The Effects of the Affordable Care Act on Health Insurance Coverage and Labor Market Outcomes

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Abstract

The Affordable Care Act (ACA) includes several provisions designed to expand insurance coverage that also alter the tie between employment and health insurance. In this paper, we exploit proxies for expected treatment "intensity" of the ACA to estimate the effect of the ACA on health insurance coverage and labor market outcomes in the first two years after the implementation of the main features of the ACA. Our measures of treatment intensity take advantage of geographic variation in the income distribution and in the pre-ACA share uninsured, interacted with each state's Medicaid expansion status. Our findings indicate that a substantial share of the increase in health insurance coverage since 2013 is due to the ACA and that areas in which a greater share of the population stood to benefit from the ACA's provisions saw substantially larger increases in coverage. We find suggestive evidence of a small policy-induced increase in labor force exit and in part-time work, with this effect driven by those acquiring coverage through the ACA exchanges. However, we detect no corresponding change in employment.

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I. INTRODUCTION

The Affordable Care Act (ACA), passed in 2010, represents the largest reform to the U.S. healthcare system since the introduction of Medicare and Medicaid in 1965. One of its primary goals was to reduce the number of uninsured, which had hovered around one-sixth of the non-elderly population during the prior decade. Several provisions of the law aimed to achieve this goal, including expansions of the Medicaid program to cover low-income individuals, subsidies provided to individuals whose income fall between 100 and 400% of the federal poverty line (FPL), mandates on employers to offer health insurance coverage to employees, and penalties imposed on individuals without insurance. After many of these provisions were implemented in January of 2014, uninsurance rates among non-elderly adults fell substantially, from 20.1 percent in the fourth quarter of 2013 to 15.1 percent by the fourth quarter of 2014 and 12.6 percent by the fourth quarter of 2015, as shown in Figure 1.[1] However, these aggregate patterns mask considerable heterogeneity in changes in insurance rates and do not show how insurance coverage would have evolved in the absence of the ACA.

Many of these same provisions also serve to weaken the tie between employment and health insurance coverage, and therefore may affect both labor supply and demand. Consistent with this, the Congressional Budget Office (CBO) has estimated that the ACA will reduce the size of the labor force by 1.5 to 2 percent (2 to 2.5 million individuals) by 2024 (CBO, 2014). While the primary channels for this projected effect are through the incentive effects resulting from the availability of subsidies for private health insurance coverage and the expanded coverage for the Medicaid program that could reduce labor supply, there is also scope for effects on employment

[1] Source: National Center for Health Statistics. Health Insurance Coverage: Early Release of Quarterly Estimates from the Natinal Health Interview Survey, January 2010 – March 2016, Table 3, retrieved on September 12, 2016. Available at: http://www.cdc.gov/nchs/data/nhis/earlyrelease/quarterly_estimates_2010_2016_q11.pdf.

through policies that could impact labor demand. Aggregate labor force participation rates do not show any clear patterns over this period (see Figure 2), but again, the aggregate rates may mask changes in labor force participation across areas or groups and do not indicate how they compare to counterfactual labor force participation if the ACA had not been implemented.

In this paper, we examine how the ACA affected health insurance coverage and labor market outcomes in the period shortly after the ACA took effect. Because the ACA is a national reform and affected all states, it is difficult to disentangle the effects of the law from other changes that would have happened without it. For example, employment growth in the first year after the ACA averaged 241 thousand per month, which was the most rapid pace since the late 1990s and 30 percent greater than the average growth in the preceding three years. It is plausible that health insurance coverage would have risen substantially as a result of this pickup in economic activity. Similarly, as shown in Figure 1, the fraction of non-elderly adults without health insurance was trending down even prior to 2014. Thus, it is ultimately an empirical question how much of the increase in coverage was driven by the Affordable Care Act versus other factors.

To investigate this issue, we use data from the American Community Survey (ACS) to exploit geographic variation in the expected ACA treatment "intensity." ACA expanded Medicaid to individuals in families with incomes below 138% of the federal poverty line (FPL). However, only about half of all states proceeded with the Medicaid expansion, and thus the effect of this provision may be much smaller as a result. Additionally, the ACA provided subsidies to purchase private health insurance to individuals with incomes between 100% and 400% of FPL. To the extent that these provisions raised health insurance coverage, one would expect areas with a larger fraction of the population both uninsured and below 400% FPL to experience larger increases in insurance coverage. However, the magnitude of the effects may depend on whether the state

proceeded with the Medicaid expansion. More specifically, an area with a large fraction uninsured and below 138% FPL may see a relatively small increase if the state did not expand Medicaid.

Our data allow us to estimate the share of each area that was (a) uninsured and below 138 percent of the poverty line and (b) uninsured and between 139 and 399 percent of the federal poverty line in 2010-2013, just prior to the implementation of the ACA's key provision. The large sample size in the ACS along with the geographic identifiers allows us to divide the U.S. into more than 1,000 areas known as Public Use Microdata Areas (PUMAs).

Theoretically, one would expect areas with a large share uninsured and below 400% of FPL prior to ACA implementation to experience larger increases in health insurance coverage beginning in 2014. The effect for the group below 138% FPL would likely be sensitive to whether the state had expanded Medicaid. We empirically test these predictions using annual ACS data from the 2010 to 2015 period exploiting variation across PUMAs. Our methodology is similar to that used by previous work to estimate the effect of the introduction of Medicare in 1965 (Finkelstein, 2007; Finkelstein and McKnight, 2008) and of the 2006 Massachusetts Health Reform (Kolstad and Kowalski, 2012; Miller, 2012). However, our sample size and level of geographic detail allow us to use much more granular variation than has been used in this previous work.

Our results indicate that the ACA had a substantial impact on overall health insurance coverage. For areas with average characteristics prior to the ACA, we estimate that health insurance coverage increased by 4.2 percentage points in states that did not expand Medicaid, and 5.4 percentage points in states that did, as a result of this legislation. We also find evidence that regions with lower levels of baseline insurance coverage and/or higher shares of population eligible for Medicaid coverage or financial assistance to purchase insurance saw larger increases

in coverage. In particular, in regions where the share of the population less than 138% FPL and uninsured is 10 percentage points higher (approximately twice the standard deviation), coverage was not significantly higher in non-expansion states and 5.2 percentage points higher in expansion states. In regions where the share of the population between 139% and 399% FPL and uninsured is 10 percentage points higher (approximately three times the standard deviation), coverage was 4.4 percentage points higher in non-expansion states and the increase in expansion states were lower but not significantly different.

Data on the source of coverage allow us to understand the channels through which health insurance is increasing. We find that increases in Medicaid coverage accounted for the majority of coverage increases in expansion states, while privately-purchased health insurance, including policies purchased on the ACA exchanges, accounted for the majority in non-expansion states. We find little evidence that private health insurance from employers changes after the ACA is implemented in either expansion or non-expansion states, suggesting that any crowd-out of other sources of coverage was limited.

Finally, we investigate the impact of the ACA on non-elderly adults' labor market outcomes. We find suggestive evidence of a small effect of the policy-induced increase in health insurance coverage on labor force participation and part-time work, though little evidence of changes to employment or hours worked. Taken together, our results suggest that labor market outcomes did not change dramatically as a result of the ACA.

Our paper builds on a fast-growing literature on the effects of various ACA provisions on several different outcomes. One of the first provisions of the ACA to take effect was the dependent care mandate that extended coverage to young adults up to age 26 by mandating that they be considered dependents on their parents' health insurance. This spurred several papers

documenting its positive effect on coverage (Cantor et al. 2012; Sommers and Kronick 2012; Sommers et al. 2013; Antwi, Moriya and Simon 2013) and lack of evidence for changes in labor market outcomes (Bailey and Chorniy 2015; Heim, Lurie and Simon 2015).

After the rollout of the main ACA provisions in 2014, several additional studies have emerged about its impacts on coverage and labor market outcomes. As of this writing, most of the evidence suggest widespread insurance coverage gains (Sommers et al. 2014, 2015; Courtemanche et al. 2016*b*; Frean, Gruber, and Sommers 2016), but little evidence of changes in labor market outcomes (Buchmueller, Levy, and Nikpay 2015; Kaestner et al. 2015; Leung and Mas 2016; Gooptu et al. 2016; Moriya, Selden and Simon 2016).[2]

Our study is most similar to Courtemanche et al. (2016*b*) and Frean, Gruber and Sommers (2016) which both use the ACS to investigate the impact of the ACA on health insurance coverage. Courtemanche et al. (2016*b*) exploits regional variation in the share uninsured to identify the impact of the ACA on health insurance coverage, while Frean, Gruber and Sommers (2016) use variation across income groups, geographic areas and time. Both studies indicate substantial coverage gains using plausible sources of exogenous variation. We add to this literature by combining pre-ACA uninsurance rates with regional income distributions for a richer interpretation of the impact of the ACA, incorporating an analysis of the ACA's labor supply effects, and employing the use of finer geographic areas (as in Frean, Gruber and Sommers) across a broader time horizon (as in Courtemanche et al.).

The rest of the paper proceeds as follows. Section II contains background information on the key features of the ACA for our analysis and describes the related literature. In Section III, we

[2] In addition to these studies, several descriptive analyses have used a variety of novel data sources to document the ACA's impact on coverage (Long et al. 2014; Smith and Medalia 2014; Carman et al. 2015; Black and Cohen 2015; Courtemanche et al. 2016*a*) and some authors have modeled the impact of the ACA on labor supply without empirically measuring its impact (Heim, Hunter, Lurie, and Ramnath 2014; Mulligan 2014; Fang and Shephard 2015).

describe our empirical strategy. Section IV provides details regarding the data we use in the analysis including summary statistics prior to ACA implementation. We report our results in Section V, robustness exercises in Section VI, and Section VII concludes.

II. BACKGROUND

In this section, we describe various features of the Affordable Care Act designed to increase insurance coverage, potential channels through which this legislation may influence the labor market, and previous literature relevant to the impacts of similar policies on health insurance coverage and the tie between health insurance and labor market outcomes.

A. The Affordable Care Act

The Affordable Care Act includes dozens of provisions to expand health insurance coverage, slow the growth rate in health care costs, and reform the market for private health insurance. In this section, we focus on the provisions designed to expand health insurance coverage.

The Medicaid Expansion

Just prior to the passage of the Affordable Care Act, the federal-state Medicaid program provided health insurance to 49 million U.S. residents (KFF, 2015). There was substantial variation across states with respect to which individuals were eligible, what health care services were covered, the generosity of reimbursement to health care providers, and the role of private managed care organizations (Duggan and Hayford, 2013). This program is means-tested and there is virtually no cost-sharing, with Medicaid premiums essentially equal to zero in most states. Medicaid provides valuable protection to many of the nation's most vulnerable residents, with

many studies finding that it improves health outcomes (e.g., Currie and Gruber, 1996, Sommers et al. 2012) and enhances economic well-being (Baicker et al, 2014).

The Affordable Care Act substantially expanded eligibility for the Medicaid program. More specifically, individuals with family incomes less than or equal to 138 percent of the poverty-line (adjusted for family size) would become eligible for the program. In early 2010 prior to ACA's passage, virtually all states already covered children in this income range, and thus the ACA's primary effect was to expand eligibility among non-elderly adults. Projections from CBO initially estimated that Medicaid enrollment would – by 2016 – increase by 16 million as a result of the Affordable Care Act. This represented half of the increase in projected insurance coverage resulting from the ACA. However, this projection was later reduced to just 11 million after the 2012 Supreme Court decision made it optional for states to move forward with the Medicaid expansion and many states elected not to do so.[3]

The actual impact of the ACA Medicaid expansion is likely to vary substantially across states for three primary reasons. First, only 25 states (including the District of Columbia) chose to expand Medicaid by January 2014 following the Supreme Court decision, as shown in Figure 3.[4] As a result, while the number of Medicaid recipients nationally increased from 58.8 million in the fall of 2013 to 74.3 million in October 2016, the increase was substantially greater among states that elected to expand their Medicaid programs.[5] Consider the contrast between California, which did expand it Medicaid program, and Texas, which did not. In California, Medicaid enrollment increased by 57 percent (to 12.2 million) from September 2013 to October 2016. In contrast, in

[3] On June 28, 2012, the Supreme Court ruled that the ACA's Medicaid expansion was "unconstitutionally coercive," and that the appropriate remedy was to constrain the Federal government's power in enforcing state compliance.
[4] As of July 2016, 7 additional states have followed suit, bringing the total to 32 states.
[5] These data and state-by-state enrollment data were obtained from https://www.medicaid.gov/medicaid/program-information/medicaid-and-chip-enrollment-data/report-highlights/index.html in December 2016.

Texas, which did not expand its Medicaid program, enrollment rose just 7.4 percent over the same time period to 4.8 million. This is precisely the sort of variation that we will exploit in our empirical analysis.

A second reason for a differential effect of Medicaid is that some states already covered a substantial fraction of adults below 133 percent of the poverty line at the time the ACA was passed. All else equal, the likely increase in coverage would be smaller in these states. For example, non-disabled childless adults in the state of California were not eligible for Medicaid in 2013 regardless of income level. In contrast, their counterparts in the state of New York were eligible if their incomes were below the poverty line. This may partially explain why California's 57 percent increase in Medicaid enrollment since 2013 is several times larger than New York's 13 percent increase (to 6.4 million) despite the fact that both expanded their programs as a result of the ACA.

A third reason that the effect of Medicaid is likely to vary across states is that the fraction of individuals in poverty differs substantially across states. Because of this, any expansion of Medicaid coverage would, all else equal, lead to a larger increase in insurance coverage in states with high rates of poverty. Consider the difference between New Mexico and Colorado, two states that expanded Medicaid as a result of the Affordable Care Act. In 2013 just prior to this coverage expansion, 22 percent of New Mexico's residents had family incomes below the poverty line. In contrast, just 13 percent of Colorado residents were below the poverty line in that same year. Because of this difference, one would expect the ACA to have a bigger impact on health insurance coverage in New Mexico. Consistent with this, the fraction of New Mexico residents with Medicaid coverage increased by substantially more in New Mexico (from 22 to 36 percent) than in Colorado (from 15 to 25 percent) from 2013 to 2016. To the extent that the policy-induced

increase in Medicaid coverage affected labor market outcomes, one would expect a larger change in New Mexico compared to Colorado.

Subsidized Coverage through State or the Federal Health Insurance Exchanges

Subsidies for health insurance purchased on the ACA exchanges are calculated by first determining a family's (modified adjusted gross) income[6] as a percent of the federal poverty line. This percentage maps to a maximum percentage of income that one is responsible for paying towards the cost of health insurance, ranging from 2 percent (at low levels of income) to 9.5 percent (from 300 to 400 percent of the poverty line). The subsidy level is the cost of the second lowest cost "silver tier" plan available on the exchange less the maximum premium payment the person is responsible for. Once a family's income exceeds 400 percent of the poverty line, members are no longer eligible for subsidies for purchasing health insurance through the exchanges. If a family earns less than 100 percent of the poverty line, members are expected to be covered by Medicaid expansions and therefore do not receive a subsidy. Therefore, subsidies vary considerably by income.

The value of the subsidy for different levels of income for an individual 60 years of age is shown in Appendix Figure A.1. A single person with annual income equal to $15,000 in 2015 has income equal to 127 percent of the federal poverty line and is responsible for paying 2 percent of income, or $300/year, towards health insurance premiums. The U.S. average of the benchmark premium for a 60-year-old is $7,033; therefore, this person is eligible for subsidies worth $6,733 each year from the ACA. At $30,000 of income, this same person would have income equal to 255 percent of the federal poverty line and would be responsible for paying 8.19 percent of income,

[6] Gross income includes salary, investment, and business income. Qualified deductions such as student loan interest and IRA contributions are subtracted to arrive at adjusted gross income (AGI). Tax-exempt interest income is added to AGI to arrive at modified adjusted gross income (MAGI).

or $2,457, annually towards health insurance premiums, resulting in an annual subsidy of $4,576. Since the value of the subsidy decreases as one earns more income, the existence of the subsidies effectively increases the marginal tax rate on earnings for individuals obtaining insurance through the exchanges.

Premiums also vary considerably across states and counties and this leads to a large divergence in the effective subsidy available to individuals in high- vs. low-cost areas. Take, for example, a single 60-year-old person with a $30,000 income in Pitkin County, CO compared to a 60-year-old with the same income in Anoka County, MN. As in our previous example, both of these individuals have income equal to 255 percent of the 2015 federal poverty line and are therefore both responsible for paying 8.19 percent of income ($2,457) towards health insurance premiums annually. However, the premium for the benchmark plan in Pitkin County is the highest in the country, costing $10,062/year for a 60-year-old whereas the benchmark plan in Anoka County is the least expensive at $4,663/year. Therefore the subsidy available to the person in Pitkin County is more than three times higher than the subsidy available to his counterpart in Anoka County ($7,605 vs. $2,206). This variation in the value of the subsidy in Pitkin County and Anoka County for a 60-year old is depicted in Appendix Figure A.2.

Just as the growth in Medicaid enrollment since 2013 has varied substantially across states, so too has the increase in insurance coverage through the health insurance exchanges. For example, despite having a similar number of non-elderly individuals, there are now 1.09 million residents of Texas enrolled in the exchanges versus just 0.22 million in New York.[7] This partly reflects the substantially higher fraction uninsured in Texas in 2013, but this is not the only driver of the difference. For example, while Florida has a smaller population and a smaller share uninsured in

[7] Exchange enrollment is available by state as of March 2016 from http://kff.org/health-reform/state-indicator/total-marketplace-enrollment-and-financial-assistance/.

2013, there are actually substantially more Florida residents enrolled in the exchange than Texas residents (1.53 million versus 1.09 million). The variation in Medicaid enrollment combined with variation in exchange enrollment has led to differential changes in the share uninsured by state, ranging from a 0.7 percentage point reduction in Virginia to 12.9 percent reductions in Arkansas and Kentucky (see Appendix Table A.1).

B. The Affordable Care Act and the Labor Market

The Congressional Budget Office (CBO) has estimated that the ACA will reduce the size of the labor force by 1.5 to 2 percent (2 to 2.5 million individuals) by 2024 (CBO, 2014). The two primary channels for this effect are the incentive effects resulting from the availability of subsidies for private health insurance coverage and the expanded coverage for the Medicaid program.

Because Medicaid provides a source of insurance coverage regardless of employment, and its means-tested nature may result in a high marginal tax on working, Medicaid expansions could affect labor market outcomes by reducing the amount of labor supplied by workers. A limited recent literature has examined the effect of Medicaid expansions or contractions on employment outcomes. In particular, Garthwaite, Gross and Notowidigdo (2014) examine a contraction of Medicaid in Tennessee that led to a marked increase in employment in Tennessee; Dague, DeLeire and Leininger (2014) and Baicker et al. (2014) find more modest effects of Medicaid on employment in Wisconsin and Oregon, respectively. Since these expansions or contractions were often targeted to childless adults, similar to the ACA, their experiences are valuable in informing expectations of the effects of ACA Medicaid expansions on employment. However, the difference in estimates leave considerable ambiguity regarding the expected effects of the ACA's Medicaid expansions on labor market outcomes. Additionally, Medicaid's effect may be different with the

ACA because – in contrast to the pre-ACA setting - a person would remain eligible for private health insurance subsidies even if his/her income rose above the Medicaid-eligible threshold.

The private health insurance exchanges are expected to affect labor market outcomes for several reasons. First, prior to the ACA, it is likely that some near-elderly workers were continuing to work until they were eligible for Medicare at age 65 because they obtained health insurance through their employer. By making it less expensive for individuals to purchase coverage outside of employment, some may elect to retire or shift to part-time work sooner as a result of the Affordable Care Act. Second, the magnitude of the subsidy declines steadily with income. As a worker's income rises from, for example, 133 percent of the federal poverty line to 399 percent of the federal poverty level, there is an average effective tax rate of approximately 12 percent on additional earnings. This may reduce the incentive for some individuals to work, causing them to scale back their hours or to shift to another job with lower earnings. Third and as shown in Appendix Figures A.1 and A.2, there exists a "cliff" in the subsidy at 400 percent of the federal poverty level, at which point the subsidy drops to zero. Fourth, the availability of subsidized coverage in the exchange may encourage workers to shift to smaller firms (which are less likely to offer coverage) or to start their own businesses. Indeed just prior to the Affordable Care Act, workers in firms with fewer than 10 employees were three times more likely than their counterparts in firms with 1,000 or more employees to be uninsured. This difference was partially driven by the substantially higher health insurance premiums that small firms or the self-employed tended to face relative to their larger counterparts (Gabel et al., 2006).

Medicaid expansions and subsidies for health insurance through the exchanges represent just a subset of the possible channels through which subsidized coverage could affect labor market outcomes. Another set of channels would be driven by changes in firm behavior. For example, the

ACA's employer mandate applies to firms with 50 or more full-time employees, and may therefore encourage some firms to stay below that threshold or hire more part-time workers. The ACA's Small Business Tax Credit encourages firms with 25 or fewer employees and with low-wage workers to provide health insurance coverage to their employees.[8] This tax credit may lead to an increase in firm offering and may therefore make jobs at these smaller employers more attractive. Related to this, if smaller firms that previously offered coverage can drop it while sending their workers to the exchange, this could lead to increases in wages and in employment as well. Thus not all of the behavioral responses to the ACA imply that there will be reductions in labor supply.

A third and less appreciated feature of the ACA is that it may give some employers an incentive to "contract out" for low-wage workers because the existing ESI system (with its large tax subsidies for higher income workers) may be more attractive for high-wage workers while coverage through the exchanges (which provides larger subsidies to those with lower incomes) is more appealing for low-income workers. A fourth feature of the ACA is the "Cadillac tax"[9] on high-cost plans, which may cause firms to provide health insurance contracts with less generous coverage to their workers, which could then pass-through to higher wages. Indeed the CBO estimated that more than 80 percent of the budgetary savings from this tax resulted from an increase in earnings rather than in direct Cadillac tax revenue. To the extent that employers respond to the ACA by changing the number of workers, the composition of full versus part-time work, wages, or the use of contracting out, this could substantially affect labor market outcomes.

[8] The Small Business Tax Credit covers approximately 40 percent of the cost of a plan for firms with 10 or fewer workers with average annual earnings of $25 thousand or less. This subsidy phases out linearly as the number of workers increases from 10 to 25 and as average earnings increase from $25 to $50 thousand. A firm with 26 or more workers or with average earnings above $50 thousand would not be eligible for this credit.
[9] The implementation of this tax is currently delayed until 2020.

In addition to the effects of the ACA on both worker and employer incentives, there are certainly other channels through which policy-induced increases in insurance coverage could affect labor market outcomes. Perhaps the most obvious one is that expansions in coverage may improve health, which could in turn reduce the disutility of work. These effects may not be instantaneous but might instead grow over time as the duration of exposure to additional insurance coverage increased. To the extent that it increased the propensity to work, it might serve to offset any adverse incentive effects from the ACA.

C. Prior Research on Coverage Expansions, Health Insurance and Labor Market Outcomes

An active area of prior research has examined the effect of policies that increase access to health insurance on coverage outcomes and crowd-out, from Medicaid expansions in the 1980s and 1990s (Cutler and Gruber 1996; Aizer and Grogger 2003; Hamersma and Kim 2013) to the 2006 Massachusetts health reform (Long et al. 2009; Yelowitz and Cannon 2010; Kolstad and Kowalski 2012; Sonier et al. 2013). An advantage of the policies examined in these earlier papers is that they were not universal and therefore lent themselves to quasi-experimental variation using difference-in-difference or instrumental variables strategies to identify the impacts of these policies on coverage and other outcomes.

For several decades, health insurance in the U.S. has been tied to employment due to the exclusion of employer-based health insurance premiums from individual income taxes. Because health insurance outside of the employer context has historically been difficult and/or costly to obtain, economic theory predicts that employer-sponsored health insurance could affect workers' likelihood of being employed, their job-to-job mobility, and decisions to retire.

These predictions have spurred a large body of literature investigating the link between health insurance and labor market outcomes. Early literature found evidence of health insurance-induced "job lock," or the tendency for workers to stay in jobs they would rather leave due to concerns about losing health insurance (Madrian 1994a). Several studies that followed examined the availability of health insurance in retirement on retirement decisions.[10] In general, while exact estimates vary, this literature largely finds a substantial role for post-retirement health insurance availability in explaining retirement behavior (Gruber and Madrian, 2002).

III. EMPIRICAL METHODS

Our empirical approach is to take advantage of geographic variation in characteristics that were determined prior to the ACA's implementation that influence the expected "intensity" of treatment based on different provisions of the law. Our measures of expected treatment intensity are based on the share of a region uninsured, the region's income distribution, and its Medicaid expansion status. For each geographic region, we calculate the following:

1. Pre-ACA share of region uninsured and under 138% FPL
2. Pre-ACA share of region uninsured and between 139-399% FPL

[10] Some studies took a reduced form approach, estimating the impact of employer-provided post-retirement health insurance on retirement and found statistically significant effects of post-retirement health insurance coverage on retirement (Madrian, 1994b; Karoly and Rogowski, 1994; Blau and Gilleskie, 2001). However, these studies often suffered from potential bias due to the potential selection of workers with high tastes for leisure into firms that offered post-retirement health insurance coverage. In an effort to address these concerns, Gruber and Madrian (1995) used variation in in continuation-of-coverage regulations and found evidence that retirement behavior responds to health insurance availability. Other studies used variation stemming from policy changes or eligibility rules for identification (Boyle and Lahey, 2010; Fitzpatrick, 2013; Lieserson, 2013; Coe et al., 2013; Nyce et al., 2013; Shoven and Slavov, 2013). Another strand of literature took a structural approach to identify the effect of post-retirement health insurance availability on retirement (Gustman and Steinmeier, 1994; Lumstaine, Stock and Wise, 1996; Rust and Phelan, 1997; Blau and Gilleskie, 2006; Blau and Gilleskie 2008; French and Jones, 2011).

Note that a region may have a high value for these factors either because they have a high share of individuals under 400% FPL *or* because they have a high share of individuals without insurance. In addition, these factors are not necessarily highly correlated.

Our empirical specification interacts these factors with a binary indicator that equals 1 after the ACA has been implemented, and a binary variable that indicates whether the region is in a state that expanded its Medicaid program prior to the beginning of the analysis year. The regression equation we estimate is as follows:

$$INS_{it} = \delta\, POST_t + \gamma\, POST_t \times EXPANSION_{it} + \theta\, POST_t \times INTENSITY_i + \rho\, POST_t \times INTENSITY_i \times EXPANSION_i + \beta X_{it} + \mu_i + \varepsilon_{it} \quad (1)$$

where INS_{it} represents whether individual i has any health insurance, private employer coverage, privately-purchased coverage, or Medicaid coverage in time *t*, $POST_t$ is an indicator equal to 1 in 2014 or later and 0 otherwise, $EXPANSION_{it}$ represents whether an individual lives in a state that expanded Medicaid prior to January of year *t*, $INTENSITY_i$ represents the pre-ACA measures of intensity for person *i*'s geographic area, X_{it} includes demographic controls for gender, race, and ethnicity and age fixed effects, and μ_i represent geographic region (described below) fixed effects. The vector $INTENSITY_i$ includes the regional shares as described above calculated over the 2010-2013 period and are demeaned, giving the coefficients on other variables the interpretation of the effect of the ACA for locations with an average level of the share uninsured and an average income distribution. Note that because we include geographic region-level fixed effects, the main effects of $INTENSITY_i$ drop out of the regression. We cluster our standard errors at the level of geography.

We hypothesize that the ACA increased the overall level of health insurance, i.e. $\delta > 0$, but that the composition of coverage increases are different for expansion and non-expansion states. In expansion states, Medicaid coverage is expected to increase, while Medicaid coverage would not be expected to change substantially (or by as much) in non-expansion states. Since subsidies to purchase private coverages from the exchanges are available in all states, we expect the ACA to induce higher levels of privately-purchased insurance from both expansion and non-expansion states. The increases in privately-purchased insurance may even be larger in non-expansion states since many individuals between 100-138% FPL are eligible for subsidies towards health insurance purchased on the exchanges but not eligible for Medicaid. The impact of the ACA and Medicaid expansions on private employer coverage is empirically ambiguous. On one hand, more employees with access to employer coverage may sign up for health insurance through their employer due to the individual mandate. On the other hand, there is potential for crowd-out away from private coverage towards Medicaid or privately-purchased health insurance given the heavily-subsidized cost.

Including the income distribution in our specification allows us to obtain a richer interpretation of our results. We hypothesize that regions with a larger share of their population under 138% FPL will have larger increases in Medicaid coverage, but that this effect would only be present in expansion states. Regions with a larger share of their population uninsured and between 139 and 399% FPL are expected to have larger increases in privately-purchased coverage.

To estimate the effect of the ACA on labor market outcomes, we perform an analogous set of regressions as specified in Equation (1) using labor market outcomes as the dependent variables instead of insurance coverage. We hypothesize that regions with larger increases in coverage also have larger changes in labor market outcomes. The primary channels through which the labor

market outcomes occur can be isolated by examining the different coefficients and their significance. For instance, if the coefficient on the share uninsured and under 138% FPL is significant in expansion states when predicting labor force non-participation, and the share uninsured and between 139% and 399% FPL is significant in both groups of states when predicting self-employment, it would suggest that Medicaid leads to labor force non-participation while subsidies for health insurance on the exchanges lead people to be self-employed.

Our identification strategy isolates the impact of the ACA on insurance coverage and labor market outcomes under the assumption that, absent the ACA, geographic areas with larger shares of individuals both uninsured and under 400% FPL would have evolved similarly as those with smaller shares, after controlling for fixed area-level characteristics that do not change over time and person-level demographics. We also assume that places with a given share of individuals both uninsured and under 400% FPL in expansion states would have evolved similarly as those with a similar share in non-expansion states, absent the ACA. Importantly, this assumption does not rule out different levels of insurance coverage or labor market outcomes across areas for reasons other than the ACA that are fixed over time.

IV. DATA

For our analysis, we use data from the American Community Survey (ACS).[11] Specifically, we use the annual Public-Use Micro Sample (PUMS) files which contain individual- and household-level responses that have been edited to protect the confidentiality of respondents.[12] The ACS is an ongoing household survey conducted by the U.S. Census Bureau focusing on a variety of topics including demographic, social, and economic related questions. The ACS

[11] https://www.census.gov/programs-surveys/acs/
[12] http://www.census.gov/programs-surveys/acs/data/pums.html

includes detailed information relating to employment, demographics, health insurance coverage, and measures of poverty/income. It was originally developed as a way to provide continuous information on communities across the US between the decennial Census. Questionnaires are mailed to approximately 295,000 addresses each month (or 3,540,000 annually). Follow-up phone interviews are conducted for addresses that have not responded and personal visits are conducted by Census field representatives to a sample of addresses that have not responded. The extensive follow up results in a high response rate, typically around 97 percent.[13]

We restrict the sample to observations from 2010-2015 for civilians age 26 to 64, resulting in 9,493,231 person-year observations. This sample restriction provides four years of data prior to the ACA and two years after the ACA was implemented. We focus on ages 26 to 64 as these are the ages most likely to be affected by Medicaid expansions and the availability of subsidies given the high rates of insurance coverage for the elderly and children prior to the ACA from Medicare and Medicaid, respectively, along with other provisions of the ACA that extended coverage to dependents under age 26 starting in late 2010.

The ACS asks whether an individual has health insurance coverage at the point of interview.[14] Each individual is provided with a list of seven different types or categories of insurance coverage and can indicate *all* the types of coverage through which they were insured. The choices include: insurance from a current or former employer; insurance purchased directly from an insurance company; Medicare; Medicaid, Medical Assistance, or any kind of government-assistance plan for those with low incomes or a disability; Tricare or other military healthcare; VA; and Indian Health Service. It is worth noting that the wording of these choices combined with

[13] In 2013, there was a drop in the final number of housing units due to the government shutdown, as telephone and in-person follow-up interviews were not conducted during this time.
[14] This differs from the CPS which asks about insurance coverage in the last calendar year.

self-reporting can lead to some measurement error in the source of insurance coverage if, for instance, "or any kind of government-assistance plan for those with low incomes" is interpreted as subsidies that allow individuals to purchase private insurance on the exchanges.

The ACS creates a variable indicating any insurance coverage as having any of the coverage types other than Indian Health Service. We show insurance coverage in the ACS in 2010 for four different age groups (0-25, 26-44, 45-64, and 65+) in Figure 4. Note that since individuals are able to choose more than one type of coverage, the percentages add up to more than 100 percent. As shown in the figure, uninsurance rates are highest for 26-64 year-olds at baseline, and the highest source of coverage for these groups is private employer coverage. The elderly are almost universally covered by Medicare, but many have supplemental coverage from other sources. Children and young adults have high rates of coverage from Medicaid at baseline, illustrating the fact that prior to the ACA, children were generally considered part of mandatory eligibility groups and as a result had greater access to Medicaid.

Several labor market outcomes are included in the ACS. We examine whether an individual reports being employed over the last week, or out of the labor force (i.e., not employed last week and not looking for employment over the last four weeks). The ACS also includes information about self-employment, usual hours worked per week over the past 12 months, and wage or salary and self-employment income over the past 12 months. We construct an indicator for part-time employment which equals one for individuals employed last week whose hours are less than 30 per week over the past 12 months. Our baseline labor market outcomes prior to the implementation of the ACA are summarized for different age groups in Table 1. Hours and self-employment are conditional on being employed in the last week, and wages are reported

conditional on reporting wage and salary or self-employment income in the last 12 months. Table 1 also includes baseline demographic characteristics such as gender, race and ethnicity.[15]

Our analysis relies heavily on geographic variation in the income distribution and the share uninsured prior to the ACA. The finest geographic-level identified in the PUMS data are Public Use Microdata Areas, or PUMAs.[16] PUMAs are defined so as to not cross state borders and are population-based rather than based on physical area. Large urban areas such as Los Angeles or Chicago typically are divided into multiple PUMAs based on census tracts while PUMAs in rural areas are typically based on counties.

PUMAs are redefined every ten years following the decennial Census. The ACS uses 2,071 PUMAs based on the 2000 Census for years 2010 and 2011, and then switches to 2,351 PUMAs based on the 2010 Census for years 2012 and later. In order to use data spanning this change, we use consistent PUMAs which are an aggregation of 2000 and 2010 PUMAs with boundaries that align across decennial Censuses.[17] There are 1,078 such areas which have an average population of 148,682 people.

Figures 5-7 show the heterogeneity in the share of the population under 138% FPL and uninsured and the share between 139% and 399% FPL and uninsured for our sample averaged over the pre-ACA years we examine (2010 – 2013). Figure 5 displays the variation in each measure in histograms. The average share of the population under 138% FPL and uninsured across PUMAs is 7.31 percent, with a standard deviation of 4.07 percent, but the share ranges from 0.29

[15] Races other than Black, White or Asian are assigned as Other. A person reporting only one race is given a value of 1 for that race, and those reporting a mix of two races is credited 0.5 to each race. If a person reports more than two races, they are assigned to Other.
[16] For more information on PUMAs refer to https://www.census.gov/geo/reference/webatlas/pumas.html.
[17] Consistent PUMAs are an aggregation of 2010 and 2000 PUMAs that align, within a 1% population error tolerance, over our time period. We lose approximately half of the population with this restriction. For more information on the consistent PUMAs refer to: https://usa.ipums.org/usa/volii/cpuma0010.shtml.

percent to a high value of 29 percent (in Hidalgo County which includes McAllen, TX). The average share of the population between 139% and 399% FPL and uninsured is 8.6 percent, ranging from a low of 0.84 percent (in an area of the Boston metropolitan area) to a high of 29.5 percent (in central Los Angeles County) across PUMAs with a standard deviation of 4.45 percent. Note that these shares can vary either because the share of the population within certain income bands varies or because the share of that population that is uninsured varies.

Figures 6 and 7 show heat maps for the entire United States, California, and Los Angeles County, with darker shaded regions representing regions with a larger share. Zooming in to Los Angeles County illustrates the level of geographic detail that PUMA identifiers provide, and the amount of variation present within even a single county.

While the ACS offers many advantages in sample size, response rate and survey measures, one of the main disadvantages is that the month of interview is not available in the public use microdata for privacy concerns. As a result, we cannot estimate how the effect of the ACA varies across the 8 quarters or 24 months of our post period, nor can we make maximum use of the timing differences in Medicaid expansion status for dates after January 2014. However, we explore the extent to which results vary during each of the two years following the ACA implementation in what follows.

V. RESULTS

A. Health insurance coverage

We estimate Equation (1) on several outcome variables pertaining to insurance coverage, its source, and its generosity. We begin by using overall health insurance coverage as the outcome variable. Table 2 displays these results. All of the specifications include demographic controls

for gender, race, and ethnicity, single year-of-age fixed effects, and PUMA fixed effects. Column (1) includes just the $POST_t$ binary variable whose coefficient represents within-PUMA differences in insurance coverage in the post-ACA period (2014 and 2015) relative to the pre-ACA period (2010-2013) after controlling for basic demographics. Column (2) adds $POST_t \times INTENSITY_i$ (with the INTENSITY variable de-meaned) to investigate the role of expected treatment intensity on insurance coverage. Column (3) is similar to Column (1) but adds $POST_t \times EXPANSION_i$ to examine how within-PUMA differences in insurance coverage before and after the ACA varies with Medicaid expansion status. Finally, Column (4) adds $POST_t \times INTENSITY_i \times EXPANSION_i$ to estimate whether the impact of expected treatment intensity differs in expansion and non-expansion states. We include the mean of the dependent variable in the bottom row of the table averaged over the pre-ACA sample years for the overall sample, and separately for expansion and non-expansion states. Because the measures of $INTENSITY_i$ we use are demeaned, the coefficients on $POST_t$ and $POST_t \times EXPANSION_i$ represent the increase in coverage for PUMAs with average shares of the population under 138% FPL and uninsured (7.3 percentage points) and between 139% and 399% FPL and uninsured (8.6 percentage points).

The results in the table show evidence of statistically significant increases in insurance coverage in both expansion and non-expansion states. Column (1) shows that insurance coverage rates were 5.65 percentage points higher after the ACA took effect after controlling for demographics and PUMA fixed effects. In Column (2), we see that pooling across expansion and non-expansion states, this increase occurred differentially in places with different shares of the population between 139% and 399% FPL and uninsured: coverage rates were 4.8 percentage points higher in regions where the share between 139% and 399% FPL and uninsured was 10

percentage points higher. This specification does not show evidence that coverage varies with the share under 138% FPL and uninsured.

When we interact $POST_t$ with our measure of Medicaid expansion status (Column (3)), we see that coverage increases were significantly greater in states that expanded Medicaid relative to states that did not after controlling for basic demographics and PUMA fixed effects. Column (4) shows that the increases in coverage are correlated with pre-ACA population characteristics in the expected direction. In states that did not expand Medicaid, the increase in coverage was higher in regions with a high share of the population uninsured and between 139% and 399% FPL: a 10 percentage point increase in the expected treatment intensity led to a 4.4 percentage point higher rate of coverage. In states that did choose to expand Medicaid, the increase in coverage is strongly related to the share under 138% FPL and uninsured: here, a 10 percentage point increase in the expected treatment intensity led to a 5.4 percentage point increase in health insurance coverage. By contrast, there is no evidence that non-expansion states had coverage increases in places with a higher share of the population under 138% FPL and uninsured. In expansion states, the relationship between the share of the population between 139% and 399% FPL and uninsured and increases in health insurance coverage from the ACA are smaller than that in non-expansion states, though the difference is not statistically significant.

For both of our measures of expected treatment intensity, an increase of 10 percentage points corresponds to approximately 2.5 standard deviations. We depict the relationship between our measures of expected treatment intensity and the change in health insurance coverage captured in Column (4) of Table 2 graphically in Figure 8. The top panel shows scatterplots of PUMA-level changes in health insurance coverage, condensed into 100 bins, by the share of the population under 138% FPL and uninsured while also controlling for the share between 139-399% FPL and

uninsured, differentially by Medicaid expansion status. The slopes of the red dashed and blue solid lines represent the relationship between the share of the population under 138% FPL and uninsured and the change in health insurance coverage for expansion states and non-expansion states, respectively. The bottom panel is similar but uses our other measure of expected treatment intensity on the *x*-axis.

Under the assumption that our demographic controls and PUMA-level fixed effects capture the drivers of health insurance coverage aside from the ACA and the relationship between expected treatment intensity and health insurance coverage changes is linear, we can attribute any higher increase in health insurance coverage occurring for regions with a positive expected treatment intensity as causally driven by the ACA. Using the results from Column (4) to generate these ACA-driven increases at the PUMA level and weighting by PUMA population suggests that the increases in health insurance coverage due to the ACA were 4.1 percentage points in non-expansion states and 5.4 percentage points in expansion states. These effects are economically meaningful relative to the overall increase estimated in Column (3) of 4.8 percentage points in non-expansion states and 6.5 percentage points in expansion states, and represent over 80 percent of the observed increase during our study period (with the rest potentially due to improving economic conditions).

Next, we examine how the ACA affected source of coverage in places with high versus low expected treatment intensity. Table 3 displays results similar to Columns (2) and (4) from Table 2, but come from regressions where the dependent variable is a binary indicator of whether an individual reports having any Medicaid coverage, privately purchased coverage, and coverage from a private employer. As described earlier, individuals surveyed by the ACS may choose

multiple sources of insurance and do not indicate which is primary. Therefore, the outcome variables represent whether an individual has the indicated insurance at all at the time of the survey.

As shown in Columns (1) and (2), Medicaid accounts for a significant share of the increase in health insurance coverage, but particularly so in states that expanded Medicaid. There is no evidence that changes in Medicaid occurred differentially in states with different expected treatment intensity except for a strong relationship with the share of the population under 138% FPL and uninsured in expansion states only. A 10 percentage point increase in the share of the population under 138% FPL and uninsured was associated with a 5.9 percentage point increase in Medicaid coverage in expansion states. Performing an exercise similar to that above, we find that the ACA increased Medicaid coverage by 3 percentage points (or 56 percent of the total) in expansion states and a negligible amount in non-expansion states.

Columns (3) and (4) show that while the increase in privately-purchased health insurance was also substantial overall, the effect is significantly smaller in magnitude in expansion states. In non-expansion states, the increase is strongly correlated with an increase in the share of the population between 139% and 399% FPL and uninsured who are most likely to purchase subsidized insurance from the exchanges. Our simulations suggest that the ACA increased privately-purchased insurance by 2.3 percentage points (or 57 percent of the overall increase) in non-expansion states and 0.9 percentage points (or 17 percent of the overall increase) in expansion states. Finally, Columns (5) and (6) show little evidence that health insurance coverage from private employers changed in either direction as a result of the ACA, suggesting that there was little or no crowdout occurring. Figures similar to Figure 8 but for Medicaid coverage, privately-purchased coverage and coverage from private employers are included in the appendix.

Table 4 explores whether the increases in insurance coverage represent people having additional sources of health insurance or a movement from uninsurance to insurance coverage by using indicator variables for single and double coverage as well as the number of health insurance plans as outcome variables. Column (2), which shows our preferred specification including interactions with expansion status, shows increases in individuals reporting one insurance plan occurring in the same places that saw large increases in coverage overall (i.e., places with high shares of the population between 139% and 399% FPL and uninsured in non-expansion states and places with high shares of the population under 138% FPL and uninsured in expansion states). While the number of health insurance plans show a similar pattern, the magnitudes are small. These results suggest that the ACA generally induced insurance coverage from those without health insurance rather than encouraging individuals to get additional sources of health insurance coverage.

B. Labor market outcomes

We provide evidence on the effect of the ACA on labor market outcomes in Tables 5, 6 and 7, which display the results of running Equation (1) on the labor market outcomes summarized in Table 1. Table 5 shows how the ACA affected labor market outcomes on the extensive margin, Table 6 focuses on labor market outcomes on the intensive margin, while Table 7 shows all outcomes for an older subsample aged 50-64.

If the ACA were influencing labor market outcomes, we would expect to see evidence of larger changes in areas with larger changes in health insurance coverage. Table 5 provides some suggestive evidence on this front. As the first and second columns show, the change in the share of adults aged 26 to 64 out of the labor force is significantly positively related with the share

uninsured and between 138 and 399 percent of FPL. Dividing the point estimate of .0453 by the corresponding reduced-form estimate of .476 from Table 1 suggests an estimate of ACA-induced coverage through the exchanges on labor force non participation of 9.5 percent. Put another way, for every 10 people gaining coverage through the ACA exchanges, approximately 1 drops out of the labor force. The confidence interval for this estimate ranges from 1.2 to 17.8 percent.

Similarly, the statistically significant estimate of .0267 in the first column of Table 6 suggests a policy-induced increase in part-time work among those acquiring coverage through the exchanges. However, the corresponding estimates for employment, self-employment, and hours of work in Tables 5 and 6 are not statistically significant. Additionally, when we focus on subsamples that would be most likely to respond to the ACA provisions (e.g. older workers or individuals with a high school education or less), the estimated effects for labor force participation are not statistically significant. Thus we view this evidence as only suggestive. What is clear is that our estimates can rule out very large labor market effects for those acquiring private health insurance coverage with subsidies through the exchange.

The coefficient estimate of .0451 in the second column of Table 5 for the interaction between POST, the EXPANSION state indicator, and the share of the population below 138 percent of FPL is positive but not statistically significant. This suggests an increase in labor force exit among those acquiring Medicaid coverage in expansion states, with the ratio of the reduced form point estimate here to the corresponding one from Table 2 (of .535) suggesting an effect of 8.4 percent. The confidence interval on this estimate ranges from -6.1 percent to 22.9 percent, allowing us to rule out very large estimates. AS mentioned above, the effects of Medicaid with ACA may be smaller than without because a person can still obtain subsidized coverage even if their earnings rise above the Medicaid eligibility threshold.

C. Pre-trends and year-by-year results

Our identification rests on the assumption that, absent the ACA, geographic areas with larger shares of uninsured individuals under 400% FPL would have evolved similarly as those with smaller shares, after controlling for region-level characteristics that do not change over time and person-level demographics. We also assume that places with a given share of individuals both uninsured and under 400% FPL in expansion states would have evolved similarly as those with a similar share in non-expansion states, absent the ACA. Both of these assumptions may be violated if we see places with high levels of expected treatment intensity trending differently prior to the ACA implementation.

We investigate trends in the relationship between our measures of expected treatment intensity and health insurance by estimating versions of Equation (1) where we replace $POST_t$ with a full set of year dummy variables to trace out the relationship between health insurance coverage and expected treatment intensity before and after the ACA took effect. Because our data do not permit analysis on a quarterly or monthly basis, the estimates represent the effects on average throughout the year.

The results of running fully-interacted specifications with health insurance coverage as the outcome are provided in Figure 9. The effects mirror those shown in Table 2 but also show that the relationship between expected treatment intensity and health insurance coverage was generally stable and statistically indistinguishable from zero in the pre-ACA period, while increasing markedly in the post-ACA period. The main exception is that health insurance coverage was not related to the share of the population below 138% FPL and uninsured in non-expansion states, which is consistent with our prior findings. We include similar figures for the different sources of

coverage, namely Medicaid, privately-purchased insurance and coverage from private employers, in the Appendix.

VI. CONCLUSION

The Affordable Care Act represents the biggest change to health care system in the United States in a half century and implemented a variety of policies that sought to reduce the number of uninsured while simultaneously slowing the growth rate of health care spending. Our paper shows that a large share (more than 80 percent) of the drop in uninsurance that occurred after the key components of the law were implemented was due to these provisions and occurred differentially in regions where a greater share of the population was affected.

Due to the strong link between health insurance coverage and employment, the CBO predicted a sizable reduction in the labor force as a result of the ACA. Many proponents of the legislation predicted positive employment effects from improved health and subsidies for small businesses (CEA, 2009). If the ACA had led to a reduction (or increase) in employment, hours, or labor force participation relative to what it would have been in the absence of the ACA, we would have expected to find evidence of larger changes in labor market outcomes in regions where health insurance coverage changed the most. However, data from the first two years of the law's implementation suggests that any labor supply effects of the ACA have been modest despite a 6-percentage point increase in the share of the non-elderly adult population with health insurance. This is consistent with the time series evidence in Figure 2, which shows no evidence of a change in the level or trend of labor force participation after ACA implementation. More work is clearly needed to estimate the economic effects of this legislation especially given that policy makers will be considering modifications to or repeal of the ACA.

References

Aizer, Anna, and Jeffrey Grogger (2003). "Parental Medicaid Expansions and Health Insurance Coverage." National Bureau of Economic Research Working Paper 9907.

Antwi, Yaa Akosa, 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), pp. 1-28.

Baicker, Katherine, Amy Finkelstein, 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 and Proceedings*, 104(5), pp. 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.

Black, Lindsey I., and Robin A. Cohen (2015). "Insurance Status by State Medicaid Expansion Status: Early Release of Estimates From the National Health Interview Survey, 2013–September 2014." National Center for Health Statistics.

Blau, David M. and Donna B. Gilleskie (2008). "The Role of Retiree Health Insurance in the Employment Behavior of Older Men." *International Economic Review*, 49(2), 475-514.

Blau, David M. and Donna B. Gilleskie (2006). "Health Insurance and Retirement of Married Couples." *Journal of Applied Econometrics*, 21(7), 935-953.

Blau, David M. and Donna B. Gilleskie (2001). "Retiree Health Insurance and the Labor Force Behavior of Older Men in the 1990s." *Review of Economics and Statistics*, 83(1), 64-80.

Boyle, Melissa A. & Lahey, Joanna N. (2010). "Health insurance and the labor supply decisions of older workers: Evidence from a U.S. Department of Veterans Affairs expansion," *Journal of Public Economics*, vol. 94(7-8), pages 467-478, August.

Buchmueller, Thomas, Helen C. Levy and Sayeh Nikpay (2015). "The Effect of Health Reform on Retirement." Working paper prepared for the 17th Annual Joint Meeting of the Retirement Research Consortium.

Cantor, Joel C., Alan C. Monheit, Derek 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.

Carman, Katherine G., Christine Eibner, and Susan M. Paddock (2015). "Trends In Health Insurance Enrollment, 2013-15." *Health Affairs*, 34(6): 1044–1048.

Coe, Norma B., Mashfiqur R. Kahn, and Matthew S. Rutledge (2013). "Sticky Ages: Why Is Age 65 Still A Retirement Peak?" Working Paper 2013-2. Chestnut Hill, MA: Center for Retirement Research at Boston College.

Congressional Budget Office (2014). "Labor Market Effects of the Affordable Care Act: Updated Estimates."

Congressional Budget Office (2015). "Appendix B: Updated Estimates of the Insurance Coverage Provisions of the Affordable Care Act," from The Budget and Economic Outlook: 2015 to 2025.

Courtemanche, Charles, James Marton, and Aaron Yelowitz (2016a). "Who Gained Insurance Coverage in 2014, the First Year of Full ACA Implementation?" *Health Economics*, 25(6): 778–784.

Courtemanche, Charles, James Marton, Benjamin Ukert, Aaron Yelowitz, and Daniela Zapata. (2016b). "Impacts of the Affordable Care Act on Health Insurance Coverage in Medicaid Expansion and Non-Expansion States." National Bureau of Economic Research Working Paper 22182.

Currie, Janet and Jonathan Gruber (1996). "Health Insurance Eligibility, Utilization of Medical Care, and Child Health," *Quarterly Journal of Economics*, 111(2): 431-466.

Cutler, David M., and Jonathan Gruber (1996). "Does Public Insurance Crowd Out Private Insurance?" *The Quarterly Journal of Economics*, 111(2): 391–430.

Dague, Laura Thomas Deleire, and Lindsey Leininger (2014). "The Effect of Public Insurance Coverage for Childless Adults on Labor Supply," NBER Working Paper 20111.

Dickstein, Michael, Mark Duggan, Joe Orsini, and Pietro Tebaldi (2015). "The Effects of Market Structure on Health Insurance Premiums: Evidence from the ACA's Health insurance Exchanges." *American Economic Review Papers and Proceedings*.

Duggan, Mark and Tamara Hayford (2013). "Has the Shift to Managed Care Reduced Medicaid Spending: Evidence from State and Local-Level Mandates." *Journal of Policy Analysis and Management*. 32:3, 505-535.

Fang, Hanming and Andrew Shephard (2015). "Joint Household Labor Supply and Health Care Reform." Manuscript.

Finkelstein, Amy (2007). "The Aggregate Effects of Health Insurance: Evidence from the Introduction of Medicare," *Quarterly Journal of Economics*, 122(1), pp. 1-37.

Finkelstein, Amy and Robin McKnight (2008). "What Did Medicare Do? The Initial Impact of Medicare on Mortality and Out of Pocket Medical Spending," *Journal of Public Economics*, 92(7), pp. 1644-1669.

Fitzpatrick, Maria (2013). "Retiree Health Insurance for Public School Employees: Does it Affect Retirement and Mobility?" NBER Working Paper 19524.

Frean, Molly, Jonathan Gruber, and Benjamin D. Sommers (2016). "Premium Subsidies, the Mandate, and Medicaid Expansion: Coverage Effects of the Affordable Care Act." National Bureau of Economic Research Working Paper 22213.

French, Eric (2005). "The Effects of Health, Wealth, and Wages on Labor Supply and Retirement Behavior," *Review of Economic Studies*, April 72(2), 395-427.

French, Eric and John Bailey Jones (2011). "The Effects of Health Insurance and Self Insurance on Retirement Behavior." *Econometrica*, 79(3), 693-732.

Gabel, Jon, Roland McDevitt, Laura Gandolfo, Jeremy Pickreign, Samantha Hawkins and Cheryl Fahlman (2006). "Generosity and Adjusted Premiums in Job-Based Insurance: Hawaii is Up, Wyoming is Down." *Health Affairs*, 25(3): 832-843.

Garthwaite, Craig Tal Gross and Matthew Notowidigdo (2014). "Public Health Insurance, Labor Supply, and Employment Lock," *Quarterly Journal of Economics*, 129(2): 653-696, May.

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 and Brigitte C. Madrian (1995). "Health Insurance Availability and the Retirement Decision," *American Economic Review* 85(4): 938-948.

Gruber, Jonathan and Brigitte C. Madrian (2002). "Health Insurance, Labor Supply, and Job Mobility: A Critical Review of the Literature." In McLaughlin, Catherine (ed.) *Health Policy and the Uninsured*. Washington, D.C.: Urban Institute Press, 2004.

Gustman, Alan L. and Thomas L. Steinmeier (1994). "Employer Provided Health Insurance and Retirement Behavior," *Industrial and Labor Relations Review*, 48(1), 124-140.

Health and Human Services (2015). "Health Insurance Marketplaces 2015 Open Enrollment Period: March Enrollment Report," ASPE Issue Brief, March 10. Available at http://aspe.hhs.gov/health/reports/2015/MarketPlaceEnrollment/Mar2015/ib_2015mar_enrollment.pdf.

Heim, Bradley, Ithai Lurie, and Kosali Simon (2015). "The Impact of the Affordable Care Act Young Adult Provision on Labor Market Outcomes: Evidence from Tax Data." In Brown, Jeffrey R. (ed.) *Tax Policy and the Economy*, 29, 133–157. University of Chicago Press.

Heim, Bradley, Gillian Hunter, Ithai Lurie, and Shanthi Ramnath (2014). "Wages and Cliffs: Marginal Earnings Incentives in the Affordable Care Act." Manuscript.

Kaestner, Robert, Bowen Garrett, Anuj Gangopadhyaya, and Caitlyn Fleming (2015). "Effects of ACA Medicaid Expansions on Health Insurance Coverage and Labor Supply." National Bureau of Economic Research Working Paper 21836.

Kafka, Stephanie (2015). "U.S. Uninsured Rate at 11.4% in Second Quarter." Gallup-Healthways Well-Being Index.

Karoly, Lynn A. and Jeannette Rogowski (1994). "The Effect of Access to Post- Retirement Health Insurance on the Decision to Retire Early." *Industrial and Labor Relations Review*, 48(1), 103-123.

Kolstad, Jonathan T., and Amanda E. Kowalski (2012). "The impact of health care reform on hospital and preventive care: Evidence from Massachusetts." *Journal of Public Economics*, 96(11–12): 909–929.

Leiserson, Greg (2013). "Retiree Health Insurance and Job Separations: Evidence from Pennsylvania State Employees." Manuscript. Massachusetts Institute of Technology.

Leung, Pauline, and Alexandre Mas (2016). "Employment Effects of the ACA Medicaid Expansions." National Bureau of Economic Research Working Paper 22540.

Long, Sharon K, Karen Stockley, and Alshadye Yemane (2009). "Another Look at the Impacts of Health Reform in Massachusetts: Evidence Using New Data and a Stronger Model." *The American Economic Review*, 99(2): 508–511.

Long, Sharon K, Michael Karpman, Adele Shartzer, Douglas Wissoker, Genevieve M. Kenney, Stephen Zucherman, Nathanial Anderson, and Katherine Hempstead (2014). "Taking Stock: Health Insurance Coverage under the ACA as of September 2014." Washington, DC: Urban Institute.

Lumsdaine, Robin L., James H. Stock, and David A. Wise. 1996. "Retirement Incentives: The Interaction between Employer-Provided Pensions, Social Security, and Retiree Health Insurance." In Michael D. Hurd and Naohiro Yashiro (Eds.), *The Economic Effects of Aging in the United States and Japan* (pp. 261-293). Chicago: University of Chicago Press.

Madrian, Brigitte C. (1994a). "Employment-Based Health Insurance and Job Mobility: Is There Evidence of Job Lock?," *Quarterly Journal of Economics* 109(1), pp. 27-54.

Madrian, Brigitte C. (1994b). "The Effect of Health Insurance on Retirement," *Brookings Papers on Economic Activity*, 1994(1), pp. 181-232.

Miller, Sarah (2012). "The Effect of Insurance on Emergency Room Visits: An Analysis of the 2006 Massachusetts Health Reform," *Journal of Public Economics*, 96 (11), pp. 893-908.

Moriya, Asako S., Thomas M. Selden, and Kosali I. Simon (2016). "Little Change Seen In Part-Time Employment As A Result Of The Affordable Care Act." *Health Affairs*, 35(1): 119–123.

Nyce, Steven, Sylvester Schieber, John B. Shoven, Sita Slavov, and David A. Wise (2013). "Does Retiree Health Insurance Encourage Early Retirement?" *Journal of Public Economics*, 104, pp. 40-51.

Rust, John and Christopher Phelan (1997). "How Social Security and Medicare Affect Retirement Behavior in a World of Incomplete Markets," *Econometrica*, 65(4): 781-831.

Shoven, John and Sita Nataraj Slavov (2013). "The Role of Retiree Health Insurance in the Early Retirement of Public Sector Employees." Prepared for Presentation at the NBER Conference on State and Local Health Plans for Active and Retired Public Employees, August.

Smith, Jessica C., and Carla Medalia (2014). "Health Insurance Coverage in the United States: 2013." Washington, DC, U.S. Census Bureau, Current Population Reports, P60-250, U.S. Government Printing Office.

Sommers, Benjamin D., Katherine Baicker and Arnold M. Epstein (2012). "Mortality and Access to Care among Adults after State Medicaid Expansions," *New England Journal of Medicine*, 367: 1025-1034.

Sommers, B. D., T. Buchmueller, S. L. Decker, C. Carey, and R. Kronick. (2013). "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., Munira Z. Gunja, Kenneth Finegold, and Thomas Musco (2015). "Changes in Self-reported Insurance Coverage, Access to Care, and Health Under the Affordable Care Act." *Journal of the American Medical Association*, 314(4): 366–374.

Sommers, Benjamin D., Thomas Musco, Kenneth Finegold, Munira Z. Gunja, Amy Burke, and Audrey M. McDowell (2014). "Health Reform and Changes in Health Insurance Coverage in 2014." *New England Journal of Medicine*, 371(9): 867–874.

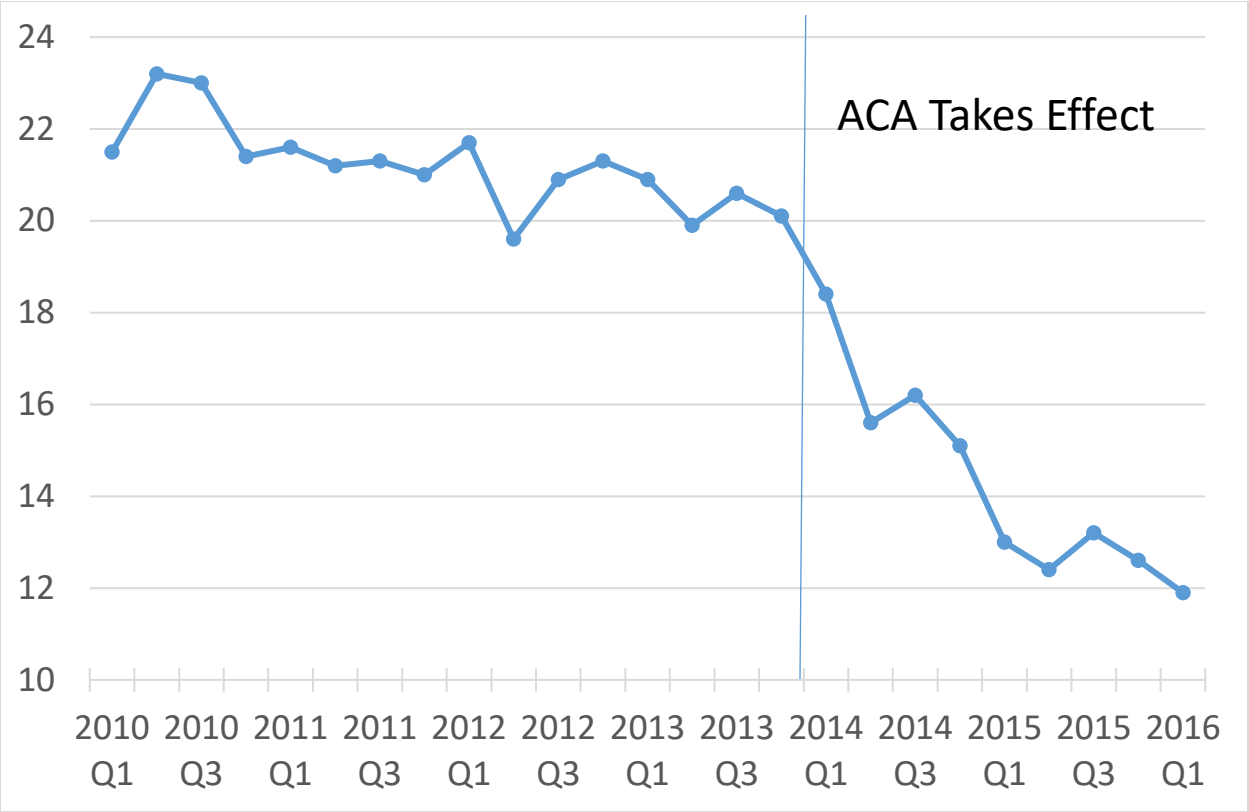
Sommers, Benjamin D., and Richard Kronick (2012). "The Affordable Care Act and Insurance Coverage for Young Adults." *The Journal of the American Medical Association*, 307(9): 913–914.

Sonier, J., M. H. Boudreaux, and L. A. Blewett (2013). "Medicaid Welcome-Mat Effect Of Affordable Care Act Implementation Could Be Substantial." *Health Affairs*, 32(7): 1319–1325.

Yelowitz, Aaron, and Michael F. Cannon (2010). “The Massachusetts Health Plan - Much Pain, Little Gain.” Cato Institute: Policy Affairs, 657.

Figure 1

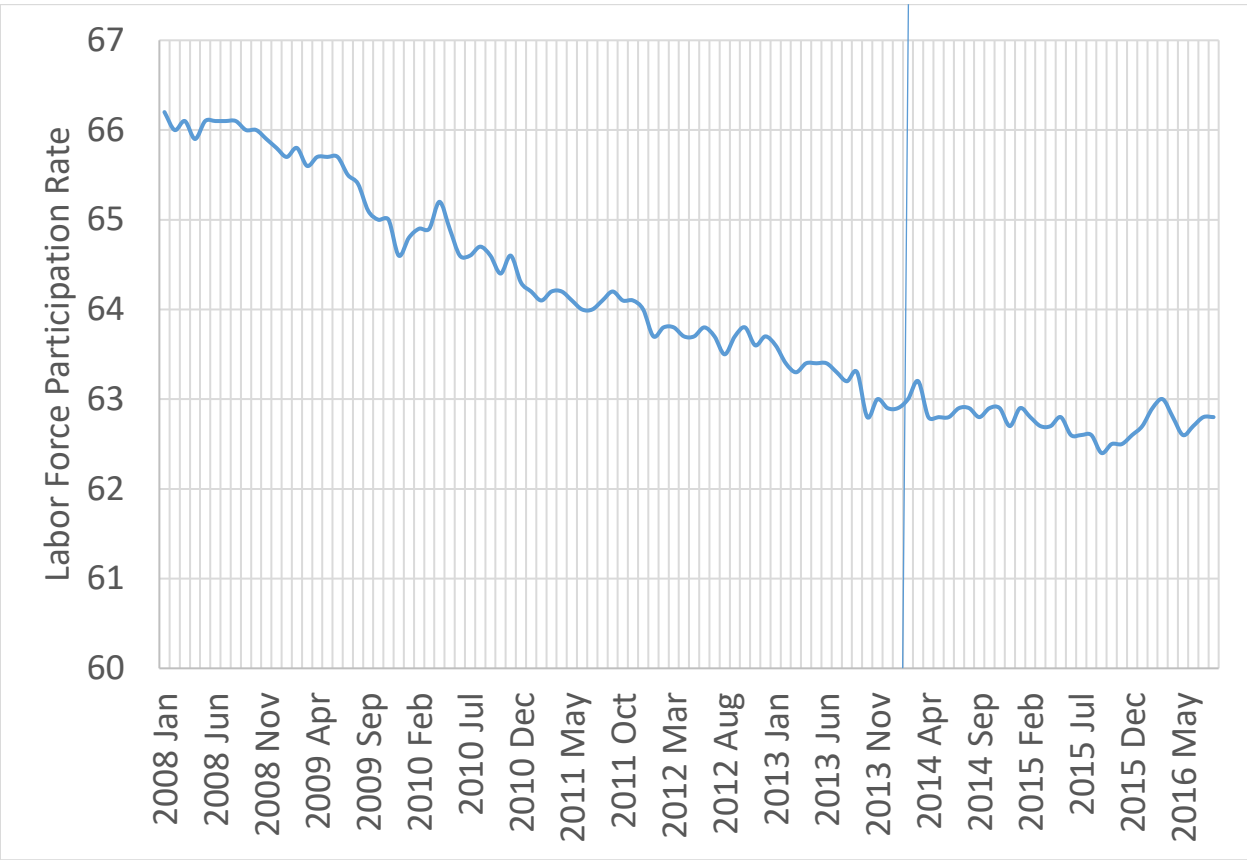
Percentage of Persons 18-64 Uninsured, January 2010 – March 2016



Source: NCHS. National Health Interview Survey Early Release of Quarterly Estimates, retrieved September 12, 2016.

Figure 2

Labor Force Participation Rate, Seasonally Adjusted, Ages 16 and over



Source: Bureau of Labor Statistics, Series LNS11300000, retrieved September 12, 2016.

Figure 3

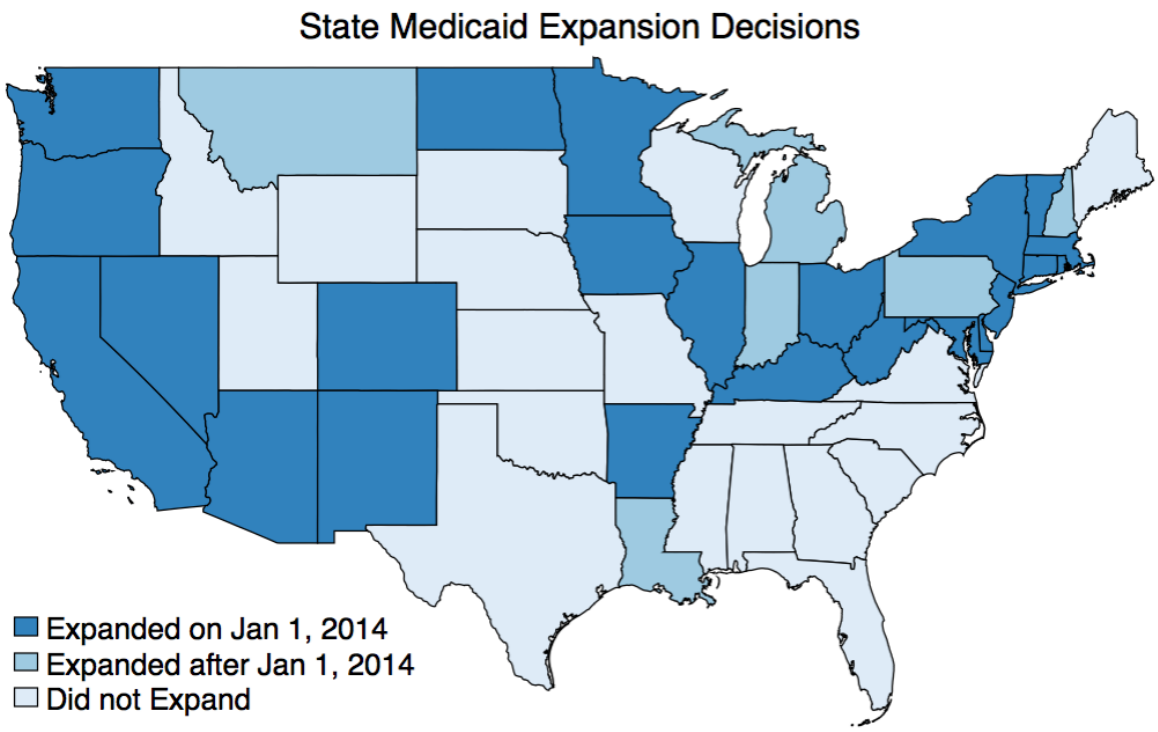

State Medicaid Expansion Decisions
Expanded on Jan 1, 2014
Expanded after Jan 1, 2014
Did not Expand

Figure 4

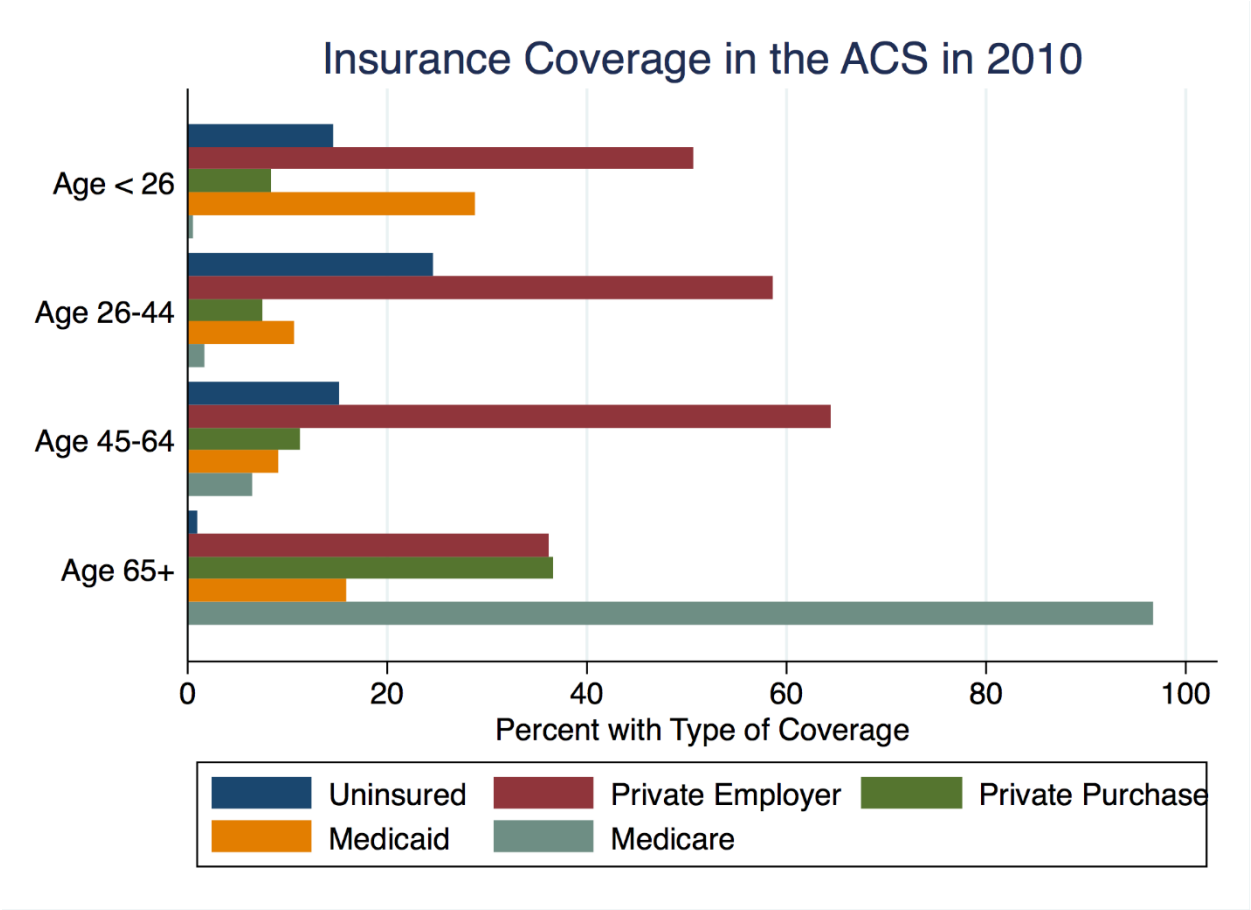
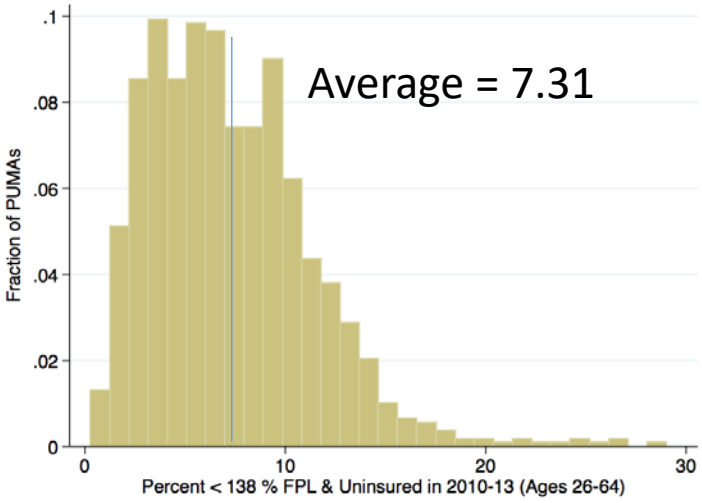
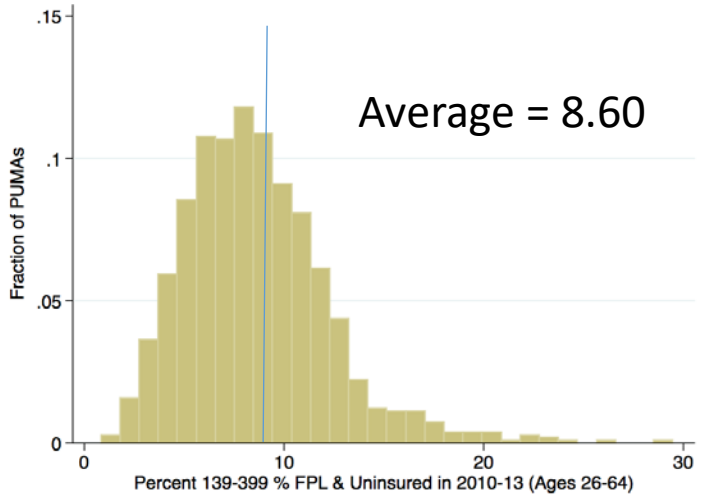

Insurance Coverage in the ACS in 2010
Age < 26
Age 26-44
Age 45-64
Age 65+
0
20
40
60
80
100
Percent with Type of Coverage
Uninsured
Private Employer
Private Purchase
Medicaid
Medicare

Figure 5

Heterogeneity across PUMAs in Expected Treatment Intensity



(a) Share < 138% FPL and Uninsured in 2010-13



(b) Share 139-399% FPL and Uninsured in 2013

Figure 6

Share < 138% FPL and Uninsured for United States, California and Los Angeles County

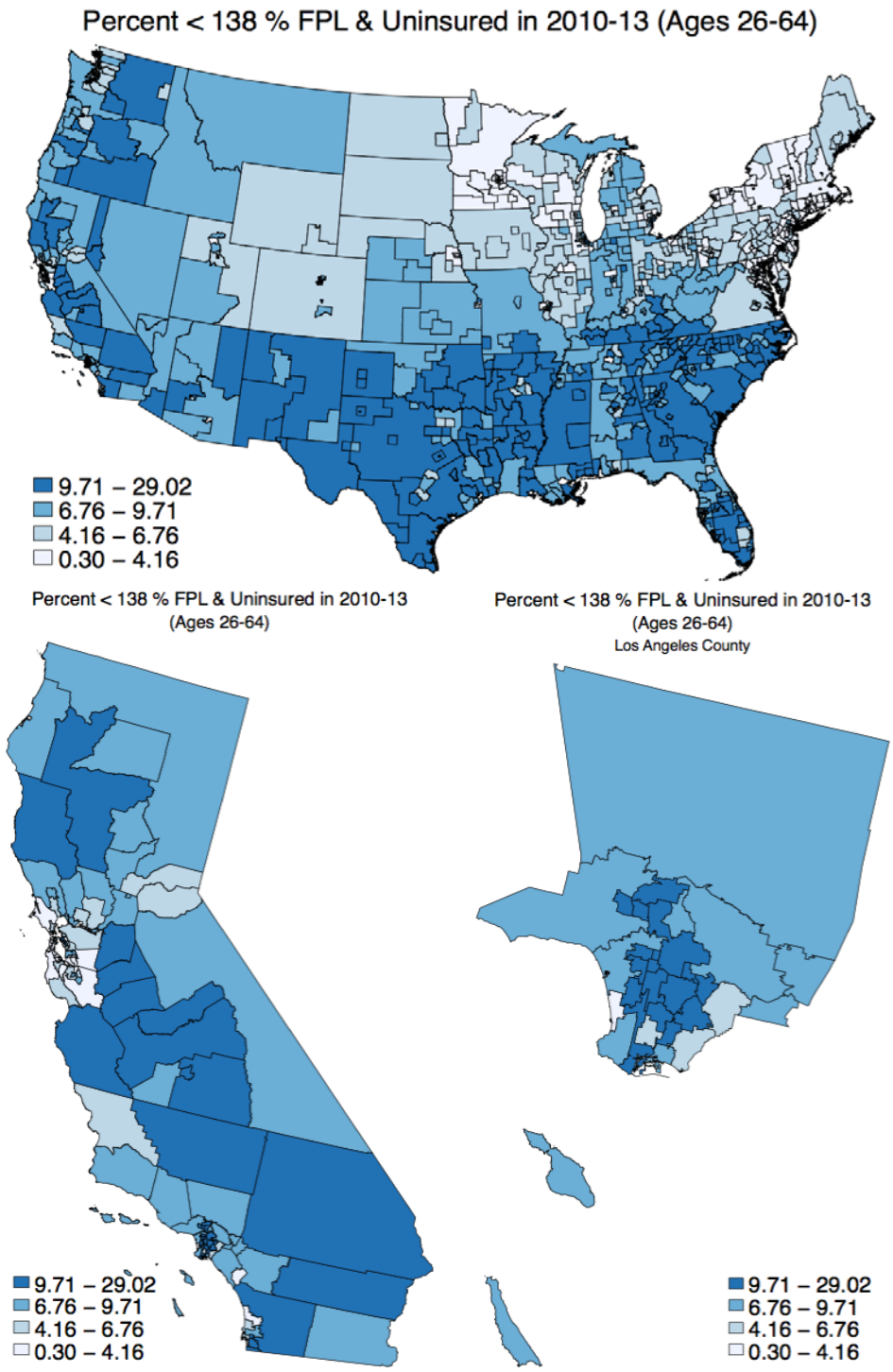


Figure 7

Share 139-399% FPL and Uninsured for United States, California and Los Angeles County

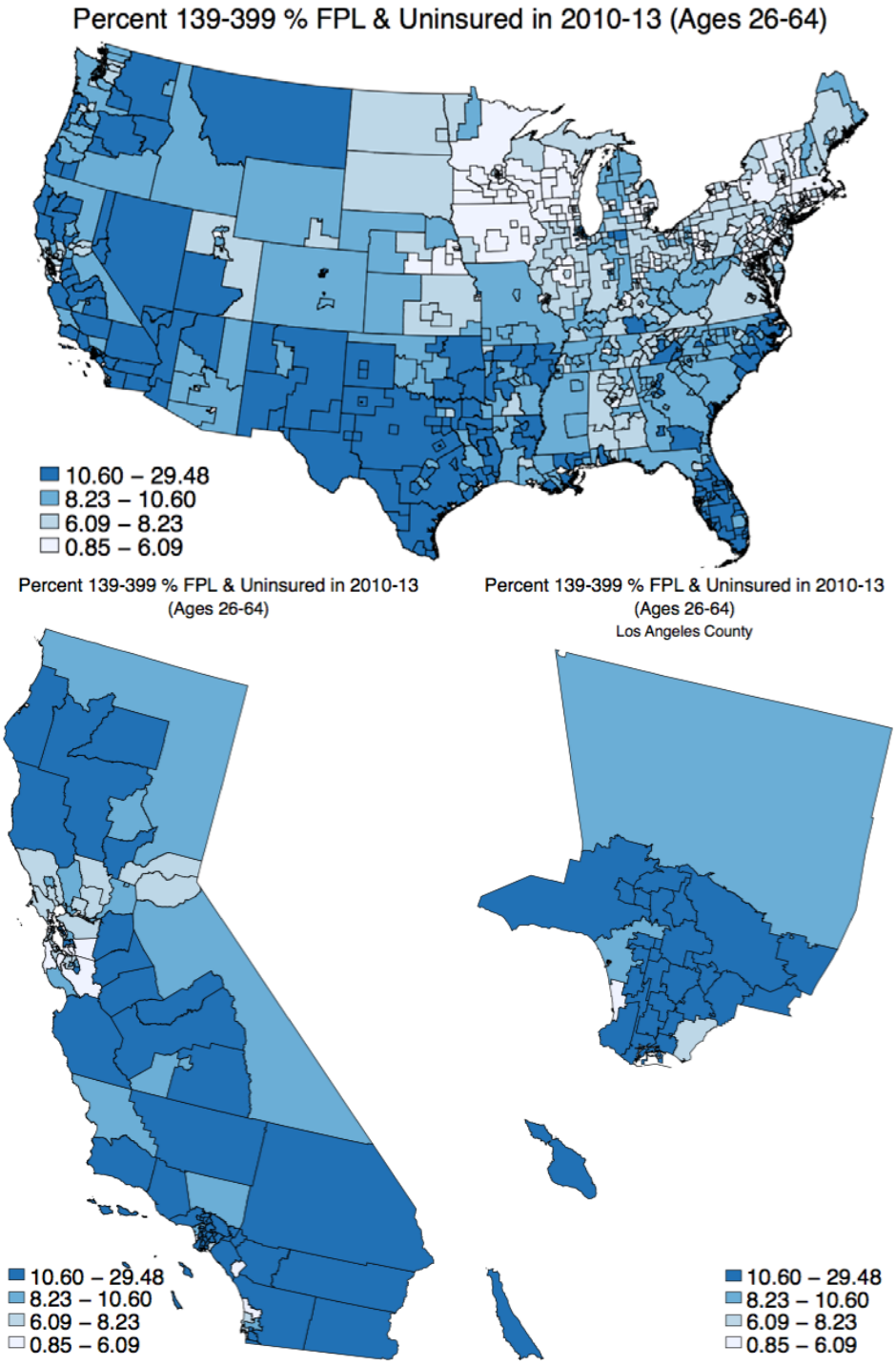
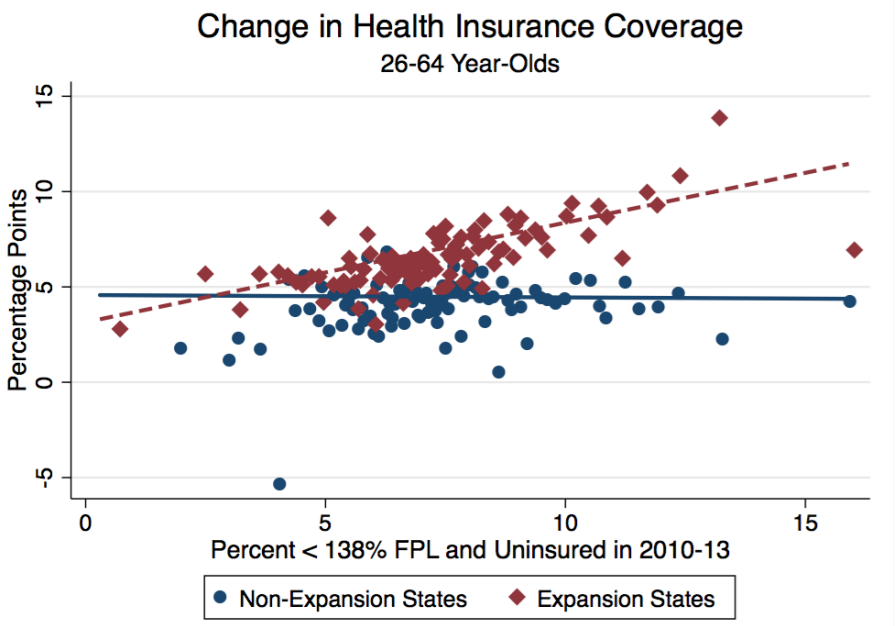


Figure 8

Change in Health Insurance Coverage by Expected Treatment Intensity



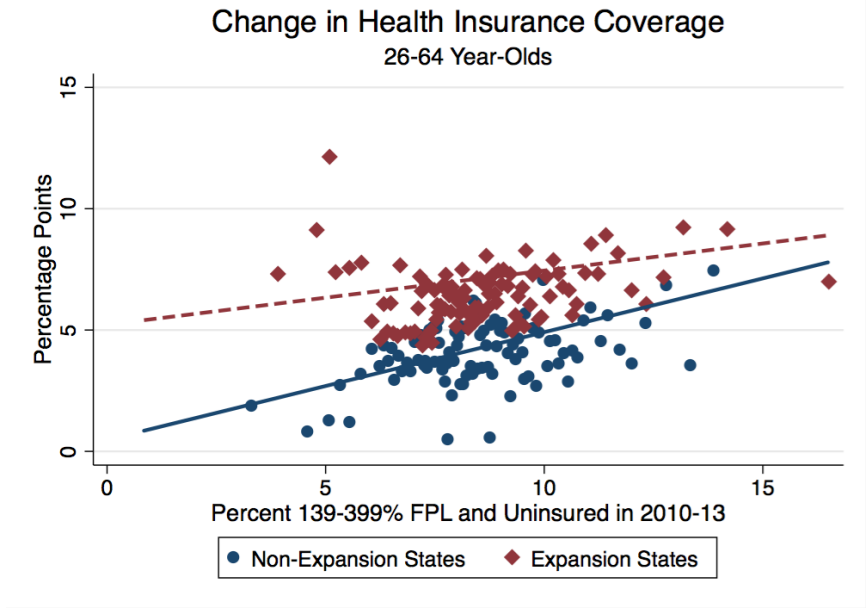
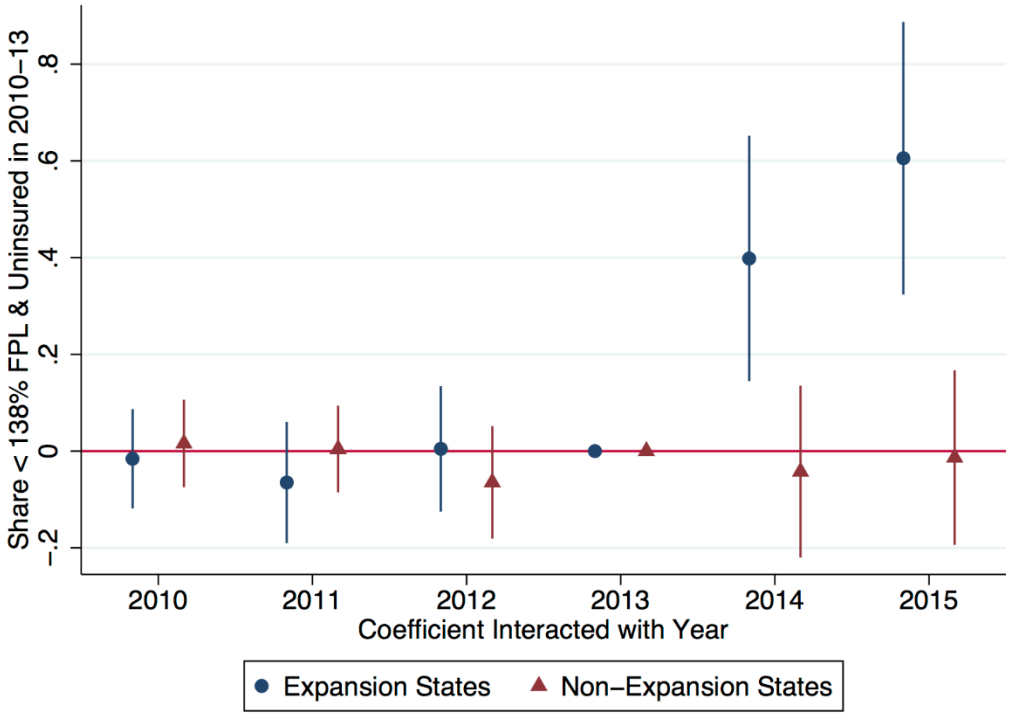


Figure 9

Expected Treatment Intensity and Health Insurance Coverage by Year
Outcome: Health Insurance Coverage



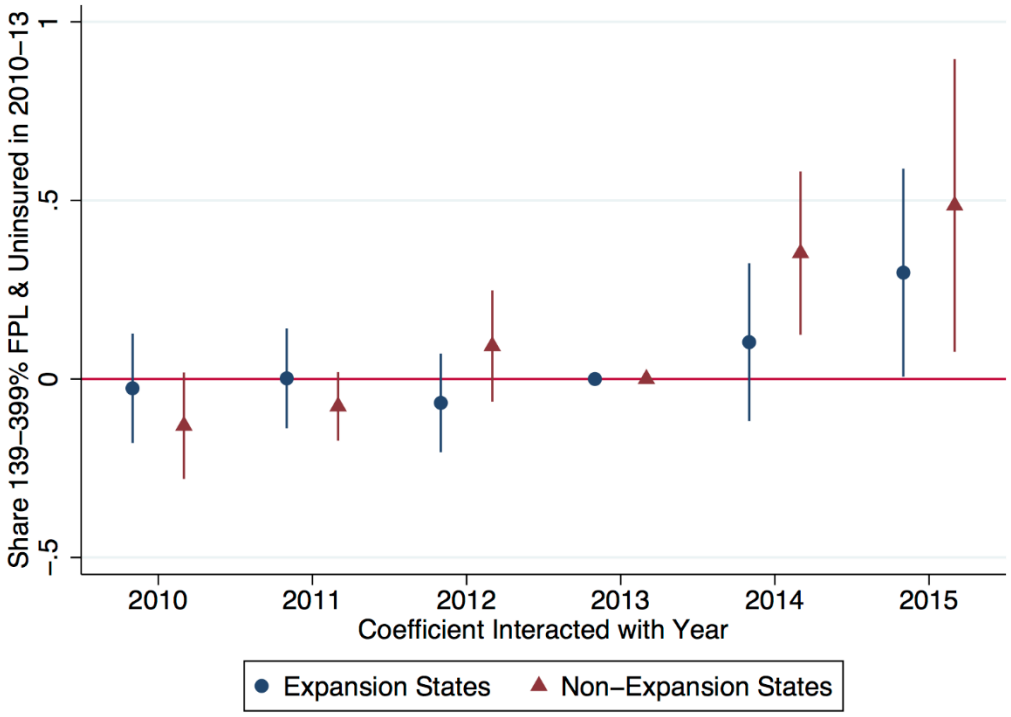


Table 1:
Baseline Demographics and Labor Market Outcomes

	Ages			
	26-34	35-44	45-54	55-64
# of Observations	1,280,749	1,497,595	1,818,968	1,729,822
Female	50%	50%	51%	52%
White	72%	73%	77%	81%
Black	13%	13%	12%	11%
Asian	7%	7%	5%	4%
Other	8%	7%	5%	4%
Hispanic	20%	19%	13%	9%
% of FPL	287%	309%	336%	344%
NILF	18%	18%	20%	36%
Employed	74%	76%	74%	60%
Self-Employed	4%	7%	9%	8%
Part-Time	8%	7%	7%	7%
Hours	30	31	31	24
Single Coverage	68%	72%	74%	74%
Double Coverage	4%	6%	7%	11%
# of Health Insurance Plans	0.78	0.85	0.92	1.02

Table 2:
Effect of Expected Treatment Intensity and Medicaid Expansion on Overall Health Insurance Coverage

	(1)	(2)	(3)	(4)
VARIABLES	Health Insurance Coverage	Health Insurance Coverage	Health Insurance Coverage	Health Insurance Coverage
Post	5.650***	5.644***	4.751***	4.477***
	(0.525)	(0.429)	(0.364)	(0.213)
Post*(Share <=138% FPL & Uninsured in 2010-13)		0.0433		-0.0125
		(0.104)		(0.0823)
Post*(Share 139-399% FPL & Uninsured in 2010-13)		0.476***		0.443***
		(0.136)		(0.144)
Exp*Post			1.777*	2.755***
			(0.906)	(0.392)
Exp*Post*(Share <=138% FPL & Uninsured in 2010-13)				0.535***
				(0.146)
Exp*Post*(Share 139-399% FPL & Uninsured in 2010-13)				-0.220
				(0.195)
Observations	9,493,231	9,493,231	9,493,231	9,493,231
R-squared	0.089	0.090	0.089	0.090
Pre-ACA Dependent Var Mean	79.88	79.88	79.88	79.88
Pre-ACA Dependent Var Mean - Non-Exp States	77.98	77.98	77.98	77.98
Pre-ACA Dependent Var Mean - Exp States	81.74	81.74	81.74	81.74

Table 3:
Effect of Expected Treatment Intensity and Medicaid Expansion on Source of Health Insurance Coverage

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Medicaid Coverage	Medicaid Coverage	Private Purchase	Private Purchase	Private Employer	Private Employer
Post	3.063***	1.190***	1.870***	2.433***	0.284**	0.381*
	(0.549)	(0.240)	(0.177)	(0.211)	(0.127)	(0.217)
Post*(Share <=138% FPL & Uninsured in 2010-13)	0.0222	0.0785	-0.00470	-0.142**	0.0298	0.0446
	(0.115)	(0.0647)	(0.0481)	(0.0687)	(0.0414)	(0.0824)
Post*(Share 139-399% FPL & Uninsured in 2010-13)	0.111	-0.0880	0.197*	0.376**	0.168***	0.146
	(0.196)	(0.0983)	(0.108)	(0.168)	(0.0582)	(0.126)
Exp*Post		4.244***		-1.127***		-0.221
		(0.391)		(0.248)		(0.253)
Exp*Post*(Share <=138% FPL & Uninsured in 2010-13)		0.508***		0.138*		-0.0631
		(0.137)		(0.0797)		(0.0939)
Exp*Post*(Share 139-399% FPL & Uninsured in 2010-13)		-0.0232		-0.262		0.0621
		(0.164)		(0.175)		(0.132)
Observations	9,493,231	9,493,231	9,493,231	9,493,231	9,493,231	9,493,231
R-squared	0.048	0.049	0.017	0.017	0.068	0.068
Pre-ACA Dependent Var Mean	10.53	10.53	9.31	9.31	60.75	60.75
Pre-ACA Dependent Var Mean - Non-Exp States	9.2	9.2	9.32	9.32	59.54	59.54
Pre-ACA Dependent Var Mean - Exp States	11.83	11.83	9.31	9.31	61.94	61.94

Table 4:
Effect of Expected Treatment Intensity and Medicaid Expansion on Degree of Health Insurance Coverage

VARIABLES	(1) Single Coverage	(2) Single Coverage	(3) Double Coverage	(4) Double Coverage	(5) # of HI Plans	(6) # of HI Plans
Post	5.757***	4.627***	-0.0686	-0.108**	0.0542***	0.0427***
	(0.387)	(0.177)	(0.0571)	(0.0535)	(0.00474)	(0.00254)
Post*(Share <=138% FPL & Uninsured in 2010-13)	0.0196	0.00512	0.0328*	-0.00164	0.000557	-0.000541
	(0.0912)	(0.0745)	(0.0181)	(0.0133)	(0.00121)	(0.000909)
Post*(Share 139-399% FPL & Uninsured in 2010-13)	0.478***	0.423***	-0.0145	0.0108	0.00482***	0.00489***
	(0.129)	(0.133)	(0.0205)	(0.0159)	(0.00146)	(0.00148)
Exp*Post		2.597***		0.142		0.0281***
		(0.340)		(0.0997)		(0.00491)
Exp*Post*(Share <=138% FPL & Uninsured in 2010-13)		0.417***		0.0987***		0.00665***
		(0.128)		(0.0280)		(0.00167)
Exp*Post*(Share 139-399% FPL & Uninsured in 2010-13)		-0.148		-0.0718**		-0.00319
		(0.181)		(0.0340)		(0.00215)
Observations	9,493,231	9,493,231	9,493,231	9,493,231	9,493,231	9,493,231
R-squared	0.063	0.063	0.017	0.017	0.066	0.066
Pre-ACA Dependent Var Mean	72.11	72.11	6.92	6.92	.89	.89
Pre-ACA Dependent Var Mean - Non-Exp States	69.76	69.76	7.26	7.26	.88	.88
Pre-ACA Dependent Var Mean - Exp States	74.4	74.4	6.6	6.6	.9	.9

Table 5:
Effect of Expected Treatment Intensity and Medicaid Expansion on Labor Market Outcomes: Extensive Margin

	(1)	(2)	(3)	(4)
VARIABLES	Not in the Labor Force	Not in the Labor Force	Employed	Employed
Post	0.246***	0.284***	1.748***	1.577***
	(0.0423)	(0.0553)	(0.116)	(0.167)
Post*(Share <=138% FPL & Uninsured in 2010-13)	-0.00556	-0.0280	0.0103	0.0468
	(0.0223)	(0.0247)	(0.0300)	(0.0415)
Post*(Share 139-399% FPL & Uninsured in 2010-13)	0.0453**	0.0598**	0.0188	-0.0194
	(0.0201)	(0.0260)	(0.0382)	(0.0755)
Exp*Post		-0.0449		0.334
		(0.0793)		(0.209)
Exp*Post*(Share <=138% FPL & Uninsured in 2010-13)		0.0451		-0.0333
		(0.0396)		(0.0638)
Exp*Post*(Share 139-399% FPL & Uninsured in 2010-13)		-0.0316		0.0517
		(0.0390)		(0.0862)
Observations	9,493,231	9,493,231	9,493,231	9,493,231
R-squared	0.078	0.078	0.064	0.064
Pre-ACA Dependent Var Mean	22.5609	22.5609	71.2097	71.2097
Pre-ACA Dependent Var Mean - Non-Exp States	23.3312	23.3312	70.698	70.698
Pre-ACA Dependent Var Mean - Exp States	21.8102	21.8102	71.7084	71.7084

Table 6:
Effect of Expected Treatment Intensity and Medicaid Expansion on Labor Market Outcomes: Intensive Margin

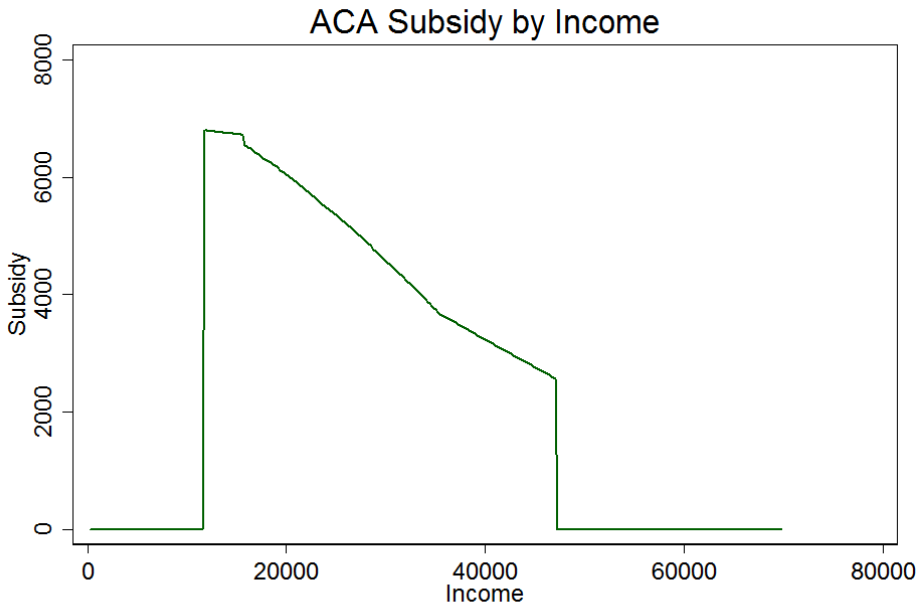
VARIABLES	(1) Part-Time	(2) Part-Time	(3) Self-Employed	(4) Self-Employed	(5) Hours	(6) Hours
Post	-0.0379	-0.0518	0.0339	-0.00998	0.877***	0.823***
	(0.0311)	(0.0389)	(0.0326)	(0.0514)	(0.0478)	(0.0776)
Post*(Share <=138% FPL & Uninsured in 2010-13)	-0.0105	0.00122	-0.00804	-0.00690	0.0180	0.0323*
	(0.0125)	(0.0149)	(0.0126)	(0.0220)	(0.0136)	(0.0190)
Post*(Share 139-399% FPL & Uninsured in 2010-13)	0.0267*	0.0227	0.0301	0.0265	-0.0127	-0.0290
	(0.0134)	(0.0212)	(0.0196)	(0.0377)	(0.0158)	(0.0296)
Exp*Post		0.00585		0.0985*		0.105
		(0.0606)		(0.0572)		(0.0937)
Exp*Post*(Share <=138% FPL & Uninsured in 2010-13)		-0.0268		0.0120		-0.0165
		(0.0256)		(0.0291)		(0.0274)
Exp*Post*(Share 139-399% FPL & Uninsured in 2010-13)		0.0124		-0.00225		0.0246
		(0.0273)		(0.0439)		(0.0343)
Observations	9,493,231	9,493,231	9,493,231	9,493,231	9,493,231	9,493,231
R-squared	0.015	0.015	0.020	0.020	0.088	0.088
Pre-ACA Dependent Var Mean	7.1928	7.1928	7.2611	7.2611	28.947	28.947
Pre-ACA Dependent Var Mean - Non-Exp States	6.7313	6.7313	7.0769	7.0769	28.9661	28.9661
Pre-ACA Dependent Var Mean - Exp States	7.6425	7.6425	7.4406	7.4406	28.9283	28.9283

Table 7:
Effect of Expected Treatment Intensity and Medicaid Expansion on Labor Market Outcomes (Ages 50-64)

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Not in the Labor Force	Employed	Part-Time	Self-Employed	Hours
Post	0.133	1.471***	-0.0531	0.0909	0.798***
	(0.0847)	(0.129)	(0.0459)	(0.102)	(0.0683)
Post*(Share <=138% FPL & Uninsured in 2010-13)	0.0506	0.00481	0.0107	0.00934	0.00490
	(0.0363)	(0.0545)	(0.0254)	(0.0400)	(0.0273)
Post*(Share 139-399% FPL & Uninsured in 2010-13)	-0.0207	0.0354	-0.0112	0.0323	0.00318
	(0.0517)	(0.0588)	(0.0283)	(0.0674)	(0.0264)
Exp*Post	0.222*	-0.00832	0.00270	0.0521	-0.0397
	(0.126)	(0.196)	(0.0822)	(0.109)	(0.0867)
Exp*Post*(Share <=138% FPL & Uninsured in 2010-13)	-0.0247	-0.0308	-0.0595	-0.0516	-0.00606
	(0.0596)	(0.0909)	(0.0395)	(0.0474)	(0.0430)
Exp*Post*(Share 139-399% FPL & Uninsured in 2010-13)	0.0315	0.0355	0.0573	0.0297	0.00763
	(0.0780)	(0.0908)	(0.0353)	(0.0731)	(0.0427)
Observations	4,053,423	4,053,423	4,053,423	4,053,423	4,053,423
R-squared	0.086	0.073	0.013	0.023	0.094
Pre-ACA Dependent Var Mean	30.3172	64.6963	7.1854	8.5665	26.184
Pre-ACA Dependent Var Mean - Non-Exp States	31.5529	63.7758	6.7426	8.1895	26.0284
Pre-ACA Dependent Var Mean - Exp States	29.0944	65.607	7.6236	8.9396	26.3381

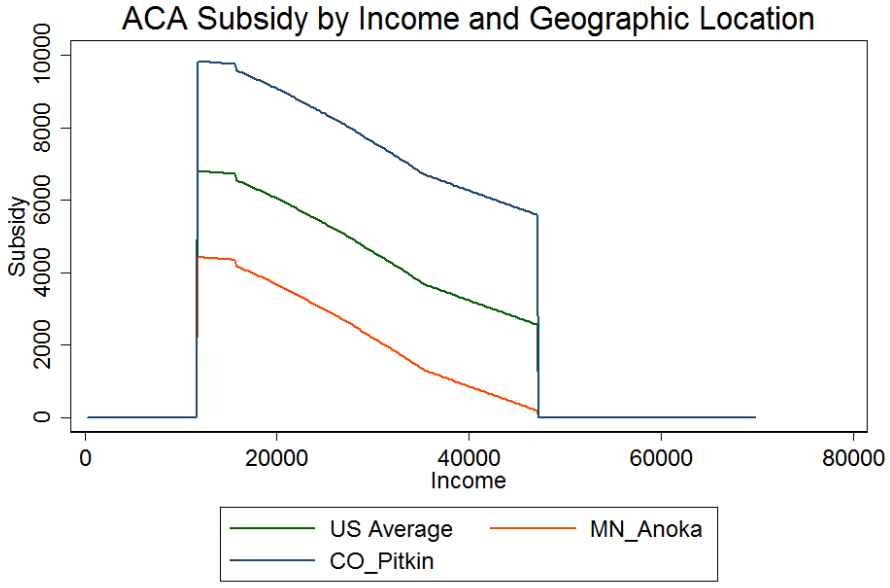
Appendix A: Additional Tables and Figures

Figure A.1



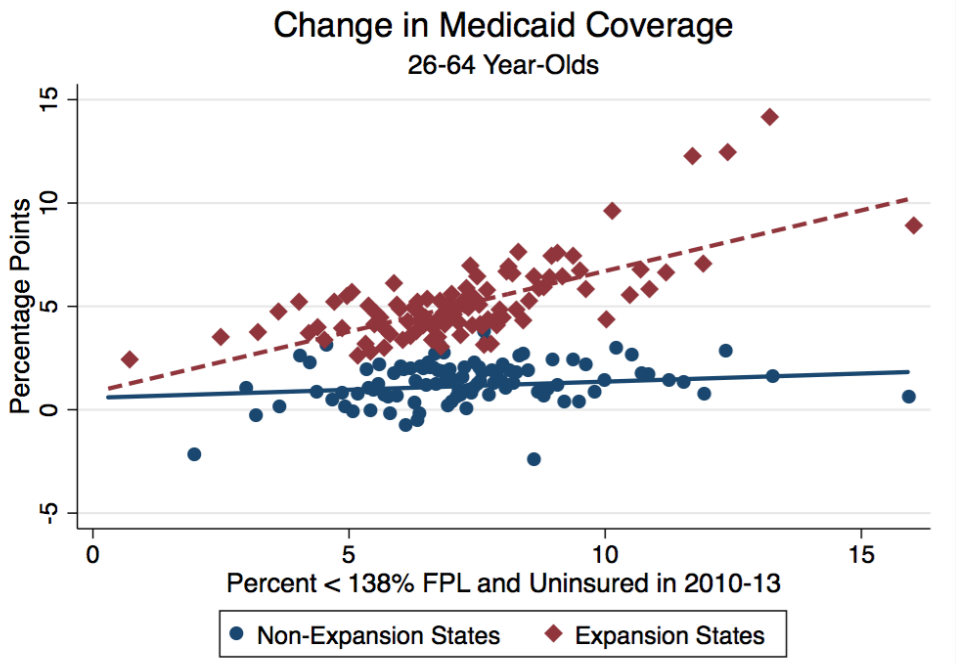
Note: Subsidy calculated for single 60-year-old in 2015.

Figure A.2



Note: Subsidy calculated for single 60-year-old in 2015 for all scenarios.

Figure A.3


Change in Medicaid Coverage
26-64 Year-Olds
Percentage Points
-5
0
5
10
15
0
5
10
15
Percent < 138% FPL and Uninsured in 2010-13
Non-Expansion States
Expansion States

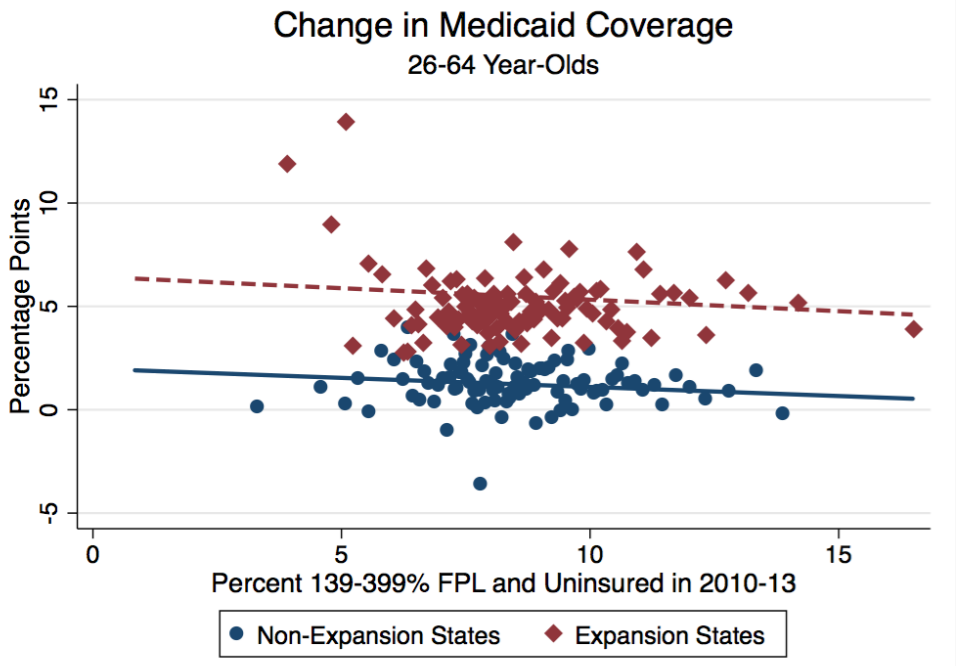
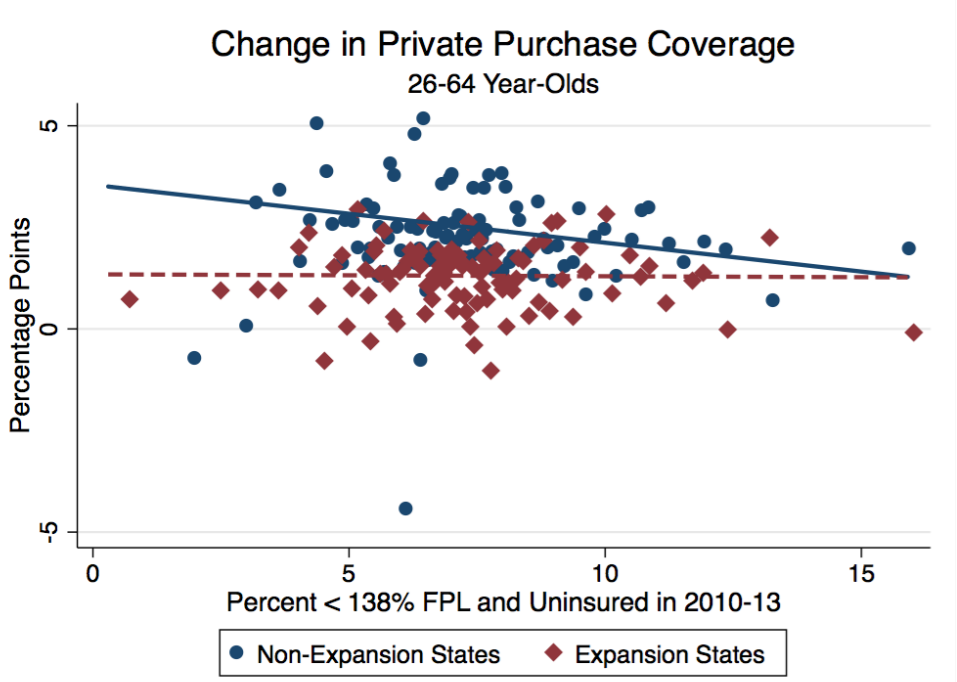

Change in Medicaid Coverage
26-64 Year-Olds
Percentage Points
-5
0
5
10
15
0
5
10
15
Percent 139-399% FPL and Uninsured in 2010-13
Non-Expansion States
Expansion States

Figure A.4


Change in Private Purchase Coverage
26-64 Year-Olds
Percentage Points
5
0
-5
0
5
10
15
Percent < 138% FPL and Uninsured in 2010-13
Non-Expansion States
Expansion States

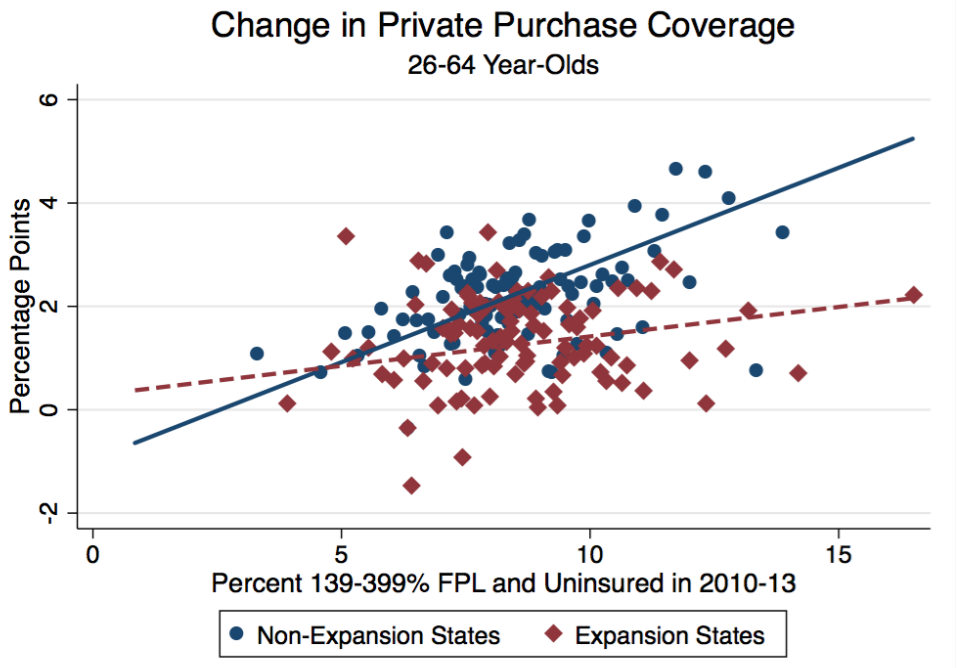
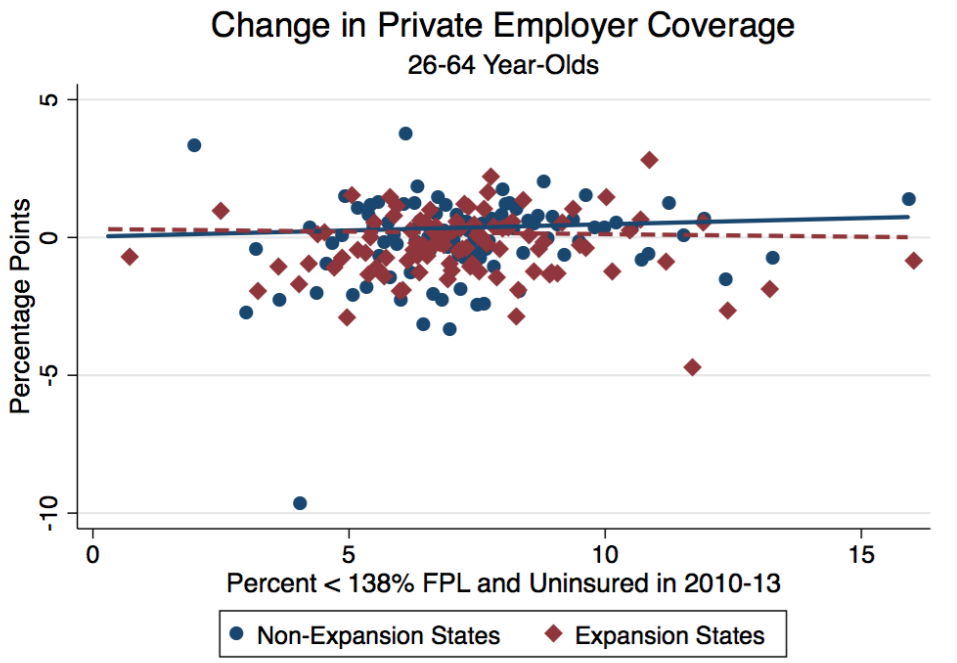

Change in Private Purchase Coverage
26-64 Year-Olds
Percentage Points
6
4
2
0
-2
0
5
10
15
Percent 139-399% FPL and Uninsured in 2010-13
Non-Expansion States
Expansion States

Figure A.5


Change in Private Employer Coverage
26-64 Year-Olds
Percentage Points
5
0
-5
-10
0
5
10
15
Percent < 138% FPL and Uninsured in 2010-13
Non-Expansion States
Expansion States

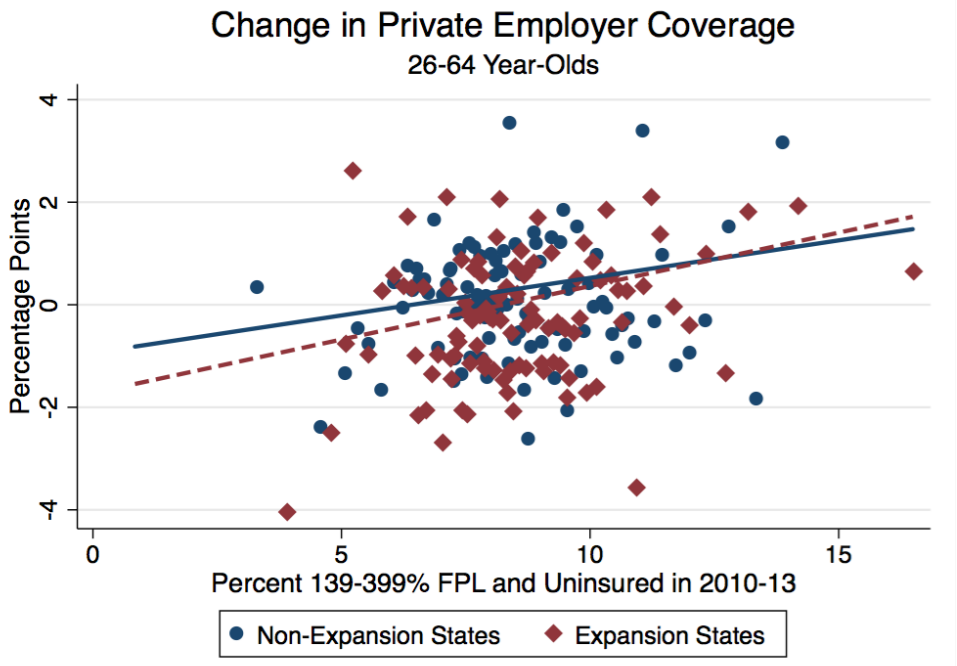
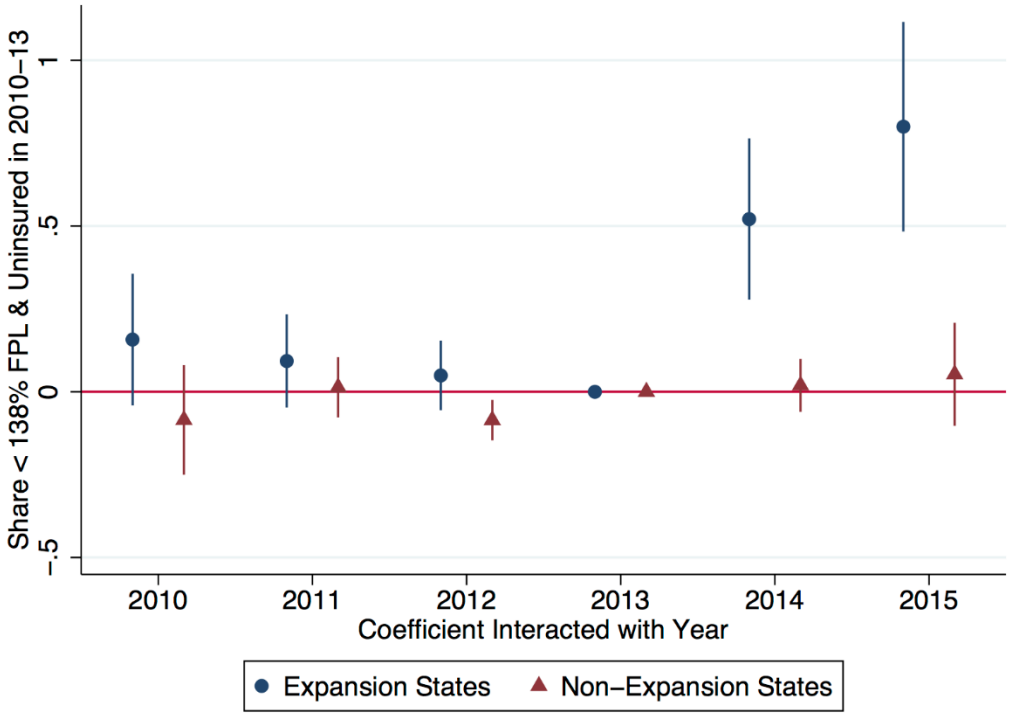

Change in Private Employer Coverage
26-64 Year-Olds
Percentage Points
4
2
0
-2
-4
0
5
10
15
Percent 139-399% FPL and Uninsured in 2010-13
Non-Expansion States
Expansion States

Figure A.6

Expected Treatment Intensity and Health Insurance Coverage by Year
Outcome: Medicaid Coverage



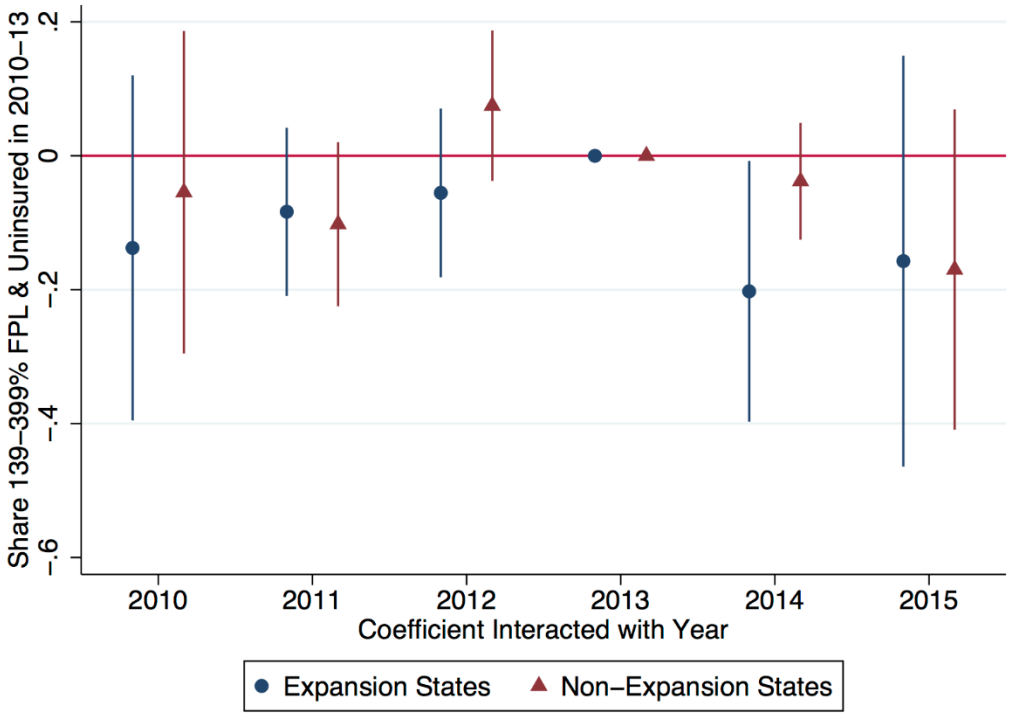
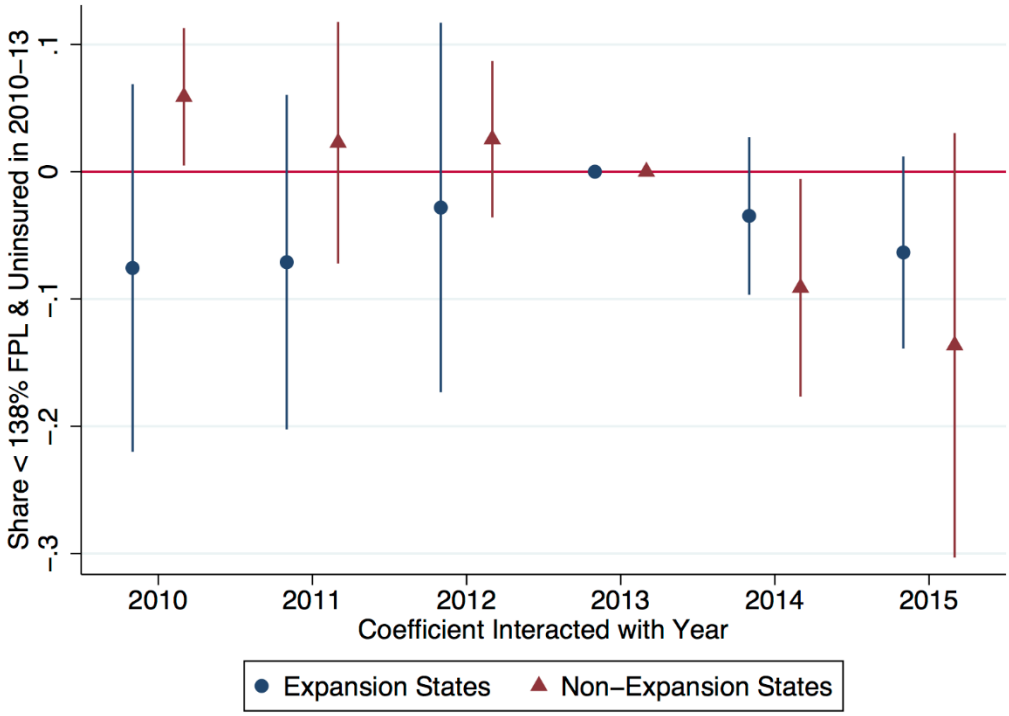


Figure A.7

Expected Treatment Intensity and Health Insurance Coverage by Year
Outcome: Private Purchase Coverage



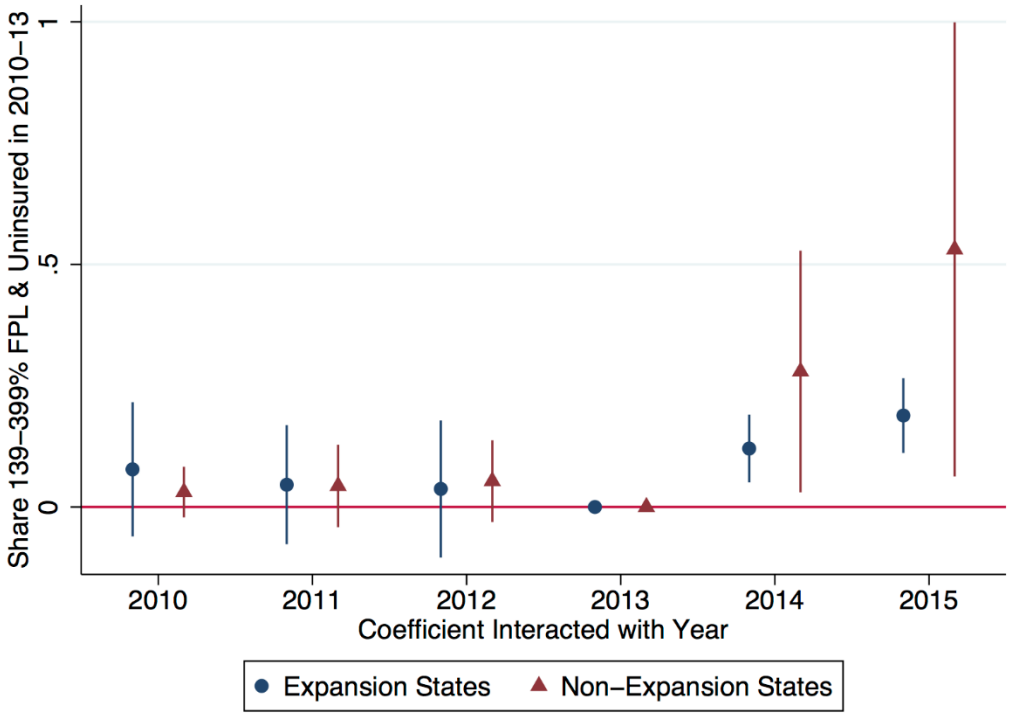
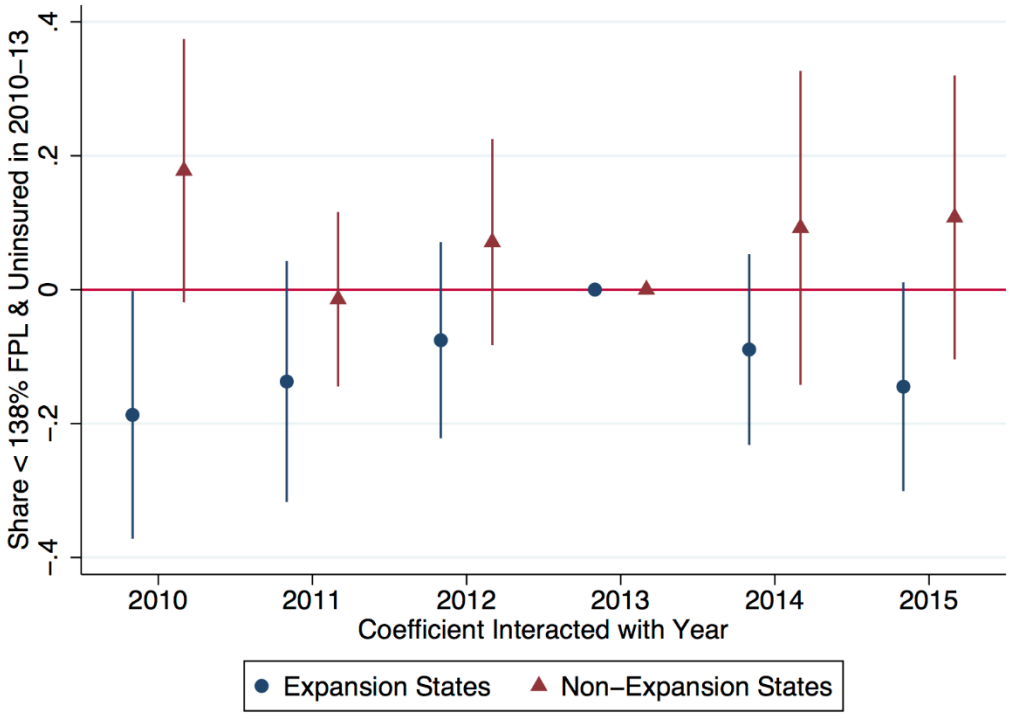


Figure A.8

Expected Treatment Intensity and Health Insurance Coverage by Year
Outcome: Private Employer Coverage



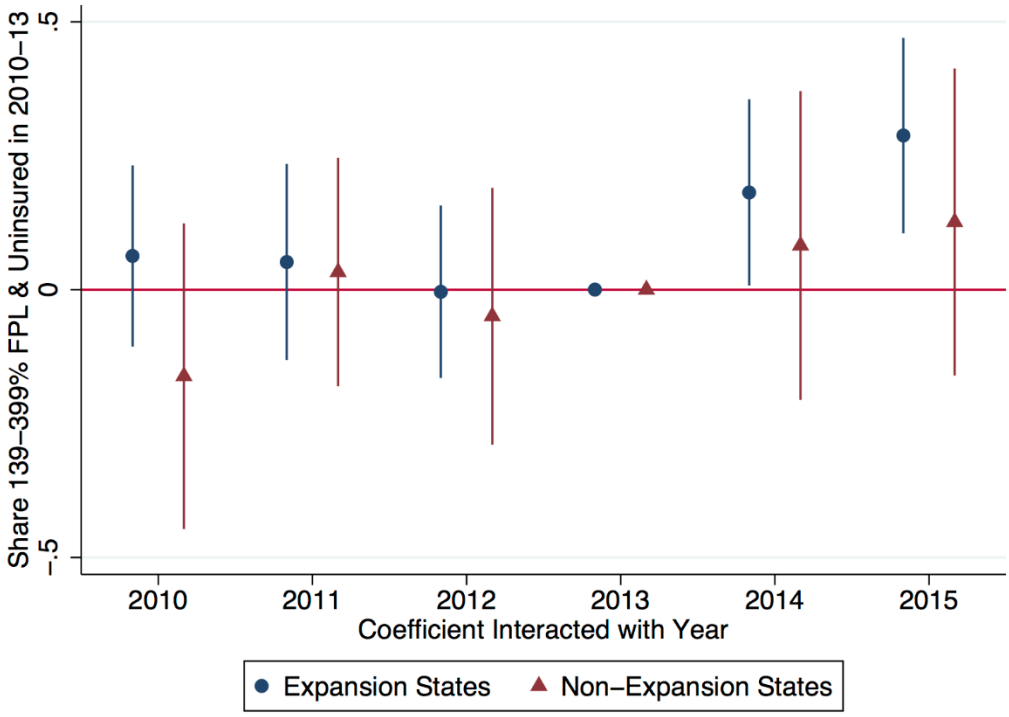


Table A.1

Uninsured Rates for 2013 and 2015, by State

State	2015 sample sizes	% of residents without health insurance, 2013	% of residents without health insurance, 2015	Percentage-point change in uninsured, 2013 to 2015	Medicaid expansion and/or state/ partnership exchange by Sep 1, 2015?
Alabama	3,063	17.7	13.0	-4.7	Neither
Alaska	520	18.9	10.3	-8.6	One
Arizona	4,324	20.4	13.7	-6.7	One
Arkansas	2,034	22.5	9.6	-12.9	Both
California	17,203	21.6	11.8	-9.8	Both
Colorado	3,456	17.0	10.3	-6.7	Both
Connecticut	1,971	12.3	6.4	-5.9	Both
Delaware	502	10.5	7.4	-3.1	Both
Florida	10,362	22.1	15.7	-6.4	Neither
Georgia	5,210	21.4	15.9	-5.5	Neither
Hawaii	494	7.1	4.2	-2.9	Both
Idaho	1,248	19.9	15.2	-4.7	One
Illinois	5,557	15.5	8.7	-6.8	Both
Indiana	3,967	15.3	10.8	-4.5	One
Iowa	1,988	9.7	6.3	-3.4	Both
Kansas	1,813	12.5	11.0	-1.5	Neither
Kentucky	2,743	20.4	7.5	-12.9	Both
Louisiana	2,589	21.7	15.7	-6.0	Neither
Maine	1,097	16.1	8.8	-7.3	Neither
Maryland	3,088	12.9	7.5	-5.4	Both
Massachusetts	3,687	4.9	3.5	-1.4	Both
Michigan	4,978	12.5	7.6	-4.9	Both
Minnesota	3,241	9.5	5.8	-3.7	Both
Mississippi	1,667	22.4	14.7	-7.7	One
Missouri	3,423	15.2	11.6	-3.6	Neither
Montana	1,031	20.7	13.3	-7.4	Neither
Nebraska	1,383	14.5	10.6	-3.9	Neither
Nevada	1,489	20.0	14.5	-5.5	Both
New Hampshire	849	13.8	8.8	-5.0	Both
New Jersey	4,638	14.9	9.7	-5.2	One
New Mexico	1,423	20.2	12.8	-7.4	Both
New York	10,258	12.6	8.6	-4.0	Both
North Carolina	5,880	20.4	14.4	-6.0	Neither
North Dakota	510	15.0	6.9	-8.1	One
Ohio	6,331	13.9	7.6	-6.3	One
Oklahoma	2,679	21.4	16.5	-4.9	Neither
Oregon	2,984	19.4	7.3	-12.1	Both
Pennsylvania	8,178	11.0	7.4	-3.6	Both
Rhode Island	560	13.3	5.6	-7.7	Both
South Carolina	2,840	18.7	12.3	-6.4	Neither
South Dakota	533	14.0	10.6	-3.4	Neither
Tennessee	4,250	16.8	13.0	-3.8	Neither
Texas	13,190	27.0	22.3	-4.7	Neither
Utah	2,067	15.6	12.4	-3.2	One
Vermont	601	8.9	4.7	-4.2	Both
Virginia	5,039	13.3	12.6	-0.7	Neither
Washington	4,504	16.8	7.4	-9.4	Both
West Virginia	1,224	17.6	7.7	-9.9	Both
Wisconsin	3,628	11.7	5.9	-5.8	Neither
Wyoming	591	16.6	14.0	-2.6	Neither

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