EFFECTS OF THE MINIMUM WAGE ON THE NONPROFIT SECTOR

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ABSTRACT

The nonprofit sector's ability to absorb increases in labor costs differs from the private sector in a number of ways. We analyze how nonprofits are affected by changes in the minimum wage utilizing data from the Bureau of Labor Statistics and the Internal Revenue Service, linked to state minimum wages. We examine changes in reported employment and volunteering, as well as other financial statements such as revenues and expenses. The results from both datasets show a negative impact on employment for states with large statutory minimum wage increases. We observe some evidence for a reduction in the number of nonprofit establishments, fundraising expenses, and revenues from contributions.

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Abstract

The nonprofit sector's ability to absorb increases in labor costs differs from the private sector in a number of ways. We analyze how nonprofits are affected by changes in the minimum wage utilizing data from the Bureau of Labor Statistics and the Internal Revenue Service, linked to state minimum wages. We examine changes in reported employment and volunteering, as well as other financial statements such as revenues and expenses. The results from both datasets show a negative impact on employment for states with large statutory minimum wage increases. We observe some evidence for a reduction in the number of nonprofit establishments, fundraising expenses, and revenues from contributions.

1 Introduction

In the private sector, labor cost increases induced by the minimum wage are borne by some combination of owners, through lower profits; consumers, through higher prices; and workers, through reductions in other margins of compensation or adjustments to employment. Given its structure, the nonprofit sector has fewer margins through which these cost increases can be borne. By definition, nonprofits do not disburse profits that can be reduced. Many nonprofits do not sell an output whose price can be increased, while others, like hospitals, serve a mix of paying and non-paying customers. Further, nonprofit firms tend to be concentrated in more labor-intensive industries, such as human services and health care (Bureau of Labor Statistics, 2019), and are therefore potentially more sensitive to increases in labor costs.

We analyze the impact of minimum wage increases on the nonprofit sector, which makes up approximately 5% of GDP in the United States (McKeever, 2018) and 10% of total U.S. private sector employment (Bureau of Labor Statistics, U.S. Department of Labor, 2021). Anecdotal evidence suggests that nonprofits struggle to pay increased minimum wages (Segedin, 2015). Surveys following the Seattle minimum wage increases reveal a tension between a desire for higher worker pay and the realities of budgeting for many nonprofits.[1] Higher labor costs may also have indirect effects for charities – given donor distaste for overhead costs (Meer, 2014, 2017), donations may fall as charities direct more resources towards their wage bill.

We utilize data from the Internal Revenue Service (IRS) e-filers database from 2011 to 2017, which includes reported employment, volunteering, and other financial statements and newly-released data from the Bureau of Labor Statistics (BLS) on the nonprofit sector. Our primary empirical approach follows that in Clemens and Strain (2017, 2018b, 2020b), who differentiate between inflation-based changes and legislative increases of different sizes in a difference-in-differences framework.

Our results show a negative impact of state minimum wage changes on employment and the number of nonprofit establishments, driven by states with large statutory minimum wage increases. These effects tend to be concentrated among the smallest nonprofits as measured by number of employees. There is some evidence that nonprofits reduce fundraising expenditures and see lower revenues.

In section 2, we provide a brief review of the literature on the nonprofit sector employment and the effects of minimum wage changes. Section 3 presents background on 501(c)3 organizations and the data we utilize. We present our specification and results in section 4 and 5. We conclude in section 6.

2   Literature Review

The nature of nonprofits' objective function has been a source of contention in this literature. Steinberg (1986) characterizes the extreme views as "budget maximization," in which the charity attempts to maximize the resources under its control, and "service maximization," in which the resources spent on charitable activities are maximized. The former view is associated with Tullock (1971) and Niskanen (1971), while the latter was laid out in Weinberg (1980). Newhouse (1970) discussed nonprofit hospitals' objectives.[2]

The difference in objective functions can lead to wage differentials between the nonprofit

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[1]In that survey, an executive from a large local nonprofit stated, "I am 100% behind people making better wages, but it is a significant amount of money that I do not know how we are going to make up over a long period of time." (Segedin, 2015)

[2]Easley and O'Hara (1983), Duggan (2000), Duggan (2002), Preyra and Pink (2001), Leone and Van Horn (2005), and Lakdawalla and Philipson (2006), among others, explore the reasons for and behavior of nonprofit firms, particularly when there are for-profit counterparts in the same industry.

and for-profit sector (Hirsch et al., 2018). Under the "labor donation hypothesis," workers in the nonprofit sector accept lower wages as a donation to their employer (Preston, 1989; Handy and Katz, 1998; Narcy, 2011; Pennerstorfer and Trukeschitz, 2012; Jones, 2015; Cassar, 2019). Others suggest that nonprofits pay higher wages since they are not impacted by cost reduction incentives like for-profit firms and have higher incentives to employ better-quality workers and pay higher wages (Rutherford, 2015; Mocan and Tekin, 2003; Butler, 2009; Hirsch et al., 2018). Ruhm and Borkoski (2003) and Leete (2001) find no wage differentials, though the latter finds meaningful heterogeneity by industry.

While nonprofits employ large numbers of low-wage workers, there has been little research on how the minimum wage affects those organizations.[3] More recently, there has been greater focus on margins of labor adjustment other than employment levels, such as hours of work (Jardim et al., 2018; Clemens and Strain, 2020a), non-wage compensation (Kaestner and Simon, 2004; Long and Yang, 2016; Schumann, 2017; Clemens et al., 2018), the implicit effort contract and productivity (Obenauer and von der Nienburg, 1915; Ku, 2022), and other aspects of production function (Hirsch et al., 2015). Others analyze broader margins of adjustment, such as capital-labor substitution (Sorkin, 2015; Aaronson et al., 2018), labor-labor substitution (Luttmer, 2007; Horton, 2017; Clemens et al., 2021), profits (Bell and Machin, 2018), and prices (Harasztosi and Lindner, 2019). See a recent survey piece by Clemens (2021) for an in-depth discussion of these issues. Our data do not enable us to examine many of these margins, but expenditure data from the IRS, described in the next section, allow us to determine the effect on some of the operations of nonprofits.

3   Data

3.1   501(c)(3) Organizations

For an organization to be tax-exempt under section 501(c)(3) of the Internal Revenue Code, it must be organized and operated exclusively for exempt purposes and must not be operated for the benefit of private interests. In addition to being exempt from the corporate income tax, 501(c)(3) organizations benefit from the ability to solicit tax-deductible donations and exemption from sales and property taxes (Hirsch et al., 2018).

501(c)(3) organizations are referred to as nonprofit organizations and are classified as either private foundations and public charities. The main distinction between the two is that public charities have an active program of fundraising and receive contributions from many sources, usually from the general public or the government. Private foundations have a single

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[3]A recent exception is Balsam et al. (2022), written concurrently with this paper. They find negative effects on nonprofit employment growth and increased investment in technology, reflecting a substitution of capital for labor. On the other hand, the literature on the minimum wage in the for-profit sector is vast. See Neumark and Shirley (2021) for a recent review.

primary source of funding (like endowment and gifts from one family or corporation) rather than the general public. Most private foundations do not accept donations and usually invest their principal funding and make grants to other charitable organizations (Internal Revenue Service, 2021).

A tax-exempt organization that has $50,000 or more in gross receipts is required to file its information to the IRS annually using Form 990, by the 15th day of the 5th month after the end of the organization's fiscal year. We limit our analysis to 501(c)(3) public charities that submitted Form 990 or Form 990-EZ, with the latter being a simplified version of the form.[4]

3.2 The IRS E-Filer Database

The IRS has required large organizations with total assets of $10 million or more and approximately 245 employees or more to submit the Form 990 electronically since 2006 (Blackwood et al., 2013). Since 2010, all tax-exempt organizations have been permitted to submit their forms to the IRS electronically. The number of e-filers has been rising; Figure 1 shows the percent of 501(c)(3) establishments that reported their Form 990 electronically between 2011-2017, with the numerator coming from our data and the denominator as the total number of 501(c)(3) public charities (Urban Institute, 2017).[5]

We use a database of public charities organizations that submitted their forms electronically to IRS for fiscal years 2011-2017.[6] This is an unbalanced panel that potentially suffers from selection into e-filing, but nevertheless is the most comprehensive collection of data available; moreover, selection into e-filing would have to be systematically correlated with state minimum wage policies to bias our estimates. The data include Employer Identification Number (EIN), name, address, zip code, state, tax year, and total number of employees and volunteers as well as financial information such as total revenue, total expenses, net profit, and total assets.[7]

The IRS data sample covers 7 years and includes 357 state-year observations on a total of 1,701,308 establishment-years. Panel A of Table 1 reports summary statistics at the state-year level. The average number of establishments per state-year is about 4,700, employing

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[4]Not all organizations are covered by the Fair Labor Standards Act, which governs the federal minimum wage. Under "enterprise coverage," the law does not apply to organizations that have a relatively small amount of business sales and would appear to exclude many nonprofits. However, employees can also be covered individually if they are involved in interstate commerce, a concept so broad that it includes activities like using supplies manufactured in other states. As such, the vast majority of nonprofit employees are covered by minimum wage laws. See https://www.dol.gov/agencies/whd/fact-sheets/14-flsa-coverage for additional details.

[5]If an organization files an amended return, we keep the most recent data. In the case of duplicates, we kept the return with the largest reported financial variables.

[6]Data for 2018 became available for the IRS, but not the BLS data discussed below. To facilitate comparison, our primary specifications exclude 2018; Table A1 presents results including those data, which are qualitatively unchanged.

[7]The data contain some clear misreporting, primarily in the number of employees and volunteers. These are likely due to data entry errors. We winsorize observations at the 99.9th percentile before aggregating. There is little qualitative difference if winsorizing at the 99th or 99.5th percentile.

290,000 workers and 645,000 volunteers.[8] The table also presents aggregate values for revenues, expenses, assets, and gross receipts in 2017 dollars.

3.3 Bureau of Labor Statistics Nonprofit Data

The Bureau of Labor Statistics (BLS) recently released data on the nonprofit sector, including employment, total wage bill, and the number of establishments. These data were created by merging existing Quarterly Census of Employment and Wages (QCEW) data with the IRS Exempt Organization Business Master File to identify 501(c)(3) organizations (Friesenhahn, 2016).[9]

There are some differences between the IRS and the BLS datasets. The IRS database only includes 501(c)(3) public charities, while the BLS data contain 501(c)(3) entities, which they can be either public charities or private foundations. Moreover, since the BLS only includes organizations with an employee covered by unemployment insurance, it does not include nonprofits without paid workers – but it does collect information on organizations that did not e-file Form 990. The two datasets each have advantages and disadvantages.

The BLS data sample covers 7 years and includes 357 state-year observations, with an average of 5,496 nonprofit establishments per observation (Table 1 Panel B).

3.4 Minimum Wage Data

The debate on the appropriate empirical specification for measuring the effects of the minimum wage is as contentious as the rest of that literature (Neumark et al., 2014). In a series of papers beginning with Clemens and Strain (2017), those authors show that there nearly no legislatively-driven state-level minimum wage increases between 2011 and 2013, following the Great Recession. After that period, a number of states increased their minimum wages. This allows for a difference-in-differences comparison. Following Clemens and Strain (2018a, 2020b,c), we classify states into four groups based on their minimum wage policy by the end of 2017: (1) those states with no change in minimum wage, (2) those with changes in the minimum wage driven by inflation-indexation provisions (indexer), (3) those that have enacted a small statutory increase in the minimum wage (less than $2), (4) those that have enacted a large statutory increase in the minimum wage ($2 or more). We use the date of the first legislatively-driven change to designate the post-treatment period. The map in Figure 2 shows states' policies.

Figure 3 shows trends in the average minimum wage across the policy groups between

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[8]The IRS allows nonprofits to report an estimate of the number of volunteers, so these numbers should be interpreted cautiously. For example, the American Cancer Society reported 3,000,000 volunteers in 2011 and a remarkably precise 1,388,169 volunteers in 2017.

[9]For more details on the data and its creation, see `https://www.bls.gov/bdm/nonprofits/nonprofits.htm`

2011-2017.[10] Before 2014, there is no meaningful change in the minimum wage across the policy groups, but the trends deviate after 2014. There is a sharp change for states with a large statutory increase in the minimum wage and a smaller change for states enacting smaller statutory increases. There is a stable growth in the minimum wage trend in states that index their minimum wage to inflation. Following Clemens and Strain (2017), we exclude 2014 from the estimation, as it is a transition year for policy changes – many phased increases were begun or enacted in that year.[11] Figures 4 and 5 show nonprofit employment relative to 2011 across policy groups using the IRS and BLS data, respectively, for each of these groups.

4   Empirical Framework

We use a standard difference-in-differences specification, interacting the policy groups described above with an indicator for the year of the first change.

$$Outcome_{st} = \alpha_0 + [After_{st} \times MWGroup_s]\alpha_1 + X_{st} + State_s + Year_t + \epsilon_{st} \qquad (1)$$

The primary outcome of interest is (the log of) total employment. Other outcomes include the number of nonprofit organizations and volunteers, as well as a set of financial measures, described below. Variable $Outcome_{st}$ is the outcome in state s and year t. $State_s$ and $Year_t$ are state and year fixed effects, respectively. $After_{st} \times MWGroup_s$ is the interaction of state's policy group with an indicator for the time period after the first legislative policy change. α_1 is the coefficient of interest. It is an estimate of the causal effect of state minimum wage changes, under the identification assumption that nonprofit employment would have evolved similarly across the policy groups in the absence of the minimum wage changes. That is, the each policy group's outcome, relative to non-changers, after enacting its minimum wage policy would have been the same as it was prior to the policy change, relative to non-changers. If there are differences in outcomes after making this comparison, they are attributed to the minimum wage policy.

This assumption may not hold. If economic conditions evolve differently across policy groups, our estimates may be biased. We follow Clemens and Strain (2017) and examine the log of per capita income, from the Bureau of Economic Analysis, and the Federal Housing Finance Agency's housing price index as proxies for economic conditions. Figure 6 shows that states that enacted large minimum wage increases had higher income growth over 2015-2017 than states that did not change their minimum wages. Figure 7 shows that the recovery of the housing market after the Great Recession was strongest in states with large minimum wage increases, as well as states that indexed their minimum wages to inflation. To the extent that

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[10]Figures A1, A3, and A2 show the prevailing minimum wage in each state within a group.

[11]We also present results including 2014 in the pre-period; they are largely unchanged. See Table A2.

these measures proxy for overall economic conditions and lead to better employment outcomes, effects of minimum wage increases might be masked.[12] In this case, the estimate has a causal interpretation if states would have evolved similarly in the absence of treatment, conditional on their income and housing price index levels. In Section 5.6, we examine potential violations of the difference-in-differences assumptions more closely.

There has been extensive discussion of the problems that staggered treatment timing and dynamic treatment effects can cause in these types of specifications, especially in the context of the minimum wage (Meer and West, 2016; Callaway and Sant'Anna, 2020; Goodman-Bacon, 2021). Clemens and Strain (2021) show that their results on the impact of minimum wage changes are robust when using these new approaches.

But perhaps the simplest way to avoid issues of timing and dynamics is to examine long-run effects in the standard differences-in-differences model. We therefore also estimate versions of Equation (1) using the baseline period of 2011-2013 and the final year of the sample, 2017. This approach gives the effect of the minimum wage in 2017, by which point all states had phased in the policies that determine whether they are large changers, small changers, or indexers, albeit for different lengths of time.

5   Results

5.1   Employment

We begin with the IRS data in Table 2, reporting estimates from Equation (1). Column (1) shows the results without controls. States with large increases in the minimum wage have a statistically insignificant 3% decrease in employment relative to states without any minimum wage changes at all. The inclusion of time-varying proxies for economic conditions, in Column (2), changes the results. Large statutory changers have a statistically significant 7.1% (s.e. = 2.3%) decrease in employment relative to non-changers. But states with smaller minimum wage increases see little impact on employment, consonant with the results in Clemens and Strain (2021). States with inflation-indexed minimum wages also see a negative effect despite relatively small increases. However, Brummund and Strain (2020) argue that indexed increases have a substantially greater disemployment effect than similarly-sized nominal increases at the time of enactment. Nevertheless, we do not make too much of this finding, as the "indexer" group is small, its policy changes are early in the sample period, and, as seen below, the results do not replicate in the BLS sample.

Columns (3) and (4) use data from 2011-2013 and 2017. These results are the estimated

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[12]Clemens et al. (2018) also include controls for state-level expansions of the Affordable Care Act (ACA), which may have affected labor markets through changes in the provision of benefits to low-wage workers. We present results that include these controls, collected from the Kaiser Family Foundation, in Table A3; they are not meaningfully different.

effects of the minimum wage at the end of the sample, when many states had fully phased in increases that were enacted in 2014 or 2015. The estimates are somewhat larger. Without controls, large changers have a statistically insignificant 3.9% (s.e. = 2.8%) decline relative to non-changers, while indexers and small changers have no significant differences. Controlling for economic conditions, large changers have a 9.1% (s.e. = 3.0%) decline relative to non-changers. This finding suggests that increases in the minimum wage have larger effects over time, in line with the results in Meer and West (2016).

In Table 3, we report corresponding estimates using BLS data. When accounting for time-varying controls, states with large statutory increases see a 2.7% (s.e. = 1.1%) decrease in employment relative to states that did not increase their minimum wage. Small statutory increasers see a negative but imprecise effect, while there is no meaningful impact on indexers. Using data from 2011-2013 and 2017, the pattern replicates: large increasers have a 3.2% (s.e. = 1.6%) reduction in employment, while there are no effects for the other groups. These results give a strong indication that large statutory minimum wage increases reduce employment in the nonprofit sector.

5.2 Establishments

We also examine the impact of minimum wage changes on the number of establishments in Table 4. Recall that small nonprofits are less likely to e-file Form 990 and therefore less likely to be represented in the IRS data, while the BLS data will only include establishments with UI-covered employees. In estimates of Equation (1), the IRS data show little impact of small or large statutory increases on the number of establishments, though indexers show large decreases. The BLS data, on the other hand, show that states with large statutory increases have significant reductions in the number of establishment relative to non-changing states, with small and statistically insignificant negative impacts among small statutory increasers, and no differences for indexers. Dropping 2014-2016 to compare the baseline period to the endpoint shows a significant reduction in the number of establishments in states with large statutory increases relative to non-changing states in BLS data.

5.3 Volunteering

One margin of adjustment in the nonprofit sector that is not available to for-profits is substitution towards volunteers. Form 990 reports a charity's estimated number of volunteers, though, as discussed above, these figures are unreliable. Nevertheless, we report estimates of Equation (1) on the log number of volunteers in a state in Table 5. Perhaps unsurprisingly, no systematic pattern emerges, and all coefficients have large standard errors.

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5.4 Expenses and Revenues

In Table 6, we examine the effects of minimum wage increases on compensation costs. The IRS and BLS definitions of compensation differ. IRS Form 990 data includes salaries, benefits, and other compensation, while BLS compensation varies from state to state depending on unemployment insurance laws. Generally, BLS compensation covers a broad definition of wages, but excludes most benefits such as health insurance. When including time-varying controls, large statutory increasers see a reduction in the total wage bill relative to non-changers, particularly when comparing 2011-2013 to 2017. This suggests that the scale of employment reductions (including, perhaps, hours of work) more than offset wage increases induced by the minimum wage.

The IRS data include more detailed information on nonprofits' expenses and revenues. In Table 7, we examine the impacts of the minimum wage on program services, grants, fundraising expenses, and total expenses.[13] Large statutory increasers see negative effects on expenses across the board relative to non-changing states. There are reductions in fundraising expenses, which may play a role in the effects on contributions in Table 8. Here, we perform the same exercise for sources of revenue, again drawn from Form 990. These include contributions, program service revenue, investment income, other revenue, as well as total revenue.[14] Contributions fall significantly for large statutory changers relative to non-changers, potentially due to the effect of reduced solicitation (Andreoni and Rao, 2011; Meer and Rosen, 2011).

5.5 Effects by Charity Size and Type

We also examine the impact of the minimum wage on employment by the size of the establishment. We classify nonprofits by their size in their first appearance in the IRS data, keeping that categorization constant across years and binning to five groups, and aggregate employment to the state-year level. Figure 8 shows the distribution of establishment size. Table 9 shows these results, with and without time-varying controls. The smallest nonprofits, with three or fewer employees (including those that are entirely volunteer-run), are the most affected. Aggregate employment in this size bin is 25.0% (s.e. = 15.6%) lower in states with large statutory changes relative to non-changing states. Estimates for other size categories are negative but not statistically significant. We examine whether there is a greater prevalence of zero-employee nonprofits in the presence of higher minimum wages, but found no significant effects.

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[13]Program services are activities that further the organization's purpose; grants include those made to organizations, governments, and individuals; fundraising expenses are those incurred in soliciting contributions; and total expenses include these as well as compensation costs and other expenses. See `https://www.irs.gov/pub/irs-pdf/i990.pdf` for more details.

[14]Contributions include those from private individuals, foundations, and governments; program service revenue is earned from operations related to the organization's purpose; investment income includes the net gains from sales of assets; other revenue includes unrelated business income; and total revenue covers all of the organization's annual revenues. See `https://www.irs.gov/pub/irs-pdf/i990.pdf` for more details.

In Table 10, we classify nonprofits into ten broad purpose groups using the NTEE-CC system, once again aggregating employment to the state-year level. The effects of large statutory increases are largest for charities focusing on the environment and animal welfare and smallest for health and international charities.

5.6 Robustness

If states are evolving differently, then our estimates may not accurately reflect the causal impact of the minimum wage. Our time-varying proxies for economic conditions may be insufficient to account for these confounding factors. We present estimates including a control for the predicted level of employment. That is, we use data from 2011 to 2013 to estimate a counterfactual level of employment in each period for each state. We do this both for a policy-group-level growth rate and a state-level growth rate. If our estimates simply reflect pre-existing trends, then this counterfactual employment control would absorb all of the variation and the coefficient for minimum wage policy would be zero in this specification. The results, in Table A4, are very similar to those in Tables 2 and 3, suggesting that differential pre-trends are not major threat to our findings.

Several recent papers lay out other approaches. Bilinski and Hatfield (2019) suggest including group-level time trends and separate indicators for each post-treatment period. This also allows for differential pre-trends to be absorbed. We find negative and statistically significant effects for large changers relative to non-changers in these treatment periods of the sample that are consistent with those in Table A4. Mora and Reggio (2015) lay out a flexible model that allows for complex pre- and post-treatment dynamics and tests alternative assumptions about pre-treatment trends. We cannot reject the hypothesis of common pre-treatment dynamics, providing further evidence that our results are not driven by differential trends.

6   Discussion

We examine how the minimum wage affects the nonprofit sector using data from the IRS and BLS. The unusual lull in minimum wage policy making from 2011 to 2013 allows us to define a baseline period and compare different policies in a straightforward manner.

We find that large statutory increases in the minimum wage reduce nonprofit employment. Smaller statutory increases do not have strong effects, in line with the results in Clemens and Strain (2021) and ?, and providing more evidence that the effects on employment are non-linear with respect to the size of minimum wage increases. We find suggestive evidence that large increases reduce the number of nonprofit organizations, fundraising expenses, and revenues from contributions.

A direct comparison to Clemens and Strain (2021) is difficult, since they focus on young

adults and those with low levels of education. Our results tend to be similar or larger in magnitude to theirs for states with large statutory increases, depending on the data source, even though many nonprofit workers are unlikely to be bound by the minimum wage. This may indicate that nonprofits are more sensitive to increases in labor costs, perhaps because they tend to be in more labor-intensive industries and have fewer margins through which to adjust to these costs.

Figure 1: Percent of Public Charities Using E-Filing (2011-2017)
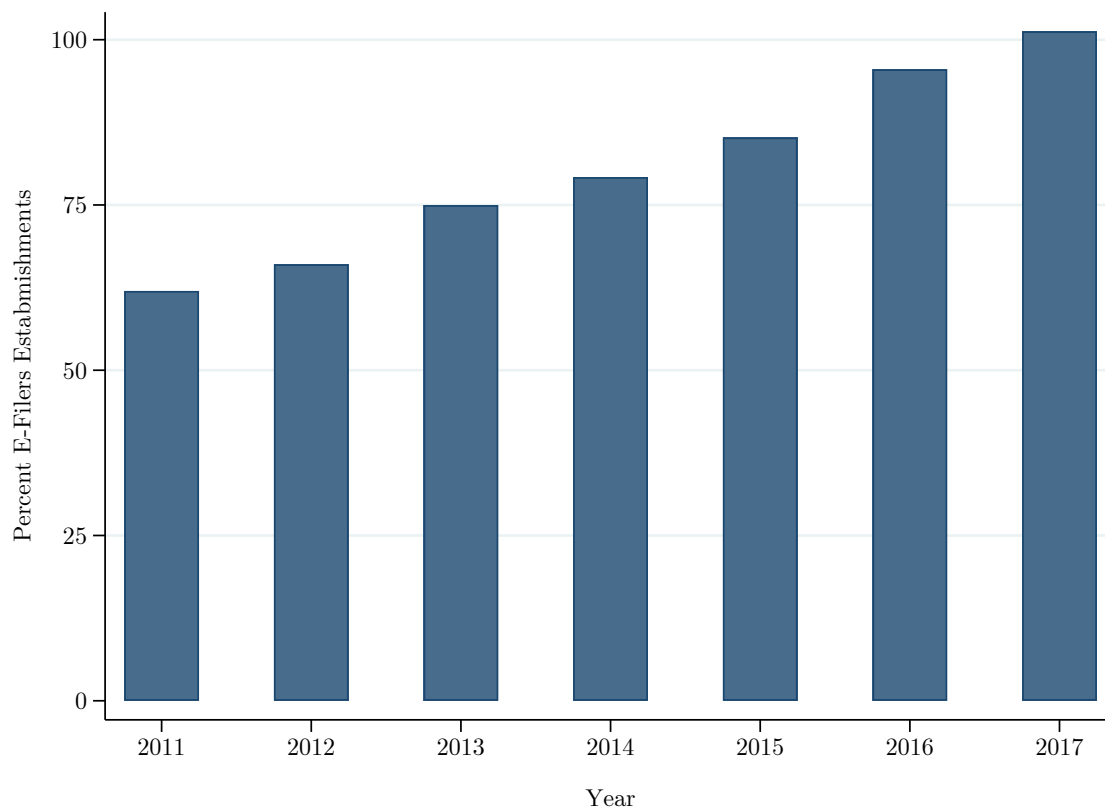
Notes: The numbers are calculated by authors using data from the IRS Forms 990 filed electronically by 501(c)(3) public charities, made available by the Urban Institute (2017).

Figure 2: Minimum Wage Policy by State (2011-2017)
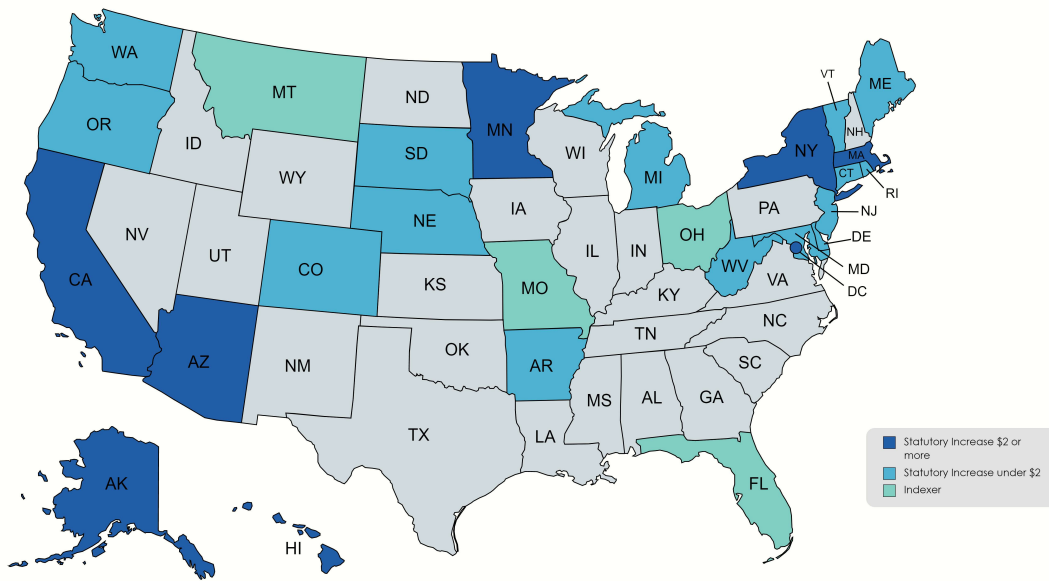
Notes: The map was created by authors with mapchart.net using information from Clemens and Strain (2018a, 2020b,c).

Figure 3: Average Minimum Wage by Policy Group (2011-2017)
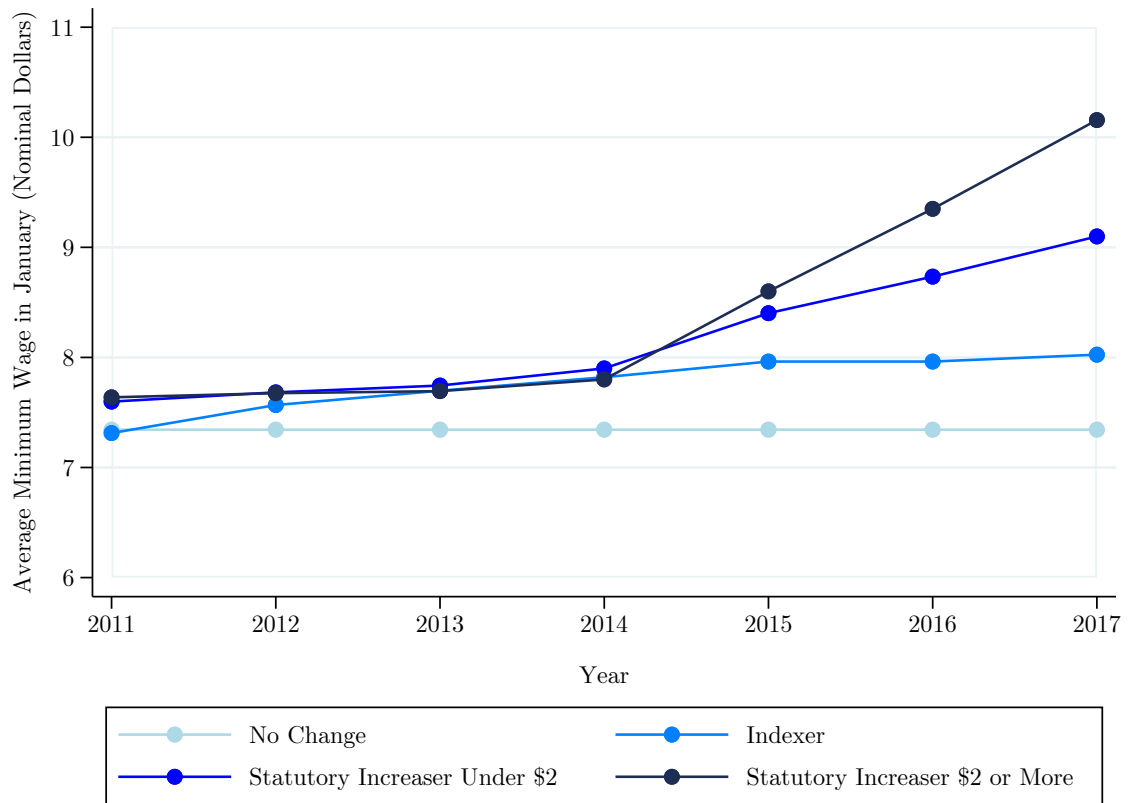
Notes: This figure shows the average minimum wage in nominal dollars for each policy group.

Figure 4: Nonprofit Employment by Policy Group (IRS Data)
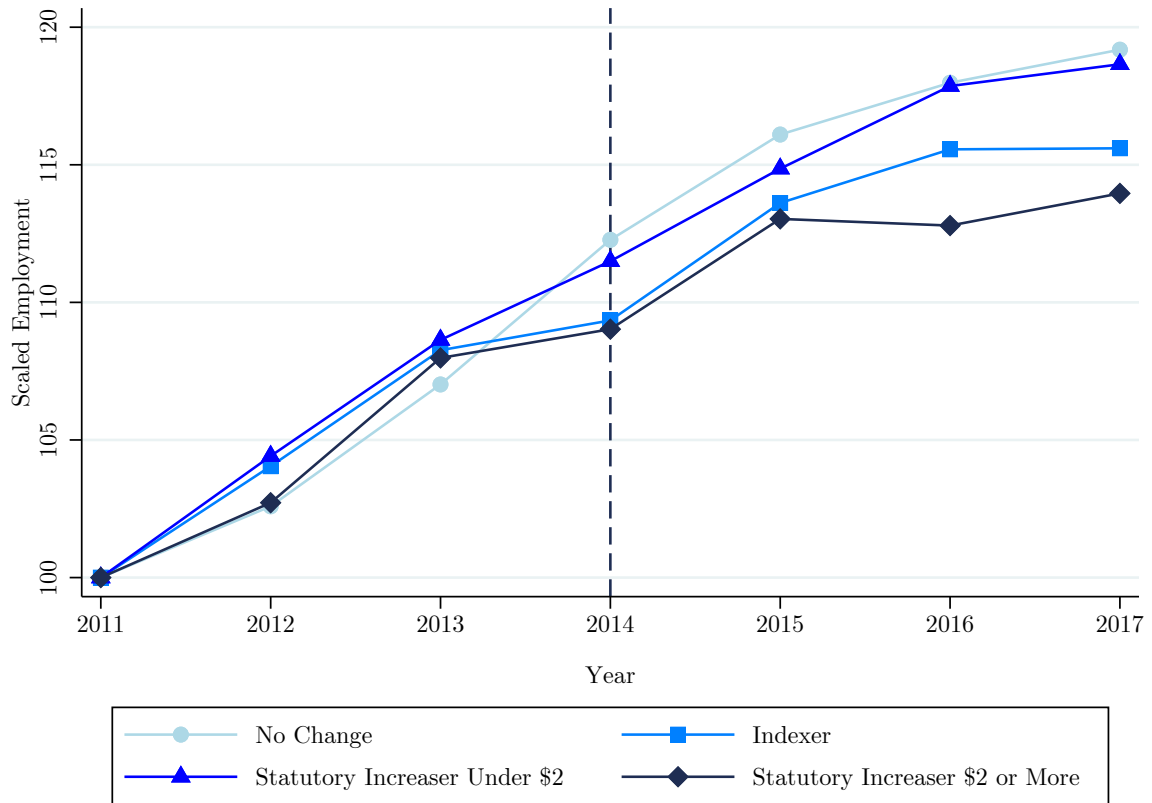
Note: This figure shows the evolution of employment by policy group using Internal Revenue Service data (2011-2017). Each state's employment data is scaled to 100 in 2011 and then averaged by policy group for each year.

Figure 5: Nonprofit Employment by Policy Group (BLS Data)
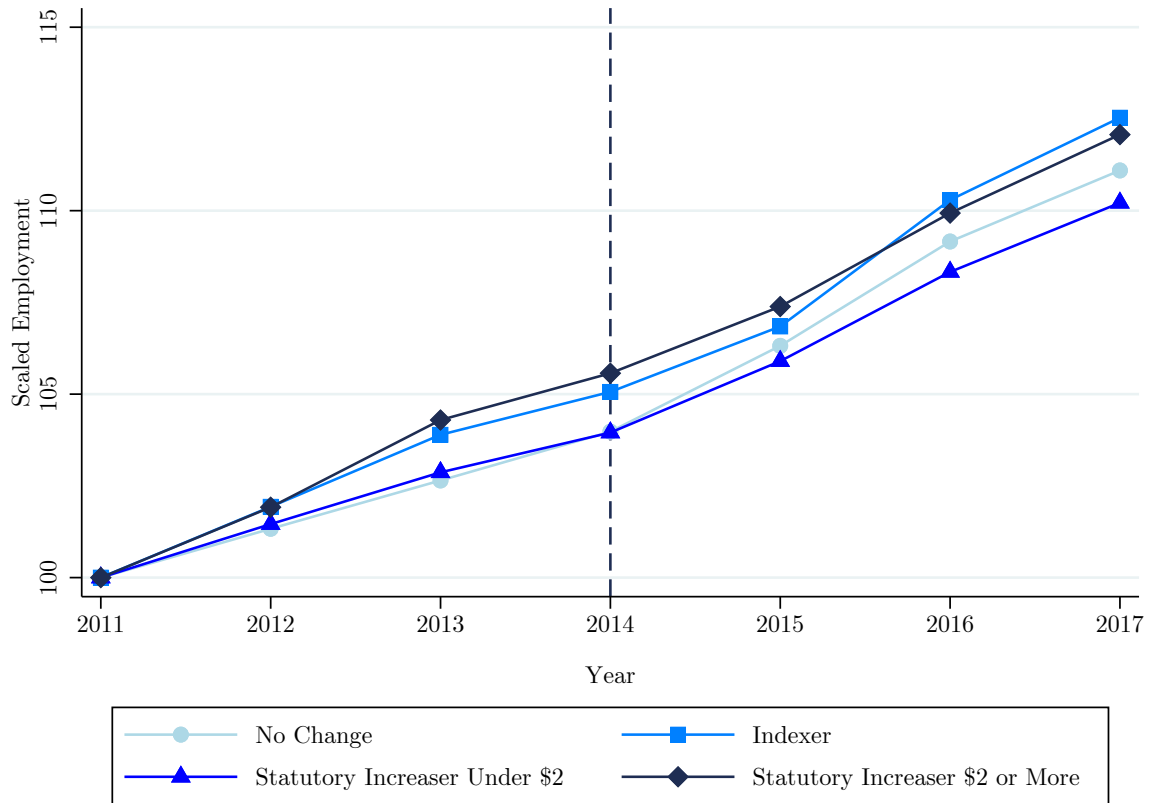
Note: This figure shows the evolution of employment by policy group using Bureau of Labor Statistics data (2011-2017). Each state's employment data is scaled to 100 in 2011 and then averaged by policy group for each year.

Figure 6: Average Per Capita Personal Income by Policy Group (2011-2017)
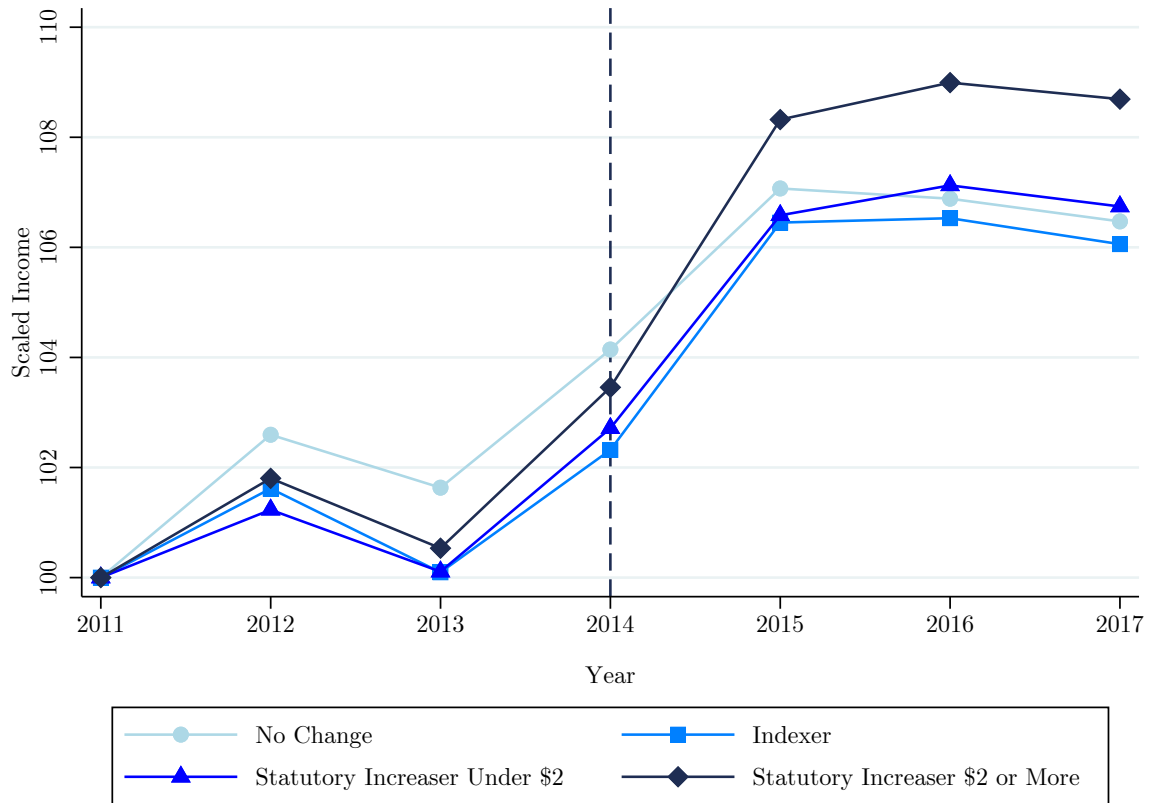
Note: This figure shows the evolution of personal income by policy group using Bureau of Economic Analysis data. Each state's per capita income data is scaled to 100 in 2011 and then averaged by policy group for each year.

Figure 7: Average Housing Price Index by Policy Group (2011-2017)
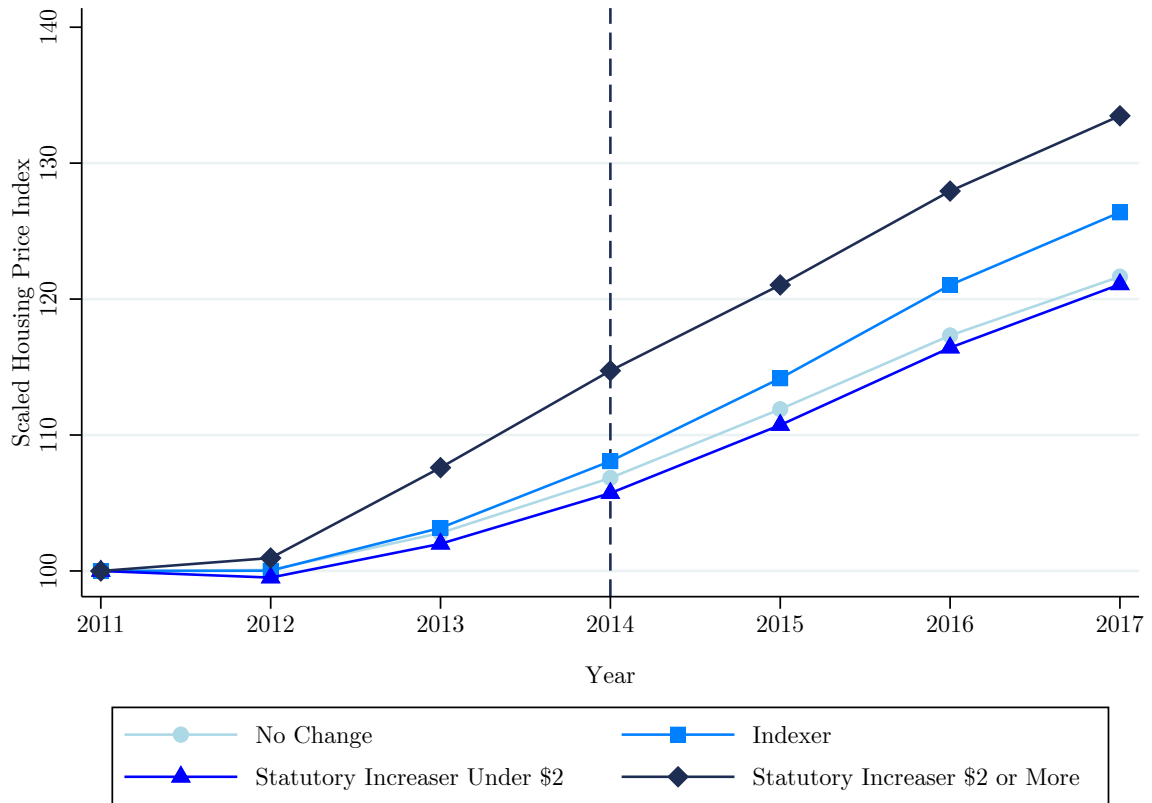
Note: This figure shows the evolution of the housing price index by policy group using Federal Housing Finance Agency data. Each state's housing price index is scaled to 100 in 2011 and then averaged by policy group for each year.

Figure 8: Nonprofit Establishments by Employment (2011-2017)
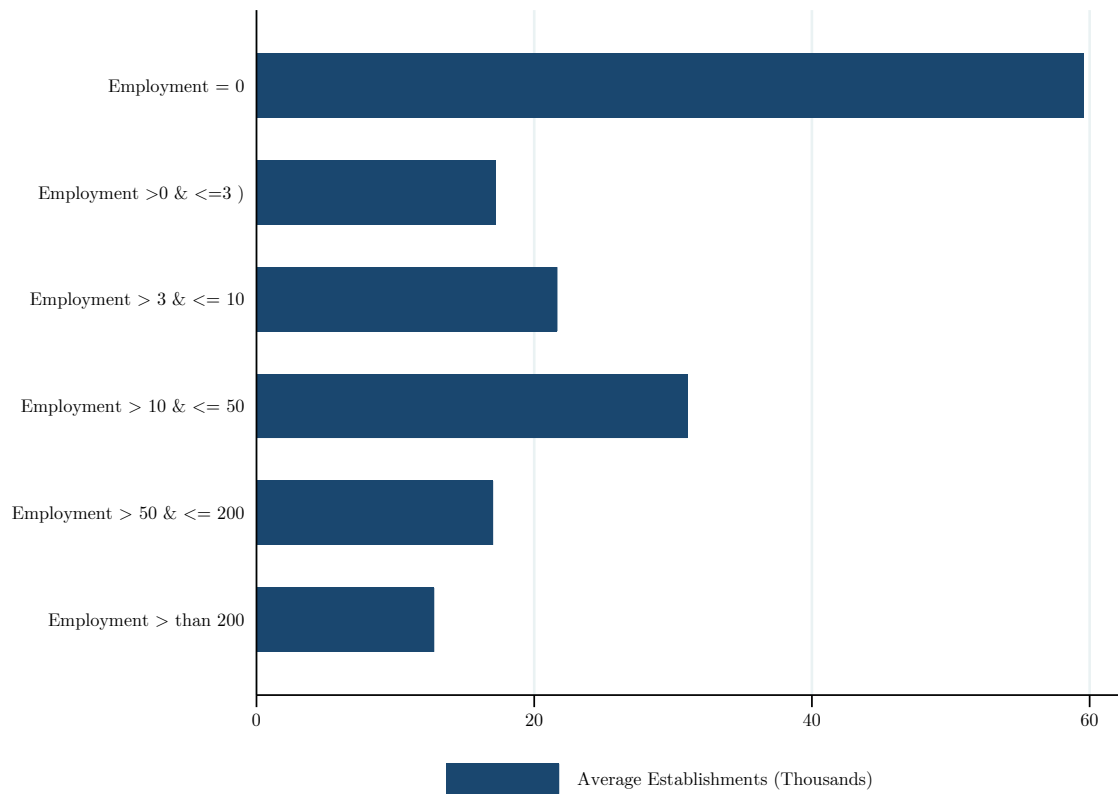
Note: This figure shows the average number of establishments by size between 2011 and 2017 using Internal Revenue Service Data.

Table 1: Summary statistics across states for 2011-2017

Panel A: IRS Data	Mean	Std. Dev.	Median
Number of establishments	4766	3014	5307
Total employment	290386	177145	320978
Total volunteers	645709	440247	653897
Total revenues (billions)	29.33	16.68	33.32
Total contributions (billions)	5.93	3.12	7.97
Program service revenues(billions)	21.42	12.13	23.57
Total investment income (billions)	0.99	0.50	1.18
Other revenues	0.64	0.38	0.71
Total expenses (billions)	27.63	15.92	31.44
Total compensations (billions)	12.46	6.99	14.30
Total grants (billions)	2.11	1.15	2.57
Total fundraising expenses (billions)	0.30	0.12	0.41
Total assets (billions)	53.55	29.36	60.18
Total gross receipts (billions)	35.78	19.66	41.13
Panel B: BLS Data	Mean	Std. Dev.	Median
Establishments	5496	3314	6317
Employment	231700	140682	260244
Total wages (billions)	11.45	6.35	13.86

Number of observations is 357. Individual observations in Panel A are winsorized at the 99.9th percentile prior to aggregating to the state-year level. Financial variables are indexed to $2017 using the CPI-Urban.

Table 2: Effects of Minimum Wage Policy on Employment (IRS Data)

Log employment			Post Period 2017	
	(1)	(2)	(3)	(4)
Indexer*Post	-0.031**	-0.023**	-0.020	-0.016
	(0.015)	(0.011)	(0.014)	(0.010)
Small Statutory Increase*Post	-0.017	-0.016	-0.005	-0.016
	(0.017)	(0.015)	(0.023)	(0.022)
Large Statutory Increase*Post	-0.031	-0.071***	-0.039	-0.091***
	(0.025)	(0.023)	(0.028)	(0.030)
Observations	306	306	204	204
Time & State FEs	Yes	Yes	Yes	Yes
Time-Varying Controls	No	Yes	No	Yes

* p<0.1 ** p<0.05 *** p<0.01

This table reports estimate results of the impact of the minimum wage on employment using the IRS e-filers database (2011-2017). It shows difference-in-differences estimates, excluding 2014, for state policy groups interacted with an indicator for the period after the first legislative change. Columns 1 and 2 use data covering 2011-2013 and 2015-2017, while columns 3 and 4 use data for 2011-2013 and 2017. Columns 2 and 4 include the log of income per capita and the housing price index. All the columns include year and state fixed effects. Standard errors are clustered at the state level.

Table 3: Effects of Minimum Wage Policy on Employment (BLS Data)

Log employment			Post Period 2017	
	(1)	(2)	(3)	(4)
Indexer*Post	-0.001	0.004	0.004	0.006
	(0.006)	(0.006)	(0.006)	(0.005)
Small Statutory Increase*Post	-0.013	-0.012	-0.007	-0.014
	(0.011)	(0.010)	(0.015)	(0.011)
Large Statutory Increase*Post	-0.002	-0.027**	0.003	-0.032*
	(0.009)	(0.011)	(0.014)	(0.016)
Observations	306	306	204	204
Time & State FEs	Yes	Yes	Yes	Yes
Time-Varying Controls	No	Yes	No	Yes

* p<0.1 ** p<0.05 *** p<0.01

This table reports estimate results of the impact of the minimum wage on employment using the BLS database (2011-2017). It shows difference-in-differences estimates, excluding 2014, for state policy groups interacted with an indicator for the period after the first legislative change. Columns 1 and 2 use data covering 2011-2013 and 2015-2017, while columns 3 and 4 use data for 2011-2013 and 2017. Columns 2 and 4 include the log of income per capita and the housing price index. All the columns include year and state fixed effects. Standard errors are clustered at the state level.

Table 4: Effects of Minimum Wage Policy on Establishment Counts

Log establishment	IRS Data			BLS Data		
			Post Period 2017			Post Period 2017
	(1)	(2)	(3)	(4)	(5)	(6)
Indexer*Post	-0.059***	-0.055**	-0.053***	-0.005	-0.000	-0.002
	(0.021)	(0.024)	(0.019)	(0.009)	(0.011)	(0.010)
Small Statutory Increase*Post	-0.011	-0.010	-0.030	-0.013	-0.012	-0.016
	(0.020)	(0.021)	(0.023)	(0.012)	(0.012)	(0.016)
Large Statutory Increase*Post	0.018	-0.002	-0.021	-0.026**	-0.049***	-0.056***
	(0.038)	(0.028)	(0.029)	(0.013)	(0.010)	(0.017)
Observations	306	306	204	306	306	204
Time & State FEs	Yes	Yes	Yes	Yes	Yes	Yes
Time-Varying Controls	No	Yes	Yes	No	Yes	Yes

* $p<0.1$ ** $p<0.05$ *** $p<0.01$

This table reports estimate results of the impact of the minimum wage on employment using the IRS e-filer (Columns 1-3) and BLS nonprofit establishment (Columns 4-6) databases. It shows difference-in-differences estimates, excluding 2014, for state policy groups interacted with an indicator for the period after the first legislative change. Columns 1-2 and 4-5 use data covering 2011-2013 and 2015-2017, while columns 3 and 6 use data for 2011-2013 and 2017. Columns 1 and 4 do not include time-varying controls. Other columns include the log of income per capita and the housing price index. All the columns include year and state fixed effects. Standard errors are clustered at the state level.

Table 5: Effects of Minimum Wage Policy on Volunteers

Log volunteers			Post Period 2017
	(1)	(2)	(3)
Indexer*Post	-0.058	-0.048	-0.065
	(0.047)	(0.042)	(0.051)
Small Statutory Increase*Post	0.050	0.051	0.008
	(0.043)	(0.045)	(0.057)
Large Statutory Increase*Post	-0.009	-0.054	-0.127
	(0.065)	(0.056)	(0.076)
Observations	306	306	204
Time & State FEs	Yes	Yes	Yes
Time-Varying Controls	No	Yes	Yes

* p<0.1 ** p<0.05 *** p<0.01

This table reports estimate results of the impact of the minimum wage on volunteers using the IRS e-filers database (2011-2017). It shows difference-in-differences estimates, excluding 2014, for state policy groups interacted with an indicator for the period after the first legislative change. Columns 1 and 2 use data covering 2011-2013 and 2015-2017, while column 3 uses data for 2011-2013 and 2017. Columns 2 and 3 include the log of income per capita and the housing price index. All the columns include year and state fixed effects. Standard errors are clustered at the state level.

Table 6: Effects of Minimum Wage Policy on Compensation

Log compensation	IRS Data			BLS Data		
			Post Period 2017			Post Period 2017
	(1)	(2)	(3)	(4)	(5)	(6)
Indexer*Post	-0.000	0.006	0.012	0.009	0.014**	0.015**
	(0.022)	(0.023)	(0.017)	(0.009)	(0.007)	(0.007)
Small Statutory Increase*Post	0.006	0.007	0.009	-0.001	-0.000	-0.001
	(0.025)	(0.024)	(0.033)	(0.013)	(0.012)	(0.015)
Large Statutory Increase*Post	-0.015	-0.048	-0.069*	-0.003	-0.027**	-0.032*
	(0.025)	(0.029)	(0.039)	(0.009)	(0.013)	(0.018)
Observations	306	306	204	306	306	204
Time & State FEs	Yes	Yes	Yes	Yes	Yes	Yes
Time-Varying Controls	No	Yes	Yes	No	Yes	Yes

* p<0.1 ** p<0.05 *** p<0.01

This table reports estimate results of the impact of the minimum wage on compensation using the IRS e-filer (Columns 1 and 3) and BLS (Columns 4 and 6) databases. It shows difference-in-differences estimates, excluding 2014, for state policy groups interacted with an indicator for the period after the first legislative change. Columns 1-2 and 4-5 use data covering 2011-2013 and 2015-2017, while columns 3 and 6 use data for 2011-2013 and 2017. Columns 1 and 4 do not include time-varying controls. Other columns include the log of income per capita and the housing price index. All the columns include year and state fixed effects. Standard errors are clustered at the state level.

Table 7: Effects of Minimum Wage Policy on Expenses

Log	Grants		Fundraising Expenses		Total Expenses	
		Post Period 2017		Post Period 2017		Post Period 2017
	(1)	(2)	(3)	(4)	(5)	(6)
Indexer*Post	0.044	0.025	0.009	0.006	0.003	0.005
	(0.064)	(0.056)	(0.040)	(0.041)	(0.022)	(0.016)
Small Statutory Increase*Post	-0.044	-0.073*	-0.063**	-0.080***	-0.010	-0.022
	(0.036)	(0.041)	(0.024)	(0.029)	(0.023)	(0.029)
Large Statutory Increase*Post	-0.071*	-0.102	-0.048*	-0.064**	-0.053*	-0.094**
	(0.040)	(0.063)	(0.026)	(0.031)	(0.027)	(0.040)
Observations	306	204	306	204	306	204
Time & State FEs	Yes	Yes	Yes	Yes	Yes	Yes
Time-Varying Controls	Yes	Yes	Yes	Yes	Yes	Yes

* p<0.1 ** p<0.05 *** p<0.01

This table reports estimate results of the impact of the minimum wage on the log of real expense by category using the IRS e-filers database (2011-2017). It shows difference-in-differences estimates, excluding 2014, for state policy groups interacted with an indicator for the period after the first legislative change. Odd-numbered columns use data covering 2011-2013 and 2015-2017, while even-numbered columns use data for 2011-2013 and 2017. All columns include year, state fixed effects, the log of income per capita, and the housing price index. Standard errors are clustered at the state level. Expenses are winsorized at the 99.9th percentile at the establishment level before aggregating.

Table 8: Effects of Minimum Wage Policy on Revenues

Log	Contributions		Program Service Revenues		Investment Income		Other Revenues		Total Revenues	
		Post Period 2017		Post Period 2017		Post Period 2017		Post Period 2017		Post Period 2017
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Indexer*Post	-0.031	-0.044*	-0.001	0.005	0.013	-0.018	-0.082	-0.080	-0.012	-0.011
	(0.024)	(0.024)	(0.025)	(0.019)	(0.032)	(0.026)	(0.085)	(0.089)	(0.019)	(0.013)
Small Statutory Increase*Post	-0.025	-0.058*	-0.000	0.001	0.050	0.020	-0.059	-0.018	-0.009	-0.024
	(0.026)	(0.031)	(0.025)	(0.032)	(0.038)	(0.040)	(0.035)	(0.044)	(0.022)	(0.028)
Large Statutory Increase*Post	-0.078*	-0.146**	-0.041	-0.066	0.048	0.016	-0.024	-0.005	-0.072**	-0.118***
	(0.043)	(0.065)	(0.045)	(0.068)	(0.031)	(0.042)	(0.048)	(0.066)	(0.027)	(0.036)
Observations	306	204	306	204	306	204	306	204	306	204
Time & State FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time-Varying Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* $p<0.1$ ** $p<0.05$ *** $p<0.01$

This table reports estimate results of the impact of the minimum wage on the log of real revenue by category using the IRS e-filers database (2011-2017). It shows difference-in-differences estimates, excluding 2014, for state policy groups interacted with an indicator for the period after the first legislative change. Odd-numbered columns use data covering 2011-2013 and 2015-2017, while even-numbered columns use data for 2011-2013 and 2017. All columns include year, state fixed effects, the log of income per capita, and the housing price index. Standard errors are clustered at the state level. Revenues are winsorized at the 99.9th percentile at the establishment level before aggregating.

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Table 9: Effects of Minimum Wage Policy on Employment by Size

Size Log - employment	Employment <= 3	Employment > 3 & <= 10	Employment > 10 & <= 50	Employment > 50 & <= 200	Employment > than 200
Panel A: Without Controls					
Indexer*Post	-0.212**	-0.070	-0.026	-0.060*	-0.003
	(0.104)	(0.080)	(0.047)	(0.034)	(0.016)
Small Statutory Increase*Post	-0.132	-0.032	-0.005	-0.049**	0.010
	(0.143)	(0.054)	(0.028)	(0.024)	(0.020)
Large Statutory Increase*Post	-0.200	0.051	-0.016	-0.009	-0.018
	(0.139)	(0.066)	(0.061)	(0.044)	(0.026)
Observations	306	306	306	306	306
Time & State FE	Yes	Yes	Yes	Yes	Yes
Time-Varying Controls	No	No	No	No	No
Panel B: With Controls					
Indexer*Post	-0.200*	-0.060	-0.021	-0.052	0.003
	(0.109)	(0.088)	(0.049)	(0.039)	(0.013)
Small Statutory Increase*Post	-0.131	-0.031	-0.004	-0.048**	0.011
	(0.139)	(0.050)	(0.028)	(0.023)	(0.019)
Large Statutory Increase*Post	-0.250	0.007	-0.037	-0.049	-0.045
	(0.156)	(0.051)	(0.048)	(0.039)	(0.027)
Observations	306	306	306	306	306
Time & State FE	Yes	Yes	Yes	Yes	Yes
Time-Varying Controls	Yes	Yes	Yes	Yes	Yes

* $p<0.1$ ** $p<0.05$ *** $p<0.01$

This table reports estimate results of the impact of the minimum wage on the log of employment using the IRS e-filers database (2011-2017). It shows difference-in-differences estimates, excluding 2014, for state policy groups interacted with an indicator for the period after the first legislative change. Entity size category is fixed at its size in the first appearance in the sample. Panel A shows the results without time-varying controls. Panel B includes the log of income per capita and the housing price index. All the columns include year and state fixed effects. Standard errors are clustered at the state level.

Table 10: Effects of Minimum Wage Policy on Employment by Charity Purpose Type

Charity group Log - employment	1	2	3	4	5	6	7	8	9
Panel A: Without Controls									
Indexer*Post	-0.103***	-0.082***	-0.032	-0.039**	0.005	-0.047	0.039	-0.328**	-0.092
	(0.030)	(0.020)	(0.049)	(0.017)	(0.022)	(0.113)	(0.110)	(0.126)	(0.150)
Small Statutory Increase*Post	-0.017	-0.074***	0.025	0.017	-0.019	-0.047	-0.048	-0.018	0.020
	(0.091)	(0.023)	(0.050)	(0.027)	(0.027)	(0.073)	(0.047)	(0.074)	(0.117)
Large Statutory Increase*Post	-0.060	-0.058*	-0.221**	-0.022	-0.041	-0.041	-0.103*	-0.036	0.163
	(0.039)	(0.034)	(0.084)	(0.035)	(0.034)	(0.076)	(0.058)	(0.059)	(0.250)
Observations	306	306	306	306	306	300	306	306	216
Time & State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time-Varying Controls	No	No	No	No	No	No	No	No	No
Panel B: With Controls									
Indexer*Post	-0.102***	-0.071***	-0.038	-0.034**	0.014	-0.046	0.051	-0.331**	-0.095
	(0.031)	(0.014)	(0.048)	(0.016)	(0.018)	(0.112)	(0.116)	(0.129)	(0.140)
Small Statutory Increase*Post	-0.018	-0.072***	0.024	0.017	-0.017	-0.047	-0.046	-0.018	0.021
	(0.087)	(0.022)	(0.050)	(0.026)	(0.026)	(0.073)	(0.046)	(0.073)	(0.114)
Large Statutory Increase*Post	-0.059	-0.110***	-0.193**	-0.050	-0.083***	-0.043	-0.161**	-0.022	0.174
	(0.043)	(0.035)	(0.089)	(0.038)	(0.023)	(0.097)	(0.066)	(0.079)	(0.412)
Observations	306	306	306	306	306	300	306	306	216
Time & State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time-Varying Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* p<0.1 ** p<0.05 *** p<0.01

This table reports estimate results of the impact of the minimum wage on the log of employment using the IRS e-filers database (2011-2017). It shows difference-in-differences estimates, excluding 2014, for state policy groups interacted with an indicator for the period after the first legislative change. Each column shows employment by charity type as categorized by the National Taxonomy of Exempt Entities (NTEE): 1) Arts, culture, and Humanities 2) Education 3) Environment and Animal Welfare 4) Health 5) Human Services 6) International and Foreign Affairs 7) Public and Social Benefit 8) Religion-Related 9) Mutual/Membership Benefit. Panel A shows the results without time-varying controls. Panel B includes the log of income per capita and the housing price index. All the columns include year and state fixed effects. Standard errors are clustered at the state level.

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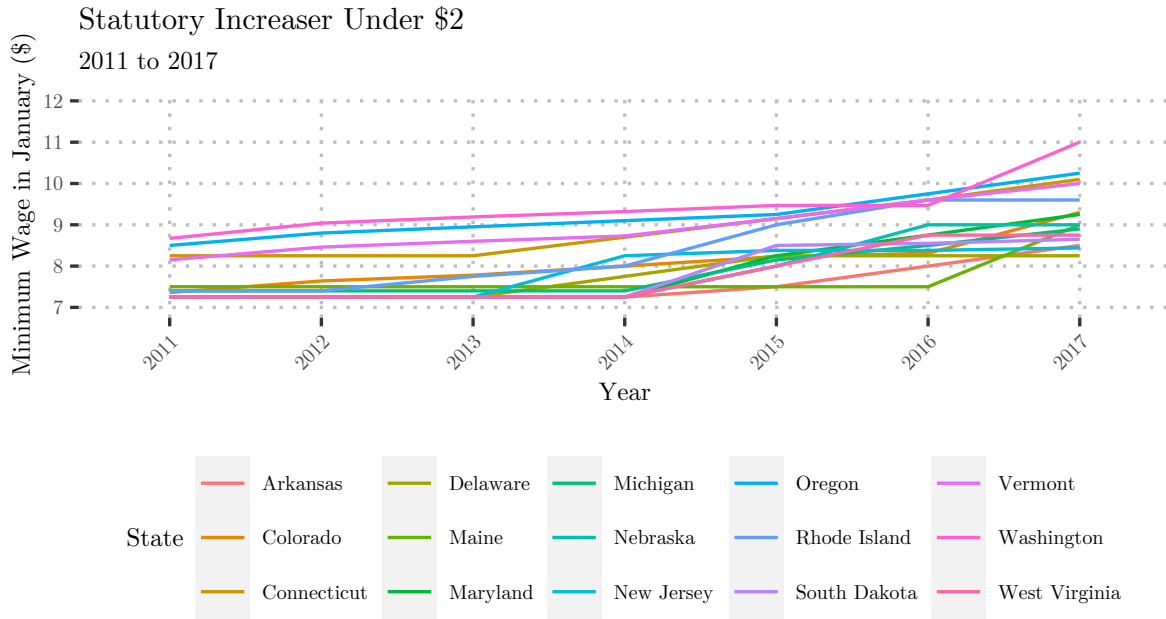
A   Appendix

Figure A1: Average Minimum Wage for States with Inflation-Indexed Increases
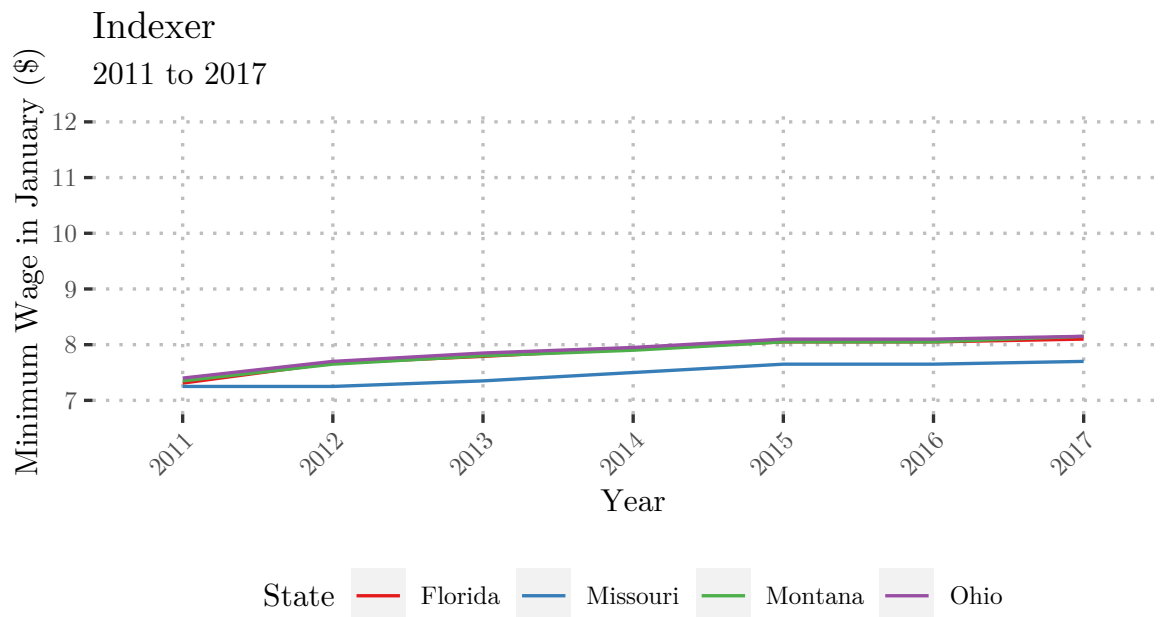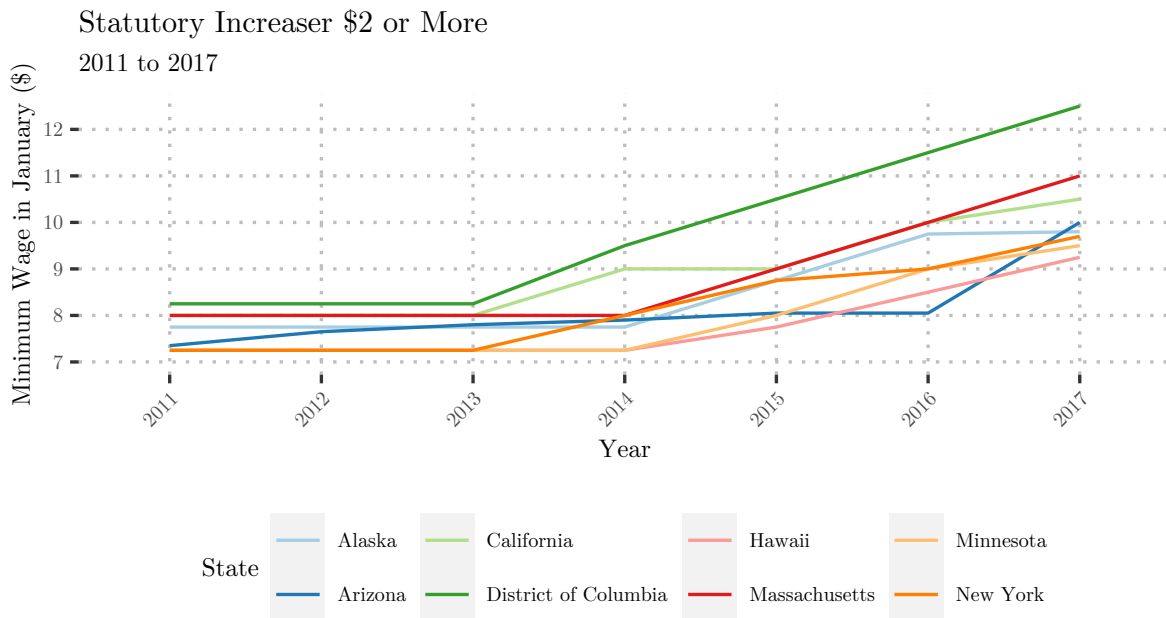

Note: This figure shows the evolution of minimum wage in nominal dollars for states with inflation-indexed increases.

Figure A2: Average Minimum Wage for States with Statutory Increases Under $2

Statutory Increaser Under $2
2011 to 2017

Arkansas	Delaware	Michigan	Oregon	Vermont
Colorado	Maine	Nebraska	Rhode Island	Washington
Connecticut	Maryland	New Jersey	South Dakota	West Virginia

Note: This figure shows the evolution of minimum wage in nominal dollars for states whose statutory minimum wage increases were under $2 by 2017.

Figure A3: Average Minimum Wage for States with Statutory Increases $2 or More

Statutory Increaser $2 or More
2011 to 2017

Alaska	California	Hawaii	Minnesota
Arizona	District of Columbia	Massachusetts	New York

Note: This figure shows the evolution of minimum wage in nominal dollars for states whose statutory minimum wage increases were $2 or more by 2017.

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Table A1: Effects of Minimum Wage Policy on Employment (IRS Data 2011-2018)

Log employment			Post Period 2018	
	(1)	(2)	(3)	(4)
Indexer*Post	-0.038**	-0.031***	-0.021	-0.022*
	(0.016)	(0.011)	(0.015)	(0.011)
Small Statutory Increase*Post	-0.018	-0.011	-0.037	-0.027
	(0.020)	(0.017)	(0.027)	(0.023)
Large Statutory Increase*Post	-0.027	-0.061***	-0.028	-0.067**
	(0.020)	(0.020)	(0.029)	(0.028)
Observations	357	357	204	204
Time & State FEs	Yes	Yes	Yes	Yes
Time-Varying Controls	No	Yes	No	Yes

* p<0.1 ** p<0.05 *** p<0.01

This table reports estimate results of the impact of the minimum wage on employment using the IRS e-filers database (2011-2018). It shows difference-in-differences estimates, excluding 2014, for state policy groups interacted with an indicator for the period after the first legislative change. Columns 1 and 2 use data covering 2011-2013 and 2015-2018, while columns 3 and 4 use data for 2011-2013 and 2018. Columns 2 and 4 include the log of income per capita and the housing price index. All the columns include year and state fixed effects. Standard errors are clustered at the state level.

Table A2: Effects of Minimum Wage Policy on Employment (Including 2014)

Log employment	IRS Data		BLS Data	
	(1)	(2)	(3)	(4)
Indexer*Post	-0.028**	-0.020*	0.000	0.006
	(0.013)	(0.010)	(0.006)	(0.006)
Small Statutory Increase*Post	-0.013	-0.011	-0.011	-0.009
	(0.014)	(0.013)	(0.009)	(0.009)
Large Statutory Increase*Post	-0.027	-0.060***	0.000	-0.020**
	(0.023)	(0.020)	(0.007)	(0.008)
Observations	357	357	357	357
Time & State FEs	Yes	Yes	Yes	Yes
Time-Varying Controls	No	Yes	No	Yes

* p<0.1 ** p<0.05 *** p<0.01

This table reports estimate results of the impact of the minimum wage on employment using the IRS e-filer (Columns 1 and 2) and BLS nonprofit establishment (Columns 3 and 4) databases. It shows difference-in-differences estimates, including 2014, for state policy groups interacted with an indicator for the period after the first legislative change. Columns 1 and 3 include no time-varying controls. Columns 2 and 4 include the log of income per capita and the house price index. All the columns include year and state fixed effects. Standard errors are clustered at the state level.

Table A3: Effects of Minimum Wage Policy on Employment (Including ACA Controls)

Log employment	IRS Data	BLS Data
	(1)	(2)
Indexer*Post	-0.023**	0.004
	(0.011)	(0.006)
Small Statutory Increase*Post	-0.011	-0.013
	(0.018)	(0.008)
Large Statutory Increase*Post	-0.066**	-0.027**
	(0.027)	(0.011)
Observations	306	306
Time & State FEs	Yes	Yes
Time-Varying Controls	Yes	Yes

* p<0.1 ** p<0.05 *** p<0.01

This table reports estimate results of the impact of the minimum wage on employment using the IRS e-filer (Column 1) and BLS nonprofit establishment (Column 2) databases. It shows difference-in-differences estimates, excluding 2014, for state policy groups interacted with an indicator for the period after the first legislative change. All the columns include year, state fixed effects, the log of income per capita, the housing price index, and indicators for whether the state expanded Medicaid access under the Affordable Care Act. Standard errors are clustered at the state level.

Table A4: Effects of Minimum Wage Policy on Employment

Log employment	IRS Data				BLS Data			
	Group-Level		State-Level		Group-Level		State-Level	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Indexer*Post	-0.033*	-0.024*	-0.039***	-0.032***	-0.010	0.006	-0.008	-0.003
	(0.019)	(0.014)	(0.009)	(0.008)	(0.008)	(0.007)	(0.006)	(0.007)
Small Statutory Increase*Post	-0.019	-0.018	-0.024	-0.018	-0.013	-0.012	-0.013	-0.012
	(0.021)	(0.018)	(0.015)	(0.013)	(0.010)	(0.009)	(0.009)	(0.008)
Large Statutory Increase*Post	-0.032	-0.070**	-0.031*	-0.053***	-0.016*	-0.025**	-0.011	-0.033***
	(0.025)	(0.028)	(0.017)	(0.017)	(0.009)	(0.010)	(0.008)	(0.010)
Observations	306	306	306	306	306	306	306	306
Time & State FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time-Varying Controls	No	Yes	No	Yes	No	Yes	No	Yes

* $p<0.1$ ** $p<0.05$ *** $p<0.01$

This table reports estimate results of the impact of the minimum wage on employment using the IRS e-filer (Columns 1-4) and BLS nonprofit establishment (Columns 5-8) databases. It shows difference-in-differences estimates, excluding 2014, for state policy groups interacted with an indicator for the period after the first legislative change. Columns 1-2 and 5-6 include a control for predicted log nonprofit employment estimated using 2011-2013 growth rates at the policy-group level. Columns 3-4 and 7-8 include a control for predicted log nonprofit employmented estimated using 2011-2013 growth rates at the state level. All the even columns include year, state fixed effects, and time-varying controls (the log of income per capita and the house price index). Standard errors are clustered at the state level.