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# Did the affordable care act increase the availability of employer-sponsored health insurance?

**Conor Lennon**

Department of Economics, University of Louisville, Louisville, Kentucky, USA

**Correspondence**
Conor Lennon, Department of Economics, University of Louisville, Louisville, Kentucky, USA.
Email: conor.lennon@louisville.edu

**Abstract**

The 2010 Affordable Care Act (ACA) included two provisions, the Employer Shared Responsibility Provision (the "employer mandate") and the Small Business Health Options Program ("SHOP"), aimed at increasing the availability of employer-sponsored health insurance (ESI) among workers at small firms. To examine whether these provisions led to greater ESI availability, I use 2011–2017 Medical Expenditure Panel Survey (MEPS) data in a difference-in-difference framework that compares changes in ESI availability among workers at small and large firms before and after the ACA's provisions come into effect. My estimates show that there is a 3.5 percentage point increase in ESI availability among workers at smaller firms after 2013. When focusing on workers most likely to be affected by the employer mandate, I find a larger 5.2 percentage point increase in ESI availability, amounting to a 39% decline in the proportion who do not have ESI available. However, I find no evidence that greater ESI availability led to increases in ESI coverage rates. Instead, descriptive estimates suggest that gains in health insurance coverage after 2013 consist of significant increases in the number of working adults who report having Medicaid coverage, including among workers who are offered ESI. I use MEPS data for my analysis because, along with employment, firm size, and health insurance details, MEPS also provides health status and healthcare access/

  

utilization information. Looking at changes in these health measures, I find only limited evidence to suggest that the ACA's provisions improved access to care or measures of health status for workers.

**KEYWORDS**

employer mandate, ESI, health outcomes, insurance availability, Medicaid

**JEL CLASSIFICATION**

I13, I18, J32, J33

## 1 | INTRODUCTION

To increase health insurance coverage rates in the United States, the 2010 Patient Protection and Affordable Care Act (ACA) provided funding to significantly expand Medicaid eligibility, instituted a dependent coverage mandate that allowed young adults to remain on their parent's insurance up to age 26, and established healthcare "exchanges" where graduated subsidies could help individuals purchase nongroup coverage. To help those with serious health conditions, the ACA imposed limits on out-of-pocket expenditures, required many health services to be covered with no cost-sharing, and mandated guaranteed issue (i.e., coverage must be available to those with preexisting conditions). To ensure that healthier individuals would not skip health insurance, the act included an "individual mandate" that imposed tax-based penalties upon those who did not obtain coverage. Most of the ACA's provisions came into effect in January of 2014.

Studying the ACA's effect on health coverage, Frean et al. (2017) show that between 2012 and 2015 the proportion of insured individuals increased by 6.1 percentage points among American Community Survey respondents. They estimate that the act's individual mandate, exchange subsidies, and Medicaid eligibility expansions explain around 60% of the increase in coverage. The act's Medicaid expansion provisions, which allow those with incomes up to 138% of the Federal Poverty Limit (FPL) to qualify, appear to have been particularly effective with Miller and Wherry (2019) finding "a 17 percentage point increase in Medicaid enrollment among low-income adults in expansion states compared to nonexpansion states." The dependent coverage mandate, which went into effect earlier than other ACA provisions, provided coverage to more than 2 million young adults (Antwi et al., 2013; Barkowski et al., 2020). The individual mandate also mattered; for example, Lurie et al. (2020) find that coverage increases by up to 2.5% right around the income level where people become subject to the individual mandate's penalties. These individuals may be obtaining coverage via the act's healthcare exchanges; Health Affairs reports that "[o] verall, about 11.41 million consumers in all 50 states and the District of Columbia selected or were automatically re-enrolled in Marketplace plans during the 2020 open enrollment period."[1]

Little is known, however, about the effect of either the Employer Shared Responsibility Provision (the "employer mandate") or the Small Business Health Options Program (SHOP), two

[1]See https://www.healthaffairs.org/do/10.1377/hblog20200402.109653/full/, last accessed 12/11/2020.

additional components of the ACA designed to increase the proportion of individuals who have health insurance coverage available from their employer. The employer mandate requires that firms with more than 50 full-time equivalent workers (FTEs) provide affordable health coverage to workers who usually work 30 hours or more per week.[2,3] Employers who do not comply face financial penalties of $2000 or more per full-time equivalent employee for each FTE after the first 30 FTEs.[4] Because employer-sponsored health insurance (ESI) was almost universally available to workers in larger firms even before the ACA, the employer mandate primarily affects workers at relatively small firms.[5] In contrast to the employer mandate's punitive approach, the ACA's SHOP provisions establish community-rated marketplaces where employers with fewer than 50 FTEs can obtain affordable coverage for their employees, again highlighting that among working adults the ACA likely had a bigger impact on those working at smaller firms.[6,7]

The ACA's ESI-related provisions raise at least three important questions. One, did the employer mandate and SHOP marketplaces result in an increase in ESI availability among workers at smaller firms? Two, did greater ESI availability lead to more workers at small firms being covered by ESI? Three, if these workers gained insurance coverage, were there any associated improvements in health status and/or access to care? To answer these questions, I use 2011–2017 Medical Expenditure Panel Survey (MEPS) data in a difference-in-difference framework. Specifically, I examine changes in overall insurance coverage, ESI availability, the proportion of workers who "take up" ESI, along with measures of health status and health care access among workers at small firms relative to workers at larger firms after the ACA's provisions come into effect. I can use workers at large firms as a comparison group because, as I previously mentioned, the ACA's ESI provisions primarily impact workers at small firms. I discuss what constitutes a "small" and "large" firm in later sections.

My estimates suggest that, among full-time workers (30 hours per week more) aged 18–55 who work at smaller firms; there is a 9.6 percentage point increase in health insurance coverage relative to workers at larger firms after 2013. Looking at how changes in ESI availability contribute to that increase, I find that workers at small firms experience a 3.5 percentage point increase in the proportion who are offered ESI. Focusing only on MEPS respondents working at the type of firm required to provide ESI by the employer mandate, I find a larger 5.2 percentage

[2]As an example, a firm with 100 workers who work an average of 30 hours per week would be considered as having 75 FTEs. See the Society of Human Resource Manager's website https://www.shrm.org/resourcesandtools/tools-and-samples/hr-qa/pages/calculateftehours.aspx for more information (last accessed 11/16/2020).

[3]The affordability cut-off changes a little each year. For 2020, coverage is considered "affordable" if an individual plan costs the employee no more than 9.83% of their household income. See https://www.irs.gov/pub/irs-drop/rp-20-36.pdf, last accessed 12/12/2020.

[4]The employer shared responsibility penalty changes each year. For 2021, the penalty is $2700. See https://www.irs.gov/affordable-care-act/employers/employer-shared-responsibility-provisions,last accessed 12/4/2020.

[5]I show that around 98% of full-time workers at large firms are offered ESI in Table 1.

[6]Some firms with fewer than 25 workers can qualify for a tax credit to help pay for SHOP marketplace coverage. Eligibility for the tax credit depends on employee earnings and firm size with the maximum benefit available only to those firms with fewer than 10 employees with average earnings of $25,000 or less. The benefit phases out completely at average earnings of $50,000 per year or when a firm has more than 25 workers. See for more on this. Last accessed 11/16/2020.

[7]SHOP marketplace community-rating treats workers at all small firms as a single risk pool. Experience-rating, where each firm's cost of providing ESI rises and falls with the expected cost of care for their specific workers, works well when the risk pool provides predicable year-to-year premiums and the per worker administrative cost is relatively low. See Cutler (1994) for more on the difficulties associated with insuring small groups.

point increase in ESI availability. That effect increases to 7.1 percentage points when I adjust my empirical approach to account for delays in the employer mandate's implementation. Event studies demonstrate that there are no pretrends that would undermine a causal interpretation for my findings.

On the other hand, despite clear increases in ESI availability, I find no evidence that the ACA resulted in more workers being covered by ESI. Instead, I observe a 1.6 percentage point decline in the proportion of workers at small firms covered by ESI after 2013. While I cannot infer a causal relationship in my setting, descriptive estimates suggest that the 9.6 percentage point relative increase in health insurance coverage among workers at smaller firms consists of a large decline in ESI coverage among workers at larger firms plus an increasing proportion of workers being covered by Medicaid after 2013. For example, when limiting my sample to workers offered ESI, I observe a 4.7 percentage point increase in Medicaid coverage. This effect does not differ among workers by firm size and suggests that the ACA's expanded Medicaid eligibility provisions could be crowding out ESI coverage among working adults (i.e., workers who have ESI available instead obtaining coverage via Medicaid). Unfortunately, in my empirical setting it is not possible to determine the extent to which increases in Medicaid coverage represent a causal effect of the ACA's changes.

To further support the idea that the ACA is responsible for my findings, I examine changes in ESI availability and take-up (i.e., having ESI if offered ESI from one's employer) using variation in the pre-ACA proportion of workers who are offered ESI across MEPS industry categories. Such an approach borrows from Courtemanche et al. (2017), who use pre-ACA variation in uninsurance rates across statistical areas and American Community Survey data to examine the early effects of the ACA on coverage rates. Similarly to Courtemanche et al., the idea here is that the ACA's provisions provide the most intense treatment in those industries with low baseline ESI availability rates. At the mean "No ESI" rate, I find that ESI availability increases by 3.3 percentage points after 2013, representing a 14% reduction in the proportion of workers whose employer does not offer ESI. In those estimates, I again find that there is a large and statistically significant increase in Medicaid coverage (5.3 percentage points) that does not vary by the pre-ACA "No ESI" rate, again suggesting that expanded Medicaid eligibility could be crowding-out ESI. However, in my setting, I cannot determine whether the increase in Medicaid coverage is occurring among workers who would otherwise be covered by ESI.

Finally, I examine whether increases in health coverage resulted in detectable changes in health status or in access to care among workers. In my main sample, I find no evidence of improvements in health status when looking at self-reported health, depression symptoms, or smoking behavior. While assignment into ESI or Medicaid coverage is not random, finding no immediate effects on health outcomes is consistent with the literature (Baicker et al., 2013; Courtemanche et al., 2018a). Looking at access to care, I find a 5.4 percentage point increase in the proportion who report "having a usual place for medical care" but no effect on the ease of making appointments or whether the respondent visited their doctor or the emergency room.

To summarize my contribution, I show that the ACA led to increases in ESI availability among workers at smaller firms but that increase in availability did not lead to an increase in the proportion of workers covered by ESI. Instead, relative increases in health insurance coverage among workers at small firms appear to be mainly related to declines in ESI coverage among workers at larger firms and increases in the number of workers covered by Medicaid. While I cannot infer causation, my estimates provide suggestive evidence that expansions in Medicaid eligibility may be crowding out ESI. Additionally, regardless of the source of coverage, and similarly to the existing literature in this area, I find little evidence of immediate improvements in health status.

In Section 2, I provide further details on the ACA and existing work that studies how the ACA has affected health insurance coverage, health outcomes, employment, and a range of other societal outcomes. I explain my approach to estimation and my data in Section 3, including how I use the data to define small and large firms and how I address several measurement and timing issues. I present my main estimates in Section 4, along with event study, sensitivity, and heterogeneity analyses. I offer concluding remarks in Section 5.

## 2 | AFFORDABLE CARE ACT BACKGROUND

The Affordable Care Act's chief goal was to reduce the number of Americans without health insurance. With Americans over 65 generally eligible for Medicare, the act focused on increasing the availability of insurance among working age adults and their dependents. Dependents benefited almost immediately because, while most of the ACA's provisions were scheduled to come into effect in January of 2014, the dependent coverage mandate took effect in September of 2010, requiring employers to provide coverage to employees' dependents up to age 26 regardless of student or marital status. A number of studies examine the effect of the dependent coverage mandate including Antwi et al. (2013), Goda et al. (2016), and Barkowski et al. (2020). While identification is complicated because many states already had similar mandates prior to the ACA, Antwi et al. estimate that slightly more than 2 million young adults gained coverage via the mandate but note significant crowding-out: "the 10.2 percentage-point increase in dependent coverage is associated with decreases of 5.7 and 1.1 percentage points in own-name ESI and individually purchased nongroup insurance." Perhaps unsurprisingly, the dependent coverage mandate impacted labor supply decisions among younger workers (Antwi et al., 2013; Bailey, 2017; Depew, 2015; Goda et al., 2016; Hahn & Yang, 2016). For example, Antwi et al. (2013) find that the dependent mandate was associated with a 3% reduction in hours worked and that those aged 26 and under were 5.8% more likely to be working part-time.

According to the Census bureau, the uninsured rate in 2010 for households with annual incomes below $25,000 was 26.9% versus just 8% in households with incomes of $75,000 or more.[8] To help reduce that income-based gap in coverage, the ACA initially required states to expand Medicaid eligibility to anyone with income up to 138% of the Federal Poverty Limit (FPL). Indeed, a handful of states obtained waivers to expand Medicaid eligibility earlier than the legislation required.[9] In late 2012, however, the U.S. Supreme Court ruled that states were not required to expand eligibility for Medicaid (see Rosenbaum & Westmoreland, 2012). In turn, some states proceeded with expanding Medicaid eligibility in January of 2014, some expanded Medicaid eligibility a few months or even years later, and some not at all. As of November 2020, 38 states and Washington DC have expanded Medicaid eligibility in accordance with the ACA's provisions.[10] In 2020, the Medicaid eligibility threshold for a single childless adult was at least $17,609 in expansion states. Therefore, an individual who earns the federal minimum wage (i.e., $7.25 per hour) would qualify for Medicaid coverage, even if they work full-time (i.e., 2000 hours per year). In nonexpansion states, the median eligibility

[8]See https://www.census.gov/newsroom/releases/archives/income_wealth/cb11-157.html,last accessed 12/1/2020.
[9]See https://www.healthcare.gov/glossary/federal-poverty-level-fpl/, last accessed 12/11/2020.
[10]See https://www.kff.org/medicaid/issue-brief/status-of-state-medicaid-expansion-decisions-interactive-map/, last accessed 12/2/2020.

threshold is around 40% of the FPL for adults with dependent children while Medicaid is generally not available at all to childless adults.[11]

As I mention earlier, Frean et al. (2017) use variation in Medicaid expansion timing, in the size of private subsidies, and in the incidence of the individual mandate's penalties to estimate that the combined effect of expanded medicaid, premium subsidies, and the individual mandate explains around 60% of any increase in health insurance coverage. A number of studies, however, highlight that the Medicaid expansion component of the ACA was disproportionately important (Courtemanche et al., 2017; Courtemanche et al., 2019; Duggan et al., 2019; Miller & Wherry, 2017, 2019; Wherry & Miller, 2016). Among these, Courtemanche et al. (2017) find that the ACA increased insurance coverage rates by 5.9 percentage points in states that chose to expand Medicaid and 2.8 percentage points in states that did not in the first year of medicaid expansion. Further, Courtemanche et al. (2019) report that the ACA eliminated 43% of income group-based gaps in health coverage, with Medicaid expansion explaining virtually all of the observed reduction. Miller and Wherry (2019), using 2010 to 2017 National Health Interview Survey (NHIS) data, find that Medicaid expansions led to large increases in Medicaid enrollment among low-income adults in expansion states. Notably, Miller and Wherry report a decline in "private" insurance among their sample respondents but, because their sample is not limited to those in the labor force, it is not clear whether Medicaid expansion is crowding out ESI or not. That being said, there is an extensive literature showing that earlier expansions in Medicaid eligibility (e.g., to cover pregnant women and those with disabilities) resulted in crowd-out (Brown et al., 2007; Gruber & Simon, 2008; Hamersma & Kim, 2013; Kronick & Gilmer, 2002; Wagner, 2015) While I would like to be able to estimate the extent to which the ACA's Medicaid eligibility expansions crowd out ESI coverage, my setting only allows me to infer a causal effect on ESI availability. However, I later present descriptive estimates that suggest crowd-out effects may be substantial.

For those who could not qualify for Medicaid, could not obtain dependent coverage, and were not offered ESI, the ACA created state-specific healthcare exchanges where individuals could purchase individual coverage plans to comply with the individual mandate. On these exchanges, individuals with incomes between 100% and 400% of the FPL would qualify for tax credits that lower the cost of an insurance plan, with subsidies phasing out at higher income levels.[12] The individual mandate's penalties phased in slowly from 2014 to 2016 and were set to then rise with inflation from 2017 onward. For someone uninsured throughout 2016, the penalty for being uninsured was set at $695 per adult and $347.50 per child. The maximum penalty for a family was the greater of $2085 or 2.5% of total family income.[13] Looking at the effect of the individual mandate in isolation, Lurie et al. (2020) use a regression discontinuity approach to show that when people's income is large enough to be subject to the individual mandate, insurance coverage increases by "about 1 percent in 2015, and by about 2.5 percent in 2016." However, the Tax Cuts and Jobs Act of 2017 completely eliminated the individual mandate's tax penalties.[14]

[11]See http://files.kff.org/attachment/fact-sheet-medicaid-expansion-US, last accessed 12/1/2020.

[12]In 2020, marketplace premium tax credits are available to those with incomes from $12,760 to $51,040.

[13]In 2014, the annual penalty was $95 for adults and $47.50 per child. The maximum family penalty in 2014 was the greater of $285 or 1% of family income. The penalties increased to $325 per adult and $162.50 per child in 2015, with family maximums of either $975 or 2% of family income. The penalty also depends on the number of months uninsured and is $0 for someone uninsured for fewer than 3 months.

[14]See Fung et al. (2019) for an analysis of the effect of the individual mandate's penalty on take-up rates and coverage premiums in the non-group market.

My work contributes to our understanding of the ACA's effects on insurance coverage rates by looking at the impact of ACA provisions that were designed to increase the availability of ESI among workers. The first provision is the employer mandate, which requires employers who have more than 50 FTEs to offer affordable health coverage to workers who work more than 29 hours in a usual work week. A plan is deemed affordable if the employee's cost of coverage for an individual plan does not exceed around 9.5% of the employee's household income (the exact percentage that is deemed "affordable" changes each year based on changes in the FPL). If a firm does not offer affordable compliant coverage (i.e., a plan that covers 60% of medical expenditures and "essential health benefits"), or if workers obtained federally-subsidized health coverage in private markets (ACA "exchanges"), then the employer would be subject to financial penalties (of at least $2000 for each FTE after the first 30 FTEs).[15] These requirements, collectively referred to as the "employer mandate," were scheduled to go into effect on January 1, 2014. In July of 2013, however, the penalties for noncompliance were postponed to 2015 and, in February of 2014, to 2016 for employers with 50 to 100 FTEs.[16] The employer mandate remains in place as of July 2021.[17]

Notably, the employer mandate ensures that those with more than 50 FTEs have to pursue group-specific experience-rated coverage even though experience rating makes it difficult for smaller firms to obtain affordable coverage. According to Cutler (1994), one problem is that the administrative costs per worker are high. The other problem is that the cost of care is unpredictable. An expensive health event for one worker could lead to skyrocketing premiums. Cutler explains that among experience rated plans, "a policy at the 90th percentile of the premium distribution cost 2 1/2 times as much as a policy at the 10th percentile of the distribution. For small firms, the differential is even greater. Very little of this variation is due to differences in the generosity of the benefits or to demographic factors such as the age of the employees, however. Much more appears to be due to random risk factors."[18] Because experience-rating is so detrimental to providing coverage for workers in small firms, the ACA created the Small Business Health Options Program (SHOP) featuring community-rated rather than experience-rated coverage. These marketplaces were initially restricted to employers with fewer than 50 FTEs but those with 50–100 FTEs were to gain access to the SHOP marketplace in 2017.[19]

Even though employers could reduce the impact of the employer mandate by having more part-time workers (Even & Macpherson, 2019; Garrett & Kaestner, 2015; Mathur et al., 2016), we would expect the advent of community-rated SHOP coverage options and the employer mandate to lead to increased ESI availability for workers. Adding the individual mandate to these provisions, we might then expect an increase in the proportion of workers who take up the (new and existing) coverage available to them via their employer. However, workers who did not have ESI available prior to the ACA are not randomly selected. Instead, they tend to

[15]See the complete description of compliant coverage https://www.irs.gov/affordable-care-act/employers/employer-shared-responsibility-provisions. Last accessed 8/24/2020.

[16]For more information on the delay at https://www.washingtonpost.com/national/health-science/white-house-delays-health-insurance-mandate-for-medium-sized-employers-until-2016/2014/02/10/ade6b344-9279-11e3-84e1-27626c5ef5fb_story.html. Last accessed 8/24/2020.

[17]The IRS explains the mandate's requirements, including penalties for non-compliance at https://www.irs.gov/affordable-care-act/employers/employer-shared-responsibility-provisions. Last accessed 8/24/2020.

[18]Experience rating also ensures that employers could reduce their compliance costs by hiring only healthy workers or shifting the cost of coverage onto workers via lower wages (see Lennon, 2018, 2019, 2021).

[19]More information on SHOP available at https://www.healthcare.gov/small-businesses/provide-shop-coverage/shop-marketplace-overview/, last accessed 9/1/2020.

work at smaller firms where workers are younger, more likely to be male, have less education, and are less likely to be married, relative to those at larger firms (see Table 1). Complicating the effect of the ACA on ESI availability and take-up, many of these workers will qualify for Medicaid in expansion states, some workers will prefer to pay the individual mandate penalty rather than purchasing expensive ESI coverage, and some will prefer to obtain coverage on the act's healthcare exchanges for idiosyncratic value, quality, or provider-network reasons.

Aside from Medicaid eligibility and personal preferences, a further reason the ACA may have a mixed effect on ESI coverage rates is that, in addition to not being offered ESI, workers at small firms tend to earn lower wages.[20] Therefore, it may not be feasible for smaller firms to provide coverage that is both ACA-compliant and affordable to workers. To illustrate this, note that the Kaiser Family Foundation's 2019 Employer Health Benefits report finds that the average cost for ESI in 2019 was $7188 for an individual plan, with employers paying the majority of the cost.[21] For an employee with a $40,000 salary in 2019, coverage would be considered "affordable" if the employee's share of that $7188 cost was below $3800 (i.e., 9.5% of the employee's annual earnings). In that case, the employer would pay almost $3400 toward coverage. Leaving aside whether an employee with a $40,000 salary would enroll in an insurance plan that costs more than $300 per month before any cost sharing (co-pays, deductibles, coinsurance), an employer might see it as preferable to simply pay the employer shared-responsibility penalty (especially if at least some of the incidence of the penalty falls on employees). For many workers, obtaining coverage on the act's healthcare exchanges may be a more attractive option when faced with the choice between the mandate's tax penalties and expensive employment-based coverage. Given the incentives at play, the ACA's net effect on the proportion of workers who are covered by ESI is not clear, despite containing two provisions explicitly designed to increase rates of ESI availability among workers. For that reason, it is important to examine the effect of the ACA on the availability and take-up of ESI among workers.

A related and equally important question is whether expanded insurance coverage leads to improved health status and access to care. However, the literature suggests that short term effects on health status may be minimal. For example, Baicker et al. (2013) study applicants to a unique Medicaid lottery in Oregon and find that "Medicaid coverage generated no significant improvements in measured physical health outcomes in the first 2 years, but it did increase use of health care services." Similarly, Courtemanche et al. (2018a) use uninsured rates across areas prior to the ACA to examine how the ACA affected health and access to healthcare and find "sizeable improvements in access to health care in both Medicaid expansion and nonexpansion states" while also reporting that they "do not find clear effects on risky behaviors or self-assessed health." Courtemanche et al. (2018b), however, examine 3 years of post ACA data and find that it "increased the probability of reporting excellent health and reduced days in poor mental health." Similarly, looking at low-income adults in Texas, Kentucky, and Arkansas, Sommers, Maylone, et al. (2017) finds ACA-related improvements in health, including a 23 percentage point increase in the proportion who report having "excellent" health. The fact that it takes time to observe any ACA-related health effects is in line with Sommers, Gawande, et al. (2017) who highlight that the benefits of health insurance are incremental but eventually

[20]See Even and MacPherson (2012) for a great overview of the large-firm earnings premium. Despite a decline in the earnings premium for workers at larger firms since the 1990s, Even and Macpherson find that workers at large firms earn 20% more than those at small firms even after controlling for observable characteristics.

[21]See http://files.kff.org/attachment/Summary-of-Findings-Employer-Health-Benefits-2019, last accessed 12/1/2020.

**TABLE 1** Summary statistics

| | | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|
| **Panel A: Large firms (250+ employees or 100+ employees and > 1 location)** | | | | | | | | |
| Age in years | | 39.0 | 38.9 | 38.6 | 38.7 | 38.7 | 38.6 | 38.8 |
| Male | | 51.7 | 52.9 | 51.9 | 53.0 | 52.4 | 52.8 | 53.0 |
| Married | | 56.6 | 56.0 | 52.9 | 51.8 | 52.6 | 55.2 | 56.0 |
| Race | White | 66.2 | 64.9 | 63.7 | 62.1 | 62.3 | 62.0 | 65.7 |
| | Black | 22.6 | 22.0 | 21.9 | 23.2 | 22.2 | 22.5 | 20.1 |
| | Other | 11.2 | 13.1 | 14.4 | 14.7 | 15.5 | 15.5 | 14.2 |
| Education | Less than HS | 6.0 | 7.7 | 10.0 | 8.5 | 7.0 | 5.9 | 4.9 |
| | HS Grad | 44.7 | 47.1 | 51.1 | 52.4 | 48.5 | 42.9 | 39.3 |
| | College Degree | 34.2 | 30.0 | 25.3 | 24.3 | 29.3 | 34.5 | 38.3 |
| | Graduate Degree | 15.1 | 15.2 | 13.6 | 14.9 | 15.2 | 16.6 | 17.5 |
| Any Insurance | | 95.5 | 94.4 | 93.6 | 94.8 | 96.5 | 96.8 | 97.1 |
| Offered ESI | | 97.1 | 97.1 | 96.3 | 96.7 | 97.4 | 97.5 | 97.9 |
| Offered ESI (<35) | | 95.4 | 95.7 | 94.8 | 96.7 | 97.1 | 96.3 | 97.8 |
| Holds ESI | | 89.9 | 89.0 | 86.8 | 86.1 | 86.6 | 77.5 | 79.1 |
| Holds ESI if Offered ESI | | 92.6 | 91.6 | 90.2 | 89.0 | 88.9 | 79.5 | 80.8 |
| Has Medicaid | | 3.1 | 3.2 | 4.3 | 6.0 | 6.0 | 7.5 | 6.8 |
| Has Medicaid if Offered ESI | | 2.7 | 2.7 | 3.6 | 5.1 | 5.2 | 6.6 | 6.2 |
| Other Private Coverage | | 4.3 | 4.2 | 5.2 | 6 | 7.1 | 15 | 13.8 |
| Ins. too expensive | | 24.8 | 25.0 | 27.9 | 24.2 | 25.7 | 26.8 | 25.9 |
| >1 Location | | 91.1 | 91.7 | 88.9 | 90.5 | 93.1 | 93.4 | 92.7 |
| Annual Employment Earnings | All | $ 49,309 | $ 51,814 | $ 51,149 | $ 53,262 | $ 54,931 | $ 58,508 | $ 62,489 |
| | Age 18–35 | $ 39,888 | $ 40,668 | $ 40,231 | $ 41,614 | $ 44,902 | $ 46,330 | $ 47,958 |
| | Age 35+ | $ 54,659 | $ 58,122 | $ 57,812 | $ 60,316 | $ 61,203 | $ 65,738 | $ 70,948 |
| # of Employees | | 346.2 | 351.2 | 352.8 | 347.4 | 345.4 | 345.7 | 346.5 |
| Observations | | 2384 | 2584 | 2501 | 2509 | 2553 | 2782 | 2528 |
| **Panel B: Small firms (1–249 employees)** | | | | | | | | |
| Age in years | | 37.3 | 36.8 | 37.0 | 36.6 | 37.7 | 38.1 | 37.7 |
| Male | | 58.0 | 59.7 | 58.9 | 59.9 | 60.8 | 59.0 | 58.3 |
| Married | | 49.7 | 49.1 | 49.2 | 46.2 | 45.7 | 49.2 | 50.0 |
| Race | White | 79.3 | 78.1 | 76.8 | 76.2 | 77.2 | 76.6 | 77.9 |
| | Black | 12.8 | 12.2 | 12.4 | 12.1 | 11.1 | 11.8 | 11.5 |
| | Other | 7.9 | 9.7 | 10.8 | 11.7 | 11.7 | 11.6 | 10.6 |

(Continues)

**TABLE 1** (Continued)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Panel B: Small firms (1–249 employees)** | | | | | | | | |
| Education | Less than HS | 21.8 | 26.1 | 27.5 | 26.6 | 23.3 | 21.4 | 17.0 |
| | HS Grad | 50.0 | 51.3 | 54.4 | 55.4 | 51.8 | 46.5 | 45.8 |
| | College Degree | 22.1 | 16.7 | 12.8 | 12.6 | 18.5 | 24.5 | 28.2 |
| | Graduate Degree | 6.1 | 5.9 | 5.3 | 5.4 | 6.4 | 7.6 | 9.0 |
| Any Insurance | | 67.0 | 63.6 | 63.5 | 68.4 | 74.6 | 76.0 | 80.0 |
| Offered ESI | | 56.1 | 53.8 | 51.6 | 54.4 | 56.2 | 58.2 | 62.1 |
| Offered ESI (<35) | | 49.6 | 50.3 | 50.5 | 54.7 | 52.7 | 56.7 | 59.3 |
| Holds ESI | | 47.2 | 43.7 | 40.9 | 43.1 | 46.0 | 41.1 | 42.5 |
| Holds ESI if Offered ESI | | 84.1 | 81.2 | 79.3 | 79.2 | 81.9 | 70.6 | 68.4 |
| Has Medicaid | | 7.7 | 8.6 | 10.2 | 12.5 | 12.9 | 13.7 | 15.8 |
| Has Medicaid if Offered ESI | | 3.3 | 4.2 | 6.4 | 7.7 | 5.8 | 7.8 | 11.1 |
| Other Private Coverage | | 12.9 | 12.7 | 14.6 | 15.6 | 18.2 | 23.8 | 25.2 |
| Ins. too expensive | | 30.9 | 31.0 | 31.9 | 35.1 | 31.5 | 35.7 | 33.8 |
| >1 location | | - | - | - | - | - | - | - |
| Annual employment earnings | All | $ 32,356 | $ 31,961 | $ 31,248 | $ 32,642 | $ 35,153 | $ 37,271 | $ 39,337 |
| | Age 18–35 | $ 26,486 | $ 26,463 | $ 27,312 | $ 27,546 | $ 29,062 | $ 31,373 | $ 31,341 |
| | Age 35+ | $ 36,735 | $ 36,273 | $ 34,279 | $ 36,834 | $ 39,335 | $ 41,138 | $ 44,756 |
| # of employees | | 38.8 | 39.1 | 36.4 | 35.3 | 38.7 | 40.1 | 37.4 |
| Observations | | 1821 | 2097 | 1948 | 1876 | 1942 | 1962 | 1639 |

Abbreviations: HS, high school; Ins., insurance.

*Note*: Data: Medical Expenditure Panel Survey 2011–2017, adults age 18–55 working 30 or more hours per week. The number of observations listed in the table refers to the number of individuals who have a valid response for "age" and meet the sample restrictions. Summary statistics are percentages unless otherwise noted. Note that the granularity of MEPS education categories changed in 2013 and then again in 2015 making it difficult to summarize categories consistently across years. For confidentiality reasons,"# of Employees" is top-coded at 500 workers in MEPS.

produce "significant, multifaceted, and nuanced benefits to health" that "manifest in earlier detection of disease," "better medication adherence and management of chronic conditions," and in "the psychological well-being born of knowing one can afford care when one gets sick."

The idea that having health insurance can be beneficial without improving one's physical health is well-supported. For example, Baicker et al. (2013) find that Oregon Medicaid Lottery recipients experience less financial strain including large reductions in out-of-pocket expenditures, the proportion who report having medical debt, and the proportion who borrowed money to pay a bill. Miller et al. (2018), using credit report data on Michigan Medicaid recipients, find similar improvements in financial well-being including "reductions in unpaid bills, medical bills, over limit credit card

spending, and public records (such as evictions, judgments, and bankruptcies)." While I cannot examine whether the ACA has improved financial well-being for the workers in my sample, I can determine whether the ACA has increased health insurance coverage rates and ESI availability, improved access to care, or led to better health for working adults. In the next section, I explain my approach to estimation, highlight some measurement issues that complicate estimation, and then describe the MEPS data that I use to generate my estimates.

## 3 | ESTIMATION AND DATA

### 3.1 | Estimation

To examine whether the ACA led to changes in insurance and health status among workers, I use a difference-in-difference approach that compares outcomes for workers at smaller and larger firms before and after the ACA's provisions come into effect. In particular, I examine specifications of the following type:

$$Y_{it} = \beta_0 + \beta_1 \times FirmSize_{it} + \beta_2 \times Post2013_{it} + \beta_3 \times FirmSize_{it} \times Post2013_{it} + X_{it}\Pi + \epsilon_{it}. \quad (1)$$

In Equation (1), $Y_{it}$ refers to an outcome of interest (ESI availability, self-reported health status, etc.) for individual $i$ in year $t$. The $Post\ 2013_{it}$ term equals one for individual $i$ whenever $t > 2013$. To account for differences between workers at small and large firms that persist across the sample period, I include a $Firm\ Size_{it}$ indicator that equals one whenever an individual $i$ works for a small firm. In my main estimates, I consider small firms to be those with fewer than 250 employees. In complementary analyses, because the employer mandate and SHOP provisions apply to different sets of employers, I examine specifications where the indicator for workers at smaller firms is split into a pair of indicator variables, one each for workers at firms on either side of the employer mandate's 50 worker cutoff. In all specifications, I include demographic controls for each respondent along with census region, occupation, and industry fixed effects, captured by $X_{it}$. The $\epsilon_{it}$ term represents an idiosyncratic error.

Because my outcomes of interest are indicator variables for health insurance coverage and measures of healthcare access, I estimate Equation (1) using a linear probability model via OLS, similarly to other work on the effect of the ACA on insurance rates (Courtemanche et al., 2017; Miller & Wherry, 2019). This approach means that my coefficients represent percentage point changes. In all of my analyses, I report standard errors that are robust to clustering at the respondent level and I use MEPS-provided inverse-probability survey weights. Within such a setup, as long as there are not omitted idiosyncratic shocks that are correlated with firm size and decisions regarding ESI then $\beta_3$ (i.e., the coefficient on the interaction term in my estimating equation) represents the effect of the ACA on each outcome of interest, $Y_{it}$, for workers at smaller firms relative to workers at larger firms.

### 3.2 | Event study specification

My approach to estimation relies on an assumption that, if the ACA did not come into effect, then outcomes for workers at smaller firms would evolve similarly to those for workers at larger firms (i.e., a parallel trends assumption). To study whether there are differential trends that

would undermine my approach, I estimate an event-study specification that is a time-disaggregated version of the difference-in-difference approach that I specify in Equation (1):

$$Y_{it} = FirmSize_{\mathrm{it}} \times \sum_{\mathrm{k=-1}}^{\mathrm{m}} \delta_{\mathrm{k}} 1[\mathrm{t\text{-}T_i} = \mathrm{k}] + \rho \times FirmSize_{\mathrm{it}} + \gamma_{\mathrm{t}} + \mathrm{X_{it}}\beta + \epsilon_{\mathrm{it}}. \quad (2)$$

In Equation (2), the key difference relative to Equation (1) is that I replace the indicator for "Post 2013" with a set of indicators $1(t - T_i = k)$ interacted with firm size.[22] The indicator term equals 1 only for respondents in year $t$ when it is $k$ years away from the time of ACA implementation $T_i$. The coefficients on each time period indicator represent the difference in outcome $Y_{it}$ between workers at small and large firms relative to the same difference in 2013, the "omitted" year (i.e., $k = -1$).[23]

## 3.3 | ACA implementation timing and measurement challenges

Leaving aside concerns about pretrends, weights, covariates, and standard errors, the credibility of my findings depends on my ability to define (1) the period when the ACA's ESI provisions are in effect and (2) firm size. Because of MEPS data limitations and technical challenges faced by the Internal Revenue Service, it is not possible to do either with perfect precision. For example, in my main analyses, the $Post\ 2013_{it}$ indicator variable equals one for the years 2014 and onward because Medicaid expansion, the employer mandate, the individual mandate, the ACA's healthcare exchanges, and SHOP marketplaces were all scheduled to come into effect on January 1, 2014. However, by late 2012, five states (California, Connecticut, Minnesota, New Jersey, and Washington) plus Washington, D.C. had already expanded Medicaid eligibility (using a "Section 1115" waiver). Early Medicaid expansion complicates my analysis because state-level identifiers are not included in publicly-available MEPS data. While early Medicaid expansions should have no effect on changes in ESI availability, to the extent that Medicaid eligibility crowds out ESI take-up, I will tend to overestimate increases in ESI take-up after 2013 (because ESI coverage would have declined prior to 2014 in those early expansion states).

Complicating matters further, in July of 2013, for technical reasons relating to reporting requirements for firms, the U.S. Treasury Department delayed penalties for noncompliance with the employer mandate for 1 year. However, they also stated that "[d]uring this 2014 transition period we strongly encourage employers to maintain or expand health coverage."[24] In February of 2014, the Treasury Department announced a further 1 year delay for firms with between 50 and 99 FTEs.[25] The last-minute nature of these delays significantly complicates estimation because it is unclear whether they affected employer decisions regarding ESI coverage for workers. If employer decisions were mostly unaffected by the delay, then explicitly accounting for the delay will bias me away from finding any increase in ESI availability due to the

[22]The description of my event study analysis borrows from Miller and Wherry (2019) and Teltser et al. (2021).

[23]Note that the key parameters of interest, $\delta_k$, remain identified when collapsing observations where $t > m$ into period $k = m$ and those where $t < -l$ into period $k = -l$ (Sun & Abraham, 2021).

[24]See https://www.shrm.org/resourcesandtools/hr-topics/benefits/pages/mandate-delayed.aspx for more on this delay. Last accessed 12/1/2020.

[25]See https://www.treasury.gov/press-center/press-releases/Pages/jl2290.aspx for information on this second delay. Last accessed 12/1/2020.

ACA. On the other hand, if employers did delay making ESI available, then using 2014 as the treatment date limits my ability to detect any effect. To be conservative, my main estimates examine how the ACA affects ESI availability and take-up using the original 2014 implementation date. Then, as a sensitivity check, I use the later implementation dates.

While I explain my MEPS data in greater detail in the next subsection, a related and final measurement issue is that the ACA's ESI provisions depend on the number of full-time equivalent employees whereas MEPS asks respondents only about the number of employees, with no distinction between part-time and full-time workers. Consider a firm with 60 employees who each work 20 hours per week. My approach would assume that such a firm was subject to the employer mandate even though they are not because they have only 30 FTEs. I provide estimates using 75 and 100 employee cutoffs as appendix items to show that my findings are not significantly affected by this measurement issue.

## 3.4 | Data: Medical expenditure panel survey

My estimates rely on MEPS data (Blewett et al., 2019). The Agency for Healthcare Research and Quality (AHRQ) describes MEPS as "a set of large-scale surveys of families and individuals, their medical providers, and employers across the United States" and explains that "MEPS is the most complete source of data on the cost and use of health care and health insurance coverage." Each year a sub-sample of households participating in the previous year's NHIS are selected to participate.[26] MEPS respondents participate in five interviews across a two-year period where they provide detailed data on health care utilization, health insurance coverage, demographic characteristics, along with information on employment and earnings. Many variables, however, are reported only at the year-ending third and fifth interviews, ensuring that only responses from these two interviews are helpful for my analysis. I provide further detail regarding MEPS, including the text of the questions that I use to construct the most important variables in my analysis, as an appendix item.[27]

My main estimation sample consists of MEPS respondents age 18–55 working 30 hours per week or more who appear in MEPS between 2011 and 2017.[28] I exclude individuals older than 55 because the ACA affected retirement decisions for older workers (Ayyagari, 2019). For my main estimates, I use data only from 2011 onward to ensure that changes in ESI take-up related to the dependent coverage mandate do not bias my findings. It also ensures my estimation sample period begins several years after the Great Recession. As a sensitivity check, I provide estimates where I add 2006 to 2010 MEPS data to my sample (see Table 3).

I present summary statistics for my main estimation sample in Table 1. I partition the sample into respondents who work at "large" and "small" firms. To get a sense of firm size, MEPS asks about the number of workers at the respondent's work location and whether their employer has more than one business location. Using that information, I define "large" firms as those with 250 or more workers at a single location or 100 or more workers at the respondents'

[26]Policy-relevant subgroups (such as low income households) are over-sampled by the NHIS and subsequently MEPS. See http://meps.ahrq.gov/mepsweb/. As I note earlier, I use MEPS-provided inverse-probability survey weights in my regression estimates to account for such over-sampling.

[27]Note that the explanation of MEPS survey data here borrows liberally from Lennon (2021) who uses MEPS data to study how the ACA's employer mandate affected earnings for workers with greater medical expenditures.

[28]I do not include 2018 or later MEPS Household Component data as it was not yet available from IPUMS at the time of writing.

location plus more than one firm location. I define small firms as those with fewer than 250 workers and no other business location. However, MEPS respondents who report that they work for a firm with fewer than 100 employees at the respondent's location and that the employer has more than one location are difficult to categorize. I exclude these respondents from my main estimates. However, I provide estimates where I first assign these ambiguous-firm-size MEPS respondents to the small firm group and then to the large firm group as part of my robustness/sensitivity analyses.

Partitioning the sample into respondents at small and large firms using a 250 worker cutoff maximizes the pre-ACA difference in ESI availability between the groups. That is, moving respondents who work at firms with more than 250 workers into the "small" group would reduce the difference in ESI availability between the two groups. Essentially, I would be adding respondents who typically already have ESI into the "small" group. Similarly, if I add respondents who work where there are fewer than 250 employees to the "large" firm group, I also reduce the ESI availability gap between the two groups. To illustrate that my estimates are not particularly sensitive to changes in my small and large firm size definitions, I present estimates where I redefine the groups using 200 and 300 worker cutoffs as sensitivity checks in Table 3.

In the summary statistics, taking 2017 as an example, 97.1% of workers at larger firms have at least one type of health insurance. Looking at the breakdown of coverage, 79.1% have ESI from their employer, 6.8% have Medicaid, and 13.8% have other private insurance coverage.[29] Unfortunately, MEPS groups "other private" coverage together, including nongroup/individual plans such as the coverage available on the ACA's healthcare exchanges and coverage obtained as a "dependent" (either adult children or spouse/partner coverage). Notice that an increasing number of working adults are covered by Medicaid prior to 2014. Some of that is perhaps due to early Medicaid eligibility expansion. However, individuals can qualify for Medicaid (regardless of income) if they experience certain debilitating conditions (such as blindness, end-stage renal disease, etc.).[30]

In Table 1, we can see that there are several key differences between those who work at larger and smaller firms including large differences in annual earnings, education, insurance coverage/availability, age, and gender. These differences illustrate the importance of including demographic characteristics and location, occupation, and industry fixed effects as controls in my regression estimates. Note, however, that there is a clear increase in the proportion of workers who have any insurance, who are offered ESI, and who have Medicaid among workers at smaller firms later in the sample period. At the same time, the proportion of workers who take up available ESI coverage ("Holds ESI") is generally declining while the proportion who have other private coverage is increasing. Moreover, Medicaid coverage increases significantly among those working at larger firms, too, providing some suggestive evidence of "crowd-out." I present my main findings in Section 4.

## 4 | MAIN FINDINGS

In this section, I first show that there were significant changes in health insurance coverage among workers at small firms after 2013. Then, I study whether the ACA's ESI-related provisions affected ESI availability among workers at smaller firms and whether greater availability

[29]Note that these sum to more than 97.1% because they are not mutually exclusive categories.

[30]See https://www.medicaid.gov/medicaid/eligibility/index.html for details.

of ESI led to increases in ESI coverage rates (i.e., did people actually take up the available coverage?). To help support the parallel trends assumption inherent in any difference-in-difference approach, I present event studies that examine whether there are pretrends that might undermine a causal interpretation for my findings.

Because changes in ESI coverage might not fully explain changes in overall insurance coverage, I also examine whether workers at small firms experienced increases in Medicaid and/or other private coverage (dependent/spouse coverage, nongroup plans, etc.) after 2013. Next, I present sensitivity and heterogeneity analyses where I examine whether my estimates are robust to specification and sample selection choices and how the ACA affects various policy-relevant subgroups. To further support the idea that the ACA was responsible for increases in insurance coverage and changes in ESI availability for workers, I then use pre-ACA uninsurance rates across industries as an alternate approach to identification. In my final empirical exercise, I examine whether there are any ACA-related improvements in health status and access to care among workers at small firms.

## 4.1 | Effects of the ACA on health insurance coverage rates for workers

I present estimates of the ACA's impact on health insurance availability and coverage rates for workers in Table 2. As I mention in Section 3, I focus on a difference-in-difference approach comparing changes in health insurance coverage for MEPS respondents age 18–55 who work full-time at "small" firms (defined as those with fewer than 250 workers and no more than one business location) to similar changes at "large" firms (defined as those with more than 250 workers at one location or between 100 and 250 workers but with two or more business locations) after 2013. As a reminder, in Table 2, the outcomes I examine are all indicator variables and my estimates therefore represent percentage point changes.

Across the sample period, the estimates in Panel A show that MEPS respondents who work at smaller firms are 22.3 percentage points less likely to have any health insurance, 34 percentage points less likely to be offered ESI, and 31.9 percentage points less likely to hold ESI. They are also 6.3 percentage points less likely to be covered by ESI when limiting the sample only to those offered ESI, 2.3 percentage points more likely to report being covered by Medicaid, 6.1 percentage points more likely to report having other private coverage, and 2.8 percentage points more likely to report that insurance is too expensive. They are not significantly more likely to have Medicaid, however, if I condition on having an offer of ESI from their employer.

These baseline differences in insurance coverage and availability are why I can consider MEPS respondents who work at small firms to be treated with greater intensity by the ACA's various provisions. Lending further support to that idea, the estimates in the first column of Table 2 indicate that there is an 9.6 percentage point (17.9%) increase in the proportion who report having insurance coverage among those who work at smaller firms, relative to workers at larger firms, after 2013. Looking at changes in ESI availability specifically, in column (2) I find that workers at smaller firms are 3.5 percentage points (6.2%) more likely to report being offered ESI after 2013, relative to workers at large firms. In column (3), the estimates suggest workers are 6.2 percentage points (14.1%) more likely to hold ESI (i.e., take up an available offer of ESI) after 2013, again relative to workers at larger firms. Each of these estimates is statistically significant at the 1% level and they are causally-related to the ACA's ESI provisions if there

**TABLE 2** ACA's effects on health insurance coverage rates among workers age 18–55

| | (1) Any insurance | (2) Offered ESI | (3) Holds ESI | (4) Holds ESI if offered ESI | (5) Medicaid | (6) Has medicaid if offered ESI | (7) Other private Ins. | (8) Insurance too expensive |
|---|---|---|---|---|---|---|---|---|
| **Panel A: Workers at small firms versus large firms** | | | | | | | | |
| Small Firm (1–249 Emps) | −0.223*** | −0.340*** | −0.319*** | −0.063*** | 0.023*** | 0.001 | 0.061*** | 0.028** |
| | (0.011) | (0.011) | (0.012) | (0.012) | (0.008) | (0.008) | (0.007) | (0.012) |
| Post 2013 | 0.014** | −0.004 | −0.078*** | −0.077*** | 0.055*** | 0.047*** | 0.052*** | −0.001 |
| | (0.006) | (0.005) | (0.008) | (0.008) | (0.006) | (0.006) | (0.005) | (0.010) |
| Small Firm × Post 2013 | 0.096*** | 0.035*** | 0.062*** | 0.010 | 0.014 | 0.005 | 0.021** | 0.015 |
| | (0.013) | (0.013) | (0.014) | (0.016) | (0.010) | (0.011) | (0.009) | (0.015) |
| **Panel B: Defining small firms as two distinct groups** | | | | | | | | |
| 50–249 Employees | −0.100*** | −0.122*** | −0.150*** | −0.061*** | 0.016 | 0.003 | 0.034*** | 0.003 |
| | (0.019) | (0.017) | (0.019) | (0.018) | (0.012) | (0.011) | (0.010) | (0.018) |
| 1–49 Employees | −0.276*** | −0.440*** | −0.395*** | −0.066*** | 0.028*** | 0.000 | 0.074*** | 0.038*** |
| | (0.013) | (0.012) | (0.013) | (0.014) | (0.009) | (0.010) | (0.008) | (0.013) |
| Post 2013 | 0.014** | −0.004 | −0.078*** | −0.077*** | 0.055*** | 0.047*** | 0.052*** | −0.001 |
| | (0.006) | (0.005) | (0.008) | (0.008) | (0.006) | (0.006) | (0.005) | (0.010) |
| 50–249 Employees × Post 2013 | 0.062*** | 0.052** | 0.060** | 0.015 | −0.008 | 0.000 | 0.006 | 0.036 |
| | (0.023) | (0.021) | (0.025) | (0.024) | (0.016) | (0.015) | (0.015) | (0.024) |
| 1–49 Employees × Post 2013 | 0.109*** | 0.037*** | 0.067*** | 0.007 | 0.021* | 0.007 | 0.025** | 0.009 |
| | (0.015) | (0.014) | (0.015) | (0.019) | (0.012) | (0.013) | (0.010) | (0.016) |
| Observations | 29,785 | 29,785 | 29,781 | 23,743 | 29,785 | 23,747 | 29,785 | 26,787 |
| N of Respondents | 19,395 | 19,395 | 19,393 | 15,459 | 19,395 | 15,461 | 19,395 | 18,053 |
| Mean of DV at Large Firm | 95.8 | 97.2 | 85.2 | 87.6 | 5.2 | 4.6 | 8.1 | 25.8 |
| Mean of DV at Small Firm | 70.8 | 56.2 | 44.0 | 78.3 | 11.6 | 6.5 | 17.6 | 32.7 |
| Mean of DV at 50–249 Emp. Firms | 86.9 | 86.5 | 70.2 | 81.1 | 8.5 | 6.2 | 11.2 | 30.2 |
| Mean of DV at 1–49 Emp. Firms | 65.4 | 46.0 | 35.2 | 76.5 | 12.7 | 6.7 | 19.7 | 33.5 |

Abbreviations: DV, dependent variable; Emp., employee.

*Note*: Data: Medical Expenditure Panel Survey 2011–2017 for workers age 18–55 who work 30 hours or more per week. Standard errors, clustered at the respondent level, in parentheses. All specifications include individual controls for age, age squared, education, gender, marital status, race, and income, along with census region, occupation, and industry fixed effects.

***$p < 0.01$.

**$p < 0.05$.

*$p < 0.1$.

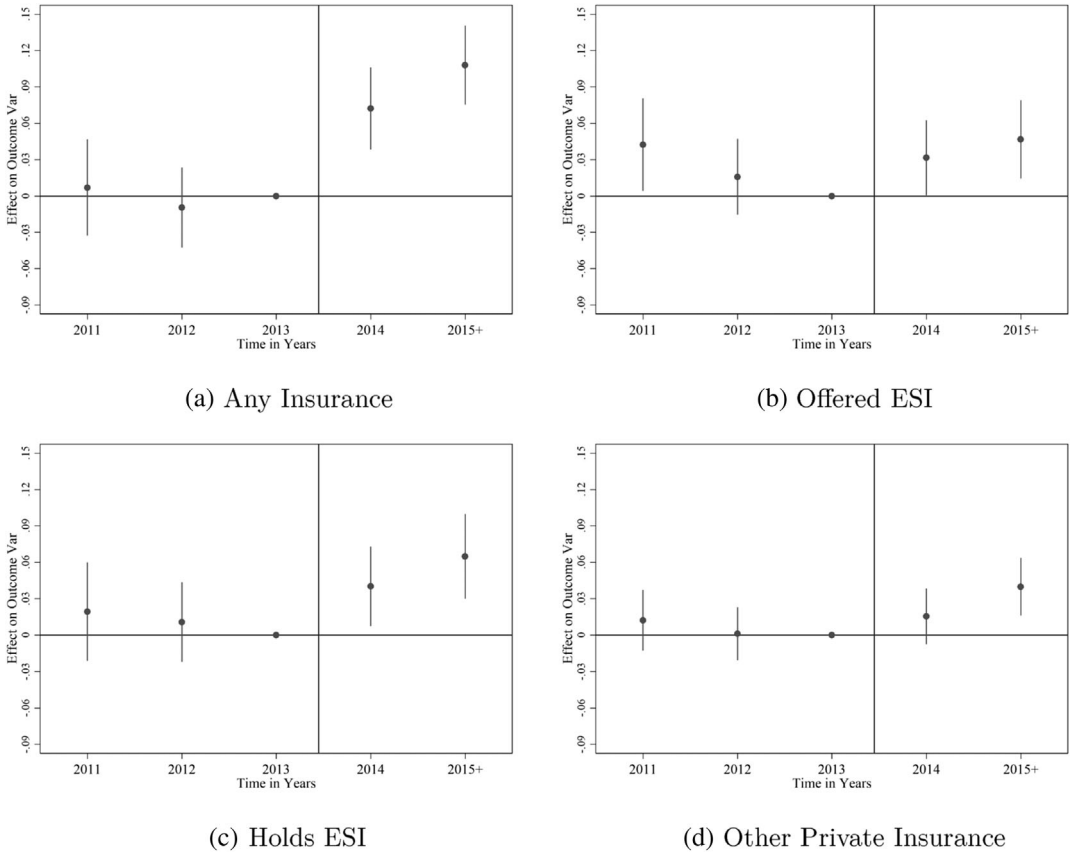


**FIGURE 1** Event studies. Each plot represents an event study where the sample is restricted to 2011–2017 MEPS respondents age 18–55. The year prior to ACA implementation (i.e., 2013) is the omitted category. The dependent variable is noted below the related figure. Bars represent 95% confidence intervals. See Section 3 for more details on these event study specifications

are no unaccounted-for idiosyncratic shocks that are correlated with firm size and changes in ESI coverage.

However, while the proportion of workers at small firms who take up an offer of ESI (i.e., "Holds ESI") increases relative to workers at larger firms, my estimates show that there is an absolute decline in the proportion of workers at small firms who have ESI after 2013. To see this, note that the coefficient estimate on the time period fixed effect in column (3) suggests that there is a 7.8 percentage point decline in the overall proportion of workers who are covered by ESI after 2013. Therefore, after 2013 - whether this effect is causally related to the ACA's provisions or not - the estimates indicate a 1.6 percentage point (7.8−6.2) decline in the proportion of workers at small firms with ESI. When restricting the sample only to those offered ESI (the estimates in the fourth column), I observe a 7.7 percentage point decline in the proportion who hold ESI after 2013 that does not vary among workers at different firm sizes. However, in my empirical setting I cannot determine the extent to which that observed effect is causally-related to the ACA's provisions.

Counteracting the decline in the proportion who have ESI coverage after 2013, I observe a large increase in the proportion of respondents who have Medicaid coverage after 2013. Specifically, in column (6) we see a 4.7 percentage point increase after 2013 in the proportion who

**TABLE 3** Sensitivity/robustness analyses

| | (1) Any insurance | (2) Offered ESI | (3) Holds ESI | (4) Holds ESI if offered ESI | (5) Medicaid | (6) Has Medicaid if offered ESI | (7) Other private Ins. | (8) Insurance too expensive |
|---|---|---|---|---|---|---|---|---|
| | **Panel A: Using 2006–2017 MEPS data** | | | | | | | |
| Post 2013 | 0.003 | −0.008** | −0.094*** | −0.090*** | 0.056*** | 0.047*** | 0.056*** | 0.008 |
| | (0.005) | (0.004) | (0.007) | (0.006) | (0.005) | (0.005) | (0.004) | (0.008) |
| Small Firm × Post 2013 | 0.081*** | 0.026** | 0.060*** | 0.010 | 0.012 | 0.005 | 0.017** | 0.014 |
| | (0.011) | (0.011) | (0.012) | (0.013) | (0.009) | (0.009) | (0.008) | (0.012) |
| | **Panel B: Small firms = 200 or fewer workers** | | | | | | | |
| Post 2013 | 0.018*** | 0.002 | −0.073*** | −0.078*** | 0.056*** | 0.048*** | 0.052*** | 0.000 |
| | (0.006) | (0.005) | (0.008) | (0.007) | (0.006) | (0.006) | (0.005) | (0.009) |
| Small Firm × Post 2013 | 0.095*** | 0.028** | 0.059*** | 0.013 | 0.014 | 0.001 | 0.023** | 0.014 |
| | (0.014) | (0.013) | (0.014) | (0.017) | (0.011) | (0.011) | (0.009) | (0.015) |
| | **Panel C: Small Firms = 300 or fewer workers** | | | | | | | |
| Post 2013 | 0.014** | −0.004 | −0.077*** | −0.077*** | 0.056*** | 0.048*** | 0.052*** | −0.003 |
| | (0.006) | (0.005) | (0.008) | (0.008) | (0.006) | (0.006) | (0.005) | (0.010) |
| Small Firm × Post 2013 | 0.094*** | 0.034*** | 0.059*** | 0.008 | 0.013 | 0.002 | 0.021** | 0.019 |
| | (0.013) | (0.013) | (0.014) | (0.016) | (0.010) | (0.011) | (0.009) | (0.015) |
| | **Panel D: Include excluded respondents in "small" group** | | | | | | | |
| Post 2013 | 0.012** | −0.007 | −0.082*** | −0.080*** | 0.057*** | 0.049*** | 0.052*** | −0.000 |
| | (0.006) | (0.005) | (0.008) | (0.008) | (0.006) | (0.006) | (0.005) | (0.010) |
| Small Firm × Post 2013 | 0.075*** | 0.048*** | 0.049*** | −0.004 | 0.014* | 0.011 | 0.015** | 0.004 |
| | (0.009) | (0.009) | (0.011) | (0.011) | (0.008) | (0.008) | (0.007) | (0.012) |
| | **Panel E: Include excluded respondents in "large" group** | | | | | | | |
| Post 2013 | 0.039*** | 0.015*** | −0.068*** | −0.087*** | 0.065*** | 0.057*** | 0.060*** | −0.002 |
| | (0.005) | (0.005) | (0.007) | (0.006) | (0.005) | (0.005) | (0.004) | (0.007) |
| Small Firm × Post 2013 | 0.070*** | 0.014 | 0.050*** | 0.019 | 0.006 | −0.005 | 0.014 | 0.017 |
| | (0.013) | (0.013) | (0.013) | (0.015) | (0.010) | (0.010) | (0.009) | (0.013) |
| | **Panel F: Using alternate employer mandate dates** | | | | | | | |
| Post ACA | 0.014** | −0.004 | −0.078*** | −0.077*** | 0.055*** | 0.047*** | 0.052*** | −0.001 |
| | (0.006) | (0.005) | (0.008) | (0.008) | (0.006) | (0.006) | (0.005) | (0.010) |
| Post ACA × 50–249 Employees | 0.050** | 0.071*** | 0.060** | 0.003 | −0.025 | −0.002 | 0.017 | 0.029 |
| | (0.022) | (0.021) | (0.027) | (0.025) | (0.017) | (0.017) | (0.017) | (0.025) |
| Post ACA × 1–49 Employees | 0.109*** | 0.037*** | 0.067*** | 0.007 | 0.021* | 0.007 | 0.025** | 0.009 |
| | (0.015) | (0.014) | (0.015) | (0.019) | (0.012) | (0.013) | (0.010) | (0.016) |

*Note*: Data: Medical Expenditure Panel Survey 2011–2017 unless otherwise specified. Standard errors, clustered at the respondent level, in parentheses. All specifications include individual controls for age, age squared, education, gender, marital status, race, and income, along with census region, occupation, and industry fixed effects. In Panel F, I have a Post ACA (Affordable Care Act) indicator that equals one after 2013 except for respondents who work at firms with between 50 and 249 employees. The Post ACA indicator equals one after 2014 whenever the respondent reports 100 or more employees and after 2015 whenever the respondent reports 50 to 99 employees.

***$p < 0.01$.

**$p < 0.05$.

*$p < 0.1$.

have Medicaid despite having an offer of ESI from their employer, statistically significant at the 1% level. The effect, however, does not differ for workers at small firms. Indeed, without a valid comparison group, the observed changes in Medicaid coverage must be viewed as merely descriptive estimates. That said, compared to the sample mean, a 4.7 percentage point increase in Medicaid coverage would represent a 102% increase in the proportion of workers covered by Medicaid at large firms and a 72% increase among those workers at smaller firms. Note that eligibility for Medicaid is income-based and having an offer of ESI from one's employer does not make one ineligible. While I cannot infer that the post 2013 changes in Medicaid coverage rates are *caused* by the ACA, I see these estimates as supporting the idea that expansions in Medicaid eligibility could be crowding out ESI coverage. Further, because some states expanded Medicaid prior to 2014, it is possible that my findings underestimate the effect of Medicaid eligibility expansion and, if there is crowding out; overestimate any increase in ESI take-up. That is, it is possible that the ACA led to even larger ESI crowd-out effects than my descriptive estimates suggest. Explaining some of the remaining increase in overall health insurance coverage rates, I find a 2.1 percentage point relative increase in "Other Private Insurance" among workers at smaller firms, statistically significant at the 5% level.

In Panel B of Table 2, to examine the relative importance of the employer mandate and the act's SHOP marketplaces in increasing ESI availability, I divide workers at small firms into two subgroups: one being those respondents who work where there are fewer than 50 workers and the other being respondents who work where there are between 50 and 249 workers. When looking at these groups separately, in column (1) I again find that there are large relative increases in the proportion who report having any coverage, including a 10.9 percentage point increase among those workers at firms with fewer than 50 employees. In columns (2) and (3), the estimates show that there are significant increases in ESI availability and take-up relative to respondents who work at large firms. For example, in column (2), the interaction term coefficient suggests a 5.2 percentage point increase after 2013 in the proportion of workers at firms with 50 to 249 employees who are offered ESI, again relative to workers at larger firms. Such MEPS respondents are precisely those workers whose employer is most likely to have to offer ESI because of the employer mandate. To put the effect in context, 86.5 percent of workers at firms between 50 and 249 workers are offered ESI across the sample period. My estimates therefore imply that the employer mandate reduced the percent of workers without ESI at firms with 50 to 249 workers by about 39% (i.e., 5.2 percentage points divided by 13.5, the proportion of workers without ESI available at these size firms). However, despite a clear increase in ESI availability, the estimates in column (3), because of the negative coefficient on the Post 2013 time period fixed effect, indicate an absolute decline in ESI coverage after 2013.

Again, in Panel B, when looking at the rate of take-up of ESI among workers at small firms, any differential effect dissipates when I limit the sample to workers who are offered ESI in column (4). I also find small relative changes in Medicaid and other coverage in columns (5), (6), and (7), mostly concentrated among workers at the very smallest firms. Note that, in column (8) of both Panel A and B, I find no evidence that changes in the affordability of insurance after 2013 could be responsible for my findings.

## 4.2 | Event studies and pretrends

Because pretrends would threaten a causal interpretation for my findings, I present event studies in Figure 1 that illustrate what is happening to the difference in the various outcomes of interest

between workers at small and large firms around the period of the ACA's implementation. I focus on identifying pretrends among the four outcomes (Any Insurance, Offered ESI, Holds ESI, and Other Private Insurance) that indicate a statistically significant interaction effect in Panel A of Table 2. I provide event study figures for the remaining outcomes as an appendix item.

Note that, while the post 2013 patterns generally mirror the estimates in Table 2, the goal in this exercise is not to demonstrate a treatment effect. The goal, instead, is to study what is happening in the years prior to the ACA's implementation. To that end, in each sub-figure, the period prior to the ACA is to the left of the vertical line between $t = 2013$ and $t = 2014$ and the period after the ACA is to the right. Further, because the focus here is on identifying pretrends, I "bin" observations after $t = 2015$ together (Sun & Abraham, 2021).

Overall, there appears to be no pretrends in the outcomes of interest that could explain my findings. Indeed, for the proportion who are "offered" ESI, there is perhaps mild evidence of a declining pretrend suggesting that my estimates might be a lower bound on the true effect. These event studies ease concerns that my findings are explained by the continuation of events that were underway prior to the advent of the ACA.

## 4.3 | Sensitivity and heterogeneity analyses

In Table 3, I present estimates where I expand my sample to include MEPS data from the years 2006 to 2010 (Panel A) and use different definitions of large and small firms (Panels B and C). In Panels D and E, I return to my sample MEPS respondents who work where there are fewer than 100 workers but more than one business location as part of the small and then the large firm groups. Across these different analyses, I again find increases in health insurance coverage and ESI availability but that little of the effect can be explained by increases in ESI take-up.

In Panel F, I redefine the "Post ACA" period to account for delays in the employer mandate's implementation (i.e., the mandate was delayed to 2015 for those with 100+ FTEs and 2016 for those with 50 to 99 FTEs). Therefore, the Post ACA indicator equals 1 after 2013 for respondents who work at large firms and firms with fewer than 50 workers, equals 1 after 2014 whenever a respondent reports 100 or more employees at their work location, and equals 1 after 2015 whenever the respondent reports 50 to 99 employees. Explicitly accounting for the delay in the employer mandate appears to significantly increase the effect of the ACA on ESI availability for workers at firms with between 50 and 249 workers. Compared to the estimates in Table 2, the increase in ESI availability now accounts for closer to a 53% reduction in the proportion of workers not offered ESI at these size firms (i.e., 7.1 percentage points divided by 13.5, the proportion of workers without ESI available at these firms that I report in Table 2). For space reasons, I report only the coefficients of interest in Table 3 and present the complete coefficient estimates from each exercise as appendix items. Again, to conserve space and because the estimates are broadly similar to my main findings, I present further sensitivity analyses, including estimates where I define sub-groups of small firms differently to account for firm size mismeasurement and estimates where I add part-time workers back to the sample, only as appendix items.

In Table 4, I present heterogeneity analyses where I restrict my sample to women only (Panel A), men only (Panel B), Caucasian respondents only (Panel C), non-Caucasian respondents (Panel D), those age 18–35 (Panel E), and those age 36–55 (Panel F). Again, I report only the main coefficients of interest. Across these heterogeneity analyses, I find similar patterns of changes in the proportion who have any insurance, changes in ESI availability, and the proportion who have Medicaid (including when conditioning on ESI status). Among non-Caucasian respondents,

however, I find smaller increases in insurance coverage overall, ESI availability, and Medicaid coverage after 2013. Also, for females and workers age 18–35, I observe large increases in health insurance coverage that appear to be driven by relatively greater increases in Medicaid coverage.

## 4.4 | Identification using pre-ACA uninsurance rates across industries

To further support the idea that the ACA caused greater availability of ESI for workers, I next examine changes in ESI availability and take-up using variation in the pre-ACA proportion of workers who are not offered ESI across MEPS industry categories. My approach to identification here borrows from Courtemanche et al. (2017), who use pre-ACA variation in uninsurance rates across statistical areas to examine the early effects of the ACA on coverage rates. As I mention earlier, the idea is that the ACA's provisions provide the most intense treatment in those industries with low baseline ESI availability rates. In Table 5, I present the estimates from specifications that, while similar to Equation (1) in all other respects, use a continuous measure of the proportion of workers who are not offered ESI by MEPS industry category $j$ in place of a Firm Size indicator (see Table A11 for a breakdown of ESI rates by industry) as in the following equation:

$$Y_{ijt} = \alpha \times 2013NoESIRate_{\text{ijt}} + \gamma \times Post_{\text{it}} + \delta \times 2013NoESIRate_{\text{ijt}} \times Post_{\text{it}} + \mathrm{X}_{\text{it}}\beta + \epsilon_{\text{it}}. \quad (3)$$

The coefficient on the interaction term from such a specification estimates the effect on the outcome of interest for a respondent in an industry with no ESI availability relative to one with 100% availability. At the mean "No ESI" rate of 23.4%, my estimates suggest that ESI availability increases by 3.3 percentage points (i.e., 0.141 × 0.234) after 2013, with the effect statistically significant at the 1% confidence level. Further, I find that there is a large and statistically significant increase in Medicaid coverage (5.3 percentage points, also significant at the 1% level) that does not vary by the pre-ACA "No ESI" rate, highlighting again that Medicaid expansion could be crowding-out ESI, even where ESI is relatively common.[31] A 3.3 percentage point increase in ESI availability at the mean "No ESI" rate and a 5.3 percentage point increase in the proportion of workers who have Medicaid after 2013 aligns remarkably well with the estimates in Panel A of Table 2, which showed a 3.5 percentage point increase in ESI availability among workers at small firms and a 5.5 percentage point increase in Medicaid coverage.

## 4.5 | Effects of the ACA on health outcomes for working adults

Naturally, relative increases in health insurance coverage (whatever the source) among workers at smaller firms raises an important and related question: do increases in health insurance

[31]While Courtemanche et al. implement a triple difference approach (using variation in time, medicaid expansion, and uninsured rates across areas), I cannot do so (i.e., further interacting firm size with the indicator for the post period and the 2013 No ESI rate) because firm size is also correlated with industry ESI rates. To illustrate, in Table A11 I present "No ESI" rates and firm size. The simple correlation between them is $\rho = -.78$, indicating that in industries with larger average firm size, the proportion of workers without ESI is much lower. Note also that I cannot use pre-ACA ESI availability for identification in my main estimates as they would not allow me to examine the ACA's SHOP and Employer Mandate effects separately.

**TABLE 4** Heterogeneity analyses

| | (1) Any insurance | (2) Offered ESI | (3) Holds ESI | (4) Holds ESI if offered ESI | (5) Medicaid | (6) Has Medicaid if offered ESI | (7) Other Private Ins. | (8) Insurance too expensive |
|---|---|---|---|---|---|---|---|---|
| | **Panel A: Men only** | | | | | | | |
| Post 2013 | 0.024*** | 0.002 | −0.050*** | −0.051*** | 0.037*** | 0.025*** | 0.041*** | 0.010 |
| | (0.009) | (0.007) | (0.011) | (0.010) | (0.007) | (0.006) | (0.007) | (0.014) |
| Small Firm × Post 2013 | 0.088*** | 0.039** | 0.042** | −0.023 | 0.030** | 0.025** | 0.027** | 0.012 |
| | (0.018) | (0.016) | (0.018) | (0.020) | (0.012) | (0.012) | (0.012) | (0.020) |
| | **Panel B: Women only** | | | | | | | |
| Post 2013 | 0.006 | −0.010 | −0.104*** | −0.102*** | 0.077*** | 0.071*** | 0.061*** | −0.011 |
| | (0.008) | (0.007) | (0.012) | (0.011) | (0.010) | (0.010) | (0.007) | (0.014) |
| Small Firm × Post 2013 | 0.102*** | 0.027 | 0.079*** | 0.044* | −0.004 | −0.018 | 0.018 | 0.016 |
| | (0.020) | (0.020) | (0.021) | (0.025) | (0.017) | (0.019) | (0.014) | (0.022) |
| | **Panel C: White/Caucasian workers only** | | | | | | | |
| Post 2013 | 0.017* | 0.002 | −0.081*** | −0.086*** | 0.060*** | 0.055*** | 0.054*** | 0.003 |
| | (0.009) | (0.008) | (0.011) | (0.010) | (0.008) | (0.008) | (0.006) | (0.013) |
| Small Firm × Post 2013 | 0.100*** | 0.032** | 0.073*** | 0.026 | 0.013 | −0.008 | 0.010 | 0.013 |
| | (0.016) | (0.015) | (0.017) | (0.020) | (0.012) | (0.013) | (0.011) | (0.019) |
| | **Panel D: Non-Caucasian workers only** | | | | | | | |
| Post 2013 | 0.009 | −0.013** | −0.074*** | −0.066*** | 0.047*** | 0.035*** | 0.049*** | −0.006 |
| | (0.008) | (0.007) | (0.012) | (0.011) | (0.010) | (0.009) | (0.008) | (0.015) |
| Small Firm × Post 2013 | 0.072*** | 0.027 | 0.032 | −0.013 | 0.007 | 0.019 | 0.050*** | 0.021 |
| | (0.023) | (0.024) | (0.026) | (0.027) | (0.020) | (0.021) | (0.018) | (0.025) |
| | **Panel F: Restrict to 18–35 Only** | | | | | | | |
| Post 2013 | 0.036*** | 0.003 | −0.086*** | −0.089*** | 0.087*** | 0.079*** | 0.051*** | −0.024 |
| | (0.011) | (0.008) | (0.014) | (0.013) | (0.011) | (0.011) | (0.009) | (0.015) |
| Small Firm × Post 2013 | 0.098*** | 0.053*** | 0.093*** | 0.038 | −0.002 | −0.011 | 0.010 | 0.025 |
| | (0.021) | (0.019) | (0.021) | (0.025) | (0.018) | (0.020) | (0.014) | (0.023) |
| | **Panel G: Restrict to 36–55 Only** | | | | | | | |
| Post 2013 | 0.000 | −0.009 | −0.072*** | −0.068*** | 0.035*** | 0.028*** | 0.051*** | 0.015 |
| | (0.007) | (0.006) | (0.010) | (0.009) | (0.007) | (0.007) | (0.006) | (0.012) |
| Small Firm × Post 2013 | 0.094*** | 0.022 | 0.043** | −0.004 | 0.022* | 0.010 | 0.028** | 0.011 |
| | (0.017) | (0.017) | (0.018) | (0.020) | (0.013) | (0.012) | (0.012) | (0.020) |

*Note*: Data: Medical Expenditure Panel Survey 2011–2017 working respondents age 18–55 unless otherwise specified. Standard errors, clustered at the respondent level, in parentheses. ll specifications include individual controls for age, age squared, education, gender (except when restricting the sample by gender), marital status, race, and income, along with census region, occupation, and industry fixed effects.

***$p < 0.01$.

**$p < 0.05$.

*$p < 0.1$.

**TABLE 5** ACA's effects by industry 2013 ESI coverage rates

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Any insurance | Offered ESI | Holds ESI | Holds ESI if offered ESI | Medicaid | Has Medicaid if Offered ESI | Other private Ins. | Insurance too expensive |
| 2013 Industry No ESI Rate | −0.550*** | −0.747*** | −0.726*** | −0.211*** | −0.000 | −0.004 | 0.135*** | 0.063* |
| | (0.036) | (0.035) | (0.036) | (0.039) | (0.024)** | (0.025) | (0.021) | (0.035) |
| Post 2013 | 0.010 | −0.021* | −0.094*** | −0.082*** | 0.053*** | 0.050*** | 0.069*** | 0.014 |
| | (0.010) | (0.011) | (0.012) | (0.011) | (0.008) | (0.008) | (0.007) | (0.012) |
| 2013 Industry No ESI Rate × Post | 0.206*** | 0.141*** | 0.186*** | 0.033 | 0.040 | −0.007 | −0.028 | −0.030 |
| | (0.041) | (0.041) | (0.040) | (0.051) | (0.030) | (0.033) | (0.025) | (0.043) |
| Observations | 29.665 | 29.665 | 29.662 | 23.634 | 29.665 | 23.637 | 29.665 | 26.704 |
| *N* of Respondents | 19.317 | 19.317 | 19.315 | 15.386 | 19.317 | 15.388 | 19.317 | 17.996 |
| Implied Interaction/ Treatment Effect | 4.8 pp | 3.3 pp | 4.4 pp | 0.8 pp | 0.9 pp | −0.2 pp | −0.7 pp | −0.7 pp |
| (Mean 2013 No ESI Rate = 0.234) | | | | | | | | |

*Note*: Data: Medical Expenditure Panel Survey 2011–2017 for respondents age 18–55 working 30 h or more per week. Standard errors, clustered at the respondent level, in parentheses. All specifications include individual controls for age, age squared, education, marital status, race, and income, along with census region, occupation, and industry fixed effects. "2013 Industry No ESI Rate" refers to the proportion of workers not offered ESI by MEPS industry category in 2013. Implied treatment effect = coefficient on interaction term × "Mean 2013 No ESI Rate."

***$p < 0.01$.

**$p < 0.05$.

*$p < 0.1$.

coverage lead to improved access to care and better health outcomes? Using the same difference-in-difference approach as in my main estimates, in Table 6, I examine a number of measures of access to care and health status.

Focusing on the coefficient relating to the difference-in-difference interaction term, I find a 5.4 percentage point relative increase in the proportion of respondents who report having a usual place for medical care among respondents who work at smaller firms after 2013, significant at the 1% confidence level. Given MEPS is only a two-year panel, however, I do not observe many individuals in my sample both before and after the ACA comes into effect. I cannot, therefore, determine that those who gain coverage after the ACA are the same individuals who now report having a usual place for care. Along other available measures, including self-reported health, ease of making an appointment, having a doctor or ER visit in the past year, recent depressive symptoms, and smoking behavior I find no statistically significant changes among respondents who work at smaller firms after 2013. As I mention earlier, it would be

**TABLE 6** ACA's effects on health outcomes and access to care among workers

| | (1) Self-reported health | (2) Usual place for med. care | (3) Easy to access care | (4) Visit Dr. Past Year | (5) Visit ER Past Year | (6) Depressive symptoms past 2 weeks | (7) Current smoker |
|---|---|---|---|---|---|---|---|
| | **Panel A: Age 18–55** | | | | | | |
| Small Firm (1–249 Emps) | −0.004 | −0.110*** | −0.010 | −0.061*** | −0.024** | −0.012 | 0.017* |
| | (0.008) | (0.013) | (0.015) | (0.012) | (0.011) | (0.010) | (0.010) |
| Post 2013 | 0.003 | −0.010 | 0.016 | −0.010 | 0.017 | −0.027*** | −0.012 |
| | (0.007) | (0.010) | (0.011) | (0.010) | (0.010) | (0.008) | (0.008) |
| Small Firm × Post 2013 | 0.009 | 0.054*** | −0.007 | 0.007 | 0.016 | −0.005 | −0.008 |
| | (0.010) | (0.015) | (0.019) | (0.015) | (0.015) | (0.012) | (0.012) |
| Observations | 27.143 | 29.336 | 13.726 | 26.653 | 29.785 | 26.909 | 27.093 |
| *N* of Respondents | 18.180 | 19.203 | 10.517 | 18.009 | 19.395 | 18.101 | 18.124 |
| | **Panel B: Age 18–35 only** | | | | | | |
| Small Firm (1–249 Emps) | 0.001 | −0.111*** | −0.013 | −0.077*** | −0.040** | 0.001 | −0.005 |
| | (0.011) | (0.019) | (0.025) | (0.017) | (0.018) | (0.015) | (0.015) |
| Post 2013 | 0.002 | −0.027 | 0.047** | −0.007 | 0.002 | −0.001 | −0.028** |
| | (0.009) | (0.016) | (0.020) | (0.016) | (0.018) | (0.014) | (0.013) |
| Small Firm × Post 2013 | 0.013 | 0.069*** | −0.034 | 0.024 | 0.034 | −0.032* | 0.016 |
| | (0.014) | (0.024) | (0.032) | (0.021) | (0.025) | (0.019) | (0.018) |
| Observations | 11.289 | 12.121 | 5022 | 11.131 | 12.301 | 11.210 | 11.257 |
| *N* of respondents | 7914 | 8372 | 4015 | 7849 | 8452 | 7885 | 7879 |
| | **Panel C: Non-Caucasian respondents only** | | | | | | |
| Small Firm (1–249 Emps) | 0.019 | −0.086*** | −0.005 | −0.052** | −0.060*** | 0.011 | 0.049** |
| | (0.014) | (0.022) | (0.028) | (0.021) | (0.019) | (0.019) | (0.020) |
| Post 2013 | 0.008 | −0.018 | 0.014 | −0.028* | 0.022 | −0.023* | −0.009 |
| | (0.010) | (0.015) | (0.018) | (0.016) | (0.017) | (0.013) | (0.013) |
| Small Firm × Post 2013 | −0.013 | 0.029 | −0.044 | 0.019 | 0.034 | 0.001 | −0.025 |
| | (0.017) | (0.028) | (0.037) | (0.027) | (0.029) | (0.023) | (0.025) |
| Observations | 8247 | 8887 | 4144 | 8070 | 9064 | 8165 | 8214 |
| *N* of respondents | 5516 | 5795 | 3195 | 5451 | 5874 | 5481 | 5482 |

*Note*: Data: Medical Expenditure Panel Survey 2011–2017 for working adults age 18–55, unless noted otherwise. Standard errors, clustered at the respondent level, in parentheses. All specifications include individual controls for age, age squared, education, marital status, race, and income, along with census region, occupation, and industry fixed effects.

***$p < 0.01$.

**$p < 0.05$.

*$p < 0.1$.

unusual to find immediate health improvements after obtaining health insurance (Baicker et al., 2013; Courtemanche et al., 2017; Sommers, Gawande, et al., 2017).

In Panel B of Table 6, because I find larger increases in insurance coverage rates among younger MEPS respondents, I limit my sample to those aged 18–35. There, I find a 6.9 percentage point increase in the proportion of respondents who report having a usual place for medical care. This provides support for the idea that gains in insurance coverage are the reason for the increase in the proportion of respondents who report having a usual place for medical care. On other measures, however, I again find little evidence to suggest that insurance leads to changes in health status or access to care. The exception is that there does appear to be a significant reduction in depressive symptoms for these workers.

In Panel C of Table 6, I present estimates where I limit my sample only to non-Caucasian workers. I do so because, when looking at the heterogeneity of effects by subgroups of my sample, I find smaller effects on health insurance coverage among non-Caucasians. Correspondingly, I do not find an increase in the proportion of workers at small firms who have a usual place for medical care nor do I find any other statistically significant changes in health status.[32]

## 5 | CONCLUSION

Several studies consider how the ACA's Medicaid expansion provisions, individual mandate, and healthcare exchanges affect coverage rates, health status, and access to health care. Comparatively little is known, however, about the effect of the ACA's employer mandate and SHOP marketplace provisions. At first glance, these provisions should lead to an increase in the availability of ESI along with a greater proportion of workers being covered by ESI. However, as I explain in earlier sections, the cost of providing compliant coverage for employers, the characteristics of those who are not offered ESI prior to the ACA, and expanded Medicaid eligibility ensure that the ACA's effect on the proportion of workers covered by ESI is theoretically ambiguous.

To study whether the ACA's ESI provisions mattered, I examine changes in ESI availability and health insurance coverage rates among workers at smaller firms after 2013. I focus on workers at smaller firms because they are significantly more likely to be affected by the ACA's ESI provisions. In 2011, for example, 97.1% of full-time workers at large firms in my data were offered ESI compared to only 56.1% of full-time workers at smaller firms (see Table 1). Using 2011–2017 MEPS data in a difference-in-difference framework, I find a 9.6 percentage point increase in "any" health insurance coverage for workers at small firms, relative to comparable workers at larger firms. Looking at ESI specifically, I find a 3.5 percentage point increase in ESI availability among workers at smaller firms overall and a 5.2 percentage point increase in ESI availability among those most affected by the employer mandate (those working at firms with 50 to 249 employees). Event studies showing no differential pretrends support a causal interpretation for my estimates. Further, when I explicitly account for delays in the employer mandate's implementation, which affected only those workers at firms with 50 or more employees, I find a 7.1 percentage point increase in ESI availability. A 7.1 percentage point change amounts to a 53% reduction in the proportion of workers not offered ESI at these size firms.[33] My findings therefore suggest that the ACA's provisions had large effects on ESI availability among workers at small firms.

[32]Note that I present further estimates looking at changes in health status and access to care by gender, race, and age as appendix items.

[33]My calculation here comes from the fact that 13.5% of workers at firms with 50 to 249 workers are not offered ESI; $7.1/13.5 \times 100/1 = 53\%$.

What is striking is that these relatively large increases in ESI availability do not lead to observable increases in the proportion of workers at small firms who have ESI after 2013. Instead, descriptive estimates suggest that increases in Medicaid coverage and other private insurance coverage (such as coverage obtained via a spouse/partner or from the ACA's health insurance exchanges) explain most of the absolute increase in health insurance coverage. For example, my estimates suggest that Medicaid coverage increases by 4.7 percentage points after 2013 among those offered ESI by their employer. While my setting does not allow me to infer causation, these estimates suggest that Medicaid coverage could be crowding-out ESI among working adults. Leaving aside the source of increased insurance coverage, I find workers are more likely to report having a usual place that they obtain medical care but little evidence that increased coverage rates led to improvements in health status.

Overall, my findings are in line with literature in this area that typically finds that the ACA led to increases in insurance coverage among American adults with limited impacts on health status. My work contributes by studying two previously-ignored components of the ACA, the employer mandate and the act's SHOP marketplaces. I find that these components had large effects on ESI availability but little effect on the proportion of workers covered by ESI because, at least to an extent, they appear to be crowded-out by other ACA provisions, with expanded Medicaid eligibility likely to be having a substantial effect.

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## APPENDIX

### A.1 | Additional event studies

In Figure 1, in the text, I focus on examining whether there are any pretrends for the outcomes that show a statistically significant effect for workers at small firms relative to workers at large firms after 2013. In Figure A1, for completeness, I present the event studies for the other four outcomes of interest.

### A.2 | Estimates including part-time workers

My main estimates exclude those who work fewer than 30 hours per week because the employer mandate does not require firms to offer ESI to part-time workers. On the other hand, the employer mandate does not apply to firms with fewer than 50 FTEs and the ACA's other provisions apply regardless of firm size or hours worked. For that reason, I return part-time workers to my sample in the estimates in Table A1. Overall, my sample size only increases by around 14% when I include part time workers in the estimation sample. It is therefore unsurprising that the estimates in Table A1 follow a very similar pattern to my main estimates.

### A.3 | Balance tests

Because the decision to work full-time at a small or large firm could have been affected by the ACA's provisions, it is plausible that restricting the sample to full-time employees could result in cohorts in each cross-section that were different between pre- and post-ACA periods and/or between small and large firms. To address this concern, I examine changes in demographic characteristics of workers by full time status and at small versus large firms after 2013 in Table A2. In Panel A of the table, the estimating Equation 1 use to produce the estimates is

$$Y_{it} = \alpha + \rho \times Full - Time_{\mathrm{it}} + \gamma \times Post_{\mathrm{it}} + \delta \times Full - Time_{\mathrm{it}} \times Post_{\mathrm{it}} + \mathrm{X}_{\mathrm{it}}\beta + \epsilon_{\mathrm{it}}. \quad (A.1)$$

In the estimating equation, the differences relative to the estimating equation in Section 3 of the paper are (1) that the outcomes of interest, $Y_{it}$, are now the demographic characteristics of the respondents and (2) $Full\text{-}Time_{it}$ is a variable that equals to one only when a respondent $i$

reports working more than 30 hours per week at time *t*. In all specifications, I include individual demographic controls along with income, census region, occupation, and industry fixed effects. However, I exclude the control for the variable of interest when studying that variable. That is, when studying differences in marital status among full time and part time workers after 2013, I cannot also control for marital status.

Looking at the estimates in Panel A, in the post 2013 period I find that there is an increasing number of white workers and workers with greater educational attainment overall. The other estimates are not statistically different from zero. Looking at differences by full-time status across the sample period, older workers and males are more likely to be employed full-time. Of course, what we are mainly interested in is changes in the composition of the sample *among* full time workers *after* the ACA comes into effect. The coefficients on the interaction term suggest statistically significant declines in the probability of white workers and married workers being employed full time. This highlights the importance of controlling for demographic characteristics in my estimates.

In Panel B of the table, the estimating Equation 1 use to produce my estimates is

$$Y_{it} = \alpha + \rho \times FirmSize_{it} + \gamma \times Post_{it} + \delta \times FirmSize_{it} \times Post_{it} + X_{it}\beta + \epsilon_{it}. \quad (A.2)$$

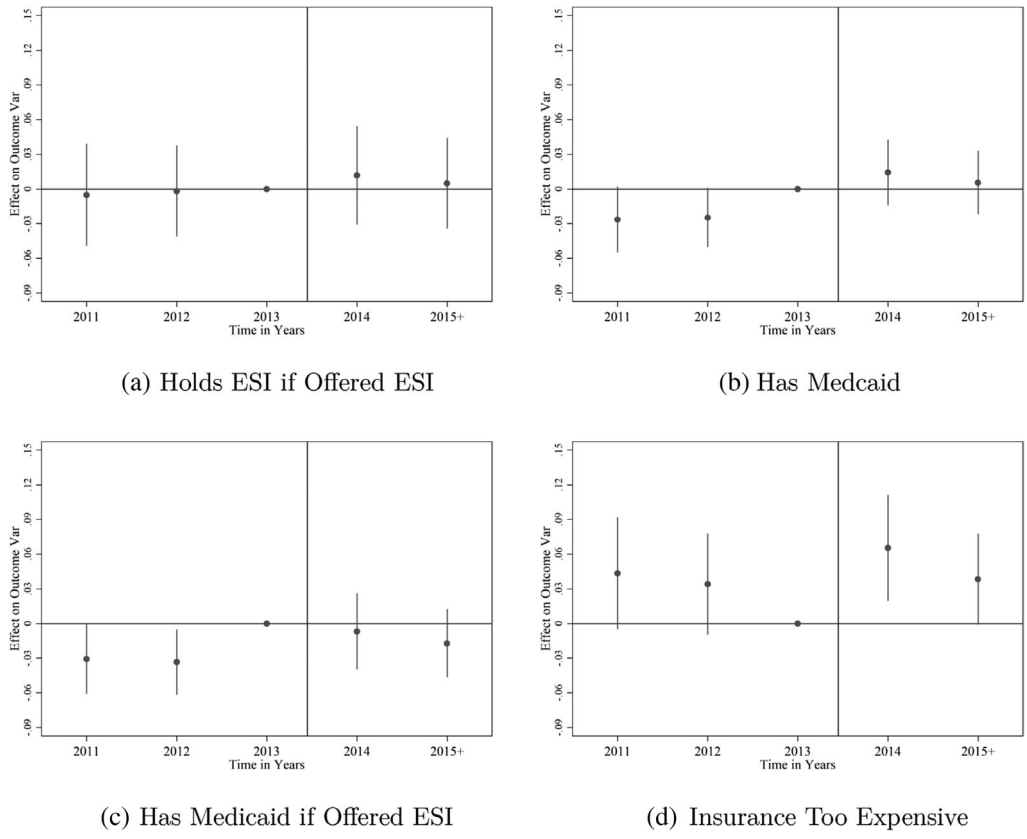
In the above estimating equation, the only difference relative to the estimating equation in Section 3 of the main text is that the outcomes of interest, $Y_{it}$, refer now to the demographic characteristics of the respondents. When looking at changes in the demographic characteristic balance across small and large firms *after* 2013, I again find just under a 1 year increase in the age of workers at smaller firms, statistically significant at the 1% level. Again, because I control for age and age squared in all regression estimates, it is unlikely that a relatively small increase in age could be driving my findings.

Given that there are only three statistically significant changes (and only at the 10% level in one case) in the balance of demographic characteristics, and that I control for demographic characteristics in all my estimates, I see these estimates as generally easing concerns that there were problematic changes in the composition of workers after 2013 either by full-time status or across firm sizes.

### A.4 | Using delayed employer mandate implementation date

As I note in the text, the employer mandate was delayed to 2015 for all firms in July of 2013 and then to 2016 for those firms with 50 to 100 FTEs in February of 2014. Because the delays were announced relatively close to the original implementation date, it is not clear how they affect employers' decisions regarding ESI. Moreover, the delay in the employer mandate did not affect other components of the ACA, such as Medicaid expansion and the individual mandate. For that reason, my main estimates use 2014 as the ACA's implementation date.

I provide estimates of how the ACA affected insurance coverage among workers, however, using the delayed date in Table A3. In these estimates, the Post ACA indicator term equals one for the years after 2013 for workers at firms with fewer than 50 employees, the years after 2014 for workers at firms with 100 to 250 employees, and equals one after 2015 for workers at firms with between 50 and 100 employees. Because the delay did not affect firms with fewer than 50 FTEs, I focus only on the estimates where I divide respondents at smaller firms into those working where there are greater or fewer than 50 employees.




(a) Holds ESI if Offered ESI

(b) Has Medcaid

(c) Has Medicaid if Offered ESI

(d) Insurance Too Expensive

**FIGURE A1** Additional event studies. Each plot represents an event study where the sample is restricted to 2011–2017 MEPS respondents age 18–55. The year prior to ACA implementation is the omitted category. The dependent variable is noted below the related figure. Bars represent 95% confidence intervals. See Section 3 for more details on these event study specifications

I find the estimates from such an exercise are broadly similar to my main estimates (that use 2014 as the implementation date). At the same time, it is worth noting that the effect on the proportion of workers at firms with 50 to 249 workers offered ESI after 2013 increases to 7.1 percentage points. Given 13.1% of workers at these kinds of firms are not offered ESI, a 7.1 percentage point increase represents a 54% decline in the proportion of workers not offered ESI due to the ACA's employer mandate. In the text, I include the key coefficients of interest from this exercise in Table 3. Note, I do not interpret the effect on Medicaid outcomes here because the delay in the employer mandate did not delay the individual mandate or Medicaid expansion.

### A.5 | Alternate age sample selection

Because the ACA can have a significant impact on retirement decisions (Ayyagari, 2019), I exclude those over the age of 55 from my main estimates. In Table A4, I present estimates where I return these individuals to my sample. The estimates are a little less precise in some cases but broadly similar in magnitude and direction.

**TABLE A1** ACA's effects including part-time workers

| | (1) Any insurance | (2) Offered ESI | (3) Holds ESI | (4) Holds ESI if offered ESI | (5) Medicaid | (6) Has Medicaid if offered ESI | (7) Other private Ins. | (8) Insurance too expensive |
|---|---|---|---|---|---|---|---|---|
| | **Panel A: Workers at small firms versus large firms** | | | | | | | |
| Small firm | −0.210*** | −0.356*** | −0.319*** | −0.081*** | 0.029*** | 0.006 | 0.067*** | 0.023** |
| | (0.011) | (0.010) | (0.011) | (0.012) | (0.008) | (0.008) | (0.007) | (0.011) |
| After 2013 | 0.023*** | 0.000 | −0.074*** | −0.077*** | 0.060*** | 0.053*** | 0.054*** | −0.006 |
| | (0.006) | (0.006) | (0.009) | (0.008) | (0.006) | (0.006) | (0.005) | (0.009) |
| Small firm × after | 0.094*** | 0.027** | 0.058*** | 0.014 | 0.017 | −0.000 | 0.020** | 0.015 |
| | (0.012) | (0.012) | (0.013) | (0.016) | (0.011) | (0.011) | (0.009) | (0.014) |
| | **Panel B: Defining small firms as two distinct groups** | | | | | | | |
| 50–249 employees | −0.093*** | −0.117*** | −0.148*** | −0.070*** | 0.017 | 0.006 | 0.035*** | −0.002 |
| | (0.018) | (0.016) | (0.018) | (0.018) | (0.012) | (0.012) | (0.011) | (0.017) |
| 1–49 employees | −0.254*** | −0.453*** | −0.387*** | −0.088*** | 0.035*** | 0.006 | 0.081*** | 0.032*** |
| | (0.012) | (0.011) | (0.012) | (0.014) | (0.009) | (0.010) | (0.008) | (0.012) |
| Post 2013 | 0.023*** | 0.001 | −0.074*** | −0.077*** | 0.060*** | 0.053*** | 0.054*** | −0.006 |
| | (0.006) | (0.006) | (0.009) | (0.008) | (0.006) | (0.006) | (0.005) | (0.009) |
| Post 2013 × 50–249 employees | 0.053** | 0.041** | 0.060** | 0.027 | −0.010 | −0.004 | −0.001 | 0.036 |
| | (0.022) | (0.020) | (0.024) | (0.024) | (0.016) | (0.016) | (0.015) | (0.023) |
| Post 2013 × 1–49 employees | 0.107*** | 0.029** | 0.062*** | 0.007 | 0.023** | 0.002 | 0.025** | 0.009 |
| | (0.014) | (0.013) | (0.013) | (0.019) | (0.012) | (0.014) | (0.010) | (0.015) |
| Observations | 33.961 | 33.961 | 33.957 | 25.797 | 33.961 | 25.801 | 33.961 | 30.576 |
| *N* of respondents | 22.336* | 22.336 | 22.334 | 16.996 | 22.336 | 16.998 | 22.336 | 20.767 |

*Note*: Data: Medical Expenditure Panel Survey 2011–2017 for working MEPS respondents age 18–55, including those working fewer than 30 h per week. Standard errors, clustered at the respondent level, in parentheses. All specifications include individual controls for age, age squared, education, marital status, race, and income, along with census region, occupation, and industry fixed effects.

***$p < 0.01$.

**$p < 0.05$.

*$p < 0.1$.

In Tables A5 and A6, I present estimates where I stratify the sample into workers age 18–35 and workers age 36–55. Those estimates show that increases in ESI availability are concentrated among younger workers, including an 8 percentage point increase in ESI availability among workers at firms with 50 to 249 workers. Note that I include the key

**TABLE A2** Balance tests

| | (1) Age | (2) White | (3) Education | (4) Marital Status | (5) Male |
|---|---|---|---|---|---|
| **Panel A: Balance tests by full time status** | | | | | |
| Post 2013 | −0.147 | 0.0380* | 0.0593** | 0.00741 | −0.0266 |
| | (0.470) | (0.0215) | (0.0299) | (0.0200) | (0.0189) |
| Full time | 2.155*** | 0.0230 | −0.0183 | 0.0142 | 0.0694*** |
| | (0.385) | (0.0186) | (0.0248) | (0.0175) | (0.0161) |
| Post 2013 × Full Time | 0.582 | −0.0391* | −0.0318 | −0.0456** | 0.0280 |
| | (0.496) | (0.0230) | (0.0318) | (0.0215) | (0.0203) |
| Observations | 33.961 | 33.961 | 33.961 | 33.961 | 33.961 |
| **Panel B: Balance tests by firm size** | | | | | |
| Post 2013 | −0.0258 | 0.00377 | 0.0209 | −0.0293*** | −0.00427 |
| | (0.218) | (0.0114) | (0.0149) | (0.0108) | (0.0105) |
| Small Firm (1–249 Emps) | −0.719*** | 0.155*** | −0.116*** | 0.00690 | 0.0186 |
| | (0.269) | (0.0133) | (0.0183) | (0.0137) | (0.0127) |
| Post 2013 × Small Firm | 0.954*** | −0.00944 | 0.0137 | −0.0172 | 0.0112 |
| | (0.324) | (0.0159) | (0.0223) | (0.0164) | (0.0151) |
| Observations | 29.751 | 29.751 | 29.751 | 29.751 | 29.751 |

*Note*: Data: Medical Expenditure Panel Survey 2011–2017 for employed respondents age 18–55 (including those working fewer than 30 h per week in Panel A). Standard errors, clustered at the respondent level, in parentheses. All specifications include individual demographic controls (except for the variable of interest) along with income, census region, occupation, and industry fixed effects.

***$p < 0.01$.

**$p < 0.05$.

*$p < 0.1$.

coefficients of interest from this exercise in Table 3 and further discuss what they can tell us in the main text.

### A.6 | Expanding estimation sample to 2006

I limit my main estimates to the years 2011–2017 because it allows me to avoid the period most affected by the Great Recession and allows me to begin my sample after the ACA's dependent coverage mandate goes into effect.

The estimates in Table A7, however, show that my findings are very similar when I add MEPS data from 2006 to 2010 to my estimation sample. Note, I include the key coefficients of interest from this exercise in Table 3.

**TABLE A3** ACA's effects on health insurance coverage rates using delayed employer mandate dates

| | (1) Any insurance | (2) Offered ESI | (3) Holds ESI | (4) Holds ESI if Offered ESI | (5) Medicaid | (6) Has Medicaid if offered ESI | (7) Other Pprivate Ins. | (8) Insurance too expensive |
|---|---|---|---|---|---|---|---|---|
| 50–249 employees | −0.081*** | −0.118*** | −0.154*** | −0.069*** | 0.030*** | 0.013 | 0.042*** | 0.012 |
| | (0.016) | (0.014) | (0.016) | (0.015) | (0.011) | (0.010) | (0.009) | (0.016) |
| 1–49 employees | −0.277*** | −0.440*** | −0.394*** | −0.065*** | 0.028*** | 0.000 | 0.073*** | 0.038*** |
| | (0.013) | (0.012) | (0.013) | (0.014) | (0.009) | (0.010) | (0.008) | (0.013) |
| Post ACA | 0.014** | −0.004 | −0.078*** | −0.077*** | 0.055*** | 0.047*** | 0.052*** | −0.001 |
| | (0.006) | (0.005) | (0.008) | (0.008) | (0.006) | (0.006) | (0.005) | (0.010) |
| Post ACA × 50–249 employees | 0.050** | 0.071*** | 0.060** | 0.003 | −0.025 | −0.002 | 0.017 | 0.029 |
| | (0.022) | (0.021) | (0.027) | (0.025) | (0.017) | (0.017) | (0.017) | (0.025) |
| Post ACA × 1–49 employees | 0.109*** | 0.037*** | 0.067*** | 0.007 | 0.021* | 0.007 | 0.025** | 0.009 |
| | (0.015) | (0.014) | (0.015) | (0.019) | (0.012) | (0.013) | (0.010) | (0.016) |
| Observations | 29.785 | 29.785 | 29.781 | 23.743 | 29.785 | 23.747 | 29.785 | 26.787 |
| *N* of respondents | 19.395 | 19.395 | 19.393 | 15.459 | 19.395 | 15.461 | 19.395 | 18.053 |

*Note*: Data: Medical Expenditure Panel Survey 2011–2017 for respondents age 18–55 working more than 30 h per week. Standard errors, clustered at the respondent level, in parentheses. All specifications include individual controls for age, age squared, education, marital status, race, and income, along with census region, occupation, and industry fixed effects. Note that "Post ACA" refers to the period after 2013 for workers at firms with fewer than 50 employees, after 2014 for workers at firms with 100 to 250 employees, and after 2015 for workers at firms with between 50 and 100 employees.

***$p < 0.01$.

**$p < 0.05$.

*$p < 0.1$.

**TABLE A4** ACA's effects on health insurance coverage rates among workers age 18–65

| | (1) Any Insurance | (2) Offered ESI | (3) Holds ESI | (4) Holds ESI if Offered ESI | (5) Medicaid | (6) Has Medicaid if Offered ESI | (7) Other private Ins. | (8) Insurance too expensive |
|---|---|---|---|---|---|---|---|---|
| **Panel A: Workers at small firms versus large firms** | | | | | | | | |
| Small firm (1–249 Emps) | −0.218*** | −0.324*** | −0.308*** | −0.060*** | 0.022*** | 0.001 | 0.058*** | 0.032*** |
| | (0.010) | (0.010) | (0.011) | (0.011) | (0.007) | (0.007) | (0.006) | (0.011) |
| Post 2013 | 0.015*** | −0.002 | −0.074*** | −0.076*** | 0.049*** | 0.041*** | 0.052*** | 0.003 |
| | (0.005) | (0.005) | (0.007) | (0.007) | (0.005) | (0.005) | (0.005) | (0.009) |
| Small firm × post 2013 | 0.098*** | 0.025** | 0.051*** | 0.007 | 0.022** | 0.009 | 0.029*** | 0.019 |
| | (0.012) | (0.012) | (0.013) | (0.014) | (0.009) | (0.010) | (0.009) | (0.014) |
| **Panel B: Defining small firms as two distinct groups** | | | | | | | | |
| 50–249 Employees | −0.089*** | −0.105*** | −0.134*** | −0.056*** | 0.013 | 0.004 | 0.033*** | 0.012 |
| | (0.016) | (0.014) | (0.017) | (0.016) | (0.010) | (0.009) | (0.009) | (0.017) |
| 1–49 Employees | −0.277*** | −0.431*** | −0.392*** | −0.063*** | 0.028*** | −0.001 | 0.072*** | 0.039*** |
| | (0.012) | (0.012) | (0.012) | (0.013) | (0.008) | (0.009) | (0.007) | (0.012) |
| Post 2013 | 0.014*** | −0.002 | −0.074*** | −0.076*** | 0.049*** | 0.041*** | 0.052*** | 0.003 |
| | (0.005) | (0.004) | (0.007) | (0.007) | (0.005) | (0.005) | (0.005) | (0.009) |
| 50–249 employees × post 2013 | 0.060*** | 0.048*** | 0.052** | 0.011 | −0.001 | 0.005 | 0.008 | 0.039* |
| | (0.020) | (0.018) | (0.023) | (0.021) | (0.015) | (0.014) | (0.014) | (0.023) |
| 1–49 employees × post 2013 | 0.115*** | 0.027** | 0.057*** | 0.004 | 0.028*** | 0.011 | 0.035*** | 0.012 |
| | (0.014) | (0.013) | (0.014) | (0.017) | (0.011) | (0.012) | (0.010) | (0.015) |
| Observations | 34.982 | 34.982 | 34.978 | 28.332 | 34.982 | 28.336 | 34.982 | 31.448 |
| *N* of respondents | 22.491 | 22.491 | 22.489 | 18.182 | 22.491 | 18.184 | 22.491 | 20.951 |

*Note*: Data: Medical Expenditure Panel Survey 2011–2017 for respondents age 18–65 working more than 30 h per week. Standard errors, clustered at the respondent level, in parentheses. All specifications include individual controls for age, age squared, education, marital status, race, and income, along with census region, occupation, and industry fixed effects.
***$p < 0.01$.
**$p < 0.05$.
*$p < 0.1$.

## A.7 | Alternate employer mandate small firm subgroup cutoffs

The employer mandate applies to those firms with 50 FTEs or more. MEPS respondents, however, only report the "number of employees" at their work location. For that reason, there is definitely mismeasurement in the 50 worker cutoff I use to divide small firms into two distinct groups. Note that the measurement error regarding "number of employees" and FTEs is likely biased in one direction only. For example, a firm with 50 full-time (40 hours per week) and 50 part-time workers (20 hours per week) would have 100 employees but only 75 FTEs.

I provide estimates using larger (but not smaller) cutoffs because of the unidirectional bias. The estimates in Table A8 show that using a 75 worker or 100 worker cut off does little to change the magnitude of my estimates. Note that beyond 100 employees, a firm would have to

**TABLE A5** ACA's effects on health insurance coverage rates among workers age 18–35

| | (1) Any insurance | (2) Offered ESI | (3) Holds ESI | (4) Holds ESI if Offered ESI | (5) Medicaid | (6) Has Medicaid if offered ESI | (7) Other Private Ins. | (8) Insurance too expensive |
|---|---|---|---|---|---|---|---|---|
| | **Panel A: Workers at small firms versus large firms** | | | | | | | |
| Small Firm (1–249 Emps) | −0.211*** | −0.361*** | −0.300*** | −0.060*** | 0.024* | 0.003 | 0.044*** | 0.047** |
| | (0.018) | (0.016) | (0.018) | (0.019) | (0.014) | (0.015) | (0.011) | (0.018) |
| Post 2013 | 0.036*** | 0.003 | −0.086*** | −0.089*** | 0.087*** | 0.079*** | 0.051*** | −0.024 |
| | (0.011) | (0.008) | (0.014) | (0.013) | (0.011) | (0.011) | (0.009) | (0.015) |
| Small Firm × Post 2013 | 0.098*** | 0.053*** | 0.093*** | 0.038 | −0.002 | −0.011 | 0.010 | 0.025 |
| | (0.021) | (0.019) | (0.021) | (0.025) | (0.018) | (0.020) | (0.014) | (0.023) |
| | **Panel B: Defining small firms as two distinct groups** | | | | | | | |
| 50–249 Employees | −0.080*** | −0.146*** | −0.136*** | −0.033 | 0.029 | 0.009 | 0.027* | 0.010 |
| | (0.028) | (0.025) | (0.028) | (0.027) | (0.021) | (0.020) | (0.017) | (0.028) |
| 1–49 Employees | −0.261*** | −0.451*** | −0.367*** | −0.078*** | 0.025* | −0.000 | 0.052*** | 0.059*** |
| | (0.020) | (0.018) | (0.020) | (0.024) | (0.015) | (0.018) | (0.013) | (0.020) |
| Post 2013 | 0.036*** | 0.003 | −0.086*** | −0.089*** | 0.087*** | 0.079*** | 0.051*** | −0.024 |
| | (0.011) | (0.008) | (0.014) | (0.013) | (0.011) | (0.011) | (0.009) | (0.015) |
| 50–249 employees × post 2013 | 0.035 | 0.080** | 0.082** | 0.020 | −0.050* | −0.029 | −0.005 | 0.080** |
| | (0.037) | (0.032) | (0.037) | (0.037) | (0.028) | (0.028) | (0.024) | (0.037) |
| 1–49 employees × post 2013 | 0.118*** | 0.049** | 0.099*** | 0.049 | 0.011 | −0.000 | 0.014 | 0.009 |
| | (0.023) | (0.021) | (0.022) | (0.031) | (0.019) | (0.024) | (0.016) | (0.025) |
| Observations | 12.304 | 12.304 | 12.301 | 9426 | 12.304 | 9429 | 12.304 | 11.173 |
| *N* of Respondents | 8454 | 8454 | 8453 | 6459 | 8454 | 6460 | 8454 | 7862 |

*Note*: Data: Medical Expenditure Panel Survey 2011–2017 for workers age 18–35, working 30 h or more per week. Standard errors, clustered at the respondent level, in parentheses. All specifications include individual controls for age, age squared, education, marital status, race, and income, along with census region, occupation, and industry fixed effects.

***$p < 0.01$.

**$p < 0.05$.

*$p < 0.1$.

have workers work an average of fewer than 20 hours per week to avoid having to comply with the employer mandate.

## A.8 | Estimates using alternate small/large firm size definitions

In this appendix section, I show that my estimates are robust to defining small firms differently. In particular, Table A9 presents estimates where I first define small firms as those with 199 or fewer workers (Panel A) and 299 or fewer workers (Panel B). In both panels, the estimates are similar in magnitude and statistical significance to those in Table 2. In the text, I include the key variables of interest from this exercise in Table 3. Beyond those cutoffs, the observed effects

**TABLE A6** ACA's effects on health insurance coverage rates among workers age 36–55

| | (1) Any Insurance | (2) Offered ESI | (3) Holds ESI | (4) Holds ESI if offered ESI | (5) Medicaid | (6) Has Medicaid if Offered ESI | (7) Other private Ins. | (8) Insurance too expensive |
|---|---|---|---|---|---|---|---|---|
| **Panel A: Workers at small firms versus large firms** | | | | | | | | |
| Small firm (1–249 Emps) | −0.233*** | −0.325*** | −0.329*** | −0.065*** | 0.020** | −0.001 | 0.072*** | 0.016 |
| | (0.014) | (0.014) | (0.016) | (0.014) | (0.010) | (0.009) | (0.009) | (0.015) |
| Post 2013 | 0.000 | −0.009 | −0.072*** | −0.068*** | 0.035*** | 0.028*** | 0.051*** | 0.015 |
| | (0.007) | (0.006) | (0.010) | (0.009) | (0.007) | (0.007) | (0.006) | (0.012) |
| Small firm × post 2013 | 0.094*** | 0.022 | 0.043** | −0.004 | 0.022* | 0.010 | 0.028** | 0.011 |
| | (0.017) | (0.017) | (0.018) | (0.020) | (0.013) | (0.012) | (0.012) | (0.020) |
| **Panel B: Defining small firms as two distinct groups** | | | | | | | | |
| 50–249 Employees | −0.116*** | −0.106*** | −0.159*** | −0.079*** | 0.004 | −0.002 | 0.038*** | −0.001 |
| | (0.025) | (0.022) | (0.025) | (0.023) | (0.014) | (0.011) | (0.013) | (0.024) |
| 1–49 Employees | −0.288*** | −0.431*** | −0.412*** | −0.055*** | 0.028** | −0.000 | 0.089*** | 0.024 |
| | (0.017) | (0.016) | (0.017) | (0.017) | (0.011) | (0.011) | (0.010) | (0.017) |
| Post 2013 | 0.000 | −0.009 | −0.072*** | −0.068*** | 0.035*** | 0.028*** | 0.051*** | 0.015 |
| | (0.007) | (0.006) | (0.010) | (0.009) | (0.007) | (0.007) | (0.006) | (0.012) |
| 50–249 employees × post 2013 | 0.082*** | 0.035 | 0.055* | 0.026 | 0.017 | 0.013 | 0.007 | 0.013 |
| | (0.030) | (0.027) | (0.033) | (0.031) | (0.019) | (0.017) | (0.020) | (0.032) |
| 1–49 employees × post 2013 | 0.102*** | 0.026 | 0.046** | −0.024 | 0.024 | 0.008 | 0.033** | 0.010 |
| | (0.019) | (0.019) | (0.019) | (0.024) | (0.015) | (0.015) | (0.014) | (0.022) |
| Observations | 17.481 | 17.481 | 17.481 | 17.481 | 17.481 | 17.481 | 17.481 | 17.481 |
| *N* of Respondents | 11.278 | 11.278 | 11.277 | 9256 | 11.278 | 9257 | 11.278 | 10.478 |

*Note*: Data: Medical Expenditure Panel Survey 2011–2017 for workers age 36–55, working 30 h or more per week. Standard errors, clustered at the respondent level, in parentheses. All specifications include individual controls for age, age squared, education, marital status, race, and income, along with census region, occupation, and industry fixed effects.

***$p < 0.01$.

**$p < 0.05$.

*$p < 0.1$.

become significantly attenuated as we might expect. That is, if I define small firms as those having, for example, up to 400 workers, then the group as a whole is much more likely to have ESI available prior to the ACA's passage, limiting my ability to detect any treatment effect. If I define small firms as only being those with fewer than 100 or 150 workers, then (1) I lose many observations from my "treatment" group and (2) my "control" group contains many workers who do not have ESI available.

In Table A10, I report estimates where I reintroduce respondents who work where there are fewer than 100 workers but the firm has more than one location. For such firms, it is not clear whether they ought to be considered as a small firm or a large firm, which is why I exclude them from my main estimates. To show that my estimates do not depend on how I treat these respondents, I assign them first to be part of the "large" firm group (Panel A of Table A10) and

**TABLE A7** ACA's effects on health insurance coverage among workers using 2006 to 2017 data

| | (1) Any Insurance | (2) Offered ESI | (3) Holds ESI | (4) Holds ESI if Offered ESI | (5) Medicaid | (6) Has Medicaid if Offered ESI | (7) Other Private Ins. | (8) Insurance too expensive |
|---|---|---|---|---|---|---|---|---|
| **Panel A: Workers at small firms versus large firms** | | | | | | | | |
| Small Firm (1–249 Emps) | −0.205*** | −0.327*** | −0.308*** | −0.060*** | 0.027*** | −0.001 | 0.060*** | 0.028*** |
| | (0.007) | (0.007) | (0.008) | (0.007) | (0.006) | (0.005) | (0.005) | (0.008) |
| Post 2013 | 0.003 | −0.008** | −0.094*** | −0.090*** | 0.056*** | 0.047*** | 0.056*** | 0.008 |
| | (0.005) | (0.004) | (0.007) | (0.006) | (0.005) | (0.005) | (0.004) | (0.008) |
| Small Firm × Post 2013 | 0.081*** | 0.026** | 0.060*** | 0.010 | 0.012 | 0.005 | 0.017** | 0.014 |
| | (0.011) | (0.011) | (0.012) | (0.013) | (0.009) | (0.009) | (0.008) | (0.012) |
| **Panel B: Defining small firms as two distinct groups** | | | | | | | | |
| 50–249 Employees | −0.073*** | −0.112*** | −0.139*** | −0.055*** | 0.020** | 0.000 | 0.036*** | 0.016 |
| | (0.012) | (0.011) | (0.012) | (0.011) | (0.008) | (0.007) | (0.007) | (0.012) |
| 1–49 Employees | −0.257*** | −0.415*** | −0.376*** | −0.063*** | 0.030*** | −0.001 | 0.070*** | 0.032*** |
| | (0.009) | (0.009) | (0.009) | (0.009) | (0.007) | (0.006) | (0.005) | (0.009) |
| Post 2013 | 0.003 | −0.008* | −0.094*** | −0.090*** | 0.056*** | 0.047*** | 0.056*** | 0.008 |
| | (0.005) | (0.004) | (0.007) | (0.006) | (0.005) | (0.005) | (0.004) | (0.008) |
| 50–249 employees × post 2013 | 0.037** | 0.045*** | 0.053** | 0.011 | −0.012 | 0.003 | 0.001 | 0.022 |
| | (0.018) | (0.017) | (0.021) | (0.020) | (0.014) | (0.013) | (0.013) | (0.020) |
| 1–49 employees × post 2013 | 0.094*** | 0.020* | 0.061*** | 0.010 | 0.018* | 0.007 | 0.021** | 0.011 |
| | (0.012) | (0.012) | (0.012) | (0.016) | (0.011) | (0.011) | (0.009) | (0.014) |
| Observations | 51.134 | 51.134 | 51.130 | 40.963 | 51.134 | 40.967 | 51.134 | 46.428 |
| *N* of respondents | 32.177 | 32.177 | 32.175 | 25.701 | 32.177 | 25.703 | 32.177 | 30.208 |

*Note*: Data: Medical Expenditure Panel Survey 2006–2017 for respondents age 18–55 working 30 h or more per week. Standard errors, clustered at the respondent level, in parentheses. All specifications include individual controls for age, age squared, education, marital status, race, and income, along with census region, occupation, and industry fixed effects.

***$p < 0.01$.

**$p < 0.05$.

*$p < 0.1$.

then "small" firms (Panel B). Again, I include the key variables of interest from this exercise in Table 3. Broadly speaking, I find the same pattern as my main estimates, with large increases in the proportion who have insurance coverage that consists of a mild increase in the proportion of workers at small firms offered ESI, an increase in the proportion who hold ESI relative to those at large firms (where there is a marked decline), and an increase in the proportion who are covered by Medicaid even when ESI is also available at via respondent's job.

## A.9 | Additional summary statistics and event studies

In Table A11, I report 2013 "No ESI" rates along with average firm size by industry. I use these 2013 "No ESI" rates by industry as an alternate source of pre-ACA variation in insurance

**TABLE A8** ACA's effects on health insurance coverage using alternate firm size cutoffs

| | (1) Any Insurance | (2) Offered ESI | (3) Holds ESI | (4) Holds ESI if Offered ESI | (5) Medicaid | (6) Has Medicaid if Offered ESI | (7) Other Private Ins. | (8) Insurance Too Expensive |
|---|---|---|---|---|---|---|---|---|
| | **Panel A: cutoff at 75** | | | | | | | |
| Post 2013 | 0.014** | −0.004 | −0.078*** | −0.077*** | 0.055*** | 0.047*** | 0.052*** | −0.001 |
| | (0.006) | (0.005) | (0.008) | (0.008) | (0.006) | (0.006) | (0.005) | (0.010) |
| 75 to 249 employees× Post 2013 | 0.050 | 0.040 | 0.030 | −0.011 | −0.009 | 0.006 | 0.027 | 0.036 |
| | (0.031) | (0.027) | (0.033) | (0.029) | (0.020) | (0.019) | (0.020) | (0.031) |
| 1–74 employees × post 2013 | 0.104*** | 0.037*** | 0.068*** | 0.017 | 0.018 | 0.004 | 0.020** | 0.012 |
| | (0.014) | (0.013) | (0.014) | (0.018) | (0.011) | (0.012) | (0.010) | (0.016) |
| | **Panel B: Cutoff at 100** | | | | | | | |
| Post 2013 | 0.014** | −0.004 | −0.078*** | −0.077*** | 0.055*** | 0.047*** | 0.052*** | −0.001 |
| | (0.006) | (0.005) | (0.008) | (0.008) | (0.006) | (0.006) | (0.005) | (0.010) |
| 100 to 249 Employees × Post 2013 | 0.060* | 0.045 | 0.039 | −0.003 | −0.009 | 0.002 | 0.028 | 0.028 |
| | (0.032) | (0.029) | (0.035) | (0.030) | (0.022) | (0.020) | (0.020) | (0.033) |
| 1–99 employees × post 2013 | 0.103*** | 0.039*** | 0.069*** | 0.015 | 0.017 | 0.005 | 0.019** | 0.014 |
| | (0.014) | (0.013) | (0.014) | (0.018) | (0.011) | (0.012) | (0.010) | (0.016) |
| Observations | 29.785 | 29.785 | 29.781 | 23.743 | 29.785 | 23.747 | 29.785 | 26.787 |
| *N* of respondents | 19.395 | 19.395 | 19.393 | 15.459 | 19.395 | 15.461 | 19.395 | 18.053 |

*Note*: Data: Medical Expenditure Panel Survey 2011–2017 for respondents age 18–55 working 30 h or more per week. Standard errors, clustered at the respondent level, in parentheses. All specifications include individual controls for age, age squared, education, marital status, race, and income, along with census region, occupation, and industry fixed effects.

***$p < 0.01$.

**$p < 0.05$.

*$p < 0.1$.

coverage to study the effect of the ACA on coverage for workers. I present those estimates in Section 4 of the main text.

In Table 6 in the main text, I examine whether there are any improvements in short-term health outcomes that are coincident with the observed increases in health insurance coverage for workers at smaller firms. I provide summary statistics for those outcomes in Table A12. While I find limited effects on health status and access to care, I present event studies for my various health outcomes and access to care measures in Figure A2.

## A.10 | Additional health effects

In Table A13, for completeness, I report effects on health outcomes for males, females, white workers, non-White workers, younger workers, and older workers. Again, I find mostly null effects, except for the proportion of workers at smaller firms who have a usual place for care.

**TABLE A9** ACA's effects on health insurance coverage rates among workers at smaller firms using alternate firm size cutoffs

| | (1) Any insurance | (2) Offered ESI | (3) Holds ESI | (4) Holds ESI if offered ESI | (5) Medicaid | (6) Has Medicaid if offered ESI | (7) Other private Ins. | (8) Insurance too expensive |
|---|---|---|---|---|---|---|---|---|
| | **Panel A: Small firm = fewer than 200 workers** | | | | | | | |
| Small Firm (1–199 Emp.) | −0.231*** | −0.356*** | −0.336*** | −0.074*** | 0.028*** | 0.005 | 0.067*** | 0.029** |
| | (0.012) | (0.011) | (0.012) | (0.013) | (0.008) | (0.008) | (0.007) | (0.012) |
| Post 2013 | 0.018*** | 0.002 | −0.073*** | −0.078*** | 0.056*** | 0.048*** | 0.052*** | 0.000 |
| | (0.006) | (0.005) | (0.008) | (0.007) | (0.006) | (0.006) | (0.005) | (0.009) |
| Small firm × post 2013 | 0.095*** | 0.028** | 0.059*** | 0.013 | 0.014 | 0.001 | 0.023** | 0.014 |
| | (0.014) | (0.013) | (0.014) | (0.017) | (0.011) | (0.011) | (0.009) | (0.015) |
| | **Panel B: Small firm = fewer than 300 workers** | | | | | | | |
| Small Firm (1–299 Emp.) | −0.219*** | −0.333*** | −0.312*** | −0.062*** | 0.025*** | 0.004 | 0.060*** | 0.024** |
| | (0.011) | (0.011) | (0.012) | (0.012) | (0.008) | (0.008) | (0.007) | (0.012) |
| Post 2013 | 0.014** | −0.004 | −0.077*** | −0.077*** | 0.056*** | 0.048*** | 0.052*** | −0.003 |
| | (0.006) | (0.005) | (0.008) | (0.008) | (0.006) | (0.006) | (0.005) | (0.010) |
| Small firm × post 2013 | 0.094*** | 0.034*** | 0.059*** | 0.008 | 0.013 | 0.002 | 0.021** | 0.019 |
| | (0.013) | (0.013) | (0.014) | (0.016) | (0.010) | (0.011) | (0.009) | (0.015) |
| Observations | 29.785 | 29.785 | 29.781 | 23.743 | 29.785 | 23.747 | 29.785 | 26.787 |
| *N* of Respondents | 19.395 | 19.395 | 19.393 | 15.459 | 19.395 | 15.461 | 19.395 | 18.053* |

*Note*: Data: Medical Expenditure Panel Survey 2011–2017 for respondents age 18–55 working 30 h or more per week. Standard errors, clustered at the respondent level, in parentheses. All specifications include individual controls for age, age squared, education, marital status, race, and income, along with census region, occupation, and industry fixed effects.

***$p < 0.01$.

**$p < 0.05$.

*$p < 0.1$.

## A.11 | MEPS data and sample construction—Further information

MEPS is a rotating panel, where respondents are interviewed five times in a two-year period. Many key variables, however, are reported only as annual figures and therefore are only collected at interview three, at the end of the first year, and then again at interview five, the final interview. Each year, a new wave joins the survey meaning that one set of respondents in each calendar year is in their first year in MEPS and another group is in their second year. AHRQ describes, in detail, their Medical Expenditure Panel Survey design and data collection procedures in documentation that they provide with each year's data file.[34] Given the survey's name, it is not surprising that the survey's main goal is to estimate annual medical expenditures for U.S. residents. Taking the 2008 survey documentation as a representative example, AHRQ explains (page c-98) that the "MEPS Household Component (HC) collects data in each round on use and expenditures for office- and hospital-based care, home health care, dental services, vision aids, and prescribed medicines." In addition, MEPS has a Medical Provider Component (MPC), which is a follow-

[34]See https://meps.ahrq.gov/mepsweb/data_stats/download_data_files.jsp.

**TABLE A10** ACA's effects on health insurance coverage adding respondents where firm size is ambiguous

| | (1) Any insurance | (2) Offered ESI | (3) Holds ESI | (4) Holds ESI if Offered ESI | (5) Medicaid | (6) Has Medicaid if offered ESI | (7) Other private Ins. | (8) Insurance too expensive |
|---|---|---|---|---|---|---|---|---|
| | **Panel A: Assign respondents who work where <100 workers & >1 location as large** | | | | | | | |
| Small firm | −0.184*** | −0.287*** | −0.237*** | −0.027** | 0.003 | −0.010 | 0.038*** | 0.012 |
| | (0.011) | (0.010) | (0.010) | (0.011) | (0.007) | (0.008) | (0.006) | (0.010) |
| Post 2013 | 0.039*** | 0.015*** | −0.068*** | −0.087*** | 0.065*** | 0.057*** | 0.060*** | −0.002 |
| | (0.005) | (0.005) | (0.007) | (0.006) | (0.005) | (0.005) | (0.004) | (0.007) |
| Small firm × post 2013 | 0.070*** | 0.014 | 0.050*** | 0.019 | 0.006 | −0.005 | 0.014 | 0.017 |
| | (0.013) | (0.013) | (0.013) | (0.015) | (0.010) | (0.010) | (0.009) | (0.013) |
| | **Panel B: Assign respondents who work where <100 workers & >1 location as small** | | | | | | | |
| Small firm | −0.131*** | −0.189*** | −0.191*** | −0.049*** | 0.018*** | 0.008 | 0.035*** | 0.023** |
| | (0.008) | (0.007) | (0.009) | (0.008) | (0.006) | (0.006) | (0.005) | (0.009) |
| Post 2013 | 0.012** | −0.007 | −0.082*** | −0.080*** | 0.057*** | 0.049*** | 0.052*** | −0.000 |
| | (0.006) | (0.005) | (0.008) | (0.008) | (0.006) | (0.006) | (0.005) | (0.010) |
| Small firm × post 2013 | 0.075*** | 0.048*** | 0.049*** | −0.004 | 0.014* | 0.011 | 0.015** | 0.004 |
| | (0.009) | (0.009) | (0.011) | (0.011) | (0.008) | (0.008) | (0.007) | (0.012) |
| Observations | 47.786 | 47.786 | 47.779 | 39.015 | 47.786 | 39.022 | 47.786 | 43.087 |
| *N* of Respondents | 30.794 | 30.794 | 30.789 | 25.284 | 30.794 | 25.289 | 30.794 | 28.765 |

*Note*: Data: Medical Expenditure Panel Survey 2011–2017 for respondents age 18–55 working 30 h or more per week. In Panel A, the group of respondents who work at Small Firms consists of all those who work where there are 1–249 employees while Large Firms consists of any who work for a firm with more than one location or more than 250 workers at the respondent's location. In Panel B, the group of respondents who work at Small Firms consists of all those who work where there are 1–249 employees and no more than one business location plus all those who work where there is more than one location but fewer than 100 employees at the respondent's location. Standard errors, clustered at the respondent level, in parentheses. All specifications include individual controls for age, age squared, education, marital status, race, and income, along with census region, occupation, and industry fixed effects.

***$p < 0.01$.

**$p < 0.05$.

*$p < 0.1$.

**TABLE A11** Summary statistics for "No ESI offered" rates by industry

| Industry | 2013 no ESI offered | Emp.'s at Respondent's work location | Respondent's employer >1 location | Proportion of sample |
|---|---|---|---|---|
| Natural resource | 73.0% | 72.5 | 42.6% | 1.4% |
| Mining | 4.5% | 134.9 | 84.1% | 0.5% |
| Construction | 52.1% | 45.3 | 32.6% | 5.4% |
| Manufacturing | 10.9% | 212.3 | 69.0% | 11.8% |
| Wholesale and retail trade | 19.9% | 107.7 | 79.7% | 13.5% |
| Transportation and Utilities | 19.8% | 166.9 | 73.2% | 5.4% |
| Information | 9.5% | 177.8 | 76.4% | 1.6% |
| Financial activities | 11.8% | 134.0 | 84.0% | 5.7% |
| Professional and business services | 29.2% | 114.3 | 65.9% | 10.2% |

TABLE A11 (Continued)

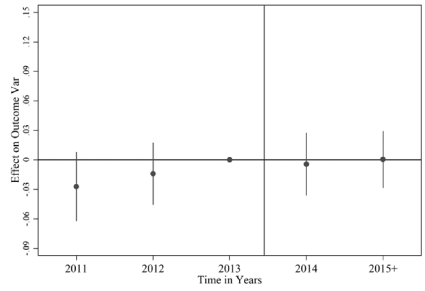
| Industry | 2013 no ESI offered | Emp.'s at Respondent's work location | Respondent's employer >1 location | Proportion of sample |
|---|---|---|---|---|
| Education, health, and social services | 12.6% | 179.0 | 68.5% | 23.7% |
| Leisure and hospitality | 52.7% | 70.0 | 64.9% | 10.1% |
| Other services | 53.2% | 37.7 | 37.7% | 4.2% |
| Public administration | 2.8% | 205.9 | 80.7% | 5.8% |
| Military | 0.0% | 316.2 | 95.7% | 0.5% |
| Total | 23.4% | 139.53 | 67.9% | 100.0% |

*Note*: Data: Medical Expenditure Panel Survey. No ESI rate refers only to the rate in 2013. Note that MEPS top-codes the number of employees at 500 for data privacy reasons.

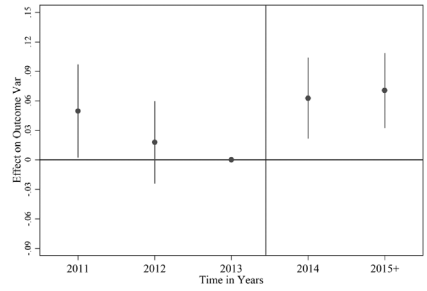
TABLE A12 Summary statistics for health outcomes

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|
| **Panel A: Workers at large firms** | | | | | | | |
| Self-reported health (good, very good, or excellent) | 93.0 | 93.2 | 92.7 | 93.5 | 92.5 | 93.6 | 95.5 |
| Has usual place for medical care | 72.7 | 72.7 | 74.4 | 71.8 | 70.0 | 70.1 | 71.4 |
| Easy to get appointment | 80.1 | 81.9 | 81.3 | 80.9 | 84.9 | 84.2 | 79.5 |
| Visit doctor in past year | 47.6 | 44.5 | 46.4 | 43.7 | 43.9 | 42.3 | 44.1 |
| Visited emergency room in past year | 13.4 | 12.6 | 14.5 | 14.3 | 14.0 | 12.2 | 12.8 |
| Depressive symptoms (past 2 Weeks) | 20.9 | 20.0 | 18.6 | 16.0 | 16.4 | 17.1 | 15.4 |
| Currently a Smoker | 14.6 | 15.4 | 14.0 | 12.7 | 12.6 | 11.4 | 12.2 |
| Observations | 2384 | 2584 | 2501 | 2509 | 2553 | 2782 | 2528 |
| **Panel B: Workers at small firms** | | | | | | | |
| Self-reported health (good, very good, or excellent) | 89.8 | 89.5 | 91.3 | 92.1 | 91.5 | 91.0 | 92.0 |
| Has usual place for medical care | 57.6 | 54.3 | 54.5 | 55.7 | 57.2 | 59.9 | 60.9 |
| Easy to get appointment | 78.3 | 78.2 | 79.2 | 80.3 | 80.0 | 78.8 | 76.9 |
| Visit doctor in past year | 35.6 | 30.6 | 29.9 | 27.9 | 30.8 | 31.8 | 35.2 |
| Visited emergency room in past year | 13.8 | 12.8 | 12.8 | 13.2 | 13.0 | 14.5 | 13.5 |
| Depressive symptoms (past 2 weeks) | 20.0 | 19.4 | 18.2 | 15.7 | 15.7 | 15.2 | 14.9 |
| Currently a Smoker | 20.3 | 20.5 | 17.8 | 16.7 | 18.4 | 15.6 | 16.4 |
| Observations | 1821 | 2097 | 1948 | 1876 | 1942 | 1962 | 1639 |

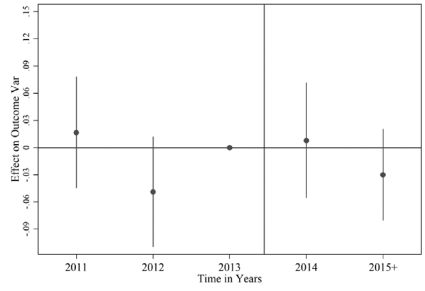
*Note*: Data: Medical Expenditure Panel Survey 2011–2017. Summary statistics are percentages. As in the main text, large firms are those with 250+ employees or 100+ employees and > 1 Location. Small firms are those with 1 to 249 employees and no more than one location.



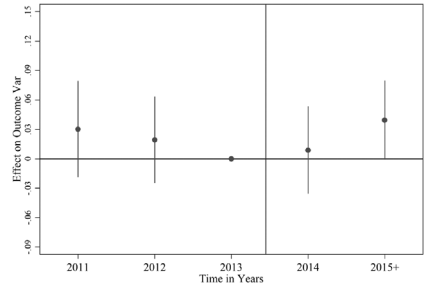

(a) Self-Reported Health



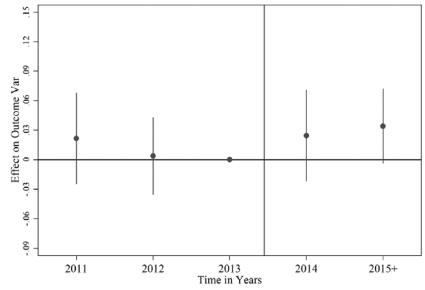

(b) Has Usual Place for Care



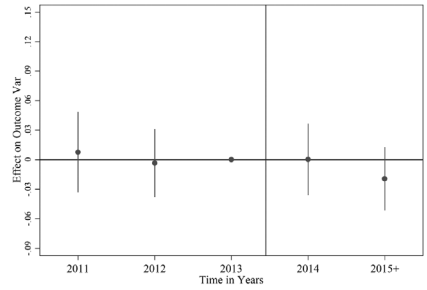

(c) Easy to Get Appt.



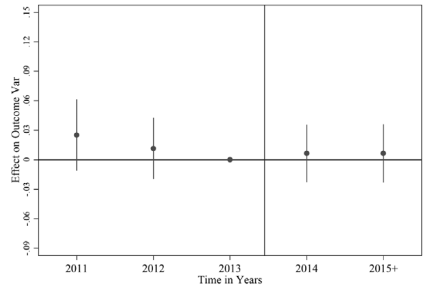

(d) Visited Dr. in Past Year




(e) Visited ER in Past Year




(f) Recent Depressive Symptoms




(g) Currently Smokes

**FIGURE A2** Event studies - health outcomes. Each plot represents an event study where the sample is restricted to 2011–2017 MEPS respondents age 18–55. The year prior to ACA implementation is the omitted category. The dependent variable is noted below the related figure. Bars represent 95% confidence intervals. See Section 3 for more details on these event study specifications

**TABLE A13** ACA's effects on health outcomes and access to care among workers

| | (1) Self-reported health | (2) Usual place for med. care | (3) Easy to access care | (4) Visit Dr. past year | (5) Visit ER past year | (6) Depressive symptoms past two weeks | (7) Current smoker |
|---|---|---|---|---|---|---|---|
| | **Panel A: Male respondents only** | | | | | | |
| Post 2013 | 0.002 | −0.021 | 0.004 | −0.008 | −0.004 | −0.022** | −0.017 |
| | (0.008) | (0.014) | (0.017) | (0.014) | (0.013) | (0.010) | (0.011) |
| Small Firm × Post 2013 | 0.012 | 0.059*** | 0.008 | 0.000 | 0.025 | −0.015 | −0.013 |
| | (0.013) | (0.021) | (0.030) | (0.018) | (0.017) | (0.015) | (0.017) |
| | **Panel B: Female respondents only** | | | | | | |
| Post 2013 | 0.005 | 0.002 | 0.022 | −0.014 | 0.038** | −0.034*** | −0.007 |
| | (0.010) | (0.014) | (0.014) | (0.016) | (0.016) | (0.013) | (0.011) |
| Small Firm × Post 2013 | 0.004 | 0.047** | −0.015 | 0.017 | 0.010 | 0.005 | −0.000 |
| | (0.016) | (0.023) | (0.025) | (0.024) | (0.025) | (0.020) | (0.017) |
| | **Panel C: White/Caucasian respondents only** | | | | | | |
| Post 2013 | | −0.004 | 0.017 | 0.003 | 0.010 | −0.031*** | −0.016* |
| | (0.008) | (0.013) | (0.014) | (0.014) | (0.012) | (0.011) | (0.009) |
| Small Firm × Post 2013 | 0.019 | 0.057*** | 0.005 | −0.005 | 0.013 | −0.008 | −0.002 |
| | (0.013) | (0.019) | (0.023) | (0.018) | (0.017) | (0.015) | (0.013) |
| | **Panel D: Non-Caucasian respondents only** | | | | | | |
| Post 2013 | 0.008 | −0.018 | 0.014 | −0.028* | 0.022 | −0.023* | −0.009 |
| | (0.010) | (0.015) | (0.018) | (0.016) | (0.017) | (0.013) | (0.013) |
| Small Firm × Post 2013 | −0.013 | 0.029 | −0.044 | 0.019 | 0.034 | 0.001 | −0.025 |
| | (0.017) | (0.028) | (0.037) | (0.027) | (0.029) | (0.023) | (0.025) |
| | **Panel E: Age 18–35 only respondents only** | | | | | | |
| Post 2013 | 0.002 | −0.027 | 0.047** | −0.007 | 0.002 | −0.001 | −0.028** |
| | (0.009) | (0.016) | (0.020) | (0.016) | (0.018) | (0.014) | (0.013) |
| Small Firm × Post 2013 | 0.013 | 0.069*** | −0.034 | 0.024 | 0.034 | −0.032* | 0.016 |
| | (0.014) | (0.024) | (0.032) | (0.021) | (0.025) | (0.019) | (0.018) |
| | **Panel F: Age 36–55 only respondents only** | | | | | | |
| Post 2013 | 0.004 | −0.003 | 0.001 | −0.014 | 0.023* | −0.042*** | −0.001 |
| | (0.009) | (0.012) | (0.013) | (0.014) | (0.012) | (0.011) | (0.010) |
| Small Firm × Post 2013 | 0.005 | 0.049** | 0.009 | −0.002 | 0.006 | 0.011 | −0.025 |
| | (0.014) | (0.020) | (0.024) | (0.020) | (0.018) | (0.016) | (0.016) |

*Note*: Data: Medical Expenditure Panel Survey 2011–2017 for working adults age 18–55, unless noted otherwise. Standard errors, clustered at the respondent level, in parentheses. All specifications include individual controls for age, age squared, education, marital status, race, and income, along with census region, occupation, and industry fixed effects.

***$p < 0.01$.

**$p < 0.05$.

*$p < 0.1$.

**TABLE B1** Construction of key variables

| Variable | Question wording (2008) | Notes |
|---|---|---|
| Insurance status (i.e., any insurance) | N/A | Logically imputed based upon answers to other questions regarding private and public health insurance coverage. |
| Offered and holds ESI status | "(Were/Was) (PERSON) offered health insurance through this job/business?" and "At any time since (START DATE)/between (START DATE) and (END DATE), did (PERSON) have health insurance through that job?" | The answer to whether the respondent was offered ESI is important because the ACA's employer mandate provisions are designed to increase availability of ESI but not necessarily take-up of ESI. MEPS also reports whether a respondent takes up that offer and checks on reasons for any lack of eligibility. Note that AHRQ logically edits the "Offer ESI" variable whenever someone holds ESI through their current main job but did not report being offered ESI at their main job. |
| Medicaid status | "At any time since (START DATE), has anyone in the family been covered by Medicaid?" and "Who is covered by Medicaid/STATE NAME FOR MEDICAID?" | MEPS uses the answers to these question to assign Medicaid Status to respondents. |
| Number of employees | "How many persons are employed by (EMPLOYER) in a usual week at the location (PERSON) (work/works)/worked?" | Top coded at 500. Those who answer "do not know" are asked "About how many persons are employed there?" and are then provided with a range such as "10 to 25" or "101 to 500" until they agree with an answer. AHRQ then imputes an exact number employees using an imputation procedure that takes into account job and location characteristics. |
| Other locations | "Does (EMPLOYER) have facilities in more than one location?" | Note that respondents are not asked about the number of employees at other locations. It is therefore not possible to determine the exact number of employees whenever a respondent reports more than one employer location. Because employers with fewer than 100 employees and more than one location are not clearly large or small, I eliminate them from my main estimation sample. Note that eliminating these respondents presents no problem for identification unless there are idiosyncratic shocks that are correlated with firm size and coverage decisions among such respondents. |

*Note*: MEPS Survey Documentation available at https://meps.ahrq.gov/mepsweb/survey_comp/survey_questionnaires.jsp. I use 2008 documentation, other years are similar.

back survey that collects data from a sample of medical providers and pharmacies that were used by MEPS respondents. AHRQ explains that "[e]xpenditure data collected in the MPC ⋯ were used to improve the overall quality of MEPS expenditure data." Specifically, "logical edits were applied to both the HC and MPC data to correct for several problems including, but not limited to, outliers, copayments or charges reported as total payments, and reimbursed amounts that were reported as out-of-pocket payments."

Aside from gathering medical expenditure information, AHRQ collects demographic, health status, healthcare access, education, and employment information for each respondent. In my analyses, health insurance status and firm size are key variables. I summarize how MEPS helps me to create these variables in Table B1.