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ISSN: 2365-9793

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ABSTRACT

The Effects of the Affordable Care Act on Labour Supply and Other Uses of Time

A vast literature studies the behavioural impacts of health care reforms, often coming to controversial conclusions. Here we examine the time allocation effects of the Affordable Care Act, also known as Obama Care, focusing on two ACA pillars: Medicaid expansion, which increased access to public health insurance, and the Tax Credit Premium, subsidizing the purchase of private health insurance. Using 2012-2015 daily diary data from the American Time Use Survey, we take a triple differences-in-differences approach, which exploits the cross-state variation in the timing of ACA implementation, together with differences in income eligibility thresholds, to identify the effects at stake. Considering a sample of childless adults, a group not eligible to public health insurance before ACA, we find that the Medicaid expansion reduced their labour supply by over an hour per day, increasing part-time work, while the Premium Tax Credit raised employment by about 7 percentage points. The implications for other uses of time are also studied.

JEL Classification: I13, J08, J22
Keywords: Affordable Care Act, labor supply, time allocation

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1 Introduction

It is well established that access to healthcare may impact individual economic behaviour. Here we examine the effects of the Affordable Care Act (ACA) on individual labour supply and other uses of time.

The ACA was signed into law by President Barack Obama on 23 March 2010. It is widely recognized that ACA represents the largest expansion ever of the US health care system from Medicare, a reform passed in the mid-1960s of the last century. Before the ACA, many Americans did not have access to public health insurance or to a private (employer-provided) health care plan. The ACA aims at both expanding access to public health care for poor households and making private healthcare affordable, thus virtually granting universal health insurance coverage. The literature generally converges to conclude that the ACA has substantially increased health insurance coverage (Antwi et al. 2013; Barbaresco et al. 2015; Cantor et al. 2012; Courtemanche et al. 2017; Frean et al. 2017; Kaestner et al. 2017; Sommers and Kronick, 2012; Wherry et al. 2016).[1] Indeed, before the ACA, only specific groups, such as, for example, poor households with young children or those aged more than 65, had access to public health insurance in the US, while only a subset of workers, among those working full-time, could benefit from employer-provided health insurance.

A vast literature studies whether the expansive health-insurance coverage offered by ACA affected employment and hours worked, as well as "job lock" and "job push" (i.e. whether a worker takes a job that matches their skills and preferences). The first component of the ACA reform, the Dependent Coverage Mandate, which extended the parent healthcare coverage to adult children, is the most studied to date, though the literature is also growing on the later ACA pillar (known as "Medicaid expansion") that expanded public healthcare to households with income below a certain threshold (calculated as a function of the Federal poverty line), regardless of the presence of children in the household. In contrast, there are no studies to date, to the best of our knowledge, of the labour supply effects of the ACA Premium tax credit for households to purchase private health-insurance.

Earlier work on the effects of ACA on individual time allocation focused on the first ACA pillar, the Dependent Coverage Mandate, which came into force in September 2010[2], finding a reduction in labour supply (Depew, 2015; Dillender et al. 2022; Duggan et al. 2021). Using data from the American Time Use Survey, other schol-

[1] In line with the literature concluding that since the introduction of Medicare (public health insurance for the elderly aged 65), the number of uninsured people aged over 65 has dramatically fallen (Card et al. 2008 and 2009).

[2] Prior to this, employment-sponsored insurance (ESI) covered insured workers' children until the age of 19, if not enrolled in school, and until the age of 24, if students. The ACA made coverage available up to age 26 for adult children. In 2009, before the ACA Dependent Coverage Mandate, 31.4 % of those 19–25 years old lacked coverage.

ars found an increase in part-time work for eligible young people (Lenhart et al. 2017; Archambault and Baker, 2018) and a reduction in job locks, together with an increase in the time devoted to leisure activities and job search (Colman and Dave, 2018). Aslim (2022) used the monthly Current Population Survey to study the Medicaid Expansion, concluding for an increase in part-time work by childless adults but for no effect at the extensive margin, on labour market participation. Contrasting evidence on the employment effects of ACA was found by Bailey and Chorniy (2015), Kaestner et al. (2017) and Moriya et al. (2016). Gooptu et al. (2016) and Leung and Mas (2018) did not find any effect of the Medicaid expansion on labour supply.[3] From a theoretical standpoint, Nakajima and Tuzemen (2016) developed a general equilibrium model of labour demand and supply, incorporating health insurance in the model, to predict that the Medicaid expansion would increase part-time employment. However, to the best of our knowledge, none of the earlier studies examined the employment effects of the Tax Premium Subsidy pillar.

The ACA Medicaid expansion was implemented at different points in time across states, starting in 2014, with some states not putting it into force (due to a Supreme court decision, leaving states the freedom to implement this ACA pillar or not). In contrast, the ACA Premium Tax Credit was implemented in all states in 2014, but its income eligibility threshold varies depending on whether each state has implemented the Medicaid expansion or not.[4] In particular, households with income above 138% of the Federal Poverty Level (FPL) are not eligible for the Medicaid expansion, while those with income above 400% of the FPL are not eligible for the Premium Tax Credit. However, in states that have not yet enforced the Medicaid expansion, the ACA tax credits are available starting at 100% of the FPL, while in Medicaid expansion states, the tax credits begin at 138% of the FPL.[5] This cross-states variation in the timing of implementation and in income eligibility thresholds enables us to identify the effects of these two ACA policies on labour supply and other uses of time.

Thus, we take a (triple) difference-in-difference-in-difference (DDD) approach to estimate the effect of the Medicaid Expansion and the Tax Credits on the labour supply of the potential beneficiaries, and also we allow the effects to differ in 2014 and 2015 (as in Frean et al. 2017, who focused on the coverage effects of ACA). In particular, in the case of Medicaid expansion, the control group includes individuals with income above the eligibility threshold, as well as those residing in states that did not put this ACA pillar into force; while for the ACA tax credit, the control group includes individuals with income outside the eligibility range, which additionally

[3]There are also contrasting findings on the employment effects of Medicaid eligibility extensions prior to the Obama Care Reform (Baicker et al. 2014; Barkowski, 2020; Dave et al. 2015; Garthwaite et al. 2014).

[4]In Appendix A, Table A1 and Figure A1 summarize the expansion status and expansion dates for each State.

[5]See Table A1 in the Appendix, for more details.

varies depending on whether the state had yet implemented Medicaid expansion or not.

In particular, we focus on childless adults of working age (27-64 years old), encompassing both singles and individuals in a couple, who were not eligible for public health care before the ACA Medicaid expansion. The threshold at age 27 is set explicitly to exclude from our sample youth eligible for the dependent Coverage Mandate, which targeted young people aged up to 26. We use for the analysis daily data on the hours devoted to market work, household work and leisure time, for a representative sample of Americans, drawn from the American Time Use Survey. We can then capture the effects of the reform on the actual hours of work and other uses of time of childless adults, potentially eligible for Medicaid Expansion or Tax Credit Premium Subsidies.

We conclude that the Medicaid expansions reduced the hours worked by childless individuals by well over an hour per day and that part-time work increased. These effects are robust to several checks. In terms of heterogeneity, the labour supply responses to the ACA Medicaid expansion are stronger for women, older workers aged above 50, and those without college. We also find evidence that Medicaid expansion increased household work, and especially, household management activities, as well as caring for other households and volunteering, but slightly reduced the time devoted to practising sports. In contrast, the ACA Tax credit premium increased employment by about 7 percentage points but reduced leisure time by almost half an hour per day.

As noted above, this study contributes to the literature that has analyzed labor supply and time use responses to Medicaid expansion programs and that finds mixed results. In particular, our empirical estimates are consistent with those reported by Aslim (2022), Lenhart et al. (2017) and by Archambault and Baker (2018). However, while Aslim (2022)'s results hold around a neighbor of the reform eligibility cutoff (138% of FPL) and for the tails of the age distribution and Lenhart et al. (2017)'s findings are related to young people only, our analysis seems to have a wider external validity since our main estimates are not affected by individuals age.
Moreover, our understanding of this literature is that most contributions focus mainly on the first two pillars of the ACA reform, namely the Dependent Coverage Mandate and the Medicaid eligibility expansions. However, the ACA also introduced Premium subsidies and health insurance marketplaces in all states. While some authors, as noted above, do acknowledge that such measures might have an impact of labour supply (like a reduction in employment lock), this is, to the best of our knowledge, the first study that simultaneously identifies the impact of the introduction of both Medicaid expansion and Premium subsidies on labour supply and time use. Indeed, the contemporaneous analysis of both reforms allows us to estimate more precisely their effects, by creating appropriate control and treatment groups for each policy and dis-

entangling their separate effects. In particular, our identification strategy allows us to account for the possibility that individuals in non adopting states and with income below the threshold for Premium subsidies, might have incentives to work more and qualify for subsidies; neglecting Premium subsides thus might induce a downward bias in the impact of the Medicaid reform on labor market outcomes.
Finally, this is the first study that analyses the impact of Medicaid expansion and Tax Credit reforms on individuals time use, thus providing a more rich picture of the effects of these reforms. The rest of the paper is organized as follows. Section 2 presents the data. Section 3 illustrates the empirical model. The results of estimation are discussed in Section 4. Section 5 shows results with respect to other uses of time and the last section draws conclusions.

2 Data

We use for the analysis data drawn from the American Time Use Survey (ATUS), which is conducted by the Census for the Bureau of Labor Statistics on a continuous basis, from January to December, on weekends or festivities. The ATUS sample is a random sub-sample of respondents to the Current Population Survey (CPS), who are asked to fill in an activity diary, recording all their activities in the past 24 hours. About 10,000 household per year are interviewed.

The sample for our analysis includes childless individuals, aged between 27 and 64, encompassing both singles and individuals in a couple (either married or cohabiting), who were not eligible for Medicaid before the 2014 ACA Expansion.

The main outcomes are the hours worked and the employment status (defined based on whether the individual reported to work on the diary day; but we also use the CPS employment information, for robustness checks). We also consider as working only those reporting a minimal number of hours worked per day (see the footnotes on the tables of results for details). Part-time work is defined as working less than 30 hours per week, based on the ATUS diary (i.e. less than 400 minutes per day). Household work is defined as to include main chores, such as cleaning, cooking, setting the table, doing the dishes, doing the laundry, shopping for food. Household management activities, such as for example, checking the accounts, are considered separately. Voluntary work is also considered as an outcome, together with caring for individuals from other households. Leisure activities include doing sports, attending cultural and sport events, socialising, as well as watching television.

The individual characteristics considered include gender, age, marital status, education, ethnicity, state of residence, a dummy for living in a rural or urban area, and dummies for household income categories, as household income is collected in brackets in the CPS -and we perform robustness checks for the eligibility brackets. To determine eligibility to the ACA pillars of Medicaid expansion and Tax Credit

Premiums, respectively, we consider the household income bracket and compare it to the ACA pillar eligibility income, which is defined as function of the Federal Poverty Lines (FPL). For the latter, we use data of the Kaiser Family Foundation.[6] In particular, households with income above 138% of the FPL are not eligible to the Medicaid expansion, while those with income above 400% of the FPL are not eligible to the Premium Tax Credit. In states that have not yet enforced the Medicaid expansion, the tax credits are available starting at 100% of FPL, while in Medicaid expansion states, the tax credit subsidies begin at 138% of FPL.[7] We report descriptive statistics for the sample characteristics, pooling together the years in the analysis, in the Appendix (Table A2).

3 Empirical approach

To identify and estimate the impacts of the ACA Medicaid expansion and Tax Premium subsidies on individual labour supply and other uses of time, we rely on a triple Differences-in-Differences specification, additionally allowing the impacts of these two ACA pillars to differ between 2014 and 2015 (as in Frean et al. 2017), to account for specific ACA features, such as the enforcement penalties, which varied over time. Our empirical model is the following:

$$\begin{aligned} Y_{ijt} = {} & A + \alpha Ypov_i + \beta StateMed_{jt} + \gamma Year + \zeta Month + \eta States_j + \\ & + \tau Ypov_i * States_j + \varrho Year * States_j + \delta Ypov_i * StateMed * Post14 + \\ & + \theta Ypov_i * StateMed * Post15 + \eta Premium + \lambda Premium * Post14 + \\ & + \Lambda Premium * Post15 + mX_{ijt} + \rho U_{jt} + v \end{aligned} \tag{1}$$

where subscript i indexes the individual, j indicates the state of residence of the respondent, while t indicates the year of the survey, which ranges from 2012 to 2015. We only observe each individual once.[8] Y_{ijt} refers to outcomes for the individual i resident in state j at time t. *Ypov* is a dummy that assumes value 1 if the individual i is potentially eligible for Medicaid, with household income below the Federal Poverty Line (FPL) threshold for Medicaid expansion eligibility. The variable *Premium* is a dummy taking value 1 if the individual i is potentially eligible for the ACA Tax Premium credit, based on their household income and zero otherwise. *StateMed* is a dummy that takes value 1 if the state expanded Medicaid (on the date of the respondent diary), and 0 otherwise. *Year*, *Month* and *States* are fixed effects for, respectively, year, month and state. *Ypov*States* is an interaction variables of Medicaid expansion income eligibility and state of residency dummy. *Year*States* is an interaction vari-

[6] Other scholars used FPL data from the Kaiser Family Foundation, such as, for example, Sommers et al. (2012) and Wherry et al. (2016).

[7] See Table A1 in the Appendix, for more details.

[8] For further details, see the Data Section.

able of survey year and state of residency dummy. The variables *Premium*Post14* and *Premium*Post15*, respectively, capture eligibility to Tax Premium subsidies in 2014 and 2015.

The vector X_{ijt} includes socio-demographic controls such as age, gender, education, marital status, a dummy for living in a rural or urban area, ethnicity, and household income (which is collected in income brackets, and we include dummies for each bracket but the first, which is the reference category). It also includes a weekend dummy, which takes value one if the respondent filled in the ATUS diary on a Saturday or a Sunday, to account for the variation in individual daily activities at weekends, versus week days. We control for the level of state monthly unemployment (U_{jt}) in the ATUS interview month.

The errors v are allowed to be correlated across states as we use robust standard errors clustered at state level. We use BLS ATUS weights throughout the analysis.[9] The model is estimated by OLS.

We can disentangle the effects of the two ACA pillars that we consider, thanks to the cross-state variation in the timing of implementation of the Medicaid Expansion between 2014 and 2015, with some states not implementing it at all, due to a Supreme Court Decision making the implementation arbitrary. In contrast, the Tax Credit pillar was implemented in all states in 2014, but the Federal Poverty Line threshold for its eligibility varied across states, depending on whether the Medicaid expansion was yet implemented by the state or not. Income eligibility thresholds also vary between childless singles and childless couples, which compose our sample, as the Federal Poverty Line (which is the reference to calculate the various ACA eligibility thresholds) differs across them. In particular, households with income above 138% of the Federal Poverty Level (FPL) are not eligible for the Medicaid expansion, while those with income above 400% of the FPL are not eligible for the Premium Tax Credit. However, in states that have not yet enforced the Medicaid expansion, the ACA tax credits are available starting at 100% of the FPL, while in Medicaid expansion states, the tax credits begin at 138% of the FPL.[10]

As already mentioned above, the effects of the two ACA pillars considered in this study, i.e. Medicaid expansion and Tax Premium credit, are allowed to vary in 2014 and 2015, to account for other features of ACA that varied over time such as the penalties for non compliance, as in Frean et al. (2017). Alternatively, we allow for the ACA pillars to have a different impact in the first and second year of their implementation, distinguishing between states that implemented the Medicaid Expansion in 2014 (labelled "cohort2014") and those that did so in 2015 (labelled "cohort2015"). Under this set up, the coefficients of interest, which capture the ACA effect on the

[9] We exploit a question on whether or not the survey questionnaire was incomplete for robustness check, by excluding from the estimation sample individuals with an incomplete questionnaire, which does not alter our conclusions in any meaningful way.

[10] See Table A1 in the Appendix, for more details.

outcomes, are, respectively, *Ypov*cohort2014*2014* and *Ypov*cohort2015*2015* for the first policy year and and *Ypov*cohort2014*2015* for the second policy year.[11]

Other robustness checks include the removal from the estimation sample of states that implemented some other previous expansions of Medicaid (see Appendix A4, Tables A4 and A5). By doing so, the estimation sample becomes closer to that in some earlier work of the ACA employment effects (Aslim, 2022; Kaestner et al. 2016; Leung and Mas, 2018). Nonetheless, other earlier ACA studies used a similar sample cut as we do in our main specification, including all states that implemented the ACA Medicaid expansion pillar (Courtemanche et al. 2017; Simon et al. 2017).

4 Empirical results

Table 1 shows the estimates of our main specification (Equation (1)) for labour market outcomes: working hours (intensive margins) and employment (extensive margin). All models include state, year, month fixed effects and controls for gender, age, education, marital status, race and ethnicity, urban/rural area of residence, household income, weekend dummy and state monthly unemployment rate. Observations are weighted using ATUS BLS sample weights. Standard errors are clustered at the state level.

The ACA Medicaid expansion negatively affected hours worked in 2015 (see column (1)). In particular, childless people reduced working time by about 45 minutes per day. On the contrary, working hours of potential recipients of the Premium Tax credit increased by 30 minutes per day in 2014 (the year of implementation of the tax credit pillar in all the states) but with no effect in 2015.

When restricting the sample to individuals who reported positive hours of work on the diary day (column (2)), the negative effect of the Medicaid expansion on working hours becomes about twice as large (in absolute value) and significant both in 2014 and 2015, while the Tax Premium effect fades away. Therefore, as reported in column (3), employment (the extensive margin) increased with eligibility to the ACA Tax Premium (by 7 percentage points) but it did not go up with access to Medicaid expansion, which in contrast reduced the hours worked (the intensive margin) by well over an hour per day, among the employed.

To better characterize these findings, and also, in light of the earlier ACA literature that focused on part-time versus full-time employment effects (see the Introduction), we consider part-time work outcomes, defining part-time as working less than 30 hours per week (see column (4) of Table 1). We find suggestive evidence that the reduction in hours worked due to the Medicaid expansion resulted in an increase

[11]These terms replace *Ypov*Post14* and *Ypov*Post15* in Equation (1). As suggested by Wooldridge (2021), such specification allows us to take into account the staggered nature of the implementation of the reform and to appropriately build control samples for each year under scrutiny.

Table 1: Effects of ACA pillars on labour market outcomes

Outcomes	Minutes of work	Minutes of work, if minutes>0	Employment	Part-time
	(1)	(2)	(3)	(4)
*Ypov*post*14*	-10.3784	-99.2441**	0.0412	0.0950
	(39.7109)	(43.0216)	(0.0707)	(0.0679)
*Ypov*post*15*	-44.7430*	-77.2080*	-0.0412	0.1450*
	(25.6152)	(41.7552)	(0.0441)	(0.0777)
*Premium*post*14*	32.0101*	-3.4873	0.0712**	-0.0040
	(16.9059)	(14.4326)	(0.0317)	(0.0283)
*Premium*post*15*	-6.7497	-10.4471	0.0019	0.0185
	(17.3339)	(19.7352)	(0.0246)	(0.0328)
Observations	10,417	4,805	10,417	4,805
R-squared	0.2658	0.1821	0.2293	0.2122
Years	12-15	12-15	12-15	12-15
Cluster level	state	state	state	state
Controls	√	√	√	√

Notes: The model is specified in Equation 1. Controls include: age, gender, education, marital status, metropolitan area of residence, ethnicity, income categories, weekend dummy, monthly state unemployment levels, state, month, year fixed effects. Standard errors are clustered at the state level. ATUS weights are applied. Labour supply is measured in minutes per day, preserving the diary format. Employment probabilities are measured on a 0 (not-employed) -1 (employed) scale. Part-time is a dummy 0 (full-time) - 1 (part-time) constructed considering only the sample of workers. Statistical significance is denoted as: p < 0.10 = *, p < 0.05 = **, p < 0.01 = ***.

in part-time employment by about 14 percentage points. This is in line with Aslim (2022) who found evidence of a large increase in part time employment in ACA Medicaid expansion states.[12] In contrast, we do not find any effect on part-time versus full-time employment for the Premium tax credit pillar of ACA, which only affects (positively) the decision to enter employment but not the hours worked, according to our estimates.

Next, we allow the effects of interest to vary across states that implemented the Medicaid expansion in 2014 (cohort14), and states that implemented it in 2015 (cohort15). The results of estimation (see Table 2) suggest that the ACA Medicaid expansion led to an overall reduction in labour supply of about one hour and forty minutes per day, on average, for the first group of states to implement this pillar, while no effect is found for the very few states that implemented it later on (whose low number might also explain at least in part the lack of precision of the estimates).

[12]Dillender et al. (2022) also concluded that the ACA's employer mandate, a different ACA component, induced an increase in "involuntary" part-time.

Table 2: Effect of ACA reform on labour outcomes: distinguishing earlier implementation states

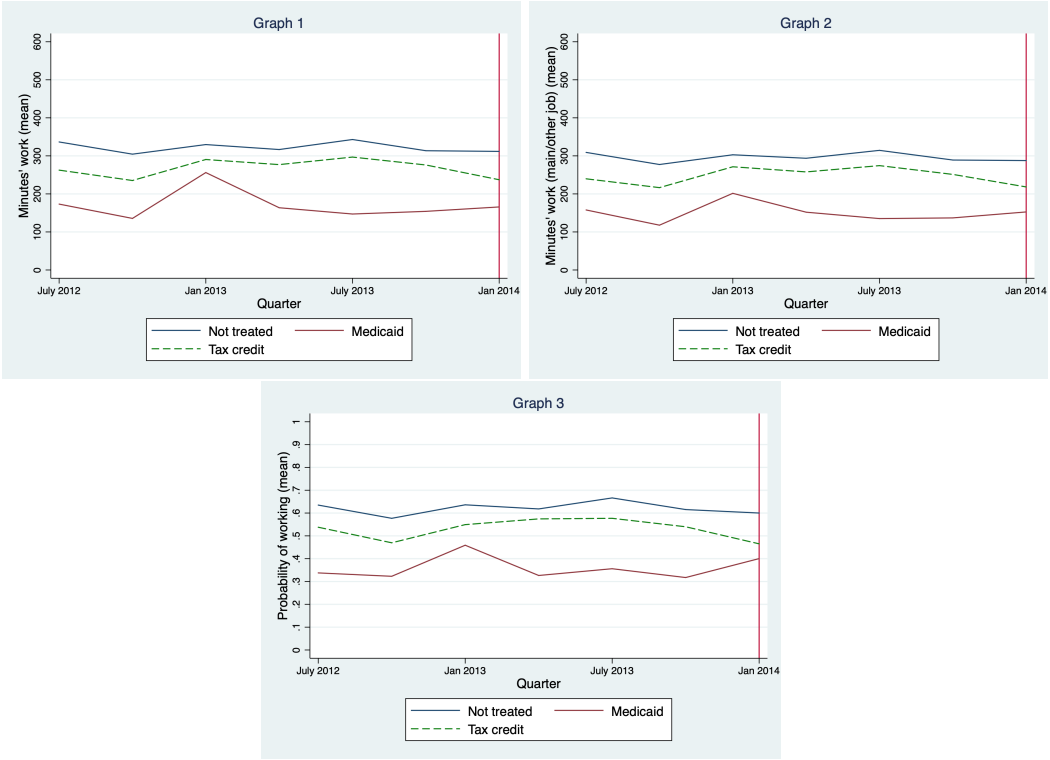
Outcomes	Minutes of work	Minutes of work, if minutes>0	Employment	Part-time
	(1)	(2)	(3)	(4)
*Ypov*cohort14*2014*	-10.8810	-106.4641**	0.0418	0.1026
	(39.0731)	(42.2824)	(0.0712)	(0.0681)
*Ypov*cohort14*2015*	-46.4027***	-99.6040***	-0.0392	0.1685**
	(15.7918)	(34.8764)	(0.0417)	(0.0783)
*Ypov*cohort15*2015*	-36.8783	17.3193	-0.0509	0.0459
	(110.5441)	(127.7715)	(0.1220)	(0.1753)
*Premium*post*14*	31.9884*	-3.6672	0.0713**	-0.0038
	(16.8470)	(14.4529)	(0.0316)	(0.0283)
*Premium*post*15*	-6.7353	-10.3602	0.0019	0.0184
	(17.3988)	(19.8063)	(0.0247)	(0.0329)
Observations	10,417	4,805	10,417	4,805
R-squared	0.2658	0.1824	0.2293	0.2123
Years	12-15	12-15	12-15	12-15
Cluster level	state	state	state	state
Controls	√	√	√	√

Notes: The model is that specified in Equation 1, but with some variations (see Section 3 and footnote 11). Controls include: age, gender, education, marital status, metropolitan area of residence, ethnicity, income categories, weekend dummy, monthly state unemployment levels, state, month, year fixed effects. Standard errors are clustered at the state level. ATUS weights are applied. Labour supply is measured in minutes per day, preserving the diary format. Employment probabilities are measured on a 0 (not-employed) -1 (employed) scale. Part-time is a dummy 0 (full-time) - 1 (part-time) constructed considering only the sample of workers. Statistical significance is denoted as: $p < 0.10$ = *, $p < 0.05$ = **, $p < 0.01$ = ***.

4.1 Robustness checks and placebos

The validity of our identification strategy rests on the assumption that, in the absence of treatment, the outcomes of interest for treated individuals would have followed the same trend as for the control group. While we cannot directly test this assumption, we graphically inspect the behavior of the outcomes for the treated and control groups, in the period before the ACA pillars considered here (see Figure 1), concluding that, overall, the parallel trend assumption holds true in the pre-reform period.

Figure 1: Robustness analysis: Parallel trends



Notes: Average values of daily minutes worked in the main job (graph 1), daily minutes worked in the main job as well as in other jobs (graph 2), and probability to work a positive number of hours in the day of the ATUS diary interview (graph 3). The data are aggregated by quarter (over 3 months). Sample weights are applied.

As a placebo, we re-estimated the model assuming that the two ACA pillars had been implemented in 2013, which, as expected, did not affect any of the outcomes (see Table 3).

Next, we investigated any anticipatory effects by including in the model regression additional interaction terms (leads) for the 2013 pre-reform year, which did not show statistically significant, indicating the absence of any anticipatory effects (see Table 4).

Table 3: Robustness analysis: Fake timings of reforms implementation

Outcomes	Minutes of work	Minutes of work, if minutes>0	Employment	Part-time
	(1)	(2)	(3)	(4)
*Ypov*post*13*	-2.9644	15.0859	-0.0149	0.0132
	(30.5384)	(30.7061)	(0.0589)	(0.0828)
*Premium*post*13*	15.2596	7.5843	0.0110	-0.0407
	(17.7902)	(15.3366)	(0.0306)	(0.0307)
Observations	10,417	4,805	10,417	4,805
R-squared	0.2663	0.1810	0.2303	0.2125
Years	12-15	12-15	12-15	12-15
Sample	2	2	2	2
Cluster level	state	state	state	state
Controls	√	√	√	√

Notes: The model is specified in Equation 1. Controls include: age, gender, education, marital status, metropolitan area of residence, ethnicity, income categories, weekend dummy, monthly state unemployment levels, state, month, year fixed effects. Standard errors are clustered at the state level. ATUS weights are applied. Labour supply is measured in minutes per day, preserving the diary format. Employment probabilities are measured on a 0 (not-employed) -1 (employed) scale. Part-time is a dummy 0 (full-time) - 1 (part-time) constructed considering only the sample of workers. Statistical significance is denoted as: $p < 0.10$ = *, $p < 0.05$ = **, $p < 0.01$ = ***.

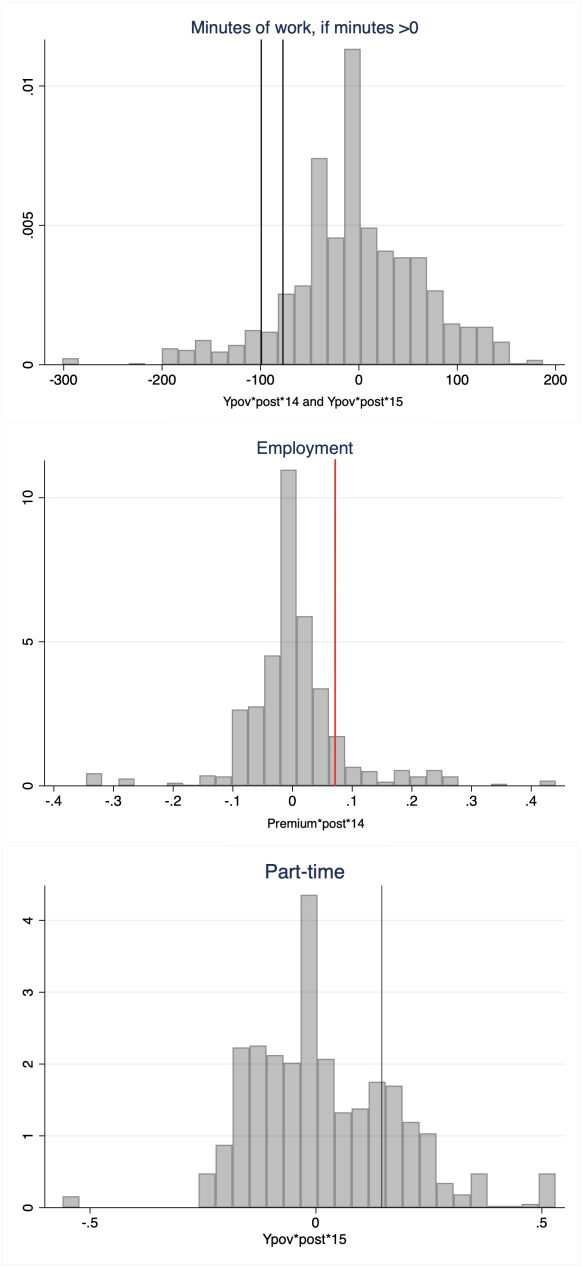
Table 4: Robustness analysis: Anticipatory effects (Leads)

Outcomes	Minutes of work	Minutes of work, if minutes>0	Employment	Part-time
	(1)	(2)	(3)	(4)
*Ypov*post*14*	-18.7518	-104.6176**	0.0245	0.1292*
	(37.1461)	(43.8658)	(0.0711)	(0.0697)
*Ypov*post*15*	-52.8502**	-83.3138*	-0.0574	0.1841**
	(27.9514)	(47.8445)	(0.0453)	(0.0754)
*Ypov*post*13*	-20.4124	-14.2094	-0.0401	0.0916
	(27.9598)	(41.3768)	(0.0464)	(0.0759)
*Premium*post*14*	38.4201**	-0.8661	0.0773***	-0.0279
	(16.5819)	(18.1221)	(0.0274)	(0.0347)
*Premium*post*15*	-0.2791	-7.8006	0.0081	-0.0056
	(19.0121)	(24.2010)	(0.0267)	(0.0353)
*Premium*post*13*	13.6142	5.5720	0.0135	-0.0500
	(19.4097)	(18.7316)	(0.0359)	(0.0371)
Observations	10,417	4,805	10,417	4,805
R-squared	0.2659	0.1821	0.2294	0.2130
Years	12-15	12-15	12-15	12-15
Cluster level	state	state	state	state
Controls	√	√	√	√

Notes: The model is specified in Equation 1. Controls include: age, gender, education, marital status, metropolitan area of residence, ethnicity, income categories, weekend dummy, monthly state unemployment levels, state, month, year fixed effects. Standard errors are clustered at the state level. ATUS weights are applied. Labour supply is measured in minutes per day, preserving the diary format. Employment probabilities are measured on a 0 (not-employed) -1 (employed) scale. Part-time is a dummy 0 (full-time) - 1 (part-time) constructed considering only the sample of workers. Statistical significance is denoted as: p < 0.10 = *, p < 0.05 = **, p < 0.01 = ***.

Finally, we randomly assigned policy eligibility across individuals and states, preserving the actual number of treated/control individuals in our data. We replicated this random allocation 1000 times and report the distribution of estimated values of the coefficients on *Ypov*post*14* and *Ypov*post*15*, for the intensive margin responses, in the upper panel of Figure 2. The following panel of Figure 2 shows the distribution of the estimated coefficients on the *Premium*Post*14* terms for the extensive margin responses, while the lower panel reports the distribution with respect to the *Ypov*post*14* terms for the part-time specification. In all cases, the average of the estimated coefficients is centered at zero, thus corroborating the validity of the estimates from our model.

Figure 2: Robustness analysis: Random allocation of reforms eligibility conditions



Notes: All panels of Figure 2 are based on Equation 1. In the first panel, the dependent variable are the "minutes of work, if minutes>0", in the second panel is the employment dummy, while in the third the part time dummy. Here though the Medicaid and Tax credit treatment were randomly assigned. The y-axis shows the probability density function of the estimated coefficients. The vertical lines correspond to the "true" estimated value of the coefficients, reported respectively in Table 1, column (2) (black lines, *Ypov*post*14*=-99.2441** and *Ypov*post*15*=-77.2080*), column (3) (red line, *Premium*post*14*=0.0712**) and column (4) (grey line, *Ypov*post*15*=0.1450**).

As a further robustness check, we removed from the estimation sample one state at a time, to test for whether the results in Table 1 may be driven by a specific state, which was not the case (see the Appendix A5, Figure A2). Moreover, we also examined whether slightly varying the (income) eligibility threshold affects the findings (see the Appendix A5, Table A6) and results are barely affected.

4.2 Heterogeneous effects

We conducted heterogeneity analysis for a wide range of individual characteristics. Estimates of the employment effects of ACA pillars by age are shown in Table 5, distinguishing individuals aged less than 50, or aged 50 and above, respectively. We conclude that the Medicaid expansion induced a reduction in working hours of about two hours per day for people aged 50 and above, for whom part-time work increased by roughly 25 percentage points. This suggests a higher sensitivity of older people labour supply to health coverage, which appears plausible.

Coming to heterogeneity of responses by gender (see Table 6), the reduction in hours worked due to the Medicaid expansion is somewhat larger for women (equal to a drop of over two hours per day, with an increase in part-time work of 25 percentage points) than for men (slightly over an hour per day, with an increase in part-time work of 17 percentage points), though the statistical significance of these effects vary by policy year (as they were perhaps stronger in some states than others). For the ACA Tax credit pillar, there is a positive employment effect for women but not for men, for whom the effect is not statistically significant. These results are in line with the literature finding larger labour supply responses to policy reforms for women than for men.

Tables 7 report the effects for Whites and "Non-Whites", pooling together Blacks, Hispanics, Asians, Indians, Hawaiians and other ethnic groups, to conclude that the ACA Medicaid expansion reduced working hours of Non-Whites both in 2014 (by about 166 minutes per day) and 2015 (by about 79 minutes per day), though there is no significant increase in part-time work for them, suggesting that hours were very long before the reform for Non-Whites. Whites reduced daily hours by about 2 hours in 2015 and increased part-time work by about 30 percentage points. The ACA Tax Credit pillar did not have any effect on employment of Non-Whites either, while it increased employment of Whites by about 8 percentage points. Thus, the ACA may have reduced long hours for non-Whites, increasing part-time and employment of Whites.

Heterogeneity of results by education is the focus of Table 8, which distinguishes individuals with a college degree from those with high-school or less. The latter group drives the estimates, with a reduction of about an hour per day but without any increase in part-time work, in response to the ACA Medicaid Expansion; while the ACA Tax Credit pillar increased their employment by about 9 percentage points.

Most of the heterogeneity findings for the ACA Medicaid expansion are in line with those reported by Aslim (2022), who also studied the latter ACA pillar. Moreover, as already noted, our study is the first, to the best of our knowledge, to investigate the labour market effects of the ACA Premium Tax Credit.

Table 5: Heterogeneity analysis: Age

Outcomes	Over 50 Min. of work, if min.>0	Under 50 Min. of work, if min.>0	Over 50 Empl.	Under 50 Empl.	Over 50 Part-time	Under 50 Part-time
	(1)	(2)	(3)	(4)	(5)	(6)
*Ypov*post*14*	-67.5063	-78.9130**	0.1049	0.0302	0.0179	0.0041
	(58.2797)	(37.7209)	(0.0803)	(0.0959)	(0.1635)	(0.0758)
*Ypov*post*15*	-124.8733*	-11.5712	0.0106	-0.0552	0.2580*	-0.0541
	(67.3799)	(73.8632)	(0.0627)	(0.0547)	(0.1481)	(0.1513)
*Premium*post*14*	-21.7532	14.7184	0.0763*	0.0694	0.0049	0.0128
	(21.5510)	(17.4319)	(0.0443)	(0.0452)	(0.0526)	(0.0365)
*Premium*post*15*	27.5342	-35.6332	-0.0012	0.0112	-0.0184	0.0443
	(23.0305)	(28.9819)	(0.0471)	(0.0360)	(0.0551)	(0.0525)
Observations	2,376	2,429	5,674	4,743	2,376	2,429
R-squared	0.2739	0.2281	0.2415	0.2752	0.2772	0.2729
Years	12-15	12-15	12-15	12-15	12-15	12-15
Cluster level	state	state	state	state	state	state
Controls	√	√	√	√	√	√

Notes: The model is specified in Equation 1. Controls include: age, gender, education, marital status, metropolitan area of residence, ethnicity, income categories, weekend dummy, monthly state unemployment levels, state, month, year fixed effects. Standard errors are clustered at the state level. ATUS weights are applied. Labour supply is measured in minutes per day, preserving the diary format. Employment probabilities are measured on a 0 (not-employed) -1 (employed) scale. Part-time is a dummy 0 (full-time) - 1 (part-time) constructed considering only the sample of workers. Statistical significance is denoted as: $p < 0.10$ = *, $p < 0.05$ = **, $p < 0.01$ = ***.

Table 6: Heterogeneity analysis: Gender

Outcomes	Men Min. of work, if min.>0	Women Min. of work, if min.>0	Men Empl.	Women Empl.	Men Part-time	Women Part-time
	(1)	(2)	(3)	(4)	(5)	(6)
*Ypov*post*14*	-84.2195**	-37.8817	0.0325	0.0876	0.1742**	-0.0746
	(33.2010)	(60.4795)	(0.0903)	(0.1096)	(0.0844)	(0.1247)
*Ypov*post*15*	1.4775	-135.2317***	-0.0381	-0.0384	0.0629	0.2538**
	(80.7712)	(35.0060)	(0.0551)	(0.0602)	(0.1861)	(0.1216)
*Premium*post*14*	-13.9118	2.3516	0.0278	0.0999*	0.0517	-0.0462
	(20.3655)	(20.2163)	(0.0433)	(0.0537)	(0.0314)	(0.0489)
*Premium*post*15*	9.3624	-19.0956	-0.0221	0.0302	-0.0310	0.0587
	(30.7106)	(24.9669)	(0.0390)	(0.0338)	(0.0444)	(0.0540)
Observations	2,511	2,294	5,117	5,300	2,511	2,294
R-squared	0.2344	0.2225	0.2617	0.2586	0.2823	0.2592
Years	12-15	12-15	12-15	12-15	12-15	12-15
Cluster level	state	state	state	state	state	state
Controls	√	√	√	√	√	√

Notes: The model is specified in Equation 1. Controls include: age, gender, education, marital status, metropolitan area of residence, ethnicity, income categories, weekend dummy, monthly state unemployment levels, state, month, year fixed effects. Standard errors are clustered at the state level. ATUS weights are applied. Labour supply is measured in minutes per day, preserving the diary format. Employment probabilities are measured on a 0 (not-employed) -1 (employed) scale. Part-time is a dummy 0 (full-time) -1 (part-time) constructed considering only the sample of workers. Statistical significance is denoted as: $p < 0.10$ = *, $p < 0.05$ = **, $p < 0.01$ = ***.

Table 7: Heterogeneity analysis: Ethnicity

Outcomes	Whites Min. of work, if min.>0	Non-Whites Min. of work, if min.>0	Whites Empl.	Non-White Empl.	Whites Part-time	Non-Whites Part-time
	(1)	(2)	(3)	(4)	(5)	(6)
*Ypov*post*14*	-84.9886	-166.3776***	0.0231	0.0166	0.0836	0.0992
	(70.8745)	(59.4331)	(0.1161)	(0.0821)	(0.1240)	(0.1710)
*Ypov*post*15*	-119.2878*	-79.4530***	-0.0927	-0.0149	0.3056**	0.0252
	(66.2258)	(24.8968)	(0.0897)	(0.0672)	(0.1406)	(0.1020)
*Premium*post*14*	1.8674	-9.8569	0.0805**	0.0337	-0.0292	0.0446
	(17.9484)	(35.6324)	(0.0383)	(0.0483)	(0.0330)	(0.0679)
*Premium*post*15*	-8.6304	-24.9721	0.0220	-0.0442	0.0194	0.0452
	(21.4867)	(24.1253)	(0.0344)	(0.0543)	(0.0391)	(0.0642)
Observations	3,147	1,658	6,659	3,758	3,147	1,658
R-squared	0.2207	0.2617	0.2518	0.2624	0.2578	0.2632
Years	12-15	12-15	12-15	12-15	12-15	12-15
Cluster level	state	state	state	state	state	state
Controls	√	√	√	√	√	√

Notes: The model is specified in Equation 1. Controls include: age, gender, education, marital status, metropolitan area of residence, ethnicity, income categories, weekend dummy, monthly state unemployment levels, state, month, year fixed effects. Standard errors are clustered at the state level. ATUS weights are applied. Labour supply is measured in minutes per day, preserving the diary format. Employment probabilities are measured on a 0 (not-employed) -1 (employed) scale. Part-time is a dummy 0 (full-time) - 1 (part-time) constructed considering only the sample of workers. Statistical significance is denoted as: p < 0.10 = *, p < 0.05 = **, p < 0.01 = ***.

Table 8: Heterogeneity analysis: Education

Outcomes	No College Min. of work, if min.>0	College Min. of work, if min.>0	No College Empl.	College Empl.	No College Part-time	College Part-time
	(1)	(2)	(3)	(4)	(5)	(6)
*Ypov*post*14*	-74.3392*	-67.9368	0.0168	0.1917	0.0999	0.0476
	(39.1104)	(53.2187)	(0.0798)	(0.1215)	(0.0914)	(0.1283)
*Ypov*post*15*	-83.2070	-19.6562	-0.0446	0.0681	0.1621	-0.0369
	(64.1384)	(64.4162)	(0.0470)	(0.1594)	(0.1424)	(0.2465)
*Premium*post*14*	-5.2552	19.1138	0.0898***	0.0462	-0.0116	-0.0367
	(17.0999)	(27.0472)	(0.0332)	(0.0482)	(0.0325)	(0.0451)
*Premium*post*15*	-10.8885	-2.7133	-0.0166	0.0223	0.0100	-0.0112
	(17.1534)	(38.7172)	(0.0380)	(0.0473)	(0.0395)	(0.0710)
Observations	2,801	2,004	6,528	3,889	2,801	2,004
R-squared	0.1907	0.3097	0.2454	0.2850	0.2020	0.3453
Years	12-15	12-15	12-15	12-15	12-15	12-15
Cluster level	state	state	state	state	state	state
Controls	√	√	√	√	√	√

Notes: The model is specified in Equation 1. Controls include: age, gender, education, marital status, metropolitan area of residence, ethnicity, income categories, weekend dummy, monthly state unemployment levels, state, month, year fixed effects. Standard errors are clustered at the state level. ATUS weights are applied. Labour supply is measured in minutes per day, preserving the diary format. Employment probabilities are measured on a 0 (not-employed) -1 (employed) scale. Part-time is a dummy 0 (full-time) - 1 (part-time) constructed considering only the sample of workers. Statistical significance is denoted as: p < 0.10 = *, p < 0.05 = **, p < 0.01 = ***.

5 More outcomes: other uses of time

As individuals increase or reduce the time devoted to paid work, other uses of time will vary in opposite direction, given the overall time constraint of having only 24 hours a day. In particular, we focus on household work and leisure activities.[13] This helps us gathering the full picture of the effects of the ACA pillar considered on Americans' daily life. The results of estimation are reported in Table 9.

We find that access to public health insurance (the Medicaid expansion pillar) increased household work by over quarter of an hour per day, on average. The time spent on household management activities (which include financial management, doing administrative practices, etc.) also went up, by about ten minutes per day, on average. Caring for individuals from other households (remember, we consider childless households), and also volunteering activities, increased by over quarter of an hour per day, on average. Leisure time was not affected significantly, except for playing sports, which fell by about ten minutes per day.

In contrast, access to private health insurance (via the ACA Tax Credit pillar), did not affect household work or care for other households and volunteering, but overall reduced leisure time by about half an hour per day.

Table 9: Time use

Outcomes	Voluntary Activities	House work (main)	House work (management)	Leisure	Sports
	(1)	(2)	(3)	(4)	(5)
*Ypov*post*14*	-2.4166	5.0387	7.3634*	24.0635	-8.6022*
	(6.8484)	(10.8046)	(4.0669)	(38.2345)	(5.0917)
*Ypov*post*15*	17.3791*	16.2379*	10.2103*	3.8157	-4.7873
	(9.8876)	(9.6044)	(5.8848)	(28.0723)	(6.4906)
*Premium*post*14*	3.3028	-4.4470	0.6431	-27.6465*	-2.7158
	(3.6731)	(4.8748)	(1.9021)	(14.0864)	(3.8212)
*Premium*post*15*	3.7257	-2.4112	0.4430	-8.7893	-2.0171
	(3.3695)	(6.1096)	(1.7881)	(12.6086)	(3.4744)
Observations	10,417	10,417	10,417	10,417	10,417
R-squared	0.0455	0.1156	0.0507	0.1660	0.0602
Years	12-15	12-15	12-15	12-15	12-15
Cluster level	state	state	state	state	state
Controls	√	√	√	√	√

Notes: The model is specified in Equation 1. Controls include: age, gender, education, marital status, metropolitan area of residence, ethnicity, income categories, weekend dummy, monthly state unemployment levels, state, month, year fixed effects. Standard errors are clustered at the state level. ATUS weights are applied. Activities are measured in minutes per day, preserving the diary format. Statistical significance is denoted as: p < 0.10 = *, p < 0.05 = **, p < 0.01 = ***.

[13] See Appendix A3, Table A3 for details of the time use outcomes.

6 Conclusions

A vast literature investigates the behavioural effects of health care reforms. Here we study the time allocation effects of the Obama Care reform, also known as Affordable Care Act (ACA), which dramatically expanded access to both public and private health care in the United States. In particular, we investigate the market hours and employment effects of two ACA pillars: the Medicaid expansion to households with income below a certain level, which was implemented at different points in time by different states, with some states never implementing it; and the Premium Tax Credit, which was implemented in all states in 2014, but whose income eligibility threshold varied, depending on whether states had yet implemented the Medicaid expansion or not. We focus on childless people, who were not eligible for public health care before ACA, and use data drawn from the American Time Use Survey (ATUS) daily diaries, to estimate a triple differences-in-differences model, which exploits variations across-state, over time, and in income eligibility thresholds, to identify the effects at stake.

We find that the ACA Medicaid expansion reduced the hours worked by eligible individuals by over an hour per day, and especially so for women, older workers aged above 50, and those without a college degree. In line with this, part-time work increased and especially so for Whites. We conclude that the reduction in hours worked went together with an increase in household work (by about quarter of an hour per day, on average), and especially, in household management activities (which went up by an extra ten minutes per day, on average). The time spent caring for other households and volunteering also increased (by over quarter of hour per day, on average), while playing sports dropped by almost ten minutes per day, but other leisure activities were not significantly impacted. In contrast, the Premium Tax Credit Pillar significantly increased employment, by about 7 percentage points, but reduced leisure time by almost half an hour per day. These effects are robust to several checks. Overall, our findings indicate that the framing of health insurance coverage may impact employment and hours, as well as other uses of time, to different extents and in opposite directions, depending on the targeted group but also on the specific policy format, which deserves further attention.

7 References

Antwi, Yaa A., Asako S. Moriya and Kosali Simon. 2013. Effects of federal policy to insure young adults: evidence from the 2010 affordable care act's Dependent Coverage Mandate. *American Economic Journal: Economic Policy* 5 (4): 1-28.

Archambault, Hannah and Dean Baker. 2018. Voluntary part-time employment and the Affordable Care Act: what do workers do with their extra time? Washington, DC: *Center for Economic and Policy (CEPR).*

Aslim, Erkmen G. 2022. Public health insurance and employment transitions, *Labour Economics, Vol.75 (C).*

Baicker, Katherine, Amy Filkelstein, Jae Song and Sarah Taubman. 2014. The impact of Medicaid on labor market activity and program participation: evidence from the Oregon health insurance experiment. *American Economic Review: Papers Proceedings 104 (5): 322-328.*

Bailey, James and Anna Chorniy. 2015. Employer-provided health insurance and job mobility: did the affordable care act reduce job lock? *Contemporary Economic Policy 34 (1): 173-183.*

Barbaresco, Silvia, Charles J. Courtemanche and Yanling Qi. 2015. Impacts of the Affordable Care Act dependent coverage provision on health-related outcomes of young adults. *Journal of Health Economics 40: 54-68.*

Barkowski, Scott. 2020. Does government health insurance reduce job lock and job push? *Southern Economic Journal 87 (1): 122-169.*

Cantor, Joel C., Alan C. M. D. DeLia and Kristen Lloyd. 2012. Early impact of the affordable care act on health insurance coverage of young adults. *Health Services Research 47 (5): 1773-1790.*

Card, David, Carlos Dobkin and Nicole Maestas. 2008. The impact of nearly universal insurance coverage on health care utilization: evidence from Medicare. *American Economic Review 98 (5): 2242-2258.*

Card, David, Carlos Dobkin and Nicole Maestas. 2009. Does Medicare save lives? *Quarterly Journal of Economics 124: 597-636.*

Colman, Gregory and Dhaval Dave. 2018. It's about time: effects of the affordable care act dependent coverage mandate on time use. *Contemporary Economic Policy 36 (1): 44-58.*

Courtemanche, Charles, James Marton, Benjamin Ukert, Aaron Yelowitz and Daniela Zapata. 2017. Early impact of the Affordable Care Act on Health Insurance Coverage in Medicaid Expansion and Non-Expansion States. *Journal of Policy Analysis and Management 36 (1): 178-210.*

Courtemanche, Charles, James Marton, Benjamin Ukert, Aaron Yelowitz and Daniela Zapata. 2018. Early effects of the Affordable Care Act on health care access, risky health behaviors, and self-assessed health. *Southern Economic Journal 84 (3): 660-691.*

Dave, Dhaval, Sandra L. Decker, Robert Kaestner and Kosali I. Simon. 2015. The effect of Medicaid expansions in the late 1980s and early 1990s on the labor supply of pregnant women. *American Journal of Health Economics 1 (2): 165-193.*

Depew, Briggs. 2015. The effect of state dependent mandate laws on the labor supply decisions of young adults. *Journal of Health Economics 39 (C): 123-134.*

Dillender, Marcus, Carolyn J. Heinrich and Susan Houseman. 2022. Effects of the Affordable Care Act on Part-Time Employment Early Evidence. *Journal of Human Resources 57.4: 1394-1423.*

Duggan, Mark, Gopi Shah Goda and Gina Li. 2021. The Effects of the Affordable Care Act on the Near Elderly: Evidence for Health Insurance Coverage and Labor Market Outcomes. *Tax Policy and the Economy Volume 35.*

Frean, Molly, Jonathan Gruber and Benjamin D. Sommers. 2017. Premium subsidies, the mandate, and Medicaid expansion: Coverage effects of the Affordable Care Act. *Journal of Health Economics 53: 72-86.*

Garthwaite, Craig, Tal Gross and Matthew J. Notowidigdo. 2014. Publich health insurance, labor supply, and employment lock. *The Quarterly Journal of Economics 129 (2): 653-696.*

Gooptu, Angshuman, Asako S. Moriya, Kosali I.Simon and Benjamin D.Sommers. 2016. Medicaid expansion did not result in significant employment changes or job reductions in 2014. *Health Affairs 35 (1): 111-118.*

Gruber, Jonathan. 2000. Health insurance and the labor market. *Handbook of health economics 1: 645-706.*

Hamersma, Sarah and Matthew Kim. 2009. The effect of parental Medicaid expansions on job mobility. *Journal of Health Economics 28: 761-770.*

Kaestner, Robert, Bowen Garrett, Jiajia Chen, Anuj Gangopadhyaya and Caitlyn Fleming. 2017. Effects of ACA Medicaid expansions on health insurance coverage and labor supply. *Journal of Policy Analysis and Management 36 (3): 608-642.*

Lenhart, Otto and Vinish Shrestha. 2017. The effect of the health insurance mandate on labor market activity and time allocation: evidence from the federal dependent coverage provision. *Forum for Health Economics and Policy 20(1): 1-17.*

Leung, Pauline and Alexandre Mas. 2018. Employment effects of the affordable care act Medicaid expansions. *Industrial Relations 57 (2): 206-234.*

Moriya, Asako S., Thomas M. Selden and Kosali I. Simon. 2016. Little changes seen in part-time employment as a result of the affordable care act. *Health Affairs 35 (1): 119-123.*

Nakajima, Makoto and Didem Tuzemen. 2016. Health-care reform or labor market reform? A quantitative analysis of the affordable care act. *Working paper, Social Science Research Network.*

Sommers, Benjamin D., Thomas Buchmueller, Sandra L. Decker, Colleen Carey and Richard Kronick. 2012. The affordable care act has led to significant gains in health insurance and access to care for young adults. *Health Affairs 32 (1): 165-174.*

Sommers, Benjamin D. and Richard Kronick. 2012. The affordable care act and insurance coverage for young adults. *Journal of the American Medical Association 307 (9): 913-914.*

Wooldridge, Jeffrey M. 2021. Two-Way Fixed Effects, the Two-Way Mundlak Regression, and Difference-in-Differences Estimators. *Available at SSRN 3906345.*

Wherry, Laura R. and Sarah Miller. 2016. Early Coverage, Access, Utilization, and Health Effects of the Affordable Care Act Medicaid Expansions: A Quasi-Experimental Study. *Ann Intern Med 164 (12): 795-803.*

8 Appendix A

A.1 Expansion states and Tax Credit eligibility thresholds

Table A1 reports information related to states that have and have not expanded Medicaid. In fact, after the 2012 Supreme Court decision, the Medicaid expansion's choice was left to each state. The other ACA pillar (Tax credit Premium subsidies), still, was pursued by all states through sizable income-based Tax credits for individuals in an income bracket between 100% and 400% of the FPL who are not eligible for Medicaid. The insurance can now be purchased through subsidize premiums for private insurance on an online platform. Be that as it may, in states where Medicaid has come into force, the minimum threshold in order to access to Tax credit has been raised to 138%. In the last column of the table, we then reported the minimum threshold for Tax credit eligibility, which differs between states that have and have not expanded Medicaid. As far as the maximum threshold is concerned, it remains at 400%, the same in all states.[14]

[14]The data source for the construction of the table reported below were taken from the Henry J.Kaiser Family Foundation. For more details, see: https://www.kff.org.

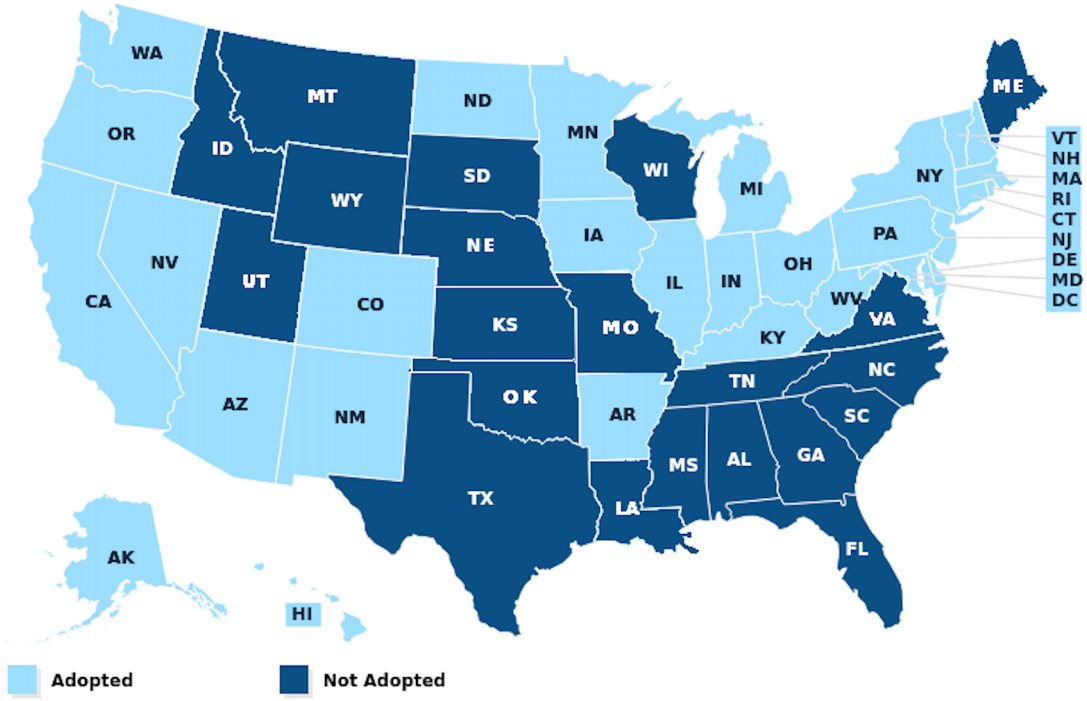
Table A1: Medicaid Expansion States and Tax Credit Eligibility Threshold

States	Medicaid Expansion Status	Date of Expansion	Tax Credit Eligibility Threshold
Alabama	Not Expanding	-	100%
Alaska	Expanded	01/09/2015	138%
Arizona	Expanded	01/01/2014	138%
Arkansas	Expanded	01/01/2014	138%
California	Expanded	01/01/2014	138%
Colorado	Expanded	01/01/2014	138%
Connecticut	Expanded	01/01/2014	138%
Delaware	Expanded	01/01/2014	138%
District of Columbia	Expanded	01/01/2014	138%
Florida	Not Expanding	-	100%
Georgia	Not Expanding	-	100%
Hawaii	Expanded	01/01/2014	138%
Idaho	Not Expanding	-	100%
Illinois	Expanded	01/01/2014	138%
Indiana	Expanded	01/02/2015	138%
Iowa	Expanded	01/01/2014	138%
Kansas	Not Expanding	-	100%
Kentucky	Expanded	01/01/2014	138%
Louisiana	Not Expanding	-	100%
Maine	Not Expanding	-	100%
Maryland	Expanded	01/01/2014	138%
Massachusetts	Expanded	01/01/2014	138%
Michigan	Expanded	01/04/2014	138%
Minnesota	Expanded	01/01/2014	138%
Mississippi	Not Expanding	-	100%
Missouri	Not Expanding	-	100%
Montana	Not Expanding	-	138%
Nebraska	Not Expanding	-	100%
Nevada	Expanded	01/01/2014	138%
New Hampshire	Expanded	15/08/2014	138%
New Jersey	Expanded	01/01/2014	138%

States	Medicaid Expansion Status	Date of Expansion	Tax Credit Eligibility Threshold
New Mexico	Expanded	01/01/2014	138%
New York	Expanded	01/01/2014	138%
North Carolina	Not Expanding	-	100%
North Dakota	Expanded	01/01/2014	138%
Ohio	Expanded	01/01/2014	138%
Oklahoma	Not Expanding	-	100%
Oregon	Expanded	01/01/2014	138%
Pennsylvania	Expanded	01/01/2015	138%
Rhode Island	Expanded	01/01/2014	138%
South Carolina	Not Expanding	-	100%
South Dakota	Not Expanding	-	100%
Tennessee	Not Expanding	-	100%
Texas	Not Expanding	-	100%
Utah	Not Expanding	-	100%
Vermont	Expanded	01/01/2014	138%
Virginia	Not Expanding	-	100%
Washington	Expanded	01/01/2014	138%
West Virginia	Expanded	01/01/2014	138%
Wisconsis	Not Expanding	-	100%
Wyoming	Not Expanding	-	100%

Figure A1 shows on a map the states that have/have not expanded Medicaid between 2014 and 2015.

Figure A1: Medicaid Expansion/Non Expansion States



Notes: States' decisions about adopting the Medicaid expansion are as of December 31, 2015.
Sources: The status for each state is based on KFF (Kaiser Family Foundation) tracking and analysis of state executive activity. For a up-to-date overview of states that have expanded Medicaid see: https://www.kff.org.

A.2 Descriptive Statistics

Table A2 shows the descriptive statistics of the ATUS sample (2012-2015).

Table A2: Descriptive Statistics

Variable	Not Eligible	Medicaid Eligible	Tax Credit Eligible
Minutes of work	321.29	166.13	274.89
	(295.20)	(253.08)	(287.49)
Minutes of work, if minutes>0	522.18	474.77	514.19
	(192.84)	(193.84)	(179.65)
Employment (0=not employed, 1=employed)	0.62	0.37	0.54
	(0.49)	(0.48)	(0.50)
Part-time, if minutes>0	0.18	0.31	0.17
	(0.38))	(0.46)	(0.38)
Voluntary activities and caring for other people (in minutes)	17.29	19.55	18.12
	(64.23)	(72.11)	(63.69)
Household activities, main (in minutes)	63.82	69.76	66.93
	(98.22)	(99.63)	(103.66)
Household management (in minutes)	12.15	8.83	10.07
	(37.76)	(33.43)	(36.82)
Leisure (in minutes)	248.83	355.11	282.49
	(182.72)	(238.98)	(201.94)
Sport/Exercise (in minutes)	21.58	13.04	14.89
	(55.76)	(44.74)	(52.01)
Age	47.73	48.14	47.56
	(11.97)	(11.86)	(12.26)
Family income group	13.87	3.62	9.72
	(0.93)	(1.73)	(1.79)
Woman (%)	0.48	0.50	0.49
	(0.50)	(0.50)	(0.50)
Metropolitan area (%)	0.87	0.79	0.81
	(0.34)	(0.40)	(0.39)
Hispanic (%)	0.06	0.17	0.11
	(0.25)	(0.38)	(0.31)
Black (%)	0.08	0.24	0.15
	(0.27)	(0.43)	(0.35)
White (%)	0.87	0.70	0.80
	(0.34)	(0.46)	(0.40)
Less than High school (%)	0.01	0.22	0.07
	(0.12)	(0.42)	(0.26)
High school (%)	0.22	0.37	0.37
	(0.41)	(0.48)	(0.48)
College drop (%)	0.15	0.16	0.18
	(0.36)	(0.36)	(0.38)
College (%)	0.62	0.26	0.37
	(0.49)	(0.44)	(0.48)
Divorced or separated (%)	0.15	0.29	0.22
	(0.35)	(0.45)	(0.42)
Married (%)	0.58	0.24	0.41
	(0.49)	(0.43)	(0.49)
Cohabitant (%)	0.10	0.13	0.09
	(0.29)	(0.33)	(0.29)
Observations	4,427	1,426	4,641

Notes: The ATUS sample refers to non-institutionalized civilians, ages 27 to 64, without children. In the computation of the descriptive statistics the sample weights are used. All the data reported in the table are expressed in minutes, except for the values related to the variable dummies that can only assume values 0 and 1. The minutes refer to the single day in which the interview took place. The number of observations reported refers to the maximum sample size. For some variables the sample is reduced due to missing information.

A.3 Medicaid and Tax-credit thresholds and activity codes

As the CPS - ATUS data that we have available does not contain precise information about the income of the individual person interviewed, we used the income class variable. The data on the federal poverty line were taken from the U.S. Bureau Census over the years (2012-2015) for childless households consisting of one and two individuals.

Starting from these data, we calculated the distinct thresholds for Medicaid and Tax credit eligibles. Since income classes have an income range of $5,000, we had to make choices about which classes to consider with respect to the various thresholds. In almost all cases, the choice that has been made is the most conservative, thus excluding some people from the range rather than including many people who actually have a higher income class. In any case, below are reported the specific rules we followed in this respect.

Medicaid - single without children: the 138% FPL threshold in order to access to "Medicaid" (single without children) is $16,105 (FPL base year 2014, single without children: $11,670). The time use data have the variable for income classes "hefaminc". In this respect we consider as falling within the category all income classes below threshold 5 (hefaminc=5), ranging from $12,500 to $14,999. We do not include the subsequent threshold (hefaminc=6) because it ranges from $15,000 to $19,999, while instead the threshold to access Medicaid stops at $16,105.

Medicaid - childless couples: the 138% FPL threshold for access to "Medicaid" (couples without children) is $21,707. (FPL base year 2014, childless couples: $15,730). In this respect we consider as included in the threshold all the income brackets below threshold 6 (hefaminc=6), which ranges from $15,000 to $19,999. We do not use the subsequent threshold (hefaminc=7) because it ranges from $20,000 to $24,999, while instead the threshold to access Medicaid stops at $21,707.

Tax credit - single without children - States where Medicaid has not expanded: the 100% FPL threshold for obtaining "Tax credit" (single without children) in states where Medicaid has not been expanded is $11,670. As lower income threshold, we use the threshold 5 (hefaminc=5), which ranges from $12,500 to $14,999. If we employ the fourth category, which ranges from $10,000 to $12,499, all income from $10,000 to $11,670 would be out of the threshold but we would still take it into account. The upper income threshold 400% FPL to access "Tax credit" (single without children) in states where there is no Medicaid is $46,680. As upper income threshold we use threshold 11 (hefaminc=11), which ranges from $40,000 to $49,999. In this way, those who are in the income group $46,680-$49,999 are considered to be eligible. If we used only up to income threshold 10 ($35,000-$39,999), yet, we would not consider all those in the income category $40,000-$46,680, although we would actually have to consider them.

Tax credit - childless couples - States where Medicaid has not expanded:

the 100% FPL threshold for access to "Tax credit" (childless couples) in states where there is no Medicaid expansion is $15,730. As a lower income threshold we employ threshold 6 (hefaminc=6), which ranges from $15,000 to $19,999. It would not make sense to exploit threshold 7 as the lower threshold, which ranges from $20,000 to $24,999. By choosing threshold 6, still, those who earn between $15,000 and $15,730 are erroneously considered as falling within the income bracket. As for the upper income threshold 400% FPL to access "Tax credit" (childless couples) is $62,920. As upper income threshold we use threshold 12 (hefaminc=12), which ranges from $50,000 to $59,999. In this way those who are in the income bracket $59,999-$62,920 are not, erroneously, considered to be in the income bracket. Still and all, using income threshold 13 ($60,000-$74,999) would be a mistake.

Tax credit - single without children - States where Medicaid has been expanded: the 138% FPL threshold for access to "Tax credit" (single without children) in states where Medicaid is expanded is $16,105. As a lower income threshold we consider threshold 6 (hefaminc=6), which ranges from $15,000 to $19,999. If we employ threshold 7, which goes from $20,000 to $24,999, all income from $16,105 to $19,999 would not, erroneously, be considered. By choosing threshold 6, still, those who earn between $15,000 and $16,105 are also considered to be in the income bracket. As for the upper income threshold 400% FPL to access "Tax credit" (single without children) in states where Medicaid is epxanded is $46,680. As upper income threshold we utilize threshold 11 (hefaminc=11), which ranges from $40,000 to $49,999. In this way those who are in the income bracket $46,680-$49,999 are considered to be in the income bracket. If we used only up to income threshold 10 ($35,000-$39,999), yet, we would not consider all those in the income bracket $40,000-$46,680, although we should consider them.

Tax credit - childless couples - States where Medicaid has been expanded: the 138% FPL threshold for access to "Tax credit" (childless couples) in states where Medicaid has been expanded is $21,707. As lower income threshold, we employ threshold 7 (hefaminc=7), which ranges from $20,000 to $24,999. If we exploit threshold 8, which ranges from $25,000 to $29,999, all incomes from $21,707 to $25,000 would, erroneously, not be considered. By choosing threshold 7, nonetheless, those who earn between $20,000 and $21,707 are wrongly considered to be in the income bracket. As for the upper income threshold 400% FPL to access "Tax credit" (childless couples) in states where Medicaid is expanded is $62,920. As upper income threshold we use threshold 12 (hefaminc=12), which ranges from $50,000 to $59,999. In this way those in the income bracket $59,999-$62,920 are not, erroneously, considered to be in the income bracket. Be that as it may, if we also utilize income threshold 13 ($60,000-$74,999), we would consider everyone in the income bracket $62,920-$74,999, although we should not actually consider them.

Table A3: Detailed Activity Codes used for the construction of the Dependent Variables (First and Second-tier codes)

Category	Activity Included
Work	t0501 Working, t0502 Work-related activities, t0503 Other income-generating activities, t0599 Work and work-related activities, n.e.c.*
Household main act.	t0201 Housework, t0202 Food & drink preparation & clean-up, t0203 Interior maintenance, repair & decoration. **
Household management	t0209 Household management. **
Leisure	t1201 Socializing and communicating, t1202 Attending or hosting social events, t1203 Relaxing and leisure, t1204 Arts and entertainment (other than sports), t1205 Waiting associated with socializing, relaxing and leisure, t1299 Socializing, relaxing and leisure, n.e.c.; t1302 Attending sports/recreational events, t1303 Waiting associated with sports, exercise,& recreation, t1304 Security procedures related to sports, exercise, & recreation.
Volunteer Activities	The whole category t04 Caring for & helping Nonhousehold (NonHH) Members; t1501 Administrative & support activities, t1502 Social service & care activities (except medical), t1503 Indoor & outdoor maintenance, building & clean-up activities, t1504 Participating in performance & cultural activities, t1505 Attending meetings, conferences & training, t1506 Public health & safety activities.
Sport	t1301 Participating in sports, exercise, and recreation.

* We repeated the analysis using only the variable "t0501 Working", as well as using only the first two aggregates "t0501 Working and t0502 Work-related activities", and the results remain the same. To create the "Minutes of work" variable at the intensive margin we used the fact that t0501 was greater than 0 as a constraint. All the others intensive margin variables used in the analysis follow the same logic.

**Results are robust to alternative aggregation criteria.

A.4 Robustness analysis on treated and not treated states

As already mentioned in the main text, some researchers who carried out analyses related to the impact of Medicaid reform have used distinct rules and approaches than ours. We discuss these in more detail below, in order to test the robustness of our results to the use of these different rules.

Kaestner et al. (2017) targeted only on Medicaid and they considered as treated both states that had no expansion in the pre reform period and expanded Medicaid during 2014, as well as states that expanded Medicaid during 2014 and had prior but limited Medicaid expansion. The authors considered both groups, albeit separately. The states belonging to the first group are: AK, KY, MI, NH, NV, NM, ND, OH, WV (9). The states belonging to the second group are: AZ, CA, CO, CT, HI, IA, IL, MD, MN, NJ, OR, RI, WA (13). All states that are not listed above are in the control group. The only exceptions are the states that have expanded Medicaid post 2014, which are removed from the analysis. To simplify, they consider as "treated" for the whole 2014 those states that have expanded in the following months. As far as the category of individuals is concerned, they counted in the analysis families with children, which we eliminated, and also young adults over the age of 22. In both these categories, the risk of having already had treatment in the pre-reform period is much higher than in our case.

Leung and Mas (2018) and also Aslim (2022) utilized only 42 states, divided between states in which childless adults were eligible in the pre-reform period (especially in 2013) that expanded Medicaid, and states that did not expand. All states that had some form of coverage for childless adults in the pre-reform period were eliminated. So the states were categorised as follows: Expansion State (treatment group): AR, CA, IL, IA, KY, MD, MA, NV, NJ, NM, ND, OH, OR, RI, WA, WI, WV, MI, NH, PA, IN. Non Expansion State (control group): AK, AL, FL, GA, ID, KS, LA, ME, MO, MS, MT, NE, NC, OK, SC, SD, TN, TX, UT, VA, WY. States not considered: AZ, CO, CT, DE, DC, HI, MN, NY, VT. Wisconsis was considered treated even though it did not expand as it created a program that covers young adults up to 100% FPL. In Tables A4 and A5 we replicated our main results by using different treated and control groups. More specifically, in Table A4 we used Kaestner et al.(2017) approach and in Table A5 Leung and Mas (2018) approach. The results are substantially the same with regard to sign, significance and magnitude.[15]

[15]Moreover, even when we consider specifications that take into account the staggered nature of the implementation of the reform (Wooldridge, 2021), the results are confirmed.

Table A4: Main results using Kaestner et al. (2017) approach

Outcomes	Minutes of work	Minutes of work, if minutes>0	Employment	Part-time
	(1)	(2)	(3)	(4)
Ypov*post*14	-15.6593	-98.5355**	0.0377	0.0981
	(43.5937)	(48.6345)	(0.0779)	(0.0767)
Ypov*post*15	-47.5812	-81.0902*	-0.0369	0.1540*
	(28.8510)	(43.1801)	(0.0497)	(0.0807)
Premium*post*14	33.9811*	-3.8853	0.0791**	-0.0114
	(17.1470)	(15.4622)	(0.0334)	(0.0302)
Premium*post*15	-15.5922	-19.6868	0.0004	0.0262
	(17.0799)	(19.2146)	(0.0263)	(0.0339)
Observations	9,600	4,444	9,600	4,444
R-squared	0.2644	0.1807	0.2275	0.2133
Years	12-15	12-15	12-15	12-15
Cluster level	state	state	state	state
Controls	√	√	√	√

Notes: The model estimated by OLS is specified in Equation 1. Controls include: age, gender, educational qualification, marital status, metropolitan area of residence, ethnicity, income categories, weekend dummy, monthly state unemployment levels, geographical and time fixed effect. Standard errors are clustered at State level. The ATUS weights are applied. Hours of work are actually measured in minutes per day, preserving the diary format. Employment probabilities are measured on a 0 (not-employed) -1 (employed) scale. Part-time is a dummy 0 (full-time) - 1 (part-time) constructed considering only the sample of workers. The statistical significance of the test that the underlying coefficient is equal to zero is denoted by: $p < 0.10$ = *, $p < 0.05$ = **, $p < 0.01$ = ***.

Table A5: Main results using Leung and Mas (2018) approach

Outcomes	Minutes of work	Minutes of work, if minutes>0	Employment	Part-time
	(1)	(2)	(3)	(4)
*Ypov*post*14*	-27.5139	-90.8325*	-0.0175	0.0837
	(51.6733)	(53.4432)	(0.0902)	(0.0779)
*Ypov*post*15*	-49.9607	-97.4519**	-0.0404	0.1765**
	(31.8694)	(46.1366)	(0.0535)	(0.0826)
*Premium*post*14*	26.2068	0.7971	0.0581*	-0.0080
	(18.2873)	(15.8360)	(0.0342)	(0.0321)
*Premium*post*15*	-17.1988	-16.2876	-0.0089	0.0228
	(18.0702)	(20.3611)	(0.0280)	(0.0359)
Observations	9,008	4,166	9,008	4,166
R-squared	0.2627	0.1770	0.2282	0.2101
Years	12-15	12-15	12-15	12-15
Cluster level	state	state	state	state
Controls	√	√	√	√

Notes: The model estimated by OLS is specified in Equation 1. Controls include: age, gender, educational qualification, marital status, metropolitan area of residence, ethnicity, income categories, weekend dummy, monthly state unemployment levels, geographical and time fixed effect. Standard errors are clustered at State level. The ATUS weights are applied. Hours of work are actually measured in minutes per day, preserving the diary format. Employment probabilities are measured on a 0 (not-employed) -1 (employed) scale. Part-time is a dummy 0 (full-time) - 1 (part-time) constructed considering only the sample of workers. The statistical significance of the test that the underlying coefficient is equal to zero is denoted by: p < 0.10 = *, p < 0.05 = **, p < 0.01 = ***.

A.5 Additional placebo and robustness checks

When we replicate the analysis by eliminating individuals with questionnaires marked as incomplete (approximately 700 individuals), the results remain largely unchanged in terms of significance, sign and magnitude.[16]

A further robustness test is shown in Table A6. In the first three columns of Table A6 we replicated our main results (reported in Table 1) by removing from our sample, and more precisely from the control group, those individuals whose income class is greater than $99,999 per year. Conversely, in the columns from (4) to (6) we replicated the results of our main table adding to the sample also those who have an income included in a class that exceeds 150,000$. As noted from the magnitude and significance of the coefficients, the results are very similar to the main ones. In particular, Medicaid eligible individuals in 2014 have reduced working time at the intensive margin of about 97 (column (2)) and 89 (column (6)) minutes per day (compared to 99 minutes of the main specification, Table 1 column (2)). On the contrary, employment participation of potential recipients of Premium Tax credit increased

[16]The results are available upon request.

at the extensive margin by 6.69 percentage points (column (3)) and 6.31 percentage points (column (7)) for 2015 (against 7.12 percentage points in the main specification, Table 1 column (3)). Finally, the part time increase is of around 14 percentage points in both columns (4) and (8), in line with the main coefficient of Table 1 column (4).

Table A6: Change of the control group income class limits

	Income class ≤ $99999 per year				No income class limits			
Outcomes	Minutes of work	Minutes of work, if minutes>0	Employment	Part-time	Minutes of work	Minutes of work, if minutes>0	Employment	Part-time
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
*Ypov*post*14*	-6.1041	-97.7941**	0.0372	0.0996	-11.8322	-89.7419*	0.0317	0.0701
	(37.5390)	(42.2255)	(0.0684)	(0.0744)	(41.1685)	(46.3918)	(0.0691)	(0.0757)
*Ypov*post*15*	-40.4709	-74.2574*	-0.0249	0.1418*	-43.9773*	-78.2790**	-0.0432	0.1462*
	(28.2137)	(41.9523)	(0.0453)	(0.0828)	(24.1479)	(43.4726)	(0.0417)	(0.0838)
*Premium*post*14*	31.5895	0.8174	0.0669**	-0.0063	28.2175*	-2.8769	0.0631**	-0.0110
	(18.8886)	(18.0685)	(0.0329)	(0.0343)	(16.1085)	(12.9888)	(0.0295)	(0.0256)
*Premium*post*15*	-8.0461	-8.8481	0.0045	0.0106	-5.2254	-7.3063	-0.0010	0.0132
	(19.2259)	(22.6342)	(0.0277)	(0.0410)	(17.2116)	(20.4658)	(0.0224)	(0.0356)
Observations	9,245	4,175	9,245	4,175	11,300	5,307	11,300	5,307
R-squared	0.2685	0.1784	0.2371	0.2069	0.2728	0.1874	0.2327	0.2193
Years	12-15	12-15	12-15	12-15	12-15	12-15	12-15	12-15
Cluster level	state	state	state	state	state	state	state	state
Controls	√	√	√	√	√	√	√	√

Notes: The model estimated by OLS is specified in Equation 1. Controls include: age, gender, education, marital status, metropolitan area of residence, ethnicity, income categories, weekend dummy, monthly state unemployment levels, geographical and time fixed effect. Standard errors are clustered at State level. The ATUS weights are applied. Hours of work are measured in minutes per day, preserving the diary format. Employment probabilities are measured on a 0 (not-employed) -1 (employed) scale. Part-time is a dummy 0 (full-time) - 1 (part-time) constructed considering only the sample of workers. The statistical significance of the test that the underlying coefficient is equal to zero is denoted by: $p < 0.10$ = *, $p < 0.05$ = **, $p < 0.01$ = ***.

Table A7 shows additional robustness related to the impact of Medicaid at the intensive margin. We changed the minimum threshold of daily minutes of "Main job and other jobs" in order to be considered workers and then included in the intensive margin analysis.
Starting from column (1), we raise the threshold (which was previously set at 0) to 30, 60, 90, 120 and 180 minutes respectively. The results remain stable. In fact, the Medicaid negative effect on working hours of the main specification (column (2), Table2) is 99 minutes, and here it remains stable across specifications, ranging between 95 and 111 minutes. The only differences from the main specification (Table 1) are given by the fact that *Ypov*post*14* coefficients are statistically significant at the 1% level. In addition, in all specifications the *Ypov*post*15* coefficient remains negative but never statistically significant.

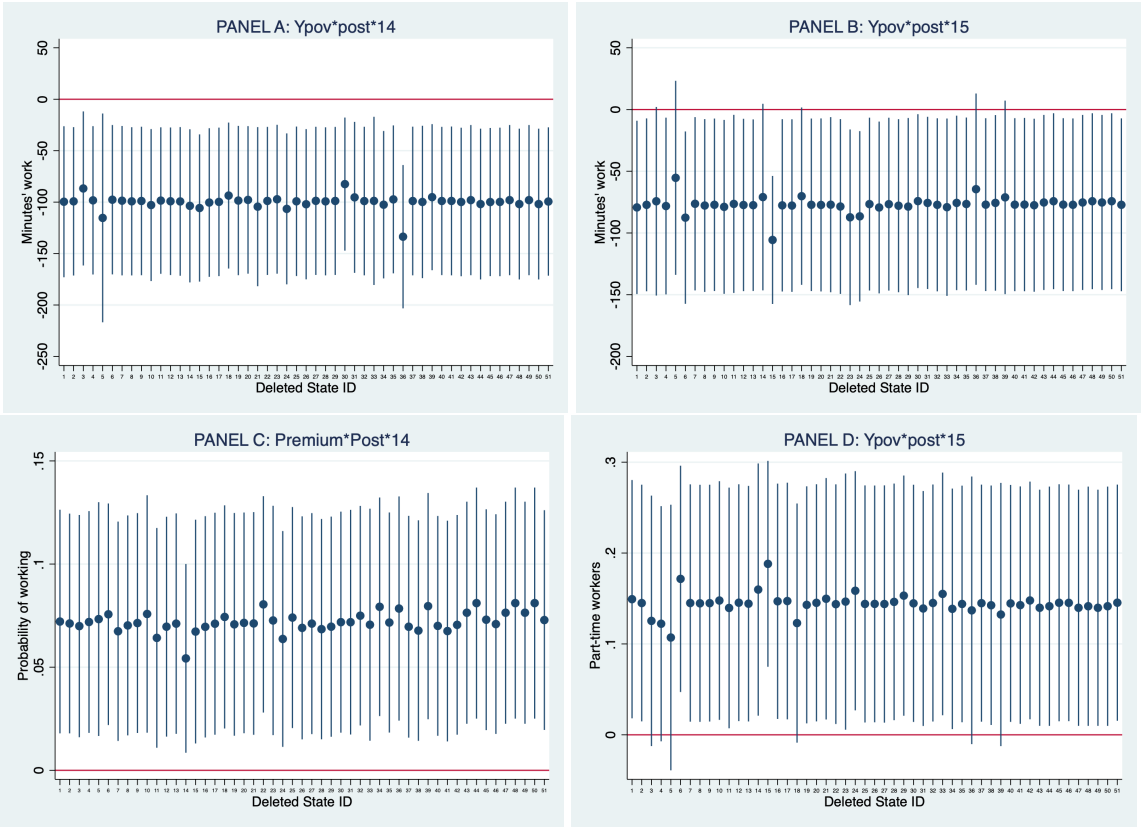
Table A7: Threshold change for being considered as worker in the intensive margin specification

Outcomes	Min. of work, if min.>30 (1)	Min. of work, if min.>60 (2)	Min. of work, if min.>90 (3)	Min. of work, if min.>120 (4)	Min. of work, if min.>180 (5)
*Ypov*post*14*	-111.6083***	-104.1980***	-109.1502***	-97.5129***	-95.2047***
	(40.1443)	(36.9212)	(35.8417)	(31.3689)	(33.1416)
*Ypov*post*15*	-51.0873	-39.2107	-43.8936	-55.0047	-50.2833
	(42.6183)	(43.6187)	(46.3881)	(41.3883)	(44.2281)
*Premium*post*14*	1.9956	-4.6641	-7.5037	-7.7351	-5.6831
	(12.6725)	(11.3999)	(11.4643)	(13.2099)	(13.1714)
*Premium*post*15*	-17.0003	-14.1550	-14.0015	-11.9371	-1.2077
	(17.3676)	(16.7690)	(16.2657)	(18.5790)	(18.3534)
Observations	4,590	4,463	4,405	4,309	4,189
R-squared	0.1572	0.1441	0.1414	0.1361	0.1257
Years	12-15	12-15	12-15	12-15	12-15
Cluster level	state	state	state	state	state
Controls	√	√	√	√	√

Notes: Each column reports the results following the column specification (2) in Table 1, with the difference that a modified threshold for the intensive margin specification is taken into account in the various columns (from column (1) to (5)). The model estimated by OLS is specified in Equation 1. Controls include: age, gender, educational qualification, marital status, metropolitan area of residence, ethnicity, income categories, weekend dummy, monthly state unemployment levels, geographical and time fixed effect. Standard errors are clustered at State level. The ATUS weights are applied. Hours of work are actually measured in minutes per day, preserving the diary format. The statistical significance of the test that the underlying coefficient is equal to zero is denoted by: $p < 0.10$ = *, $p < 0.05$ = **, $p < 0.01$ = ***.

The four panels of Figure A2, instead, show additional robustness related to the stability of the coefficients. We replicated our main analysis 51 times, removing one by one all the states. Panel A shows the stability of the coefficient for the first year (2014) with respect to Medicaid treated at the intensive margin. Panel B reports the stability of the coefficient for the second year (2015) for Medicaid treated at the intensive margin. Panel C shows the stability of the coefficient for the first year (2014) of Tax credit treated at the extensive margin. Finally, Panel D reports the stability of the coefficient for the first year (2914) of Medicaid treated with respect to the part-time dummy. Overall, results are stable.

Figure A2: Coefficients stability



Notes: The Panels in Figure A2 show the coefficients for the main results reported in Table 1, re-estimated by removing each state from the analysis one by one in order to verify the stability of the results. More specifically, Panel A and B Figure A2 are respectively related to checking the stability of *Ypov*post*14* and *Ypou*post*15* coefficients. Panel C is dedicated to verify the stability of *Premium*post*15* coefficient, while Panel 4 test the stability of *Ypov*post*15* coefficient with respect to column (4), Table 1, which investigate Part-time employment. Hours of work are actually measured in minutes per day, preserving the diary format. Employment probabilities are measured on a 0 (not-employed) -1 (employed) scale. Part-time is a dummy 0 (full-time) - 1 (part-time) constructed considering only the sample of workers. The model estimated by OLS is specified in Equation 1. Controls include: age, gender, educational qualification, marital status, metropolitan area of residence, ethnicity, income categories, weekend dummy, monthly state unemployment levels, geographical and time fixed effect. Standard errors are clustered at State level. The ATUS weights are applied.