

ACA Implementation—Monitoring and Tracking

# Recent Evidence on the ACA and Employment:

Has the ACA Been a Job Killer?

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With support from the Robert Wood Johnson Foundation (RWJF), the Urban Institute is undertaking a comprehensive monitoring and tracking project to examine the implementation and effects of the Patient Protection and Affordable Care Act of 2010 (ACA). The project began in May 2011 and will take place over several years. The Urban Institute will document changes to the implementation of national health reform to help states, researchers and policymakers learn from the process as it unfolds. Reports that have been prepared as part of this ongoing project can be found at [www.rwjf.org](http://www.rwjf.org) and [www.healthpolicycenter.org](http://www.healthpolicycenter.org). The quantitative component of the project is producing analyses of the effects of the ACA on coverage, health expenditures, affordability, access and premiums in the states and nationally.

## INTRODUCTION

The Affordable Care Act (ACA) contains several provisions that could affect labor market outcomes: the mandate that large employers offer health insurance coverage to their full-time workers or face a penalty; the expansion of Medicaid benefits to low-income adults; and the provision of subsidies

in the health insurance marketplaces. For example, income-based subsidies in the marketplaces and Medicaid provide an incentive for some workers, particularly low-wage workers, to reduce labor effort by reducing the number of hours worked or dropping out of the labor market altogether.<sup>1</sup> Similarly,

## SUMMARY OF FINDINGS

Using data from the monthly files of the Current Population Survey (CPS) from January 2000 to December 2014, we examine the overall effects of the ACA on four measures of labor supply for nonelderly adults: labor force participation, employment, part-time employment, and the usual number of hours worked per week among workers. We also examine the effects of Medicaid expansions under the ACA on the same four measures.

- We find that the ACA had virtually no adverse effect on labor force participation, employment, or usual hours worked per week through 2014. This conclusion is true for ACA policies overall and for the Medicaid expansions in particular, and it applies to the full sample of nonelderly persons and to the subgroup of nonelderly persons with a high school education or less who are more likely to be affected by the ACA.
- For nonelderly adults with a high school education or less, we find that employment in 2014 is 1.8 percentage points higher than what would be expected given the

rates of unemployment, demographic characteristics and pre-existing time trends. This finding is inconsistent with predictions that the ACA would decrease employment.

- Also for nonelderly adults with a high school education or less, we find that part-time employment is higher than expected by 0.5 percentage points. This finding is consistent with some predictions that the ACA would increase part-time work, but may also reflect the continuing recovery in the labor market. This difference is sufficiently small, however, that we find no evidence of a change in the number of hours worked in 2014 and thus no overall change in labor supply beyond what would be expected.
- The ACA's Medicaid expansions had virtually no effect on labor market outcomes through the end of 2014. This finding is consistent with the best available previous evidence, which suggests any effects of Medicaid expansions on employment are likely to be small.

because the ACA defines a full-time worker as one working 30 hours a week or more, employers who are subject to the employer mandate may reduce or avoid penalties by keeping workers' hours below the 30-hour threshold, which would increase the amount of part-time employment.

The potential effect of the ACA on the labor market has been a controversial issue in the recent debate over the value of the ACA. The Congressional Budget Office predicts that the ACA will reduce the total number of hours worked by about 1.5 percent over the next several years, and it attributed most of this effect to a decline in labor supply rather than labor demand.<sup>2</sup> Whereas some authors argue that the CBO estimates for overall employment effects are too low by half, we and others argue that the best evidence available before 2014 suggested that employment effects of the ACA would be small.<sup>3</sup>

The effects of the ACA on the labor market are important for several reasons. First, at a time of relatively low levels of employment (i.e., employment-to-population ratio) and a still-fragile economic recovery, any reduction in demand for labor (because of firms shifting full-time workers to part-time to avoid employer mandate penalties, for example) would be socially harmful. Second, decreases in work effort (supply-side consequences) reduce economic activity and, though withdrawing from the labor force or reducing work effort may be individually optimal given incentives in the ACA, such actions may be viewed as a potential welfare loss because of the government intervention that caused the change in behavior. Again, at a time when employment-to-population ratios are relatively low, further declines in the proportion of the population working may have harmful social effects (e.g., greater stress on public budgets) despite being beneficial to individuals. Further, for the first time, the CBO recently included the macroeconomic effects of the ACA in its budget estimates (under so-called "dynamic scoring"), though the CBO stressed that the magnitude of these effects is uncertain.<sup>4</sup> Thus the ACA's labor market effects have important implications for budgeting and policymaking.

In this paper, we examine effects of the ACA as of 2014, the first year of implementation of the main coverage provisions, on measures of nonelderly adults' (ages 18 to 64) labor supply. We focus on four outcomes: labor force participation, employment, part-time employment, and the usual number of hours worked per week among workers. First, we examine the ACA's overall effects by assessing whether labor market outcomes in 2014 differ from what would be predicted for 2014 based on previous trends. We do this both for all nonelderly and for the subset of nonelderly adults with a high school education or less, the latter being arguably more likely affected by the ACA.

Second, we estimate the labor market effects of Medicaid expansions under the ACA. The Supreme Court decision to allow states to opt out of the ACA's Medicaid expansion provides a natural experiment for researchers because approximately half of the 50 states had not expanded Medicaid by the end of 2014. We exploit this plausibly exogenous change in state policy to estimate the effect of the ACA Medicaid expansions on each of the four labor market outcomes. In this case, we focus solely on nonelderly adults with a high school education or less because of the low-income eligibility requirement for Medicaid.

Results from our analysis suggest that through 2014 the ACA had virtually no adverse effect on labor force participation, employment, or usual hours worked per week. This conclusion is true for ACA policies overall and for the Medicaid expansions in particular, and it applies to the full sample of nonelderly persons and to the subgroup of nonelderly persons with a high school education or less. If anything, at least through 2014, the ACA policies implemented in 2014 appear to be associated with a 1.8 percentage-point increase in employment and a 0.5 percentage-point increase in part-time employment (fewer than 30 hours per week) among nonelderly adults with a high school education or less. Though the increase in part-time employment was predicted by some observers, the increase in employment was not.

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## METHODS

### Data and Sample

We use data from the monthly files of the Current Population Survey (CPS) from January 2000 to December 2014. The CPS is the federal government's main source of information about employment and the U.S. labor force. We limit the sample to nonelderly adults (i.e., adults age 18 to 64). The CPS monthly files provide approximately 900,000 to 1 million observations per year and information on the demographic

characteristics, labor market status, and state of residence of persons in our sample. Because analyses on the full population of nonelderly adults may obscure effects on the most-affected subgroups, we also conduct the analysis for adults with a high school education or less. These adults are more likely to have lower incomes and therefore are more likely to be affected by the ACA's Medicaid expansions or subsidies for marketplace coverage.<sup>5</sup>

Focusing on the ACA's Medicaid expansions, we conducted analyses for nonelderly adults with a high-school education or less and separately for groups stratified by age (18 to 44, 45 to 64), gender and presence of children.<sup>6</sup> We stratified by these attributes because eligibility for Medicaid is correlated with these characteristics (because of differences in income and pre-ACA eligibility rules) and because labor market outcomes differ significantly across these characteristics, particularly with respect to the business cycle.<sup>7</sup>

## Measures

We use four dependent variables that measure labor supply: labor force participation (which includes those with jobs and those actively looking for work); employment (which includes those employed at the time of the survey); part-time employment (which includes those working 0–29 hours per week); and the number of usual hours worked per week among those who are working. In regression analyses, we also include covariates for age, gender, race and ethnicity, education, marital status, and number of children.

## Statistical Analysis

We report average values for each labor supply measure from 2000 to 2014 to show recent changes in each outcome within the context of the longer-term trend, spanning a period that contains two recessions and periods of economic recovery. A distinct change in the trend of an outcome from 2013 to 2014 would provide an indication of a potential effect of the ACA. But changes in the trends for these measures in 2014 may also be caused by changes in other determinants of labor supply. Most notably, the labor market has been slowly recovering since the unemployment rate reached a peak of 10 percent in October 2009 in the wake of the Great Recession. Accordingly, employment and hours worked have generally been increasing since 2010 for reasons unrelated to the ACA.

To account for these other factors that affect labor supply and to generate a counterfactual outcome in 2014, we use regression methods to obtain a predicted value for each measure of labor supply in 2014. The predicted value is constructed from estimates of the following regression model: (1)

$$Y_{ijt} = \alpha_0 + \alpha_1 \bar{Y}_{j(t-1)} + \alpha_2 UNEM_{jt} + \alpha_3 UNEM_{j(t-1)} + \alpha_4 TIME_t + \beta_j + X'_{ijt} \gamma + e_{ijt}$$

In equation 1, the dependent variable  $Y$  is one of the four measures of labor supply for individual  $i$  in state  $j$  and year  $t$ . The first three explanatory variables are, in order, the previous year's mean value of the outcome measured at the state-year level, and the current and

previous year's unemployment rates  $UNEM$  of the opposite gender measured at the state-year level. We match male unemployment rates to female observations and female unemployment rates to male observations to break the mechanical relationship between the outcome measure and the unemployment rate while still capturing much of the ability of unemployment rates to predict the other labor market outcome measures.<sup>8</sup> We also include a linear time trend  $TIME$ , state fixed effects  $\beta_j$ , and a set of individual level covariates  $X$ : age-by-gender dummy variables, race and ethnicity dummy variables, dummy variables for education and marital status, and number of own children.<sup>9</sup>

We estimate equation 1 using data up to 2013 only; thus, the predicted values for 2014 are forecasts given known values of demographic and unemployment measures in 2014.<sup>10</sup> We selected this specification over others we considered (e.g., specifications without the previous year's average value of the dependent variable, without unemployment rates, or with only the contemporaneous unemployment rate) on the basis of how well the models' predictions fit actual data in the 2000 to 2013 period. Though deviations of actual levels of the labor supply measures from their predicted values in 2014 may indicate effects of the ACA, we acknowledge that such deviations may also result from "unexpected" changes in the labor market that are independent of the ACA (i.e., economic changes that are not predicted by the regression model represented in equation 1).

After examining overall effects of the ACA's provisions on labor market outcomes, we focus on whether the Medicaid expansions in particular affected labor market outcomes. Because some states expanded Medicaid under the ACA and others did not, we can examine differences in labor market outcomes in the two groups of states. If the ACA's Medicaid expansions affected the labor market, we would expect to see larger changes in the labor market measures in expansion states relative to nonexpansion states. For this analysis we limit the sample to nonelderly adults with a high school education or less because they are more likely to be eligible for Medicaid. In some analyses, we further limit the sample to childless adults because they were the main group affected by the ACA Medicaid expansions.

To test whether the ACA Medicaid expansions had an effect on the labor market, we use a difference-in-differences (D-D) regression approach. The D-D analysis uses changes for states that did not expand Medicaid as the counterfactual for expansion states. For the D-D analysis, we limit the sample to years 2010 (when the first early Medicaid

expansions under the ACA began) to 2014 in order to estimate the effects of ACA-related Medicaid expansions (and exclude the effects of pre-ACA expansions undertaken in several states.)<sup>11</sup> We also collapse the CPS data to the state-year level (applying sample weights) before estimating the D-D regression.<sup>12</sup>

Using data for each state  $j$  and year  $t$  from 2010 to 2014, we obtain D-D estimates using the following regression model: (2)

$$Y_{jt} = \Theta_j + \delta_t + \lambda EXPAND_{jt} + \bar{X}'_{jt} \Lambda + u_{jt}$$

In equation 2, labor supply measure  $Y$  depends on state fixed-effects  $\Theta_j$ , year fixed-effects  $\delta_t$ , an indicator for whether a state had expanded Medicaid in that year  $EXPAND_{jt}$ , and mean socioeconomic and demographic characteristics of states  $\bar{X}_{jt}$ : age-by-gender categories, race and ethnicity, less than high school education, marital status, and mean number of children.<sup>13</sup> The coefficient on the indicator of whether a state had expanded Medicaid in a given year is the D-D estimate of the effect of Medicaid expansions on labor market outcomes. This coefficient measures the change in labor market outcomes after Medicaid expansion in states that expanded in excess of changes in labor market outcomes in states that did not expand Medicaid, controlling for any differences that can be explained by demographic factors that change within states over time.

The key identifying assumption underlying the D-D approach is that changes in the labor supply measures in expansion and nonexpansion states would have been the same absent any labor market effects of the ACA after accounting for differences in control variables (i.e., the parallel trends assumption). Under the null assumption of no labor market effects of Medicaid expansions, substantial violations of the parallel trends assumption would lead to statistically significant D-D estimates that are not caused by Medicaid expansions. In the findings we present below, we find no statistically significant estimates at conventional levels, which would suggest there are neither substantial effects of Medicaid expansions nor substantial violations of the identifying assumptions. It is technically possible (but

unlikely) that our null effects are caused by true labor market effects and offsetting false effects caused by violations of the parallel trends assumption. Moreover, in analyses not presented, we used randomization inference methods to construct standard errors. This method incorporates violations of the parallel trends assumption into estimates of standard errors. We find that standard errors constructed this way are virtually the same as those constructed the standard way, which is evidence that the parallel trends assumption holds.<sup>14</sup>

We define a Medicaid expansion state in a given year as a state that provided Medicaid or Medicaid-like benefits to nonelderly, childless adults up to at least 100 percent of the federal poverty level (FPL).<sup>15</sup> In 2014, 26 states (and the District of Columbia) that had adopted the ACA's Medicaid expansion by the end of the year met this definition and generally provided Medicaid coverage for childless adults up to 138 percent of FPL as allowed under the ACA; Iowa expanded Medicaid only up to 100 percent of FPL under a waiver.<sup>16</sup> In addition, several states had already provided Medicaid or similar benefits to childless adults before 2014, either through waiver programs or by implementing early Medicaid expansions under the ACA.<sup>17</sup> However, coverage expansions for childless adults before 2014 were often limited in various ways.<sup>18</sup> We count five states (DE, DC, MA, NY and VT) as meeting the definition of a Medicaid expansion state in years 2010 to 2013 (as well as 2014).<sup>19</sup> As a sensitivity analysis, we consider an alternative definition that counts 10 additional states (AZ, CA, CT, HI, IN, IA, ME, MN, WA and WI) with more limited coverage for childless adults before 2014 as prior Medicaid expansion states.<sup>20</sup> Although we base our definition of an expansion state on coverage of childless adults, expansions also applied to parents in many states where pre-ACA Medicaid eligibility for parents did not extend to 138 percent of the FPL. For this reason, we include both parents and childless adults in our main analyses. As a supplemental analysis, we estimate D-D models further limiting the sample to childless adults who generally experienced the largest expansion of Medicaid eligibility under the ACA.<sup>21</sup>

# OVERALL EFFECTS OF THE ACA ON LABOR FORCE PARTICIPATION, EMPLOYMENT AND HOURS OF WORK

In Figures 1 through 4, we show the trend in each labor supply measure and its predicted value from 2000 to 2014. Table 1 (left panel) reports the difference between actual and predicted levels for each labor market outcome measure in 2014 for nonelderly adults.

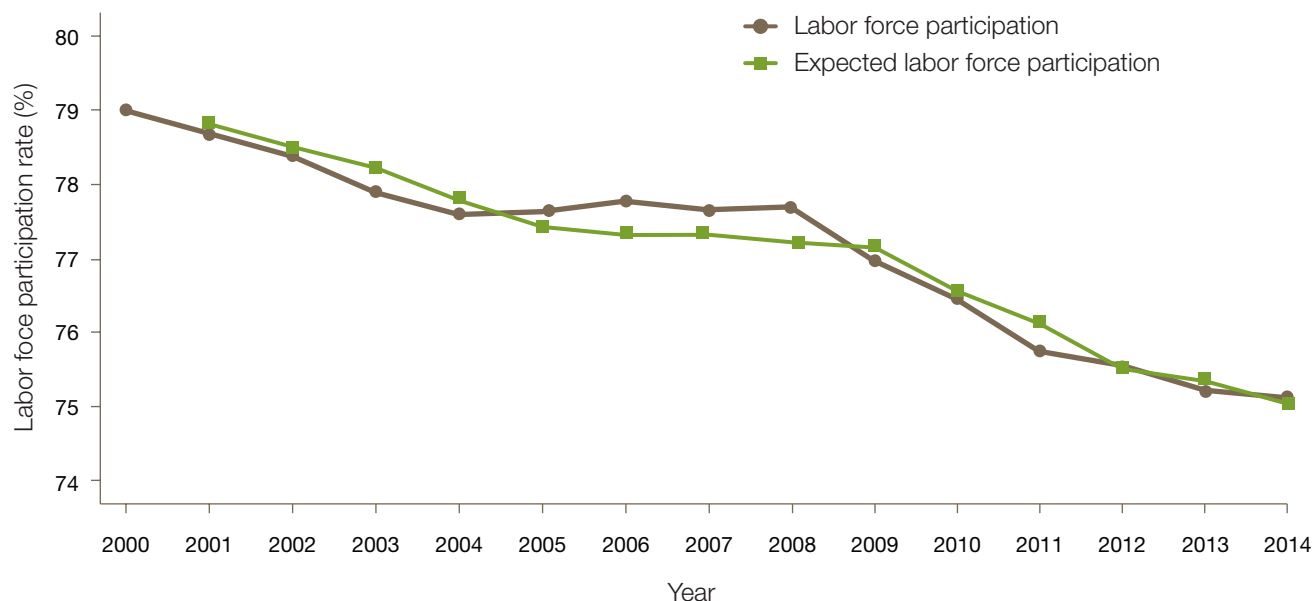
Figure 1 shows the trend in labor force participation among nonelderly adults by year. There has been a 3.9 percentage-point (4.9 percent) decline in labor force participation between 2000 and 2014, although the decline has not been continuous. Notably, between 2004 and 2008, labor force participation was relatively constant. In other periods, labor force participation declined. A relatively sharp decline between 2008 and 2011 corresponds roughly with the Great Recession.

Also shown in Figure 1 is the expected labor force participation by year, which is derived from a regression model that relates current labor force participation in 2000 to 2013 to past labor force participation, a time trend, and other factors (as described in the methods section). Note how well the expected labor force participation rate tracks the actual labor force participation rate, particularly

before 2014. At most, the actual and expected labor force participation rates deviate in any one year by less than 0.5 percentage points, which is a small deviation relative to the mean. Also note that the 2014 value of the expected labor force participation rate is a forecast: it is predicted by the regression model. A comparison of the actual and predicted labor force participation rates in 2014 indicates virtually no difference. Table 1 (left panel) provides the exact figure: 0.1 percentage points, which suggests that the ACA did not have much, if any, effect on labor force participation.

Figure 2 presents similar trends for the employment-to-population ratio. Here too, we observe a close fit of the predicted employment-to-population ratio with the actual employment-to-population ratio. The largest deviation between the predicted and actual employment-to-population ratios is less than 0.7 percentage points. Between 2000 and 2013, the employment-to-population ratio declined approximately 6 percentage points, from 76 percent to 70 percent. Between 2004 and 2008, the employment-to-population ratio was relatively constant. This was followed by a steep decline in 2009 and a slight

**Figure 1. Labor Force Participation by Year**

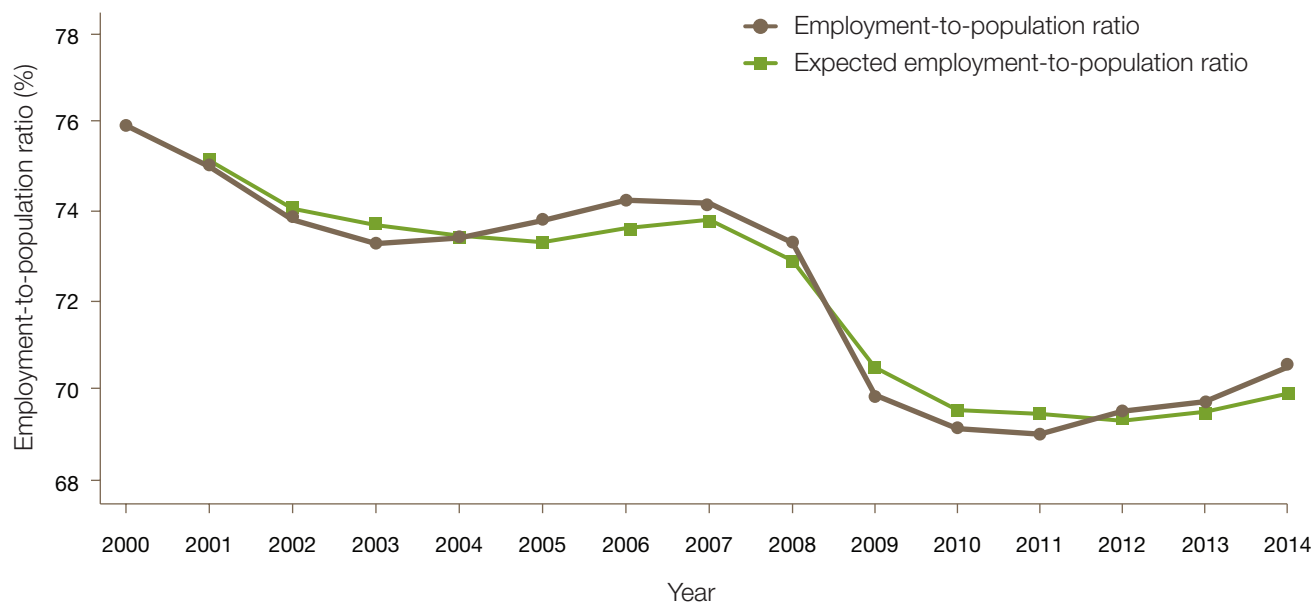


Source: Authors' analysis of Current Population Survey data from 2000 to 2014.

Note: Labor force participation is computed for the nonelderly adult population. Expected rates are from a regression using the previous year's labor force participation rate, current and previous year's unemployment rates, year, age, sex, race and ethnicity, education, marital status, and number of children as predictors. See text for details of the regression specification.



## Figure 2. Employment-to-Population Ratio by Year



Source: Authors' analysis of Current Population Survey data from 2000 to 2014.

Note: Employment-to-population ratio is computed for the nonelderly adult population. Expected rates are from a regression using the previous year's employment-to-population ratio, current and previous year's unemployment rates, year, age, sex, race and ethnicity, education, marital status, and number of children as predictors. See text for details of the regression specification.

upward trend since 2011, following the trough of the Great Recession in 2009.

In 2014, the actual employment-to-population ratio is 0.6 percentage points greater than the predicted ratio, which is inconsistent with predictions that the ACA would decrease employment. This is not a statistically significant difference and is similar in size to other deviations of the actual trend from the expected trend observed in Figure 2. The difference is also small (0.8 percent) relative to the mean (12 percent) and modest compared to the change in the employment-to-population ratio from the peak-to-trough of the Great Recession (Figure 2).

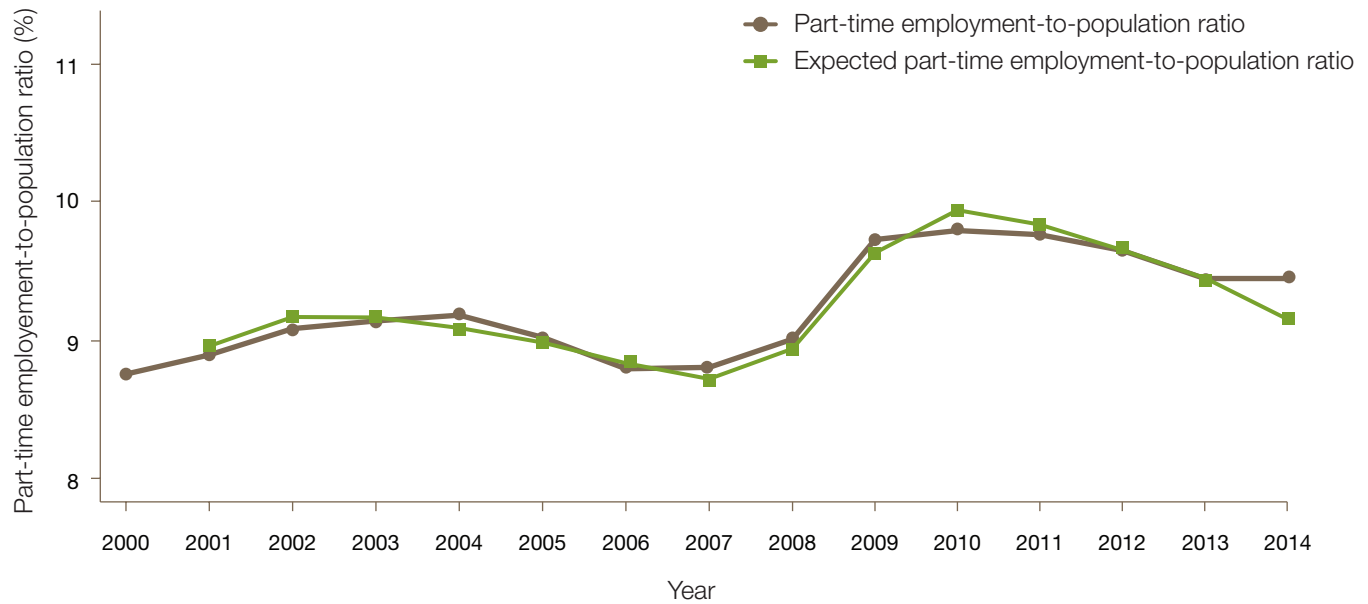
A particular concern about the ACA was its effect on part-time work because of the 30-hour threshold used to define full-time employees. The ACA required employers with 50 or more full-time equivalent employees to offer qualifying health benefits or face a penalty. This penalty went into effect at the start of 2015 for employers with 100 more full-time equivalent employees (after being delayed one year). The penalty was further delayed until 2016 for employers with 50 to 99 full-time workers. Because of a look-back period in determining the number of full-time workers, the employer mandate provision may have affected employer behavior in 2014 or even before, and many observers suggested it already had.<sup>22</sup> Figure 3 provides some evidence on this

issue: it shows the trend in actual and predicted part-time (1 through 29 hours) employment by year. The predicted trend was obtained using same approach as for other outcomes and the predicted trend tracks the actual trend very well.

In 2014, the actual amount of part-time work exceeds the predicted amount by 0.3 percentage points. The difference is not statistically significant, although it is somewhat larger than the typical deviations between actual and predicted trends observed in Figure 3. For both total employment and part-time employment, the actual value in 2014 was above the expected value, and the above-expected increase in part-time employment represents about half of the above-expected increase in total employment. These relative changes imply part-time work as a share of all employment in 2014 was larger than expected. In an earlier brief, we reported a 0.6 percentage-point increase in the share of the employed working part-time in 2014 using similar data (through July 2014) and methods.<sup>23</sup>

Finally, in Figure 4, we present trends in workers' actual and expected number of usual hours worked per week. The time series pattern for this outcome mirrors the others, showing an overall decline from 2000 to 2014 with a period of relatively unchanging values during the mid-2000's, although in this case the decline in average hours after the period of constancy occurs somewhat earlier in

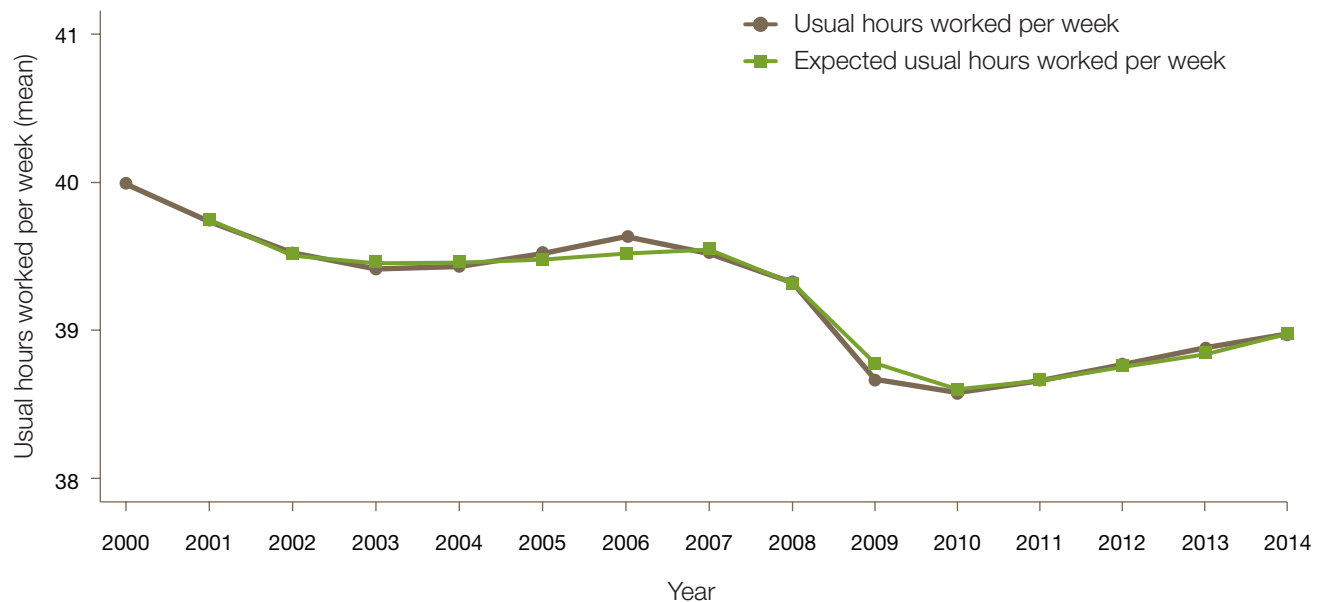
### Figure 3. Part-Time Employment-to-Population Ratio



Source: Authors' analysis of Current Population Survey data from 2000 to 2014.

Note: Part-time employment-to-population ratio is computed for nonelderly adults. Part-time employment is defined as working less than 30 hours per week. Expected rates are from a regression using the previous year's part-time employment-to-population ratio, current and previous year's unemployment rates, year, age, sex, race and ethnicity, education, marital status, and number of children as predictors. See text for details of the regression specification.

### Figure 4. Usual Hours Worked Per Week by Year



Source: Authors' analysis of Current Population Survey data from 2000 to 2014.

Note: Usual hours worked per week is computed for employed nonelderly adults. Expected rates are from a regression using the previous year's mean usual hours worked per week current and previous year's unemployment rates, year, age, sex, race and ethnicity, education, marital status, and number of children as predictors. See text for details of the regression specification.



2007. As with other outcomes, the expected trend is a very good fit for the actual trend: the two lines are virtually identical. Consistent with most of the other evidence already presented, in 2014, the actual number of usual hours worked per week is virtually the same as the predicted number of usual hours worked per week (Table 1 shows no difference when rounded to the tenth of an hour).<sup>24</sup> Although we saw that part-time employment is slightly higher than expected in 2014, it is not by enough to affect average hours worked per week of employees, which is exactly in line with its expected value in 2014.

Overall, the evidence presented in Figures 1 through 4 and in the left panel of Table 1 indicates that in 2014, the first full year of the ACA's main provisions, measures of the quantity of labor supplied were more or less as expected at this point in the business cycle. For all four outcomes—labor force participation, employment-to-population, part-time employment and usual hours worked per week—the actual value was not statistically different from the expected value and observed differences were small. In short, there is no evidence that the ACA had a significant impact on the overall labor market in the first year of implementation of all the coverage provisions.

Though the ACA's provisions apply to large parts of the economy and a large share of the U.S. population, low-income workers may be particularly affected because they are more likely both to be eligible for subsidies in the health insurance marketplaces or Medicaid and to lack health insurance. Therefore, the evidence in Figures 1 through 4, which is for the entire U.S. population of nonelderly adults, may obscure effects of the ACA on this arguably more affected group. To assess this possibility, we limited the sample to persons with a high school education or less and repeated the analyses represented in Figures 1 through 4.

The right panel of Table 1 presents differences between the actual and expected values of outcomes in 2014 for persons with a high school education or less. For labor force participation, there is a small positive difference of 0.8 percentage points between the actual and expected labor force participation values, but it is not statistically significant. Among those with a high school education or

less, the actual employment-to-population ratio in 2014 is 1.8 percentage points above the predicted employment-to-population ratio, and this difference is statistically significant. This is somewhat surprising because most observers predicted that the ACA would, if anything, adversely affect the labor market, for example by decreasing employment. This does not appear to be the case.

The next outcome is the part-time employment rate. In 2014, part-time employment among those with a high school education or less is higher than expected by 0.5 percentage points. Though small, this is a statistically significant difference. Note, however, that the estimate for part-time employment is smaller than the estimate for employment of any type. Thus, the full-time ( $\geq 30$  hours) rate in 2014 is also greater than expected, but as noted, the share of part-time employment increased relative to what was expected.<sup>25</sup> Finally, for the number of usual hours worked per week, the actual and expected values in 2014 are nearly identical. So again, though the share of part-time workers is slightly larger than expected, the difference is not large enough to affect the typical hours worked for this population.

To summarize, for nonelderly adults overall and for the subset with a high school education or less, estimates in Table 1 show that, if anything, the first year of the ACA is associated with an increase in employment relative to what would be expected and a greater amount of part-time work than expected. Though the increase in the share of part-time employment is consistent with some predictions about the ACA's effects on the labor market, it was also predicted that the ACA would cause a decrease in employment; this is not what we observe. The employment rate in 2014 is above the expected rate as are the rates of both part-time ( $< 30$  hours) and full-time ( $\geq 30$  hours) employment, and hours worked per week if employed are not affected at all. Though the increase in employment may have been caused by the ACA, such as by expanding employment among low-income persons now eligible for Medicaid among other possibilities, it is also possible that for nonelderly adults with a high school education or less, economic recovery from the Great Recession accelerated in 2014 beyond what the regression model was able to predict.

# EFFECTS ON THE ACA MEDICAID EXPANSION ON LABOR FORCE PARTICIPATION, EMPLOYMENT AND HOURS OF WORK

One of the ACA's key features is the expansion of Medicaid to low-income adults. However, only approximately half the states had expanded Medicaid by the end of 2014. This allows us to compare labor market outcomes in states that expanded Medicaid to outcomes in states that did not expand Medicaid. As described, we used a simple D-D approach to assess the effect of ACA's Medicaid expansions. Because the ACA Medicaid expansions target low-income people (e.g., income less than 138 percent of FPL after a 5-percent income disregard), we limited the analysis sample to nonelderly adults with a high school education or less. We examined the same outcomes for this group as when we examined the overall effect of the ACA on the labor market. In all the analyses, we computed standard errors using robust (heteroskedastic-consistent) variance estimates that adjust for clustering at the state level.<sup>26</sup>

Table 2 presents the mean of each dependent variable and the estimated effects of Medicaid expansion from the D-D analysis using our main definition of a Medicaid expansion state. Estimates shown are coefficients on the *EXPAND* variable in equation 2 indicating whether a state had expanded Medicaid in a given year. As discussed, some states expanded Medicaid to the groups targeted by the ACA before 2014, but the majority of expansions occurred in 2014.<sup>27</sup> We report analyses for all nonelderly persons with a high school education or less and separately for groups stratified by age (18-44, 45-64) and gender.

The first outcome shown in Table 2 is labor force participation. The overall labor force participation rate for nonelderly adults with a high school education or less was 70 percent and varied from 82 percent for males in the lower age group to 60 percent for females in the higher age group. As estimates in the second row indicate, the effects of Medicaid expansion are very small relative to the mean and not statistically significant (p-values are shown in parentheses). Overall and for each of the subgroups, these estimates show Medicaid expansions had no effect on labor force participation in our sample through the end of 2014.

The second panel of Table 2 presents D-D estimates of the effects of Medicaid expansions on employment. Note that all estimates are small (relative to the mean), positive, and not statistically significant at commonly accepted levels of significance (the lowest p-value shown is 0.16 for

males ages 18 to 44). These estimates are inconsistent with some observers' predictions about the effect of Medicaid expansions on employment. For example, a pre-ACA study of Tennessee found that eliminating Medicaid eligibility led to a large increase in employment among the affected group, which would imply a large decrease in employment when Medicaid is expanded as in the case of the ACA.<sup>28</sup> However, the Tennessee study is an outlier in terms of findings.<sup>29</sup> The finding of no effect of Medicaid expansions on employment in Table 2 is consistent with the best pre-ACA evidence on the issue, most notably the study that examined experimentally the effect on employment of expanding Medicaid in Oregon.<sup>30</sup>

Estimates related to the effect of the ACA Medicaid expansion on part-time employment are in the third panel of Table 2. In this case too, estimates are small and statistically insignificant at conventional levels. For women in the 45 to 64 age group, we find an effect of 0.005 with a p-value of 0.11. Ten percent of women in this age group work part time, and the point estimate suggests that Medicaid expansion is associated with a 0.5 percentage-point increase in the rate of part-time work (a 5 percent relative increase). We note that Medicaid expansion was associated with a 0.4 percentage-point increase in overall employment (not statistically significant), including full-time work.

In the fourth panel of Table 2, estimates for the usual number of hours of work per week are shown. As with the other outcomes, estimates are small and not statistically significant. If there is indeed an effect of Medicaid expansions on part-time work, we do not see evidence that such an effect is associated with an overall reduction in total hours worked for all non-elderly adults or for any subgroup analyzed.

Overall, estimates in Table 2 suggest the Medicaid expansions related to the ACA had virtually no effect on labor market outcomes of nonelderly adults with a high school education or less (who are more likely to be affected). Importantly, this conclusion is unchanged if we use an alternative definition of Medicaid expansion states, as described in the methods section. Table 3 presents D-D estimates analogous to those in Table 2 but uses an alternative classification of states into expansion and nonexpansion groups. All estimates in Table 3 are small and not statistically significant. The only possible exception concerns labor force participation for the entire sample with

a high school education or less. This estimate indicates that Medicaid expansions were associated with a 0.6 percentage-point decline in labor force participation, and it is significant at the 0.08 level. We also find that the effect of Medicaid expansions on part-time work for women ages 45 to 64 is smaller than that in Table 2 (0.003 versus 0.005) and does not approach statistical significance ( $p$ -value = 0.53).

Finally, in Table 4, we repeat the analysis shown in Table 2 but limit the sample to childless, nonelderly adults with a high school education or less. Because childless adults were generally least likely to be eligible for Medicaid before the ACA, they are most likely to be affected by any labor market effects of Medicaid expansions. All of the estimates are small (more often positive than negative) and statistically insignificant. We see no indication of the nearly statistically

significant effects on part-time work and labor force participation seen in Tables 2 and 3, respectively. The only effect approaching statistical significance in Table 4 is a 1.2 percentage-point increase in employment for men in the 18 to 44 age group, which has a  $p$ -value of 0.14.

To summarize, estimates in Tables 2, 3 and 4 show that the ACA's Medicaid expansions had virtually no effect on labor market outcomes through the end of 2014. The one or two findings that approached (but did not obtain) statistical significance at conventional levels were not robust across specifications. These null findings for effects of Medicaid expansions on labor market outcomes are consistent with the best available study on the issue and the conclusion of our review of prior evidence.<sup>31</sup>

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## CONCLUSION

The ACA was a landmark piece of legislation that has engendered considerable political controversy, as evidenced by two Supreme Court challenges of different parts of the law. Though much of the debate over the ACA has focused on health insurance coverage and the costs of health care, the law's effect on the labor market is also an important concern, particularly because the law was passed soon after the Great Recession while the economy was still in the doldrums. Some observers argued that the ACA would significantly and adversely affect the labor market and weaken an already slow economic recovery.<sup>32</sup> Others argued that the ACA would improve the efficiency of the labor market and be a positive force for the economy.<sup>33</sup> The CBO has noted that the effects of the ACA on labor supply are highly uncertain, but at the same time, its assumption that the ACA will ultimately reduce total work hours by around 1.5 percent is the key factor determining its estimate of the macroeconomic effects of the ACA used in its recent dynamic scoring of proposed legislation to repeal the law.<sup>34</sup>

In this paper, we used data up to the end of 2014 to assess the effect of the ACA on the labor market. The results show that overall, there is nothing particularly unusual about labor market outcomes in 2014 that would suggest that the ACA has had much, if any, effect. Importantly, our analysis can identify relatively small effects, so it is not the case that there were potentially large effects that we could not detect. When we focus on a sample of persons with a high school education or less who are more likely to be affected by the ACA, we find that employment in 2014 is higher than expected by 1.8 percentage points. Such a finding is inconsistent with predictions that the ACA would decrease

employment. We also find that part-time employment is higher than expected by 0.5 percentage points. It remains unclear, and future research should examine, to what extent the effect on part-time work is caused by the ACA (in particular, the employer mandate) versus the continuing recovery in the labor market. This difference is sufficiently small, however, that we find no evidence of a change in the number of hours worked in 2014 and thus no overall change in labor supply beyond what would be expected given the rates of unemployment, demographic characteristics and pre-existing time trends. We find very little if any evidence of an effect of ACA Medicaid expansions. Again, we can rule out small effects.

Any means-tested program that links benefit receipt to income has the potential to affect labor market outcomes. As we have argued previously, the ACA is no different in this respect from other established programs targeting benefits to those with low incomes.<sup>35</sup> This analysis yielded no evidence that the ACA had an adverse effect on labor supply as of 2014. Of course, it is only the first year of implementation and not all provisions of the ACA have been fully implemented, most notably the employer mandate. Full implementation may have different effects on the labor market, and as the CBO points out, such effects may be muted until the labor market returns to full capacity because any jobs that are vacated may be quickly filled by others seeking work. But much of the ACA has been implemented, including all of its coverage provisions, and an estimated 14 to 15 million persons have gained insurance following the implementation of the new marketplaces and the Medicaid expansions.<sup>36</sup> Any workers who were primarily working to obtain health benefits should

have been the first to reduce their hours or drop out of the labor market in 2014. It is reasonable to argue that if the ACA were going to have a substantial adverse effect when fully implemented, then we should have seen some evidence of it already happening in 2014 because a substantial portion

of the ACA was in effect. The results presented here show little if any early indication of the large labor market effects some have predicted, which casts doubt on whether these predictions will come to fruition in the coming years.

**Table 1. Actual and Expected Labor Market Outcomes of Nonelderly Adults in 2014**

	All Adults			Adults with a high school education or less		
	Actual	Expected	Difference	Actual	Expected	Difference
Labor force participation rate	75.1%	75.1%	0.1	68.1%	67.3%	0.8
Employment-to-population ratio	70.5%	69.9%	0.6	62.2%	60.3%	1.8***
Part-time employment-to-population ratio	9.4%	9.1%	0.3	8.6%	8.1%	0.5**
Hours worked per week (if employed)	39.0	39.0	0.0	38.4	38.3	0.0

Source: Authors' analysis of Current Population Survey data from 2000 to 2014.

Notes: Expected labor market outcomes for 2014 are based on regression models using data up to 2013. See text for specification of regression models. Part-time employment is defined as working 1 to 29 hours per week.

\*p-value < .10; \*\*p-value < .05; \*\*\*p-value < .01.

**Table 2. Effects of ACA Medicaid Expansions on Labor Market Outcomes for Nonelderly Adults with a High School Education or Less**

	All Adults	Males ages 18 to 44	Males ages 45 to 64	Females ages 18 to 44	Females ages 45 to 64
Labor force participation					
Mean of dependent variable	0.70	0.82	0.73	0.63	0.60
Effect of Medicaid Expansion	-0.000 (0.87)	0.002 (0.59)	-0.004 (0.53)	0.003 (0.72)	0.002 (0.83)
Employment					
Mean of dependent variable	0.61	0.68	0.65	0.53	0.55
Effect of Medicaid Expansion	0.003 (0.47)	0.008 (0.16)	0.002 (0.74)	0.003 (0.66)	0.004 (0.65)
Part-time employment					
Mean of dependent variable	0.09	0.08	0.05	0.12	0.10
Effect of Medicaid Expansion	0.002 (0.26)	0.000 (0.99)	0.001 (0.88)	0.001 (0.87)	0.005 (0.11)
Usual hours worked per week					
Mean of dependent variable	37.8	38.8	41.0	34.4	36.1
Effect of Medicaid Expansion	-0.06 (0.62)	-0.02 (0.93)	0.13 (0.47)	-0.10 (0.72)	-0.13 (0.30)

Source: Authors' analysis of Current Population Survey data from 2010 to 2014.

Notes: States are counted as having expanded Medicaid in a given year if they had expanded Medicaid or Medicaid-like benefits to childless adults with incomes up to at least 100 percent of the federal poverty level. See text for details of expansion status determinations and regression specifications. For each effect measure, p-values are given in parentheses.

**Table 3. Effects of ACA Medicaid Expansions on Labor Market Outcomes for Nonelderly Adults with a High School Education or Less, Using Broader Definition of Medicaid Expansion**

	All Adults	Males ages 18 to 44	Males ages 45 to 64	Females ages 18 to 44	Females ages 45 to 64
Labor force participation					
Mean of dependent variable	0.70	0.82	0.73	0.63	0.60
Effect of Medicaid Expansion	-0.006 (0.08)	-0.002 (0.68)	-0.008 (0.20)	-0.004 (0.62)	-0.004 (0.60)
Employment					
Mean of dependent variable	0.61	0.68	0.65	0.53	0.55
Effect of Medicaid Expansion	-0.003 (0.44)	0.005 (0.39)	-0.006 (0.43)	-0.004 (0.67)	-0.003 (0.62)
Part-time employment					
Mean of dependent variable	0.09	0.08	0.05	0.12	0.10
Effect of Medicaid Expansion	0.001 (0.76)	0.000 (0.92)	-0.004 (0.12)	0.001 (0.75)	0.003 (0.53)
Usual hours worked per week					
Mean of dependent variable	37.8	38.8	41.0	34.4	36.1
Effect of Medicaid Expansion	-0.17 (0.11)	-0.10 (0.51)	0.03 (0.82)	-0.23 (0.41)	-0.13 (0.33)

Source: Authors' analysis of Current Population Survey data from 2010 to 2014.

Notes: States are counted as having expanded Medicaid in a given year if they had expanded Medicaid or Medicaid-like benefits to childless adults with incomes up to at least 100 percent of the federal poverty level, provided benefits to childless adults that were more limited than Medicaid (but covered at least hospitalizations), or provided Medicaid benefits to this group but was closed to new enrollment at some point during the 2010 to 2013 period. See text for details of expansion status determinations and regression specifications. For each effect measure, p-values are given in parentheses.

**Table 4. Effects of ACA Medicaid Expansions on Labor Market Outcomes of Childless Nonelderly Adults with a High School Education or Less**

	All Adults	Males ages 18 to 44	Males ages 45 to 64	Females ages 18 to 44	Females ages 45 to 64
Labor force participation					
Mean of dependent variable	0.67	0.75	0.70	0.64	0.59
Effect of Medicaid Expansion	0.002 (0.73)	0.005 (0.49)	-0.008 (0.30)	0.009 (0.61)	0.002 (0.82)
Employment					
Mean of dependent variable	0.58	0.61	0.61	0.54	0.54
Effect of Medicaid Expansion	0.005 (0.45)	0.012 (0.14)	-0.002 (0.83)	0.002 (0.88)	0.004 (0.73)
Part-time employment					
Mean of dependent variable	0.09	0.10	0.05	0.14	0.09
Effect of Medicaid Expansion	0.0012 (0.61)	0.0004 (0.94)	0.0001 (0.98)	0.0011 (0.88)	0.0001 (0.99)
Usual hours worked per week					
Mean of dependent variable	37.4	37.4	40.8	33.5	36.3
Effect of Medicaid Expansion	0.09 (0.48)	0.38 (0.21)	0.02 (0.94)	-0.08 (0.84)	0.02 (0.88)

Source: Authors' analysis of Current Population Survey data from 2010 to 2014.

Notes: States are counted as having expanded Medicaid in a given year if they had expanded Medicaid or Medicaid-like benefits to childless adults with incomes up to at least 100 percent of the federal poverty level. See text for details of expansion status determinations and regression specifications. For each effect measure, p-values are given in parentheses.



# ENDNOTES

1. Coverage expansions under the ACA may both interact with existing income-based programs in ways that could increase work effort for some groups and have labor supply effects that work in different directions for different groups. For example, by raising the income threshold for Medicaid eligibility for low-income parents in many states, some adults could work more hours than they could before the ACA expansion and still retain Medicaid eligibility. As another example, adults who could only obtain coverage by qualifying for Medicaid through disability provisions may be able to work more and retain Medicaid coverage or access subsidized coverage through the marketplaces that was not previously available. For a theoretical discussion of the potential labor supply effects of Medicaid expansions, see Dhaval D. Decker S, Kaestner R and Simon K. "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, 2015.
2. Based on more-recent evidence, in its recent analysis of the budgetary effects of proposed legislation to repeal the ACA, the CBO revised its estimate of the long-run effect of the ACA on the total number of hours worked slightly downward to a central estimate of 1.5 percent (from a range of 1.5 to 2 percent in February 2014). Congressional Budget Office. "Labor Market Effects of the Affordable Care Act: Updated Estimates." In *The Budget and Economic Outlook: 2014 to 2024*. Washington: Congressional Budget Office, 2014, <http://www.cbo.gov/sites/default/files/cbofiles/attachments/45010-breakout-AppendixC.pdf> (accessed July 2015).
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5. We do not subset to adults with low income levels because income itself would be endogenous to (affected by) the incentives in the ACA, thus leading to potentially biased estimates of ACA effects. According to data from the Annual Social and Economic Supplement of the CPS for 2012, 82 percent of nonelderly adults with a high school education or less had income less than 400 percent of FPL and thus may qualify for subsidized coverage under the ACA (through either the marketplaces or Medicaid), versus 53 percent of those with more than a high school education.
6. Using data from the Annual Social and Economic Supplement of the CPS, we find that 40 percent of nonelderly adults with a high school education or less had income below 138 percent of FPL in 2012 and would potentially gain Medicaid eligibility under the ACA; only 18 percent of nonelderly adults with more than a high school education had that income level and would be similarly eligible.
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8. Because the number in the labor force is equal to the number of people employed plus the number of people unemployed, an increase in the unemployment rate (the number of unemployed divided by the labor force) is mechanically associated with the labor force participation rate and the employment-to-population ratio. Using the unemployment rate of persons of the opposite sex in our regressions breaks the mechanical relationship, but still has predictive value in the regression models because the unemployment rates for men and women within a state are highly correlated over time.
9. Age groups were ages 18 to 25, 26 to 44, 45 to 54 and 55 to 64; these were crossed with sex to make eight groups. Race and ethnicity groups were Hispanic, non-Hispanic white, non-Hispanic black and non-Hispanic other. Marital status groups were married, never married, and separated, widowed or divorced. Education groups were less than high school, high school, some college, and college or higher.
10. This analysis abstracts over some early ACA expansions that may have induced labor market effects before 2014, including early Medicaid expansions in a few states and expansion of dependent coverage to include adult children from ages 18 to 25. We would expect any effects of these early expansions to be small relative to effects for all age groups nationwide in 2014. By estimating the regression models with data up to 2013, however, any labor market effects of these early expansions would be built into the counterfactual trend line. This focuses the comparison of actual and expected 2014 estimates on effects of the ACA that occurred in 2014.
11. Whereas the use of historical data back to 2000 was essential to estimating past relationships for the purpose of making counterfactual forecasts in equation 1, we do not require the past data for the D-D estimates where the observed contemporaneous outcome measures in states that did not expand Medicaid serve as the counterfactual for states that did expand Medicaid.
12. Estimates using the individual-level data were very similar to those using collapsed data. Regression models on the collapsed state-year CPS data were weighted by state population. We obtained very similar results using unweighted regressions. We used collapsed data to reduce the considerable time required to conduct computationally intensive randomization inference (permutation tests).
13. Other than being averaged, the demographic variables in equation 2 are the same as those used in equation 1 and specified in endnote 9.
14. To test the parallel trend assumption underlying the D-D approach used for the Medicaid analysis, we estimated a model to assess whether there were differences in pre-trends (i.e., year effects) between states that did and did not expand Medicaid. Estimates from this analysis indicated that in only 18 of 180 possible cases (interactions between indicator of an expansion state and indicators of years prior to expansion) was there a significant difference. This is strong evidence to support the identification assumption of the D-D analysis.
15. We use the threshold of up to 100 percent of FPL, rather than 138 percent as provided under the ACA, so states that provide eligibility up to 100 percent of FPL before the ACA would count as having expanded Medicaid.
16. The states that expanded Medicaid under the ACA by December 1, 2014 are AZ, AR, CA, CO, CT, DE, DC, HI, IL, IA, KY, MD, MA, MI, MN, NH, NV, NJ, NM, NY, ND, OH, OR, RI, VT, WA and WV. Expansions in IN and PA did not begin until 2015.
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18. Pre-ACA coverage expansion to nonparents may be closed to new enrollment, not apply statewide, require significant cost-sharing, consist of limited health services (e.g., primary care only) or cover only a subset of the individuals who would be eligible for Medicaid under the ACA (including work requirements).
19. DE, DC, MA, NY and VT provided Medicaid or Medicaid-equivalent benefits to nonelderly nonparent adults to up to at least 100 percent of FPL that was available for new enrollment during the entire 2010 to 2013 period. See Heberlein et al., *Holding Steady*; Heberlein et al., *Performing Under Pressure*; and Kaiser Family Foundation, "A Look at Section 1115 Medicaid Demonstration Waivers."
20. AZ, CA, CT, HI, IN, IA, ME, MN, WA and WI either provided benefits to childless adults that were more limited than Medicaid (but covered at least hospitalizations) or provided Medicaid benefits to this group but was closed to new enrollment at some point during the 2010 to 2013 period. These states were counted as having expanded Medicaid for the entire 2010 to 2014 period with the exception of California, which is counted as having expanded Medicaid starting in 2011 when it began expanding county-optional programs under the ACA. See Heberlein et al., *Holding Steady*; Heberlein et al., *Performing Under Pressure*; and Kaiser Family Foundation, "A Look at Section 1115 Medicaid Demonstration Waivers." As a further sensitivity analysis, we defined a state as having expanded Medicaid solely on the basis of whether it had adopted the ACA Medicaid expansion by 2014. Under this definition, we treated all states as nonexpansion states before 2014 and treat the 27 states that adopted the ACA's Medicaid option as expansion states in 2014. Using this alternative definition, we obtained findings nearly identical to those we present for the main definition.
21. Before the ACA, many states had no Medicaid coverage for nondisabled childless adults, whereas all states covered for low-income parents up to varying (and sometimes very low) levels of income. States that had expanded coverage to childless adults under 1115 waivers provided coverage up income levels that were often lower for childless adults than for parents. See table 4 of Heberlein et al., *Performing Under Pressure*.

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24. We also examined the usual hours worked of all nonelderly adults, including those who worked zero hours, and found a difference between actual and expected usual hours worked per week of 0.2 hours, but this was not statistically significant (data not shown).
25. For nonelderly adults with a high school education or less, the actual full-time ( $\geq 30$  hours) rate in 2014 is 1.4 percentage points above the expected rate, and this difference is statistically significant at the 5 percent level (data not shown).
26. As an alternative method of calculating p-values for the D-D estimates, we applied randomization inference methods (permutation tests). P-values that result from randomization inference incorporate uncertainty caused by possible omitted factors that differ by Medicaid expansion status and could bias the D-D estimates. In the permutation analysis, 1,000 regressions are estimated, and treatment status (Medicaid expansion) is randomly assigned at the same frequency by year as in the actual data. Because treatment status is assigned randomly, there should be no effect on average of the simulated treatment, but the distribution of estimates across permutation trials captures the amount of uncertainty in the D-D estimates under the null hypothesis of no treatment effects. An actual D-D value near the tail of the distribution of permutation trials would provide evidence of a true treatment effect. Statistical inferences from the permutation analyses are nearly identical to those we present in the text.
27. Labor market responses to Medicaid expansions under the ACA could differ from those of pre-ACA expansions given the degree of publicity and outreach surrounding the more recent expansions and the individual mandate. Our D-D estimates are identified almost entirely through the ACA-related expansions because most of the previous expansions span the entire 2010 to 2014 period and exhibit no change within the analysis sample.
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