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Working Paper 2014-07
http://bus.lsu.edu/McMillin/Working_Papers/pap14_07.pdf

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This Draft: April 2, 2014

Abstract

We investigate the impact of the Affordable Care Act's dependent coverage mandate on insurance premiums. The expansion of dependent coverage under the ACA allows young adults to remain on their parent's private health insurance plans until the age of 26. We find that the mandate has led to a 2.5-2.8 percent increase in premiums for health insurance plans that cover children, relative to single-coverage plans. We find no evidence that the mandate caused an increase in the amount of the employee contribution for family plans.

Keywords: Affordable Care Act, Health Insurance Premiums, Adverse Selection

* Corresponding author: Briggs Depew. We would like to thank Grace Arnold, Marisa Carlos, Ozkan Eren, Gautam Gowrisankaran, Taylor Jaworski, Naci Mocan, Kosali Simon, Todd Sorensen, Nathan Blascak and anonymous referees for helpful feedback.

1 Introduction

The dependent coverage mandate was one of the first components of the Affordable Care Act (ACA) to be implemented. Under the new federal mandate, children can remain on their parent's private health insurance plans[1] until the age of 26.[2] Early estimates suggest that the mandate has substantially increased the rate at which young adults aged 19-25 are covered by their parent's health insurance plans (Antwi et al., 2013; Cantor et al., 2012b; Sommers and Kronick, 2012; Sommers et al., 2013). An important component of the welfare implications of the dependent mandate is understanding how premiums were affected by the dependent mandate and how those effects were distributed between policy holders and firms. In this paper we estimate the effect of the dependent mandate on the premiums of the health insurance plans that cover children. However, this study is more than just an analysis of the ACA. More broadly, we provide insight into the allocation and incidence of benefit mandates on employers and employees in the U.S. labor market, which is fundamentally linked with employer-based health insurance.

The effect of benefit mandates on health insurance premiums has rarely been studied because previous benefit mandates are limited in scope and scale. We take advantage of the ACA's large scale dependent mandate to provide the first set of estimates on the topic. Furthermore, we are the first to specifically investigate how employee contributions are affected by benefit mandates. We find that the total premium for family plans increased by approximately $350 to $400 relative to single plans (approximately a 2.5 percent to 2.8 percent increase). However, we find no evidence that firms have directly shifted the increase in premiums to the employees who have family coverage through higher employee contributions to their health insurance plans. We conclude three potential outcomes may exist: 1) the increases in the total premiums are absorbed by the firm; 2) the increases in the total premiums are passed on to employees with both family or single plans through cross subsidization of single plans; or, 3) the increases in the total premiums are passed on to employees through another mechanism, such as through lower wages.

[1]The dependent coverage mandate applies to both employer-based plans and plans purchased in the individual insurance market. We focus on employer-based plans because they represent the vast majority of private plans and the data is more easily accessible.

[2]When a child turns 26 years old, the employer may continue to cover the child and the value of the coverage can continue to be excluded from the employee's income for the full tax year.

There has been a large amount of interest in evaluating the effect of the ACA's dependent mandate on the 19-25 year olds who have acquired insurance through the new law. Most notably, Antwi et al. (2013) estimate that the mandate led two million young adults to acquire health insurance from their parent's employer-sponsored plans. Aside from the welfare gains of increasing the rate of insurance coverage for young adults, Antwi et al. (2013) and Slusky (2013) investigate whether the new law may have reduced the labor supply of young adults. We provide no formal welfare analysis on the topic, however, our study provides insight into the costs of the mandate and how those costs are potentially distributed across employers and employees. These estimates are a precursor for any future welfare analysis on the topic.

Enrolling young adults as dependents is relatively inexpensive for families, and often the marginal cost for the family is zero (in the absence of general equilibrium effects from dependent mandate laws). Young adults are typically very healthy, therefore, we would not expect the increase in premiums to be substantial. If premiums did not substantially increase, the dependent mandate provided a very easy and inexpensive solution to the problem of uninsurance among young adults, the age group which has had the highest rate of uninsurance. However, if premiums did increase, the welfare effect of the mandate is less clear. The welfare properties of the mandate depend not only on the size of the premium increase, but also how the increases are distributed between employers and employees.

In this paper we use the Medical Expenditure Panel Survey-Insurance Component (MEPS-IC) (Agency for Healthcare Research and Quality, 2012) data to address how total premiums and employee contributions to premiums were affected by the dependent mandate provision of the ACA. We find strong and robust evidence that the total premiums of plans covering children do increase, however, we find no evidence that employee contributions towards premiums increase. Previous literature on group-specific health insurance mandates (Gruber, 1994; Lahey, 2012; Bailey, 2013a) finds that employers pay close to nothing because they are able to pass the additional costs on to employees. The contributions of this paper build upon the three previous papers by studying how both premiums and employee contributions were affected by a large nationwide mandate. In addition, the findings in this paper contrast with the findings in other papers that have more

broadly studied health insurance premiums. Baicker and Chandra (2006) find that a 2.3 percent decrease in wages is associated with a 10 percent increase in premiums and Anand (2011) finds that establishments reduce compensation to employees by $0.52 for each dollar increase in premiums. However, Anand (2011) finds that establishments rely on increasing employee contributions when passing along the additional cost, rather than by decreasing wages. In regards to the ACA, Antwi et al. (2013) show that increases in dependent coverage were greater among those with lower marginal costs by comparing the plans of parents who already covered another child dependent to those who previously did not.

Our general identification strategy uses single health insurance plans as a control for family health insurance plans to differentiate the effect of the dependent coverage mandate from the effect of other ACA provisions that were implemented in 2010. However, the ACA also mandated that insurance polices cover pre-existing conditions for children starting in 2010.[3] We are able to take advantage of the fact that the Health Insurance Portability and Accountability Act of 1996 (HIPAA) already required this for small firms. We find that premiums for plans covering children still increase by a larger amount than those of single-coverage plans in small firms. To further display the robustness of the results we show that the dependent coverage mandate led to larger premium increases in states that had not passed their own versions of a dependent coverage mandate.

We make three important contributions to the literature in this paper. First, we estimate the magnitude of the premium increase caused by the ACA's dependent coverage mandate, and show our estimates are likely not driven by concurrent provisions of the ACA. These findings are of particular interest because of the scale and scope of the ACA's dependent mandate. Second, we are the first paper to use data on employee contributions to investigate the incidence of the benefit mandate. Third, we relate our results to the findings of Antwi et al. (2013) on the take-up of dependent coverage and discuss the potential of advantageous selection rather than adverse selection occurring in this insurance market (Einav et al., 2010).

[3] All people with pre-existing health conditions cannot be denied health insurance under the ACA starting in 2014.

2 Background and Motivation

2.1 The Dependent Coverage Mandate

The goal of the dependent coverage mandate was to increase the health insurance coverage rate of young adults aged 19-25 without imposing a significant economic burden. Under the new policy, group plans that offer dependent coverage must offer coverage to employees' young adult children through the age of 25. Unlike previous dependent mandates from state laws, this applies regardless of whether the young adult is a student, a dependent on a parent's tax return, lives with a parent, or is married. The mandate became effective for plans that had policy years beginning on or after September 23, 2010. However, Secretary of Health and Human Services Kathleen Sebelius asked leading insurance companies to begin covering young adults before the implementation date set out by the ACA. As a result, over 65 leading health insurance companies began providing coverage before the implementation date.[4]

One caveat to the new policy is that the law does not apply to young adults who either have, or are eligible for, their own employer-based health insurance coverage if that plan was in existence prior to the passage of the ACA. In 2014, this exception to the dependent mandate will no longer apply, but in the meantime, this exception mitigates major shifts in the risk pool of single plans. However, young adults may still give up their own employer-based coverage and gain access to their parent's coverage by reducing hours worked from full-time to part-time employment or exiting employment. Antwi et al. (2013) and Cantor et al. (2012b) find that the federal mandate did in fact reduce the number of young adults who were covered by private health insurance in their own name. Because young adults are relatively a healthy subpopulation of the risk pool, shifts of young adults out of single plans may actually increase the average premiums of single plans. Therefore, using single plans as the control group in the analysis will likely cause us to underestimate the true effect of the mandate on family plans.

Many states had passed their own dependent coverage mandates before 2010. However, these state laws tended to be limited in scope, for two reasons. First, the state laws applied to a

[4]See http://www.dol.gov/ebsa/newsroom/fsdependentcoverage.html for the list of companies that agreed to implement the dependent mandate before the September 23, 2010 deadline.

narrower group of young adults—for instance they often excluded married individuals or non-students. Second, the state laws are also limited in scope by the federal Employee Retirement Income Security Act of 1974 (ERISA), which exempts self-insured firms from most state-level health insurance regulations, including state benefit mandates. Currently the majority of workers covered by employer-based health insurance are covered by self-insured firms. Therefore, we expect the federal dependent mandate to have a smaller effect in states that had already passed their own state-level dependent mandate.

2.2 Mandates in General

States often mandate that insurers cover specific conditions, treatments, or types of providers. They occasionally mandate that insurers cover other types of persons, such as grandchildren or domestic partners. An extensive literature has examined these mandates (see Jensen and Morrisey (1999) for one review). A handful of papers have examined the costs of mandates and who pays for them. LaPierre et al. (2009) looked at data from the individual market and found that mandates in general do not have a statistically significant effect on premiums. Bailey (2013b) used data on employer health insurance from the Medical Expenditure Panel Survey and found that the average mandate increases premiums by between half a percent and one percent. However, most previous mandates have been much smaller in scope than the dependent mandate of the ACA. Our paper is the first to study the effect of a large nationwide mandate on premiums. Other papers, starting with Gruber (1994), have found evidence that mandates intending to benefit a certain identifiable group (such as women of childbearing age) are paid for via reduced wages for that group. However, Gruber (1994) does not analyze the effect on premiums nor employee contributions.

Gruber and McKnight (2003) describe two theories of why employers would increase the employee contribution to health insurance premiums, even though health insurance provides a tax advantaged way of compensating employees. The first theory is that they want to influence the choices of employees across their own plans and thus encourage employees to choose less generous plans. The second is that they want to encourage employees to drop coverage altogether, and get another entity (such as the government or a spouse's employer) to pay instead. According

to the Gruber and McKnight framework, the dependent coverage mandate should be expected to increase employee contributions. The mandate should make insurance plans that cover children relatively more expensive. Therefore, employers should try to reduce costs by raising the employee contribution for family plans and thus encouraging employees to switch to single coverage plans.

3 Data

We use three independent sources of data to study the relationship between the ACA's dependent coverage mandate and premiums. The primary data set is the state level Medical Expenditure Panel Survey-Insurance Component (MEPS-IC) (Agency for Healthcare Research and Quality, 2012) which allows us to study the size of the total health insurance premium and employee contribution for different types of plans in a state, as reported by firms. Two of the other data sets used in the analysis, the Survey of Income and Program Participation (SIPP) (US Census Bureau, 2012) and National Health Interview Survey (NHIS) (National Center for Health Statistics, 2012), provide information on only the employee contribution component of the premium and are used as a robustness check for our primary analysis.

3.1 Medical Expenditure Panel Survey-Insurance Component

The MEPS-IC is a nationally representative sample that collects information annually on health insurance plans through private and public sector employers. In the analysis we use the publicly available data, which is aggregated to the state level. The MEPS-IC provides information on three types of health insurance plans: 1) single coverage, which only covers the employee 2) employee-plus-one coverage, which covers the employee and one other family member (this could be a child or a spouse) and 3) family coverage, which is defined as covering one or more members of the employee's immediate family and the plan is not employee-plus-one. In the case that the firm discriminates by family size in setting premiums, employers in the survey report the costs for a family of four. Under the ACA, firms are not allowed to discriminate against the older dependents who are added on to an existing plan but are required to charge the same amount as would be charged for an additional dependent under the age of 19. Although it is much less common for a firm to price

health insurance premiums by family size, including some firms that do charge by family size will cause the analysis to underestimate the effect on premiums and contributions.[5] Furthermore, in the analysis section we use only information for single coverage plans and family coverage plans because it is ambiguous if employee-plus-one plans are directly affected by the dependent mandate.[6]

The top panel of Figure 1 shows the steady increase in both single and family health insurance premiums from 2003 through 2012. However, the figure suggests that premiums for family plans have increased at a faster rate than premiums for single-coverage plans. This is consistent with Branscome (2012) who finds that the premiums for single plans increased by 162.1 percent from 1996 to 2011 while the premiums for family plans increased by 203.2 percent during the same time period. For this reason, we include plan specific trends in our analysis. The first panel of Table 1 reports the means for single plans and family plans (plans that cover children) for the total premium and the employee contribution before and after the implementation of the ACA. The standard deviation is presented in parentheses. Table 1 suggests that total premiums and employee contributions were higher for both single and family plans in 2011 and 2012, but it is not clear from the summary statistics alone if these differences are being driven by the increasing trend in both types of plans as displayed in Figure 1.

3.2 Individual-Level Survey Data

The second panel of Table 1 provides summary statistics for the SIPP data used. The SIPP is a nationally representative survey conducted by the U.S. Census Bureau. Interviews, which are conducted by either phone or in person, contain a core set of questions that are asked in each interview and a set of topical questions which include more detailed health insurance information than that available in just the core questions. We employ the core data files and topical modules three and six from the 2004 panel and four, seven, and ten from the 2008 panel. The SIPP provides a rich source of publicly available micro data that allows us to identify individual-level information

[5]It is common to assume that the large majority of family plans do not charge per dependent. This assumption was implicitly applied by Antwi et al. (2013) when analyzing who takes up dependent coverage: "Furthermore, if the parent already has a full-family policy that covers younger children, the marginal cost of adding an older child is close to zero."

[6]The premiums and employee contributions reported by the firms in the MEPS-IC reflect coverage that was actually taken up, instead of offered by the firm.

on health insurance.

For each individual we observe their health insurance status, what type of coverage they have, and how they receive it. For individuals who are the policy holders, we observe who else in the household is covered on the policy and if there are children or a spouse outside of the household who are covered on the policy. Therefore, for each employer sponsored health insurance plan we are able to distinguish between four types of plans: single plans, spouse plans, children only plans, and more general family plans.

In the second panel of Table 1 we define "Family Plans" as those that were directly affected by the dependent mandate because they covered children. These include children-only plans and family plans. Analyzing the total number of observations prior to the ACA, we see that of the data used in the analysis roughly 44 percent of the health insurance plans are single plans. This value increases to 46 when analyzing the ACA time period. In the topical modules, respondents are asked to report the amount they contributed towards health insurance premiums for the past 12 months. These topical modules are for the reference months of August though December. The timing of the topical modules aligns closely with the implementation of the dependent mandate.[7] The remaining summary statistics in the second panel of Table 1 describe the characteristics of the policy holder and are used as controls in the analysis.

Similar to the SIPP, the NHIS is a nationally representative annual survey that asks respondents about their health insurance status and contributions to employer sponsored health insurance. Unfortunately, the survey does not provide similar details in the data as provided in the SIPP. Specifically, the policy holder of an employer sponsored plan only reports if individuals in the household are covered by the insurance policy. Therefore, we are able to accurately define a plan as a family plan if it covers children in the home, but we are unable to identify the case in which the policy covers a dependent outside the home (which would often be the case when adding additional young adults to the plan). Furthermore, the publicly available NHIS data does not identify the state of residence of the respondent nor firm size of where the respondent is employed. Therefore,

[7]Because the majority of plans begin a new fiscal year in January, the premiums may be misreported if respondents place more weight on the current calendar year's premiums rather than the past 12 month total of premiums. It is fortunate that the SIPP data aligns with the end of the calendar year.

we are unable to do additional sensitivity tests across states that had previously passed a dependent mandate or across the size of the employee's firm.

4 Empirical strategy

To identify the effect of the ACA on the premiums and employee contributions of plans that cover children, we must implement a strategy that controls for contemporaneous effects of the health insurance market that may also impact premiums. Our identification strategy is to use single-coverage health insurance plans as a control group for health insurance plans that cover children. Therefore, our identification assumption is that contemporaneous time varying effects in the health insurance market that may increase or decrease the premiums or employee contributions of health insurance plans are constant across the two types of plans after conditioning on our set of controls. Using single plans as the control group in the difference-in-difference model will allow us to net out contemporaneous effects of the ACA and other factors that are not caused by the dependent mandate.

It can still be the case that the control group does not capture all of the unobserved factors that could affect the treatment group's premiums. Specifically, if the risk pool for single plans relative to family plans significantly changes during the first two years of the ACA, then the differences in premiums across the two plans would inappropriately be attributed to the dependent mandate. As mentioned earlier, under the ACA, children with their own employer-based insurance are not allowed to switch to their parent's employer based coverage if the plan was in place prior to March of 2010. However, one significant change in the risk pool would be caused by young adults exiting employment. Antwi et al. (2013) and Depew (2014) find that dependent mandates decrease the labor market activity of young adults. Furthermore, Antwi et al. (2013) and Cantor et al. (2012b) show that young adults were less likely to be covered by their own employer-based plan after the ACA. This would cause the risk pool of plans that cover children to become healthier and the risk pool of single plans to become less healthy. Therefore, changes in the risk pool in this manner would bias our results against finding an increase in the premiums of plans that cover children relative to single plans.

The top panel of Figure 1 shows that premiums for family plans were increasing at a faster rate than premiums for single plans over the period of study. To compensate for this difference in trends we add plan specific linear time trends to the analysis. The middle panel of Figure 1 shows the premiums for the two types of plans after conditioning out plan specific linear time trends. By conditioning for the plan specific linear time trends it appears that family plans and single plans follow a much similar pattern, however, the figure suggests that family plans may be more volatile over time than single plans. To further account for this volatility, we additionally include a specification with plan specific quadratic time trends in the analysis. The bottom panel of Figure 1 displays the premiums for family plans and single plans when conditioned on both plan specific linear and quadratic time trends.

In the data analysis we use the level of the premium and employee contribution rather than the logs of the premium and employee contribution. Because the MEPS-IC is in averages, we would not expect much skewness in the data. Figure 2 displays the density of the premiums and employee contributions for single and family plans in real dollars. Overall, the distributions are fairly symmetric, however, in the analysis we apply additional robustness tests using log of premiums and employee contributions.

To estimate the effect of the ACA on the premiums and employee contributions of plans that cover children we implement the following difference-in-difference strategy:

$$Y_{ist} = \alpha_0 + \alpha_1(ACA_{it} \times Family_{ist}) + \alpha_2 Family_{ist} + \gamma_t + \theta_s + \beta_i Trend_{ist} + \varepsilon_{ist}. \quad (1)$$

Y_{ist} represents either the level of total premiums or the level of employee contributions for plan i (family plan or single plan) in state s at time t. ACA is an indicator variable that takes the value of one for years greater than or equal to 2011. $Family$ is an indicator variable that takes the value of one if the plan covers children. We exclude employee-plus-one plans from the control group because these plans could potentially cover a dependent child instead of a spouse. θ_s is a state fixed effect that will net out state specific differences between single plans and family plans. γ_t is a year fixed effect that will capture contemporaneous time shocks that affect both family plans and single plans. Factors such as anticipatory effects of the ACA that similarly affect both single

plans and plans that cover children will be captured in γ_t. $\beta_i Trend$ controls for plan specific time trends, as discussed earlier. ε_{ist} is an unobserved term that we assume is uncorrelated with the interaction of ACA and $Family$.

Three additional estimation details are worth noting. First, we estimate equation 1 using the average premiums and employee contributions for all firms in the state (the MEPS-IC reports the average premiums of firms). Therefore, instead of having the population parameters of each state, we have estimates of their means. This type of measurement error will lead to inflated standard errors. Second, standard errors are clustered at the state level to adjust for heteroskedasticity and within-state correlation over time. Third, we weight each regression by the number of employees covered by employer-based insurance in the state for each year to estimate the average effect for an employed worker.

One significant caveat to our main empirical strategy is that the ACA also required insurance plans to cover children with pre-existing conditions at the same time as the implementation of the dependent mandate. Therefore, our difference-in-difference estimate under the framework described above will capture both the effect from the dependent mandate and from the pre-existing conditions clause for children. Although our prior is that the pre-existing conditions clause for children would have minimal effects on the premiums of family plans, we can formally test this by taking advantage of a prior mandate at the national level. In 1996, congress passed HIPAA, which among other things implemented a nationwide mandate for guaranteed issue in employer group plans with 2-50 employees. This guaranteed issue mandate requires small group plans to cover pre-existing conditions. Therefore, we are able to use information about premiums and employee contributions by firm size to test if the mandate for covering pre-existing conditions of children is significantly affecting premiums. This test will not be perfect because HIPAA's definition of pre-existing conditions is not exactly the same as the ACA's mandate. The ACA's pre-existing conditions mandate only covers children below the age of 19. Furthermore, under HIPAA, the pre-existing condition exclusion can be imposed on illnesses diagnosed not more than six months prior the enrollment date of the plan and the individual can be excluded from the plan for twelve months.[8] In general,

[8]The exclusion period can be up to 18 months if one enrolls late. Some plans may also have exclusion periods shorter than 12 months.

the preexisiting conditions provision is likely stronger for children under the ACA then HIPAA. If the pre-existing conditions of children mandate had a small or zero effect, then we would expect the estimates across firm size to be very similar. If it had a large effect on premiums, then the premium increase should only be observed for large firms. We test this by separately estimating equation 1 for firms with less than 50 employees and 50 or more employees.

Prior to the ACA, 31 states had passed dependent mandate laws. As mentioned earlier, these laws did not affect self-insured firms and often excluded young adults because of marriage or student status. However, these state laws provide another source of variation to test the robustness of the empirical strategy. Specifically, we expect the effect of the federal mandate to be smaller in states that had previously implemented a dependent mandate than states that had not.

5 Results

5.1 Premiums and Employee Contributions

Table 2 displays the results using the MEPS-IC to study how family plans responded to the ACA's dependent mandate relative to single plans. Columns 1 and 2 report the results for the outcome of total premiums and columns 3 and 4 report the results for the outcome of employee contributions. Columns 1 and 3 control for plan specific fixed effects, year fixed effects, state fixed effects, and plan specific linear time trends. Columns 2 and 4 additionally include plan specific quadratic time trends. The results in the table suggest that the dependent coverage mandate led to an increase in total premiums for plans that cover children relative to single-coverage plans. This result is significant at the one percent level for the specification that includes just linear time trends and at the 5 percent level for the specification that additionally includes quadratic trends. Furthermore the magnitude of the results are robust across the two specifications. Each of them suggest that the premiums increased by approximately $360 to $400. The weighted average total premium for a family plan in 2010 was $14,315. Therefore, an increase in premiums by $360 is an increase of 2.5 percent and an increase in premiums by $400 is an increase of 2.8 percent. These estimates are consistent with Health and Human Service's combined high estimate of 2.4 percent for 2011 and

2012 (HHS, 2010).

In spite of the robust finding on total premiums, the results suggest that employers pass little to none of the increase of premiums on to employees in the form of increased employee contributions for plans that cover children. The coefficients for the effect of the mandate on employee contributions are relatively close to zero and statistically insignificant. The relatively large standard errors presented in columns 3 and 4 do not allow us to rule out that employee contributions did not change. However, when compared to the robustness and magnitude of the evidence presented in columns 1 and 2, the results suggest that if employee contributions did increase as a result of the ACA's dependent mandate, the increase was likely not substantive.

Table 3 provides the results from various robustness checks. The top panel of Table 3 is for the dependent variable: total premiums; and the bottom panel of Table 3 is for the dependent variable: employee contributions. The odd columns present the regression analysis on the level and the even columns present the regression analysis on the log of the level. Columns 1 and 2 are for the period 2003 through 2012, columns 3 and 4 are for the same period as columns 1 and 2 but omit 2010. The ACA's dependent mandate was passed in the spring of 2010 and officially implemented in the fall of 2010. Group premiums are typically set once a year (most commonly in January) and only change when the plan is renewed for the year. Therefore, including 2010 is likely not an issue in the regression analysis. Columns 5 and 6 present the results for the shorter time horizon of 2008-2012 and columns 7 and 8 similarly present the results for the years 2008-2012 with 2010 excluded. The results on total premiums are mostly robust across the different time horizons and specification of the dependent variable. The results in columns 5 and 7 are similar to the main specification in column 1, however, they are not statistically different from zero at the 10 percent level. The one anomalous result is in column 3 which suggests a much larger effect on the premiums of family plans. However, this result is not statistically different than the main result in column 1. It is also worth noting the differences of the estimates on the log instead of the level. By using levels, the point estimates from the main specifications suggested an increase by 2.5 percent to 2.8 percent. However, the results found in columns 2, 4 and 6 are consistent with a smaller, but not statistically different estimate of 2.1 percent. Column 8 reports an estimate that is not statistically different

than the others, but suggests an increase in total premiums by 3.4 percent.

The robustness checks on the results for employee contributions, presented in the bottom panel of Table 3 are worth noting. Aside from the result in column 4, each set of results has a relatively large standard error accompanying the point estimate. Interestingly, six of the eight estimates in the bottom panel of the table are negative. The estimate for 2003 through 2012 which excludes 2010 is the only estimate that is statistically different from zero. However, the point estimate is negative which suggests that employee contributions of family plans likely did not increase relative to the employee contributions of single plans. In general, given the direction of the point estimates, their affiliated standard errors, and the difference in the magnitude between the coefficient on total premiums relative to the coefficient on employee contributions, it is likely that if employee contributions of family plans did actually increase relative to the employee contributions of single plans, it was not by a large margin relative to the increase in total premiums.

As a final robustness test we present the results from a placebo analysis that randomly assigns the implementation of the ACA to be between the years of 2004 and 2011. We then iterated over this procedure 1000 times. If one was concerned that there was something mechanical about the regression analysis and therefore the previous results are just capturing unaccounted for differences in trends between the two types of plans, then the results of the placebo analysis should help alleviate this concern. The results from the placebo test are presented in Table 4. The DD coefficient is the mean estimate over the 1000 replications and the standard deviation of the mean is presented in parentheses. Across all four specifications, the standard deviations are of similar magnitude as the standard errors presented in Tables 2 and 3, but the point estimates are very close to zero. As a result, Table 4 suggests that the results of the analysis are not being mechanically driven by the regression analysis.

It should be noted that the results come with two identification issues that work against finding an increase on premiums and employee contributions. First, some firms may have reported premiums for a family of four. For these firms, increases in the number of dependents would affect the total premium by only the composition of the risk pool and not by the size of the risk pool. Because young adults are typically healthy and premiums reported for a family of four are independent of the

size effect, the difference-in-difference estimate would be biased downwards toward zero. Second, likely changes in the risk pool of single plans would also bias the difference-in-difference estimator against finding an increase on premiums and employee contributions. Both Antwi et al. (2013) and Cantor et al. (2012b) find that the ACA's dependent mandate reduced the number of young adults who were covered by a private health insurance plan in their own name. Therefore, the risk pool of single plans would become less healthy and as a result the premiums and employee contributions of single plans are likely to increase. Similarly, this also would bias the difference-in-difference estimate downwards.

5.1.1 Concurrent Effects from other ACA provisions?

The dependent coverage mandate was implemented in September of 2010, much earlier than most of the Affordable Care Act's provisions. However, a handful of other ACA provisions were implemented in 2010, including one that could be expected to affect the premium differential between plans that cover children and single-coverage plans. Beginning September 23rd, 2010 (the same day the dependent coverage mandate took effect), children under age 19 could no longer be denied insurance from group plans due to a pre-existing condition. This regulation should also be expected to increase the relative cost of plans that cover children. Our results described above are unable to distinguish how much of the premium increase in plans that cover children is due to the dependent coverage mandate as opposed to the pre-existing conditions for children clause.

In order to distinguish the effects of the two laws, we take advantage the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA) that required small-group plans (firms with 2 to 50 employees) to offer insurance even to those with pre-existing conditions. The ACA's guaranteed issue law should likely target large firms more than small firms because of HIPAA. However, because the pre-existing provision is stronger under the ACA, small firms may still be affected, but likely by a smaller degree than large firms.

MEPS data allows us to distinguish firms with 50 or more employees from firms with fewer than 50 employees. Columns one and two of Table 5 show that firms with 50 or more employees saw a $540 increase in the total premiums of plans that cover children following the legal changes

in September of 2010. Firms with fewer than 50 employees saw the premiums of their plans that cover children increase only $450. However, we find that these point estimates are not statistically different from each other. The point estimates do align with the notion that large firms were more affected than small firms, because of the pre-existing provision. The fact that the point estimates are similar in size suggests that the dependent mandate was likely the driving force behind rising premiums and the mandate for pre-existing conditions of children likely played a much smaller role. However, we can not exclude that this finding is driven by the dependent coverage mandate having a stronger effect on large firms for reasons other than the pre-existing conditions provision for children. The results for the employee contribution of premiums are reported in columns three and four of Table 5. Our estimates of the effect of the mandate on the employee contribution at both large and small firms remain relatively small in magnitude and statistically insignificant.

5.1.2 State Dependent Coverage Laws

Prior to the ACA, 31 states had passed their own versions of a dependent coverage mandate. While these laws were more narrow in scope than the federal mandate, it is likely that they still had some effect on premiums. Monheit et al. (2011) and Levine et al. (2011) show that these laws increased the probability that a young adult was covered through a parent's plan. We present results across the two types of states (states that had passed dependent mandates prior to the ACA and states that had not) in Table 6. According to the point estimates from the regression analysis, we find that states which had previously passed their own versions of a dependent coverage mandate saw premiums increase by $251 for plans that cover children relative to single plans. However, this estimate is not statistically different from zero. States that had not passed their own dependent coverage mandates, by contrast, saw a $642 increase in the premiums of plans that cover children. This estimate is statistically significant at the 5 percent level. When contrasting the point estimates from the two types of states we find that the estimates are not statistically different from each other.

These results show the robustness of the main estimates (found in Table 2) because we expect the point estimates to be positive for both types of states, and we expect the point estimate to be larger for states that had not previously passed a dependent mandate law. Specifically, state laws

that implemented dependent mandates prior to the ACA only affected fully-insured firms. Fronstin (2012) finds that 58.5 percent of employees with employer-based coverage are at firms that are self insured. Therefore, we would expect the point estimate from states with a previous law to be approximately one-half the magnitude of the point estimate from states that previously did not have a law. Similar to the results presented earlier, we find the effect of the mandate on employee contributions to plans that cover children is statistically insignificant for both groups.

One alternative mechanism that our identification strategy is unable to resolve is that employee contributions are increasing through cross subsidization of single plans. Specifically, firms who face higher total costs because of the increase in premiums for family plans from the dependent mandate may offset the increase in costs by increasing the required employee contributions for both single and family plans. Specifically, a firm may observe that the total premium across all plans has increased and therefore the firm increases the employee contribution across all plans at similar rates.

5.2 Using Individual-Level Survey Data as a Robustness Check

The above results were found using state-level data from the MEPS-IC. To further show the robustness of our results we employ data from the 2004 and 2008 SIPP panels. The advantage of the SIPP is that it provides individual-level data which allows us to use much finer demographic control variables. The SIPP also distinguishes between family plans that cover only children, those which cover only spouses, and those which cover both. The disadvantage of the SIPP is that it only provides information on employee contributions. Individuals may not know how much their employers are paying, and the survey only asks about the employee contribution towards premiums.

We follow a strategy similar to the one described in section 4. Our sample consists of employed individuals of the ages of 25 through 65. We limit the data to individuals who are policy holders for employer-based health insurance coverage. The outcome of interest is the log of the amount paid by the employee for health insurance in the last 12 months. Figure 3 displays the skewness of employee contributions for 2011 dollars, and reveals the data to be right-skewed. Therefore, we use the log of employee contributions in the analysis rather than the level. Respondents in the SIPP

provide this information on the contributions towards health insurance during either the months of August, September, October, November, or December. Therefore, in 2010 their response would have mostly excluded the implementation of the dependent mandate and in 2011 their response would have included the implementation of the dependent mandate for nearly a full calendar year.[9]

Our regression equation to estimate the effect of the ACA on employee contributions to plans that cover children is

$$Y_{ist} = \alpha_0 + \alpha_1(ACA_{it} \times Family_{ist}) + X_{ist}\gamma + \theta_{st} + \varepsilon_{ist}. \tag{2}$$

Y_{ist} is the log of the employee's paid contribution to health insurance. i indicates an individual, s indicates a state, and t represents a year. $Family$ takes the value of one if the group plan covers children (children plans or spouse and children plans) and zero otherwise. The micro-level data allows us to control for factors that are specific to the individual. X includes controls for type of insurance: indicator for a family plan (the omitted group is single plans) and plan specific time trends. In addition, we control for age and age squared, gender, marital status, race (black, white, or other), an indicator for household income that is below the federal poverty line, and indicators for education levels. θ_{st} is a state-by-year fixed effect and its inclusion allows us to control for time-varying contemporaneous effects that are constant across plans that cover children and plans that do not cover children.

To additionally check the robustness of the estimates obtained in the SIPP we employ the NHIS, which also asks information about contributions to health insurance premiums. We follow the same framework presented in equation 2 in all dimensions when possible. The NHIS does not have state identifiers available in the public use data that causes us to use controls at the region level, instead. Also, the NHIS does not precisely define the plan type like the SIPP. Therefore, we roughly define plans in two ways: plans that cover children and plans that do not cover children. The NHIS does not reveal if the plan covers children outside of the home. Therefore, we likely have defined some plans as non-children plans when in reality they cover children not in the household.

Employing the difference-in-difference strategy with the SIPP data leads to similar results as

[9] As a robustness check we drop 2010 and find similar results to those presented in the next section.

with the MEPS-IC data, as shown in Table 7. The difference-in-difference estimate of the dependent coverage mandate on employee contributions is statistically insignificant. The result is robust to the inclusion of state fixed effects, plan specific linear time trends, plan specific quadratic time trends and state-year fixed effects. Across the four presented specifications, the test statistic on rejecting a null hypothesis of no effect is always less than one.[10]

Table 8 shows that the difference-in-difference estimates of the dependent mandate on employee contributions remains statistically insignificant at both large and small firms, and in states with and without their own dependent coverage laws. These results support the case that employee contributions to health insurance premiums for plans that cover children relative to plans that do not cover children did not substantially increase as a result of the dependent mandate. However, it is worth noting that the standard errors are quite large when the analysis is broken down by firm size and previous state laws.

Like the SIPP, the NHIS provides data on employee contributions, but lacks information on the total premiums paid. One advantage of the NHIS is that it provides a slightly larger dataset, with 105,058 observations from 2003-2012, compared to 37,120 in the SIPP over the same period. However, the publicly available NHIS does not report state of residence nor size of the firm. Our results using the NHIS, shown in Table 9, are similar to our previous results: the dependent coverage mandate has no statistically significant effect on employee contributions to plans that cover children relative to plans that do not cover children. Similarly to the previous analyses we find point estimates that are commonly negative and the test statistics for the point estimates are relatively small. Furthermore, this result is robust to the inclusion of region fixed effects, plan specific linear time trends, plan specific quadratic time trends and region-year fixed effects.

6 Discussion

Our results can be summarized into two main findings. First, the dependent coverage mandate led to an estimated 2.5-2.8 percent increase in the premiums of plans covering children relative to single-coverage plans. Second, we find no evidence that employers passed this increase in premiums

[10]These results are consistent across shorter time horizons and the exclusion of plan specific time trends.

on to employees in the form of increased employee contributions to plans covering children relative to plans that do not cover children. Furthermore, we can not rule out that firms cross subsidize the increase in premiums of family plans with employee contributions of single plans. In fact, the possibility that cross subsidization did occur as a result of the dependent mandate is consistent with the finding that total premiums of family plans increased relative to single plans but employee contributions of family plans relative to single plans did not increase.

6.1 Quantifying the Premium Effect

The finding of a 2.5-2.8 percent increase in premiums for plans covering children may seem small, but it is in fact large in two ways. First, it is large relative to estimates of the effects of other health insurance benefit mandates. Two other papers that estimate the effect of benefit mandates on premiums, LaPierre et al. (2009) and Bailey (2013b), found no significant increase on premiums and an increase on premiums of 1.1 percent, respectively. However, the ACA's dependent coverage mandate should be expected to have relatively larger effects because the state-level mandates analyzed by the two previous papers exempted self-insured firms and were more limited in scale. Our estimate is also sizable relative to the number of individuals actually taking up dependent coverage since 19-25 year olds make up a relatively small proportion of the population. Antwi et al. (2013) found that the dependent coverage mandate led 2.06 million 19-25 year olds to acquire health insurance coverage through their parents. In 2010, before the mandate passed, the American Community Survey (Ruggles et al., 2010) together with the SIPP suggest that 31.4 percent of the US population is covered on a plan that covers children. This represents approximately 96.7 million people. Therefore, the dependent coverage mandate increased the pool of those covered on a plan that covers children by 2.13 percent. Therefore, estimates in the range of 2.5-2.8 percent are larger than the increase in coverage, although not statistically different.

6.2 Adverse and Advantageous Selection

Our results provide some evidence against the importance of imperfect information in the market for family plans. Traditionally, economists have worried that imperfect information leads to adverse

selection, causing failures in the market for insurance. Under adverse selection, the marginal cost curve slopes downward because those with private knowledge of their high medical costs are the first to purchase insurance. This leads to an inefficiently low level of insurance. While adverse selection is a very common concern in health insurance markets, it is also possible for markets to have the opposite problem of advantageous selection, which leads to an inefficiently high level of insurance. Advantageous selection can occur when risk aversion is negatively correlated with health costs, so that individuals with lower expected costs are actually more likely to buy insurance.[11] This case is somewhat plausible for adults in the market for single coverage, since risk aversion can lead to both a demand for insurance and to taking precautions that increase one's health and safety. It may be even more plausible in the case of family plans because parents may feel protective and risk-averse toward their children. Therefore, they may exert more effort to insure them.

The dependent coverage mandate causes the demand for family health insurance plans to shift to the right. In the adverse selection case, this increase in demand causes premiums to decrease, because the marginal buyers have lower costs. This decrease in marginal costs was observed in the individual mandate in Massachusetts by Hackmann et al. (2012). In the advantageous selection case, the increase in demand causes premiums to increase, because the marginal buyers have higher costs. Our results provide evidence that those acquiring insurance due to the dependent mandate have premiums similar to or even slightly higher than the average member of a family plan before the mandate. A 2.13 percent increase in the quantity of individuals covered by family plans led to a 2.5-2.8 percent increase in premiums. Therefore, our point estimates could be suggestive of advantageous selection if premiums in fact increased by more than 2.13 percent.

One justification for insurance mandates is to overcome the market failure of adverse selection. But our results do not provide strong evidence of adverse selection, rather, our results are more consistent with symmetric information or advantageous selection. In the Einav et al. (2010) framework for insurance markets, a mandate actually reduces welfare in the case of advantageous selection by causing over-insurance. So if we strictly limit our view to the market for health insurance, the welfare effects of the mandate are uncertain. However, the welfare effects of the mandate may in

[11] See Einav et al. (2010) and Einav and Finkelstein (2011) that describe adverse and advantageous selection using supply and demand graphs, and explain how to distinguish between them empirically.

fact be larger in other related markets, such as the labor market.

6.3 Future Effects of the Mandate

The future welfare effect of the dependent coverage mandate is not clear because it depends on how the law interacts with other components of the ACA. This low cost option of enrolling young adults as dependents will cause many young adults not to enter the exchanges in 2014. "The wisdom of maintaining the federal expansion will very likely depend on the key issues of who will bear the costs of covering young adults and how risks will be spread in light of this reform provision" (Cantor et al., 2012a). When young adults gain coverage as dependents, the federal government will avoid the cost of subsidies through the exchange. However, a major concern for the viability of the exchanges is that the lack of young and healthy participants will lead to an adverse selection death spiral.

7 Conclusion

In this paper we find that the Affordable Care Act's dependent coverage mandate led to a 2.5-2.8 percent increase in the premiums of employer-based family health insurance plans. Our estimate of the premium increase is consistent with the increase in the number of young adults who gain access to their parent's plan. We show that this result is not due to the confounding effects of state laws or other ACA provisions. We also find that employers likely did not offset the increase in premiums by increasing employee contributions to family plans relative to single plans. However, we can not rule out that employers offset the increase in premiums from the dependent mandate through cross-subsidization of single plans. Rather, our results are consistent with the outcome that firms do offset some of the increase in premiums by cross-subsidization.

While it has been suggested that the dependent mandate is a relatively inexpensive method of decreasing the uninsurance rate of young adults, we find that the increase in total premiums is at least on par with the increase in the pool of individuals covered on family plans. In addition to directly contributing to the discussion on policy effects of the ACA, this paper contributes to the general literature by showing how a large scale benefit mandate affects total premiums, and by

showing that the increase in premiums is not necessarily directly offset by an increase in employee contributions for the group directly affected. Furthermore, any welfare analysis of the ACA should consider that adding dependents to family plans through the dependent mandate came at a cost that is consistent with the increase in the size of the stock of added dependents.

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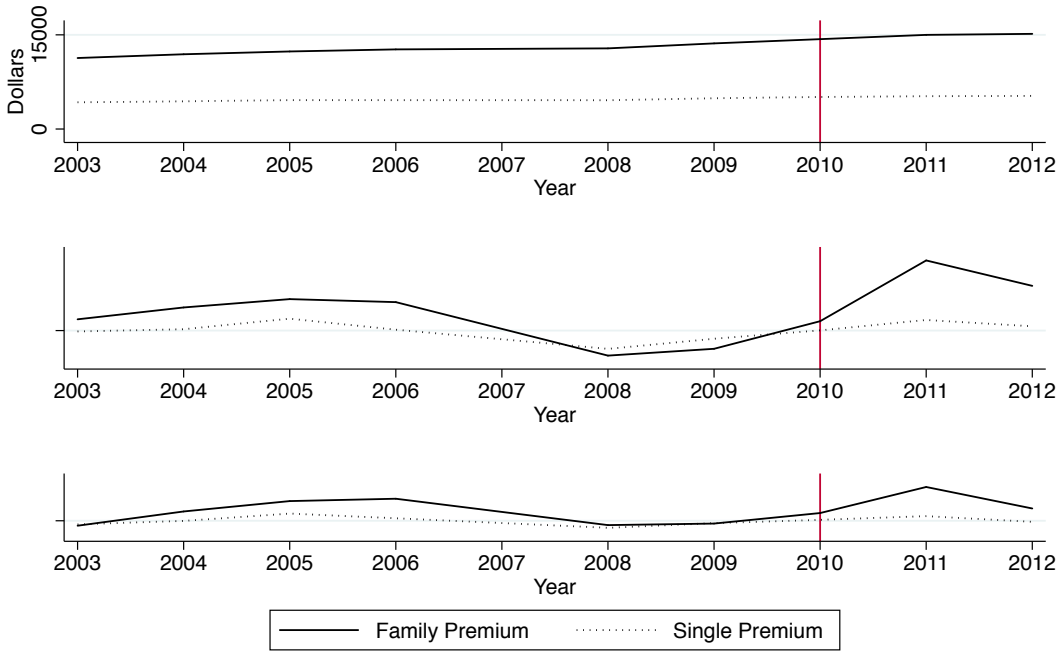
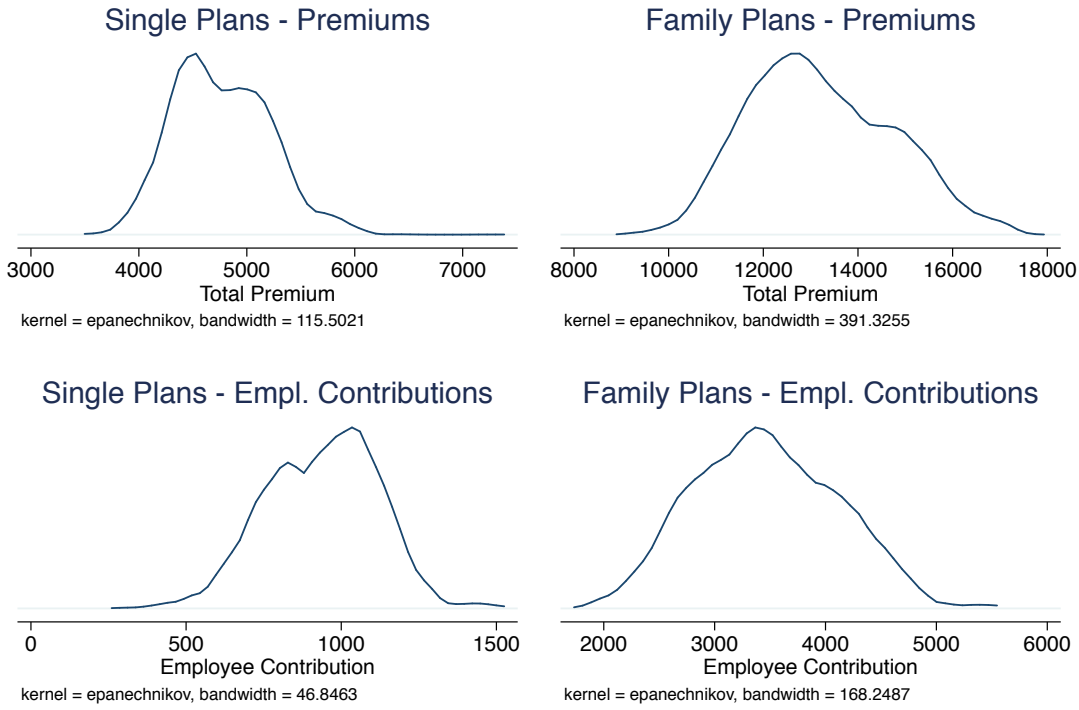
8 Figures and Tables

Figure 1: Health insurance premiums of family plans and single plans



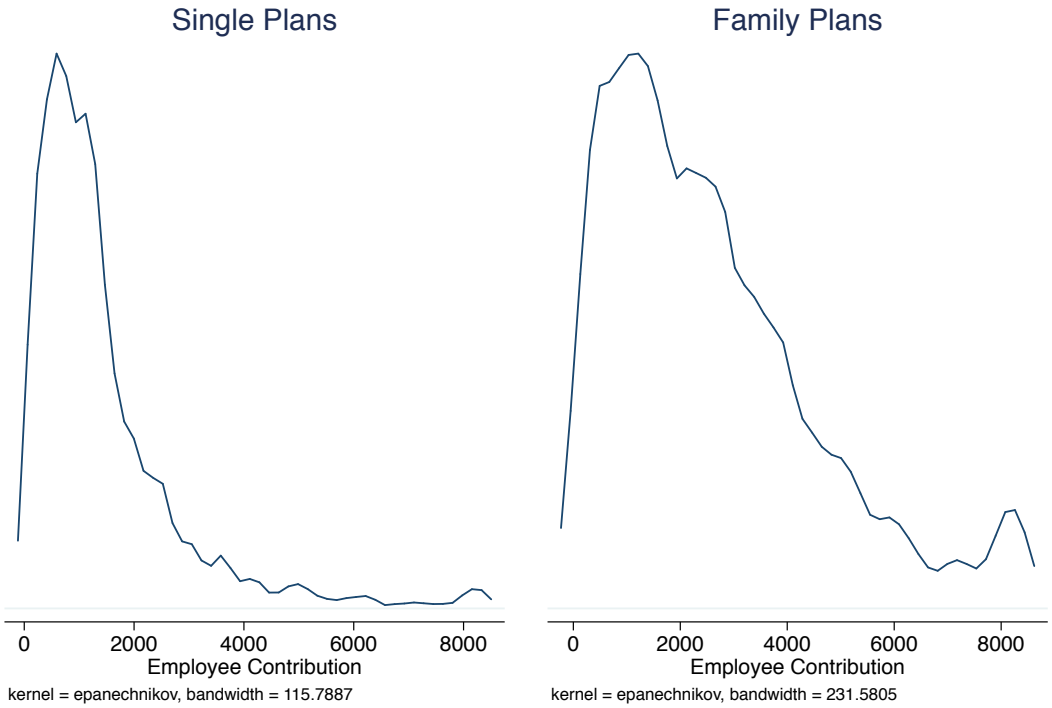
Data Source: 2003-2012 State-IC of the Medical Expenditure Survey. The top panel shows the premiums for single plans and family plans over time. The middle panel shows premiums after conditioning on plan-specific linear time trends. The bottom panel shows premiums after conditioning on plan-specific linear and quadratic time trends.

Figure 2: Distribution of state average health insurance premiums by plan type from the MEPS-IC



Data Source: 2003-2012 State-IC of the Medical Expenditure Survey.

Figure 3: Distribution of employee contributions of health insurance by plan type from the SIPP



Data Source: 2004 and 2008 Survey of Income and Program Participation.

Table 1: Summary Statistics: MEPS, SIPP and NHIS

	MEPS 2008-2012			
	Single Plans		**Family Plans**	
	ACA=0	ACA=1	ACA=0	ACA=1
Total Premium	4636.82	5246.09	12582.61	14863.09
	(439.17)	(432.27)	(1273.00)	(1079.74)
Employee Contribution	887.54	1089.24	3264.66	4055.28
	(174.76)	(150.21)	(534.16)	(424.59)
Number of Obs.	357	102	357	102
	SIPP 2008-2012			
	Single Plans		**Family Plans**	
	ACA=0	ACA=1	ACA=0	ACA=1
Employee Contribution	1401.32	1575.29	2554.73	2839.20
	(1380.46)	(1462.48)	(1968.54)	(2075.05)
Age	43.70	44.78	42.24	43.69
Female	0.55	0.54	0.41	0.43
Married	0.25	0.29	0.81	0.80
White	0.79	0.79	0.82	0.81
Black	0.14	0.13	0.11	0.11
Below Poverty Line	0.02	0.02	0.01	0.01
High School Dropout	0.05	0.04	0.04	0.03
High School Graduate	0.22	0.21	0.19	0.16
Some College	0.36	0.35	0.36	0.34
College Degree	0.25	0.26	0.26	0.29
Graduate Degree	0.13	0.13	0.15	0.19
Number of Obs.	13621	2909	17236	3354
	NHIS 2008-2012			
	Single Plans		**Family Plans**	
	ACA=0	ACA=1	ACA=0	ACA=1
Employee Contribution	2317.70	2533.68	3507.69	3980.68
	(2568.25)	(2570.79)	(3064.77)	(3223.71)
Age	46.41	46.90	41.04	42.04
Female	0.48	0.49	0.42	0.44
Married	0.47	0.52	0.73	0.84
White	0.80	0.78	0.80	0.78
Black	0.15	0.15	0.13	0.12
Below Poverty Line	0.02	0.03	0.02	0.02
High School Dropout	0.08	0.07	0.07	0.05
High School Graduate	0.26	0.23	0.23	0.19
Some College	0.31	0.32	0.32	0.32
College Degree	0.23	0.24	0.25	0.27
Graduate Degree	0.13	0.14	0.14	0.17
Number of Obs.	48710	14984	32168	9279

Notes: Standard deviations are presented in parentheses. All dollar values are adjusted to 2011 real dollars. The first panel of summary statistics comes from from the 2003-2012 state files of the Medical Expenditure Panel Survey. The second panel of summary statistics comes from the 2004 and 2008 panel of the Survey of Income and Program Participation.The third panel of data is from the 2003-2012 National Health Interview survey. The unit of observation in the first panel is a state-year. The unit of observation in the second and third panel is an individual with a employer sponsored health insurance plan (in their own name).

Table 2: Effect of ACA Dependent Mandate on Premiums

	Total Premiums		**Employee Contribution**	
	(1)	(2)	(3)	(4)
DD	360.0445***	397.5967**	1.8811	-55.4650
	(121.1372)	(177.4830)	(45.8326)	(84.0083)
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Plan Linear Trends	Yes	Yes	Yes	Yes
Plan Quadratic Trends		Yes		Yes
N	918	918	918	918

[a] The data is from the state and year files of the 2003-2012 Medical Expenditure Panel Survey. The unit of observation is a state single or family employer sponsored health insurance plan and each regerssion is weighted by the population of workers with employer sponsored health insurance in the state. Each column presents the results from a separate regression. The dependent variable in columns 1-2 is the total premiums of the plan. The dependent variable in columns 3-4 is the employee contribution of premiums.

[b] Standard errors clustered on the state are presented in parentheses.

[c] * 0.10, ** 0.05 and ***0.01 denote significance levels.

Table 3: Robustness Check: Effect of ACA Dependent Mandate on Premiums

	Total Premiums							
	2003-2012		2003-2009, 2011-2012		2008-2012		2008-2009, 2011-2012	
	Level	Log	Level	Log	Level	Log	Level	Log
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
DD	397.5967**	0.0205*	893.3570***	0.0208	303.6057	0.0208	439.1123	0.0338
	(177.4830)	(0.0104)	(233.5761)	(0.0168)	(201.2456)	(0.0130)	(309.2858)	(0.0259)
N	918	918	816	816	510	510	408	408
	Employee Contributions							
	2003-2012		2003-2009, 2011-2012		2008-2012		2008-2009, 2011-2012	
	Level	Log	Level	Log	Level	Log	Level	Log
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
DD	-55.4650	-0.0146	-107.9056	-0.0690**	-51.4359	-0.0137	47.4603	0.0151
	(84.0083)	(0.0240)	(95.1784)	(0.0297)	(108.4463)	(0.0318)	(159.9134)	(0.0514)
N	918	918	816	816	510	510	408	408

[a] The data is from the state and year files of the 2003-2012 Medical Expenditure Panel Survey. The unit of observation is a state single or family employer sponsored health insurance plan and each regerssion is weighted by the population of workers with employer sponsored health insurance in the state. Each column presents the results from a separate regression. Each set of regression analysis controls for plan fixed effects, year fixed effects, state fixed effects, plan specific linear time trends, and plan specific quadratic time trends. In the odd numbered columns, the dependent variable is the level of either the total premiums or the level of employee contributions. In the even numbered columns, the dependent variable is the log of either the total premiums or the log of employee contributions.

[b] Standard errors clustered on the state are presented in parentheses.

[c] * 0.10, ** 0.05 and ***0.01 denote significance levels.

Table 4: Placebo Estimates: Effect of ACA Dependent Mandate on Premiums

	Total Premiums		**ln(Total Premiums)**	
	(1)	(2)	(3)	(4)
DD	-69.5332	32.7983	-.0004	.0006
	(369.9374)	(370.7548)	(.0089)	(.0124)
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Plan Linear Trends	Yes	Yes	Yes	Yes
Plan Quadratic Trends		Yes		Yes
N	918	918	918	918
Iterations	1000	1000	1000	1000

[a] The data is from the state and year files of the 2003-2012 Medical Expenditure Panel Survey. The unit of observation is a state single or family employer sponsored health insurance plan and each regerssion is weighted by the population of workers with employer sponsored health insurance in the state. Each column presents the results from a separate regressions. The dependent variable in columns 1-2 is the total premiums of the plan. The dependent variable in columns 3-4 is the employee contribution of premiums.

[b] Standard errors clustered on the state are presented in parentheses.

[c] * 0.10, ** 0.05 and ***0.01 denote significance levels.

Table 5: Effect of ACA Dependent Mandate by Firm Size

	Total Premiums		**Employee Contributions**	
	Less than 50 Empl.	50 plus Empls.	Less than 50 Empl.	50 Plus Empl.
	(1)	(2)	(3)	(4)
DD	450.7308**	540.3812***	-195.9972	35.2079
	(188.6392)	(191.5139)	(149.1273)	(85.4955)
N	918	918	918	918

[a] The data is from the state and year files of the 2003-2012 Medical Expenditure Panel Survey. Each column presents the results from a separate regression. Each set of regression analysis control for plan fixed effects, year fixed effects, state fixed effects, plan specific linear time trends, and plan specific quadratic time trends.

[b] Standard errors clustered on the state are presented in parentheses.

[c] * 0.10, ** 0.05 and ***0.01 denote significance levels.

Table 6: Effect of ACA Dependent Mandate using Previous State Laws

	Total Premiums		**Employee Contributions**	
	No State Law	State Law	No State Law	State Law
	(1)	(2)	(3)	(4)
DD	642.0118**	251.5425	69.4441	-133.9509
	(250.2152)	(205.8466)	(105.8857)	(116.9966)
N	396	522	396	522

[a] The data is from the state and year files of the 2003-2012 Medical Expenditure Panel Survey. Each column presents the results from a separate regressions. Each set of regression analysis control for plan fixed effects, year fixed effects, state fixed effects, plan specific linear time trends, and plan specific quadratic time trends.

[b] Standard errors clustered on the state are presented in parentheses.

[c] * 0.10, ** 0.05 and ***0.01 denote significance levels.

Table 7: Data from SIPP: Effect of ACA Dependent Mandate on ln(Employee Contribution)

	(1)	(2)	(3)	(4)
DD	-0.0292	-0.0191	-0.0559	-0.0583
	(0.0380)	(0.0434)	(0.0636)	(0.0641)
Family ESHI Plan	0.5608***	0.5703***	0.6069***	0.6098***
	(0.0225)	(0.0342)	(0.0558)	(0.0556)
Age	0.0151**	0.0151**	0.0152**	0.0157**
	(0.0058)	(0.0058)	(0.0058)	(0.0059)
Age-Sq	-0.0001*	-0.0001	-0.0001*	-0.0001*
	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Female	-0.0499***	-0.0499***	-0.0499***	-0.0497***
	(0.0151)	(0.0151)	(0.0151)	(0.0151)
Married	0.1241***	0.1237***	0.1231***	0.1224***
	(0.0209)	(0.0208)	(0.0208)	(0.0209)
White	0.0642**	0.0643**	0.0643**	0.0668**
	(0.0283)	(0.0283)	(0.0283)	(0.0294)
Black	-0.1274***	-0.1273***	-0.1273***	-0.1224***
	(0.0359)	(0.0360)	(0.0360)	(0.0370)
Below Poverty Line	-0.0968*	-0.0968*	-0.0966*	-0.0979*
	(0.0493)	(0.0493)	(0.0492)	(0.0501)
High School Graduate	0.1480***	0.1481***	0.1480***	0.1507***
	(0.0416)	(0.0416)	(0.0416)	(0.0410)
Some College	0.1995***	0.1995***	0.1994***	0.1995***
	(0.0410)	(0.0410)	(0.0409)	(0.0412)
College Degree	0.2405***	0.2407***	0.2406***	0.2424***
	(0.0481)	(0.0481)	(0.0481)	(0.0485)
Graduate Degree	0.2814***	0.2817***	0.2816***	0.2844***
	(0.0447)	(0.0447)	(0.0447)	(0.0456)
Year FE	Yes	Yes	Yes	
Plan Linear Trend		Yes	Yes	Yes
Plan Quadratic Trend			Yes	Yes
State FE	Yes	Yes	Yes	
State-Year FE				Yes
N	37120	37120	37120	37120

[a] The data is from the core waves and topical modules of the 2004 and 2008 SIPP. The unit of observation is an individual aged 25-65 and is a policy holder of an employer sponsored health insurance plan. Each column presents the results from a separate regression.

[b] Standard errors clustered on the state are presented in parentheses.

[c] * 0.10, ** 0.05 and ***0.01 denote significance levels.

Table 8: Data from SIPP: Effect of ACA Dependent Mandate by Firm Size and Previous State Laws

	Firm Size		**Previous State Laws**	
	(Less than 100)	**(100 Plus)**	**(No State Law)**	**(State Law)**
	(1)	**(2)**	**(3)**	**(4)**
DD	0.0842	-0.0609	-0.0224	-0.0790
	(0.2104)	(0.0640)	(0.1412)	(0.0640)
N	2559	34561	13103	24017

[a] The data is from the core waves and topical modules of the 2004 and 2008 SIPP. The unit of observation is an individual aged 25-65 and is a policy holder of a employer sponsored health insurance plan. Each column presents the results from a separate regression. The controls for each regression are the same as those presented in column 4 of Table 7.

[b] Standard errors clustered on the state are presented in parentheses.

[c] * 0.10, ** 0.05 and ***0.01 denote significance levels.

Table 9: Data from NHIS: Effect of ACA Dependent Mandate on ln(Employee Contribution)

	(1)	(2)	(3)	(4)
DD	-0.0035	0.0152	-0.0298	-0.0303
	(0.0140)	(0.0202)	(0.0314)	(0.0314)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	
Region FE	Yes	Yes	Yes	
Plan Linear Trends		Yes	Yes	Yes
Plan Quadratic Trends			Yes	Yes
Region-Year FE				Yes
N	105058	105058	105058	105058

[a] The data is from the 2003-2012 NHIS. The unit of observation is an individual aged 25-65 and is a policy holder of a employer sponsored health insurance plan. Each column presents the results from a separate regression. The dependent variable is the log of employee contributions to employer-based health insurance. Each regression includes an indicator for a family plan and a year fixed effect. Additional fixed effects are in the bottom of the table.

[b] White-Huber robust standard errors are presented in parentheses. The NHIS does not have state identifiers.

[c] * 0.10, ** 0.05 and ***0.01 denote significance levels.