Methodology
The Bottom Line: How the Affordable Care Act Helps America's Families

Executive Summary

For this report, Families USA contracted with Jonathan Gruber, professor of economics at Massachusetts Institute of Technology, to conduct an analysis of the effects of the Affordable Care Act (ACA) on household spending. Gruber's team, working with Families USA staff, used a budget-based approach in this analysis. We compared the additional household *costs* produced by the ACA with the additional household *benefits* provided by the ACA to determine the net financial impact of the ACA on household budgets. We conducted this analysis separately for the entire population, the ex-ante insured (the population that was insured prior to reform), and the ex-ante uninsured (the population that was uninsured prior to reform).

We used the Gruber Microsimulation Model (GMSIM), which allows the user to input a set of policy parameters and output the impact of these policies on costs (both public- and private-sector) and on the distribution of insurance coverage. The modeling approach used here is the type of microsimulation modeling that is used by the U.S. Treasury Department, the Congressional Budget Office (CBO), and other government entities. This approach consists of drawing on the best evidence available in the health economics literature to model how individuals and firms will respond to changes in the insurance environment that are induced by changes in government policy.

The U.S. Census Bureau's Current Population Survey (CPS) is the primary data source in the GMSIM. The CPS includes data on family demographics, tax rates, and insurance status. These data are augmented by health expenditure and premium data from the U.S. Agency for Healthcare Research and Quality's Medical Expenditure Panel Survey (MEPS), as well as by data from the Kaiser Family Foundation on public program expenditures and eligibility.

The GMSIM is calibrated to estimate the total impact of the ACA at the national level. For this report, we used the model to produce state-level estimates based on nationally available state information (i.e., sources of information with comparable data available for every state). GMSIM analyses for individual states may differ from the findings in this report when state-specific information from a source available only in a state is included, such as specific information on state pricing in the non-group insurance market.

Costs and Benefits Modeled in This Analysis

This analysis estimates the effects of the ACA on household spending in 2019. In order to estimate these effects, we modeled changes in both costs and benefits that households (entire population; ex-ante insured; and ex-ante uninsured) will face under the ACA.

We first looked at four factors that could increase or decrease a household's health care costs under the ACA. First, we looked at employer-sponsored insurance (ESI) premiums that are paid by employees. Under the ACA, there are two forces that will change the aggregate consumer spending on employer-sponsored insurance premiums: firms adding or dropping coverage, and employers changing the amount they contribute toward coverage. Next, we looked at spending on non-group premiums. The exchanges that are created by the ACA will dramatically increase non-group enrollment. As a result, aggregate spending on non-group premiums will rise substantially. Third, we looked at out-of-pocket spending, which is health care spending that is paid directly by the household either through co-insurance, copayments, deductibles, and uncovered services for the insured or spending on care that is received by the uninsured. Out-of-pocket spending will generally be reduced under the ACA. Fourth, we looked at changes in taxes, which are the result of the changes in wages that will be produced by employer reactions to the ACA and the increase in Medicare taxes that are stipulated by the ACA.

We then looked at the three benefits that could accrue to households under the ACA. The first benefit component we quantified is exchange tax credits. For this analysis, we considered only the tax credits that will be received by the ex-ante uninsured. Those who are insured ex-ante will already see the benefits of the tax credits as a decrease in premium spending, and thus it would be double-counting to consider them here. The second component is Medicaid expenditures. These expenditures are used as a proxy to value coverage. This benefit is also considered only for the ex-ante uninsured to eliminate concerns of double-counting for the previously insured. The third benefit component we quantified is the changes in wages that arise from employer reactions to the provisions of the ACA.

Data Sources

The baseline dataset in the Gruber Microsimulation Model (GMSIM) is primarily based on data from the 2005-2007 Current Population Surveys (CPS), which provide the individual-level data on about 40,000 non-elderly individuals and household units. The 2005 CPS is used as the base data source because it is the latest year that respondents were asked about offers of employer-sponsored insurance. We augmented the 2005 CPS with the 2006 and 2007 CPS to obtain a larger sample size for greater precision at the state level. We used the most recently available CPS data to update all income and demographic measures.

In the CPS, we are interested only in the non-elderly population (under age 65). Individuals aged 65 and older are primarily covered by the Medicare system and do not participate in traditional insurance markets; thus, we excluded them from our simulation. (We also excluded individuals who are covered through the TRICARE military health system, as they also do not participate in traditional insurance markets.) The observations in the CPS are weighted such that one observation may represent many thousand actual people. For the purpose of our analysis, we began by sorting people into one of four ex-ante insurance categories: ESI, non-group, public, or uninsured. In the ex-ante state, the observation's entire weight was placed in one category (when we ran the simulation, we relaxed this assumption and allowed weights to be spread across insurance categories). We also created health insurance units (HIU) to replace the CPS household definitions. The CPS groups households based on residence, but this is not ideal for a health insurance simulation model. Therefore, we created the HIUs to represent groups of people (e.g., couples and families) who would make insurance decisions together: spouses were grouped together, and children were grouped with their parents. While people are grouped into HIUs, the benefits of health reform ex-post are calculated at the person-level. Households with one or more uninsured individuals are counted as uninsured ex-ante, but the economic effects of reform for a mixed-insurance status household reflect a weighted average of the gains based on the share of uninsured within the household.

To supplement the CPS data, which do not include information on health expenditures or insurance premiums, we used data from the Medical Expenditure Panel Survey (MEPS). MEPS provides the distribution of individual annual expected health spending sorted by self-reported health status and age, which we imputed to our CPS observations and refer to as the "true cost" that individuals face. We also used MEPS data to compute the employer-employee split of the premium. We used data from the Kaiser Family Foundation on public insurance program spending and eligibility, as well as the federal/state funding split.

To project our baseline data forward, we used a variety of income and health cost inflation rates, as well as population projections from the Census Bureau, and insurance growth rates from the Congressional Budget Office (CBO). We used the CBO's projections for GDP growth to inflate income measures. We used a flat 6 percent growth rate to inflate all health costs, except for Medicaid cost growth, for which we used growth rates supplied by CBO. For this analysis, we assumed that the rate of health care inflation would be slowed by 1 percent per year as a result of the ACA. So, from 2014 to 2019, health costs would grow by 5 percent per year, except for Medicaid, which would grow at the CBO projection minus 1 percentage point. We grew the overall population based on Census Bureau projections of population growth by age and sex. We also adjusted the relative size of insurance categories using growth rates supplied by the CBO.

Modeling the Behavior of Private Firms

To model employer behavior, it is important to understand that employers make decisions based on the firm-wide aggregate effects of a policy. To mimic this in the GMSIM, we constructed "synthetic firms," which are meant to reflect the demographics of actual firms. The core of this computation comes from Bureau of Labor Statistics (BLS) data that provide the earnings distribution of coworkers for individuals of any given earnings level, for various firm sizes, and for regions of the country.

To begin the policy simulation process, we first considered employer reactions to policy changes. We did this because 90 percent of private health insurance is provided by employers, giving them great influence in insurance markets. To model employer behavior, we assumed that a firm's decision-making reflects the aggregation of worker characteristics and preferences. To model these preferences, we computed "pseudo-takeups," which are the firm's prediction of worker reactions to policy changes, taking the firm size into account, as smaller firms are more sensitive to policy changes. We assumed that total worker compensation remained constant, so firm increases in ESI spending would be offset with wage reductions, and decreases in spending would be offset with increases in wages.

The GMSIM models the following:

1) changes in offers of coverage,
2) changes in the amount contributed toward premiums, and
3) changes in total spending on ESI premiums.

We modeled changes in ESI offers by considering the incentives to offer insurance that are provided by a given policy. We considered each policy component separately and computed an "offer pressure," which was based on a comprehensive review of relevant literature that reflected the influence of a given policy on a firm's decision to offer or not offer coverage to its workers. Changes in offers of coverage are the most direct way in which a firm will react to a policy change.

We used a similar framework when modeling how firms determine the proportion they will contribute toward premiums and the total amount they will spend on premiums. In this process, we considered each policy's effect on the contribution decision and total spending decision, and we then aggregated the individual components to get the final contribution and total spending change.

Modeling Consumer Responses to Policy Changes

After determining how firms would respond to policy changes, we modeled reactions of individuals to these changes. Our model used "take-up" equations to determine the probability that an individual would move to a certain insurance type. These take-up equations factor in consumer preferences for coverage, as well as the responsiveness of individuals to changes in the price of coverage, adjusted for variations in income. Both factors in the equation are based on a comprehensive review of relevant literature. Generally speaking, these equations are of the following form:

$$\text{Take-up} = (\text{Constant} + \text{Elasticity} \times \% \text{ Price Change} \times \text{Income Effect}) \times \text{Income Adjustment}$$

After we computed the take-up probabilities for all the possible insurance movements, we applied any regulatory apparatus that yields a clearly defined result. For example, individuals with an ESI offer may be barred from moving to the individual exchange. After making the regulatory changes, we adjusted the probabilities for overlap such that the sum of the movement probabilities and the probability of remaining on the ex-ante insurance category equaled 100 percent.

By this point, we have predicted the probability of the individual making all possible insurance choices. We then relaxed the assumption that each individual observation can be on only one insurance type. We used the movement probabilities as the share of the individual's weight that is moved to the relevant insurance category. For example, one observation could be an uninsured person (before health reform),

who is given a total weight of 1,000. We then model this observation (representing 1,000 uninsured individuals prior to health reform) under health reform. There is a 50 percent probability that this observation would continue to be uninsured, and a 50 percent probability that this observation will be covered by public insurance. As such, we now say that this observation represents 500 uninsured individuals and 500 individuals covered by public insurance under health reform.

Modeling the Effect of Regulatory Changes

At this point, we have computed what we call the voluntary movement—the movement that occurs as a result of individual and employer decisions. The next step was to apply any additional regulatory apparatus that can influence movement (differentiated from the above regulatory apparatus, which results in clearly defined movement rules), such as an individual mandate or an auto-enrollment process. To make these adjustments, we moved a portion of the observation's uninsured weight under reform to a predetermined insurance destination. The insurance destination represents the most likely source of insurance coverage for the person. The portion of the uninsured weight under reform that was shifted depended on the insurance destination and was calibrated to produce results in line with CBO estimates. We also had the capability to restrict the movement of undocumented immigrants. Using data provided by Dr. Jeffery Passel of the Pew Hispanic Center, we were able to indentify likely undocumented immigrants in the data and to adjust or restrict their movement.

Modeling Cost Changes

After considering the regulatory apparatus, we have finished the movement section of the model. To conclude the modeling process, we finalized cost changes for individuals, firms, and governments. The first step in this process was to reset premiums in any exchanges that have been created. Exchanges will charge premiums that reflect the underlying risk of the overall pool instead of the individual, as in traditional non-group markets. During the firm and individual reaction portion of the model, we estimated exchange premiums by using the existing non-group and half of the existing uninsured population (selected randomly). After computing all movements, we reset the exchange premiums using the actual exchange population. We then calculated changes in the following measures for individuals: premiums, out-of-pocket spending, regulatory penalties, wages, and taxes.