REPORT
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The Effect of Eliminating the Individual Mandate Penalty and the Role of Behavioral Factors

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ABSTRACT

ISSUE: The Affordable Care Act's individual mandate requires most Americans to enroll in health insurance. In 2017, Congress eliminated financial penalties associated with failing to comply with the mandate, which becomes effective in 2019.

GOAL: To review the evidence for how individual mandates affect enrollment decisions, and to assess the effect of eliminating the penalty on enrollment, premiums, and the federal deficit.

METHODS: We reviewed the literature on health insurance mandates and conducted analysis using the RAND COMPARE microsimulation model.

FINDINGS AND CONCLUSIONS: Consumers' responses to mandates may be influenced by nonfinancial factors that are difficult to measure, including a desire to comply with the law, beliefs about enforcement, and inertia in decision-making. Under a range of scenarios that reflect alternative assumptions about responses to these factors, we find that enrollment falls by 2.8 million to 13 million people and premiums for bronze plans increase by 3 percent to 13 percent when the mandate penalty is removed. The impact on the federal budget deficit is more uncertain, with effects ranging from a reduction of $8 billion to an increase of $3.6 billion in 2020. The effect on the deficit depends on how enrollees who are eligible for tax credits and Medicaid — those who have little financial reason to drop coverage — respond to the penalty's elimination.

KEY TAKEAWAYS

- Under the new tax law, Congress has eliminated the financial penalties associated with the mandate for individuals to have health insurance. Consumers' responses to this will depend on many factors, including the value they place on being insured, out-of-pocket costs, the size of the penalty, as well as their desire to comply with the law.
- Using a variety of scenarios that reflect different assumptions, the authors estimate a decline in coverage from 2.8 million people to 13 million when the mandate is eliminated and an increase in bronze plan premiums of 3 percent to 13 percent.
- Across all scenarios, the impact on the federal deficit will range from a reduction of $8 billion to an increase of $3.6 billion.

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OVERVIEW

The Affordable Care Act (ACA) includes a mandate for every person to obtain health insurance to guard against adverse selection in the markets. This occurs when enrollees are disproportionately older and sicker than the general population and can lead to high insurance premiums overall.[1] Before the ACA, individual market insurers in most states could protect themselves against this kind of scenario by denying coverage to applicants at risk for high spending, charging sicker and older people higher premiums, excluding coverage for specific preexisting conditions, and not covering specific benefits such as mental health treatment and prescription drugs. These practices prohibited some individuals from getting coverage at all and left others with unaffordable premiums. The ACA required individual market insurers in every state to offer comprehensive coverage to all applicants at premiums that do not vary with health status and without restrictions on coverage for preexisting conditions. These changes aimed to expand access to health insurance for sick people who might previously have been denied coverage or priced out of the market. The goal of the individual mandate was to encourage young and healthy people to get or stay insured, which would help spread out the cost of sicker people who would enroll and use more services because of the ACA's rule changes. The ACA further encouraged enrollment by offering tax credits to people who purchased insurance on the individual market and had low to moderate incomes (100% to 400% of the federal poverty level, or roughly between $25,000 and $98,000 for a family of four) and no other affordable source of coverage. The law also allowed states to expand Medicaid to all residents with incomes below 138 percent of poverty.

Although many consumers agree with insurance regulations that prohibit insurers from denying coverage to people who are sick or require high-cost care, the individual mandate was among the least popular provisions of the ACA.[2] Soon after the ACA passed, the National Federation of Independent Businesses challenged the constitutionality of the individual mandate. The U.S. Supreme Court ruled that the mandate was constitutional in 2012, but in December 2017, Congress passed the Tax Cuts and Jobs Act, which eliminated the individual mandate penalty, effective January 1, 2019.

The Congressional Budget Office (CBO) estimated that eliminating the individual mandate penalty would reduce health insurance enrollment by 3 million to 6 million between 2019 and 2021, while increasing premiums on the individual market by around 10 percent.[3] CBO made a point in its analysis of highlighting the inherent uncertainty of its results. The effect of eliminating the penalty depends on many issues: the cost of health insurance, the size of the mandate penalty, the availability of financial assistance like tax credits, and behavioral factors that are difficult to anticipate. These include consumers' willingness to comply with laws, confusion surrounding mandate rules, perceptions regarding how strongly the mandate will be enforced, and inertia in decision-making, and could be affected by political beliefs, news reporting, and other factors.

The goal of this report is to analyze the potential effects of eliminating the individual mandate penalty, drawing from literature on early experiences with the mandate to guide assumptions. Because many of the factors that will influence consumer response are uncertain, we estimate effects under a range of assumptions. These results can help inform discussions at both the state and federal levels for policymakers who are considering state-specific mandates or devising policies to address the effect of the penalty's elimination on enrollment and premiums.

HOW IS THE INDIVIDUAL MANDATE PENALTY CALCULATED?

The individual mandate was phased-in over a three-year period from 2014 through 2016, and had two distinct components: a requirement to hold minimum essential health insurance coverage, and a "shared-responsibility" payment (i.e., penalty) for those who failed to comply with the requirement. Under the shared-responsibility payment, individuals who lacked qualifying coverage were required to pay the greater of two amounts: one based on a percentage of income and another based on an inflation-adjusted dollar value (Exhibit 1). Individual mandate penalties are assessed during the annual tax filing process; payments are made the year after the coverage lapse occurred. Per the Tax Cut and Jobs Act of 2017, the penalty will be eliminated beginning in 2019

Exhibit 1. Individual Mandate Penalty

	Penalty is the maximum of the following two amounts*:	
2014	1% of income above filing threshold	$95 per adult $47.50 per child Up to $285 per family
2015	2% of income above filing threshold	$325 per adult $162.50 per child Up to $975 per family
2016 through 2018	2.5% of income above filing threshold	$695 per adult $347.50 per child Up to $2,085 per family (subject to a cost-of-living adjustment after 2016)

Data: Internal Revenue Service, *Individual Shared Responsibility Provision — Reporting and Calculating the Payment* (IRS, updated Feb. 6, 2018), https://www.irs.gov/affordable-care-act/individuals-and-families/aca-individual-shared-responsibility-provision-calculating-the-payment.

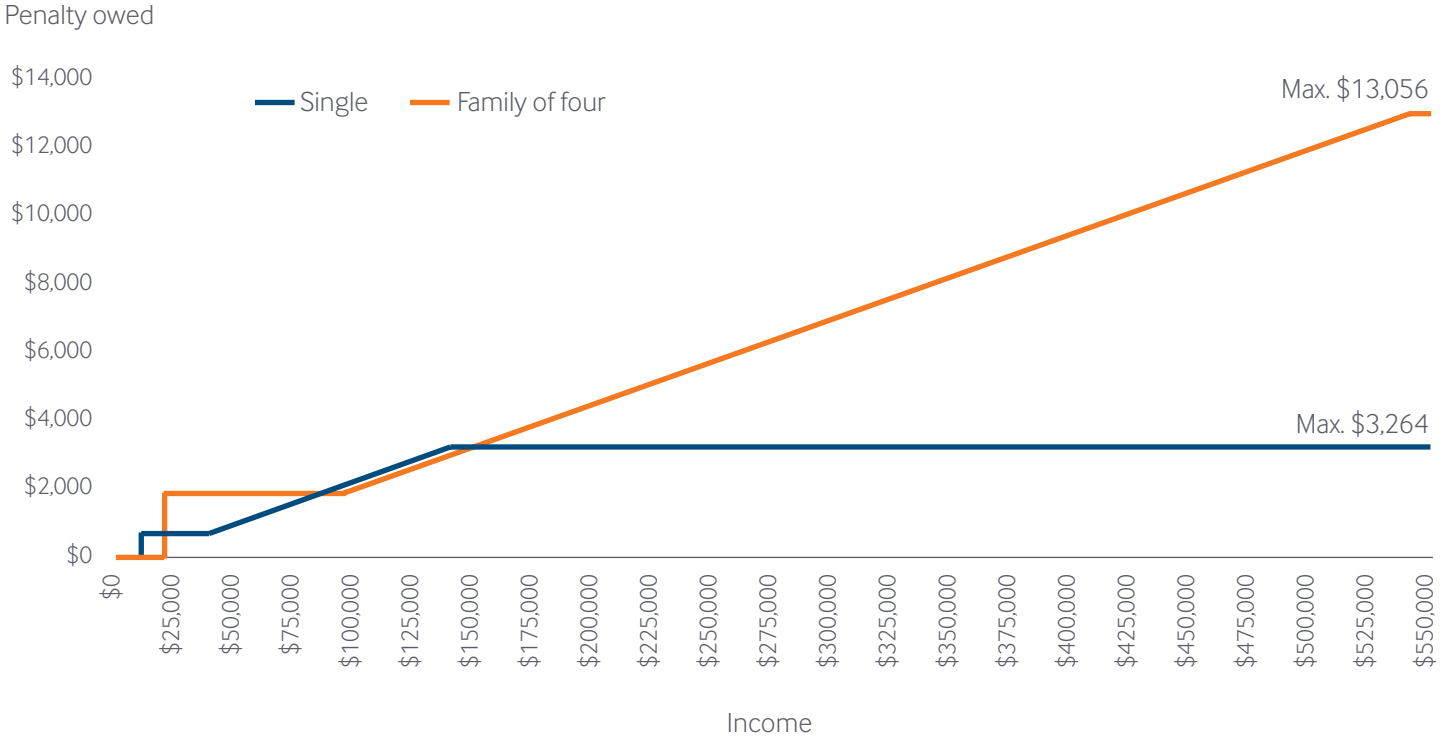
* Total penalty cannot exceed the cost of the national average bronze plan available to the family.

although the act did not change the legal requirement to hold minimum essential health insurance coverage. It also left other components of the ACA, including regulations in the individual market, in place.

The ACA allowed several exemptions to the individual mandate penalty payments. People with incomes below the tax filing threshold ($10,400 for a single individual or $20,800 for a married couple in 2017) are exempt from the penalty, as are people who would have to pay more than 8 percent of income in 2014 (adjusted in subsequent years to account for rising health care costs) to enroll in the cheapest available plan. Following a 2012 Supreme Court decision that made Medicaid expansion optional for states, the U.S. Department of Health and Human Services clarified that people with incomes below 138 percent of poverty in states that did not expand their programs are also exempt.[4] Other exemptions exist for members of federally recognized Indian tribes, people with religious conscience objections, incarcerated individuals, people with hardships like homelessness and bankruptcy, and several other groups.

Exhibit 2 shows how the penalty amounts varied across income levels in 2017, using a single individual and a family of four as examples. The penalty was zero for those with incomes below the tax-filing threshold; it then

Exhibit 2. Individual Mandate Penalty, Single and Family of Four, 2017



Data: Authors' calculations based on HealthCare.gov, *No Health Insurance? How Much You'll Pay* (Centers for Medicare and Medicaid Services, n.d.), https://www.healthcare.gov/fees/fee-for-not-being-covered/.

became a fixed amount (e.g., $695 per individual) for those with incomes immediately above the tax-filing threshold. For those with higher incomes, the penalty increases with income, eventually reaching a maximum level based on the cost of the national average bronze plan. For a single individual, the maximum was $3,264 in 2017 and applied to people with incomes above $140,000. For a family of four, the maximum penalty was $13,056, and applied to household income at or above $543,040.

HEALTH INSURANCE MANDATES: EVIDENCE FROM THE LITERATURE

Massachusetts

Massachusetts implemented a major health insurance reform in 2007, seven years before the ACA's individual mandate took effect. The reform expanded Medicaid to people with incomes below 150 percent of poverty, offered tax subsidies to those with incomes between 150 percent and 300 percent of poverty without access to employer coverage, required employers to provide coverage or pay a penalty, and instituted an individual mandate. The individual mandate required people with incomes above 150 percent of poverty to enroll in insurance or pay a penalty based on half the cost of the cheapest plan available in the individual market.[5] Massachusetts had significant regulations in its individual market both before and after the reform, including requirements that insurers must offer coverage to all applicants and that older adults can be charged no more than twice as much as younger adults. To assess whether the mandate prompted young and healthy people to enroll, Chandra, Gruber, and McKnight[6] analyzed the health and spending profiles of individuals in Massachusetts who enrolled in the individual market before the mandate was effective, while the mandate was phasing in (during which penalties were lower than subsequent years), and after it was fully adopted. Average monthly claims among individual market enrollees decreased as the mandate was phased in, ultimately falling by 31 percent. Younger and healthier people tended to enroll later than older and sicker people, suggesting an inverse relationship between the size of the mandate penalty and the level of risk in the health insurance pool.

Hackmann, Kolstad, and Kowalski[7] analyzed data from Massachusetts residents with incomes above 300 percent of poverty, and found that full implementation of the mandate was associated with a 23 percent decline in premiums and a 26.5 percentage-point increase in individual market enrollment among this group. The relatively large decline in premiums may reflect Massachusetts' unique health insurance regulations, which may have led to disproportionate enrollment of individuals with high expected spending before the implementation of the mandate.

Affordable Care Act

Several recent papers look at the impact of the ACA's individual mandate on enrollment and spending outcomes. Frean, Gruber, and Sommers[8] used nationally representative data from the American Community Survey from 2012 to 2015 to analyze the relationship between ACA policies and coverage changes. They found that roughly 24 percent of the increase in coverage in 2014 and 2015 was because of marketplace tax credits and 36 percent was because of Medicaid enrollment (among newly and previously eligible people). Forty percent was unexplained by the policy variables included in the analysis. The analysis accounted for the size of the individual mandate penalty, suggesting that enrollees did not respond differentially to higher penalties. However, the analysis did not rule out the possibility that a "taste for compliance" — that is, a desire to comply with the law regardless of penalties or other enforcement mechanisms[9] — led to a general increase in enrollment. Using consumer data from California and Washington, Saltzman[10] found no evidence of a linear relationship between penalty amounts and demand for health insurance. However, he estimated a positive taste for compliance equal to roughly $67 per month, which was most pronounced among lower-income (i.e., <400% of poverty) populations.

Wettstein[11] compared changes in the U.S. uninsurance rate before and after 2014 to changes in the Massachusetts uninsurance rate. He argued arguing that because Massachusetts implemented a health insurance mandate several years earlier, it was unaffected by ACA's mandate. He limited his sample to people with incomes above 400 percent of poverty to avoid confounding because of changes in tax credit eligibility. The study estimated that the combination of insurance regulations and the individual mandate reduced the uninsurance rate by 19 percent in 2014. Moreover, the U.S. uninsurance rate continued to decline relative to Massachusetts's in 2015. Because the individual mandate penalty increased from 2014 to 2015 while other policies remained constant, the author concluded that the size of the individual mandate penalty had a causal role in reducing the uninsurance rate. Wettstein further estimated that reductions in uninsurance were larger for younger relative to older people, suggesting that younger people were particularly responsive to the mandate.

International Experience

While several additional countries, including Australia, Germany, Japan, the Netherlands, and Switzerland, have mandates to carry insurance, we found few studies of these countries that suggest clear lessons that can be applied to the United States. Switzerland and the Netherlands both adopted their mandates against a backdrop of near-universal coverage.[12] In a review of three countries with mandates — Germany, Switzerland, and the Netherlands — van Ginneken and Rice[13] report that uninsurance is rare (i.e., typically less than 2 percent of the population). Those who fail to comply with the mandate tend to be poor and often recent immigrants. Switzerland and the Netherlands take relatively aggressive steps to enforce the mandate, including autoenrolling individuals who are out of compliance and — in the Netherlands — garnishing wages. While Germany appears to have a less aggressive enforcement approach, nearly 90 percent of the population is automatically enrolled in public coverage.

In a study of the Australian health system, Stavrunova and Yerokhin[14] found that a surcharge applied to higher-income people who did not enroll in private health insurance coverage had moderate effects, increasing enrollment rates by about 15 percent. A disproportionate amount of those who did not respond to the surcharge were younger than 30. However, it is difficult to generalize this experience to the United States because everyone in Australia was eligible for comprehensive public coverage. Private health insurance provided duplicative services, but with perks such as access to hospitals with more amenities, shorter waiting times, and more choice of physicians. Coupled with the framing of the penalty as a "surcharge," the policy may have been viewed as a means-tested premium for public coverage, rather than a requirement to enroll in a private plan.

Behavioral Responses to the Mandate

Auerbach et al.[15] posited that responses to health insurance mandates might be influenced not only by financial considerations such the magnitude of the penalty, but also by behavioral factors like awareness of the mandate, social norms, and consumers' taste for compliance. More recent literature explores several of these issues. For example, using a sample of long-term uninsured people in South Carolina, Shi et al.[16] analyzed whether the mandate prompted healthier people to enroll in the individual market and whether consumers' awareness of the law affected responses. They found that individual market applicants who were aware of the mandate tended to have fewer long-term health problems than individual market applicants who were unaware. This could indicate that awareness of the mandate prompted healthy people to enroll, while less-healthy people enrolled regardless of whether they were aware of the mandate. Sixteen percent of those attempting to sign up for insurance were unaware of the mandate.

Ericson and Kessler[17] used an experimental survey to assess whether individuals responded differently to a hypothetical requirement to obtain insurance described

as a "mandate" versus a "tax." They found that responses varied depending on how the requirement was described and changed over time because of current events. In early waves of the study — before publicity surrounding the 2012 Supreme Court case challenging the legality of the mandate — respondents reported a higher likelihood of purchasing insurance when the requirement was described as a mandate. However, following the political controversy around the Supreme Court case, responses were similar regardless of how the requirement was described. These results suggest that responses to the mandate requirement may be affected by framing by policymakers and the media. Further, highly publicized opposition to the mandate may have made some people ambivalent about complying.

The Kaiser Family Foundation also found that framing affected survey respondents' perception of the policy. Support increased when people were told that mandate repeal could increase individual market premiums and reduce health insurance enrollment.[18] Respondents' support for the individual mandate also increased when they were informed that most people get insurance through an employer and that exemptions exist for certain groups, including those who may have difficulty affording coverage. Other evidence shows that people who self-identify as Republicans tend to have a less favorable view of the mandate (along with other ACA provisions), and may be less likely to respond to the mandate, than those who identify as Democrats.[19]

Responses also may depend on the costs that people face to enroll in coverage. People currently enrolled in Medicaid have no premiums, and hence limited reason to disrenoll in response to the removal of the mandate. However, by not enrolling in the first place, they avoid hassle costs associated with eligibility determination. Enrollees in employer-sponsored coverage and those who are eligible for tax credits on the ACA's marketplaces also have limited out-of-pocket costs associated with obtaining insurance. The roughly 7.5 million people who pay full price for individual market coverage[20] may be more responsive to mandate repeal than other groups.

CONSIDERATIONS FOR MODELING THE MANDATE

The literature, along with CBO and other analyses, suggests that people's response to the removal of the individual mandate penalty depends on many factors: the value individuals place on being insured, out-of-pocket cost of insurance, the size of the mandate penalty, and nonfinancial considerations, such as a taste for compliance with the law. The following are key issues to account for when modeling the mandate.

Size of the penalty. Economic theory predicts that larger individual mandate penalties would lead to increased enrollment relative to smaller penalties. The evidence for this relationship is limited. While some studies find that compliance with the mandate increases with the size of the penalty,[21] others have found no evidence that response to the mandate varies with size.[22]

Taste for compliance. Some studies suggest that individuals prefer to comply with the law and might opt to enroll simply because of the requirement, regardless of the size of the penalty.[23] Auerbach et al.[24] argue that the taste for compliance may vary depending on individual factors, and could increase with age. The Tax Cuts and Jobs Act of 2017 reduced the individual mandate penalty to zero, while keeping the requirement on the books, raising the question of whether the requirement itself has bearing on enrollment, even if the penalty is zero. In its November 2017 report, the CBO assumed that "with no penalty at all, only a small number of people who enroll in insurance because of the mandate under current law would continue to do so solely because of a willingness to comply with the law."[25]

Knowledge of the penalty. Many studies have shown that people have limited health literacy,[26] limited financial literacy,[27] and are susceptible to cognitive biases that may impede rational decision-making.[28] Data from the Commonwealth Fund Affordable Care Act Tracking Survey indicate that roughly 84 percent of the population is aware of the mandate; awareness is higher among people with incomes above 250 percent of poverty (90%) than among those with incomes below

250 percent (77%).[29] Despite relatively high awareness, the complexity of the mandate formula, coupled with generally low health and financial literacy, may have affected consumers' responses. If people underestimated the size of the penalty, this confusion may have reduced the mandate's overall effect, while if people overestimated, it may increase the mandate's overall effect. Income over the course of the year is also uncertain, which could make it hard for some individuals to estimate their payment. Difficulty in calculating the size of the penalty may explain studies such as Saltzman and Frean, Gruber, and Sommers,[30] which both found lack of response to the mandate's size. Some people may not have understood how the mandate was calculated, and behaved as if it were a lump-sum amount rather than based on a formula that varied with income, family size, and year.

Media coverage and political beliefs. People's willingness to comply with the mandate may be influenced by media coverage and political beliefs and may change over time.[31] People also view the individual mandate more positively when they are informed that eliminating the mandate penalty may reduce insurance enrollment and increase premiums.[32]

Exemptions. Several groups are exempt from the ACA's mandate, including those who lack affordable coverage and who would have been eligible for Medicaid under the law but live in states that did not expand their programs. In general, the effect of the individual mandate will be weaker when more people are exempt, because fewer people face the penalty. However, confusion over exemption status could influence this effect. If consumers are unaware of exemptions, they may respond to the mandate even if it doesn't apply to them. Alternatively, if people believe exemptions are commonplace and easy to obtain, they might anticipate being able to receive one even if this is not accurate. Perceptions about the availability of exemptions may depend on individual circumstances, such as whether friends and neighbors are exempt. Widespread exemptions also may interact with the taste for compliance. If many people are exempt, those subject to the penalty may feel less compelled to enroll to satisfy social norms.

Probability of paying the penalty. Those who expect the mandate will apply to them may have differing beliefs or expectations about whether they will pay it. On average, the IRS collects only about 82 percent of tax revenue owed.[33] Federal policy also has led to relatively weak enforcement of the individual mandate penalty. For example, the IRS cannot take steps such as filing a notice of lien or criminally prosecuting those who evade the mandate.[34] Further, in 2016, the IRS allowed people to file "silent returns" that did not include proof of health insurance coverage.[35] Given these factors, some people may expect to avoid the penalty by failing to report health insurance status or by failing to pay all that they owe. Some people may expect to avoid the penalty and ultimately end up paying. For modeling purposes, we assume people expect to pay 80 percent of the penalty on average, but consider an alternative scenario where people expect to pay only 50 percent of the penalty.

Inertia in decision-making. Behavioral economics research shows that people tend to stick with decisions they have made in the past without reevaluating whether those choices continue to be optimal.[36] Additional research shows that individuals place a higher value on a commodity once they have it compared to when they did not have it.[37] This suggests that people who are newly enrolled in insurance because of the mandate may be reluctant to drop coverage, either because they don't revisit the decision or because they value coverage more than they did before.

Welcome-mat effect. After the ACA's coverage expansions took effect, Medicaid enrollment increased among individuals who had been eligible prior to the ACA.[38] While the individual mandate may have motivated some additional enrollment among previously eligible individuals, an additional explanation is the so-called welcome-mat effect. Specifically, the ACA's coverage expansions may have increased consumers' awareness of the Medicaid program, outreach initiatives may have increased enrollment, sustained public focus on getting covered may have prompted people to apply, and other factors — such as the single streamlined application used to simplify enrollment and assistance from navigators —

may have increased program uptake. It is difficult to disentangle the welcome-mat effect from other factors, such as the penalty (which applied only to the subset of Medicaid-eligible individuals with incomes above the tax filing threshold) and confusion over whether the penalty applied. It is also uncertain whether the welcome-mat effect is an enduring phenomenon.

Tax credits. People who receive tax credits to enroll on the ACA's marketplaces may be less sensitive to eliminating the mandate penalty than individual market enrollees who do not receive credits because enrollees with tax credits pay only a portion of their premiums. Further, tax credits under the ACA reflect the cost of the second-lowest-price silver plan available to the enrollee, minus a contribution that scales with income. The design of the tax credit makes enrollees relatively insensitive to premium increases, because — when premiums rise — tax credits also increase. Awareness and understanding of the law likely influences the role of tax credits. Collins, Gunja, and Doty[39] found that 40 percent of uninsured individuals were unaware of the ACA's marketplaces and that roughly 35 percent of the uninsured have incomes in the range that makes them eligible for tax credits. These findings imply that some individuals may remain uninsured because they are unaware they are eligible for financial assistance.

Cost-sharing reductions. Along with tax credits, some enrollees are eligible for cost-sharing reductions (CSRs), which reduce out-of-pocket payments at the point of service (e.g., copayments, deductibles). By law, insurers must provide CSRs to tax-credit-eligible enrollees with incomes below 250 percent of poverty. However, Congress did not appropriate funding for CSRs and in late 2017, the Trump administration halted federal payment to insurers to cover these costs. In response, insurers in most states increased the premiums for silver plans[40] resulting in higher tax credit amounts. The higher tax credits made coverage cheaper for many consumers, particularly for those who chose coverage outside of the silver tier (e.g., some consumers became eligible for free bronze plans). Response to eliminating the individual mandate penalty may change when CSRs are loaded onto silver plans. With higher tax credits, out-of-pocket premiums for tax-credit-eligible consumers will be lower.

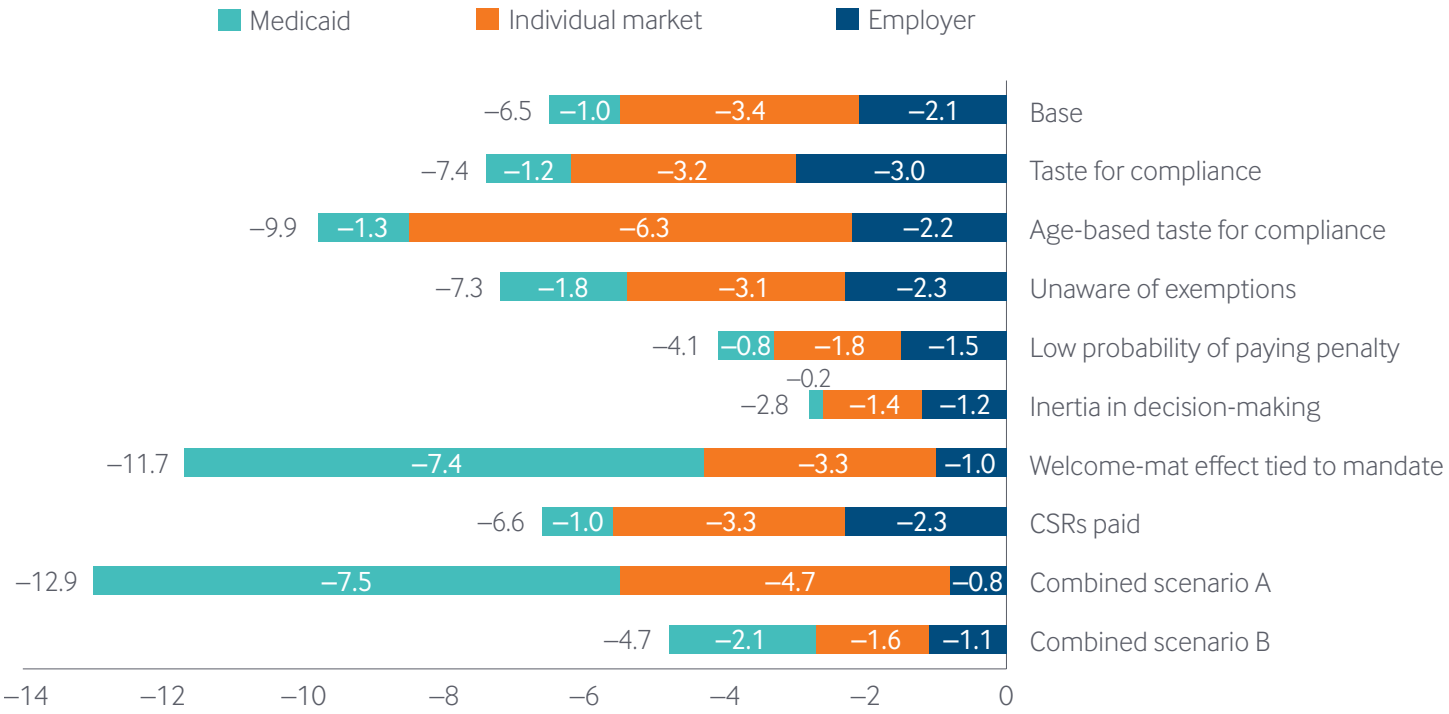
COMPARE ANALYSIS

COMPARE is a microsimulation model developed at RAND that is used to estimate responses to health reform policies, including the ACA. Modeled individuals in COMPARE decide whether to enroll in insurance and what type of insurance to choose by weighing the costs and benefits of available options, including the cost of the individual mandate penalty. However, the literature described above suggests that there are many noneconomic factors that could influence individuals' response to the mandate and much uncertainty about their effects. To gauge sensitivity to these factors, we analyzed 10 scenarios that encompass alternative assumptions about how people respond to the mandate (Appendix 1). Most of the scenarios assess individual changes to our base modeling assumptions — such as replacing the linear penalty response with a taste for compliance. Combined scenarios A and B account for multiple nonfinancial factors simultaneously. By assuming that there is no inertia in decision-making and that the welcome-mat effect dissipates after mandate repeal, combined scenario A is designed so that individuals are relatively responsive to the mandate. In contrast, combined scenario B, which allows for inertia in decision-making and assumes the welcome-mat effect persists, is designed so that individuals are relatively unresponsive to the mandate. We estimate effects by comparing results from similar scenarios with and without the individual mandate penalty. A full description of the COMPARE model and the methods used to analyze each scenario can be found in Appendix 2.

Enrollment

Exhibit 3 shows the changes in enrollment that we estimate under each scenario. Declines in coverage range from 2.8 million in the scenario in which we assume there is inertia in decision-making, to 13 million in combined scenario A, which assumes the welcome-mat effect is tied to the individual mandate. In our base scenario we estimate that insurance coverage will decline by roughly 6.5 million.

Exhibit 3. Enrollment Changes (in millions) Following Individual Mandate Repeal, 2020



Data: RAND COMPARE microsimulation model.

Note: Line segments may not sum to total for each scenario because of rounding.

Premiums

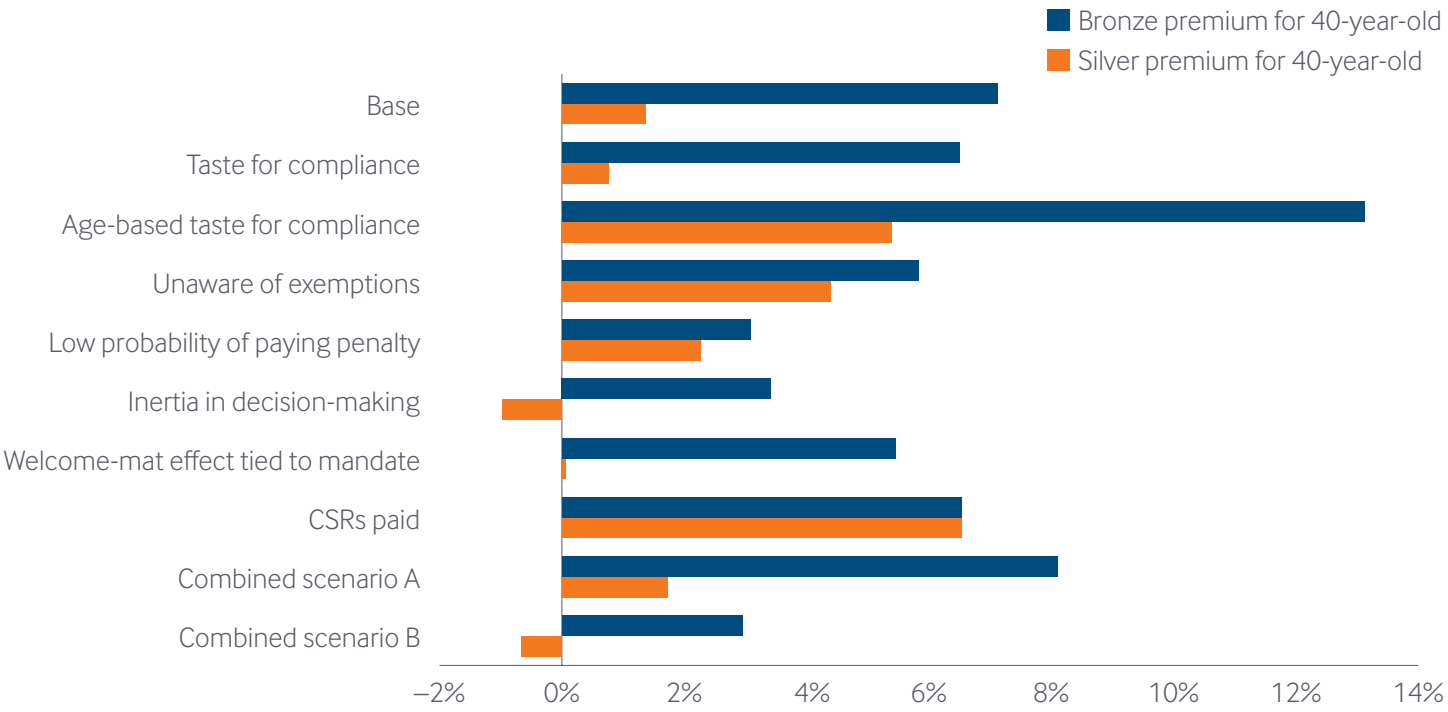
We estimate that premiums will increase by 3 percent to 13 percent for bronze plans, and by –1 percent to 6.5 percent for silver plans, depending on the scenario (Exhibit 4). Premium changes for bronze and silver plans are equivalent in scenarios in which CSRs are paid by the federal government, because of the ACA's risk-adjustment program, which transfers funding from plans with lower-than-average actuarial risk to plans with higher-than-average actuarial risk. However, when CSRs are loaded onto the silver plan, premium increases for silver plans are smaller than those for bronze plans, and sometimes silver premiums *decrease* when the mandate penalty is eliminated. For non-silver plans and in scenarios where CSRs are paid by the federal government, premium changes are driven by adverse selection only, which causes premiums to increase. When CSR costs are loaded onto the silver plan, adverse selection is partly offset by lower CSR spending, which occurs if the share of CSR-eligible individuals enrolled in silver plans falls. In two scenarios, the reduction in CSR-eligible enrollees more than offsets the adverse selection effect, leading to a net decline in silver (but not bronze) premiums.

Federal Deficit

Exhibit 5 shows the estimated effects on the federal deficit. In six of the 10 scenarios, eliminating the mandate penalty increases the deficit. However, this result is sensitive to modeling assumptions. We find deficit reductions in those scenarios that assume the welcome-mat effect is tied to the individual mandate, and — to a lesser extent — in scenarios that replace the response to the individual mandate penalty with a taste for compliance.

Across all scenarios, we estimate that the deficit impact ranges from a reduction of $8 billion to an increase of $3.6 billion in 2020.

Exhibit 4. Premium Changes (percent) Following Individual Mandate Repeal, 2020



Data: RAND COMPARE microsimulation model.

Exhibit 5. Deficit Effect of Eliminating Individual Mandate Penalty (in $ billions), Alternative Scenarios, 2020

	Base	Taste for compli-ance	Age-based taste for compli-ance	Unaware of exemp-tions	Low probability of paying penalty	Inertia in decision-making	Welcome-mat effect tied to mandate	CSRs paid	Combined scenario A	Combined scenario B
Changes in spending										
Medicaid and CHIP spending	–0.4	–0.3	–0.4	–1.5	–0.7	–1.5	–9.2	–0.2	–9.4	–2.8
Premium subsidies	–0.1	–0.8	2.1	2.9	1.8	–0.6	–1.6	2.5	–1.4	–1.4
Cost-sharing subsidies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–0.3	0.0	0.0
Total change in spending	–0.5	–1.0	1.7	1.4	1.1	–2.1	–10.8	2.0	–10.7	–4.2
Changes in revenue										
Individual mandate	–5.8	–5.5	–4.3	–6.9	–4.3	–5.8	–5.8	–6.5	–4.2	–4.3
Tax on high-cost health plans	0.0	0.0	–0.1	–0.2	0.0	–0.3	0.0	–0.1	–0.1	–0.3
Changes in income taxes*	4.6	6.5	4.7	5.0	3.2	2.5	2.2	5.0	1.6	2.3
Total change in revenue	–1.2	0.9	0.3	–2.1	–1.1	–3.4	–3.6	–1.6	–2.7	–2.3
Net deficit effect	0.7	–1.9	1.3	3.5	2.2	1.3	–7.2	3.6	–8.0	–1.9

Data: RAND COMPARE microsimulation model.

Notes: The exhibit shows the effect of eliminating the mandate penalty, relative to a comparable scenario in which the mandate penalty is enforced.

* Reflects the effects of the tax exclusion for employer-sponsored coverage; when fewer people enroll in employer coverage, the revenue loss associated with this exclusion is reduced.

DISCUSSION

In this analysis, we set out to understand the likely effects of the impending elimination of the individual mandate penalty on health insurance enrollment, premiums, and the federal deficit, drawing from prior literature, behavioral economics, and microsimulation modeling. Given that the mandate is a relatively new policy, there is limited literature. However, the empirical studies that we identified found relatively consistent evidence that insurance mandates increase health insurance enrollment and that those who enroll because of the mandate tend to be younger and healthier than those who would enroll without the mandate.

Nevertheless, there is lack of consensus on the specific drivers of consumers' response to the mandate. Economic theory suggests that individuals should be more responsive to a large penalty, compared to a smaller one. While there is some empirical evidence for this phenomenon,[41] other studies have found a taste for compliance that does not vary with the penalty's size.[42] There is also evidence that behavioral factors such as awareness of the law, framing of the mandate as a penalty versus a tax, and political ideology may affect people's response.[43] Inertia in decision-making and limited health literacy also may affect people's response to the mandate.[44]

Exhibit 6 summarizes the range of results we found in our analysis. When we used a microsimulation model to estimate response to removing the penalty under a variety of scenarios regarding consumer behavior, we found reductions in coverage ranging from 2.8 million to 13.0 million in 2020. The effects on enrollment were largest when we assumed the welcome-mat effect dissipated because of elimination of the mandate penalty and smallest when we assumed inertia in decision-making. We further estimated that premiums for bronze plans would increase by 3 percent to 13 percent, with the largest premium increases occurring in scenarios with the most substantial coverage reductions. While silver premiums also generally increased when the penalty was eliminated, these changes were smaller than changes for bronze plans because of reductions in CSR costs that can occur when the share of eligible individuals in the silver tier is reduced. In two scenarios, silver premiums fell slightly because of mandate repeal.

Exhibit 6. Range of Estimated Effects of Eliminating Individual Mandate Penalty, 2020

	Smallest estimated effect	Largest estimated effect
Insurance enrollment	2.8 million fewer insured	13.0 million fewer insured
Bronze premiums	3% increase	13% increase
Silver premiums	1% decrease*	6.5% increase
Federal deficit	$8 billion decrease	$3.6 billion increase

Data: RAND COMPARE microsimulation model.

* Decreases in the silver premium can occur when the share of CSR-eligible enrollees on the silver tier falls, reducing insurers' need to load CSR costs onto silver premiums.

Our results suggest that removing the mandate may have uncertain effects on the federal deficit. CBO estimates a net deficit decrease of $14 billion in 2020.[45] To the extent that people who receive federal financial assistance — either through marketplace tax credits or Medicaid — drop coverage in response to the penalty's elimination, federal spending may fall, leading to decreases in the deficit. However, marketplace tax credits vary with premiums levels, and the federal government bears most of the extra cost associated with premium increases. When young and healthy people drop out of the individual market, premiums go up, increasing federal spending on marketplace tax credits. The deficit impact varies depending on whether the number of subsidized people who drop coverage is sufficient to offset the increase in marketplace tax credits. This result is very sensitive to assumptions. Those who are highly subsidized — such as Medicaid enrollees and people eligible for large marketplace tax credits — have little economic reason to disenroll from health insurance when penalties are eliminated because they pay little out-of-pocket for insurance. Hence, their response is likely

driven predominately by noneconomic factors, such as awareness, inertia, and the welcome-mat effect. The empirical literature provides little guidance regarding the size of these effects, making it difficult to determine how they will affect enrollment. Our deficit results are most like CBO's November 2017 estimates when we assume the welcome-mat effect dissipates when the individual mandate is repealed.

These findings present some important considerations for state policymakers contemplating state-specific mandates and for federal policymakers seeking to reduce individual market premiums despite the elimination of the individual mandate penalty. Notably, the effects of any state-based replacement for the individual mandate will depend on how the replacement is designed and publicized. States implementing their own mandates may be able to increase the impact of the policy by ensuring that affected individuals are aware of the requirement and that enforcement mechanisms are credible and effective. Further, opposition to a state-specific mandate could be tempered if states clearly communicate the rationale for the policy — that is, to reduce growth in premiums.[46] Policymakers at both the state and the federal level may be able to reduce disenrollment by ensuring that people who are eligible for Medicaid and marketplace subsidies are aware that these programs remain in place. Keeping subsidized marketplace enrollees in the risk pool also may help to stabilize premiums.

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APPENDIX 1. SCENARIOS DESCRIBING POSSIBLE RESPONSES TO THE INDIVIDUAL MANDATE

Scenario	Description	Linear penalty response	Taste for compliance	Share unaware of exemptions	Perceived chance of paying penalty	Inertia in decision-making	Welcome-mat effect persists?	CSRs paid by federal government?
1. Base	People respond by weighing costs and benefits; mirrors assumptions used in prior COMPARE work	Yes	No	0%	80%	No	Yes	No
2. Taste for compliance	Replaces linear penalty response with assumption that people will pay a lump-sum amount to avoid the penalty	No	Yes	0%	80%	No	Yes	No
3. Age-based taste for compliance	Replaces linear penalty response with lump-sum factors that increase with age	No	Yes, increases with age	0%	80%	No	Yes	No
4. Unaware of exemptions	Assumes 20% of people who are eligible for exemptions are unaware and hence respond to the penalty	Yes	No	20%	80%	No	Yes	No
5. Low probability of paying penalty	Assumes people expect to pay only half of penalties owed, on average	Yes	No	0%	50%	No	Yes	No
6. Inertia in decision-making	People value sticking with status quo choice, regardless of costs/benefits	Yes	No	0%	80%	Yes	Yes	No
7. Welcome-mat effect tied to mandate	Welcome-mat effect dissipates after mandate penalty is removed	Yes	No	0%	80%	No	No	No
8. CSRs paid	Assumes federal government pays CSRs	Yes	No	0%	80%	No	Yes	Yes
9. Combined scenario A	Combines behavioral factors considered individually in prior scenarios	Yes	Yes, increases with age	20%	50%	No	No	No
10. Combined scenario B	Combines behavioral factors considered individually in prior scenarios	Yes	Yes, same for all ages	20%	50%	Yes	Yes	No

Notes: Detailed information on these adjustments, including an equation describing the penalty response, can be found in Appendix 2. When CSRs are not paid by the federal government, we assumed they are loaded onto the cost of silver plans.

APPENDIX 2. COMPARE OVERVIEW

COMPARE is a microsimulation model that uses economic theory, nationally representative data, and evidence from experience to estimate how consumers and businesses will respond to health policy changes.[1] The model creates a synthetic population of individuals, families, health expenditures, and firms using data from the April 2010 wave of the 2008 Survey of Income and Program Participation, the 2010–2011 Medical Expenditure Panel Survey (MEPS), and the 2009 Kaiser Family Foundation/ Health Research and Educational Trust Employer Health Benefits Survey. While the data sources predate the implementation of the Affordable Care Act (ACA), we update them to reflect population growth based on factors reported by the U.S. Census Bureau, and to reflect health care cost growth using the Centers for Medicare and Medicaid Services (CMS) National Health Expenditure Accounts. In addition, we have adjusted them to ensure they accurately reproduce post-2014 outcomes (more on this below).

We assign each individual in the Survey of Income and Program Participation a spending amount using the spending of a similar individual from MEPS. We then augment spending imputations with data on high-cost claims from the Society of Actuaries. These adjustments account for the fact that MEPS underrepresents individuals with high spending.

Individuals in COMPARE make health insurance enrollment decisions by weighing the costs and benefits of available options, an approach that is referred to by economists as "utility maximization." The utility-maximization framework accounts for the following:

- Premium costs
- Anticipated out-of-pocket health care spending
- The value of health care consumption
- The risk of incurring a financially devastating health care bill, and
- Any penalties the individual would face by remaining uninsured, including the risk of facing denial or being charged higher premiums at a later date.

Premium costs are adjusted to account for tax credits, if such credits are available to the enrollee. All else being equal, higher premiums reduce an individual's probability of enrolling in health insurance. In contrast, several factors encourage enrollment, such as a lower risk of catastrophic spending, reduced out-of-pocket spending, the avoidance of penalties, and increases in health care utilization.

Businesses in the model make decisions by considering the value of health insurance to their workers. Tax credits for individual market coverage and Medicaid eligibility expansions may reduce the value of health insurance to workers, leading firms to drop insurance. However, mandates requiring individuals to enroll in insurance, as well as mandates requiring firms to offer coverage, tend to increase the likelihood that a firm will offer insurance.

While the data that feed into the model are relatively old, we have adjusted the model to ensure that we accurately predict outcomes for post-2014 years including overall enrollment by source of coverage, the share of marketplace enrollees receiving tax credits, and total Advanced Premium Tax Credit (APTC) spending. The most important adjustments that we have added include incorporating the welcome-mat effect, down-weighting the mandate penalty by 0.80 to reflect tax noncompliance, and adding an adjustment factor to account for the fact that some APTC-eligible individuals may be unaware of these subsidies.

Below, we describe the health insurance enrollment algorithm used in the base COMPARE scenario, as well as recent adjustments to the model that we have incorporated to better match post-ACA experience (e.g., administrative reports on enrollment, subsidy payments, and tax collections). We then describe how we modeled each of the additional individual mandate response scenarios discussed in the main text. Finally, we present additional modeling results, and discuss how our results compare to those of the Congressional Budget Office (CBO) and the Urban Institute.

Health Insurance Enrollment Decisions

To model individual and family health insurance enrollment decisions under the ACA, COMPARE uses a utility-

maximization approach, in which decision-makers weigh the costs and benefits of available options. The utility-maximization framework accounts for the tax penalty for not purchasing insurance, the value of health care consumption, premium costs, expected out-of-pocket health care spending, and financial risk associated with out-of-pocket spending.

We scale each of these components of utility to dollars and assume that they are additively separable.[2] We further assume that individuals' utilities are separable in consumption and health. The health-related component of the utility function is modeled as follows:

$$U_{ijk} = u(H_{ij}) - E(OOP_{ij}) - p_{ij}^{(H)} - \frac{1}{2}rVAR(OOP_{ij}) - R_{ij} + Calibration_{jk}$$

Within this equation:

$u(H_{ij})$ is the utility associated with consuming health care services for individual i under insurance option j

k represents an individual's demographic group based on age and income

OOP_{ij} is the out-of-pocket spending expected

$p^{(H)}$ is the individual's premium contribution (after adjusting for tax credits)

r is the coefficient of risk aversion.

Possible health insurance enrollment choices (j) under the ACA may include employer coverage, Medicaid or Children's Health Insurance Program (CHIP) coverage, an ACA-compliant individual-market plan (including plans available on and off the marketplaces), or another source of coverage.[3] Individuals also can choose to forgo insurance. Not all individuals will have access to all forms of coverage. For example, access to Medicaid is contingent on eligibility, and individuals will have access to employer coverage only if they (or their spouse or parent) work for a business that offers insurance.

The **Penalty** response term, R_{ij} represents the individual's response to the tax penalty associated with insurance status j, and — in scenarios in which the mandate is in effect — it is 0 for all but the uninsured insurance status and on so-called "short term" nongroup plans. When j refers to a short-term plan or uninsurance, R_{ij} is given by:

$$R_{ij} = 1_{Ci}(1 - 1_{Ei})\left[\alpha_L Penalty_i + \alpha_C + \frac{\alpha_A(\max(18, age_i) - 18)}{46}\right]$$

In this equation, 1_{Ci} is an indicator for whether individual i complies, 1_{Ei} is an indicator for whether individual i is exempt *and* aware that he/she is exempt. $Penalty_i$ is the penalty that individual i owes, or would owe if not exempt. The variable α_L describes the weight put on the linear response to the penalty amount. We typically use a value of α_L=0.8 to capture the fact that, on average, the Internal Revenue Service collects only about 80 percent of taxes owed.[4] In some scenarios, we decrease this to 50 percent (see "Perceived Chance of Paying Penalty" in Appendix 1). The parameter α_C describes a taste for compliance that does not depend on age, and α_A is the magnitude of the age-based taste for compliance.

The term $\mathbf{Calibration_{jk}}$ is a factor that adjusts utilities to match enrollment patterns observed in pre-ACA data. The term accounts for nonpecuniary factors that may influence preferences for different types of insurance. Such factors include the convenience associated with enrolling in employer coverage and access constraints associated with Medicaid. Specific modeling strategies for each source of coverage j are described next.

Small-group employer coverage. Small employers in the model choose whether to offer coverage based on worker preferences and a small set of other factors, including the employer's industry and whether workers are unionized. Under the ACA, all small firms are part of a single risk pool with guaranteed issue, three-to-one rate banding on age, and restrictions that preclude insurers from charging different premiums to different groups other than based on geography, family size, tobacco use, and plan generosity.

In the current version of the model, small-group market regulations apply to all firms with 50 or fewer employees, regardless of year. Earlier versions of the model expanded the small-group market to include firms with 100 or fewer workers after 2015, as originally intended by the ACA. We revised the definition because the Protecting Affordable

Coverage for Employees Act, signed into law in late 2015, amended the ACA's definition of a *small employer* to include firms with one to 50 employees in perpetuity, unless states opt to extend the small-group market to firms with up to 100 workers.

Small firms in the model are permitted to purchase a 60-percent, 70-percent, 80-percent, or 90-percent actuarial value plan on the ACA's regulated small-group market, which includes the Small Business Health Options Program (SHOP) marketplaces. Small firms in the model may retain grandfathered status, which exempts them from the ACA's rating regulations, although we assume that a certain percentage of small firms will lose grandfathered status each year.

The ACA also offers a small business tax credit to small firms with low-wage workers who obtain coverage through the SHOP marketplaces. Because firms can take advantage of these credits for only two years, we assume that all small firms will have exhausted their tax credit eligibility by 2020.

Large-group employer coverage. Like small employers, large employers choose whether to offer coverage based on worker preferences and several other characteristics, including union status and industry. We allow large firms that offer coverage to choose between four different plans, which are distinguished by plan generosity and rated based on enrollees' expected health expenditures. We estimate premiums for the large-group market based on a regression. The firm's decision to offer is modeled using structural econometric techniques.

Medicaid. Through our calibration process, the model accounts for the fact that not all Medicaid-eligible individuals chose to enroll, perhaps because of stigma, lack of information, or transaction costs associated with enrolling. To account for the fact that the ACA increased Medicaid enrollment among the previously eligible population,[5] we increase the calibration parameter by a factor of approximately $200 in the post-2014 period. While we account for the individual mandate separately, it is possible that this welcome-mat parameter is picking up some nonfinancial effects of the individual mandate, such as increased enrollment because of exempt individuals mistakenly believing they are subject to the mandate.

Individual market. To model short-term plans for this analysis, we model the individual market as consisting of two components: 1) the ACA-compliant individual market, including the marketplaces, and 2) off-marketplace short-term plans that are not required to comply with the ACA's rating or other requirements. In the ACA-compliant individual market, modeled individuals and families can purchase plans with a 60-percent, 70-percent, 80-percent, or 90-percent actuarial value, corresponding to bronze, silver, gold, and platinum plans on the marketplaces, respectively. We model short-term plans as having an actuarial value of 50 percent, consistent with estimates of the actuarial value of health insurance plans prior to the ACA.[6] We do not model catastrophic plans, which are available only to those under age 30 or who qualify for a hardship exemption from the individual mandate — partially because the actuarial value of bronze plans and catastrophic plans are virtually the same. According to a 2015 fact sheet published by CMS, less than 1 percent of all marketplace enrollees have selected catastrophic coverage.[7]

ACA-compliant individual market premiums are calculated endogenously in the model based on the health expenditure profile of those who choose to enroll. The total, unsubsidized premium is based on enrollees' age, smoking status, and market-rating reforms implemented under the ACA.[8] We model three-to-one rate banding on age for adults age 21 and older, with a separate age-band for children and young adults under age 21. We also account for the ACA's risk-adjustment requirements, which transfer funds from plans with lower-than-average actuarial risk to plans with higher-than-average actuarial risk.

Under the ACA, the actual premium an enrollee pays is adjusted to account for tax credits available to qualifying individuals with incomes between 100 percent and 400 percent of the federal poverty level (FPL) who do not have affordable offers of insurance from another source (e.g., employer coverage, Medicaid). We apply the ACA's subsidy formula using the benchmark silver premium and the individual's income. Eligible individuals who have incomes between 100 percent and 250 percent of FPL also can receive CSR subsidies that help to lower out-of-pocket spending. As required by the ACA, individuals who receive CSR subsidies in COMPARE must be tax-credit eligible and purchase a silver plan (70% actuarial value). With the CSR subsidies,

the effective actuarial value of the plan is increased to 94 percent if income is below 150 percent of FPL, 87 percent if income is between 150 percent and 200 percent of FPL, and 73 percent if income is between 200 percent and 250 percent of FPL. Accordingly, out-of-pocket spending is adjusted downward to reflect the higher actuarial value of the plan. Note that out-of-pocket spending enters the individual's utility function; hence, individuals receiving CSR subsidies are more likely to purchase coverage.

Adjustment to Account for Post-ACA Experiences and Policies

CSRs. Given the Trump administration's intention at the time of this writing to halt federal payments for CSRs, we assume in the model that insurers build the costs of the CSR payments into premiums for their silver plans. We take this into account in COMPARE by eliminating CSR payments from the federal government and loading the costs of CSRs onto the premiums of silver nongroup market plans. Individuals who would have previously been eligible to receive CSR subsidies continue to do so.

Awareness of marketplace tax credits. The U.S. Department of Health and Human Services reported that approximately 14 percent of individual market enrollees are eligible for tax credits but forgo those credits by purchasing coverage outside of the marketplaces.[9] HHS further estimates that 9 million people are potentially eligible for tax credits but remain uninsured. Because these findings suggest that some people may be unaware of their tax credit eligibility, we assume that 25 percent of tax-credit eligible individuals will not account for these credits in their health insurance enrollment decisions. With this assumption, we match HHS's estimate that approximately half of all individual market enrollees receive tax credits.

Penalty payments. We adjusted the distribution of individual mandate penalty payments among individuals with incomes above 400 percent of FPL to better match data published by the IRS.[10] This adjustment required us to reduce penalty payments among very-high-income individuals and increase them for individuals just above 400 percent of FPL. We did not alter the distribution of payments among lower-income individuals.

New rating curve. In May 2017, CMS updated the default age rating curve to adjust premium rating factors for children and young adults age 20 and under.[11] We use the revised rating curve in this analysis.

Scenarios Considered in This Report

Next, we describe how we adjust the decision-making approach detailed above to reflect the alternative scenarios used in the report. For the most part, the scenarios change a single aspect of the base COMPARE scenario; for example, scenario 2 replaces the linear response to the penalty used in the main model with a taste for compliance. However, scenarios 9 and 10 combine aspects of the prior scenarios.

1. **Base.** In this scenario, which we have used in recent previous COMPARE analyses, people respond to a linear penalty but down-weight the probability of paying by a factor of 0.80 (i.e., α_L=0.80). We assume that 1_{ci}=1 and I_{Ei}=α_c=α_A=zero. The penalty response function is hence given by: (R_{ij}=*0.80*penalty*$_i$). We assume the welcome-mat effect persists after the mandate penalty is removed.
2. **Taste for compliance.** We assume 1_{ci}=1 and I_{Ei}=α_L=α_A=zero, and that there is taste for compliance (α_c) equal to $886 per year. This amount is based on Saltzman,[12] who estimated that people are willing to pay approximately $67 per month ($804 per year) to avoid being out of compliance with the mandate. Saltzman found no evidence for a separate response to the penalty that scales with size. We estimate an annual taste for compliance in 2020 of $886 after adjusting Saltzman's estimate for inflation. We assume the welcome-mat effect persists after the mandate penalty is removed.
3. **Age-based taste for compliance.** In addition to the mandate penalty response, we add age-specific taste-for-compliance factors to the utility associated with being insured. Mathematically, we assume that 1_{ci}=1, I_{Ei}=α_c=zero, α_L=0.80, and α_A=$1,772. With this value of $\alpha_{A,}$ the taste for compliance ranges from $0 for people age 18 and under to $1,772 for a 64-year-old. A person in the middle of the age range (a 41-year-old) would experience the same taste for compliance

($886) as in the non-age-based scenarios. This scenario corresponds to the discussion in Auerbach et al.,[13] which posits that people may respond both to the size and the presence of the mandate, and that the desire to comply with the law may be stronger for older individuals. We assume the welcome-mat effect persists after the mandate penalty is removed.

4. **Unaware of exemptions.** We assume that 20 percent of people who are eligible for exemptions are unaware, and hence respond to the penalty even though it does not apply to them. Mathematically, 1_{ci}=1, 1_{Ei}=0.20, α_L=0.80, and α_c=α_A=zero, This scenario reflects findings that people generally have low health literacy, and that data from the IRS show that, in 2015, roughly 313,000 low-income people erroneously paid a penalty when they likely were exempt from the mandate.[14] We assume the welcome-mat effect persists after the mandate penalty is removed.

5. **Low probability of paying penalty.** As described in the base scenario, the default assumption in COMPARE is that people expect to pay, on average, 80 percent of penalties owed. In this scenario, we reduce the expected payment ratio to 50 percent. Hence, α_L=0.50, 1_{ci}=1, and 1_{Ei}=α_c=α_A=zero. This reflects the possibility that people expect weak enforcement of the penalty, for example because of limitations on how funds can be collected. We assume the welcome-mat effect persists after the mandate penalty is removed.

6. **Inertia in decision-making.** To account for decision-making inertia, we increase individuals' utilities in the scenarios where the individual mandate penalty is removed for the health insurance options they are enrolled in under the scenarios in which the individual mandate is in place. We do this by increasing the value of $u(H_{ij})$ for the health insurance status the individual has with the individual mandate in place by two-thirds. The mandate penalty response function is the same as in the base scenario, and we assume the welcome-mat effect persists after the mandate penalty is removed.

7. **Welcome-mat effect dissipates.** Data indicate that the ACA led to increased take-up of Medicaid among those who were already eligible, a phenomenon known as the "welcome-mat effect."[15] There are many factors that may cause previously eligible people to newly enroll, including increased awareness, outreach and enrollment initiatives, prodding from providers, and streamlined application processes required by the ACA. Many of these factors, such as the streamlined application process, may persist after the individual mandate penalty is eliminated. Other factors, such as awareness of the law and the intensity of enrollment outreach, may be influenced by the mandate. It is also possible that some of the welcome-mat effect is itself driven by the mandate — e.g., because a subset of the previously eligible population could face mandate penalties if uninsured, because some of this population erroneously believes that the mandate applies to them, or because people in this income range are not sure whether their year-end income will be above or below the filing threshold. Although the welcome-mat effect has been well documented, we are unaware of research that has isolated the specific behavioral factors that contribute to this effect, making it difficult to determine the degree to which the effect will persist after the individual mandate penalty is eliminated. While our base scenario assumes the welcome-mat effect remains after the individual mandate penalty is removed, this scenario assumes it fully dissipates. To operationalize this effect, we remove the $200 increment to the Medicaid calibration parameter ($calibration_{Medicaid,k}$) that we added to better reflect post-2014 enrollment levels. We use the same penalty response function as in the base scenario.

8. **CSRs paid.** In this scenario, we assume that CSRs are fully paid by the federal government. While this assumption is inconsistent with the Trump administration's current policy, CBO assumed CSRs would be paid in its most recent complete analysis of the effect of removing the mandate penalty.[16] The mandate penalty response function is the same as the base scenario, and we assume the welcome-mat effect persists after the mandate penalty is removed.

9. **Combined scenario A (CSRs not paid).** This scenario combines aspects of the prior scenarios. Specifically, we add an age-based taste for compliance (α_A=$1,772), assume 20 percent of eligible people are unaware of exemptions (1_{Ei}=0.20), include a linear response to the penalty but assume that people expect to pay 50 percent of penalties owed (α_L=0.50), and allow the welcome-mat effect to dissipate after the mandate penalty is removed. We assume 1_{Ci}=1 and α_C=0; hence, the penalty response function is as follows: $0.80*\{(0.50*penalty_i)+[38.52*(max(18,age_i)-18)]\}$. Consistent with the current policy of the Trump administration, we assume CSRs are not paid by the federal government, and hence costs are loaded onto the silver plan.

10. **Combined scenario B (CSRs not paid).** This scenario is similar to combined scenario A above, but we add a lump-sum taste for compliance (as opposed to the age-based taste for compliance), allow for inertia in decision-making, and allow the welcome-mat effect to continue after the mandate penalty is removed. We model the inertia effect as in scenario 6. The penalty response function is as follows. $\{0.80*[(0.50*penalty_i)+$886]\}$. We assume CSRs are not paid by the federal government, and hence costs are loaded onto the silver plan.

Sensitivity to Assumptions About Compliance

In the scenarios analyzed in the main text, we assume that everyone down-weights the probability of paying the mandate penalty by a factor of α_L, but no one expects with certainty to fully evade the penalty (1_{Ci}=1). We make this assumption because we think it is unlikely that people will know with certainty whether they will be able to fully avoid the mandate, but many people may expect, on average, to be able to escape some of the penalty. As an alternative, we might assume that some people expect to fully avoid the penalty while others expect to pay the entire amount. In Exhibit A1, we consider a sensitivity analysis in which we assume that 80 percent of people subject to the mandate expect to pay the full penalty, while the remaining 20 percent of people expect to avoid the penalty entirely. Hence, 1_{ci}=0.80, α_L=1, and I_{Ei}=α_c=α_A=zero. Overall, results from this scenario are very similar to the base scenario.

Exhibit A1. Sensitivity to Assumptions About Compliance

	Base: Everyone down-weights mandate penalty by 80%	Alternative: 20% of people expect to fully avoid penalties	Difference
Insurance enrollment (millions), 2022			
ESI	157.3	157.1	–0.1%
Individual market	19.2	19.4	1.3%
Medicaid	61.5	61.4	–0.2%
Other	12.5	12.5	0.0%
Uninsured	27.7	27.8	0.3%
Indivdual market premiums, 2020			
Bronze premium for 40-year-old	$4,655	$4,592	–1.4%
Silver premium for 40-year-old	$7,283	$7,218	–0.9%

Data: RAND COMPARE microsimulation model.

Notes: Insurance enrollment numbers are for people under age 65. Numbers are estimates. ESI = employer-sponsored insurance.

Comparison to CBO and the Urban Institute

Exhibit A2 compares our insurance estimates with and without the mandate to those of CBO and the Urban Institute. The CBO estimates presented in the table come from its' November 2017 report, which focused specifically on eliminating the individual mandate. Since then, CBO has revised its estimates, but it has not published updated analyses that isolate the effect of removing the individual mandate penalty from other modeling and policy changes implemented in the most recent report.[17]

The analyses presented in Exhibit A2 are not comparable regarding the treatment of CSRs — CBO assumes CSRs are paid by the federal government both with and without the mandate. Urban, in contrast, compares policies in place at the end of 2016 to policies that will be in place in 2019. Urban, thus, compares a scenario in which the both the mandate is in place and CSRs are paid, to a scenario in which the mandate penalty is eliminated and CSRs are halted. Another difference across the estimates is that RAND and Urban assign individuals to a primary insurance category, while CBO allows people to have more than one source of coverage. Hence, CBO's estimates do not sum to population totals.

The estimated population size also differs across the studies. RAND matches population estimates published by the U.S. Census Bureau, which estimates that there will be 278 million nonelderly U.S. residents by 2020.[18]

RAND's estimated number without insurance is comparable to Urban's estimate (conditional on assumptions about CSR payment) and slightly lower than CBO's, both with and without the mandate. Compared to the other modelers, we estimate that slightly more people will be enrolled in employer coverage, and slightly fewer people will be insured in Medicaid. Estimates for individual market enrollment — the market that is arguably most affected by the elimination of the individual mandate penalty — are similar across the three models.

RAND estimates that age-specific silver premiums will change from –1 percent to 6.5 percent, and bronze premiums will increase from 3 percent to 13 percent, depending on assumptions about behavioral response to the mandate. CBO estimates that age-specific premiums will increase by around 10 percent per year. The Urban Institute estimates that the combination of policies expected to be in place during the 2019 open enrollment period — including elimination of the individual mandate penalty, CSR nonpayment, and reductions in funding for enrollment and

Exhibit A2. Comparison to Congressional Budget Office and Urban Institute

	COMPARE Base, 2020		COMPARE, CSRs paid, 2020		CBO, 2020		Urban, 2019	
	With IM	No IM	With IM	No IM	With IM and CSRs paid	No IM and CSRs paid	With IM and CSRs paid	No IM, CSRs not paid
Total ESI	157.3	155.1	157.7	155.3	154	153	149	148
Total nongroup	19.2	15.7	17.5	14.2	18	14	19	16*
Total Medicaid	61.5	60.5	61.4	60.4	68	66	69	69
Other (including Medicare)	12.5	12.5	12.5	12.5	13	13	9	9
Total uninsured	27.7	34.3	29.0	35.6	31	38	28	33
Total population	278	278	274	274	274	274	274	274
Percent uninsured	10.0%	12.3%	10.6%	13.0%	11.3%	13.9%	10.2%	11.9%

Data: Estimates for CBO come from their November 2017 report on eliminating the individual mandate; see Congressional Budget Office, *Repealing the Individual Health Insurance Mandate: An Updated Estimate* (CBO, Nov. 8, 2017), https://www.cbo.gov/publication/53300. While CBO has revised its estimates since then, the revised estimates do not isolate the effect of eliminating the individual mandate; see Congressional Budget Office, *Federal Subsidies for Health Insurance Coverage for People Under Age 65: 2018 to 2028* (CBO, May 2018), https://www.cbo.gov/system/files/115th-congress-2017-2018/reports/53826-healthinsurancecoverage.pdf. Estimates for the Urban Institute come from Linda Blumberg, Matthew Buettgens, and Robin Wang, *The Potential Impact of Short-Term Limited-Duration Policies on Insurance Coverage, Premiums, and Federal Spending* (Urban Institute, Feb. 2018), https://edit.urban.org/sites/default/files/publication/96781/2001727_0.pdf.

Notes: CBO allows multiple sources of coverage, so estimates do not sum to population totals. ESI = employer-sponsored insurance.

* Includes 4 million people enrolled in short-term plans that do not meet minimum essential coverage requirements.

outreach — will increase average premiums by 18.2 percent relative to the combination of policies in place in late 2016. These estimates are higher than RAND's because they reflect several policy changes in addition to the removal of the mandate penalty. Further, the Urban Institute reports changes in average premiums, which are not directly comparable to changes in age-specific premiums.

CBO estimates that removing the mandate penalty will reduce the federal deficit. Our analysis demonstrates that the effects of removing the mandate penalty on the federal deficit are uncertain, and depend on assumptions. However, in six of the 10 scenarios, RAND's model predicts that eliminating the individual mandate penalty will increase the federal deficit. These findings are strongly influenced by assumptions about whether the welcome-mat effect remains in place after the mandate penalty is eliminated. The Urban Institute estimates that the combination of policies it analyzed, including removing the individual mandate penalty, will increase federal spending by 9.3 percent.

Additional Sensitivity Analyses and Results

For each of the changes reported in the main text, there are two underlying scenarios used to generate that estimate — one with and one without the individual mandate. Most of the parameters analyzed in the report, such as the taste for compliance, are only relevant in scenarios that include the individual mandate. However, scenarios that involve the welcome-mat effect dissipating and inertia in decision-making can affect results without the individual mandate. Further, some scenarios assume the federal government pays for cost-sharing reductions, and others assume costs are loaded onto silver plans. Exhibit A3 summarizes the 20 scenarios underlying each of the 10 pairwise comparisons shown in the main text.

Exhibits A4, A5, and A6 present the full results from all analyses, including total insured in each scenario, bronze and silver premiums in each scenario, and the total effects on the federal deficit.

Exhibit A3. Pairwise Combinations of Scenarios Modeled

Scenario	Results with mandate	Results without mandate
1. Base	Equation 1, R_{ij}=0.80*$penalty_i$	Equation 1, with no individual mandate penalty
2. Taste for compliance	Equation 1, R_{ij}=$886	Equation 1, with no individual mandate penalty
3. Age-based taste for compliance	Equation 1, R_{ij}=(0.80*$penalty_j$)+38.52*[max(age_i,18)-18]	Equation 1, with no individual mandate penalty
4. Unaware of exemptions	Equation 1, R_{ij}=(1-0.20)*(0.80*$penalty_j$)	Equation 1, with no individual mandate penalty
5. Low probability of paying penalty	Equation 1, R_{ij}=0.50*$penalty_i$	Equation 1, with no individual mandate penalty
6. Inertia in decision-making	Equation 1, R_{ij}=0.80*$penalty_i$	Equation 1 with no individual mandate penalty, but we increase $U(H_{ij})$ by 2/3rds for whatever insurance choice the individual took with the mandate in place.
7. Welcome-mat effect tied to mandate	Equation 1, R_{ij}=0.80*$penalty_i$	Equation 1, no individual mandate penalty, no welcome-mat effect (we decrease $calibration_{Medicaid,K}$ by $200)
8. CSRs paid	Equation 1, R_{ij}=0.80*$penalty_i$, CSRs paid by federal government	Equation 1, CSRs paid by federal government, no individual mandate penalty
9. Combined scenario A	Equation 1, R_{ij}=0.80*{(0.50*$penalty_i$)+[38.52*(max(18,age_i)-18)]}	Equation 1, no individual mandate penalty, no welcome-mat effect (we decrease $calibration_{Medicaid,K}$ by $200)
10. Combined scenario B	Equation 1, R_{ij}=0.80*[(0.50*$penalty_i$)+$886]	Equation 1 with no individual mandate penalty, but we increase $U(H_{ij})$ by 2/3rds for whatever insurance choice the individual took with the mandate in place

Exhibit A4. Enrollment by Source of Coverage (in millions), 2020, Alternative Assumptions About Individual Mandate (IM) Response

	Base		Taste for compli-ance	Age-based taste for compli-ance	Unaware of exemp-tions	Low proba-bility of paying penalty	Inertia in decision-making	Welcome-mat effect dissipates	CSRs paid		Combined scenario A	Combined scenario B	
	With IM	No IM	With IM*	With IM*	With IM*	With IM*	No IM**	No IM**	With IM	No IM	With IM***	With IM	No IM
Total ESI	157.3	155.1	158.1	157.3	157.4	156.6	156.1	156.2	157.7	155.3	157.0	157.9	156.9
Total nongroup	19.2	15.7	18.9	22.1	18.9	17.5	17.7	15.9	17.5	14.2	20.5	19.5	17.9
Total Medicaid	61.5	60.5	61.7	61.8	62.3	61.3	61.3	54.1	61.4	60.4	61.7	61.7	59.6
Other	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
Total uninsured	27.7	34.3	26.9	24.4	27.0	30.1	30.5	39.3	29.0	35.6	26.4	26.5	31.2

Data: RAND COMPARE microsimulation model.

Note: ESI = employer-sponsored insurance.

* These scenarios, which include the individual mandate penalty, are compared to the "Base no IM" scenario to estimate the effects of removing the mandate penalty.

** These scenarios, which assume the individual mandate penalty is eliminated, are compared to the "Base with IM" results to estimate the effect of eliminating the mandate penalty.

*** This scenario, which assumes the individual mandate penalty is in place, is compared to the "Welcome-mat effect dissipates" results to estimate the effect of eliminating the penalty.

Exhibit A5. ACA-Compliant Individual Market Premiums (in dollars) for a 40-Year-Old Nonsmoker, 2020, Alternative Assumptions About Individual Mandate (IM) Response

	Base		Taste for compli-ance	Age-based taste for compli-ance	Unaware of exemp-tions	Low proba-bility of paying penalty	Inertia in decision-making	Welcome-mat effect dissipates	CSRs paid		Combined scenario A	Combined scenario B	
	With IM	No IM	With IM*	With IM*	With IM*	With IM*	No IM**	No IM**	With IM	No IM	With IM***	With IM	No IM
Bronze	4,655	4,986	4,682	4,408	4,711	4,837	4,814	4,908	4,968	5,292	4,541	4,655	4,792
Silver	7,283	7,382	7,327	7,004	7,072	7,219	7,212	7,288	5,796	6,174	7,164	7,241	7,193

Data: RAND COMPARE microsimulation model.

* These scenarios, which include the individual mandate penalty, are compared to the "Base no IM" scenario to estimate the effects of removing the mandate penalty.

** These scenarios, which assume the individual mandate penalty is removed, are compared to the "Base with IM" results to estimate the effect of removing the mandate penalty.

*** This scenario, which assumes the individual mandate penalty is in place, is compared to the "Welcome-mat effect dissipates" results to estimate the effect of eliminating the individual mandate penalty.

Exhibit A6. Effects on Federal Deficit (in $ billions), 2020, Alternative Assumptions About Individual Mandate (IM) Response

	Base		Taste for compliance	Age-based taste for compliance	Unaware of exemptions	Low probability of paying penalty	Inertia in decision-making	Welcome-mat effect dissipates	CSRs paid		Combined scenario A	Combined scenario B	
	With IM	No IM	With IM*	With IM*	With IM*	With IM*	No IM**	No IM**	With IM	No IM	With IM***	With IM	No IM
Spending													
Medicaid and CHIP spending	301.1	300.7	300.9	301.1	302.1	301.4	299.6	291.9	301.0	300.8	301.2	300.6	297.8
Premium subsidies	80.8	80.7	81.5	78.7	77.8	78.9	80.2	79.2	58.7	61.2	80.6	80.9	79.6
Cost-sharing subsidies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	3.6	0.0	0.0	0.0
Total spending	381.9	381.4	382.4	384.1	380.0	380.3	379.8	371.1	363.6	365.6	381.8	381.5	377.4
Revenue													
Individual mandate	5.8	0.0	5.5	4.3	6.9	4.3	0.0	0.0	6.5	0.0	4.2	4.3	0.0
Employer mandate	14.4	14.4	14.4	14.4	14.4	14.4	14.5	14.4	14.4	14.4	14.4	14.4	14.4
Tax on high-cost health plans	1.7	1.7	1.7	1.7	1.8	1.7	1.5	1.7	1.7	1.7	1.9	1.8	1.5
Tax revenue relative to base scenario (with IM)	0.0	4.6	–1.9	–0.1	–0.4	1.4	2.5	2.2	–0.9	4.1	0.6	–1.4	0.8
Total revenue	21.9	20.7	19.7	20.3	22.8	21.8	18.5	18.3	21.7	20.1	21.0	19.1	16.8
Net total	360.0	360.7	362.7	359.4	357.2	358.6	361.3	352.8	341.9	345.4	360.8	362.5	360.6

Data: RAND COMPARE microsimulation model.

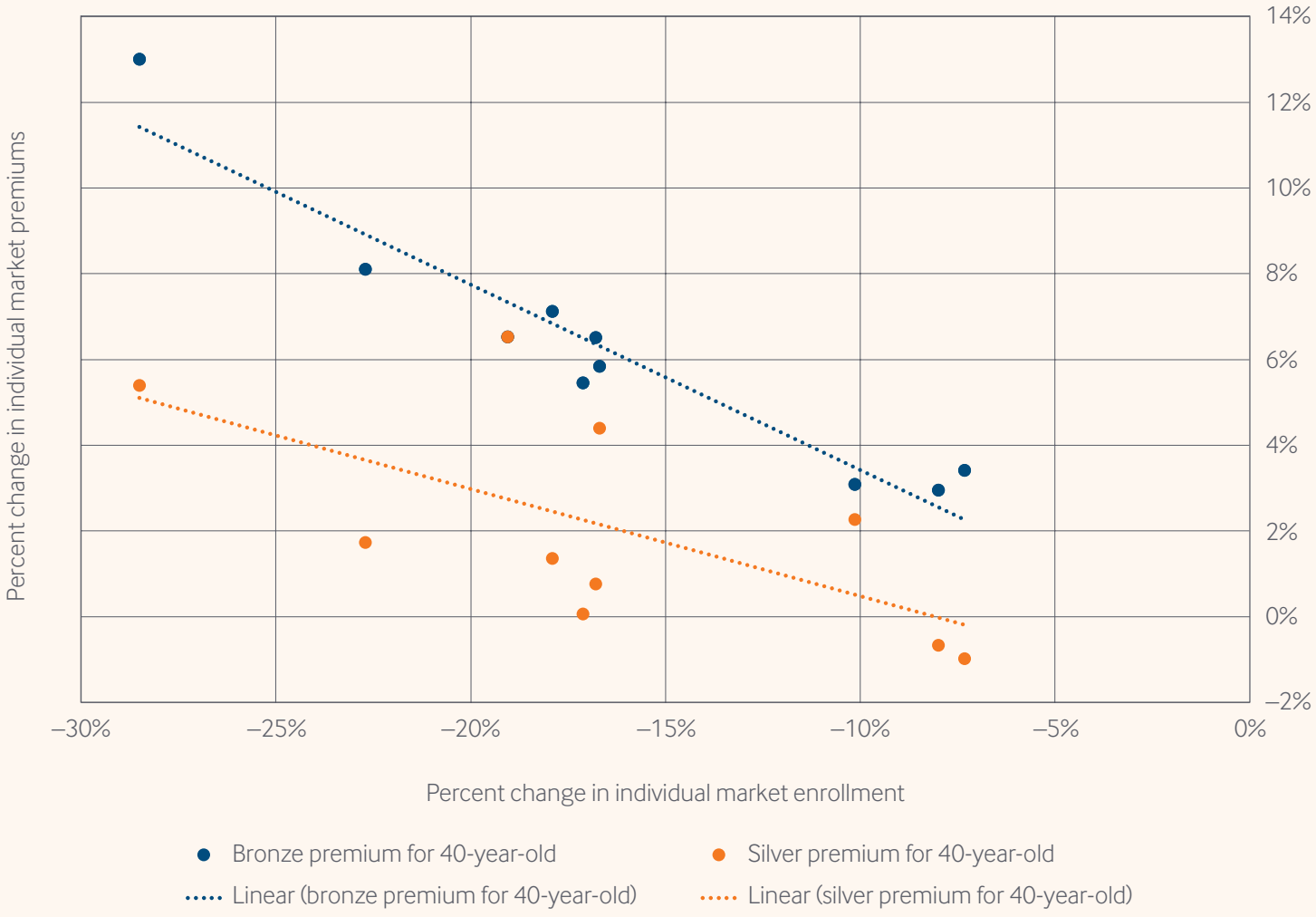
* These scenarios, which include the individual mandate penalty, are compared to the "Base no IM" scenario to estimate the effects of removing the mandate penalty.

** These scenarios, which assume the individual mandate penalty is removed, are compared to the "Base with IM" results to estimate the effect of removing the mandate penalty.

*** This scenario, which assumes the individual mandate penalty is in place, is compared to the "Welcome-mat effect dissipates" results to estimate the effect of eliminating the individual mandate penalty.

Exhibit A7 shows the relationship between premium changes and enrollment changes in the individual market, for each of the 10 scenarios analyzed, relative to the scenario in which the mandate is enforced. The horizontal access shows changes in individual market enrollment, and the vertical access shows changes in individual market premiums. We plot changes in bronze premiums in blue, and changes in silver premiums in orange. The dots represent the actual changes that we estimated in our analyses, and the lines represent a regression-based linear fit of the relationship between enrollment and premiums. The analysis confirms that premium increases are larger in scenarios where a larger proportion of individual market enrollees drop coverage in response to the removal of the mandate penalty.

Exhibit A7. Individual Market Premium Changes vs. Changes in Nongroup Enrollment



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1918
2018
The
Commonwealth
Fund
A Century of Advancing Health Care for All