

# Did Subsidies Included in the 2009 Stimulus Package Encourage Enrollment in COBRA?

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## Abstract

The 2009 Stimulus Package introduced a 65 percent subsidy for COBRA coverage for individuals who experienced employment separation between September 1, 2008 and June 2, 2010. This paper provides evidence that the subsidy lead to statistically significant and non-trivial increases in the probability that job separators enrolled in COBRA, but only among those who qualified for the subsidy. Specifically, the subsidy appears to have boosted the probability of COBRA enrollment among subsidy qualifiers by approximately 52 percent. Among people who separated from jobs in manufacturing and business/professional services – two industries hit hard by the recession – the subsidy boosted enrollment probabilities among subsidy qualifiers by 41 percent and 48 percent, respectively.

**JEL Codes:** H24; I13; I18

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# 1 Introduction

Because most privately insured Americans receive health coverage through their places of employment, job separation brings with it the possibility of insurance loss. In an attempt to increase portability of employer-provided insurance, the government-mandated program known as COBRA allows job separators to remain enrolled in their employer-provided health insurance. However, COBRA has long had relatively low take-up rates, with only approximately 10 percent of eligible job separators actually enrolling (Rovner, 2009).

One explanation for low take-up is that, while employers usually pay insurance premiums for *active* employees as a form of compensation, employers are not required to – and almost never do – pay premiums for COBRA enrollees. That means a person who elects COBRA coverage must pay the full premium, which for a single person currently exceeds \$6,000 annually (Kaiser Family Foundation, 2016), with family premiums costing even more. If COBRA coverage were less expensive, would job separators be more inclined to enroll?

The 2009 Stimulus Package, formally known as the American Recovery and Reinvestment Act, provides a convenient “natural experiment” to attempt to answer that question. Specifically, the Stimulus Package introduced

a 65 percent subsidy for COBRA coverage for individuals who experienced employment separation between September 1, 2008 and June 2, 2010. This paper seeks to investigate whether the Stimulus Package, by effectively reducing the price, encouraged enrollment in COBRA.

This study holds importance along two dimensions. First, although policymakers cannot rewrite the Stimulus Package, they can (and should) learn lessons from it to inform future stimulus policies. Second, findings from this project should help shed light on why enrollments in certain government-influenced insurance plans remain stubbornly low. For example, prior to the final vote on the Affordable Care Act (ACA), the Congressional Budget Office forecasted that 21 million people would eventually enroll in exchanges by the end of 2016. The actual number ended up being only 12 million, a 43 percent forecast error. Again, what explains low rates of enrollment? This project, although not about the ACA, might point to price as a primary culprit.

This article follows in the wake of a similar study by Moriya and Simon (2016). Their paper is broader in scope, including analyses on uninsurance and elasticities of insurance demand, but, beyond that, this paper differs from theirs in two other important respects. First, this paper uses a data source that, while smaller in size than that used by Moriya and Simon, offers

more precise information on the exact dates of job separation, as well as more data points during the pre-subsidized period. Second, this paper adopts a different identification strategy, as detailed below. Despite that, this paper produces similar findings to theirs, suggesting that this paper contributes to a growing consensus of the effects of the Stimulus Package on insurance coverage.

This study produces several findings. First, the subsidy correlated with an overall increase in the likelihood that job separators enrolled in COBRA. However, under the rules of the Stimulus Package, not all job separators qualified for the subsidy. Focusing only on qualifiers, the subsidy appears to have boosted the probability of COBRA enrollment by approximately 52 percent, but the subsidy does not appear to have influenced COBRA enrollment among job separators who did *not* qualify for the subsidy. Finally, among people who separated from jobs in manufacturing and business/professional services – two industries hit hard by the recession – the subsidy boosted enrollment probabilities among subsidy qualifiers by 41 percent and 48 percent, respectively.

The following section offers background on COBRA and relevant features of the 2009 Stimulus Package. That discussion is followed by a discussion of the Medical Expenditure Panel Survey and the highly specific subsamples

necessary to complete this study. The empirical methods are separated into a simple comparison of COBRA enrollment between the subsidized and non-subsidized periods, and a more structural flavored difference-in-difference approach that exploits eligibility details in the Stimulus Package. The paper then generates predicted probabilities of COBRA enrollment based on the difference-in-difference model, before finally concluding.

## **2 COBRA and the Stimulus Package**

Each year approximately 12 million Americans separate from jobs through which they have health insurance coverage (Gruber, 2000). Consequently, the link between employment and insurance, and the threat that job separation poses to insurance coverage, has long attracted the attention of researchers. In theory, job separators may purchase non-group plans in order to continue coverage, but in practice, non-group coverage costs more than employer-based plans (Gruber and Poterba, 1996) and offers less generous coverage, particularly for people with pre-existing conditions (Gruber, 2000).

Government-mandated continuing coverage laws began as state-level reforms, with the first introduced in Minnesota in 1974. Other states passed similar laws during the following decade. Building on those state-level reforms, the Consolidated Omnibus Reconciliation Act of 1985 (COBRA) man-

dated continuing coverage at the national level, with the explicit goal of increasing insurance portability among individuals covered by employer-provided plans. The law requires that employers that offer group coverage must continue to make insurance available for purchase following termination of employment, so long as termination was not due to misconduct or reduction in work hours. Usage of the term “COBRA” – including in this paper – often misleadingly implies that COBRA refers to a specific form of insurance, but in fact the term merely indicates whatever policy the person happens to purchase through his former employer. Thus, one person’s COBRA plan might differ, both in cost and coverage features, from another person’s policy.

Those who elect COBRA coverage may purchase insurance for up to 18 months following the date of employment separation. Spouses and children at risk of losing coverage due to death, divorce, legal separation, or Medicare eligibility of a policyholder also qualify to purchase COBRA, but spouses and children are not the central focus of this paper.

Gruber and Madrian (1997) provide evidence that COBRA significantly increases the likelihood of insurance coverage among job separators, especially among those who do not immediately transition to other jobs. Furthermore, they find that COBRA does not appear to significantly lengthen non-employment spells, a common concern of such safety net programs. They

conclude that COBRA represents an important element in reducing the incidence of “job lock,” defined as remaining in a job when it might be welfare-enhancing to separate from that job.

Nonetheless, COBRA take-up rates among job separators remain stubbornly low (Madrian, 1998; Rovner, 2006; Zimmer, 2015), possibly because COBRA differs from other safety net programs in that it offers access to a benefit, but not financial assistance to obtain that benefit. That is, firms typically provide insurance to active employees as a non-wage fringe benefit with premiums fully or mostly paid for by employers (notwithstanding possible “compensating differentials” in the form of wage reductions (Olson, 2002).) The COBRA mandate, by contrast, does not require firms to pay premiums for former employees. Indeed, firms may charge former employees 102 percent of the average cost of providing coverage, with the extra 2 percent covering administrative costs of complying with COBRA requirements. Nonetheless, as group coverage usually costs less than nongroup plans purchased directly from insurers (Gruber and Madrian, 1994), COBRA might offer an attractive coverage option for some job separators (Flynn, 1994; Karoly and Rogowski, 1994; Berger, Black, Scott, and Chandra, 1999).

Recognizing that large job losses during the Great Recession might lead to disruptions in insurance coverage, the 2009 Stimulus Packages included

a 65 percentage subsidy for COBRA purchases, implying that COBRA enrollees could satisfy their premium requirements by paying only 35 percent of required premiums. Employers from which COBRA enrollees separated were permitted to reduce their payroll taxes to offset the lower premiums paid by COBRA enrollees.

To qualify for the subsidy, a job separator had to meet three requirements. First, job separation must have occurred between September 1, 2008 and June 2, 2010. (As originally passed, the Stimulus Package set the subsidy window as September 1, 2008–December 31, 2009, but that window later was expanded to cover September 1, 2008–June 2, 2010.) People experiencing job separation outside that window had to pay the full premium. Second, the job separator must not have had access to other group insurance options, such as through a spouse. Third, job separation must have been involuntary. (A person failing to meet any of those requirements still could purchase COBRA, but he would not receive the subsidy.)

The empirical question, therefore, is whether the Stimulus Package, by effectively reducing the price of COBRA, encouraged enrollment. As this section highlights, answering such a question requires detailed individual-level data on (1) the timing of job loss; (2) the reason for job loss; (3) the presence of other group insurance options; and (4) COBRA enrollment.

The following section discusses the estimation sample, drawn from the only household survey that contains all of those pieces of information.

### **3 Data**

Data used in this study come from the Medical Expenditure Panel Survey (MEPS), collected and published by the Agency for Healthcare Research and Quality, a unit of the U.S. Department of Health and Human Services. A descendent of the National Health Interview Survey, the MEPS enjoys a reputation as the most complete source of nationally-representative information on individual-level health insurance and healthcare consumption.

The MEPS follows a rotating design, with new respondents entering the survey every year. Each respondent remains in the survey for approximately two years. This study considers respondents who entered the survey during the years 2005-2012. Because each respondent remains in the survey for two years, those eight waves cover years 2005-2013. The estimation sample considers respondents between ages 18 and 60 upon entry into the survey. (Subjects younger than 18 often appear on their parents' plans, while respondents between 61-64 might use COBRA as an early-retirement bridge to Medicare eligibility. Neither group represents the main policy target group for COBRA.) The sample also excludes anyone who, after separating from

employment, eventually enrolled in Medicare or Medicaid. (Not surprisingly, given the age restriction of the sample, and the fact that everyone enters the sample employed at a full-time job, not many subjects enroll in Medicare/Medicaid; that sample restriction eliminates only about 180 data points.)

The estimation sample includes subjects who, upon entry into the survey, were employed and holders of employer-provided insurance. The sample does not include subjects who reported being self-employed upon entry into the survey, as self-employed respondents are less likely to be policyholders of employer-provided group coverage. The sample then focuses on everyone who left that job before exiting the survey two years later. The final sample size includes  $n = 2,161$  unique individuals.

Ideal for this student, the MEPS records whether a particular health insurance plan falls under the umbrella of COBRA. Also important for this study, MEPS also includes information on changes in employment, including exact dates of and reasons for employment separation. As such, the main dependent variable of interest is a dummy indicating whether, following employment separation, a person enrolled in COBRA. The main treatment variable of interest is a dummy indicating whether employment separation occurred between the dates September 1, 2008 and June 2, 2010, hereafter

referred to as the “subsidized period.”

Table 1 reports sample means partitioned according to the availability of the subsidy. Noting that every person in the sample experienced job separation at some point during their involvement with the survey, the numbers in Table 1 inform upon socioeconomic traits of job separators during the worst of the Great Recession (i.e., the subsidized period) compared to other times.

The most important numbers, shown in the first row, indicate that 16 percent of job separators enrolled in COBRA during the subsidized period, compared to only 12 percent during the non-subsidized period. That difference is statistically significant at the .05 level, according to a standard two-sample *t*-test. (Those low enrollment numbers corroborate other evidence of low COBRA take-up (Rovner, 2006).) The remaining rows of Table 1 show that job separators during the subsidized period – that is, during the worst of the Great Recession – were more likely to be black and lower-educated than those experiencing employment loss during the non-subsidized periods. Otherwise, the two sample partitions appear fairly similar.

Table 1 also includes dummies that indicate the industry in which individuals worked prior to job separation. The subsidized period includes a larger proportion of people who lost jobs in manufacturing and professional/business services. By contrast, the subsidized period includes a smaller

proportion of people who lost jobs in education, health, and social services, indicating that jobs in education, health, and social services remained relatively safe during the Great Recession. Otherwise, the industry makeup appears similar across the two groups.

Numbers reported in this paper do not use the included MEPS sample weights for several reasons. First, it is not obvious how to adjust weights, which apply to the overall MEPS survey, to reflect the highly specific subsample under consideration here. Second, and more importantly, this paper seeks to interpret its empirical findings as related to economic “structure,” in which case unweighted estimations achieve asymptotic consistency, regardless of the survey’s weighting structure (Cameron and Trivedi, 2005, p. 820).

## **4 A Simple Comparison across Periods**

Despite its attributes, the MEPS does not record data at high enough frequency to approach the topic of this paper from a purely panel perspective. Even if the MEPS did record higher frequency data, the main treatment variable of interest – the availability of subsidies – does not show sufficient intra-person variation to support standard panel estimators, like fixed effects. Moreover, the overall size of the estimation sample ( $n = 2,161$ ), while sufficient for a comparison of the subsidized versus non-subsidized periods, is too

small to do a year-by-year comparison.

In light of those data restrictions, this section compares the probability of COBRA enrollment between the subsidized and non-subsidized periods, controlling for several observed person-specific factors. This section does not purport to uncover pure causal effects of the Stimulus Package, but rather it seeks to establish whether probabilities of COBRA enrollment differed according to the time period during which subsidies were available. The following section uses an alternative difference-in-difference approach that seeks to remove additional unobserved heterogeneity.

Let  $cobra_i$  be a dichotomous indicator for whether, at some point following job separation, person  $i$  enrolled in COBRA. Further, let  $subsidized_i$  be a dichotomous indicator for whether person  $i$ 's job separation occurred during the period for which COBRA enrollment was subsidized – i.e., between September 1, 2008 and June 2, 2010.

With those two variables defined, the probability of COBRA enrollment follows,

$$\Pr(cobra_i = 1 | \delta subsidized_i + \mathbf{X}'_i \boldsymbol{\beta}) \quad (1)$$

where  $\mathbf{X}_i$  denotes a vector of control variables with estimable coefficients  $\boldsymbol{\beta}$ . The list of control variables includes age, gender, race, ethnicity, metropolitan residence, marital status, family size, and highest level of educational

attainment. This paper prefers this relatively sparse list of controls in order to draw conclusions about overall mean probabilities of enrollment in COBRA. The main parameter of interest,  $\delta$ , captures the extent, if any, to which COBRA subsidies correlate with COBRA enrollment after controlling for observable factors.

Table 2 presents marginal effects of probit estimation of equation (1). The first panel includes only *subsidized<sub>i</sub>* and a constant. The marginal effect from that specification corroborates the simple sample means reported in Table 1. That is, the subsidized period saw an approximate 3.6 percentage point increase in the probability that a job separator subsequently enrolled in COBRA.

But what if job losses during the recession, while certainly more widespread than before or after the recession, afflicted certain types of individuals already predisposed toward (or against) COBRA enrollment? To that end, the second panel include a list of control variables, which shrinks the estimate of interest to 3.2 percentage points. That estimate does not control for industry of separation, so the 3.2 percentage point estimate should be interpreted as the average across all industries. Compared to the non-subsidized sample mean of COBRA enrollment (0.12), the 3.2 percentage point increase represents an approximate increase in the probability of enrollment of 27

percent.

The right-hand panel of Table 2 includes industry-of-separation dummies to account for the possibility that certain industries, perhaps with greater (or lesser) involvement with COBRA, were disproportionately afflicted (or spared from) the recession. What if, for example, industries that tend to attract unusually risk averse workers also happened to experience large job losses during the recession? Such a pattern, if present, would impart upward bias on the marginal effects reported in the first two panels of Table 2. In the third panel of Table 2, the inclusion of industry dummies shrinks the marginal effect to 2.8 percentage points, or a 23 percent increase relative to the non-subsidized mean COBRA enrollment.

(Control variables, which are not the main focus, indicate that blacks have smaller probabilities of COBRA enrollment. On the other hand, probabilities of COBRA enrollment appear to increase with age and education, although the marginal effect of “some college” is not precisely estimated. Otherwise, control variables appear to impart minimal influence on COBRA election.)

## **5 A Difference-in-Difference Estimator**

The setup in the previous section attempts to control for observed differences in individuals across the two periods, but it remains possible that people who

lost their jobs during the subsidized period differ from those who lost their jobs during the non-subsidized period along dimensions that are difficult to observe in household surveys. And if those differences correlate with COBRA enrollment, then the numbers reported in the previous section could be biased.

To address that concern, this section exploits a detail in the Stimulus Package to assemble a difference-in-difference estimator that should capture *some* remaining unobserved heterogeneity. Specifically, whether during the subsidized period or not, COBRA is available to most job separators regardless of the reason for job separation, but the Stimulus Package specified that, to qualify for the subsidy, job separation (i) must have been *involuntary*, and (ii) the job separator may not have had access to other group insurance options, most notably through a spouse. Thus, this section seeks to compare the effects of the subsidy between an experiment group (involuntary job separators who did not subsequently enroll as dependents on someone else's plan) and a control group that should not have been affected by the subsidy (voluntary job separators or those who subsequently enrolled as dependents elsewhere).

These definitions of experimental and control groups differ from the only other study on this topic (Moriya and Simon, 2016). Notably, Moriya and

Simon consider only involuntary job separators, and define the control group as subjects *not* covered by employer-sponsored plans. By comparison, this paper considers a larger category of job separators, while exploiting the *reason* for job separation as a source of identification. Additionally, this paper uses the possible option of spousal coverage as an additional path toward identification.

(The Stimulus Package specified that, for COBRA enrollees with adjustable gross incomes above \$125,000 (single returns) or \$250,000 (joint returns), the subsidies would be reduced. In principle, that income detail provides an additional path toward identification, but, unfortunately, fewer than 60 job separators in the estimation sample had adjustable gross incomes in excess of those thresholds, a sample too small to allow meaningful statistical conclusions.)

Fortunately, the MEPS contains fairly detailed information on reasons for job loss, such that one can determine whether job loss was voluntary or not. However, while the MEPS does contain some information on family insurance arrangements, it does not indicate whether a person's spouse's insurance plan could have been a coverage option. Thus, this paper opts for a rather blunt measure: Did the job separator subsequently enroll as a dependent on someone else's plan? If so, the person was deemed to have had other

group options. Of course, that variable could be endogenous with respect to COBRA enrollment if, following a person’s job loss, the spouse then seeks employment in order to obtain insurance. As a check, the following setup was re-estimated using a dummy for whether, upon entry into the survey, the subject had a spouse who worked at a firm that offered insurance. Results were very similar to those obtained below.

A DID estimator that imposes the aforementioned experimental/control design is

$$\Pr(\text{cobra}_i = 1 \mid \delta_1 \text{subsidized}_i + \delta_2 \text{qualify}_i + \delta_3 \text{subsidized}_i \times \text{qualify}_i + \mathbf{X}'_i \boldsymbol{\beta}),$$

where  $\text{qualify}_i$  indicates that the person qualified for the subsidy because (i) job loss was involuntary and (ii) the person did not subsequently enroll as a dependent elsewhere. A positive value for the DID estimator,  $\delta_3$ , indicates that the subsidy boosted enrollment probabilities, and that that effect was larger for the group that qualified for the subsidy. The main identifying assumption underlying the DID estimator is that unobserved heterogeneity that caused a person to be more (or less) likely to lose his job during the subsidized period cannot have simultaneously affected the likelihood that he would have qualified for the subsidy. That is a plausible assumption, although one that is difficult to definitively prove.

Table 3 shows estimates of the DID specification, with the main DID es-

timate of interest shown in the first row. Those DID coefficients are positive and precisely estimated, indicating that the subsidy increased the probability of enrollment, and that that increase was larger among those who qualified for the subsidy. However, with the DID term being assembled from two other variables, each with its own coefficient and standard error, the overall magnitude and statistical significance of the subsidy is difficult to determine. To that end, the following section calculates predicted probabilities of COBRA enrollment.

## 6 Predicted Probabilities

Table 4 reports predicted probabilities of COBRA enrollment for a hypothetical job separator: a college-educated 40-year-old non-black/non-Hispanic unmarried male living in an MSA area. (Those attributes simply set the explanatory variables to their most common values in the estimation sample.) Standard errors for those predictions come from a Monte Carlo simulation procedure that, upon each replication, randomly perturbs the parameter vector by drawing it from a normal distribution centered on its estimated value with variance equal to the entire covariance matrix. Using that perturbed parameter vector, the predicted probabilities are recalculated. Standard deviations of many replications provide the standard errors.

Focusing on the top panel, which is based on the middle panel from Table 3 that does *not* control for industry, the hypothetical job separator, were he *not* eligible for the subsidy, would have been .16 likely to enroll in COBRA during the non-subsidized period versus .15 likely during the subsidized period. The standard error of the difference between those two numbers (.02) indicates that they are not statistically different.

But if that same person *were* eligible for the subsidy, his probability of COBRA enrollment would have been .23 during the non-subsidized period versus .35 during the subsidized period. The standard error of the difference between those two numbers is .05, indicating that they are statistically significantly different at conventional levels. In other words, the subsidy boosted this person's probability of enrollment by  $(.35 - .23)/.23 \times 100 = 52$  percent.

The next two panels in Table 4 focus on industries that, according to Table 1, were particularly hard hit by the recession. Individuals who separated from manufacturing jobs, and who qualified for the subsidy, exhibited 41 percent larger probabilities of COBRA enrollment during the subsidized period (.41 versus .29). Similarly, subsidy qualifiers who separated from jobs in business/professional services showed 48 percent larger probabilities of COBRA enrollment during the subsidized period (.34 versus .23). Thus, despite slight differences in magnitudes, the overall patterns remain similar to those shown

in the first panel. That is, the subsidy did not appear to affect enrollment among those who did not qualify for it, but the subsidy appeared to induce sizable increases in the probability of enrollment among those eligible for it.

## **7 Conclusion**

COBRA allows job separators to remain covered by their employer-provided insurance, but most COBRA enrollees must pay the full premium. The 2009 Stimulus Package, formally known as the American Recovery and Reinvestment Act, introduced a 65 percent subsidy for COBRA coverage for individuals who experienced employment separation between September 1, 2008 and June 2, 2010. This paper provides evidence that the subsidy led to statistically significant and non-trivial increases in the probability that job separators enrolled in COBRA, but only among those who qualified for the subsidy.

Specifically, focusing only on subjects who actually qualified for the subsidy, the subsidy appears to have boosted the probability of COBRA enrollment by approximately 52 percent. Among people who separated from jobs in manufacturing and business/professional services – two industries hit hard by the recession – the subsidy boosted enrollment probabilities among subsidy qualifiers by 41 percent and 48 percent, respectively.

Despite differences in data sources and identification strategies, these findings corroborate those from the only other study on this topic (Moriya and Simon, 2016). Together, this body of evidence suggests a downward-sloping demand for health insurance. Thus, for other government-influenced insurance plans, such as the Affordable Care Act's system of exchanges, price might provide a potential explanation for stubbornly low enrollment. Consequently, boosting enrollment might require increasing subsidies to those seeking to enroll in exchanges, or finding some other mechanism by which to lower price.

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Table 1: Sample means

(Sample consists of 2005-2013 MEPS respondents between ages 18-60 who entered the survey employed and holding employer-provided health insurance, and then subsequently experienced job separation. The sample does not include subjects who entered the survey self-employed, or who eventually enrolled in public insurance options.)

	Not subsidized period N = 1,679	Subsidized period N = 482
Enrolled in Cobra	0.12	0.16**
Age	38.3	38.9
Female	0.48	0.46
Black	0.17	0.22**
Hispanic	0.17	0.18
MSA residence	0.89	0.87
Married	0.47	0.48
Family size	2.77	2.79
Highest education: less than high school		omitted
Highest education: high school	0.23	0.28**
Highest education: some college	0.23	0.27**
Highest education: college degree	0.33	0.34
Industry separated from...		
natural resources/mining	0.01	0.01
construction	0.06	0.06
manufacturing	0.14	0.18*
trade	0.14	0.11
transportation/utilities	0.04	0.05
information	0.03	0.03
finance	0.09	0.09
professional/business services	0.11	0.15**
education/health/social services	0.25	0.17**
leisure/hospitality	0.05	0.05
other services	0.03	0.03
public administration	0.05	0.05
other/unknown	0.01	0.01

\* second column differs from first column at  $p < .10$

\*\* second column differs from first column at  $p < .05$

Table 2: Probit marginal effects

Dependent variable = COBRA enrollment

	Marg. eff.	St. err.	Marg. eff.	St. err.	Marg. eff.	St. err.
<b>Subsidized period</b>	<b>0.036**</b>	<b>0.017</b>	<b>0.032*</b>	<b>0.017</b>	<b>0.028*</b>	<b>0.017</b>
Age	0.004**	0.001	0.004**	0.001	0.003**	0.001
Female	-0.005	0.015	-0.005	0.015	-0.002	0.016
Black	-0.042**	0.021	-0.042**	0.021	-0.043**	0.021
Hispanic	-0.022	0.021	-0.022	0.021	-0.021	0.021
MSA residence	-0.007	0.022	-0.007	0.022	-0.005	0.023
Married	-0.006	0.017	-0.006	0.017	-0.005	0.017
Family size	0.001	0.006	0.001	0.006	-0.0004	0.006
Highest education: less than high school	omitted	omitted	omitted	omitted	omitted	omitted
Highest education: high school	0.044*	0.024	0.044*	0.024	0.039*	0.024
Highest education: some college	0.038	0.024	0.038	0.024	0.037	0.024
Highest education: college degree	0.067**	0.023	0.067**	0.023	0.066**	0.023
13 industry dummies	no	no	no	no	yes	yes

\* p < .10

\*\* p < .05

Table 3: Probit DID marginal effects

Dependent variable = COBRA enrollment

	Marg. eff.	St. err.	Marg. eff.	St. err.	Marg. eff.	St. err.
<b>Subsidy eligible × Subsidized period</b>	<b>0.085**</b>	<b>0.037</b>	<b>0.080**</b>	<b>0.036</b>	<b>0.074**</b>	<b>0.036</b>
Subsidy eligible	0.047**	0.021	0.050**	0.022	0.049**	0.022
Subsidized period	-0.005	0.021	-0.007	0.021	-0.008	0.021
Age			0.003**	0.001	0.003**	0.001
Female			-0.004	0.015	-0.002	0.015
Black			-0.050**	0.021	-0.051**	0.021
Hispanic			-0.030	0.021	-0.029	0.021
MSA residence			-0.005	0.022	-0.003	0.023
Married			0.001	0.017	0.001	0.017
Family size			-0.0003	0.006	-0.002	0.006
Highest education: less than high school			omitted		omitted	
Highest education: high school			0.045*	0.023	0.041*	0.024
Highest education: some college			0.041*	0.024	0.040*	0.024
Highest education: college degree			0.073**	0.023	0.072**	0.023
13 industry dummies			no	no	yes	yes

\* p < .10

\*\* p < .05

Table 4: Predicted probabilities of COBRA enrollment from DID model

Predictions are for college-educated 40-year-old non-black/non-Hispanic unmarried males living in MSA areas.

(Standard errors of differences across not subsidized/subsidized periods, calculated using a Monte Carlo method, appear in parentheses.)

Average across all industries			
Not subsidy eligible		subsidy eligible	
Not subsidized period	Subsidized period	Not subsidized period	Subsidized period
.16	.15	.23	.35
(.02)		(.05)	

  

Manufacturing industry			
Not subsidy eligible		subsidy eligible	
Not subsidized period	Subsidized period	Not subsidized period	Subsidized period
.21	.20	.29	.41
(.03)		(.06)	

  

Professional/business services industry			
Not subsidy eligible		subsidy eligible	
Not subsidized period	Subsidized period	Not subsidized period	Subsidized period
.17	.16	.23	.34
(.03)		(.05)	