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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. 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

JEL Classifications: I13, J22, I12

I. 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 (Depew, 2015; Barbaresco et al. 2015; Jhamb et al. 2015; Antwi et al. 2013). 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 to 25 are considered as treated individuals and the control group is comprised of people who are 27 to 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. 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 2008 to 2011, Antwi et al. (2013) provide evidence that the federal dependent coverage mandate reduced the number of hours young adults spend on market work. The authors view their findings as preliminary and 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." In contrast, two recent studies provide evidence that the federal mandate did not impact labor market outcomes. Using data from U.S. Tax Records, Heim et al. (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. Given the mixed evidence in the existing literature, a detailed analysis of how the federal dependent coverage affected labor market outcomes of young adults is warranted.

Our study differs from the existing studies in two 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. Since our study uses data from 2008 to 2013, we are also able to distinguish between early and late effects of the mandate. 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. In contrast to recent studies (Heim et al. 2015; Bailey and Chorniy 2016), 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 the mandate increases voluntary part-time employment. Moreover, the results suggest that the effects of the mandate on health insurance are stronger in years 2012 and 2013. Consistently, we find that young adults reduce their labor market activities in these years.

Second, 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. 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 previous study 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. Our study differs from Colman and Dave (2016) in three ways. First, we provide a comprehensive analysis of the policy, which includes establishing a pathway through which the mandate might affect labor market outcomes. It appears unlikely that the mandate will have any impact on labor market outcomes without leading to a reduction in ESI. Second, we provide evidence of early and late effects of the mandate by showing that the effects are more pronounced in the later years. Third, Colman and Dave (2016) mainly focus on time spent in obtaining medical care. Our study adds to their analysis by providing evidence on how young adults allocate their leisure time on various activities, including watching television. 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.

II. 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

[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).

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 et al. (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.

[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

III. DATA

III.A. 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 U.S. population, conducted jointly by the U.S. Census Bureau and the Bureau of Labor Statistics (BLS). Data from the CPS aids our analysis in several ways. First, since it is representative of the U.S. population, the findings can be generalized to the entire U.S. 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.

III.B. 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 U.S. spend their time.

The survey is given to respondents of the CPS survey who are above 14 years of age, live in the U.S. 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 12,000-13,000 individuals. Our main analysis focuses on young adults between 19 to 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 9,549 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

[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.

following the approach by Aguiar et al. (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 19-25 is larger for the ATUS.

IV. 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 et al., 2015) and insurance premiums (Depew and Bailey, 2015).

Our analysis considers individuals between the ages 19-25 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 9,549 for the ATUS dataset and 166,196 individuals for the CPS dataset. The baseline equation can be written as:

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

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

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. 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 VI.

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:

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

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 ($\delta_{2009} and\ \delta_{2010}$) to test for the prevalence of different trends prior to the reform. These findings are discussed in the next section.

V. RESULTS

V.A. 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 19-25 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).

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 et al., 2013). Figures 1 and 2 show that individuals from both groups have similar pre-treatment trends for ESI and dependent coverage, whereas substantial changes are observable immediately 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.

Next, we use CPS data to examine the effects of the policy change on labor market outcomes. Among young adults who are employed, we find a shift 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. 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 0.13, 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 3, 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).

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.

V.B. 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 shows that young adults who are affected by the mandate reduced their weekly time spent on market work by 131.24 minutes compared to individuals between the ages 27-30. 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 alter their labor market behavior following the policy change. 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.[7] 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"

[7] 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.

assumptions to test for the robustness of the DD results. The results remain consistent with our main findings.[8]

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 19-25 spend 117.56 additional minutes per week on leisure activities following the policy change, which corresponds to 89.51 percent of foregone market work time. Specifically, we find that 67.06 percent of this increase in leisure time is spent on watching TV (column 4). 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).

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.

VI. 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

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

states had no state-level coverage throughout the entire period of this study.[9] 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 federal reform had substantially larger effects on individuals living in states with no state-level mandates, whereas the impacts are small and statistically significant in the state that had state-level mandates implemented prior to the federal policy change.

Second, we follow the approach introduced by Slusky (2013) and Barbaresco et al. (2015) and conduct two placebo and one falsification test in order to ascertain that our main results are not spurious. We estimate models for two different time frames (2005-2010 and 2003-2008) with an artificial treatment being placed in October 2007 and October 2005, respectively. 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. Finally, column (3) 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. In

[9] 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.

summary, Table 6 provides suggestive evidence that our main findings are not driven by differential age dynamics in the labor market.

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.

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. In an additional model, we utilize the fact that state-level mandates that were in place prior to the federal reform

only covered unmarried individuals. Specifically, we compare the effects of the federal reform on labor market outcomes between married (treated) and unmarried (control) young adults of ages 19 to 25 living in states that had state-level mandates in place throughout the study period. Consistent with our main results, we find that the reform significantly reduced work time and increased leisure time for married people. 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 spend typically spend at work is during the week. [10]

VII. 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. 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

[10] The findings for these additional robustness tests are not shown in the paper, but are available upon request.

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.

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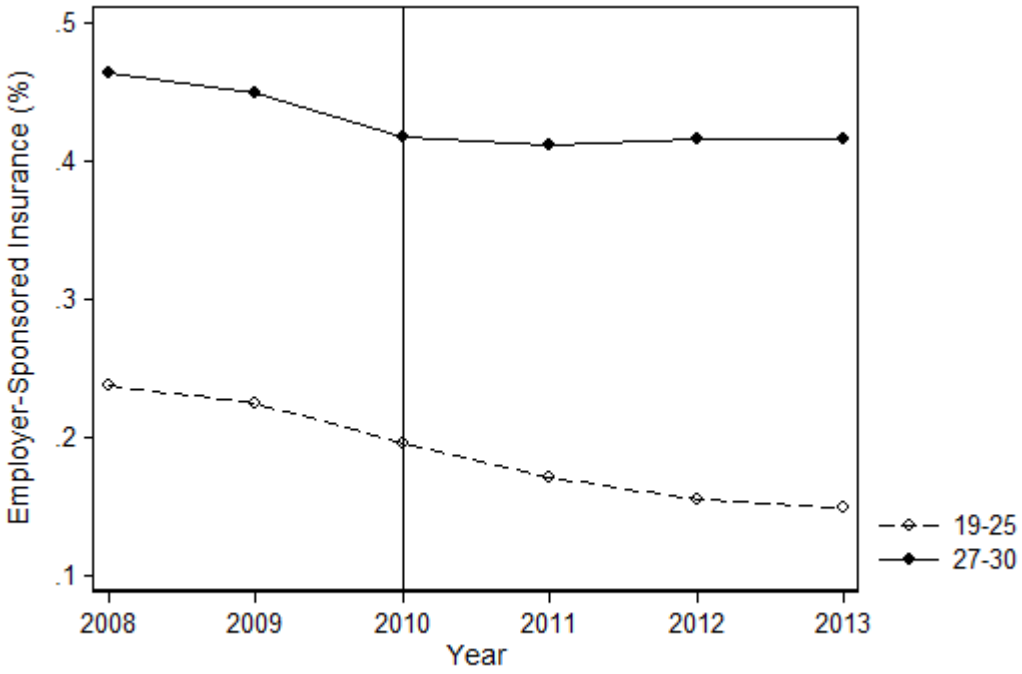
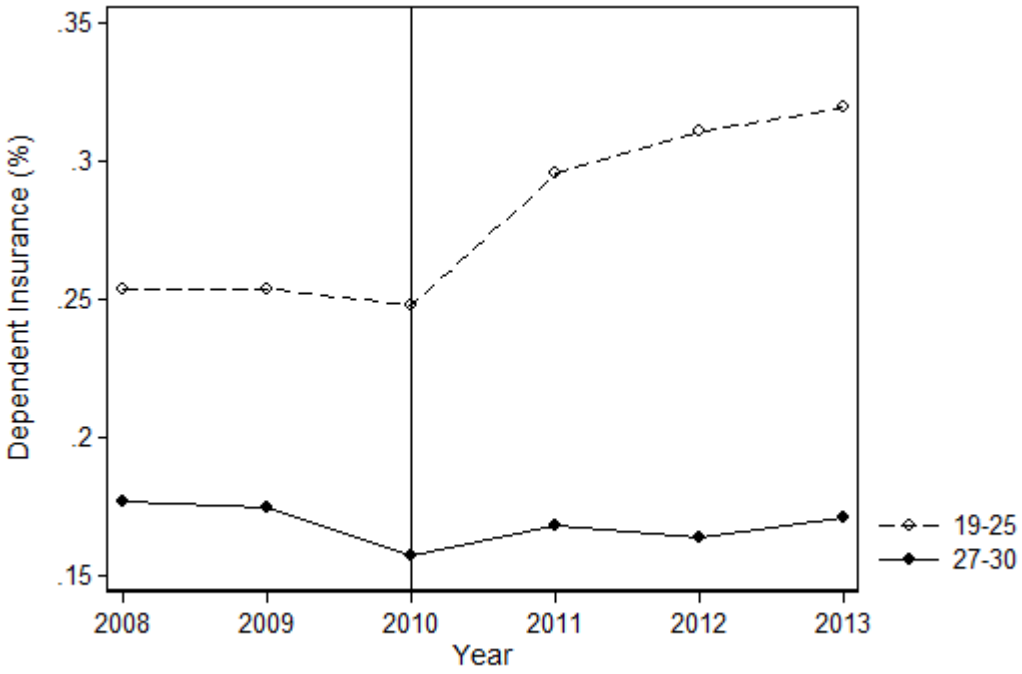
Figure 1: Changes in Employer-Sponsored Insurance Coverage



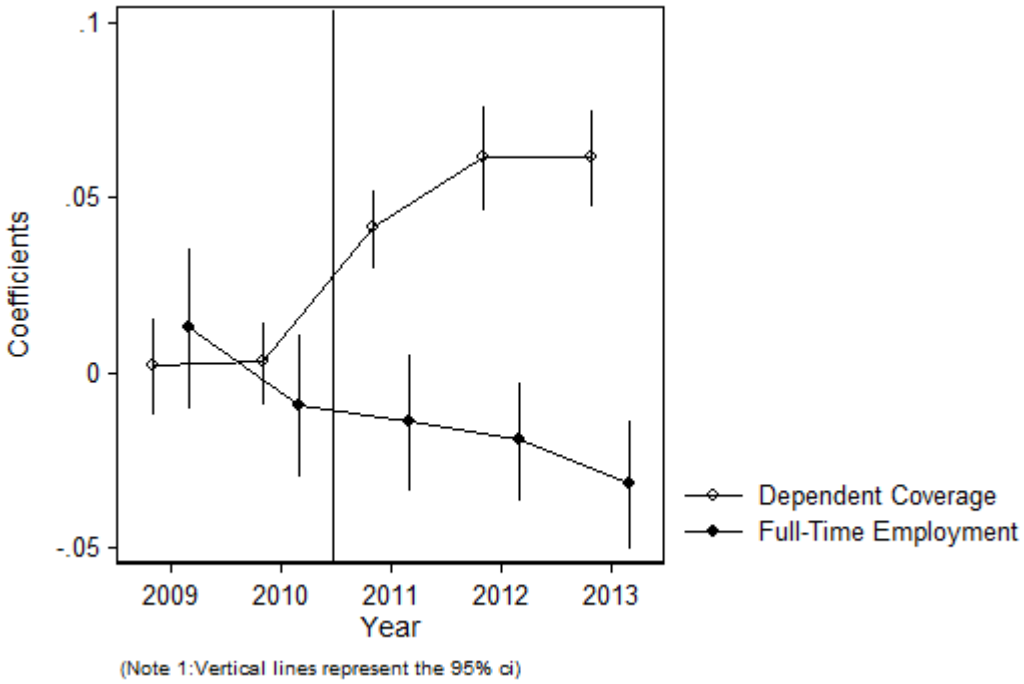
This picture depicts the share of individuals from both treatment and control group who are covered by employer-sponsored health insurance.

Figure 2: Changes in Dependent Coverage



This picture depicts the share of individuals from both treatment and control group who are covered by their dependents' health insurance.

Figure 3: 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.

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	1,051.45	1,189.45	1,115.12	1,683.84	1,662.99
	(1,197.29)	(1,173.03)	(1,302.23)	(1,314.94)	(1,161.27)	(1,142.48)	(1,215.38)	(1,231.69)
Total Leisure/Week (min)	4,701.08	4,742.95	4,568.97	4,503.51	-	-	-	-
	(1,205.37)	(1,212.55)	(1,217.01)	(1,186.10)				
N	4,756		4,793		102,767		63,429	

Table 3: The Effects of the Policy 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	0.0530***	-0.0219***	-48.22***
	(0.0047)	(0.0050)	(0.0025)	(0.0033)	(0.0051)	(0.0037)	(11.11)
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	166,196	166,196

Note: 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 4: 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)
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)
Year Effects	x	x	x	x	x	x	x	x
State Time Trends		x				x		x
N	9,549	9,549	9,549	9,549	9,549	9,549	9,549	9,549

Note: 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 5: The effects of the policy across 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)
Total Leisure / Week	82.29	110.64	14.15	24.12
	(104.09)	(110.41)	(98.44)	(112.94)
Total TV / Week	103.55*	128.06*	-6.61	3.05
	(56.05)	(73.72)	(84.97)	(87.89)
Year Effects	x	x	x	x
Additional Controls		x		x
N	1,979	1,979	2,728	2,728

Note: 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<0.01.

Table 6: Placebo and Falsification Tests

	Placebo Tests		**Falsification Test**
	2005-2010 *Treatment 10/2007*	*2003-2008* *Treatment 10/2005*	*Treated: 27-29* *Control: 31-33*
	(1)	**(2)**	**(3)**
Employment			
Work Time / Week	-3.46	47.14	53.49
	(55.56)	(39.42)	(54.71)
Working	-0.0111	0.0061	-0.0127
	(0.0212)	(0.0173)	(0.0262)
Leisure			
Leisure Time / Week	-15.29	-48.67	-63.57
	(52.29)	(37.47)	(53.46)
TV / Week	-36.02	-30.27	1.71
	(29.31)	(23.48)	(29.54)
Sleep / Week	11.67	-25.24	-3.45
	(34.00)	(23.14)	(33.32)
N	10,003	11,111	7,774

Note: 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 7: 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

Note: 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.