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The Effect of the Health Insurance Mandate on Labor Market Activity and Time Allocation: Evidence from the Federal Dependent Coverage Provision

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Abstract:
The primary goal of the federal dependent coverage mandate was to increase health insurance coverage among young adults, the group with the lowest prevalence of health insurance coverage. To understand the full impacts of the federal dependent coverage mandate, it is important to evaluate how the mandate affects labor market activities and time spent away from work among young adults. Using data from the Consumer Population Survey (CPS) and the American Time Use Survey (ATUS) and implementing a difference-in-differences framework, we find: (1) Young adults substitute employer sponsored insurance for dependent coverage, (2) Affected individuals reduce their work time and switch from full- to part-time employment, and (3) The additional time from reduced labor market activity is reallocated towards more time spent on leisure activities, mainly watching television. The effects of the mandate on labor market activities are stronger in later years. Furthermore, we show that young adults do not increase the time they spend on activities that could enhance their human capital such as education and health, which reemphasizes potential unintended consequences of the mandate. These findings suggest that future work is necessary to fully understand the overall welfare effects of the policy.

Keywords: dependent coverage mandate, labor market outcomes, time use

1   Introduction

In September 2010, the dependent coverage mandate – one of the most popular policies in the Affordable Care Act (ACA) – went into effect, allowing young adults up to the age of 26 to remain on their parents' health insurance. Recent studies have concluded that the federal dependent coverage provision successfully increased insurance coverage among young adults (Antwi, Moriya, and Simon 2013; Barbaresco, Courtemanche, and Qi 2015; Depew 2015; Jhamb, Dave, and Colman 2015). In this study, we examine the effects of the federal dependent coverage mandate on young adults' labor market outcomes as well as on their time spent away from work.

To answer the questions on hand, we use data from the Current Population Survey (CPS) and the American Time Use Survey (ATUS) for the time period 2008–2013. We implement a difference-in-differences (DD) framework, where respondents aged 19–25 are considered as treated individuals and the control group is comprised of people who are 27–30 years old. We perform three separate analyses. First, we estimate the effect of the mandate on insurance coverage by using data from the CPS. Specifically, we test whether young adults substitute employer-sponsored insurance (ESI) and privately purchased insurance for dependent coverage by focusing on early versus late effects. The substitution between plans provides a potential pathway for how the mandate may affect young adults' labor market outcomes. Second, using both CPS and ATUS data we explore the effect of the mandate on labor market outcomes such as weekly time spent on market work and full-time or part-time employment status. Third, using the data from the ATUS, we investigate whether young adults reallocate work time towards more time spent on leisure, health, or education in response to the mandate.

Besides trying to increase health insurance coverage among young adults, the federal dependent coverage mandate also aimed at increasing job mobility for this age group by loosening the tie between employment and student status (See Federal Register 2010, 21). Consistent with this, two previous studies have found decreases in labor supply of young adults as a result of state-level dependent coverage mandates (Depew 2015; Hahn and Yang 2016). As the federal mandate provides a stronger policy change than state-level mandates, one can expect to find evidence of a larger response in labor market activities. Using data from the Survey of Income and Program Participation (SIPP) from August 2008 to November 2011, Antwi, Moriya, and Simon (2013) provide evidence that the federal dependent coverage mandate reduced the number of hours young adults spend on market work. In contrast, two recent studies provide evidence that the federal mandate did not impact labor market outcomes. Using data from US Tax Records, Heim, Lurie, and Simon (2015) find no effects on employment status and wages of young adults. Despite providing a unique approach, the authors' analysis is limited in terms of the availability of dependent variables capturing job mobility. The authors note that "...it is possible that labor market outcomes have changed in ways not captured by tax data (e.g. a change in hours of work while holding total wages constant...)." Using data from the CPS, Bailey and Chorniy (2016) find that the mandate did not affect job mobility and the authors claim that "...job mobility should not be considered a major policy concern." Given such mixed findings in the existing literature, a detailed analysis of how the federal dependent coverage affected labor market outcomes of young adults is warranted.

Our study contributes to the literature in three main ways. First, we provide a comprehensive analysis that explores the effect of the ACA dependent coverage on labor-market related outcomes, including an examination of potential pathways. The mandate is likely to affect time spent at work as a result of a reduced reliance on ESI, a channel which we are able to test for directly. Although Antwi, Moriya, and Simon (2013) document that young adults substitute ESI for dependent coverage, their data ends in November 2011. The authors note that "...It is possible that the reduced reliance on own-name ESI as a result of the law could result in increased job mobility in the future as the job market recovers, a topic to be examined with future data." Since our study uses data from 2008 to 2013, we are able to distinguish between early and late effects of the mandate both on insurance and labor market outcomes. We find that the mandate increased the share of young adults who are covered by any health insurance and by dependent coverage by 3.7 and 5.3 percentage points, respectively. The mandate reduced the prevalence of employer sponsored insurance (ESI) by 1.5 percentage points, suggesting that 28 percent of the increase in dependent coverage is driven by individuals substituting ESI with dependent coverage insurance. Such effects are significantly more pronounced in the later years (2012 and 2013).

Second, in contrast to recent studies (Heim, Lurie, and Simon 2015; Bailey and Chorniy 2016) that find no labor market effects, our findings indicate that the mandate increased labor market flexibility. Specifically, we find that young adults reduce their weekly work hours, while also being more likely to switch from full- to part-time employment following the policy change. One potential explanation for this could be that they no longer have to be tied to a full-time position in order to obtain health insurance. We provide evidence for this by showing that the mandate increases voluntary part-time employment. Consistent to the results that the effects of the mandate on health insurance are stronger in years 2012 and 2013, we find that young adults reduce their labor market activities in these years.

Third, we explore how young adults reallocate their foregone work hours on time spent away from market work. Understanding how young adults reallocate their time following policy changes such as the ACA dependent mandate is not only important from a policy perspective, but also from a human capital and health perspective. We find that individuals reallocate the majority of foregone work time towards leisure, especially towards watching television. Specifically, we find that 89.5% of the newly available time as a result of reduced labor force activity is reallocated towards leisure activities, especially toward watching more television. Similar to time spent in market activities, we find that the results are much stronger in the later years. In contrast, we do not find any evidence that young adults increase the time they spend on activities that could enhance their human capital such as education and health.

We are aware of only one working paper that evaluates the effect of the mandate on time spent away from work (Colman and Dave 2016). The authors find that the dependent coverage mandate reduced both job-lock and the duration of average doctor visits but increased spent allocated towards socializing. Our study differs from Colman and Dave (2016) in three main ways. First, we provide evidence of early and late effects of the mandate. We show that the effects are significantly more pronounced in the later years. Second, by using a different data set (CPS) along with the ATUS, we are able to show that young adults substitute parental health insurance for employer sponsored insurance following the mandate – a pathway through which the mandate can potentially affect labor market outcomes. It appears unlikely that the mandate impacts labor market outcomes without leading to a reduction in ESI. In this regard, we provide a comprehensive analysis of the mandate. Third, Colman and Dave (2016) mainly focus on time spent in obtaining medical care, while also examining other activities such as job search and socializing. However, the authors do not consider time spent on watching television when analyzing the effect of the mandate on leisure activities. According to an article in the Wall

Street Journal, an employed American on average watches close to three hours of TV on a daily basis (Leubsdorf 2015). Thus, besides sleeping and working, watching television consumes the majority of time for individual during the average day. Our finding that young adults reallocate the majority of their newly available time toward watching television indicates a loss in productivity associated with the mandate.

2   Conceptual Framework

Employers can offer employees health insurance at lower prices compared to what is offered in the individual market.[1] However, conditional on health outcomes and the quality of health insurance, it is beneficial for workers aged 26 or below to consider taking up dependent coverage rather than employer-provided insurance. By not taking employer-provided health insurance, eligible young adults can recoup the compensating wage differential, which is contributed to the employer as health insurance payments. Based on this intuition, we formulate our first hypothesis.

> Hypothesis 1: Following the ACA dependent coverage mandate, eligible individuals will switch from employer-sponsored insurance to dependent coverage.

The federal dependent coverage provision adds flexibility to labor market decisions from an employee's perspective. Those young adults who previously worked on a full-time basis, mainly in order to obtain insurance coverage from employers, now have the option to reduce their hours worked and to switch from full-to part-time employment while remaining insured under their parent's plan.[2] By using state-level variations in the timing of dependent coverage implementation, Depew (2015) provides evidence that dependent coverage reduces the labor supply of young adults along the intensive margin. However, Heim, Lurie, and Simon (2015) find no effects on labor market outcomes. Consistent with our first proposition, we form a second hypothesis, which we will test in this study.

> Hypothesis 2: Following the federal dependent coverage mandate, young adults will reduce their labor supply by reducing time spent on market work and by switching from full- to part-time employment.

If our second hypothesis is true, it is of interest to investigate how young adults reallocate their foregone work time following the policy change. This remains an empirical question. We investigate whether individuals who are affected by the dependent coverage mandate alter the amount of time spent on leisure activities as well as on activities related to their education and their health.

3   DATA

3.1   Current Population Survey (CPS)

The first dataset this study uses is the March Population Survey of the CPS for the years 2008–2013. The CPS is the primary source of labor force data for the US population, conducted jointly by the US Census Bureau and the Bureau of Labor Statistics (BLS) and has been used in the context of job mobility by Bailey and Chorniy (2016). Data from the CPS aids our analysis in several ways. First, since it is representative of the US population, the findings can be generalized to the entire US population. Second, the CPS provides detailed information regarding both health insurance coverage and labor market-related outcomes. Information on several categories of insurance coverage utilized by the survey allows us to examine whether the federal mandate affects the likelihood with which individuals have any insurance as well as whether people switch between different insurance plans after the mandate (Hypothesis 1). Furthermore, the CPS provides detailed information on labor market outcomes such as weekly hours worked, and whether individuals work full-time or part-time. This allows us to investigate the effects of the federal dependent coverage on the labor market decisions of eligible young adults.

One potential limitation of using data from the CPS for the purposes of our study is that it does not provide information regarding time spent on activities away from work. Thus, we additionally employ data from the American Time Use Survey (ATUS) to investigate the effects of the federal dependent coverage mandate on the allocation of time among young adults.

3.2 American Time Use Survey (ATUS)

The Bureau of Labor Statistics (BLS) conducts the American Time Use Survey (ATUS) in order to develop a nationally-representative overview of how people in the US spend their time. The survey is given to respondents of the CPS survey who are above 14 years of age, live in the US and have completed month 8 of the CPS survey. The final sample of respondents is constructed in three stages. In the first stage, the oversampling of less-populous states, which exists in the CPS, is reduced. The second stage employs stratified sampling based on race and the number of children in the household, during which Hispanics, non-Hispanic Blacks, and households with children are oversampled. The final stage involves random sampling. As pointed out by Maddala (1983), the estimation of weighted regression models is not required in the case of oversampling based on exogenous regressors such as race. We control for both race and the number of children present in the household in our specifications.[3]

We use ATUS data for the years 2008–2013 to examine the effects of the dependent coverage mandate on time use of young adults. Each wave of the survey is based on 24-hour diaries in which respondents report their activities from the previous day in detailed time intervals. Given that individuals are drawn from the exiting sample of the CPS, information regarding respondents' employment status and other demographic characteristics is included in the survey. Each ATUS wave for the period of our study contains between 12,000 and 13,000 individuals. Our main analysis focuses on young adults between 19 and 30 years of age; however, individuals who are 26 years old are excluded as it cannot be inferred with certainty from the data whether they are affected by the policy.[4] This provides our analysis with a sample of 9549 individuals.

The ATUS records information on more than 400 categories of time use.[5] We convert reported time individuals spend on certain activities per day to weekly amounts by closely following the approach by Aguiar, Hurst, and Karabarbounis (2013).[6] Specifically, we examine three main categories of time use: (1) time spent at work, (2) time spent on leisure activities; and (3) time spent on activities that increase human capital. Table 1 gives an overview of activities that are included in each of these categories in our analysis. For leisure and health-related activities, we test for the effects of the policy on the total time spent on all activities within a category, while also examining the effects for each activity individually. Table 2 provides summary statistics for both the ATUS and the CPS sample used in this study, differentiated by age groups and for both before and after the policy change. The statistics show that the samples from both data sets are similar based on observable characteristics. The only major difference is that the share of employed individuals between the ages 19 and 25 is larger for the ATUS.

Table 1: Description of Time Use Activities.

(1) Work
    Time spent on core work
(2) Leisure
    Eating
    Sleeping
    Watching television
    Reading
    Pet care
    Non-health related personal care
    Socializing
(3) Health
    Self-care
    Health care outside the house
    In-home health care services
    Waiting and travel time to obtain medical care
    Exercising
(4) Education
    Time spent on towards education

Table 2: Descriptive Statistics (ATUS and CPS Data).

| | ATUS | | | | CPS | | | |
| | Age 19–25 | | Age 27–30 | | Age 19–25 | | Age 27–30 | |
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Age	22.26	22.25	28.55	28.57	21.97	21.95	28.53	28.54

	(2.02)	(2.05)	(1.11)	(1.12)	(2.02)	(2.01)	(1.12)	(1.12)
White	0.7738	0.7538	0.7946	0.7752	0.7650	0.7478	0.7790	0.7698
	(0.4171)	(0.4309)	(0.4171)	(0.4175)	(0.4240)	(0.4343)	(0.4149)	(0.4210)
Married	0.1690	0.1562	0.5015	0.4426	0.1513	0.1239	0.4930	0.4650
	(0.3749)	(0.3631)	(0.5001)	(0.4968)	(0.3583)	(0.3295)	(0.5000)	(0.4988)
More than HS	0.5733	0.6064	0.6461	0.6901	0.5483	0.5782	0.5867	0.6159
	(0.4947)	(0.4886)	(0.4783)	(0.4625)	(0.4977)	(0.4938)	(0.4924)	(0.4864)
Working	0.7101	0.6546	0.7745	0.7655	0.6090	0.5831	0.7425	0.7279
	(0.4538)	(0.4756)	(0.4180)	(0.4238)	(0.4880)	(0.4931)	(0.4372)	(0.4450)
Full-time employment	–	–	–	–	0.4690	0.4027	0.7078	0.6686
					(0.4990)	(0.4904)	(0.4548)	(0.4707)
Total work/week (min)	888.64	826.63	984.31	1051.45	1189.45	1115.12	1683.84	1662.99
	(1197.29)	(1173.03)	(1302.23)	(1314.94)	(1161.27)	(1142.48)	(1215.38)	(1231.69)
Total leisure/week (min)	4701.08	4742.95	4568.97	4503.51	–	–	–	–
	(1205.37)	(1212.55)	(1217.01)	(1186.10)				
n		4756		4793		102,767		63,429

4 Econometric Methods

Due to the nature of the policy, which allowed individuals up to 26 years old to stay on their parents' insurance plans, this study uses the difference-in-differences (DD) models to estimate the effect of the mandate on insurance status, labor market activities, and time spent away from work. This framework is consistent with recent work on the early effects of the policy mandate examining its effects on health care utilization (Jhamb, Dave, and Colman 2015) and insurance premiums (Depew and Bailey 2015).

Our analysis considers individuals between the ages 19 and 25 as treated individuals. These young adults are directly affected by the policy as it provided them with an option to remain on their parents' insurance plans. The control group consists of individuals between the ages of 27 and 30. Our identification provides the analysis with sample sizes of 9549 for the ATUS dataset and 166,196 individuals for the CPS dataset. The baseline equation can be written as:

$$Y_{ist} = \beta_0 + \beta_1 \text{Treat}_{ist} + \delta\, \text{Post}_t * \text{Treat}_{ist} + \beta_3 X_{ist} + \tau_t + \lambda_s + \varepsilon_{ist} \qquad (1)$$

where Y_{ist} represents the dependent variable of interest (e.g. insurance status, time spent at work, and weekly time spent away from work) for individual i living in state s in year t. Treat_{ist} is an indicator that equals one if the respondent belongs to the treatment group, while Post_t is an indicator for the post-policy period.[7] The main parameter of interest in the model is δ, which denotes the effects of the dependent coverage mandate on the time use of young adults in the treatment group. X_{ist} represent a set of control variables such as age, education, gender, race, and the number of children belonging to the respondent. τ_t and λ_s represent a set of year and state dummies, whereas ε_{ist} is the error term. The standard errors are clustered at the state level. Under the assumption that there would be no systematic differences in the trends of the dependent variables of interest between the treatment and the control in the absence of the policy change, δ represents the causal effect of the mandate.

A potential concern for our findings arises in the case of individuals forming the treatment and control groups being differently affected by unobserved factors other than the dependent coverage mandate. To account for this, all specifications include state-specific unemployment rates. Furthermore, we also include an interaction term between state unemployment rates and the treatment indicator to allow for differential effects of economic fluctuations among the two groups. We also estimate alternative specifications that include state-specific linear time trends. Additionally, we conduct several robustness tests to validate that our main findings are not spurious but are driven by the dependent coverage mandate. A comprehensive discussion is provided in Section 4.

To specifically test for early and late effects of the dependent coverage on insurance status and labor market outcomes, we extend equation (1) as below:

$$Y_{ist} = \beta_0 + \beta_1 \text{Treat}_{ist} + \sum_{t=2009}^{2013} \delta_t \tau_t * \text{Treat}_{ist} + \beta_3 X_{ist} + \tau_t + \lambda_s + v_{ist}, \tag{2}$$

where the year indicators (τ_t) are interacted with the treatment group. The excluded category is year 2008. Besides identifying early and late effects of the mandate, equation (2) also allows us to test for the presence of similar trends in the dependent variables prior to the reform, which is the assumption governing a DD framework. A statistically significant estimate of δ_t pertaining to the years prior to the reform would provide a suggestive evidence of differential trends between the treatment and control groups (conditional on covariates). We conduct a joint F-test among the coefficients prior to the reform (δ_{2009} and δ_{2010}) to test for the prevalence of different trends prior to the reform. These findings are discussed in the next section.

5 Results

5.1 CPS Estimates

Table 3 presents the finding from the CPS data, which estimate the effects of the dependent coverage mandate on health insurance coverage and labor market activity of young adults. Panel A provides the baseline DD results, while Panel B investigates the effects of the policy in more detail by distinguishing between early and late effects. The baseline estimates shown in column (1), estimated by using a linear probability model, suggest that individuals between the ages 19 and 25 are 3.65 percentage points more likely to have any form of health insurance following the introduction of the mandate. This estimate is statistically significant at the 1 percent level. Columns (2) and (3) show that young adults are 1.48 and 0.87 percentage points less likely to be covered by ESI and individually purchased coverage, respectively, with both estimates being statistically significant at the 1 percent level. Column (4) shows that the policy change did not affect the likelihood of being covered by public health insurance. Finally, the reform led to a 5.30 percentage point increase in the share of young adults who are covered by their dependents' health insurance following the reform (column 5).

Table 3: OLS Estimates for the Effects of the Policy on Insurance and Labor Market Outcomes (CPS).

				Health Insurance		Employment	
	Any insurance	**Employer insurance**	**Individually purchased insurance**	**Public insurance**	**Dependent coverage**	**Full-time**	**Work time/week (min)**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
Panel A: main results							
Treat*after	0.0365***	–0.0148***	–0.0087***	–0.0053	0.0429***	–0.0219***	–48.22***
	(0.0047)	(0.0050)	(0.0025)	(0.0033)	(0.0037)	(0.0037)	(11.11)
Policy effect	5.20%	5.40%	23.51%	3.23%	21.06%	6.78%	2.39%
n	166,196	166,196	166,196	166,196	166,196	166,196	166,196
Panel B: early vs. late effects							
Treat*2009	0.0129*	0.0047	0.0080**	–0.0024	0.0019	0.0129	23.86
	(0.0068)	(0.0068)	(0.0034)	(0.0060)	(0.0067)	(0.0114)	(30.09)
Treat*2010	0.0158**	0.0228***	0.0014	–0.0079	0.0029	–0.0093	14.24
	(0.0067)	(0.0077)	(0.0034)	(0.0051)	(0.0057)	(0.0101)	(31.13)
Treat*2011	0.0337***	0.0085	0.0002	–0.0079	0.0414***	–0.0140	–19.70
	(0.0062)	(0.0084)	(0.0038)	(0.0059)	(0.0056)	(0.0097)	(30.92)
Treat*2012	0.0450***	–0.0083	–0.0090**	–0.0149**	0.0617***	–0.0194**	–25.90
	(0.0061)	(0.0064)	(0.0042)	(0.0061)	(0.0074)	(0.0085)	(24.63)
Treat*2013	0.0603***	–0.0170**	–0.0082	–0.0037	0.0614***	–0.0317***	–54.34**
	(0.0086)	(0.0079)	(0.0051)	(0.0063)	(0.0068)	(0.0091)	(23.29)
n	166,196	166,196	166,196	166,196	166,196	135,353	135,353

The results show the difference-in-differences estimates of the federal dependent coverage mandate on insurance outcomes estimated by using CPS data. All models control for gender, age, race, years of education, marital status, state and year fixed effects, annual average state unemployment rates as well as an interaction term between state unemployment rates and the treatment indicator. Robust standard errors, clustered at the state-level are presented in parenthesis. $^{*}p < 0.10$, $^{**}p < 0.05$, and $^{***}p < 0.01$.

The findings presented in Panel A of Table 3 provide evidence that a portion of affected individuals switched from either ESI or privately purchased coverage to their dependents' plan, while others switched from being uninured to their dependents' coverage. These findings are consistent with previous work on the federal dependent coverage mandate (Antwi, Moriya, and Simon 2013). Figure 1 shows that individuals from both groups have similar pre-treatment trends for ESI, whereas a decline in ESI coverage is observable for 19 to 25 year olds after the policy introduction. Given this observed reduction in ESI, it appears likely that the federal dependent mandate also affected labor market outcomes of young adults as they are no longer reliant on ESI in order to obtain health insurance.
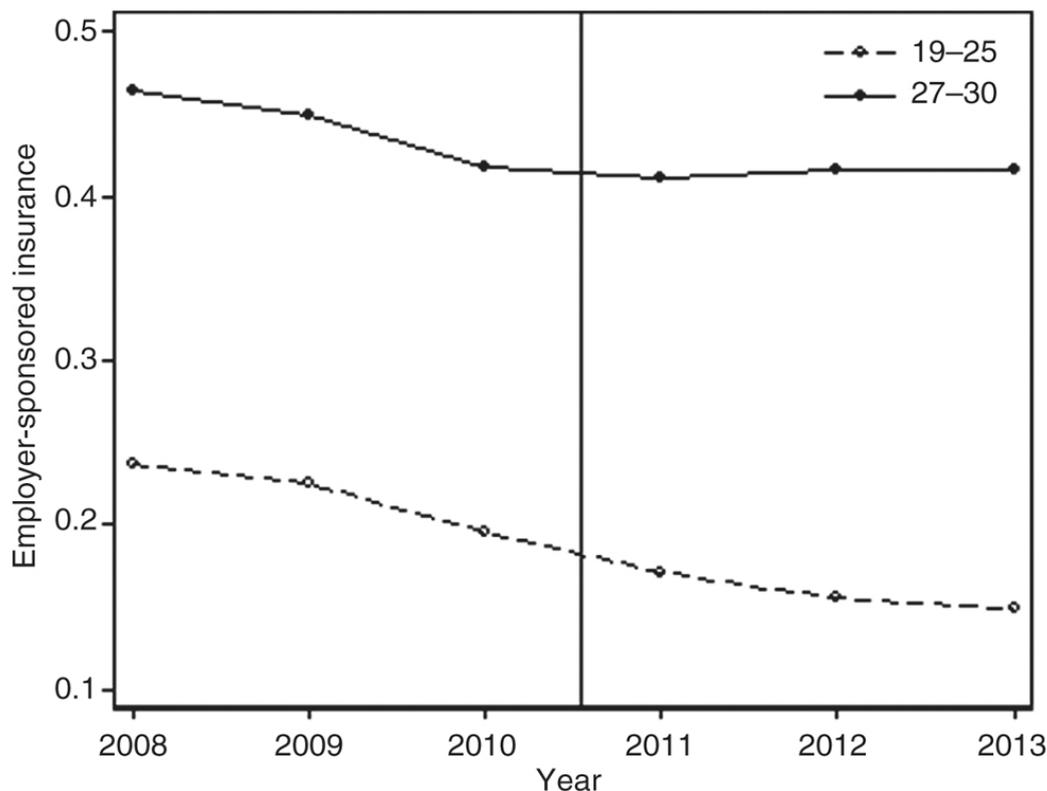

Figure 1: Changes in Employer-Sponsored Insurance Coverage.
This picture depicts the share of individuals from both treatment and control group who are covered by employer-sponsored health insurance.

Next, we use CPS data to examine the effects of the policy change on labor market outcomes. Among young adults who are employed (full- or part-time), we find a switch from full- to part-time employment of 2.19 percentage points after the reform (column 6). Consistent with this, column (7) shows that the dependent coverage mandate reduced weekly work time by 48.22 minutes for 19–25 year olds. Both findings are statistically significant at the 1 percent level and present evidence that the labor market activity of young adults was responsive to the incentives provided by the mandate.[8] Jointly, the results shown in columns (2), (5) and (6) suggests that individuals who worked on a full-time basis prior to the reform solely to obtain insurance coverage could now reduce their work time while still being covered by their dependents' plan. In a later robustness test, we examine this finding in more detail by testing whether the mandate increased voluntary part-time employment of young adults. The results remain consistent once we control for state-specific linear time trends. These results are not shown but are available upon request.

We distinguish between early and late effects of the mandate by estimating the coefficients on the interaction term between the treatment group and year dummies shown in equation (2). The results are presented in Table 3, Panel B. The estimates suggest that the effects of the mandate on the likelihood of treated individuals having health insurance coverage become stronger with each passing year following the reform year. For instance, column 1 in Panel B indicates that the mandate increased the prevalence of health insurance coverage by 4.5 and 6.03 percentage points in 2012 and 2013, respectively. These coefficients are statistically significant at the 1 percent level. Similar results are observed when focusing at the prevalence of dependent coverage (column 5).

It is important to note that the causal effect of the mandate depends on an assumption that the trend in dependent variable between the treatment and control group would have remained similar in absence of the mandate. The coefficients on the interaction terms for the likelihood of having dependent coverage prior to the reform (years 2009 and 2010) are statistically insignificant and close to zero (column 5). The joint test of the coefficients prior to the mandate yields an F-statistic of 0.10 providing suggestive evidence that there were no differential trends in place between the two groups prior to the mandate.

When estimating the effect of the mandate on market work, we find that the reductions in labor market activities following the policy change are also more pronounced in the later years of the study. Column (6) shows that the coefficients on the interaction term are close to zero and statistically insignificant at the conventional levels prior to the reform (2010). However, the results show that a switch from full- to part-time employment is visible in years 2012 and 2013. For additional clarity, the coefficients of columns 5 and 6 are both plotted in Figure 2, along with the 95 confidence interval bounds. The picture shows that the mandate increased the prevalence of dependent coverage, which coincides with a reduction of full-time work in the latter years (2012 and 2013).
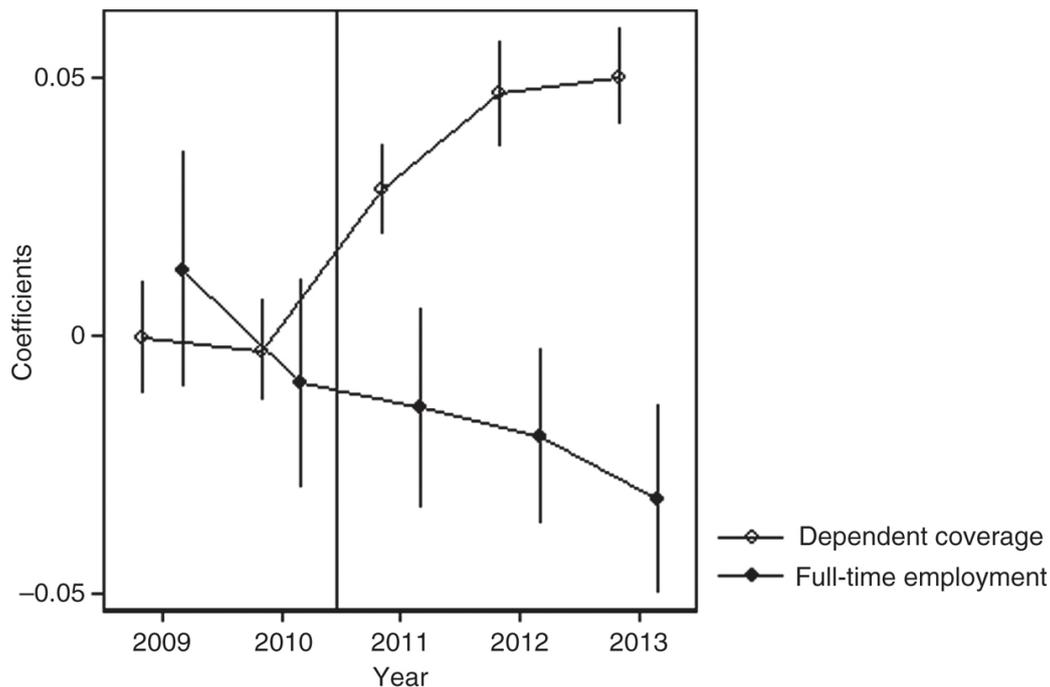

Figure 2: Early vs. late effects on dependent coverage and full-time employment.
This picture depicts the coefficients of the interaction terms between the treatment indicator and the year dummies for dependent coverage and full-time employment. 2008 is the reference year. (Note 1: Vertical lines represent the 95% CI).

Since time use is not a main focus of the CPS, we turn to data from the ATUS in the next section, which allows us to estimate the effects of the policy on several more categories of time allocation.

5.2 ATUS Estimates

Table 4 presents the effects of the policy change on several categories of time use, obtained by using the ATUS data set. The first column of Panel A shows that young adults who are affected by the mandate reduced their weekly time spent on market work by 131.34 minutes compared to individuals between the ages 27 and 30. This finding is statistically significant at the 5 percent level and corresponds to a 14.01 percent change from the average work time of the sample in the pre-treatment period. The effect remains almost unchanged when additionally controlling for state-specific time trends (column 2). Similar to the CPS estimates, this result suggests that young adults significantly alter their labor market behavior following the policy change. However, the magnitude of the estimates from the two data sets differ substantially (131.34 vs. 48.22). We suspect that the reason for the disparity in the magnitudes is the fact that time allocation in the ATUS survey is substantially more detailed than in the CPS data.[9] In order to account for potentially different trends between the two groups during these years, we re-estimate alternative DD models based on Mora and Reggio (2012). The authors introduce a DD estimator that identifies policy effects using a fully-flexible dynamic specification as well

as a number of "parallel growth" assumptions to test for the robustness of the DD results. The results remain consistent with our main findings.[10]

Table 4: OLS Estimates for the Effects of the Policy on Time Use (ATUS).

	Total work time/week		Leisure time/week		Health time/week		Education Time/week	
			Total	TV				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: main results								
Treat*after	−131.34**	−127.39**	117.56**	78.83***	−25.11	−25.17	0.31	1.48
	(50.56)	(50.21)	(53.03)	(28.43)	(18.74)	(18.97)	(22.67)	(22.95)
Policy effect	14.78%	14.34%	2.50%	11.14%	10.75%	10.78%	0.00%	0.01%
Year effects	x	x	x	x	x	x	x	x
State/time trends		x				x		x
n	9549	9549	9549	9549	9549	9549	9549	9549
Panel B: early vs. late effects								
Treat*2009	−143.86*	−136.76*	57.34	41.42	−32.61	−30.94	26.84	34.52
	(80.58)	(80.90)	(71.13)	(70.73)	(33.67)	(33.71)	(39.63)	(41.70)
Treat*2010	−148.96	−145.67	1.05	−12.05	−49.42	−48.91	19.69	32.85
	(97.59)	(98.23)	(74.81)	(75.35)	(30.99)	(31.57)	(34.59)	(34.96)
Treat*2011	−200.70*	−193.71*	124.48	110.52	−84.18**	−82.68**	−2.70	1.95
	(101.52)	(100.63)	(93.07)	(93.15)	(32.87)	(33.58)	(39.99)	(40.39)
Treat*2012	−181.08**	−172.47**	147.48*	126.64	−28.56	−26.47	14.49	29.29
	(89.36)	(87.51)	(79.75)	(79.29)	(30.90)	(31.18)	(40.32)	(40.32)
Treat*2013	−318.86***	−312.83***	140.68*	133.86*	−43.71	−45.64	20.17	26.37
	(91.42)	(92.18)	(81.56)	(80.19)	(33.65)	(34.73)	(34.73)	(33.81)
n	9549	9549	9549	9549	9549	9549	9549	9549

The results show the difference-in-differences estimates of the federal dependent coverage mandate on time use estimated by using ATUS data. All models control for gender, age, race, years of education, marital status, state and year fixed effects, annual average state unemployment rates as well as an interaction term between state unemployment rates and the treatment indicator. Robust standard errors, clustered at the state-level are presented in parenthesis.
$^{*}p < 0.10$, $^{**}p < 0.05$, and $^{***}p < 0.01$.

The remaining columns present the results obtained when examining how young adults reallocate their newly available free time as a result of reduced labor force activity. Column (3) shows that individuals between the ages 19 and 25 spend 117.56 additional minutes per week on leisure activities following the policy change (p-value = 0.031), which corresponds to 89.51 percent of foregone market work time. Specifically, we find that 67.06 percent (78.83 minutes)` of this increase in leisure time is spent on watching TV (column 4), which suggests that overall productivity levels of young adults decrease as time is reallocated from work to watching TV. Finally, we examine whether young adults increase the time they spend on activities related to their human capital. We find a small and statistically insignificant reduction in total time allocated towards health (columns 5 and 6) and show that the policy change had no effect on time spent on educational purposes (columns 7 and 8).

In Panel B, we again distinguish between early and late effects of the policy change. The results show that the negative effects of the dependent coverage mandate on time spent at work increases significantly between 2012 and 2013, suggesting that the treatment effects become larger following some time of the policy implementation. This finding is consistent with the CPS results shown in Table 3. Similarly, the positive effects of the reform on leisure time are largest in 2012 and 2013, which furthermore confirms that young adults reallocate foregone work time with additional time spent on leisure activities.[11]

Table 4 shows that young adults substitute work time with more time spent watching television and engaging in other leisure activities following the introduction of the dependent coverage mandate, while not altering the time they allocate towards increasing their human capital. These findings suggest that there are negative economic ramifications to expanding dependent coverage, which could potentially have major policy implications.

5.3 CPS (March Supplement) and ATUS Merged

To further investigate the mechanisms through which the dependent coverage mandate affects time allocation of young adults, we merge CPS (March supplement) and ATUS data by following the instructions developed by the Bureau of Labor Statistics. We note that the results from this merged data should be interpreted as descriptive for two reasons: (1) A considerable time difference may exist between ATUS and CPS interviews, which could lead to measurement error; and (2) Given that the ATUS is a sub-sample of the CPS, we are only able to match 60 percent of individuals from the ATUS, resulting in a considerably smaller sample.

We divide the merged sample between full and part-time workers in order to examine the effects of the policy change on time use of young adults in more detail. The findings, which are presented in Appendix Table 8, show that both full and part-time workers reduced their work time and increased the time they spend on leisure activities after the policy change. For part-time workers, 69 percent of the increase in leisure time is absorbed by increases in watching television. However, given the small sample size of part-time workers ($n = 998$), the standard errors are large and the estimates are not statistically significant at the conventional levels (p-value = 0.249 for both leisure and work, p-Value = 0.170 for TV estimate). Nonetheless, the findings from the merged data are consistent with the main results. Next, we conduct a series of robustness checks to test the credibility of our main findings.

6 Robustness Checks

In this section, we provide additional robustness checks for the previously shown effects of the policy change on time spent on work and on other activities. First, we take advantage of the fact that 18 states implemented state-level dependent coverage mandates prior to 2008, while 17 states had no state-level coverage throughout the entire period of this study.[12] Specifically, we split the sample into these two groups of states and examine the effects on work and leisure time using data from the ATUS. Based on the assumption that our main results are driven by the federal mandate, we expect to find that the impacts are stronger for the states that did not implement any state-level mandates. Consistent with this, Table 5 shows that the federal reform had substantially larger effects on individuals living in states with no state-level mandates, whereas the impacts are small and statistically insignificant in the state that had state-level mandates implemented prior to the federal policy change.[13]

Table 5: OLS Estimates for the Effects of the Policy in States with and without State-Level Mandates.

	States without prior Mandate		States with prior Mandate	
	(1)	**(2)**	**(3)**	**(4)**
Total work/week	−187.18**	−215.25**	−124.81	−117.90
	(75.45)	(76.87)	(99.39)	(94.18)
Policy effect	21.58%	24.81%	12.24%	11.56%
Total leisure/week	82.29	110.64	14.15	24.12
	(104.09)	(110.41)	(98.44)	(112.94)
Policy effect	1.75%	2.35%	0.00%	0.01%
Total TV/week	103.55*	128.06*	−6.61	3.05
	(56.05)	(73.72)	(84.97)	(87.89)
Policy effect	14.66%	18.13%	0.01%	0.00%
Year effects	x	x	x	x
Additional controls		x		x
n	1979	1979	2728	2728

The results show the difference-in-differences estimates of the federal dependent coverage mandate on time use estimated by using ATUS data. All models include state and year fixed effects. The additional controls include gender, age, race, years of education, marital status, annual average state unemployment rates as well as an interaction term between state unemployment rates and the treatment indicator. Robust standard errors, clustered at the state-level are presented in parenthesis. *p < 0.10, **p < 0.05, and ***p < 0.0.

Second, we follow the approach used by Slusky (2013), Antwi, Moriya, and Simon (2013), and Barbaresco, Courtemanche, and Qi (2015) and conduct placebo tests to ascertain that our main results are not spurious. We estimate models for four different time frames 2003–2008, 2003–2009, 2004–2008, and 2005–2009. Table 6 shows the results from the placebo tests for the ATUS sample for several employment and leisure outcomes. We find that none of the artificial treatment effects is statistically significant, providing additional evidence that the main findings of the paper are not spuriously driven by other changes that differentially affected individuals in

treatment and control group.[14] Column (5) presents estimates for a falsification test that compares the effects of the policy for 27–29 year olds (pseudo-treatment group) and 31–33 year olds (control), two groups of individuals that were equally unaffected by the introduction of the dependent coverage mandate. Consistent with this, we find no differential effects of the reform between the two groups. Following Slusky (2013) we also conduct a robustness check by limiting treatment group to 25 year olds and control group to 27 year olds. The results are presented in column (6). The results are similar to our main findings presented in Table 4, suggesting that young adults experienced a reduction in market work hours and an increase in leisure time, especially watching television. The standard errors are larger when estimating the model by using just 25 and 27 year olds due to a reduction in sample size from 9549 (main sample) to 2269, leading to statistically insignificant estimates for all categories of time use. In summary, Table 6 provides suggestive evidence that our main findings are not driven by differential age dynamics in the labor market.[15]

Table 6: Placebo and Robustness Checks.

				Placebo tests	Falsification test	Robustness check
	2003–2008	2003–2009	2004–2008	2005–2009	27–29 vs. 31–33	25 vs. 27
	Treatment 10/2005	Treatment 10/2005	Treatment 10/2005	Treatment 10/2006		
	(1)	(2)	(3)	(4)	(5)	(6)
Employment						
Work/week	−34.13	−47.14	47.49	62.28	38.57	−113.68
	(34.35)	(39.42)	(43.30)	(45.17)	(54.47)	(138.44)
Working	0.0228	0.0061	0.0065	−0.0039	−0.0144	−0.0914***
	(0.0139)	(0.0173)	(0.0189)	(0.0193)	(0.0243)	(0.0298)
Leisure						
Leisure/week	−8.04	−48.67	−32.93	−9.21	−35.22	86.54
	(35.07)	(37.47)	(38.64)	(52.71)	(50.91)	(127.05)
TV/week	−20.38	−30.27	−42.53	−0.34	6.82	71.67
	(21.51)	(23.48)	(27.29)	(33.44)	(29.80)	(82.29)
Sleep/week	−0.65	−25.24	−10.89	12.59	5.71	−23.86
	(20.39)	(23.14)	(23.52)	(28.89)	(32.36)	(71.69)
n	19,036	11,111	8395	8290	8867	2269

The placebo and robustness checks are conducted by using a difference-in-differences framework and uses data from ATUS. All models control for gender, age, race, years of education, marital status, state and year fixed effects, annual average state unemployment rates as well as an interaction term between state unemployment rates and the treatment indicator. For comparison, the baseline difference-in-differences estimates of the study were: work time: −131.34 ($p = 0.012$); working: −0.0311 ($p = 0.109$); leisure time: 117.56 ($p = 0.031$); TV time: 78.83 ($p = 0.008$); sleep time: 24.31 ($p = 0.413$). Robust standard errors, clustered at the state-level are presented in parenthesis. *$p < 0.10$, **$p < 0.05$, and ***$p < 0.0$.

So far in this study, we consider the months following September 2010 as the post-treatment period. The federal dependent coverage was enacted in March 2010 and implemented on September 23rd, 2010. Hence, our main results do not account for the possibility that individuals might change their behavior in the months prior to the implementation of the mandate following the enactment. We perform two specification checks to test for the credibility of our main findings. First, we exclude 2010 from our analysis. The estimates from this exercise, presented in Appendix Table 10, are similar to the main findings presented in Table 4. Second, we follow Antwi, Moriya, and Simon (2013) and test for the effects of the mandate in both the enactment and implementation period.[16] The results from this additional specification are presented in Appendix Table 11. The first two columns show that young adults reduced their work time after the enactment of the mandate, but these estimates are statistically insignificant at the conventional levels. The effect of the mandate on work time after the implementation period is negative and statistically significant at the 1 percent level. Columns (3) and (4) indicates that young adults experienced increases in leisure time (which was primarily attributed to watching television) following the implementation of the mandate, while the effects pertaining to enactment period are small in magnitude and statistically insignificant at the conventional levels. In summary, Appendix Table 10 and Table 11 provide suggestive evidence that the main estimates of this study are not affected by changes in people's behavior in anticipation of the dependent coverage mandate.

To further test that the observed findings are driven by the dependent coverage mandate rather than by other factors, we use data from the CPS to provide evidence that young adults reduced their labor market activity voluntarily following a loosening of the tie between their jobs and health insurance coverage. Individuals who work part-time are asked to choose among several reasons for not working full-time in the CPS. If the

main findings were to be driven by other factors such as economic fluctuations that potentially may affect the treatment group different from the control group, one should expect to see instances of involuntary reduction of labor market activities. The results are shown in Table 7. The first two columns examine part-time workers' response to why they are currently working on a part-time basis. The results suggest that the mandate led to a 1.82 percentage point reduction in the share of young adults who work part-time due their personal preference and a 1.24 percentage point reduction in the share of those who work part-time because they could not find a full-time position. Columns (3) and (4) furthermore show statistically significant negative effects of the policy change on the share of unemployed individuals who could not find a job and on time spent searching for employment. This suggests that young adults who were affected by the mandate in fact spent less time finding jobs following the ACA. We interpret the results in Table 7 as suggestive evidence that the changes in incentives due to the dependent coverage mandate impacted young adults' preferences regarding their labor market activity.

Table 7: OLS Estimates for the Effects of the Policy on Work Attitudes.

	Reason for working part-time		Reason for not working	Weeks spent searching for work while unemployed
	Wanted to work PT	Could not find FT job	Could not find job	
	(1)	(2)	(3)	(4)
Treat*after	0.0182	−0.0124	−0.0132**	−0.7176***
	(0.0122)	(0.0076)	(0.0061)	(0.2589)
n	43,051	43,051	47,512	47,512

The results show the difference-in-differences estimates of the mandate on work attitude. The data comes from CPS. All models control for gender, age, race, years of education, marital status, state and year fixed effects, annual average state unemployment rates as well as an interaction term between state unemployment rates and the treatment indicator. Robust standard errors, clustered at the state-level are presented in parenthesis. $*p < 0.10$, $**p < 0.05$, and $***p < 0.01$.

To further access the long term effects of the mandate, we include the years 2014 and 2015 in our analysis in additional robustness checks. We consider the period 2008–2013 as the main time frame of the study because other major elements of the ACA, including Medicaid expansion, subsidized health insurance exchanges, and penalties associated with not having health insurance were implemented after 2013. These other policy changes could potentially confound the effects of the federal dependent coverage mandate if they affect treatment and control group differently. Appendix Table 12 replicates Table 4 with the inclusion of additional years to the sample. The findings suggest that young adults reduced their work time and increased their leisure hours (which is majorly attributed to watching television) in response to the dependent coverage mandate. The effects are persistent until 2014 and are reduced in 2015.[17] As previously mentioned, due to the initiation of the other major components of the ACA (including Medicaid expansion) after 2013, we note that the results presented in Appendix Table 12 should be interpreted with caution.[18]

7 Discussion

We evaluate the effect of the federal dependent coverage mandate, which went to effect in September 2010, on young adults' insurance status, time spent in labor market activities and time spent away from work. Using data from the CPS, we show that the mandate provided an incentive for young adults to substitute from ESI to dependent coverage. This provides a potential pathway through which the policy change can alter labor market flexibility among this group of the population.

Using two complementary data sets (CPS and ATUS), we demonstrate that the mandate increased labor market flexibility among young adults. Individuals who are affected by the reform reduce their time spent in market work and are more likely to switch from full- to part-time employment. These results are consistent with earlier findings looking at both the federal mandate (Antwi, Moriya, and Simon 2013) and state-level variations in dependent coverage (Depew 2015; Hahn and Yang 2016). Additional tests suggest that these changes are voluntary and are not driven by other changes at the time. We furthermore show that the effects of the mandate are more pronounced in the later years (2012 and 2013). While exploring how young adults reallocate forgone labor market time, we find that the majority of time is spent on leisure, especially on watching television. However, we do not find any evidence of increases in time spent on activities enhancing human capital such as education and health.

These findings help understand the full impacts of the federal dependent coverage mandate. On the one hand, an insurance mandate such as the ACA dependent coverage mandate can successfully increase the number of insured young adults. On the other hand, the mandate can have at least two unintended consequences: (1) A reduction in labor market activities due to a reduced reliance on ESI; and (2) A reallocation of forgone work time towards watching television. The findings that decreases in work time are not reallocated into activities that increase productivity (education or health) can have important policy implications.

It is important to note that our findings are strictly positive and not normative. However, to some extent, the results from this study can be used to conduct a welfare analysis of the federal dependent coverage mandate – a topic that remains outside the scope of this study but should be investigated in future work.

Acknowledgment

Appendix

Table 8: OLS Estimates from Merged CPS March Supplement (ASEC)-ATUS Data.

	Merged ATUS/ASEC Data	
	Full-time workers **(1)**	**Part-time workers** **(2)**
Employment		
Work/week	−229.85***	−155.90
	(86.23)	(133.70)
Leisure		
Leisure/week	126.29	200.18
	(98.46)	(170.92)
TV/week	−1.92	138.30
	(57.90)	(99.39)
Sleep/week	123.58**	53.04
	(58.93)	(85.42)
Insurance		
Dependent coverage	0.0450**	0.0031
	(0.0214)	(0.0633)

The results shown are estimated by using difference-in-differences framework. All models control for gender, age, race, years of education, marital status, state and year fixed effects, annual average state unemployment rates as well as an interaction term between state unemployment rates and the treatment indicator. Robust standard errors, clustered at the state-level are presented in parenthesis. $*p < 0.10$, $**p < 0.05$, and $***p < 0.01$.

Table 9: OLS Estimates for the Effects of the Policy on Time Use (with additional State Controls).

	(1)	(2)	(3)	(4)	(5)
Work time/week	−131.45**	−131.71**	−131.44**	−131.61**	−131.99**
	(50.63)	(50.66)	(50.59)	(50.64)	(50.61)
Leisure time/week	117.65**	118.28**	117.90**	117.47**	118.00**
	(52.89)	(52.72)	(52.73)	(52.77)	(52.30)
Mandate	x	x	x	x	x
Student status & age		x			x
In-state & out of state full time students				x	x
Premiums rules				x	x
n	9549	9549	9549	9549	9549

The results show the difference-in-differences estimates of the federal dependent coverage mandate on time use estimated by using ATUS data. All models control for gender, age, race, years of education, marital status, state and year fixed effects, annual average state unemployment rates as well as an interaction term between state unemployment rates and the treatment indicator. Mandate is an indicator variable representing whether a state implemented a state level dependent coverage mandate before the federal mandate, Student status and age represents upper age limits (of coverage) pertaining to students, In-State and out of state full time students represents an eligibility criteria which indicates that an individual should either be resident of the state or be enrolled as a full-time student if out of state, and Premium Rules represents whether the premiums are charged separately to parents or are included in family premiums. Models also include interaction between the Mandate and the respective eligibility criteria. Robust standard errors, clustered at the state-level are presented in parenthesis. $*p < 0.10$, $**p < 0.05$, and $***p < 0.01$.

Table 10: OLS Estimates for the Effects of the Policy on Time Use (Excluding 2010).

	Total work time/week		Leisure time/week		Health time/week		Education time/week	
			Total	TV				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: main results								
Treat*after	−161.34***	−157.48***	109.30**	71.14**	−37.14*	−37.30*	5.29	6.81
	(52.50)	(51.74)	(51.92)	(32.54)	(21.71)	(22.17)	(23.55)	(23.32)
Year effects	x	x	x	x	x	x	x	x
State time trends		x				x		x
n	7836	7836	7836	7836	7836	7836	7836	7836
Panel B: early vs. late effects								
Treat*2009	−81.52	−77.31	50.95	−48.88	−34.13	−32.63	21.13	23.90
	(92.53)	(93.21)	(70.00)	(37.08)	(33.56)	(33.58)	(45.30)	(45.45)
Treat*2011	−151.56	−149.32	121.83	54.05	−86.38**	−85.01**	−1.96	0.58
	(111.45)	(111.84)	(92.22)	(45.47)	(32.55)	(33.25)	(49.33)	(50.69)
Treat*2012	−144.67	−139.36	145.62*	42.59	−29.00	−27.15	18.40	22.50
	(97.00)	(96.97)	(80.52)	(56.33)	(31.13)	(31.38)	(46.01)	(46.41)
Treat*2013	−294.00***	−288.56***	139.61*	40.98	−46.09	−47.81	28.17	30.36
	(93.75)	(92.18)	(80.62)	(41.90)	(33.50)	(34.75)	(39.31)	(40.16)
n	7836	7836	7836	7836	7836	7836	7836	7836

The results show the difference-in-differences estimates of the federal dependent coverage mandate on time use estimated by using ATUS data. All models control for gender, age, race, years of education, marital status, state and year fixed effects, annual average state unemployment rates as well as an interaction term between state unemployment rates and the treatment indicator. Robust standard errors, clustered at the state-level are presented in parenthesis. $*p < 0.10$, $**p < 0.05$, and $***p < 0.01$.

Table 11: OLS Estimates for the Effects of the Policy on Time Use (Accounting for the Enactment Phase).

	Total work time/week		Leisure		Health		Education	
			Total	TV				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Enact-ment*treat	−135.73	−133.80	15.74	−3.08	7.81	7.36	4.66	5.59
	(98.50)	(98.65)	(74.06)	(53.80)	(30.77)	(31.16)	(28.62)	(28.59)
Imple-menta-tion*treat	−145.96***	−142.08***	109.39**	76.78**	−24.87	−24.91	−0.39	0.98
	(50.69)	(49.96)	(52.16)	(33.19)	(19.08)	(19.39)	(22.81)	(23.01)
Year Effects	x	x	x	x	x	x	x	x
State time trends		x	x			x		x
n	9549	9549	9549	9549	9549	9549	9549	9549

The results show the difference-in-differences estimates of the federal dependent coverage mandate on time use estimated by using ATUS data. All models control for gender, age, race, years of education, marital status, state and year fixed effects, annual average state unemployment rates as well as an interaction term between state unemployment rates and the treatment indicator. Robust standard errors, clustered at the state-level are presented in parenthesis. *$p < 0.10$, **$p < 0.05$, and ***$p < 0.01$.

Table 12: OLS Estimates for the Effects of the Policy on Time Use (longer sample periods).

	Total work time/week		Total leisure time/week		Health time/week		Education time/week	
	2008–2014	**2008–2015**	**2008–2014**	**2008–2015**	**2008–2014**	**2008–2015**	**2008–2014**	**2009–2015**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Panel A: main results								
Treat*after	−114.38**	−90.15*	127.52**	110.13**	−24.73	−25.17	4.98	1.48
	(50.56)	(45.85)	(51.61)	(50.08)	(14.83)	(18.97)	(20.42)	(22.95)
Year effects	x	x	x	x	x	x	x	x
n	10,944	12,219	10,944	12,219	10,944	12,219	10,944	12,219
Panel B: early vs. late effects								
Treat*2009	−103.90	−119.41	52.39	53.74	−30.91	−32.81	27.76	26.06
	(92.52)	(92.21)	(70.38)	(70.47)	(33.61)	(33.78)	(39.61)	(39.68)
Treat*2010	−103.54	−119.33	−1.17	0.22	−48.80	−42.37	20.03	17.01
	(104.99)	(106.09)	(74.85)	(75.99)	(30.62)	(31.73)	(34.50)	(34.37)
Treat*2011	−163.06	−179.20*	120.62	125.08	−84.84**	−91.96***	−2.31	−3.30
	(107.37)	(106.98)	(92.32)	(92.47)	(32.45)	(32.94)	(39.73)	(39.40)
Treat*2012	−153.12	−162.02	145.45*	147.40*	−27.40	−27.59	16.20	14.14
	(98.17)	(97.06)	(79.27)	(79.50)	(30.94)	(32.12)	(40.43)	(40.59)
Treat*2013	−299.82***	−311.25***	139.63*	143.80*	−43.54	−44.33	20.64	18.70
	(94.07)	(93.53)	(81.07)	(80.26)	(33.63)	(33.47)	(34.82)	(34.47)
Treat*2014	−153.26*	−152.42*	176.99**	177.18**	−64.76**	−63.66*	36.22	34.60
	(83.36)	(83.16)	(66.99)	(67.31)	(32.10)	(33.53)	(40.17)	(40.69)
Treat*2015		−70.70		39.90		−66.28**		40.17
		(89.13)		(89.20)		(28.74)		(39.96)
n	10,944	12,219	10,944	12,219	10,944	12,219	10,944	12,219

The results show the difference-in-differences estimates of the federal dependent coverage mandate on time use estimated by using ATUS data. All models control for gender, age, race, years of education, marital status, state and year fixed effects, annual average state unemployment rates as well as an interaction term between state unemployment rates and the treatment indicator. Robust standard errors, clustered at the state-level are presented in parenthesis. *$p < 0.10$, **$p < 0.05$, and ***$p < 0.01$. The models with state-specific linear time trends generate similar results and are available upon request.

Notes

[1]This is due to two main reasons: (1) An employee's payments for employer-provided insurance are not treated as taxable income; hence, the portion of wages contributed by employees for insurance purposes is not taxed; and (2) A large enough work-pool provides an employee a medium to purchase insurance without having to pay adverse selection premiums, as the unobserved component of health status is likely to average to zero (Gruber 1998).

[2]In March 2014, 86 percent of full-time private industry workers received employer-provided medical care; whereas, only 23 percent of part-time workers had medical-care benefits from their employers. Source: http://www.bls.gov/news.release/pdf/ebs2.pdf.

[3]Additionally, we run our models including sample weights and find that the results remain similar. These results are not shown in the paper, but are available upon request.

[4]This inability to infer the eligibility for the ACA dependent coverage for 26-year olds stems from the fact that the ATUS does not provide information for the date of birth of respondents.

[5]Please see Hamermesh, Frazis, and Stewart (2005) for more information on the types of activities that are recorded in the ATUS.

[6]In a robustness check, we furthermore test whether there exist differential effects between time use on weekdays and on the weekend.

[7]The post policy represents period after September of 2010. We also conduct an additional robustness test that excludes the year 2010 and find that the results remain constant.

[8]When examining the effects on the extensive margin of employment using the CPS data, we also find a statistically significant reduction in employment following the policy change. These results are not shown, but are available upon request.

[9]When examining the coefficients on the control variables, substantial differences are noticeable across subgroups of the population: women, Blacks, and lower-level educated individuals are significantly less likely to work.

[10]These estimates are not shown in the paper but are available upon request.

[11]Furthermore, we investigate whether the effects of the policy are different for time use on weekdays and on weekends and find that the overall effects of this study are driven by changes in time allocation on weekdays. This seems reasonable since the majority of time spent at work is during the week. The results are not shown but are available upon request.

[12]The following states had state-level mandates throughout the period: Colorado, Idaho, Illinois, Iowa, Kentucky, Maine, Maryland, Massachusetts, Minnesota, Montana, New Hampshire, New Mexico, Rhode Island, Texas, Utah, Virginia, Washington and West Virginia. The following states had no state-level mandates in place: Alabama, Alaska, Arkansas, Arizona, Connecticut, Delaware, DC, Georgia, Hawaii, Kansas, Michigan, Mississippi, North Carolina, North Dakota, Nebraska, Oklahoma and Vermont.

[13]We also estimate models that control for state level mandate, including various across-state variations in the eligibility criteria such as age, student status (full- versus part-time), residency of state, and premium type. The results from these alternative specifications, presented in Appendix Table 9, are virtually similar to the main findings of Table 4.

[14]We conducted four additional placebo test for the following time periods: 2004–2007, 2005–2008, 2006–2009 and 2007–2009. The results remain consistent showing no statistically significant effects on time allocation. These estimates are not shown in Table 6 due to space constraints.

[15]We additionally replicate our analysis by using 23 to 25 year olds as the treatment group and 27 to 29 as the control group. The main findings of our study remain unchanged.

[16]See Antwi, Moriya, and Simon (2013).

[17]While separating the analysis between states that expanded Medicaid and the states that did not expand Medicaid, we find that our results are mainly driven by states that did not expand Medicaid. The results are not shown but are available upon request.

[18]Finally, we adapt the categorization of ATUS time use categories from work by Colman and Dave (2016) and examine the long-run effects of the dependent coverage mandate. We find that young adults increase their time spent on socializing and relaxing, which is consistent with the findings presented by Colman and Dave (2016). Similar to our findings of watching television (Table 4), these effects are concentrated during the last two years of our sample period (results are not shown but are available upon request).

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