THE IMPACT OF REPEALING THE EXCLUSION FOR EMPLOYER-SPONSORED INSURANCE

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The paper uses a new micro-simulation model to estimate the impact of repealing the employer-sponsored insurance (ESI) exclusion on ESI coverage given two alternative scenarios: a non-group market that is fully underwritten and a modified community-rated market where the low income population receives premium subsidies. When the alternative to ESI is the underwritten market, repeal of the exclusion reduces ESI coverage by 14 percent both overall and for those over 400 percent FPL. In contrast, individuals over 400 percent FPL are less likely to leave ESI when the alternative is a subsidized modified community-rated market.

Keywords: erosion of insurance coverage, employer sponsored insurance, micro-simulation

JEL Codes: I11, I18, H29

I. INTRODUCTION

Employer-sponsored health insurance (ESI) is expected to cost the federal government more than $250 billion in reduced income and payroll taxes in 2010 because ESI premiums are excluded from both income and payroll tax. This amount will increase over time due to the rapid growth of medical spending. Both as a reaction to budget pressures and for policy reasons, policymakers have considered various caps on the amount of ESI premiums that can be excluded from income and payroll taxes and have even considered complete repeal of the exclusion.
The tax exclusion provides a strong incentive for individuals to obtain health insurance coverage through their employers. In addition to the exclusion, however, there are additional advantages to ESI that make it more attractive than the non-group market. For example, larger risk pools organized around employment rather than health status allow insurance carriers to offer non-underwritten policies that reduce overhead costs. The large employment base allows for economies of scale and bargaining power that can reduce the costs of insurance. From the employee’s point of view, the ease of enrolling through an employer and the use of payroll deductions to pay for an employee’s share of the premium help encourage the employee to opt for coverage. All of these factors contribute to the popularity of ESI. The Current Population Survey (CPS) reports that in 2008, 163 million out of the 264 million nonelderly individuals in the population receive coverage through ESI, while the non-group market covers only 17 million.1

It is clear that a crucial issue for policymakers as they debate capping or repealing the ESI exclusion is the effect of a cap or repeal on the number of individuals insured through ESI. Since the Patient Protection and Affordable Care Act (PPACA) has for the most part substituted a modified community-rated market with low income subsidies (that we refer to as the “restructured non-group market”) for the currently mostly underwritten non-group market, it is instructive to explore the impact of repeal on the employee’s choice of insurance under both non-group regimes. This paper analyzes this choice using a micro-simulation model designed to capture key components of the decision to obtain coverage.

The amount of erosion of health insurance coverage associated with various health market changes has been estimated by a number of other authors. The two most closely related analyses to this study are by Congressional Budget Office (2008) and by Gruber (2010). In the course of estimating costs for a number of Congressional health reform proposals that included tax caps (or an excise tax on high cost plans), CBO/JCT implicitly estimated the impact of the tax caps on erosion. However, the impacts of the caps were not separated from other effects. Gruber recently used a micro-simulation model to explicitly analyze the effect of a tax cap and full repeal of the ESI exclusion. Gruber estimates that 15 million individual would lose ESI coverage but only four million become uninsured. Both Gruber and CBO/JCT do not explicitly analyze the distributional effects of erosion.

In this paper we present an analysis of the impact of repeal on ESI erosion utilizing a micro-simulation model that explicitly takes into account the changes in prices as people select into each insurance market. In addition, the analysis presented here uses tax data to establish the actual employee makeup of a firm in order to more accurately forecast the firm’s decision to offer health insurance. Previous studies have used synthetic firms for this kind of analysis.

Repealing the exclusion results in a 14 percent erosion of the ESI market when the alternative to ESI is an underwritten non-group market. The results from the simulation also show that erosion from ESI of high income individuals is smaller when the alternative is a subsidized restructured non-group market than when the non-group market is underwritten. Finally, simulating full repeal with a subsidized restructured non-group market suggests that not all individuals become better off as a result of the restructuring of the non-group market. Healthy high income individuals can be worse off because they no longer have a low cost underwritten offer as an alternative to ESI.

In the remainder of the paper, Section II explains the choices of health insurance available to the individual and how this choice is modeled. Section III describes the results of the simulation and Section IV concludes.

II. THE CHOICE OF INSURANCE COVERAGE AND THE MICRO-SIMULATION MODEL

Currently, nonelderly individuals can obtain coverage through an employer, the non-group market or, if they are eligible, through public programs. If offered health insurance through their employers, employees have to decide whether to participate in ESI or purchase insurance in the non-group market. The non-group market differs among states, with states requiring various degrees of premium restrictions; however, characterizing the current non-group market as underwritten is a close first approximation. In an underwritten market where there is no pooling, the insurance premiums are a direct function of the expected health of the individual, making premiums relatively inexpensive for young healthy individuals (despite the large overhead cost involved in underwriting) and much more expensive for older, less healthy individuals. Since there is very little pooling in the non-group market, the cost of coverage for unhealthy individuals can be extremely high.

The design of the restructured non-group market in our simulation is similar to the design of the exchange in the PPACA. The restructured non-group market is a modified community-rated market where premiums can vary only by age in such a way that the highest age-rated premium is no more than four times the lowest age-rated premium. Premiums are determined by aggregating across individuals in each age group subject to the four-to-one premium constraint. The restructured non-group market has guaranteed issue and renewability and has subsidies for low income individuals. Low income individuals pay a sliding scale percentage of their adjusted gross income rather than a full premium. The subsidies are very large for individuals with very low income and decline as income increases, becoming zero beyond 400 percent of the federal poverty level (FPL).\(^2\) Table 1 shows the subsidy available by FPL in the restructured non-group market. Individuals are not allowed to purchase underwritten non-group policies nor are they allowed to keep their old underwritten plans. However, unlike the PPACA, even the

\(^2\) The FPL is also referred to as the poverty guidelines and is issued each year in the Federal Register by the Department of Health and Human Services (HHS).
lowest income individuals are allowed to purchase in the restructured non-group market with a subsidy. Unlike the exchange in the PPACA which has several benefits packages, the restructured non-group market is modeled in such a way that everyone buys an identical single or family policy and pays the same premium within a given age group.

The premiums under ESI are determined by expected health expenditures of the employees making up the employer’s risk pool. Thus, the price of premiums under ESI can change as employees enter or leave the risk pool. Repeal of the exclusion would increase the after-tax price of ESI relative to the price of the alternative health insurance options and relative to the cost of remaining uninsured. Since the underwritten non-group market is less expensive for healthy individuals, healthy individuals are more likely to leave ESI for non-group insurance, resulting in a less healthy ESI risk pool with higher average premiums. Since the restructured non-group market is modified community-rated, these same movements will cause premiums in the non-group market to change. Our model simulates these changes in order to determine the new market equilibrium. It is a generally accepted principle that as individuals move from one health insurance status to another (each status with a different set of benefits), his or her expected health expenditures will change. In order to determine premiums for a health insurance unit as it moves from one market to another, shadow prices were built from expenditure and overhead data.

The micro-simulation model uses health expenditure information from the 2004 Medical Expenditure Panel Survey (MEPS) to build premiums, and observations from the MEPS to form the basic unit of analysis. MEPS health expenditure data are adjusted in several ways, primarily to account for underreporting of Medicaid cover-
age and underreporting of very large medical costs, in order to target the analogous expenditure components of the National Health Accounts. We estimate expected health care expenses given each observation’s current health insurance status (ESI, non-group, public or uninsured) conditional on demographic characteristics, employment choices, and health conditions. Since ESI plans generally have more generous benefits than non-group plans and since more generous plans induce larger medical spending, insurance status is included in the independent variables. We use a two-part model to estimate expenditures.

Unlike other micro-simulation models that organize employee observations into synthetic firms in order to model the firm’s decision to offer health insurance, we use population tax data from the 2004 IRS Compliance Data Warehouse (CDW) to match employees to firms. MEPS regression coefficients are used to form an estimator of health expenditures for the CDW employees based on demographic characteristics that are jointly available on both the MEPS and the CDW files. The population of firms is very large, so in order to create a dataset of reasonable size, firms from the CDW are stratified based on the estimated health expenditures of their employees as well as other firm characteristics, and a stratified sample is drawn. Employees within large employers are further sampled. The resulting dataset relates sampled employers that are representative of the population to MEPS observations and their health expenditures, allowing for the calculation of ESI premiums for each employer in the sample.

A key part of the micro-simulation model is the voting model that is used to determine the decision by employers to make the offer of health insurance. Each employee will compare the cost of insurance obtained through ESI with other options such as insurance purchased through the non-group market. If the after-tax cost of insurance after adjusting for benefit generosity is lower in the non-group market than under ESI, an employee votes for the employer to drop the offer of insurance. If enough employees vote to drop, then the employer will drop the offer. The voting can also go in the opposite direction; that is, if the employer does not currently offer health insurance and enough employees vote for their employer to offer an ESI plan, then the employer may start to offer health insurance to their employees.

One unique feature of the micro-simulation model is the treatment of the adjustments to employees’ wages for health insurance. Employers pay for health insurance by adjusting employees’ cash wages downward, while holding overall compensation constant. The underlying assumption is that employees with similar productivity will receive similar total compensation and the employee and employer together can decide

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4 The methodology ignores differences in plan generosity within an insurance status.
5 The CDW is a data warehouse that contains all of the tax returns filed by businesses and individuals.
6 In order to avoid knife-edge decisions where small changes in price could lead to improbably large increases in the dropping of insurance coverage, we do not allow a simple majority of voters to determine the fate of an offer. Instead, the probability of dropping an offer increases as the fraction of employees voting to drop increases. The functional form of the probability equation was calibrated to replicate the number of existing offers in the current market place.
if part of the compensation is to be paid in the form of health insurance. We assume that the wage adjustments are not equal to the premium but instead differ by wage and education group. In the aggregate, the adjustments cover the cost of insurance to the firm. This is an important point because the after-tax price faced by the employee in our model will be based partly on these wage adjustments rather than the premium itself.

In the simulation model there are two reasons why an employee may no longer be covered under ESI: the employer no longer offers health insurance (referred to as “dropping”) or the employee opts to switch from ESI to an alternative status even though the employer continues to offer health insurance (referred to as “switching”). These two types of transitions are separately identified in the model. If an employer were to drop the offer of health insurance, the wages of employees would increase by their wage adjustment keeping total compensation at the employer level constant. When an employer continues to offer ESI and an employee chooses to switch out of his employer’s plan, the employee would not receive an increase in wages. Thus, an employee would only switch out of an ESI plan if the alternative plan cost less than the employee’s after-tax out-of-pocket share of the premium when the employer continues to offer ESI. In addition to dropping and switching, the model allows employers to newly offer coverage, for employees to take-up new and old offers, and for formerly uninsured individuals to take up new coverage in the non-group market. Relative premium prices and benefit packages are taken into account in estimating the probability of each transition.

The micro-simulation model finds a solution using an iterative process. In the first round, individual choices are based on the estimated baseline values of ESI and non-group premiums described above. The model is calibrated so that without a change in relative prices, there are no significant changes in health insurance status. Given the repeal of the exclusion, individuals are faced with a new after-tax price of ESI. Individuals make choices based on the new after-tax prices. Changes in status (including those due to changes in employer offers) take place and a new set of premiums is calculated based on the expected expenditures of the individuals buying in the risk pool (whether ESI or non-group) and the generosity of the plan. In the second round and thereafter, decisions are based on the new premiums calculated at the end of each previous round. An equilibrium is reached when the change in premiums is minimal.

III. RESULTS

We simulate both full repeal of the exclusion for income and payroll taxes and repeal of the exclusion for income taxes only. The effects of the two repeals are first simulated with the underwritten non-group market and then with the subsidized restructured non-group market. The results presented focus on the impact of the repeal on health insurance status overall and by income relative to the FPL.

7 Of course the employee would receive his employee’s share of the premium as wages.
Table 2 shows health insurance status for non-elderly individuals in 2010 before any simulations of repeal are run. There are 157 million individuals that have ESI. The remaining health insurance statuses were assigned in a hierarchical fashion so that each unit is counted as having only one status. Hence the count of non-group insurance excludes individuals that have both ESI and non-group. Using this methodology, about 16 million individuals have non-group coverage (but not ESI). About 56 million individuals are covered by public programs (but not ESI or non-group). The remaining 46 million are uninsured. Approximately 56 percent of nonelderly individuals have ESI, but the percentage of nonelderly individuals varies by income. Nonelderly individuals between 150 percent and 200 percent of FPL also have ESI coverage at the average 56

<table>
<thead>
<tr>
<th>FPL (based on AGI) (%)</th>
<th>ESI</th>
<th>Non-Group</th>
<th>Uninsured</th>
<th>Public</th>
<th>Total</th>
<th>CPS 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 100</td>
<td>14.9</td>
<td>2.9</td>
<td>18.7</td>
<td>27.9</td>
<td>64.4</td>
<td>36.2</td>
</tr>
<tr>
<td>100–150</td>
<td>13.2</td>
<td>1.5</td>
<td>7.2</td>
<td>7.1</td>
<td>28.9</td>
<td>23.1</td>
</tr>
<tr>
<td>150–200</td>
<td>14.8</td>
<td>1.4</td>
<td>5.2</td>
<td>3.8</td>
<td>25.2</td>
<td>23.0</td>
</tr>
<tr>
<td>200–300</td>
<td>29.4</td>
<td>2.3</td>
<td>6.1</td>
<td>3.8</td>
<td>41.6</td>
<td>44.6</td>
</tr>
<tr>
<td>300–400</td>
<td>25.1</td>
<td>1.6</td>
<td>3.3</td>
<td>2.1</td>
<td>32.1</td>
<td>36.6</td>
</tr>
<tr>
<td>400–600</td>
<td>30.5</td>
<td>2.1</td>
<td>2.9</td>
<td>1.8</td>
<td>37.4</td>
<td>49.2</td>
</tr>
<tr>
<td>Above 600</td>
<td>29.6</td>
<td>4.0</td>
<td>2.6</td>
<td>1.5</td>
<td>37.8</td>
<td>50.6</td>
</tr>
<tr>
<td>Total</td>
<td>157.5</td>
<td>15.8</td>
<td>46.0</td>
<td>48.0</td>
<td>267.3</td>
<td>263.3</td>
</tr>
</tbody>
</table>


8 The total number of nonelderly individuals, 267 million, is reasonably close to the 263 million individuals in the CPS. However the income distribution differs substantially from the CPS. In particular, our model indicates that there are 64.4 million individuals with adjusted gross income below the poverty level, compared to 36.2 million for the CPS. Conversely the CPS has many more high income individuals than our model. There are several reasons for this difference, but the most important is the definition of income. Our income measure is modified adjusted gross income (MAGI), a tax concept, whereas the typical income definition used in CPS size distributions is money income. Several significant components of income are included in money income and missing from MAGI, including money transfers, non-taxable social security income, child support payments, tax exempt interest, qualified dividends and non-taxable IRA and pension distributions. Aside from the income concept, differences in the unit of analysis (tax-filing unit versus family unit), under-reporting of taxable income on tax returns, under-reporting of adjustments (subtractions) to income on the CPS, and many other smaller differences all contribute to the differences between the size distribution shown in Table 1 and that typically shown based on the CPS.
percent rate, while only 16 percent of those below 100 percent of poverty are covered by ESI, and a very high 80 percent of those in the upper end of the distribution are covered by ESI.⁹

Figure 1 shows summary results of the micro-simulation with the underwritten non-group market of both full repeal and repeal of only the income tax exclusion. The first column of Figure 1 shows the erosion resulting from full repeal of the ESI exclusion at 2010 levels. There is a 14 percent erosion of covered employees and their covered dependents. About 4 percent of these become uninsured and 10 percent move to non-group coverage. For individuals with low incomes, some fraction of those leaving ESI might take-up Medicaid; however, we did not adjust for that behavior in our current simulation because it would have only a small effect on our results.

Notes: Estimates are based on the Office of Tax Analysis (OTA) transition model, using OTA’s 2010 Health Individual Tax Model 2010 baseline. The percentages exclude 7.7 million individuals covered under ESI without a policyholder in the household.

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⁹ About 7.7 million individuals with ESI are not associated with a policy in the household. For the purpose of the simulation, transitions and percent erosion were based on 149.8 million ESI people with a policy in the household.
The second column of Figure 1 shows the results of the simulation for repeal of only the income tax exclusion. Erosion is much smaller in this case. As stated in the introduction, the value of the subsidy resulting from the exclusion from payroll taxes is large. For some low income individuals the value of the subsidy resulting from the payroll tax subsidy is larger than that from the income tax subsidy. In particular, the payroll tax subsidy is able to entice younger and somewhat healthier individuals into the ESI pool. As a result, erosion for total repeal is much larger than erosion for income tax only repeal when the alternative is the underwritten non-group market. In addition to increased firm dropping of ESI, full repeal causes many employees to switch to non-group coverage compared with income tax only repeal. The differences in erosion between full and income tax only repeal demonstrate the non-linear relationship between the change in tax preferences and the size of erosion. Although the income exclusion is about two-thirds of the overall ESI exclusion, the erosion for income tax only repeal is about a quarter of the erosion of full repeal.

Figure 2 focuses entirely on full repeal of the exclusion with an underwritten non-group market. It divides the 14 percent of the ESI population that is eroded and appears in column 1 of Figure 1 into their new health insurance statuses and cross-classifies

**Figure 2**

*Simulation of ESI Erosion for Full Repeal of ESI Exclusion, Given an Underwritten Non-Group Market, by Poverty Class*

<table>
<thead>
<tr>
<th>Family Income as a Percent of FPL</th>
<th>To Other Insurance</th>
<th>To Uninsured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 100%</td>
<td>6.9%</td>
<td>9.7%</td>
</tr>
<tr>
<td>100–150%</td>
<td>7.4%</td>
<td>4.3%</td>
</tr>
<tr>
<td>150–200%</td>
<td>10.9%</td>
<td>4.4%</td>
</tr>
<tr>
<td>200–300%</td>
<td>16.2%</td>
<td></td>
</tr>
<tr>
<td>300–400%</td>
<td>6.9%</td>
<td></td>
</tr>
<tr>
<td>400–600%</td>
<td>9.7%</td>
<td></td>
</tr>
<tr>
<td>Above 600%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Notes: Estimates are based on the Office of Tax Analysis (OTA) transition model, using OTA's 2010 Health Individual Tax Model 2010 baseline. The percentages exclude 7.7 million individuals covered under ESI without a policyholder in the household.
them by FPL. There is not much variation in the fraction of individuals that become uninsured by FPL. However, there is sizable variation across poverty levels for the fraction that moves to non-group, with about 16 percent between 200–300 percent of FPL and about 10 percent with income above 400 percent FPL moving to non-group. The variation in the pattern across FPLs is a result of interactions of a variety of factors including marginal tax rates, family insurance type (single, family, not covered by employer), age, and expected medical spending conditional on age.

Figure 3 shows summary changes in coverage for full repeal and income-tax-only repeal of the ESI exclusion for the two alternative non-group markets. The results for full repeal and income-tax-only repeal for the subsidized restructured non-group market are shown in the third and fourth bars. For comparison, the first and second bars repeat the results for the underwritten market from Figure 1. The amounts of total erosion (14.4 percent) for full repeal with an underwritten and restructured non-group market are identical by construction. For the restructured non-group market, we purposely chose a sliding scale subsidy that produces roughly the same aggregate erosion as full repeal under an underwritten non-group market in order to illustrate how the distribution of

![Figure 3](image)

**Figure 3**

Simulation of ESI Erosion for Full and Income-Tax-Only Repeal of ESI Exclusion With and Without Restructuring of the Non-Group Market

Notes: Estimates are based on the Office of Tax Analysis (OTA) transition model, using OTA’s 2010 Health Individual Tax Model 2010 baseline. The percentages exclude 7.7 million individuals covered under ESI without a policyholder in the household.
erosion differs by poverty level under the two simulations (see also Figure 4). Erosion by FPL in the restructured market will differ from erosion in the underwritten market as a result of the subsidy for low-income individuals and the age-rated community rating.

As shown in the fourth bar, the combined effect of repeal of the income tax exclusion, subsidies, and age-rated community-rating results in total erosion of 5.8 percent. This combination of effects causes a slightly higher level of erosion for income-tax-only repeal in the restructured market than in the underwritten market, as shown by comparing bar 4 with bar 2. Under income-tax-only repeal, the subsidies that make the non-group market much more attractive for low-income individuals have a larger effect than the age-rated community rating that makes the non-group market less attractive for younger, healthier individuals.

Figure 4 shows the result for full repeal of the ESI exclusion. This figure shows the erosion to non-group and uninsured by FPL for the restructured non-group market side by side with the results for the underwritten non-group market. The first bar of each
pair of bars shows the underwritten market and the second bar of each pair shows the restructured market. As in the underwritten market, the restructured market does not indicate much difference in movement from ESI to uninsured across the different FPLs. In contrast, there is a substantial difference in movement by FPL from ESI to non-group between the underwritten market and the subsidized restructured market. Low-income employees are more likely to move from ESI to the restructured non-group market than to the underwritten market because of the large subsidies available to them in the restructured market. This increase in erosion is due to fewer ESI offers as well as to employees switching from ESI to the subsidized restructured market to avoid paying the employee share of the premium. Employees with incomes above 300 percent FPL are less likely to move from ESI to the restructured non-group market because the low-cost non-group policies available in the underwritten market are no longer available in the restructured market and subsidies in the restructured market are small or nonexistent for this income group.\textsuperscript{10}

For example, an employee participates in ESI because the after-tax price of ESI, with the exclusion, is less than the after-tax price of an underwritten non-group policy. After repeal of the exclusion, this same employee may prefer the non-group policy because that after-tax price is less than that of ESI. When the non-group market is restructured the after-tax price of non-group insurance, that is now based on the modified community-rated premium, may have a higher price than the cost of the ESI policy. This healthy person is less well off because he no longer can purchase the lower cost underwritten policy.

Overall, the combined decline in ESI as well as the increase in movement from ESI to uninsured status is smaller than might have been anticipated. This is because the ESI policyholders that are not eligible for substantial subsidies find the combination of price and benefits package under ESI less expensive than the alternative premiums in the subsidized modified community-rated restructured non-group market. These higher income ESI policyholders neither switch from the non-group market nor vote for their employer to drop the offer of health insurance. Since ESI policyholders with incomes above 300 percent of the FPL account for half of the ESI policyholder population, this group can have a sizeable effect on the total outcome.

IV. CONCLUSIONS

This paper uses a new micro-simulation model of health insurance behavior to estimate the effect of repealing the ESI exclusion on health insurance coverage. The model explicitly integrates changes in premium prices due to repeal as individuals choose to move in and out of ESI. The main analysis quantifies, by FPL, the exits from ESI that occur in response to full repeal both for an underwritten and a restructured non-group market.

\textsuperscript{10} The lack of low cost underwritten non-group policies does not affect most low income individuals because the subsidy is designed to cap premiums at levels below the less costly underwritten policies for the healthiest of low income individuals.
The results of the micro-simulations show that repeal of the exclusion for ESI would have a significant impact on both the number of individuals covered by ESI and the number of individuals that have health insurance, since some of those individuals leaving ESI become uninsured. There is approximately 14 percent erosion when the exclusion is repealed and the alternative to ESI is the underwritten non-group market. Approximately 4 percent of those leaving ESI become uninsured.

When the alternative is the subsidized restructured non-group market, erosion of high income individuals as a result of the repeal is smaller than when the alternative is the underwritten non-group market. It is not true that a restructuring of the non-group market will leave all individuals better off. Healthy high income individuals can be worse off, either because they no longer have a low cost underwritten offer as an alternative to ESI or because their ESI premiums can increase in cost or both.

As with every micro-simulation model, our results can be driven by assumptions imbedded in the model. However, our results support the underlying intuition that when the tax preferences for ESI are dramatically reduced high income taxpayers are more inclined to move out of ESI if an underwritten non-group market is available than if the alternative is the modified community-rated market defined above. We expect this result to be robust under a large set of assumptions that take price and quality of benefit packages into account.

REFERENCES

