Technical Appendix: RAND COMPARE Individual Mandate Repeal Analysis

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This technical appendix provides an overview of the methods used to estimate the impact of repealing the individual mandate. In the first section, we provide a general overview of the COMPARE microsimulation model used to construct our estimates. The subsequent section focuses on how the individual mandate is incorporated into the model and highlights some of the limitations of our modeling approach.

Overview of the COMPARE Model

We used the COMPARE microsimulation model to estimate how repealing the individual mandate would affect nonelderly (under age 65) insurance coverage and premiums in the insurance exchange. A complete description of the methods underlying the COMPARE can be found in Cordova et al. (2013). Briefly, we create a synthetic population of individuals, families, health expenditures, and firms using data from the April 2010 cross-section of the 2008 Survey of Income and Program Participation (SIPP), the 2010 and 2011 Medical Expenditure Panel Survey (MEPS), and the 2010 Kaiser Family Foundation Annual Survey of Employer Benefits. These datasets are linked together using statistical matching on key demographic characteristics, such as self-reported health status and income. We assign each individual in the SIPP a spending amount using the spending of a similar individual from the MEPS; we then augment spending imputations with data on aggregate spending levels from the National Health Expenditures Accounts (NHEA), as well as data on high-cost claims from the Society of Actuaries (SOA). The NHEA adjustment accounts for the fact that the MEPS underestimates total medical spending levels, while the SOA adjustment corrects the underrepresentation of individuals with high spending in the MEPS data.

To model individual and family health insurance enrollment decisions, 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, following Goldman, Buchanan, and Keeler (2000).

Possible health insurance enrollment choices in the model may include employer coverage, Medicaid, or CHIP, an Affordable Care Act (ACA)-compliant individual market plan (including plans available on and off the exchanges), non-ACA-compliant individual market plans as allowed under the Administration's

extension, or another source of coverage.[1] Individuals can also choose to forego insurance. Specific modeling strategies for each source of coverage are given below:

1) Employer Coverage

Employer plans are distinguished for small firms, which are permitted to purchase a plan in the Small Business Health Options Program (SHOP) exchange, and large firms, which do not have access to SHOP. Initially, the ACA only allows firms with fewer than 50 employees to access SHOP, but the cap rises to 100 employees in 2016. Starting in 2017, states can also allow firms with more than 100 employees to access SHOP. In COMPARE, we assume that no states will take such a step because it would tend to attract large firms with poor risk profiles, likely increasing premiums in the SHOP exchange. Small firms are permitted to purchase a bronze, silver, gold, or platinum plan on the SHOP exchange, where a firm's employees are pooled with the employees of other small firms to spread risk. In addition, small firms that retain grandfather status can offer a traditional employer plan. We assume that a certain percentage of small firms will lose grandfather status each year; model output is not sensitive to the assumed percentage. We allow large firms to choose between four different plans, with 60 percent, 70 percent, 80 percent, or 90 percent actuarial value, which are distinguished by plan generosity and rated by experience. Although some firms are able to offer plans with actuarial values below 60 percent, less than one-half of 1 percent of employer plans have an actuarial value below 60 percent, and hence we don't expect this omission to have a measurable impact on our results (Gabel et al., 2012). Not all individuals will have access to employer coverage, depending on firm offering decisions, employment, and family circumstances (such as the presence of a spouse's employer plan). The firm's decision to offer is modeled using structural econometric techniques; more details are provided in the appendix of Eibner et al. (2011).

2) Medicaid

COMPARE uses data from the Kaiser Family Foundation to determine pre-ACA Medicaid eligibility income levels by state and eligibility group. Under the ACA, Medicaid eligibility is expanded according to which states have participated in Medicaid expansion as of June 22, 2015 (Kaiser Family Foundation, 2015). In states that did not expand Medicaid, individuals who would have qualified for Medicaid expansion and have income above the federal poverty line can obtain tax credits on the exchange. However, those with incomes below the federal poverty line are ineligible for tax credits.

A substantial share of Medicaid eligible individuals are subject to the individual mandate because their incomes exceed the tax filing threshold. As a result of hassle costs in maintaining

[1] Other sources of coverage include Medicare for the nonelderly with qualifying conditions and military-related sources of coverage such as TRICARE.

enrollment in Medicaid and "stigma" associated with having Medicaid, we expect that some Medicaid enrollees may choose not to enroll or reenroll if the individual mandate is repealed. It is important to note, however, that individuals qualifying for Medicaid can be enrolled in the program when they receive care. Hence, Medicaid eligible individuals can wait until they get sick to sign up without penalty.

3) Individual Market

The individual market consists of three components: 1) the insurance exchanges where individual can receive tax credits, 2) off-exchange plans that comply with the ACA's requirements, and 3) off-exchange plans that do not comply with the ACA's requirements and can be offered until Oct. 1, 2017 under the transitional fix. Because the ACA requires all plans in the individual market (except non-ACA-compliant plans that have been continued under the Administration's extension) to be rated together, we model on- and off-exchange plans that are ACA-compliant as a single risk pool. Hence, we do not distinguish between enrollment in on-exchange plans and in off-exchange plans that comply with the ACA. In the ACA-compliant individual market, agents in the model can purchase a bronze, silver, gold, or platinum plan. We do not model catastrophic plans, which are available only to those who are under 30 or who qualify for a hardship exemption from the individual mandate. According to a 2015 fact sheet published by the Centers for Medicare and Medicaid Services (CMS), less than 1 percent of all marketplace enrollees have selected catastrophic coverage (Centers for Medicare & Medicaid Services, 2015a).

ACA-compliant 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 the market rating reforms implemented under the ACA (Centers for Medicare & Medicaid Services, 2015b). We model 3-to-1 rate banding on age for adults ages 21 and over, with a separate age-band for children and young adults under the age of 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. We find that COMPARE, which uses average enrollee spending to compute premiums, slightly overestimates premiums found in the marketplaces. Several factors that may also influence premiums, but cannot be modeled, include cross subsidization between an insurer's plans, competitive market forces between insurers, and imprecise insurer forecasting. When reporting premiums, we adjust the COMPARE premiums by a common ratio after the model is run to be in line with premiums in the marketplaces. Note that this adjustment has no impact on the change in premiums as a result of repealing the individual mandate, which is one of the key objectives of this study.

The actual premium that an enrollee pays is adjusted to account for tax credits, available to qualifying individuals with incomes between 100 and 400 percent of the federal poverty level (FPL). We apply the ACA's subsidy formula using the benchmark silver premium and the individual's income. Eligible individuals who have income between 100 and 250 percent of the FPL can also receive cost-sharing subsidies (CSRs) that help to lower out-of-pocket spending. As required in the ACA, individuals receiving CSRs in COMPARE must purchase a silver plan (70 percent actuarial value), and out-of-pocket spending is reduced to what it would be under a 94 percent, 87 percent, or 73 percent actuarial value plan if the individual's income is between 100 and 150 percent, 150 and 200 percent, or 200 and 250 percent of FPL, respectively. Note that out-of-pocket spending enters the individual's utility function, and hence individuals receiving CSRs are more likely to purchase coverage.

To forecast enrollment and premiums under the ACA, we calibrate COMPARE to approximate the pre-ACA health insurance market that existed in 2010 as a basis for estimating the impact of reforms under the ACA. Calibration is a process by which we adjust the algorithms in the model so that estimates of the pre-ACA insurance market match health insurance enrollment data collected before the provisions of the law took effect. We calibrate the model to reflect enrollment data by insurance type, age group, income group, and self-reported health status from the SIPP, with additional adjustment to account for pre-ACA individual market enrollment targets reported to healthcare.gov. We simulate coverage denial rates based on market survey data from America's Health Insurance Plans. In addition, we calibrate the model to match average premiums observed in the pre-ACA individual market, according to data from the Kaiser Family Foundation. We developed pre-ACA individual market premium schedules using age rate bands based on pre-ACA premium data from eHealthInsurance.com. According to these data, 64-year-olds in good health were charged approximately 3.75 times what 21-year-olds were charged under pre-ACA rating regimes averaged across all states. We also incorporate a health status factor of 2.25 into the model, which allows insurers in pre-ACA scenarios to charge people in poor or fair health (according to their self-reported health status) up to 2.25 times as much as people in excellent or very good health. Hence, under pre-ACA rules, an older, unhealthy individual in our model could have been charged up to 8.4 times what a young healthy individual was charged.

A key feature of the model is that premiums in the ACA-compliant market are calculated dynamically. As noted above, premiums in the model are computed endogenously using the imputed expenditure of modeled enrollees. Individuals sort into health insurance plans by choosing their preferred option. Next, premiums are recalculated based on the profile of the enrolled pool. If premiums are too high, some enrollees will opt to drop an insurance option, while if premiums are low, additional individuals may enroll. This iterative process continues until an equilibrium is achieved, defined such that premiums and enrollment decisions are sufficiently stable between model iterations. The model can detect a "death spiral" if enrollment approaches zero while premiums rise to a very large number. A "death spiral" is an

extreme manifestation of adverse selection, in which younger and healthier enrollees may respond to high premiums by dropping out of the risk pool, leaving older and sicker enrollees who have higher medical spending in the pool. Controlling adverse selection is one of the key objectives of the individual mandate.

Modeling the Individual Mandate

As noted above, the individual mandate penalty is a component of the individual decision-making process that we incorporate into the utility maximization approach. In particular, the dollar amount of the penalty is deducted from an individual's utility for choosing not to purchase insurance. For each year, the penalty amount in COMPARE is calculated based on income and family composition, as specified in the ACA. Families foregoing coverage pay the greater of the "penalty floor" and the "percentage penalty," but no more than the national average bronze plan premium times the number of family members. The "penalty floor" is based on the flat-dollar amount that is specified in the ACA; this amount was $95 in 2014 and will be $695 in 2016. To calculate the penalty floor, the flat-dollar amount is multiplied by the sum of the number of adults in the family and half the number of children in the family. The floor is capped at three times the flat-dollar amount. The "percentage penalty" is determined as a percentage of a family's income that exceeds the filing threshold, starting at 1 percent in 2014 when the individual mandate first took effect and rising to 2.5 percent by 2016. Finally, the ACA caps the total penalty paid at the national average bronze plan premium times the number of family members. In 2014 and 2015, the annual national average bronze plan premium was $2,448 (Internal Revenue Service, 2014) and $2,484 (Internal Revenue Service, 2015) respectively.

In addition, some individuals are exempt from the individual mandate. COMPARE accounts for many of the groups who are exempt, including:

- Individuals with income below the tax filing threshold,
- Individuals lacking access to an affordable insurance (an affordable offer is defined as requiring a premium contribution below 8 percent of family income above filing threshold after applying any applicable premium tax credits or employer contributions),
- Low-income individuals (with income below 138 percent of the federal poverty level) living in a state that did not expand Medicaid and prevented from accessing Medicaid,
- Undocumented immigrants, and
- Individuals whose individual market plan was canceled, according to HHS ruling on Dec. 19, 2013.

Because of data limitations, some of the individual mandate exemptions are not modeled, including those with religious objections and Native Americans.

In previous work, we have used the COMPARE model to test the importance of the individual mandate. Previously, we estimated that premiums would rise 7.1 percent, enrollment in the ACA-compliant market would decline by 20.4 percent in 2015, and total coverage among the nonelderly would decline by 3.3 percent if the individual mandate were repealed. In the current work, we estimate the impact of repealing the individual mandate in 2017, when the penalty amount will be fully phased in. Given the larger penalty in 2017 for not purchasing insurance, we expect more individuals to enroll and premiums to be lower in the ACA-compliant market if the mandate is in effect. Hence, enrollment declines and premium increases will be larger in 2017 than in 2015 if the individual mandate is repealed. Indeed, our results confirm these predictions. We estimate that premiums will increase by 8 percent in 2017 if the individual mandate is repealed; enrollment in the individual market will decline by 25.5 percent, while total nonelderly enrollment would fall by 4.9 percent.

Unfortunately, the existing evidence base limits the precision of our estimates. In particular, COMPARE assumes that individual response to the mandate perfectly correlates with the amount of the penalty. However, some people may have a preference for complying with the individual responsibility requirement, regardless of the penalty amount. Others may not want to pay "something for nothing" by paying the penalty but not receiving coverage in return. By not incorporating this "taste for compliance," our estimates of the impact of repealing the individual mandate could be biased. On the other hand, COMPARE assumes general public awareness of the penalty. Confusion regarding the ACA persists and some may be unaware that they are required to purchase insurance. Because many Americans use tax software or tax preparers to assist in completing their tax returns, the actual amount of the penalty may not be readily apparent. COMPARE is also unable to capture political or ideological objections to complying with the individual mandate. As noted above, data limitations do not allow us to identify all of the potential groups who could be exempt from the individual mandate, although the model captures the largest groups.

Finally, COMPARE estimates the impact of repealing the individual mandate at the national level. However, repeal could vary significantly by state, particularly because each state's exchange is a separate risk pool. States with disproportionately younger and healthier marketplace enrollees, who we find are more sensitive to the individual mandate, could see sharper enrollment declines and premium increases. In states that have adopted pure community rating, including New York and Vermont, the young and healthy may also be more likely to disenroll without the incentive of the individual mandate. Hence, it is important to note that individual states may see a far greater impact if the individual mandate is repealed.

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