

Analysis of the Patient Protection and Affordable Care Act (H.R. 3590)

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On December 24, 2009, the Patient Protection and Affordable Care Act (H.R. 3590) was passed in the U.S. Senate by a vote of 60–39. RAND undertook an analysis of the provisions of this bill related to expanding coverage for people who currently do not have health insurance. Using the COMPARE microsimulation model, RAND estimated the potential effects between 2010 and 2019 of H.R. 3590 on changes in the number of uninsured, the costs to the federal government and the nation, revenues from penalty payments, and consumers' health care spending. Although the bill would be enacted in 2010, many of the coverage-related provisions would not take effect until 2014. We also estimated the effects associated with different scenarios for expanding coverage. These scenarios provide insights into how the various provisions of the bill (i.e., the individual mandate, employer fees for not offering insurance, and Medicaid expansion) contribute to the estimated changes in coverage and spending. Moreover, these analyses illustrate how sensitive the estimates are to key design choices (e.g., the size of the penalty associated with an individual mandate) or modeling assumptions (e.g., administrative costs for insurance offered through the Health Benefit Exchanges).

Summary of Major Findings

Coverage

- The bill would reduce the number of uninsured to 25 million by 2019, a 53% decrease compared with status quo projections.
- Those who are uninsured after implementation of the legislation would be younger, healthier, and wealthier than those uninsured in the status quo.
- Among those who would be uninsured under the policy change, 38% would be eligible for, but not enrolled in, Medicaid.

- By 2019, 28 million people would purchase insurance through an Exchange; 14% of these enrollees are projected to be in fair or poor health, compared with 6% in the existing nongroup market.

Spending

- Between 2014 and 2019, cumulative personal health care spending would increase 2% compared with status quo projections, primarily as a result of increased utilization among the newly insured.
- Government spending would increase by \$899 billion compared with the status quo; \$499 billion is attributed to increased spending in Medicaid and \$400 billion to subsidies for premiums and cost-sharing.
- New revenues from penalties paid by individuals who do not obtain health insurance, and employers who do not offer health insurance and whose employees obtain subsidies to purchase insurance, would total \$87 billion.
- In 2019, premiums paid by individuals obtaining coverage through the employer-sponsored market are projected to be 2% lower than in the status quo, primarily because of changes in the composition of the population purchasing insurance.
- Unsubsidized premiums in the most common Exchange plans¹ are projected to be 3.7% lower than status quo average nongroup premiums because of a combination of changes in the benefit packages being purchased, lower administrative costs, and changes in the composition of the population purchasing insurance in this market.

Consumer Financial Risk

- Those who become newly insured would

¹ Most people would select the Bronze or Silver plans.

spend more on health care than they did previously but would face a lower risk of very high expenditures and would use more services. Overall, this results in a net benefit to the newly insured population from the policy change. The greatest benefit accrues to those obtaining coverage through an Exchange and enrolling in the Silver plan or enrolling in Medicaid.

Effects of Alternate Design Choices and Assumptions on Results

- The individual mandate has the largest independent effect on increasing coverage; if enacted alone, it would reduce the number of uninsured in 2019 to 31 million.
- In the absence of a penalty for noncompliance with the individual mandate, 10 million more people would be uninsured.
- In the absence of subsidies to help people purchase insurance, 13 million more people would be uninsured, and 14 million fewer people would purchase insurance through an Exchange.
- If the penalty provisions for employers who do not offer insurance were removed from the legislation, 700,000 fewer people would be insured, but cumulative new government spending would increase by \$98 billion because more people would obtain subsidized policies through an Exchange.
- Changing the income eligibility threshold for Medicaid has a greater effect on the number of persons newly enrolling in Medicaid than it does on the number of uninsured.
- Changing the allowed premium differential from a ratio of 3:1 to 2:1 increases premiums and results in 1.8 million more people being uninsured. We find that 3 million fewer people would obtain insurance through an Exchange; the proportion of people aged 50–64 obtaining insurance through an Exchange would increase by 4.4 percentage points.

Provisions of H.R. 3590 Included in This Analysis

H.R. 3590 includes provisions to address a wide range of issues related to improving the functioning of the health care system. These include, but are not limited to, developing a national prevention and health promotion strategy, establishing a value-based purchasing program for hospitals and reducing payments to physicians who do not report measures under the physician quality reporting initiative, establishing a patient-centered outcomes research institute, improving rural access protections, and authorizing and supporting nonprofit member-run insurance cooperatives. We focused this analysis on the provisions of H.R. 3590 that are designed to increase the number of people who are insured. Specifically, these provisions of the bill do the following:

- Prohibit health plans from rescinding coverage from enrollees once they have been covered.
- Require qualified health plans to sell insurance to anyone who wishes to purchase it, including those with preexisting medical conditions, generally referred to as “guaranteed issue.”
- Require that premiums vary only on the basis of family size, geography, age, and tobacco use. Moreover, the difference in premiums by age for adults may not exceed a ratio of 3 to 1—that is, the highest price charged for a policy can be no more than 3 times higher than the lowest price charged for the same policy, typically referred to as “rate banding.”
- Require that everyone have insurance through either private sources or public programs, known as an individual mandate.
- Expand the insurance options available to potential new purchasers by creating Health Benefit Exchanges at the state level. The Exchanges would offer four plans with different levels of cost-sharing (Bronze, Silver, Gold, and Platinum) for a standard benefit package.²
- Make subsidies available to persons in lower-income households (defined as 100% to 400% of the federal poverty level [FPL]) to offset the costs of purchasing health insurance.
- Allow for a penalty to be charged to anyone who does not comply with the mandate; the penalty is equal to the greater of a flat fee (\$95 in 2014, \$495 in 2015, \$750 in 2016, and indexed thereafter) or 2% of income up to a cap of the national average Bronze plan premium.
- Impose a penalty on employers with more than 50 full-time employees who do not offer coverage and have at least one full-time employee receiving the premium assistance tax credit. The penalty payment starts at \$750 per full-time employee and is indexed to the growth rate in premiums.
- Establish an excise tax on high-cost employer-sponsored coverage, often referred to as “Cadillac plans.” The core provision specifies a tax of 40% on the “excess premium,” defined as the amount by which single and family policies exceed the thresholds of \$8,500 and \$23,000, respectively.
- Expand Medicaid eligibility to include everyone in households with income below 133% of FPL.

² H.R. 3590 also includes a catastrophic plan for those under 30 who can claim that they do not have access to affordable coverage (hardship exemption). We do not model this plan because the population is extremely small (less than 500,000), and we do not have adequate sample size to create a separate risk pool.

What We Found

We report our findings in three major sections: the effect of H.R. 3590 as passed on coverage, spending, and consumer financial risk; the relative contribution of different options for expanding coverage on the overall results; and the sensitivity of the estimated effects to different design options and model assumptions.

The Estimated Effects of H.R. 3590 on Coverage

The Number of Uninsured Decreases by 53%

Under H.R. 3590, the number of uninsured in 2019 would be 25 million. This represents a reduction of 28 million, or 53%, relative to the number of uninsured expected if no law is passed (53 million). (See Table 1 and Figure 1.) The increase in coverage comes through several different sources. Compared with the status quo, the number of people enrolled in employer-sponsored insurance (ESI) would increase by 6 million, the number of insured in the nongroup market (including the Exchanges) would increase by 10 mil-

lion, and the number covered by Medicaid would increase by 12 million (see Figure 2).

Four Million Children Will Gain Coverage

Under H.R. 3590, an additional 4 million children would have insurance coverage compared with the status quo. The increase in coverage for children comes entirely through increases in the number enrolled in ESI (2.2 million) and Medicaid (2.2 million). These increases are offset in part by a reduction of 400,000 in the number of children covered in the nongroup market.

Those Uninsured in 2019 Are Younger, Healthier, and Wealthier

The composition of the uninsured population under H.R. 3590 differs in important ways from what we estimate would occur in the absence of the legislation. For example, under H.R. 3590, on average, those who are not insured would be younger, be in better health, and have higher incomes than

Table 1
Projected Changes in Insurance Coverage (millions) Under H.R. 3590 Based on the COMPARE Microsimulation Model

| Insurance Coverage | Year | | | | | | | | | |
|------------------------------|------|------|------|------|------|------|------|------|------|------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Status Quo | | | | | | | | | | |
| Medicaid/SCHIP | 35 | 35 | 36 | 36 | 36 | 37 | 37 | 37 | 37 | 38 |
| Employer-sponsored insurance | 153 | 153 | 154 | 154 | 154 | 155 | 155 | 155 | 156 | 156 |
| Nongroup | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| Other | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 16 |
| Exchanges | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Uninsured | 49 | 50 | 50 | 51 | 51 | 52 | 52 | 52 | 53 | 53 |
| Under H.R. 3590 | | | | | | | | | | |
| Medicaid/SCHIP | 35 | 35 | 36 | 36 | 41 | 45 | 49 | 49 | 50 | 50 |
| Employer-sponsored insurance | 153 | 153 | 154 | 154 | 154 | 157 | 161 | 161 | 161 | 162 |
| Nongroup | 17 | 17 | 17 | 17 | 5 | 1 | 0 | 0 | 0 | 0 |
| Other | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 16 |
| Exchanges | 0 | 0 | 0 | 0 | 16 | 24 | 27 | 27 | 28 | 28 |
| Uninsured | 49 | 50 | 50 | 51 | 44 | 32 | 24 | 24 | 25 | 25 |
| Difference | | | | | | | | | | |
| Medicaid/SCHIP | 0 | 0 | 0 | 0 | 4 | 9 | 12 | 12 | 12 | 12 |
| Employer-sponsored insurance | 0 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | 5 | 6 |
| Nongroup | 0 | 0 | 0 | 0 | -12 | -16 | -17 | -17 | -17 | -17 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exchanges | 0 | 0 | 0 | 0 | 16 | 24 | 27 | 27 | 28 | 28 |
| Uninsured | 0 | 0 | 0 | 0 | -8 | -19 | -28 | -28 | -28 | -28 |

NOTES: Projections do not include the elderly. SCHIP = State Children's Health Insurance Program.

Figure 1
Senate Bill Would Reduce the Number of Uninsured by 53% Relative to Status Quo

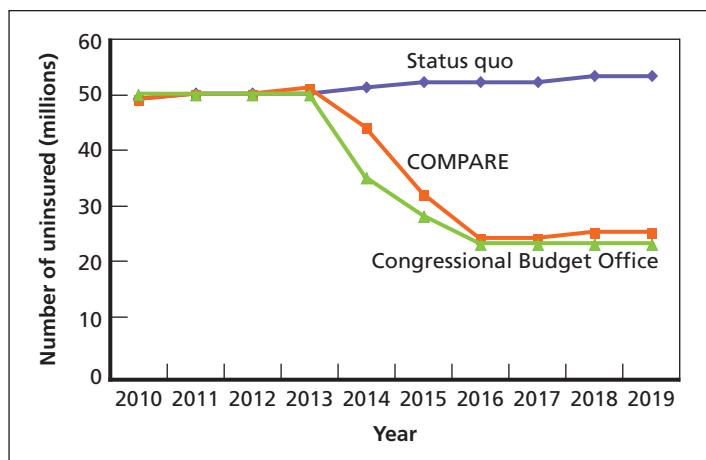


Figure 3
Uninsured in 2019 Are Younger Than Projected Under Status Quo

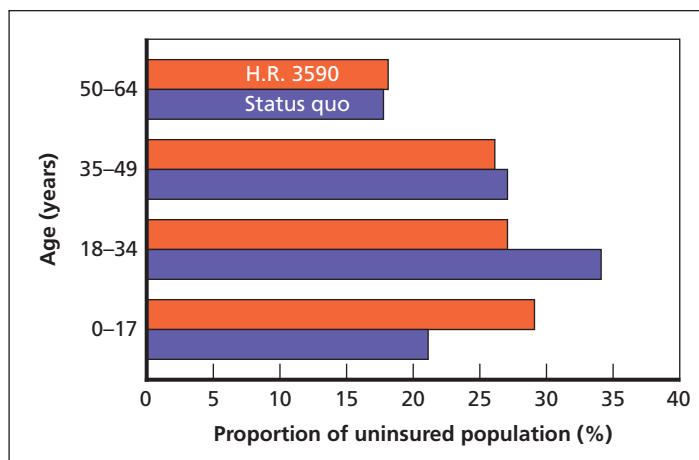


Figure 2
Newly Insured Obtain Coverage Through Employers, Medicaid, Exchanges

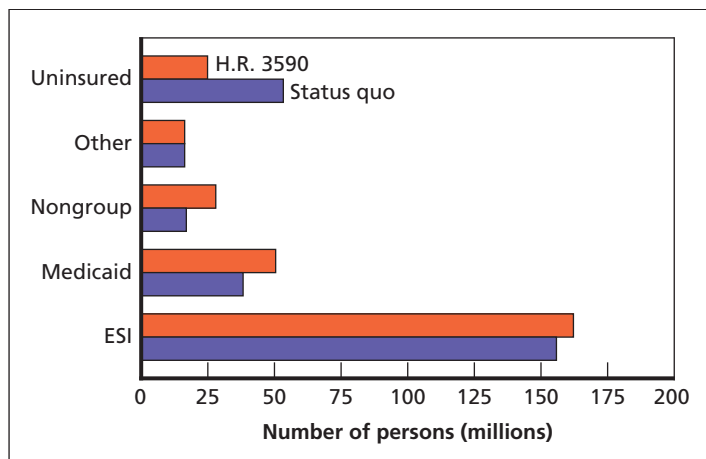
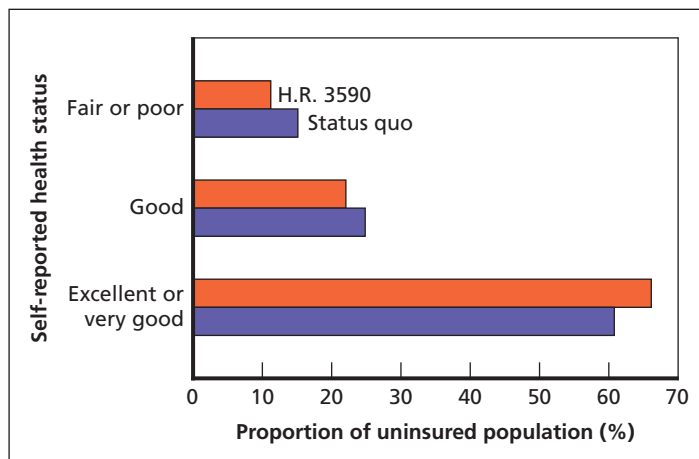


Figure 4
Uninsured in 2019 Are Relatively Healthier Than Projected Under Status Quo

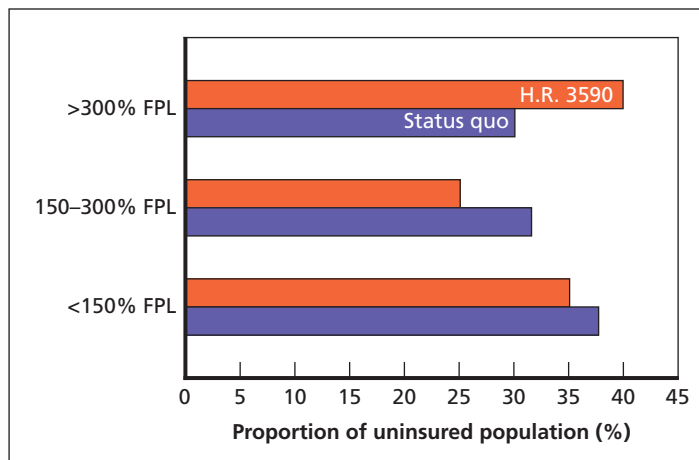


in the status quo. Under the policy change, we find that 29% of the uninsured would be under age 17, compared with 21% in the status quo (see Figure 3). Similarly, under H.R. 3590, 66% of the uninsured would report being in excellent health, compared with 61% in the status quo (see Figure 4). Finally, we estimate that 40% of the uninsured would have incomes over 300% of FPL, compared with 30% in the status quo (see Figure 5).

A Substantial Portion of Those Who Remain Uninsured Are Eligible for Medicaid

We assume in our analysis that people’s understanding and perception of the Medicaid program are unchanged by the reform, which means that the rates at which newly and currently eligible persons enroll in Medicaid would be similar to what we observe today. As a result, we find that of the 25

Figure 5
Uninsured in 2019 Are “Wealthier” Than Projected Under Status Quo



million people who remain uninsured in 2019 under H.R. 3590, approximately 9 million (38%) are eligible for Medicaid. There may be opportunities to further increase coverage by conducting outreach efforts to improve the take-up rate of Medicaid among those that are newly eligible. Because these activities will be left to the states to implement, and therefore are likely to be variable, we do not estimate any additional enrollment that might result from these efforts.

By 2019, 28 Million People Would Purchase Insurance Through Health Benefit Exchanges

H.R. 3590 expands the insurance options available to potential new purchasers by establishing Health Benefit Exchanges. The Exchanges will offer four basic plans with different actuarial values: Bronze (60%), Silver (70%), Gold (80%), and Platinum (90%). The actuarial value of a health plan is defined as the percentage of the “allowed charges” of a medical bill that the health plan will pay, on average, for a standardized population. Plans with higher actuarial values have higher premiums and lower deductibles and copayments.

We estimate that by 2019, 28 million people will purchase insurance through such exchanges. We find that people choosing to purchase through an Exchange are distributed across all plan types but are concentrated in the Bronze and Silver plans. In 2019, we estimate that, driven by available subsidies, 36% would choose Bronze, 46% Silver, 5% Gold, and 13% Platinum.

Premium and cost-sharing subsidies are available to people in lower-income households who choose to purchase coverage through an Exchange. Of the 28 million people participating in an Exchange in 2019, we estimate that 15 million will be receiving a subsidy. Among those, 33% would be enrolled in the Bronze plan, 54% in Silver, 3% in Gold, and 10% in Platinum. As a result, the subsidized population constitutes 50% of the Bronze plan enrollees, 65% of Silver plan enrollees, 37% of Gold plan enrollees, and 40% of Platinum plan enrollees.

People Purchasing Through an Exchange Are Sicker Than in the Status Quo

Under H.R. 3590, people who purchase insurance through an Exchange (i.e., the nongroup market) are more likely to report being in fair or poor health than those who would purchase through the nongroup market in the status quo. Specifically, under the legislation, we estimate that 14% of the nongroup market would report being in fair or poor health, compared with 6% in the status quo. This is not surprising, given that the mandate, coupled with premium tax credits and insurance market reforms (i.e., guaranteed issue with removal of health condition underwriting, community rating), will enable a broader range of people to participate in

the nongroup market. Currently, insurance coverage in the nongroup market for people in poor health is very expensive or, in most cases, not available.

The Estimated Effects of H.R. 3590 on Spending **U.S. Personal Health Care Spending Would Increase by 2%**

National health expenditures would increase as a result of the insurance coverage policies contained in H.R. 3590. The increase in health expenditures arises as previously uninsured people take up coverage and increase their utilization of health care services. We estimate that the additional U.S. personal health care expenditures associated with the implementation of H.R. 3590 would be \$548 billion, cumulatively from 2010 to 2019 (see Table 2). According to the projections of National Health Expenditure Accounts (NHEA) from the Centers for Medicare and Medicaid Services (CMS), cumulative U.S. personal health care spending will be \$22.5 trillion over the same period. Therefore, under H.R. 3590, U.S. personal health care spending will increase by 2% over the period 2010–2019 (see Figure 6).

Government Spending Would Increase by \$899 Billion

New government spending associated with the insurance coverage provisions of H.R. 3590 would increase by \$899 billion between 2014 and 2019. This spending comes from increased federal and state Medicaid expenditures associated with the eligibility expansion (\$499 billion) and federal payments of premium and cost-sharing subsidies to eligible people participating in the Exchanges (\$400 billion). Generally, in this analysis we have focused only on those provisions that are related to increasing insurance coverage. One coverage-related cost that is not included in our estimate is the small business tax credits associated with the employer mandate. The Congressional Budget Office (CBO) estimates that the cumulative cost of the small business tax credits will be \$38 billion between 2010 and 2019 (CBO, 2009).

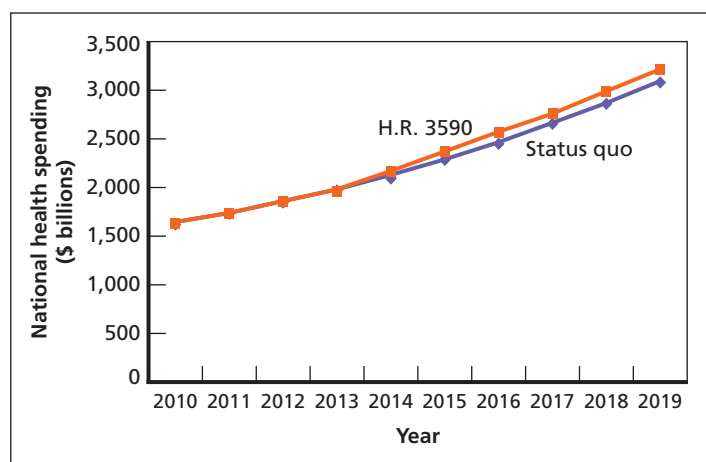
We did not estimate costs associated with the bill’s provisions that do not directly affect coverage. These costs are described in CBO’s analysis of the bill and stem from a range of programs, such as reinsurance for early retirees (\$5 billion), early childhood home visiting programs (\$1.5 billion), establishment of the Prevention and Public Health Fund (\$12.9 billion), and the startup and administration of Health Benefit Exchanges (\$2 billion) (CBO, 2009).

Medicaid Spending. H.R. 3590 expands eligibility for Medicaid to all people in households with income below 133% of FPL. We project a cumulative increase of \$499 billion, or 19%, in Medicaid expenditures at the state and federal level between 2014 and 2019 resulting from this expansion (see Figure 7). Approximately 95% of this increased spending is for adult beneficiaries and is driven by the increase in number of

Table 2
Impact of H.R. 3590 on Spending (\$ billions), by Category, Based on COMPARE Microsimulation Modeling

| | Year | | | | | | | | | | |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Total |
| Status Quo | | | | | | | | | | | |
| Personal health spending* | 1,623 | 1,722 | 1,834 | 1,962 | 2,104 | 2,264 | 2,440 | 2,631 | 2,841 | 3,066 | 22,488 |
| Medicaid/SCHIP | 200 | 211 | 223 | 237 | 252 | 270 | 288 | 309 | 331 | 355 | 2,675 |
| Subsidies | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H.R. 3590 Change in Spending | | | | | | | | | | | |
| Personal health spending* | 0 | 0 | 0 | 0 | 44 | 77 | 96 | 103 | 110 | 118 | 548 |
| Medicaid/SCHIP | 0 | 0 | 0 | 0 | 48 | 77 | 94 | 87 | 94 | 100 | 499 |
| Subsidies | 0 | 0 | 0 | 0 | 40 | 56 | 68 | 73 | 78 | 85 | 400 |
| H.R. 3590 New Revenue | | | | | | | | | | | |
| Penalty payments by individuals | 0 | 0 | 0 | 0 | 1 | 5 | 11 | 12 | 12 | 13 | 54 |
| Penalty payments by employers | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 6 | 6 | 6 | 33 |
| *Estimates of personal health spending are based on Medical Expenditure Panel Survey data, which only include the noninstitutionalized population, and thus do not include costs associated with long-term care. | | | | | | | | | | | |

Figure 6
Senate Bill Would Increase Cumulative National Health Spending by 2% over the Status Quo

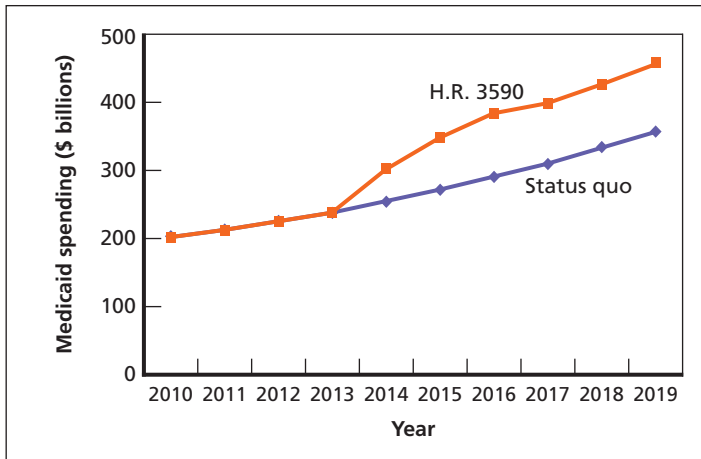


people covered and not by higher utilization among the newly insured. The average spending per beneficiary remains relatively constant.

Premium and Cost-Sharing Subsidies. H.R. 3590 offers premium and cost-sharing subsidies for low-income people purchasing insurance through an Exchange. Cumulative subsidy payments would total \$400 billion for 2014 through 2019. Premium subsidies account for 96% of these expenditures. In 2019, we estimate that 15 million people will be living in households that are receiving some premium subsidies. In these households, the average subsidy is \$7,240, which corresponds to about 73% of the unsubsidized premium.³ The cost-sharing subsidy does not lead to any signifi-

³ All dollar amounts are expressed in the year for which they are reported. For example, in Table 2 the dollar amount for 2010 is in 2010 dollars, while the dollar amount for 2019 is in 2019 dollars. This convention is the same found in CBO's analysis. Cumulative figures are computed by simply summing yearly dollar figures, with no correction for inflation.

Figure 7
Cumulative Medicaid Spending Would Increase by \$499 Billion, a 19% Increase over the Status Quo



cant increase in coverage, but it does alter the distribution of people across plans, providing a strong incentive to enroll in the Silver plan.

Revenue from Individual and Employer Penalties Would Total \$87 Billion

Under H.R. 3590, individuals and employers are subject to financial penalties if they do not comply with the coverage provisions of the bill. We estimate that the cumulative penalty payments from individuals who do not purchase health insurance will total \$54 billion between 2014 and 2019. In 2019, we estimate that 16.6 million people will pay a penalty, with the average amount paid equal to \$769.

Among employers who do not offer insurance, we estimate that cumulative penalty payments would be \$33 billion between 2014 and 2019. In 2019, the revenue from the employer penalty is \$6.3 billion, corresponding to a payment of \$1,070 for each of the 5.9 million workers employed by employers with more than 50 employees that decide to pay the penalty rather than offering insurance (4.9% of all employers).

These estimates represent an upper bound of the revenue that may be collected from penalties; we assume that the Internal Revenue Service (IRS) can collect all penalties that are incurred. While it is optimistic to assume that the IRS could collect all penalties, there is no agreed-upon proportion that is “collectible.” Therefore, we report the upper bound.

Estimates of Revenue from the Excise Tax on High-Cost Insurance Plans Are Highly Sensitive to Modeling Assumptions

H.R. 3590 establishes an excise tax on high-cost insurance plans. Specifically, the legislation levies a tax of 40% on

the “excess premium,” defined as the amount by which the single and family premiums exceed the thresholds of \$8,500 and \$23,000, respectively. The thresholds are indexed to the Consumer Price Index (CPI) plus one percentage point. The revenue generated by this provision depends on the behavioral response of employers to the tax, as well as assumptions regarding the rate of premium growth and the CPI over time.

If we assume that employers offering high-cost plans do not change their behavior (i.e., continue to offer the same plans) and pay the excise tax, then the tax revenue is simply 40% of the excess premium. Alternatively, employers might change their plan offers so that the new premiums are just below the threshold for taxation. Economic theory suggests that the amount saved by employers in premiums would be passed on to workers in the form of higher wages, although there is no consensus on how the wage increases would be distributed across workers. In this case, the tax revenue is the sum of the income and payroll tax paid by workers on the portion of the excess premium that is passed on to workers as wages. In practice, we expect to see a range of responses between the two extremes across employers. The Joint Committee on Taxation (JCT) estimates that approximately 20% of the revenue would be raised through direct payment of the excise tax, while 80% of it would be paid through additional payroll and income taxes.

The revenue generated by the tax will also depend on assumptions regarding the premium growth rate and the CPI over time. To illustrate this, we developed plausible ranges for the premium growth rate and the CPI and simulated different combinations within those ranges (see Appendix 1 for more detail). We find that the estimated revenue is very sensitive to the choice of premium growth rate, but less sensitive to the choice of CPI. Holding the CPI growth rate constant at the midpoint of the plausible range (2.6% per year), we find that estimated revenue ranges from \$63 billion for a yearly premium growth rate of 5% to \$180 billion for a yearly net premium growth rate of 7%. Under a low premium growth rate scenario (5%), the proportion of employers offering a high-cost plan grows from 11% in 2013 to 16% in 2019, while under a high premium growth rate scenario (7%), the proportion of employers offering a high-cost plan grows from 18% in 2013 to 50% in 2019.

Premiums in the Large Group Market Decline by 2%

We estimate that insurance premiums in the large group (employer) market would decrease under H.R. 3590. In 2019, with the policy change, the average individual premium in the employer market would be \$7,837, compared with \$8,011 in the status quo projection. The reduction in premiums comes from a change in the composition of the people purchasing insurance in the employer market. While

the predicted reduction of 2% is modest, in practice, premiums in the employer market could be further reduced by increased competition created by the Exchanges. However, we do not model this effect, specifically because there is not a good empirical basis for such estimates.

Premiums in the Nongroup Market Also Decline

As H.R. 3590 is phased in, the nongroup market undergoes major changes. The major insurance market changes (i.e., guaranteed issue, community rating, and premium rate banding) result in younger and healthier people in the nongroup market facing higher premiums, giving them an incentive to leave their plans, which in turn leads to a “death spiral” of ever-increasing premiums for those plans. As this happens, however, the Exchange plans start becoming available. Helped by risk equalization, which limits adverse selection, and lower administrative costs, these plans attract not only those leaving the traditional nongroup market, but also previously uninsured young and healthy people who are responding to the requirements of the individual mandate. Our simulation does not provide details about how this transition would occur, but our results suggest that, eventually, the Exchange plans would replace the current nongroup market.

Unsubsidized premiums in the most common Exchange plans⁴ are projected to be 3.7% lower than status quo average nongroup premiums because of a combination of changes in the benefit packages being purchased, lower administrative costs, and changes in the composition of the population purchasing insurance in this market. This number hides important distributional issues, since while younger and healthier people face higher premiums, sicker and older individuals have lower premiums. In addition, most Exchange plans are somewhat more generous than the typical current nongroup policy, which means that people may be paying more but are also getting more in return. A more complete analysis of the overall welfare of the population is presented in the next section.

The Effects of H.R. 3590 on Consumer Financial Risk Newly Insured Have Higher Average Expenses but Face Lower Risk of Catastrophic Expenses

Under H.R. 3590, we estimate that average spending on health care among the newly insured will increase. The increase stems in large part from the fact that those newly insured through ESI or the Exchanges would now pay health insurance premiums; they would also use more health care services than they did when they were uninsured, and they

are subject to a different level of cost-sharing. We estimate that average individual spending for those newly acquiring ESI will be \$416 higher under the policy change than would otherwise be the case. Average spending among people newly insured through an Exchange will increase by \$1,818. In contrast, people who newly enroll in Medicaid will spend \$394 less, on average. People newly enrolling in Medicaid will have lower out-of-pocket spending because they do not pay premiums and have very low cost-sharing requirements.

Those gaining insurance through ESI or an Exchange face an important tradeoff. In return for higher average spending, these individuals face a lower risk of having unexpectedly high, possibly catastrophic, health expenditures. In addition, they also benefit from the increased consumption of health care services. To determine whether the tradeoff generated by increasing insurance coverage makes people better off on average, we calculate the net benefit. This calculation compares the disutility associated with higher average out-of-pocket expenditures with the utility gains associated with a reduced risk of catastrophic expenditures and with having access to more health care services.⁵ We calculate the net benefit associated with gaining insurance separately for each type of insurance (i.e., ESI, Exchange, Medicaid). For all groups, the net benefit is found to be positive, though the size of the benefit varies across groups. The largest benefit accrues to those who gain insurance through an Exchange and choose the Silver plan (\$1,391) and those who enroll in Medicaid (\$1,018). The net benefit is lower for people gaining insurance through ESI (\$669) or through the other Exchange plans (Bronze, \$636; Gold, \$526; Platinum, \$577).

The Relative Impact of Major Bill Provisions

We ran the microsimulation model under different scenarios to isolate the independent effects of each of the main provisions—the individual mandate, the employer penalty, and the Medicaid expansion—on the results. We first estimated the effects of scenarios in which we assumed that only one of these provisions was enacted (e.g., individual mandate without employer penalties or Medicaid expansion). We then estimated the effects of scenarios that included two of the three provisions. Comparing the results across these scenarios provides insights into the contributions of the different model provisions and how they interact with each other to generate changes in insurance coverage and spending.

The Individual Mandate Contributes Most to Reducing the Number of Uninsured

Estimates from scenarios that include each major coverage

⁴ Most people would select the Bronze or Silver plans.

⁵ A more detailed explanation of how this metric was calculated can be found in Appendix 1.

provision separately (i.e., individual mandate, employer penalties, and Medicaid expansion) indicate that the individual mandate by itself would have the largest impact on coverage, reducing the number of uninsured in 2019 to 31 million. This represents a reduction of 21.5 million (41%) compared with the status quo projection. The Medicaid expansion by itself would reduce the number of uninsured by 8 million relative to the status quo projection. The employer penalty by itself would reduce the number of uninsured by 1.5 million relative to the status quo.

Eliminating Employer Penalties Would Have a Small Effect on Number of Uninsured but Would Increase Government Spending

Combining the individual mandate and the Medicaid expansion (i.e., eliminating employer penalties) would reduce the number of uninsured to 25.4 million in 2019; about 700,000 fewer people than would be covered with all three provisions combined. Although the number of people covered under a combined individual mandate and Medicaid expansion is slightly lower than the number covered under H.R. 3590, the cost to the government is higher. Without the employer penalty, cumulative new government spending is estimated to be \$997 billion, compared with \$899 billion when all three provisions are included. The expenditures are higher without the employer penalty because more people gain coverage through an Exchange and receive subsidies from the federal government. Specifically, we estimate that 15 million people would be receiving subsidies in 2019 under H.R. 3590. Without an employer penalty, 22 million would receive subsidies, and cumulative subsidy payments would total \$573 billion (compared with \$400 billion under H.R. 3590).

Sensitivity of Results to Different Policy Design Choices

Without a Penalty for Noncompliance, 10 Million More People Would Be Uninsured

Under H.R. 3590, individuals who do not comply with the mandate to purchase health insurance are subject to a penalty. The penalty is equal to the greater of a flat fee (\$95 in 2014, \$495 in 2015, \$750 in 2016, and indexed thereafter) or 2% of income up to a cap of the national average Bronze plan premium. To evaluate the effect of the penalty on people's decision about whether or not to purchase insurance, we simulated a scenario with no penalty for noncompliance. Without a penalty, we estimate that 10 million more people would be uninsured in 2019 than with the penalty. The reduction in coverage is spread across all sources of insurance, with 3 million fewer enrolled in Medicaid, 5 million fewer taking ESI, and 2 million fewer purchasing through an Exchange.

Without Subsidies, 13 Million More People Would Be Uninsured

The premium and cost-sharing subsidies included in H.R. 3590 for low-income families offset the cost of purchasing health insurance and encourage more people to obtain coverage through the nongroup market. Without the subsidies in place, we estimate that 14 million fewer people would purchase insurance through an Exchange (14 million compared with 28 million under H.R. 3590), and 13 million more people would be uninsured. The reduction in coverage through the Exchanges when the subsidy is not offered is offset in part by a very small increase (approximately 700,000) in people enrolling in ESI.

The subsidy affects both the number of people purchasing insurance through an Exchange and the distribution of enrollees across plan types. Under H.R. 3590, we estimate that, among people purchasing through an Exchange, 36% would choose Bronze, 46% Silver, 5% Gold, and 13% Platinum. When the subsidies are not available, enrollees are much more likely to choose the Bronze plan (66%) and less likely to choose the others (Silver, 22%; Gold, 4%; Platinum, 8%).

Changing Medicaid Income Eligibility Thresholds Has Little Effect on the Number of Uninsured but Does Affect Medicaid Enrollment

H.R. 3590 expands eligibility for Medicaid to all people in households with income below 133% of FPL. The number of people covered by Medicaid is not very sensitive to the variations in the eligibility threshold. Under H.R. 3590, we estimate that Medicaid would enroll 50 million people, and 25 million people would be uninsured in 2019. Increasing the Medicaid eligibility threshold to 150% of FPL would lead to an additional 2 million people enrolled in Medicaid but would only reduce the number of uninsured by 600,000. The increase in Medicaid coverage does not translate into an equal decrease in uninsured because some of the people who choose to take up Medicaid when eligibility is expanded would have purchased insurance either through an employer or through an Exchange. This phenomenon is often referred to as Medicaid crowd-out.

Increasing the eligibility threshold from 133% to 150% of FPL would result in a \$17 billion cumulative increase in government spending between 2013 and 2019. Although Medicaid spending would increase by \$71 billion, spending on subsidies would be reduced by \$54 billion because fewer people would be purchasing insurance through an Exchange.

We also considered a scenario in which the eligibility threshold for Medicaid was set at 100% of FPL. Compared with H.R. 3590, 4 million fewer people would be enrolled in Medicaid in 2019, and the number of uninsured would increase by 1 million. This means that about 75% of the

people who would not be eligible for Medicaid coverage with a less generous threshold would obtain coverage either through their employers or through an Exchange. Cumulative government spending between 2014 and 2019 would be \$5 billion higher when the threshold is set at 100% instead of at 133% of FPL. Although Medicaid spending falls by \$126 billion, this is more than offset by a \$131 billion increase in subsidy payments to people purchasing through an Exchange.

Compressing the Rate Band in the Exchange Market Increases the Number of Uninsured

Under H.R. 3590, premiums in the Exchanges may vary by geography, family size, tobacco use, and age; the variation between the top and bottom age groups is restricted to 3:1 (the highest price charged can only be three times higher than the lowest price charged for the same policy). At the national level, the effect of tobacco use on premiums is very small, so we have not considered it. We have averaged premiums over the United States so that the final premium schedule depends only on age. We considered a scenario in which the age-based rate band was compressed to 2:1. In this scenario, we find that 1.8 million more people would be uninsured. We also find that premiums in the Exchange market would increase. For example, the average Silver plan premium in 2019 under the 3:1 rate band is \$7,804, compared with \$8,100 with a 2:1 rate band. When the rate band is compressed, the price paid by younger people increases and the price paid by older people decreases. These price changes affect the number and composition of the people who choose to purchase insurance through an Exchange. With the compressed rate band, we estimate that 3 million fewer people would obtain insurance through an Exchange. Further, with the compressed rate band, the proportion of the participants aged 50–64 increases by 4.4 percentage points, from 32% to 36.4%.

Estimated Effects of H.R. 3590 Are Not Highly Sensitive to Assumptions Regarding the Administrative Costs in the Exchanges

One of the expected benefits associated with the formation of the Health Benefit Exchanges is lower administrative costs for companies offering policies through an Exchange. In our estimate of the effects of H.R. 3590, we assume that administrative costs can be reduced to 12% from 35%. We also estimated a model assuming administrative costs of 20% to determine if the estimated effects change if the Exchanges are not able to achieve such large reductions in administrative costs. Our estimates indicate that if administrative costs were 20% rather than 12%, the number of insured people in 2019 would fall by approximately 1 million. As expected, higher administrative costs lead to higher premiums in the

Exchange market. With administrative costs at 20% in 2019, the average premium in the Bronze plan would be \$6,878, compared with \$6,689 with administrative costs of 12%.

Conclusion

Using the COMPARE microsimulation model, we estimated the effects of the coverage-related provisions of H.R. 3590 on changes in the number of people without insurance, personal health care and government spending, and consumer financial risk. We found that, if enacted as passed, the legislation would decrease the number of uninsured in 2019 from 53 million to 25 million, would increase national health care spending by 2% between 2014 and 2019, and would result in a net benefit to those who become newly insured. We found that the individual mandate has the greatest independent effect on reducing the number of people without insurance, but that penalties for employers who do not offer insurance result in lower costs for the federal government than would otherwise occur. We tested the sensitivity of our findings to some decisions about how to structure the legislation. We found that the results were sensitive to the inclusion of both penalties and subsidies as part of encouraging individuals to purchase insurance. The results were relatively insensitive to decisions about the threshold of income eligibility for Medicaid and the administrative costs of policies offered through the Exchanges. ■

Appendix 1: Modeling Parameters and Assumptions

We have described in greater detail elsewhere how the RAND COMPARE microsimulation model works (Giroso et al., 2009). We provide a brief overview here to set a context for our findings.

Overview of Our Modeling Approach

We constructed a dataset that represents the U.S. population and some of the key entities involved in the private and public market for health insurance (e.g., individuals, households, employers, government, insurance companies). Based on a review of the literature and our own analyses, we assigned a set of behavioral rules to each entity in the dataset. The rule set essentially tells an individual, employer, or insurance company what to do if the conditions under which health insurance are offered change. The entities in the model respond to changes by following the rules that we assign to them. When conditions change, entities have several opportunities to make decisions; this continues until everyone decides that no further change is necessary to achieve their preferences, known as a new equilibrium.

We used a utility maximization framework for our analyses, as contrasted with a cost minimization or elasticity framework used by other groups, including CBO. Under cost minimization, the behavioral rules assigned to entities always lead them to pick the lowest-cost option available. In utility maximization, we create a set of rules that reflect differences in the value of health insurance for different groups in the population.⁶ For example, people who are older and in poorer health have a higher value for health insurance in general than people who are younger and healthier. Similarly, people with higher incomes tend to have a higher utility for health insurance. In our developmental work, we found that the utility maximization framework better reflects the choices that people are making currently. For example, this method allows us to account for the 44 percent of the uninsured who have an offer of coverage through an employer or eligibility for Medicaid but who choose to remain without insurance. For these reasons, we believe that this method is the best basis for predicting response in the future to changes in policy.

To see how the U.S. population might respond to a change in health policy, we “perturb” the status quo by introducing new alternatives or choices. The entities in the

dataset respond to the availability of these new choices and either change their current status (for example, from being uninsured to enrolling in a subsidized plan on an Exchange) or stay with their current choice. We count up the changes made and summarize the new state of the world. This tells us both how well the policy change accomplishes its objective and the costs associated with the new state of the world. We examined the effects of these policy changes from 2010 (the year the legislation is presumed to be enacted) through 2019.

Our model has undergone a rigorous process of review by both other researchers at RAND and experts outside of RAND. The results of this specific modeling exercise have also been reviewed.

Summary of Design Choices and Assumptions

We used the following parameters and assumptions in analyzing H.R. 3590.

- We modeled the existence of four Exchange plans: Platinum (actuarial value of 90%), Gold (actuarial value of 80%), Silver (actuarial value of 70%), and Bronze (actuarial value of 60%).
- We assume that Exchanges operate at the state or regional level, that administrative costs are reduced, and that the market is robust to the introduction of very sick people who were not able to acquire insurance prior to the reform. We assume that administrative costs are 12% of the premium, which is comparable to the administrative cost in the group market for medium-size employers. It is possible that the actual administrative cost would diminish over time, as the Exchanges become more efficient, but we did not model this scenario.
- Premiums in the Exchanges vary by age and family size. The variation in premium price for the same policy between the top and bottom age groups is restricted to 3:1 for adults. We assume that age groups are structured as follows: 18–24, 25–29, 30–34, 35–39, 40–44, 45–49, 50–54, 55–59, and 60–64. In order to simulate the 3:1 restriction, we took the national average schedule and “compressed” it to satisfy this constraint.
- The traditional nongroup market moves to community rating and guaranteed issue. The move to community rating is simulated by assuming that, after the policy change, the slope (but not the level) of the premium-age schedule follows the average schedule observed across the country.⁷ The nongroup market has the same restrictions

⁶ The factors included in our utility maximization model include current insurance status, age, health status, income, employment status, and employer size (if employed).

⁷ The reason we rely on external data for the estimation of the dependency of premiums on age is that the number of agents representing individuals in the nongroup market is small (on the order of several thousand), and the high variance of medical expenditures makes the calculations of the schedule very imprecise.

as the Exchanges and so has the same 3:1 age banding. The move to guaranteed issue is simulated by removing the restriction that is used in the simulation of the status quo that certain people are denied access to nongroup insurance. The denial rate as a function of age was based on survey results (America's Health Insurance Plans, 2007).

- We modeled the structure of the subsidy exactly as prescribed by the legislation. People living in health insurance eligibility units (HIEUs, usually households) with at least one offer of employer-sponsored coverage or who are Medicaid-eligible were not allowed to receive subsidies. In the case of families that contain some members who are eligible for Medicaid and others who are ineligible, the non-Medicaid-eligible portion of the family receives subsidies if they qualify.
- We enacted a simple risk adjustment strategy under which payments are made across Exchange plans so that the ratio of the premiums is equal to the ratio of their actuarial values. In other words, the premiums only reflect the plans' generosity and not their risk composition. Because of limitations in the accuracy of the models used to determine the payments, we allow for a deviation of 2% from the target ratio.
- The coverage provisions are scheduled to begin in 2013 in the legislation. We phase in the effects of the legislation evenly over three years so that it is fully implemented by 2015. We assume that the people who enroll initially tend to be sicker than the general uninsured population, on average.
- We model an annual penalty for noncompliance with the individual mandate as the greater of a flat fee (\$95 in 2014, \$350 in 2015, \$750 in 2016, and indexed thereafter) or 2% of income up to a cap of the national average premium for a Bronze plan. Anyone with an income below 100% of FPL is exempt from the penalty.
- We model an expansion of Medicaid eligibility to everyone in families with total family income of less than 133% of FPL. The legislation signals Congress's intent that efforts would be taken by states to make sure that all of those who are Medicaid-eligible are actually enrolled. In the absence of details regarding this process and assuming variable effectiveness in responding to the direction, we have not attempted to model this effort.
- In order to quantify the benefit from reduced financial risk, we assign to each individual a disutility for risk that is proportional to the expected spread of the distribution of out-of-pocket expenditures: The higher the spread, the higher the probability that one incurs a catastrophic expenditure. The coefficient of proportionality is the so-called coefficient of risk aversion, which was assumed to

be constant through the whole population.⁸ In calculating the benefit of insurance, we used results from the RAND Health Insurance Experiment to quantify how much value, in dollars, people attribute to health care services (Manning et al., 1987).⁹ Simply put, this value is about one-third of the expected total medical expenditures.

We model the impact of the excise tax on high-cost insurance plans independently from the larger simulation model in order to take advantage of the most recent data. We use the Kaiser Family Foundation/Health Research and Educational Trust 2008 Annual Employer Health Benefits Survey to estimate the revenue generated by this provision of the bill. The survey allows us to identify employers offering high-cost plans and to estimate the number of single, single-plus, and family policies affected by the provision. The number of high-cost plans that Mercer reports in its 2008 survey is higher than the number reported in the 2008 HRET survey (Appleby, 2009). We therefore chose to use an average of the two.

Since we found that the model results are very sensitive to assumptions on the growth rates of premiums and CPI, we conducted a Monte Carlo simulation to generate a distribution of results and quantify the uncertainty on the tax revenue. We sampled the premium and CPI growth rates from uniform distributions in the intervals 5%–7% and 1.6%–3.6%, respectively, and computed the excise tax revenue for each of these values. These intervals were chosen by selecting a midpoint and then adding and subtracting one percentage point to it. For the premium growth rate, the midpoint of 6% was chosen as the average expected growth rate of medical expenditures projected by CMS for the years 2013–2019. The midpoint for the CPI growth rate was selected to be the average CPI growth rate for the years 1998–2008, which is 2.6%.

We find that 90% of the time the tax revenue would be between \$70 and \$166 billion. The estimate of tax revenue from the Joint Committee on Taxation, \$149 billion, falls within this range, is on the high side of our estimates, and seems to correspond to an assumption of a fairly high premium growth rate, relative to the CPI growth rate.

⁸ To be precise, the disutility for risk was computed according to the standard expression $1/2rV$, where r is the coefficient of risk aversion and V is the variance of the out-of-pocket expenditures. The value of the coefficient of risk aversion was 0.000464 in 2010 dollars. It was obtained by averaging the value of 0.00095 (in 2001 dollars) used by Pauly and Herring (2000) and the value of 0.00021 (in 1995 dollars) used by Manning and Marquis (1996).

⁹ We follow standard economic practice and estimate the value of health care services as the area under the demand curve for health insurance. We found that a good approximation for the value that an individual assigns to health care services received under a certain plan is one-third of the expected total medical expenditures under that plan. The factor one-third is more conservative than the value one-half used by Pauly, Herring, and Song (2002).

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