = 65 (Current rules)	Increase in Eligibility Age to 67	
A. Assuming Spouses Coordinate Retirement				
All	100.0%	21.3%	20.3%	–4.7%
Coverage from own employer, with RHI offer	40.6	20.3	19.4	–4.4
Coverage from own employer, no RHI offer	19.9	18.7	16.4	–12.3
Coverage from spouse's employer	9.1	24.5	22.4	–8.6
B. Assuming Spouses Do Not Coordinate Retirement				
All	100.0	21.3	20.4	–4.2
Coverage from own employer, with RHI offer	40.6	20.3	19.4	–4.4
Coveage from own employer, no RHI offer	19.9	18.7	16.2	–13.4

Note: Estimates are based on a sample of 3,566 men and women aged 55 to 64 working at least 20 hours per week in 1996. The model assumes that changes in the Medicare eligibility age would not affect retirement decisions for workers with private nongroup coverage, public insurance, receiving coverage from former employers, or those who are uninsured. Estimates are weighed to account for the sample design of the HRS.

Source: Author's computations from the 1996 and 1998 waves of the HRS.

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