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EFFECTS OF THE AFFORDABLE CARE ACT DEPENDENT COVERAGE MANDATE ON TIME USE

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ABSTRACT

One of the main purposes of the Patient Protection and Affordable Care Act (ACA) is to enable Americans to make more productive use of their time. This is apparent in the rationale given for the ACA's extension of dependent care coverage, which requires employer-sponsored insurance plans that cover the children of insured workers to continue to cover these dependents until they turn 26. While a number of studies have examined the effect of the ACA's dependent coverage provision on work, none that we are aware has examined other uses of time. If, as predicted, the provision reduced the amount of time young adults work, the question arises, what have these young adults done with this time? A related question is whether the change has made them better off. We use the American Time Use Survey (2003-2013) to assess how the ACA's dependent coverage mandate has affected labor supply among young adults, and to provide some of the first evidence on time use other than working, such as educational activities, obtaining medical care, and pursuing leisure activities. Estimates suggest that the ACA's dependent coverage provision has reduced labor supply and job-lock, as well as the duration of the average doctor's visit, including time spent waiting for and receiving medical care, among persons ages 19-25. The latter effect is consistent with a substitution from hospital ER utilization to greater routine physician care. The extra time has gone into socializing, and to a lesser extent, into education and job search. Availability of insurance and change in work time appear to have increased young adults' subjective well-being, enabling them to spend time on activities they view as more meaningful than those they did before insurance became available.

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I. Introduction

One of the main purposes of the Patient Protection and Affordable Care Act (ACA), signed into law in March, 2010, is to enable Americans to make more productive use of their time. This is apparent in the rationale given for the ACA's extension of the dependent care coverage mandate (DCM), which went into effect on September 23, 2010 and requires employer-sponsored insurance plans that cover the children of insured workers to continue to cover these dependents until they reach the age of 26. In the Federal Register, the Administration states that providing health insurance for these dependents will permit "greater job mobility for this population as their health coverage will no longer be tied to their own jobs or student status" (FR Vol. 75, No. 92, 2010/05/13 p. 27130). The assumption is that improved job mobility will enable young persons to find jobs they view as more rewarding and where they can apply their skills more productively.

The Federal Register further notes that the coverage mandate should "decrease the cost-shifting of uncompensated care onto those with coverage, increase the receipt of preventive health care and *provide more timely access* to high quality care" (italics added). Prevalence of insurance coverage among young adults has been historically low. Prior to the ACA and the Great Recession, for instance, about 30% of younger adults (ages 19-26) lacked health insurance compared with 17% of older adults (ages 27-64).[1] Good health, higher risk tolerance, unaffordability (due to lower earnings, job turnover, and/or higher premiums), and reduced access to employer-sponsored benefits are important factors in young adults' decision to forgo coverage. Although young adults are generally healthier, they also exhibit non-trivial rates of certain risk factors such as being overweight or obese, HIV and other sexually transmitted

[1] Authors' calculation from the 2007 March Current Population Survey, referring to information from the previous year.

diseases, and chronic conditions such as asthma and hypertension for which access to timely care is particularly important. Lack of insurance disrupts this access, with 60% of uninsured young adults reporting that they had foregone medical care despite need (Collins et al. 2012).[2] Thus, the dependent coverage mandate aimed at reducing these barriers to healthcare by expanding insurance coverage among young adults.

A number of studies have examined the effect of the ACA's dependent care coverage provision on uninsurance rates, health, and health care utilization among persons ages 19 to 25 (Blumenthal and Collins 2014; Barbaresco, Courtemanche and Qi 2015; Saloner and Lê Cook 2014) and on labor supply (Antwi, Moriya, Simon 2013). None that we are aware of has directly examined the effect of the dependent care provision on time use. If, as suggested by Antwi, Moriya, and Simon (2013), the provision reduced the amount of time young adults work, the question arises, what have these young adults done with the time they used to spend working? A related question is whether the change has made them better off. The answer to this last question is not obvious, to judge by views of the ACA revealed in public opinion polls. For instance, according to a poll conducted by Gallup, 53% of Americans disapprove of the ACA and 46% think that the law will make things worse; only 16% believe it has helped them.[3]

We utilize the American Time Use Survey (ATUS) from 2003 through 2013 to answer these two main questions, providing a number of contributions to the literature on the ACA. First, we provide the most accurate estimates of the effect of the dependent care provision on time spent working. The accuracy reflects two factors: 1) the greater precision of the ATUS in

[2] Specifically, these young adults reported that they either did not fill a prescription, skipped recommended tests, treatment, or follow-up, had a medical problem and did not visit the doctor or clinic, or did not get needed specialist care. In comparison, 29% of insured young adults reported at least one of these access problems.

[3] http://www.gallup.com/poll/182318/americans-slightly-positive-toward-affordable-care-act.aspx http://www.gallup.com/opinion/polling-matters/178619/american-public-attitudes-toward-affordable-care-act-frozen-negative-state.aspx

measuring time use in comparison with surveys such as the Survey of Income and Program Participation (SIPP) and the Current Population Survey (CPS);[4] 2) our data extend through 2013, while prior work, such as Antwi, Moriya, and Simon (2013), use data only through 2011, before the provision reached its full effect. Second, we are the first to examine the effects of the provision on time use other than working, such as going to school, obtaining medical care, and pursuing leisure activities. Third, we measure the effect of the provision on young adults' self-reported levels of stress, happiness, sadness, sense of accomplishment, and tiredness, factors that are collectively referred to as "subjective well-being", as reported in the 2010, 2012, and 2013 rounds of the ATUS. Studies, such as those mentioned above, of the effect of gaining insurance on young adults' *objective* well-being (as measured by their health and finances) are certainly necessary, though an equally valid question and component into cost-benefit calculus relates to whether the beneficiaries of the law themselves reveal it has improved their lives – and if it has not, such a finding may undermine a rationale for the policy shift.

II. Background

Prior Studies

Studies of the dependent care provision have consistently found that rates of insurance coverage have increased, though the magnitude of the increase varies. Using the CPS from 2004 to 2011, Lloyd, DeLia, Cantor, and Monheit (2014) find that uninsurance rates for non-students 19 to 25 years old declined by 4.5 percentage points when compared with 27- to 30-year-olds,

[4] Prior research finds that compared with data from time diaries as well as from employers, data from the CPS tend to overstate work time. Three reasons have been noted to account for much of the overstatement. 1) The ATUS has less recall bias. 2) The ATUS asks respondents to account for all of their time in the prior day, so that the total time spent adds up to 24 hours; as this constraint is of course true, imposing it increases precision. 3) The CPS asks about work time during the week containing the 12th of the month, called the CPS "reference week". This week is not randomly chosen, and also not representative of a typical week during the month; in particular, it excludes most holidays. In contrast, the days surveyed in the ATUS are distributed randomly throughout the year. Hence, the ATUS offers some distinct advantages which make it worthwhile to estimate effects on work hours, and add to the limited weight of the evidence in the literature on this issue.

reflecting an increase of 7.2 percentage points in parental employer-sponsored insurance (ESI) and a decline of 2.8 percentage points in own- or spousal-coverage.[5] The change increases with income and declines with health. Using the SIPP from 2008 through 2011, Antwi, Moriya, and Simon (2013) find a net decline of 3 percentage points in comparison with 27- to 29-year-olds, reflecting a similar increase of 7 percentage points in parental ESI and a decline of 3 percentage points in own-ESI and another one percentage point in individually-purchased or government coverage. Using the Behavioral Risk Factor Surveillance System (BRFSS) from 2008 to 2012, Barbaresco, Courtemanche, and Qi (2015) find a drop in uninsurance of 6.2 percentage points among 23- to 25-year-olds, compared with 27- to 29-year-olds. The control groups are basically the same in all three studies. Thus, the larger decline found in the latter study likely reflects the combination of an additional year since the passage of the ACA and a stronger response among their older treatment group of 23-25 year olds. Using the National Health Interview Survey for 2005 through 2011, Sommers, Buchmueller, Decker, Carey, and Kronick (2013) find a decrease in uninsurance of 4.7 percentage points among 19- to 25-year-olds compared with 26- to 34-year-olds. Thus, prior studies indicate a median decline of 4 to 5 percentage points in uninsurance rates, using data mainly through 2011.

In order to frame our estimates for labor supply and time use, we require some such estimate of the impact of the DCM on insurance coverage. However, since our data extend two years further, to 2013, during which time the dependent care provision may have reduced uninsurance rates further, we also generate our own estimate of the effect of the provision with a difference-in-differences specification using the American Community Survey (ACS) from 2003 through 2013 and the Survey of Income and Program Participation (SIPP) through 2013. The

[5] This suggests a crowd-out (of own for parent-based coverage) rate of about 39%.

ACS and SIPP analyses are in line with the prior studies and suggest a decline in uninsurance of 5.3 percentage points among young adults ages 23-25 (relative to older adults ages 27-29).

A number of studies have also examined whether gaining insurance increases emergency room visits. This is relevant to our study because we assess effects on the duration of medical visits, and visits to the hospital emergency department tend to consume more time than visits to doctors' offices. Such studies show mixed results. Medicaid expansions and health insurance lotteries, such as the Rand Health Insurance Experiment, appear to increase emergency room visits (Newhouse 1993, Currie & Gruber 1996; Taubman et al. 2012). In contrast, the expansion of health insurance to large non-poor populations, as in Massachusetts in 1996 (Miller 2011) and among young adults in the ACA (Hernandez-Boussard 2014; Antwi et al. 2015), appears to reduce emergency department (ED) visits. The ACA's dependent coverage provision also increased physician visits among young adults (Jhamb, Dave and Colman 2015), which together with the above evidence is consistent with a substitution from ED-based care to physician office-based care.

Very few studies have specifically estimated the effect of the ACA on time spent at work. Antwi, Moriya, and Simon (2013), find that persons 19 to 25 years of age reduced their work hours by about 48 minutes per week, or 10 minutes per day, compared with persons 27 to 29 years old, and Slusky (2015) cautions that such effects may be overstated due to confounding differential trends. Depew (2015) studies the effects of earlier state mandates that extended the age that young adults could continue to be covered as dependents on their parents' insurance plans, and finds that these laws reduced young adults' labor supply at the intensive margin though not significantly at the extensive margin. Using tax records over 2008-2012, Heim, Lurie, and Simon (2014) find no meaningful changes in labor market outcomes at any margin,

though they note several limitations with the tax data, including having to use parental retirement benefits as a proxy for health insurance coverage, access to only two years of pre-policy data, and lack of information on hours worked or part-time vs. full-time status.

In contrast, Bailey and Chorniy (2016) do not look at work time per se but rather at job mobility in the Current Population Surveys, studying whether the respondent switched jobs, and they find no evidence that the ACA's DCM had any effect on this measure of job mobility. Bailey (2013) looks at self-employment and also finds no robust evidence that the DCM raised self-employment. These two studies conclude that job-lock may not be a major concern for young adults, and lack of health insurance may not be an impediment to entrepreneurship among this age group.

Contributions

We add to this very limited, and conflicting, evidence base on how the DCM has affected labor supply decisions among young adults, based on detailed data from the American Time Use Surveys. We also re-estimate first-order effects on insurance coverage, based on longitudinal data from the Survey of Income and Program Participation (SIPP), updating the estimates of Antwi, Moriya, and Simon (2013) to reflect the same time periods used in our analysis.[6]

No study we are aware of has examined the effect of gaining insurance on non-labor uses of time. We provide the first estimates on how the DCM has affected these other uses of time, and also provide some of the first evidence on time spent receiving and waiting for medical care, which would capture shifts in the use of medical care inputs (for instance, from hospital emergency room care to routine physician care) associated with a shift from being uninsured to gaining insurance coverage. Finally, we provide some suggestive evidence on whether these

[6] Antwi, Moriya, and Simon (2013) provided insurance effects based on SIPP data up to 2011. We re-estimate the effects based on the most recent SIPP waves (up to 2013).

changes have made young adults better off in their own assessment, based on a novel module on subjective well-being which measures adults' self-reported levels of stress, happiness, sadness, sense of accomplishment, and tiredness *associated with the activities that they were performing*.

III. Data

We use the American Time Use Survey (ATUS) from 2003 through 2013, the period which enveloped the enactment of the DCM and which allows us to observe responses over three years post-enactment. We do not incorporate ATUS data from 2014-2015 in the main analyses since the effects in these years may be confounded by the impacts of the 2014 components of the ACA, which had different effects across age groups. Instead, we incorporate these two recent waves in auxiliary analyses for specification checks (described in the Results section).

The ATUS is a subsample of the Current Population Survey (CPS), which interviews about 60,000 households per year. Each household in the CPS is interviewed for four months, left out for eight months, and then re-interviewed for four additional months. Thus each household, if it does not dissolve or move, is interviewed eight times. Each month about one-eighth of the sample is being interviewed for the first time, and one-eighth, for the final time. Two months after households complete their eighth CPS interview, they become eligible for selection into the ATUS sample. About half of the households invited to participate in the ATUS choose to do so. African-Americans, Hispanics, and households with young children are oversampled for the ATUS. About 10% of the sample is randomly assigned to report on each weekday, and 25%, on each weekend day. The day on which they report is called the "diary day". Sampling weights are provided to account for the oversampling of the different demographic groups and of weekends, as well as for non-response. Hence, as the CPS, the

ATUS is nationally representative of the civilian, non-institutional population residing in occupied households.

Participants are interviewed the day after the diary day to minimize recall errors. The time diary component of the interview contains a detailed account of the respondent's activities, starting at 4 a.m. the previous day and ending at 4 a.m. on the interview day. Each activity in the time diary component is assigned a six-digit classification code. The first two digits represent one of 17 major activity codes (ranging from personal care to household services to exercise and sports); the next two digits represent the second-tier level of detail, and the final two digits represent the third, most detailed level of activity. For example, the ATUS code for "Using health and care services outside the home" is 080401, which is part of code 0804, "Medical care and services", which is part of code 08, "Professional & Personal Care Services".

From the reported measures of time use we construct outcomes capturing time spent in various activities, at the extensive and intensive margins. These include activities related to the labor market: minutes working, including time spent actually working, other work-related activities, such as socializing, eating, and drinking related to work (for salespeople, etc.), and other income-generating activities, such as hobbies, performances, and renting assets; a dichotomous indicator for whether the respondent is employed; work minutes conditional on being employed; and minutes spent searching and interviewing for jobs. We also capture activities related to healthcare utilization: minutes receiving and waiting for medical care outside the home; minutes receiving medical care outside the home; minutes receiving medical care conditional on receiving any care (intensive margin); minutes waiting for medical care; and minutes waiting for medical care conditional on receiving any care (intensive margin). The remaining measures capture minutes spent on: recreational exercise, educational activities

(including time spent in class, studying, researching, and homework, as well as dealing with the school administration), sleeping, eating and drinking, purchasing goods and services, and socializing and relaxing (excluding watching television).

We also use the 2010, 2012, and 2013 Well-Being Supplement to the ATUS, in which all respondents to the ATUS are included. Respondents are asked about three randomly selected activities from the diary day, and for each activity, to report using scales of 0 to 6 their happiness, sadness, pain, stress, and tiredness, as well as how meaningful the respondent considers the activity. We create a measure of the average level of each effect over the respondent's three activities using the time spent in each activity. For example, the average happiness of respondent *i* is

$$H_i = \frac{\sum_{k=1}^{3} t_{ik} H_{ik}}{\sum_{k=1}^{3} t_k} \quad (1)$$

where t_{ik} refers to the time person *i* spent in activity *k*, and H_{ik} is the degree of happiness of person *i* during activity *k*.

All models include various controls for the respondent's socio-demographic characteristics, including education, marital status, race and ethnicity, and gender. We match data on the unemployment rate, from the Bureau of Labor Statistics (BLS), based on the respondent's state of residence, and month and year of interview. In addition, we construct and control for a dummy variable for incomplete interviews, that equals 1 if the respondent did not account for all of his or her activities during the day. About 88% of the sample have complete reports (reporting for the full 24 hours), and 94% of the sample report on at least 23 of the past 24 hours. Excluding incomplete interviews from the analyses does not materially change the results or conclusions.

IV. Conceptual Framework

We discuss here how the ACA's dependent coverage mandate may impact various activities, basing our discussion informally on a partial equilibrium set-up and highlighting potential mechanisms that suggest that many of the effects are theoretically ambiguous. We leave it to future research to disentangle all of the potential pathways that may underlie these effects.

Any first-order effects of the ACA's dependent coverage mandate would necessarily be on insurance and employment outcomes. Employment and health insurance coverage remain intrinsically connected in the United States because of the tax deductibility of employer-provided health insurance benefits and the absence of a universal, public health insurance system. Availability of low-cost coverage options apart from one's job would be expected to affect employment outcomes, specifically reducing "job-lock" and increasing job mobility (Gruber 2000). Optimization of the labor-leisure tradeoff also predicts a decrease in labor supply associated with the DCM. That is, obtaining dependent insurance coverage is akin to an increase in non-labor income, leading to a pure income effect and an increase in leisure. We confirm this prediction using detailed data on time use, following limited prior work on labor supply (Antwi, Moriya, and Simon 2013; Heim, Lurie, and Simon 2014; Depew 2015).

By delinking the availability of low-cost health insurance from work, the DCM would be expected to affect the marginal valuation of time spent on non-work activities and thus affect the tradeoff between labor and leisure.[7] The predicted reduction in labor supply and the associated decrease in earnings have potentially reinforcing income and substitution effects.[8] These shifts would have second-order effects on non-work related time use. (Since the mandate operates

[7] See Colman and Dave (2013) for a more formal model set-up, which frames the question of how employment decisions can affect other activities within a modified static version of the human capital model for the demand for health. Here we abstract from the formal set-up and discuss some of intuitive predictions as relevant to this study.
[8] The DCM may also be associated with a positive income effect as uninsured young adults gain coverage and experience a reduction in out-of-pocket medical spending. While this may moderate the negative income effect from the reduction in labor supply, the net income effect is still likely to be negative since we find that virtually all of the reduction in the labor supply is occurring at the extensive margin (see results).

mainly through its labor market impact, a null labor market effect would imply small or no effects on the other outcomes as well.) From the hypothesized reduction in labor supply and easing of the discretionary time constraint, young adults are predicted to allocate more of their freed-up non-work time towards activities that are relatively more time-intensive and less intensive in market-based inputs. We therefore expect an increase in activities that require more time inputs (such as job search, education, and socializing) and a decrease in the demand for activities that are complementary to market inputs (such as time spent shopping and purchasing goods and services). The negative income effect, however, may offset any positive effects on time spent shopping.

A priori, effects on time spent receiving medical care are ambiguous. On the one hand, there may be a scale effect as expansion of coverage to uninsured individuals raises the demand for medical care -- both ER visits as well as for a regular source of care. On the other hand, there is also a substitution effect from unscheduled ER-based care to scheduled and routine physician office-based care; thus, it is likely that visits to a regular source of care probably increased more than visits to emergency rooms, which may reduce the average time spent receiving medical care. This effect would also predict that there would be a decrease in the time spent waiting for medical care.

Since the ACA's DCM is a mandate on employers and not on consumers, young adults who opt to take up coverage under their parents' health insurance are presumably doing so because the benefits from this option outweigh those from others (such as taking up coverage under their own jobs, accepting a job to obtain coverage, or remaining uninsured). Any shift in activities and time use brought about by the ACA's DCM must therefore necessarily make these

young adults better off from the standpoint of utility maximization. Thus, we predict an increase in subjective well-being from the dependent coverage mandate.

V. Empirical Framework

The objective of this study is to assess how the ACA's dependent coverage mandate affected labor supply and various other measures of time use in healthcare and non-healthcare activities among young adults. We empirically frame this question and test the above predictions within a difference-in-differences (DD) analysis, comparing conditional trends pre- and post-DCM for groups affected and not affected by the policy. Specifically, we follow the literature and define the "treatment" group as comprising young adults between the ages of 19-25, the age group targeted by the DCM. Individuals, between the ages of 27-34 constitute the control group, who because of being older than 26 years of age are not eligible to obtain health insurance under the DCM.[9]

Our primary specification takes the following form,

$$Y_{ijtmd} = \alpha \cdot Age1925_{ijtmd} + \gamma \cdot Post_{jtmd} + \delta \cdot Age1925_{ijtmd} \cdot Post_{jtmd} + X_{ijtmd} \cdot \beta + \pi \cdot U_{jtm} + \mu_j + \theta_t + \tau_m + \varphi_d + \varepsilon_{ijtmd} \quad (2)$$

where Y_{ijtmd} references time-use outcomes (for individual *i* residing in state *j* and interviewed on day *d*, month *m*, and year *t*), and $Post$ refers either to after 2010 or after 2011. The DCM went into effect in September of 2010, and did not apply until the start of the next plan year. Thus, 2010 is always a pre-treatment period. We expect the effects to be larger when the treatment period is further from the enactment date. The vector X_{ijtmd} includes demographic controls and

[9] We follow the literature and exclude 26 year olds from either the treatment or control groups in order to minimize any measurement error as this is a transition period and some 26 year olds may be shifting coverage in anticipation of aging out.

the indicator for an incomplete diary. The variable U_{jtm} refers to the unemployment rate in the respondent's state of residence during the year and month of interview.

All specifications further control for state fixed effects (μ), which account for any unobserved time-invariant state-specific factors, as well as time fixed effects. Insurance status had been trending downwards prior to the ACA both among 19- to 25-year-olds and among 27- to 34-year-olds. Also, the Great Recession has caused fluctuations in work and other time use. It is likely that only some of these trends are picked up by the state unemployment rate. The year indicators (θ) would capture any such national trends in time use and in insurance status independent of the changes caused by the ACA, most notably shocks to the labor and healthcare markets from the recent economic downturn. We also include month dummies (τ) because many activities, such as exercise, as well as mood, vary substantially by season, and we include day-of-the-week dummies (φ) to control further for changes in time use and mood over the week. As an obvious example, most work time occurs during the week, while most exercise and socializing occur during the weekend. Also, subjective well-being varies noticeably over the week, with respondents reporting being least happy, saddest, most tired, most stressed, but engaged in their most meaningful activity, on Wednesday. In our primary specification, we do not control for school enrollment or for health status, as these are two of the likely outcomes of the change in the law we are analyzing.

Some research suggests that the effects of the ACA on labor and health outcomes found in the prior literature may be spurious, reflecting different trends in the control and treatment groups prior to the ACA taking effect (Slusky 2015). The validity of difference-in-differences analysis, of course, depends on common trends between the control group and the treatment group had the treatment group not been treated. Figures 1-3 present these trends for our

outcomes. Due to sample size limitations (a limitation not exclusive to our study, but also pervasive in most of the ACA literature), the trends are noisy. The commonality of trends cannot be tested after the new policy takes effect, since the policy will itself affect the trend of the treated group. However, the parallel trends assumption can be tested prior to that time. We therefore formally test for differential trends in two ways, which also serve as placebo checks.

First, we estimate equation (2), adding the interaction of the treatment dummy and a variable that equals the year if the year is prior to 2010, and equals zero afterwards. The p-value on this variable indicates whether linear trends in the treatment and control groups differed in the pre-treatment period. Our second test follows Slusky (2015), wherein we estimate our main equation (2) above but define the treatment period from 2007 to 2009 or to 2008, and the control period, from 2003 to 2007. Since the law only went into effect in 2010, we should find no effect of the pseudo-treatment when the sample is limited to period prior to implementation of the DCM. As a third check on our specification, we redefine the treatment group as only persons between the ages of 23 and 25. This reduces our sample size by about half, but creates a treatment group that is more attached to the labor market, less likely to be still enrolled in school, and in general more similar to the control group of persons 27 to 34 (Table 1). Fourth, we also estimate specifications that include state-specific linear trends to evaluate if our estimates are driven by unobserved state level heterogeneity and systematic differential trends.

Prior to the passage of the ACA in 2010, 37 states had laws protecting the insurance coverage of dependent children,[10] the great majority having been passed after 2005. Monheit et al. (2011) find that the state laws had little net effect on the insurance coverage of young adults. To gauge if state dependent coverage laws might affect our results, we estimate equation (2) only on young adults who would not be eligible for coverage under these state regulations.

[10] http://www.ncsl.org/research/health/dependent-health-coverage-state-implementation.aspx

Further, when presenting the results, we discuss additional checks which assess the validity of the identifying variation, and robustness to alternate sample restrictions and controls.[11] All models are estimated with OLS, as the outcomes are in general continuous.[12] Since we include state effects and the policy change is at the national level starting in September of 2010 and affecting persons of a particular age, we assume that the error terms (denoted by ε in equation 2) are correlated within single year of age and survey year. In fact, the variance of the coefficient matrix hardly changes whether we assume merely heteroskedasticity, or heteroskedasticity combined with the clustering described above. Since policy variation is at the age by time level, we also alternately estimated standard errors clustered at the age level. These results reinforce those presented in the tables, and our inferences and conclusions are not materially altered.[13]

VI. Results

Descriptive Statistics

Table 1 reports the means of the variables used in the main analyses, across the two treatment groups (ages 19-25 and ages 23-25) and the control group (ages 27-34). Time use clearly differs between 19- to 25-year-olds and 27- to 34-year-olds. The older group spends more time working, but less time in exercise, education, sleep, and socializing. The 23- to 25-year-old group is closer to the older group in work-related activities, but closer to the younger group in the other activities. With respect to time spent receiving medical care, this is somewhat larger

[11] We are grateful to the editor and two anonymous referees for suggesting these.
[12] The ATUS oversamples weekends and certain demographic groups and provides sampling weights to generate population-based estimates. Because we include dummy variables for demographic characteristics as well as day of the week of the survey, we do not use survey weights in our estimates (DuMouchel & Duncan 1983; Solon, Haider, Wooldridge 2015). We also use OLS for dichotomous outcomes, and confirm that the results are not sensitive to estimation via logit or probit regression.
[13] Clustering at the age level leads to a small number of clusters, which may bias standard errors, and hence inferences were drawn based on degrees of freedom determined by the number of clusters. Alternately, we could have clustered at the state level, though this is less logical in our case since the treatment is not at the state level. Nevertheless, clustering by state actually makes our standard errors slightly smaller and strengthens our inferences.

among 27-34 year olds, particularly in relation to the 23-25 year olds, consistent with a larger prevalence of insurance among the older group. However, among those who receive medical care, time spent waiting to receive care is higher among the younger adults (12-14 minutes) relative to the older adults (10 minutes), which is consistent with uninsured younger adults receiving more of their healthcare through non-scheduled clinic or ED visits. All three groups are quite similar in demographic characteristics and in levels of happiness, sadness, stress, tiredness, and meaningfulness of their activities.

Main Analyses

Table 2 reports estimates from our main DD models (equation 2) on the effects of the DCM on labor supply. Specifications 1-4 utilize the full treatment group (ages 19-25), and specifications 5-7 utilize the narrowly-defined treatment group (23-25) who are more likely to have finished schooling and entered the labor force. As found by Antwi, Moriya, and Simon (2013), the availability of insurance reduces time spent working, though our baseline estimate (specification 1) —about 18 minutes per day or about 9% (relative to the treatment group mean) — is about double that found in the prior study.[14] This could be due to a longer time period since the ACA took effect, as well as a different measure of work time, and a different comparison group, as we use persons ages 27 to 34. In fact, the effect size increases in magnitude (23 minutes decline) the further we get from implementation (specification 2, which allows for a lag and defines the post-period as post-2011 compared with specification 1 which defined the treatment period as post-2010). This suggests that the DCM may have gradually changed behavior, which speaks to the value of using more post-policy data to assess its cumulative and full effects.

[14] Our results mainly reflect a post-ACA decline in work among the treatment group, rather than an increase among the control group, which adds a degree of confidence that it was the ACA and not a spurious trend in the control group that accounts for our results.

Next, we decompose whether this decrease in labor supply is occurring at the extensive and/or the intensive margin by separately assessing effects on employment and on work time conditional on employment. Most of the decline appears to reflect declines at the extensive rather than intensive margin, as we find insignificant and much smaller effects on labor supply among those who are currently employed and a significant decline in employment status of 4-6 percentage points.

The first-order effect of the mandate is necessarily on dependent coverage rates. In order to gauge the credibility of these employment effects, we therefore compare them to changes in dependent coverage rates, which must be bigger than the change in employment. To do so we require estimates of the extent to which eligible young adults opted for coverage under their parents' plans because of the mandate. As the ATUS does not contain information on insurance coverage, we instead employ the Survey of Income and Program Participation (SIPP), also used by Antwi, Moriya, and Simon (2013) in their early study of the dependent coverage mandate. Their study, however, only extends through 2011 and may not be informative about the effect of the mandate during our study period. We therefore estimated models of dependent coverage as well as of any coverage using the full 16 waves of the 2008 SIPP, spanning through 2013.[15] The effect of the mandate on dependent coverage was 10.2 percentage points (p-value ≤ 0.01), with a little less than half of these individuals switching from employer-sponsored health insurance to dependent coverage, and the rest newly gaining coverage. The net gain in insurance in the SIPP (5.28 percentage points; p-value ≤ 0.01) is quite close to that estimated in other research and also to our estimate using the American Community Survey. These effects in combination with the employment effects are consistent with a subset of those gaining dependent coverage quitting

[15] We applied the Stata code associated with Antwi, Moriya, and Simon (2013) (posted on the *American Economic Journal* website) and recreated their variables, extending their analyses to 16 waves of the 2008 SIPP.

their work and/or those entering the labor market for the first time taking longer to look for a better-matching job. Others are not, and yet others are remaining employed while just switching their coverage. Thus, most importantly, it is validating that the gain in dependent coverage, which is the relevant first-order margin, is much larger than the drop in employment.

Furthermore, the magnitude of the observed decline in work minutes (18-23 minutes daily) is also consistent with and can be fully explained by the observed decline in employment (4-6 percentage points). If there are no major effects on labor supply at the intensive margin, as there does not seem to be, then inflating the work minutes estimates by a factor of 17-25 (reciprocal of the estimates of employment) yields an average implied work day of about 7-7.5 hours among those who shifted status from employment to non-employment. This is virtually identical to the Census estimate of 7.5 average hours worked daily by employed persons in 2010. In this as in almost all the outcomes we examine, the effects are stronger when the treatment period is limited to 2012 and 2013, suggesting stronger cumulative effects.[16]

The final row of results suggests an increase in time spent looking for new jobs. While the coefficient on time spent searching and interviewing for jobs is insignificant using the full sample, it is significant at the 5 percent level when the outcome period is limited to post-2011, after the law had more time to take effect. Among 23- to 25-year-olds, who would have a stronger attachment to the labor force and more likely to have completed their schooling, the effects were larger and more precisely estimated in both time periods.[17]

[16] We confirm these patterns by estimating an event study (Appendix Table 1), decomposing the timing of the effects. Since our samples sizes are small, to gain some precision we grouped pre-policy years into two-year pairs, and, in some models group three post-policy years together. The analysis reveals no significant effects before the dependent care provision took effect, but afterwards, both working time and employment declined monotonically and significantly.

[17] Though the absolute effect magnitudes appear small (in terms of minutes), they are substantial in relation to the baseline mean. Even when imprecisely estimated, they suggest an increase of 30%.

Table 2 also reports on some of our specification checks. First, the results are generally robust to the inclusion of state-specific linear trends (model 4) and to limiting the sample to young adults who would be ineligible for coverage under state laws (models 3 and 7). In fact, as expected, the effect of the ACA is a bit stronger for these state-ineligible young adults, though the loss in sample sizes also reduces the precision of our estimates.[18] Table 2 also reports one of our placebo checks, whether there are any systematic differences in the trends in each reported outcome between the treatment and control groups prior to 2010. The p-value for this test is reported in the square brackets. It is validating that none of the pre-policy trend differences are significant at conventional levels. Overall the results for labor-market outcomes in Table 2 appear to confirm the benefits of non-work-related health insurance in reducing job-lock. We also find suggestive evidence of an increase in job-searching, which is consistent with the availability of insurance outside of employment allowing young adults to take longer to possibly search for more suitable jobs. The employment effects in conjunction with this increase in job-search activity is consistent with greater job mobility and a reduction in job-lock.

Table 3 reports estimates for time spent receiving and waiting for medical services. These results suggest a decline in these uses of time, though the point estimates are generally statistically insignificant. However, in some cases they do represent a somewhat sizeable decline. For instance, the estimates for total time receiving care suggest a decline of about 20-25% relative to the baseline mean. Estimates for total time waiting for medical care are statistically insignificant for the broad treatment groups (ages 19-25) but significant for young adults ages 23-25, suggestive of a decline in waiting time of about 0.4 minutes daily on average.

[18] Monheit et al. (2011) find little effects of these pre-ACA state laws on the insurance coverage of young adults, which we confirm with the ACS data as well. Thus, we would not expect a substantially larger effect of the ACA's DCM when omitting those individuals who would be eligible under the state laws since if these individuals had not substantially expanded their insurance status prior to the ACA, they would be potentially impacted by the DCM and would be a valid inclusion in the treatment group.

We find more solid evidence that these effects are being realized at the intensive margin. That is, conditional on receiving any medical care, the DCM is significantly associated with a drop in the time spent both obtaining medical care (by about 25-30 minutes on average) and in the time spent waiting for medical care (by about 10-20 minutes on average).

These estimates are generally robust when we control for state-specific trends (model 4) or omit individuals from the sample who may be eligible for dependent coverage under state laws prior to the ACA's DCM (models 3 and 7). As with our models for labor supply, we do not find any statistically significant differences in pre-policy trends between the treatment and control groups (p-values for this test reported in square brackets).

Young adults between the ages of 19-25 have the highest prevalence of ER (emergency room) use among adults; in 2008, 26% of young adults had obtained some care in the hospital ER (National Health Interview Survey – NHIS). The findings in Table 3 lend support to the view that making insurance more easily available to non-poor households[19] with working parents reduces the use of emergency-room care and increased office-based physician visits (Antwi et al. 2015; Jhamb et al. 2015; Hernandez-Boussard et al. 2014).[20] According to the National Ambulatory Medical Care Survey (2011 and 2012 NAMCS, produced by the CDC), the median time spent in visits to the ER was 120 minutes, while the median time for visits with general practitioners was 17 minutes; and for specialties, the median time was higher than general practitioners but varied considerably. Since, visits to doctors' offices take less time than visits to the ER, average time spent waiting for and seeing doctors must have declined, as we find using the ATUS.

[19] Households wherein family income exceeds the poverty thresholds reported each year by the Census Bureau.
[20] Both Antwi et al. (2015) and Hernandez-Boussard et al. (2014) find a significant and direct decrease in ER visits – on the order of 6-7 visits (per 1000 population). Non-adjusted estimates from the NHIS also suggest a decline in the prevalence of care at the hospital ER by about 2-3 percentage points among the treatment group relative to the control group (authors' calculations). Jhamb, Colman, and Dave (2015) find that the dependent care provision increased yearly doctor visits by about ¾ of a visit.

The decrease in time spent receiving medical care may also reflect an improvement in the quality of medical care, both from a substitution from ER-based healthcare to a more routine source of physician care, and also since time spent with the physician is generally lower than with more expensive specialist doctors. Similarly, time spent waiting to receive medical care declined substantially among those who received care, consistent with a number of young persons switching their regular source of care from the emergency room to the doctor's office.

The estimates in Tables 2 and 3 suggest that the ACA's DCM likely reduced employment among those eligible for dependent coverage, and also reduced the time spent obtaining and receiving medical care services particularly at the intensive margin. To some extent, some of this time was spent in looking for new jobs. The question remains how those no longer working used the rest of their freed-up time. Table 4 reports estimates for the other uses of time. Young adults (ages 19-25) spent more time in education, an additional 6 to 8 minutes daily on average, which translates into a 15-20% increase relative to the baseline treatment group mean.[21] As expected, the effect on education is smaller for 23- to 25-year-olds since fewer individuals in this group are enrolled in school; it is also insignificant. It is still, however, positive, and the lower precision is to be expected with the much smaller sample size. We also find some decrease in the time spent purchasing goods and services (3-5 minutes daily; 10-15%), which reflects the negative income effect associated with the reduction in employment. Most of the freed-up time from the reduction in labor supply (at least 50% or so) is reallocated into socializing and relaxing – an additional 9-13 minutes daily (8-10% relative effect size). Significant coefficients on the differential pre-policy time trends for all outcomes are generally rejected for all of these

[21] As noted in the Data section, educational activities include time spent in class, in extra-curricular activities, in school-related research, and in school-related administrative activities. The estimate in the model is an average effect across the treatment population, including those whose educational activities are affected (mostly those who are current students) and those for whom there is no effect. As a reference, daily time in educational activities averages 149.9 minutes (145.5 minutes) for youth ages 19-25 (ages 23-25) who are currently enrolled in school either full-time or part-time. About 15.7% of youth ages 19-25 are full-time students.

outcomes among all subgroups within a Type 1 error. Our overall conclusion that the DCM was associated with an increase in time spent on education and socializing is also robust to controlling for state-specific trends and restricting the sample to those young adults who would be ineligible for dependent coverage under pre-ACA laws.

Table 5 shows the results of our placebo regressions. Almost all of the coefficients become insignificant and often have different signs from our main results. In particular, the effect on being employed among those in the treatment group drops to zero and is insignificant in all but one subgroup, in which its sign is opposite to that of Table 2. The effect on total work time also changes sign, but is significant in some subgroups. The magnitude and significance of the coefficients, however, vary so much as to suggest that the results are largely due to chance. Given the results of our specification tests, we conclude that the ACA likely reduced employment among those eligible for dependent coverage

As mentioned above, young persons spent much of the time they were no longer working in socializing and relaxing. This may or may not necessarily represent a positive shift from the point of view of the former worker. During the Great Recession it was also found that persons who lost their jobs socialized more than before (Colman and Dave 2013), but their levels of sadness and stress rose. Thus the question remains whether those obtaining insurance and working less view the change as positive. For this we consider effects on the measures of subjective well-being reported in Table 6. Consistent with the view that unlinking insurance status with working full-time provides more flexibility, the significant change in well-being is an increase in the sense that the respondent is doing something he or she finds meaningful. Further, measures of happiness increase significantly, and of tiredness and stress decline, though the latter changes were not significant (except among young adults ages 23-25 in the restricted sample in

specification 7). The effect magnitudes suggest about a 3-5% increase in happiness and meaningfulness, and overall these patterns are consistent with a general increase in subjective well-being associated with the shift in activities due to the ACA's DCM.[22]

The Well-Being Supplement began in 2010, which we take to be our control year. But as suggested by Antwi, Moriya, and Simon (2013), some insurance companies announced as soon as the ACA was passed that they would allow dependent adults to remain on their parents' insurance plan until 26. Thus, if anything, our estimates for subjective well-being would be conservative and biased toward zero. The concern remains that we only have one pre-treatment period for this part of the analysis. In order to assess the importance of this limitation, we also re-estimated our main employment models using only data from 2010 onwards, and thus only using 2010 as a pre-policy period. Expectedly, standard errors inflate and reduce precision, rendering most of the estimates insignificant. However, the effect magnitudes remain very similar (14.0 to 23.7 minute decline in daily work time, and 5-8 pct. points decline in employment). The results on well-being should be viewed as suggestive in light of these caveats.

Specification Checks

In models not reported, we implement several checks to confirm that our estimates are robust to alternate sample restrictions, extensions, and controls.[23] First, we re-estimated our main models allowing the trends to differ non-parametrically based on demographics, interacting year effects by marital status, race, ethnicity, and education. Second, we also estimated models (for treatment group ages 23-25) while excluding those enrolled in school and those who are current students in order to produce treatment and control groups more similar in terms of work

[22] Sample sizes for these models are reduced due to the well-being modules being available only in the 2010, 2012, and 2013 waves of the ATUS.
[23] Available from the authors upon request.

and non-work time. Both of these extensions aim to address baseline dissimilarities in some non-work related activities across groups that may also be correlated with changes over time. Our results are not materially affected either in terms of effect magnitudes or significance.

Next, we assess whether the policy response differs across sub-populations. While we are not able to stratify by each socio-demographic group due to sample size limitations, we estimated our main model interacting our treatment variables with marital status. The joint F-statistic on the interactions was 1.23, with a p-value of 0.23. Thus there appears to be little difference in the law's effect along this direction. We also tested for differential effects by race and ethnicity, and by education. All of the interactions were singly and jointly insignificant at the 10 percent level.

We also confirm our previous result that virtually all of the labor market effects we identify are at the extensive margin, by separating out effects for full-time and part-time employed workers. Limiting the sample to part-time or full-time workers does indeed remove most of the law's effect. Including only part-time workers, the sample size drops from 30,803 to 4,556, and the estimated effect on work time drops to an insignificant 2.8 (std. error = 14.5) minutes. Including only full-time workers, the sample size drops to 8,835 and the effect on work time to an insignificant 1.3 (std. error = 6) minutes.

Since older cohorts on average work more hours relative to younger cohorts, one concern may be that they are employed in different types of jobs, which may be correlated with trends in labor supply. We consulted the American Community Surveys and find that the industry composition between the two groups (ages 23-25; ages 27-34) is broadly similar, except for an expectedly larger share of younger adults working in retail trade (25.5% vs. 16.9%). Level differences (in hours worked) are problematic only if they imply differential trends as well. We

explicitly test for differential trends overall, either in terms of employment or hours worked in the pre-periods (reported as the p-value on the joint significance of the pre-trends in all tables in the text), and do not find any strong evidence to this effect. We also estimated models that control for industry (which can be matched to the ATUS based on the CPS records) – current industry for those employed and previous industry of work for those non-employed, with no significant changes to the estimates.

Though the ACA DCM was implemented in late 2010, we employ all ATUS waves going back to 2003 in order to maximize our sample size. This allows for longer pre-treatment periods, adding more precision to the estimation of the pre-policy baseline effects and in turn raising the precision of the post-policy estimates. We confirm that limiting the sample to 2007-2013 does not meaningfully change the magnitude or the direction of the effects, though their precision (for some of the non-work activities) is somewhat reduced.

We also extend our sample size to incorporate two additional waves of the ATUS that have become recently available. During the additional years—2014 and 2015—the treatment and control groups were affected similarly by the ACA, since starting in 2014 everyone is required to have health insurance. Thus 2014 and 2015 are essentially two additional non-treatment years. Including them as additional non-treatment years leaves the main results unchanged, both in magnitude and in significance. The placebo results, in contrast, all become smaller in absolute value and statistically insignificant.

Finally, in an attempt to make the treatment and control groups even more balanced, specifications further restricted the sample to persons between 23- and 29-years-old. This substantially reduces the sample sizes. Estimates may differ across age groups (comparing 23-25 vs. 27-29 year olds, or comparing 23-25 or 19-25 vs. 27-34 years olds) because narrower age

groups may allow for more balanced trends or because different age groups may respond to the policy differently. Hence, a key question is about the underlying populations. Does the average treatment effect among the population between 23- and 29-years-old differ meaningfully from the average treatment effect among the population between 19 and 34? If they are the same, the estimates based on the latter are as valid as the former and more precise. To investigate this, we used an outcome with enough observations with positive values in samples of both populations. In our case, these are the work-related outcomes. The results based on a narrower control group (comparing young adults ages 23-25 to a control group of young adults ages 27-29) are virtually the same as when using the full sample.[24]

VII. Discussion

Two major rationales underlying the dependent care coverage mandate of the Affordable Care Act were to provide more timely access to high quality care and to enable Americans to make more productive uses of their time. Prior studies have assessed and confirmed that the DCM led to a net increase in insurance coverage among eligible younger adults, and one study has shown that it was also associated with a decrease in labor supply. We broaden the lens and evaluate the effects of the ACA's DCM on several outcomes, not studied heretofore, which inform on how effective the DCM was in fulfilling its stated objectives. First, we add to the very sparse evidence and provide a more precise analysis of labor supply outcomes based on the American Time Use Surveys. The precision reflects the collection of work-time measures based on time diaries and also the incorporation of data up to 2013, spanning three years post-policy implementation (compared to data up to 2011 in most prior work). We find robust evidence that

[24] The restricted sample yields treatment effects on the order of 20-29 minutes decline in daily work time, and 6-7 percentage points decline in employment. All of the labor supply effects are statistically significant. We cannot carry out the same comparison for other time-use outcomes because restricting the sample to those between 23 and 29 results in far too few observations with positive values to obtain any precision. Since there appears to be no difference for outcomes with sufficient observations and no precision for other outcomes, restricting the sample to persons between 23 and 29 imposes a high cost in precision for no benefit in identification.

the DCM reduced labor supply at the extensive margin by about 5 percentage points. It is validating that this estimate is fully consistent with prior estimates of a net increase in insurance coverage on the order of 4-6 percentage points. We also find a suggestive increase in time spent searching for a job, which together with the labor supply estimates may reflect a reduction in job lock and an increase in time spent potentially searching for more suitable work.

Second, we provide the first estimates on how the DCM affected both time spent receiving and waiting for medical care – which directly speak to both of the stated goals of the DCM. These results suggest that, particularly at the intensive margin, the duration of both of these activities declined significantly. This decrease may reflect an improvement in the quality of medical care, both from a substitution from ER-based healthcare to a more routine source of physician care. Furthermore, any decrease in time spent waiting for medical care would represent a more productive shift. The decrease in labor supply and time spent waiting for and receiving medical care has freed up time for young adults to allocate towards other activities.

To the best of our knowledge, we also provide the first estimates on these other uses of time. Specifically, we find that, in addition to job search, this extra time has flowed into socializing, and to a lesser extent, into educational activities. We further contribute to the literature by assessing whether these shifts in activities are welfare-improving from the respondent's own standpoint. Here, we find that the availability of insurance and change in work time appears to have increased the subjective well-being of young adults, enabling them to spend time on activities that they view as more meaningful than those they did before insurance became available. It should be noted that the DCM was a mandate for insurers, but opting to obtain coverage under their parents' plans, now made possible by the DCM, was of course voluntary. Thus, those taking advantage of the DCM would be the ones who would presumably

benefit from it, and the reallocation of time is presumably optimal from the standpoint of utility maximization. This is consistent with our results which are suggestive that the shift in activities is associated with an increase in subjective well-being. Overall, the results from this study suggest that the ACA's dependent care coverage mandate has shifted labor supply outcomes and uses of time, and raised the reported well-being of young adults in ways that are consisted with its stated rationales.

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Table 1
Sample Statistics
ATUS 2003 – 2013

Variable	Ages 19 to 25	Ages 23 to 25	Ages 27 to 34
Work excluding job search (in minutes)	213.4	250.0	264.7
	(344.8)	(359.9)	(371.3)
Respondent employed (%)	72.2	78.1	80.1
	(0.6)	(0.6)	(0.5)
Work time among workers (in minutes)	438.1	455.6	466.2
	(216.3)	(209.5)	(226.6)
Job Search and Interviewing (in minutes)	3.2	3.1	2.4
	(36.9)	(38.5)	(31.9)
Exercise (in minutes)	22.2	20.3	15.8
	(85.6)	(89.2)	(65.6)
Medical Care (receiving & waiting) (in minutes)	1.7	1.7	1.8
	(23.4)	(21.1)	(23.8)
Receiving Medical Care (in minutes)	1.5	1.4	1.6
	(22.2)	(19.4)	(21.0)
Time spent receiving medical if medical >0 (in minutes)	77.3	74.7	77.6
	(94.0)	(80.7)	(89.8)
Waiting for medical services (in minutes)	0.2	0.3	0.3
	(4.9)	(5.7)	(6.4)
Time waiting for medical if medical>0 (in minutes)	11.9	14.3	10.0
	(29.7)	(36.3)	(27.6)
Education (in minutes)	51.9	32.8	14.6
	(210.8)	(175.5)	(116.4)
Sleep (in minutes)	539.6	530.2	510.5
	(201.4)	(192.4)	(170.6)
Eating & drinking (in minutes)	60.0	62.5	64.7
	(69.9)	(73.6)	(69.0)
Purchasing goods & services (in minutes)	25.1	24.7	28.6
	(65.9)	(63.7)	(69.0)
Socializing & relaxing except television (in minutes)	125.9	112.5	92.0
	(215.9)	(204.9)	(170.4)
Happiness (0-6)	4.3	4.3	4.3
	(1.8)	(1.9)	(1.9)
Meaningfulness (0-6)	4.0	4.0	4.2
	(2.3)	(2.4)	(2.2)
Sadness (0-6)	0.4	0.4	0.5
	(1.1)	(1.2)	(1.5)
Stress (0-6)	1.4	1.5	1.6
	(2.0)	(2.2)	(2.2)
Tiredness (0-6)	2.4	2.5	2.5
	(2.2)	(2.2)	(2.2)
Female (%)	49.6	51.1	50.2
	(0.7)	(0.7)	(0.7)
High School (%)	30.7	27.9	26.3
	(0.6)	(0.6)	(0.6)
Some college (%)	42.4	33.2	25.3
	(0.7)	(0.7)	(0.6)

College or more (%)	14.8	27.3	37.4
	(0.5)	(0.6)	(0.7)
Widowed (%)	0.0	0.0	0.2
	(0.0)	(0.0)	(0.1)
Divorced (%)	2.3	3.6	7.7
	(0.2)	(0.2)	(0.3)
Never married (%)	81.4	70.5	34.3
	(0.5)	(0.6)	(0.7)
Hispanic (%)	20.5	19.5	19.3
	(0.5)	(0.5)	(0.5)
Non-Hispanic black (%)	12.6	11.8	11.4
	(0.4)	(0.4)	(0.4)
Non-Hispanic other (%)	6.3	6.8	7.3
	(0.4)	(0.4)	(0.4)
Time diary incomplete (%)	12.5	12.1	12.8
	(0.5)	(0.5)	(0.4)
Observations	9852	4834	20951

Notes: Weighted means are reported. Standard deviations are reported in parentheses. Number of observations represents maximum sample size. For some variables, the sample size is smaller due to missing information. For the subjective well-being measures, the sample size is 2160, 1071, and 4887 for the 3 respective samples (see text). Minutes refers to minutes per day.

Table 2
Effect of the ACA DCM on Labor Supply

Model	1	2	3	4	5	6	7
Treatment group	Ages 19-25				Ages 23-25		
Post indicator represents:	Post-2010	Post-2011	Post-2011	Post-2011	Post-2010	Post-2011	Post-2011
Sample	All	All	State Ineligible	All	All	All	State Ineligible
Work excluding job search	-17.82***	-23.20***	-20.86*	-17.02**	-15.67*	-25.33**	-11.64
	(6.67)	(7.95)	(11.47)	(6.68)	(8.59)	(10.42)	(13.98)
	[0.85]	[0.85]	[0.37]	[0.78]	[0.39]	[0.39]	[0.21]
	N=30,803	N=28,265	N=17,476	N=30,803	N=25,785	N=23,684	N=16,544
Respondent employed	-0.04***	-0.06***	-0.05**	-0.04***	-0.06***	-0.08***	-0.07***
	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
	[0.08]	[0.08]	[0.70]	[0.08]	[0.29]	[0.29]	[0.39]
	N=30,803	N=28,265	N=17,476	N=30,803	N=25,785	N=23,684	N=16,544
Work time among workers	-5.19	-0.30	6.58	-5.21	11.49	14.40	24.83
	(8.40)	(10.11)	(14.19)	(8.44)	(10.08)	(12.18)	(15.58)
	[0.90]	[0.90]	[0.37]	[0.95]	[0.68]	[0.68]	[0.34]
	N=13,703	N=12,542	N=8,102	N=13,703	N=11,756	N=10,768	N=7,716
Job Search and Interviewing	0.95	2.70**	-0.14	0.91	2.23*	4.07**	0.48
	(0.90)	(1.25)	(1.19)	(0.90)	(1.32)	(1.88)	(1.48)
	[0.69]	[0.69]	[0.74]	[0.69]	[0.81]	[0.81]	[0.80]
	N=30,803	N=28,265	N=17,476	N=30,803	N=25,785	N=23,684	N=16,544
State indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Day indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-specific linear trends	No	No	No	Yes	No	No	No

Notes: Coefficients on the interaction between the treatment group and the post-indicator are reported. Each coefficient represents a separate regression model. Clustered standard errors are in parentheses (see text). Square brackets report the p-values on the pre-policy linear trend (interaction of a linear year trend and the treatment group indicator for 2003 through 2010). All coefficients represent changes in minutes except for the indicator for employed, which shows the percentage point change associated with the policy. N represents the number of observations. Asterisks denote statistical significance as follows: *** 0.01 ≥ p-value; ** 0.05 ≥ p-value > 0.01; * 0.10 ≥ p-value > 0.05.

Table 3
Effect of the ACA DCM on Time Receiving & Waiting for Medical Care

Model	1	2	3	4	5	6	7
Treatment group	Ages 19-25				Ages 23-25		
Post indicator represents:	Post-2010	Post-2011	Post-2011	Post-2011	Post-2010	Post-2011	Post-2011
Sample	All	All	State Ineligible	All	All	All	State Ineligible
Medical Care	-0.19	-0.43	0.09	-0.19	-0.51	-0.67	-0.41
(receiving & waiting)	(0.40)	(0.50)	(0.65)	(0.40)	(0.46)	(0.55)	(0.70)
	[0.69]	[0.69]	[0.35]	[0.60]	[0.56]	[0.56]	[0.25]
Receiving Medical Care	-0.03	-0.21	0.11	-0.02	-0.20	-0.27	-0.05
	(0.36)	(0.44)	(0.54)	(0.36)	(0.39)	(0.48)	(0.63)
	[0.93]	[0.93]	[0.44]	[0.95]	[0.87]	[0.87]	[0.38]
Receiving medical care	-35.09**	-35.16*	-34.30	-28.92	-36.80*	-25.46	-45.14*
(medical care>0)	(16.38)	(19.06)	(23.69)	(18.05)	(20.39)	(22.13)	(25.66)
	[0.44]	[0.44]	[0.15]	[0.44]	[0.41]	[0.41]	[0.11]
Waiting for medical care	-0.18	-0.23	-0.05	-0.18	-0.35*	-0.43*	-0.39*
	(0.13)	(0.17)	(0.24)	(0.13)	(0.19)	(0.22)	(0.20)
	[0.34]	[0.34]	[0.26]	[0.33]	[0.42]	[0.42]	[0.15]
Waiting for medical care	-15.91**	-17.96**	-6.82	-10.00	-19.43*	-22.41*	-22.43**
(medical care>0)	(7.19)	(9.08)	(12.08)	(7.28)	(10.95)	(12.51)	(10.25)
	[0.44]	[0.44]	[0.20]	[0.40]	[0.59]	[0.59]	[0.10]
State indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Day indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-specific linear trends	No	No	No	Yes	No	No	No

Notes: Coefficients on the interaction between the treatment group and the post-indicator are reported. Each coefficient represents a separate regression model. Clustered standard errors are in parentheses (see text). Square brackets report the p-values on the interaction of a linear year trend and the treatment group indicator for 2003 through 2010. All coefficients represent changes in minutes. Sample sizes for the non-truncated outcomes are similar to those listed in Table 2 (ranging from 16,544 to 30,803). Asterisks denote statistical significance as follows: *** 0.01 ≥ p-value; ** 0.05 ≥ p-value > 0.01; * 0.10 ≥ p-value > 0.05.

Table 4
Effect of the ACA DCM on Other Uses of Time

Model	1	2	3	4	5	6	7
Treatment group	Ages 19-25				Ages 23-25		
Post indicator represents:	Post-2010	Post-2011	Post-2011	Post-2011	Post-2010	Post-2011	Post-2011
Sample	All	All	State Ineligible	All	All	All	State Ineligible
Exercise	-0.55	0.49	-3.94	-0.66	-1.25	0.72	-2.60
	(1.84)	(2.18)	(2.71)	(1.84)	(2.27)	(2.89)	(3.27)
	[0.23]	[0.23]	[0.85]	[0.27]	[0.13]	[0.13]	[0.47]
Education	6.41**	7.97**	4.81	6.35*	3.16	4.01	2.04
	(3.26)	(3.92)	(2.97)	(3.25)	(3.48)	(4.00)	(3.24)
	[0.26]	[0.26]	[0.19]	[0.27]	[0.28]	[0.28]	[0.12]
Sleep	2.02	1.47	4.34	1.75	2.20	0.86	-0.27
	(4.24)	(5.24)	(7.52)	(4.23)	(5.23)	(6.66)	(8.51)
	[0.19]	[0.19]	[0.06]	[0.19]	[0.12]	[0.12]	[0.03]
Eating & drinking	-1.24	-0.95	-3.43	-1.24	-1.86	-2.16	-4.34
	(1.51)	(1.79)	(2.37)	(1.51)	(1.99)	(2.30)	(2.71)
	[0.72]	[0.72]	[0.36]	[0.77]	[0.27]	[0.27]	[0.30]
Purchasing goods & services	-2.14	-3.28*	-4.98**	-2.21	-2.40	-2.53	-4.65
	(1.51)	(1.78)	(2.52)	(1.51)	(1.85)	(2.21)	(2.94)
	[0.11]	[0.11]	[0.85]	[0.09]	[0.03]	[0.03]	[0.47]
Socializing & relaxing	8.80**	12.96**	7.63	8.88**	3.63	10.01	3.09
(except TV)	(4.41)	(5.49)	(7.07)	(4.43)	(5.34)	(6.66)	(8.44)
	[0.84]	[0.84]	[0.14]	[0.81]	[0.60]	[0.60]	[0.37]
State indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Day indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-specific linear trends	No	No	No	Yes	No	No	No

Notes: See Table 3.

Table 5
Placebo Models
2003 – 2008/2009

Model	1	2	3	4	5	6	7
Treatment group	Ages 19-25				Ages 23-25		
Post indicator represents:	2007-2009	2007-2009	2007-2008	2007-2009	2007-2009	2007-2008	2007-2009
Sample	All	All	State Ineligible	All	All	All	State Ineligible
Work excluding job search	12.09*	19.84**	24.60**	11.46	15.31*	23.74**	12.27
	(7.27)	(8.56)	(11.19)	(7.27)	(8.44)	(10.58)	(12.71)
Respondent employed	0.00	0.01	0.00	0.00	0.02	0.04**	0.00
	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
Work time among workers	0.95	8.99	7.44	0.81	5.12	7.20	-0.60
	(8.38)	(9.68)	(12.50)	(8.43)	(9.86)	(11.78)	(14.05)
Job search & interviewing	-0.48	-0.46	-0.17	-0.47	-1.13*	-1.33*	-0.11
	(0.63)	(0.77)	(0.88)	(0.63)	(0.67)	(0.76)	(0.93)
Exercise	2.48	3.88*	1.77	2.33	3.26	4.06	2.28
	(1.92)	(2.23)	(2.92)	(1.91)	(2.51)	(2.96)	(3.21)
Medical Care	0.11	0.36	-0.57	0.13	0.34	0.42	-1.12
(receiving & waiting)	(0.43)	(0.49)	(0.66)	(0.43)	(0.57)	(0.67)	(0.75)
Receiving medical care	-0.10	0.07	-0.34	-0.07	0.16	0.23	-0.64
	(0.35)	(0.38)	(0.53)	(0.35)	(0.40)	(0.45)	(0.56)
Receiving medical Care	-10.08	0.84	-11.61	-6.50	-16.90	5.35	-48.38
(medical care>0)	(16.59)	(19.35)	(27.79)	(16.68)	(21.44)	(23.55)	(34.84)
Waiting for medical care	0.20	0.29	-0.26	0.19	0.19	0.23	-0.52*
	(0.17)	(0.22)	(0.23)	(0.17)	(0.26)	(0.33)	(0.30)
Waiting for medical care	7.66	17.10	-5.31	8.53	-6.63	0.85	-25.92*
(medical care>0)	(8.37)	(10.51)	(14.13)	(9.07)	(10.46)	(12.48)	(15.13)
Education	2.19	0.15	-3.02	2.15	-4.24	-6.09	-5.80**
	(3.60)	(4.16)	(2.42)	(3.59)	(3.76)	(4.20)	(2.84)
Sleep	-6.39	-13.02***	-9.17	-6.61	-11.34**	-15.85***	-6.78
	(4.52)	(5.00)	(6.75)	(4.53)	(5.31)	(5.97)	(7.11)
Eating & drinking	-1.22	-0.82	0.41	-1.31	0.74	1.15	-0.98
	(1.52)	(1.72)	(2.37)	(1.52)	(2.00)	(2.26)	(2.76)
Purchasing goods & services	1.50	1.52	-3.42	1.70	2.64	2.07	-3.64
	(1.70)	(1.89)	(2.66)	(1.70)	(2.00)	(2.23)	(3.02)
Socializing & relaxing	-9.24**	-10.14*	-5.31	-8.95**	-5.29	-7.67	0.61
(except TV)	(4.41)	(5.23)	(6.87)	(4.44)	(5.48)	(6.56)	(8.15)

Notes: Coefficients on the interaction between the treatment group and the post-indicator are reported. Each coefficient represents a separate regression model. Clustered standard errors are in parentheses (see text). See Tables 2-4. Asterisks denote statistical significance as follows: *** 0.01 ≥ p-value; ** 0.05 ≥ p-value > 0.01; * 0.10 ≥ p-value > 0.05.

Table 6
Effect of the ACA DCM on Subjective Well-being

Model	1	2	3	4	5	6	7
Treatment group	Ages 19-25				Ages 23-25		
Post indicator represents:	Post-2010	Post-2011	Post-2011	Post-2011	Post-2010	Post-2011	Post-2011
Sample	All	All	State Ineligible	All	All	All	State Ineligible
Happiness	0.14**	0.14**	0.18	0.14**	0.11	0.11	0.13
	(0.07)	(0.07)	(0.14)	(0.07)	(0.09)	(0.09)	(0.16)
	N=7,042	N=7,042	N=3,950	N=7,042	N=5,954	N=5,954	N=3,785
Meaningfulness	0.19**	0.19**	0.25	0.17*	0.03	0.03	0.11
	(0.09)	(0.09)	(0.17)	(0.09)	(0.11)	(0.11)	(0.19)
	N=7,041	N=7,041	N=3,950	N=7,041	N=5,954	N=5,954	N=3,785
Sadness	-0.00	-0.00	-0.01	0.00	-0.08	-0.08	-0.05
	(0.06)	(0.06)	(0.09)	(0.06)	(0.08)	(0.08)	(0.11)
	N=7,047	N=7,047	N=3,952	N=7,047	N=5,958	N=5,958	N=3,787
Stress	-0.00	-0.00	-0.09	0.02	-0.05	-0.05	-0.06
	(0.08)	(0.08)	(0.15)	(0.08)	(0.10)	(0.10)	(0.16)
	N=7,047	N=7,047	N=3,952	N=7,047	N=5,958	N=5,958	N=3,787
Tiredness	-0.04	-0.04	-0.20	-0.04	-0.11	-0.11	-0.33*
	(0.09)	(0.09)	(0.15)	(0.09)	(0.12)	(0.12)	(0.18)
	N=7,047	N=7,047	N=3,952	N=7,047	N=5,958	N=5,958	N=3,787
State indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Day indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-specific linear trends	No	No	No	Yes	No	No	No

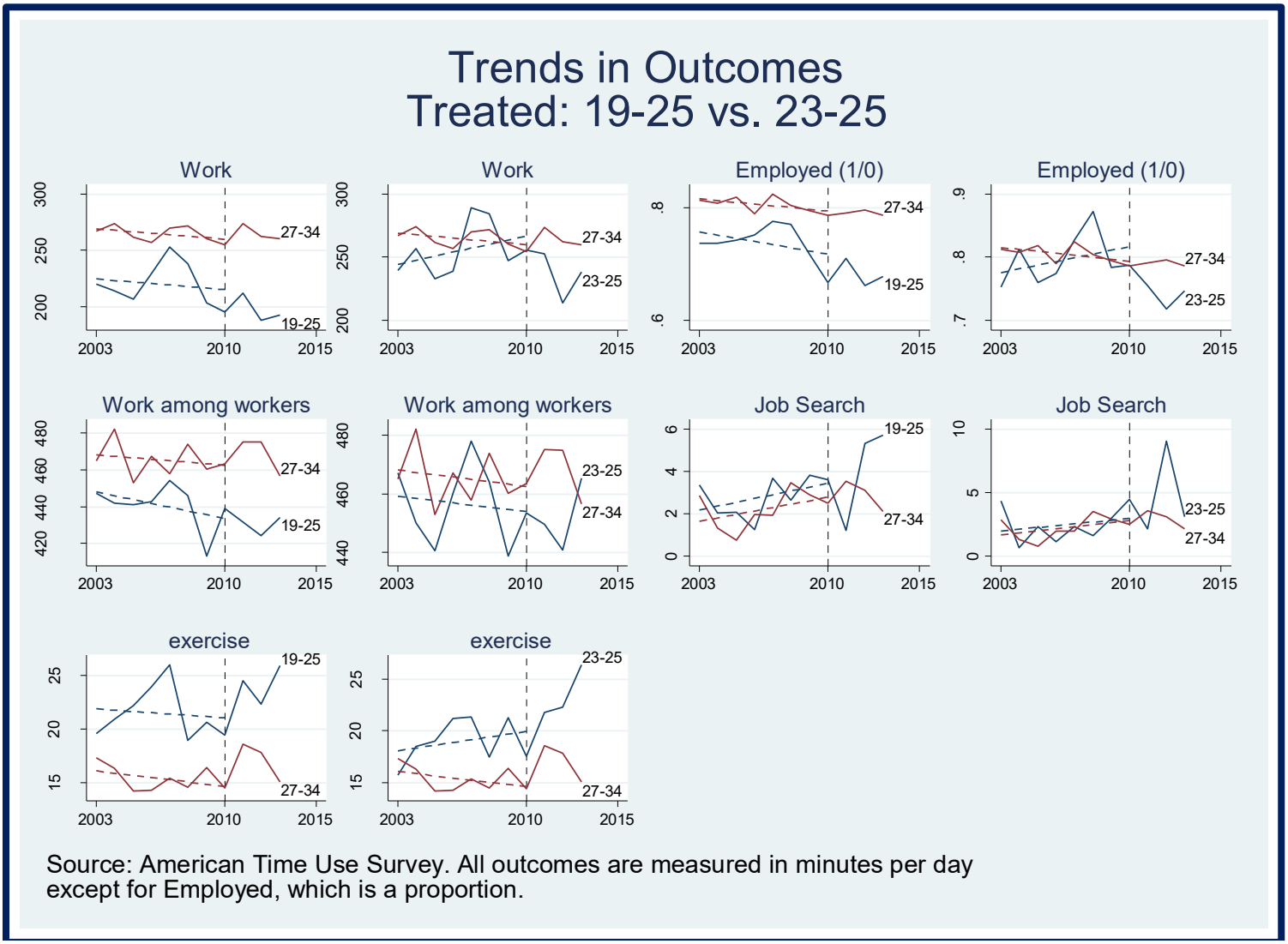
Notes: Coefficients on the interaction between the treatment group and the post-indicator are reported. Each coefficient represents a separate regression model. Clustered standard errors are in parentheses (see text). All coefficients represent changes in the weighted measure of each affect, which ranges from 0 to 6. The Well-being outcomes have only one row (and no pre-ACA interactions) because the Well-being Supplement was administered only in 2010, 2012, and 2013. N represents the number of observations. Asterisks denote statistical significance as follows: *** 0.01 ≥ p-value; ** 0.05 ≥ p-value > 0.01; * 0.10 ≥ p-value > 0.05.

Appendix Table 1
Dynamic Effect of the ACA DCM on Labor Supply

Outcome	Work Time	Work Time	Employed	Employed
Treatment Group* Years 2004-2005	-5.768 (14.95)	-5.710 (14.95)	-0.0111 (0.0282)	-0.0111 (0.0281)
Treatment Group* Years 2006-2007	11.39 (16.60)	11.42 (16.60)	-0.0158 (0.0285)	-0.0157 (0.0285)
Treatment Group* Years 2008-2009	1.898 (14.65)	1.939 (14.65)	0.00729 (0.0266)	0.00733 (0.0266)
Treatment Group*Year 2011	1.403 (17.13)		-0.0405 (0.0328)	
Treatment Group*Year 2012	-19.84 (19.93)		-0.0785** (0.0350)	
Treatment Group*Year 2013	-31.05* (17.09)		-0.104*** (0.0317)	
Treatment Group* Years 2011-2013		-15.14 (14.89)		-0.0726*** (0.0267)
Observations	22053	22053	22053	22053

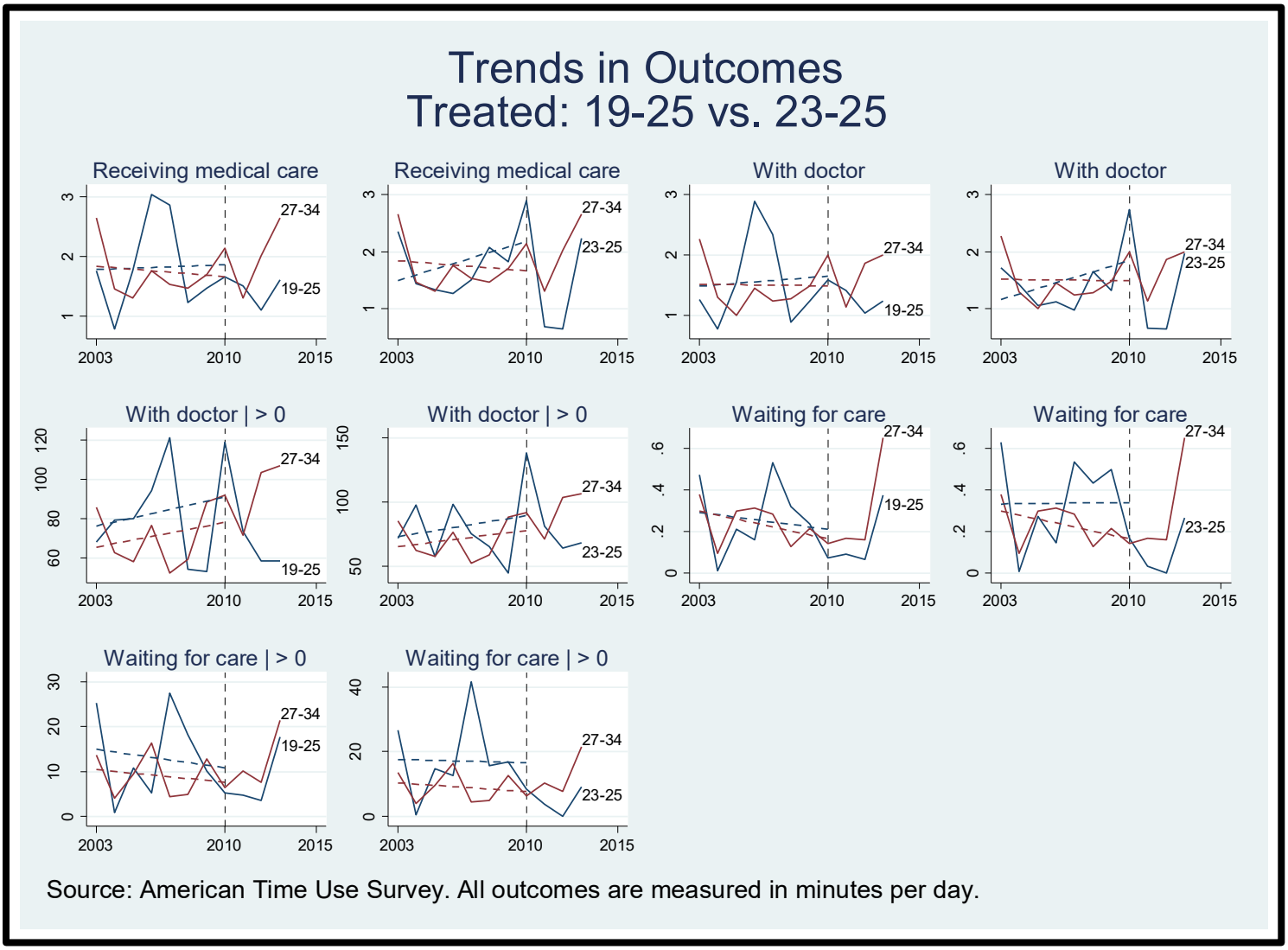
Notes: Treatment group comprises individuals ages 23-25. The reference pre-adoption period is 2010. See additional notes to Table 2.

Figure 1



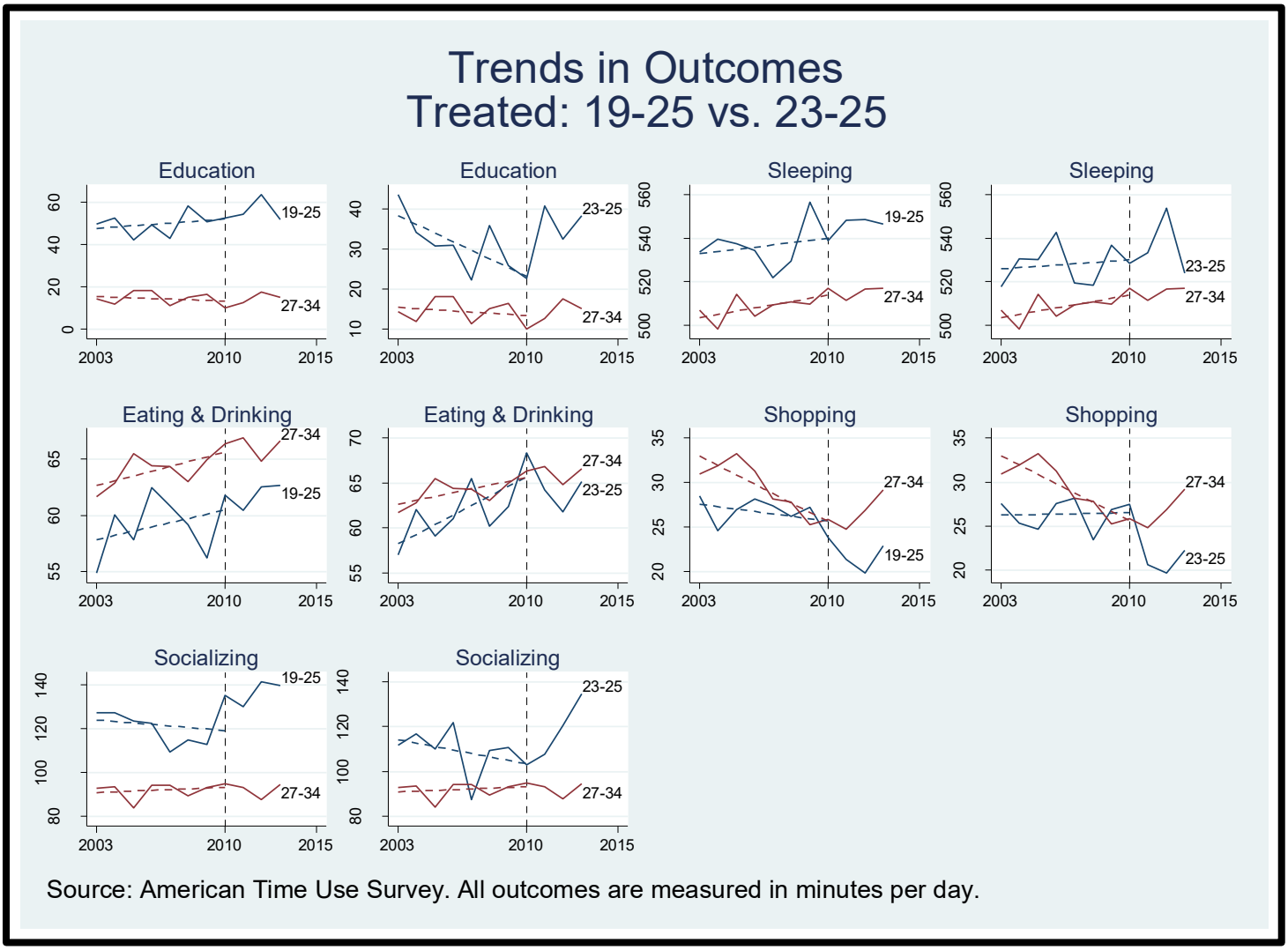
Source: American Time Use Survey. All outcomes are measured in minutes per day except for Employed, which is a proportion.

Figure 2



Source: American Time Use Survey. All outcomes are measured in minutes per day.

Figure 3



Source: American Time Use Survey. All outcomes are measured in minutes per day.