Do Minimum Wage Increases Cause Financial Stress to Small Businesses? Evidence from 15 Million Establishments

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ABSTRACT

Do increases in federal minimum wage impact financial health of small businesses? Using inter-temporal variation in whether a state's minimum wage is bound by the federal minimum wage and credit-score data for approximately 15.2 million establishments for the period 1989-2013, we find that increases in federal minimum wage worsen the financial health of small businesses in the affected states. Small, young, labor-intensive, minimum-wage sensitive establishments located in bounded states and businesses located in competitive and low-income areas experience higher financial stress. Increases in minimum wage also lead to lower bank loans, a higher risk of loan default and higher exit rate for affected small businesses. The evidence suggests that some small businesses are unable or unwilling to pass-through costs to customers immediately and consequently experience financial stress. Our results document the costs to the one-size-fits-all nationwide minimum wage and highlight how the increases in minimum wages can have an adverse effect on the financial health of small businesses.

I. Introduction

Minimum wage has been the focus of substantial debate by academics and policymakers[1]. Some of the pertinent issues are: whether there should be a mandated minimum wage, if so, the level of the minimum wage and whether it should be mandated at the federal level or the state or local level; what is the impact of minimum wage on employment and wages and who bears the cost of minimum wage increases. In this paper, we contribute to this debate by analyzing the impact of federal minimum wage increases on the financial health of small businesses, thereby, shedding light on the costs of a one-size-fits-all federal minimum wage increases.

We focus on small businesses as they are a vital component of the economy and account for almost 50% of the U.S. non-farm GDP[2]. Moreover, wages for employees comprise a significant fraction of the costs faced by many small businesses. Hence, an increase in minimum wage has a material impact on the financial health of small businesses. We focus on federal minimum wage changes as we want to understand whether one-size-fits-all across the U.S.? In other words, do federally imposed minimum wage increases have a differential effect on the financial health of establishments located in states with effective minimum wages equal to or less than the federal rate (bounded states)?

Since 1981, with the result of laws passed in 1989, 1996, and 2007, there have been three series of increases in the federal minimum wage rate, 1990–1991, 1996–1997, and 2007–2009, that accounts for seven minimum wage changes. During that same period, there have been numerous changes in state minimum wage policies. The Fair Labor Standards Act (FLSA) mandates broad minimum wage coverage and states have the option of establishing minimum wage rates that are different from those set in it. Employers have to pay workers the highest minimum wage prescribed by federal, state, and local law. We refer to states with minimum

[1]See Belman and Wolfson (2014) for a survey of the vast literature on the minimum wage and the recent articles in popular press on the level of the minimum wages. The "Fight against $15" (`https://goo.gl/Vba5mv`) and the "Fight for $15" federal minimum wage (`https://goo.gl/ypp52Q`)

[2]Source: `https://www.sba.gov/content/small-business-gdp-update-2002-2010`

wage rates higher than the federal rate as "unbound" and states with effective minimum wages equal to the federal rate as "bound."

In this study, using inter-temporal variation in whether a state's minimum wage is bound by the federal minimum wage and credit-score data for approximately 15.2 million establishments over the period of 1989 to 2013, we find that increases in the federal minimum wage worsen the financial health of affected small businesses. We find that for a dollar increase in federal minimum wage, the *Paydex Score* (our measure of credit score) reduces by almost 1.0 point more for establishments in bounded states compared to unbounded states.[3] The one point reduction implies a delay of 1 day more beyond the payment terms for a median establishment in our sample that delays its payment on average by five days beyond the payment terms.[4] The magnitude of the impact is higher for small, young, labor-intensive, minimum-wage sensitive establishments located in bounded states. Also, businesses located in competitive and low-income areas and those far from the state borders experience higher financial stress. We also find a decline in banks loans by almost 9%, increase in the risk of default on bank loans by 12% and an increase in exit rate especially for restaurants by 1.1% with a mean exit rate of about 8%.

One issue in identifying this effect includes correlation of timing of federal minimum wage with the business cycles. Notice that the recent federal government mandated minimum wage increases enacted during the recession years, i.e., 1990-1991 and 2007-2009. Further, if the economy of the bounded states, compared to unbounded state, is more affected by the downturn in US economy, then our regressions may just pick up the effect of recession rather than a minimum wage increase. To ensure that we are not picking up the recession effect we test if there is a difference between in the state of the economy of the bounded and unbounded states around the federal minimum wage increases. Using *State Leading Index* provided by FRED, we find that the bounded and unbounded states followed similar

[3]The *Paydex Score* is a business credit score assigned by Dun and Bradstreet to a company. The score rates the likelihood of business will make payments to suppliers/vendors on time and can affect the premiums and interest rates company pays when it comes to financing bank loans or credit cards for small businesses.

[4]Typical terms of payments is about 30 days.

business cycle before and after the federal minimum wage increases, and unbounded states are more affected by the downturn in the overall economy.[5]

Also, if the federal government's decision to adjust minimum wages is affected by or correlated with some other observable and unobservable differences in the economies of bound versus unbound states, we may not be able to identify our effect. For the various state, county and zip-level observable characteristics, we directly control them in regression estimates and also use them in matching methods to identify the right control group. To ensure that different unobservable local economic conditions in the bounded vs. unbounded state do not derive our results, we also control for state-year and county-year fixed effects in various cross-sectional results.

We use the nearest neighbor matching method to identify the control group. Firstly, we use the credit score one year before the minimum wage increase and exactly match establishments in the bounded states (treatment group) with the possible set of control establishments within the same NAICS4 industry donor group in the unbounded states (control group). Next, for the exactly matched control sample based on one year before credit score, we compute the Euclidean distance between treatment and control samples based on establishment-, state-, county- and zip-level observable characteristics. We use *establishment-level* variables like sales, employees, employee-to-sales ratio and sales growth, *state-level* variables like GSP and population (both level and growth), state political partisan, *county-level* variables like unemployment rate (both level and growth), *zip-level* variables like aggregate sales growth, personal income and house prices (both level and growth). We use the nearest neighbor establishment based on the Euclidean distance as the control establishment and find consistent results.

We further attempt to control for local economic conditions by analyzing the esta-

[5]The index measures the the current and future economic situation of given state. The leading index for each state predicts the six-month growth rate of the state's coincident index. In addition to the coincident index, the models include other variables that lead the economy: state-level housing permits (1 to 4 units), state initial unemployment insurance claims, delivery times from the Institute for Supply Management (ISM) manufacturing survey, and the interest rate spread between the 10-year Treasury bond and the 3-month Treasury bill.

blishments located in the contiguous counties close to state borders. The underlying assumptions for this identification strategy includes 1) the adjacent counties at state borders have similar economic conditions except for the minimum wage, and 2) there are no spillovers around the state borders, i.e., minimum wage workers do not cross borders for a higher minimum wage. Firstly, we find there are more county-pairs where "bounded" states bordering other "bounded" states rather than the "unbounded" states. Second, we find that the negative effect diminishes for businesses closer to the state borders. Third, we find no effect for establishments located in county-pairs where "bounded" states bordering "unbounded" states. Spillovers at the state borders may be one reason for no effect, i.e., minimum wage workers are more likely to cross state borders for a higher wage. Further, within the same state, after controlling for state-year fixed effects, we find a more negative impact on establishments located far from the state borders.

We also test the dynamics of our results. Firstly, we observe that before the federal minimum wage increase, the average *Paydex Score* trended parallel for establishments in bounded and unbounded states. Second, within two years of the federal minimum wage increase, there is a sharp decline in the *Paydex Score* for establishments in bounded states. Finally, we observe that the difference between the *Paydex Score* for establishments in the bounded and unbounded states converges over the next three to five years. The results suggest that establishments that managed to survive may be able to pass-through some of these extra labor costs to customers over a longer period. We find that our results are robust to states moving from bound states to unbound states, time-varying industry-specific unobservables, different industry samples and placebo tests.

The extent of the impact of minimum wage increases on a small business depends on at least three factors: one, whether the small business can simply pass on the cost of the increased wages to its consumers; second, whether the business can adjust it's mix of labor, for example, by more automation; and third, whether the small business can absorb the costs either through a higher productivity or a lower profit margin depending on the financial

health of the particular business.

With the increase in labor cost, the cost of goods sold (COGS) increases for businesses. If establishments can completely pass these increased costs on to the customers immediately, then they may not feel financial stress. The establishments in our sample are relatively small businesses, and the local competition and local personal income determine their cash flows. We find that establishments within the same industry, those located in the more competitive neighborhood (in the county in our case) and those located in the low-income neighborhood (in the zip codes in our case) find it difficult to pass on the increased labor costs and observe more significant fall in the score.

We also find that small and young establishments that are more likely to have financial constraints observe a more significant fall in credit score. Furthermore, establishments that are labor-intensive and those with ex-ante lower *Paydex Score*, find it difficult to absorb this cash-flow shock and observe a more significant decline in the score. We find that the negative impact is more for industries that employ minimum wage workers, i.e., restaurants and retail, but not limited to these industries. This implies a spillover effect on other industries. In our cross-section tests, we absorb state-year or sometime county-year fixed effects. So, all our cross-sectional regressions address the issue of time-varying unobservables at state or county level that may be associated with the timing of federal minimum wage change.

Further, we test the implication of lower credit score on loans granted. Using Small Business Administration (SBA) data for almost 1 million small business guaranteed loans, we find that for a dollar increase in federal minimum wage, the loan amount reduces by 9% more for establishments in bounded states compared to unbounded states, where the median loan size is $100,000. We also find that establishments located in bounded states are 12% more likely to default on bank loans compared to those in unbounded states around the federal minimum wage increase.

Finally, we test if the *Paydex Score* correlates with observed exit rates or not. We find a negative pattern, i.e., in our sample, the average exit rate decreases with increase in *Paydex*

Score. Also, we calculate the exit rate within each county for each NAICS5 industry. We find that exit rate for restaurants increases significantly for counties in bounded states one year after the federally mandated minimum wage increase. Our results are consistent with Luca and Luca (2017), who finds that minimum wage increase leads to higher exit rate for restaurants with a lower rating.

Overall, our results document the unintended effect of the federally imposed uniform rule that may increase the minimum wage in areas where businesses are not being able to absorb the increased cost of labor and thereby feel financially stressed or may even get bankrupt.

Firstly, our study closely relates to the recent work by Aaronson, French, Sorkin, and To (2017), that examines the effect of minimum wage on entry and exit of restaurants. Further, Luca and Luca (2017) emphasize these results by showing that low-quality restaurants are most likely to exit. In our study, we expand these results to all the industries, and we provide direct evidence by looking the measure of financial stress, i.e., credit score data, for 15 million small businesses in the US. The financial stress is more on small, young, labor-intensive establishments and businesses located in competitive and low-income areas. We also find that the impact is more for establishments that are already under financial stress, i.e., those with a lower score. Consistent with the above studies we do find that the increase in minimum wages also leads to a higher exit risk for affected small businesses. Our study is also related to Clemens and Wither (2016), that uses the cross-sectional variation of bounded versus unbounded states to identify the effect of the federal minimum wage increase, during the great recession, on employment and income of low-skilled workers.

Further, we add to the big literature documenting the effect of minimum wage on *employment* (Katz and Krueger, 1992; Card and Krueger, 1994; Neumark and Wascher, 2000; Card and Krueger, 2000; Dube, Lester, and Reich, 2010; Giuliano, 2013; Sorkin, 2015; Meer and West, 2015), *wage dispersion* (Dinardo, Fortin, and Lemieux, 1996; Lee, 1999; MaCurdy, 2015; David, Manning, and Smith, 2016), *price levels* (Aaronson, 2001; Aaronson and French, 2007), and *personal finance* (Aaronson, Agarwal, and French, 2012; Tonin, 2011).

Finally, our paper is also related to the effect of labor costs, in general, and the minimum wage policies, in particular on firm outcomes like firm profitability (Draca, Machin, and Van Reenen, 2011) and firm investment (Gustafson and Kotter, 2017; Cho, 2016). This paper adds to a growing literature that analyzes the interactions between labor costs and firm outcomes. Increase in firing costs of workers adversely affects firm leverage (Serfling, 2016), corporate investment, and growth (Bai, Fairhurst, and Serfling, 2017). Others examine how firing costs enhance employees' innovative efforts and encourage firms to invest in risky, but potentially mold-breaking projects (Acharya, Baghai, and Subramanian, 2014). Similarly, reduction in labor unemployment risks allows firms to increase leverage by mitigating workers' exposure to unemployment risk (Agrawal and Matsa, 2013). Our results highlight how the increases in minimum wages can hurt the financial health of small businesses.

The rest of the paper proceeds as follows. We discuss our method of analysis in Section II, describe our data and provide summary statistics in Section III, and empirical results in Section IV, and finally conclude in Section V.

II. Minimum Wage and Identification Challenges

A. History of Minimum Wage in the United States

The Fair Labor Standards Act (FLSA), enacted in 1938, is the federal legislation that establishes the general minimum wage that must be paid to all covered workers. The federal government mandated minimum wage to be \$0.25 per hour (\$4.36 in 2018 dollars)[6]. While the FLSA mandates broad minimum wage coverage, states have the option of establishing minimum wage rates that are different from those set in it. Under the provisions of the FLSA, employers have to pay workers the highest minimum wage prescribed by federal, state, and local law. We refer to states with minimum wage rates higher than the federal rate as "unbound" and states with effective minimum wages equal to the federal rate as

[6]Using CPI calculator, `https://www.bls.gov/data/inflation_calculator.htm`

"bound."

Since July 24, 2009, the federal government has mandated a nationwide minimum wage of $7.25 per hour. As of January 2018, there were 29 states with a minimum wage higher than the federal minimum. In any given year, the exact number of states with a minimum wage rate above the federal rate may vary, depending on the interaction between the federal rate and the mechanisms in place to adjust the state minimum wage. Adjusting minimum wage rates is typically done in one of two ways: (1) legislatively scheduled rate increases that may include one or several increments; (2) a measure of inflation to index the value of the minimum wage to the general change in prices.

As of 2018, 29 states and the District of Columbia have minimum wage rates above the federal rate of $7.25 per hour, with rates ranging from $0.25 to $6.00 above the federal rate. Two states have minimum wage rates below the federal rate, and five states have no state minimum wage requirement. The remaining 14 states have minimum wage rates equal to the federal rate.

Before 1987, Alaska and the District of Columbia were the only two states that consistently had minimum wage rates that exceeded the federal rate. Since 1987, many states have adopted higher minimum wage rates, resulting in a divergence between the average state minimum wage and the federal rate. Because the federal and state minimum wage rates change at various times and in various increments, the share of the labor force for which the federal rate is the binding wage floor has changed over time, and many states switch back and forth from being bound to unbound over time. By 1990, the beginning of our sample period, California, Connecticut, Hawaii, Iowa, Maine, Minnesota, Oregon, Rhode Island, Vermont, Washington, joined the list of unbounded states with a minimum wage above the federal minimum wage. In Figure 1, the bars show in a given year, the number of states with an average minimum wage above the average federal minimum wage. The broken-line plots the average federal minimum wage (in nominal dollars) and solid line plots the average minimum

wage for unbounded states.[7]

Since 1981, there have been three series of increases in the federal minimum wage rate,1990–1991, 1996–1997, and 2007–2009.[8] During that same period, there have been numerous changes in state minimum wage policies. In 1990, the federal minimum wage was $3.80 per hour. In Figure 2, we plot on US map, the % years in our sample the federal minimum wage bounded a given state. Notice that federal minimum wage always bounded states like Alabama, Georgia, Texas and many others.

B. Identification Challenges

In this section, we discuss our identification strategy. The recent increase in minimum wage by various state and local bodies has generated enormous interest among academicians. The cross-section and time-series difference in the minimum wage at state-level may look very attractive difference-in-difference strategy to estimate the effect of minimum wage. However, such estimates may not be reliable because states may change the minimum wage at non-random times and this may be correlated with local economic conditions. For example, Allegretto, Dube, Reich, and Zipperer (2017) show that states that increase minimum wages have different business cycle severity, inequality, and composition of the labor force. At the same time, some states are bounded by federal minimum wage and have to immediately match to federal minimum wage as when the federal government increases the minimum wage. In this study, we are interested in the differential effect of federal minimum wage on the financial health of establishments located in bounded states versus unbounded states. During our sample period, the federal minimum wage has only changed seven times, with the result of laws passed in 1989, 1996, and 2007. Our strategy exploits the fact that an

[7]We limit our analysis for the year 1989-2013 based on the availability of Paydex Score data.

[8]The law was enacted on Nov. 17, 1989 and federal minimum wage was increased from $3.35 to $3.80 and $4.25 with effective dates of April 1, 1990 and April 1, 1991, respectively. For 1996-97 change, the law was enacted on Aug. 20, 1996 and federal minimum wage was increased from $4.25 to $4.75 and $5.15 with effective dates of Oct. 1, 1996 and Sept. 1, 1997, respectively. The last federal minimum wage change was enacted on May 25, 2007 and rates were $5.85, $6.66, and $7.25 effective on July 24, 2007, July 24, 2008 and July 24, 2009, respectively.

increase in the federal minimum wage rate affects states with minimum wage rates equal to or less than the federal minimum wage (i.e., bound states) more directly than states with higher minimum wages.

In our baseline analysis, we apply a difference-in-differences estimation to quantify the differential impact of the federal minimum wage change on the financial health of establishments located in bounded states versus unbounded states and estimate the following equation,

$$Y_{it} = \alpha_1 Bound_{s,t-1} \times \Delta MW(F)_t + \alpha_2 Bound_{s,t-1} + \kappa X_{i,t-1} + \nu_i + \omega_t + \epsilon_{ist} \qquad (1)$$

subscripts i, s, t refer to establishment, state and year respectively. Y_{it} is our dependent variable which is average *Paydex Score*, our proxy for establishment's financial health. It is a business credit score that is generated by Dun & Bradstreet (D&B). Their model analyzes a business' payment performance (i.e., if it pays its bills on time) and gives it a numerical score from 1 to 100, with 100 signifying a perfect payment history. We explain this variable in more detail in our data section III. $\Delta MW(F)_t$ measures the nominal dollar increase in maximum federal minimum wage in year t, otherwise zero. $Bound_{s,t-1}$ is a dummy variable equal to 1 if at the beginning of fiscal year t the establishment's state s has a minimum wage less than or equal to the maximum federal minimum wage. Therefore, the interaction-term, $Bound_{s,t-1} \times \Delta MW(F)_t$ identifies the differential effect of federally mandated minimum wage over and above the effect of state-level variation caused the by a change in state-determined minimum wage and changing status of state from bound to unbound or vice-à-versa. We also include a full set of establishment-level control variables ($X_{i,t-1}$) in our regressions: size (measured as Log(sales)), age (Log(age)), number of employees (Log(employees)) and sales growth and are winsorized at their 1^{st} and 99^{th} percentiles.

The inclusion of establishment fixed effects, ν_i, ensures that minimum wage effect is estimated using only within establishment variation in the dependent variable, and year fixed

effects, ω_t, control for time-specific unobserved heterogeneity. We cluster standard errors at state-level. A critical assumption to this specification is that it can only identify the causal effect of minimum wage increases to the extent that *Paydex Score* of establishment in bound and unbound states are evolving similarly around the time that the federal government adjusts minimum wages. We conduct various tests to verify this assumption.

Notice that the federal government mandated minimum wage increase during recession years, i.e., 1990-1991 and 2007-2009. If the economy of the bounded states is more correlated with the US economy compared to unbounded state, then our regression may just pick up the effect of recession rather than a minimum wage increase. To ensure that we are not picking up the recession effect we test if there is a difference between in the state of the economy of the bounded and unbounded states.

We use the State Leading Index provided by FRED which captures the business cycle for each state. For January of each year, we look at five years before the first federal minimum wage increase in our data set, i.e., 1990 to five years after the last federal minimum wage increase, i.e., 2007. We estimate the following regression model at the state level for the years 1985 to 2012:

$$SLI_{st} = \sum_{j=-5}^{5} \alpha_j BD_{s,t}(j) + \sum_{j=-5}^{5} \alpha_j UBD_{s,t}(j) + \nu_s + \epsilon_{st} \tag{2}$$

In the above equation, SLI_{st} is our dependent variable which is mean *State Leading Index* for state s during year t. $BD_{s,t}$ is defined as $Bound_{s,t-1} \times \Delta MWDummy(F)_t$ and $UBD_{s,t}$ is defined as $(1 - Bound_{s,t-1}) \times \Delta MWDummy(F)_t$. $\Delta MWDummy(F)_t$ is an indicator variable equal to 1 if there is an increase in maximum federal minimum wage in year t, otherwise zero. We also control of state-specific unobserved heterogeneity by including state fixed effects (ν_s).

In Figure 3 we report our results. This figure plots the regression coefficients of equation (2) with ninety-five percent confidence interval. The solid line with circle plots the regression coefficients for bounded states, while the dashed line with diamonds plots the coefficient

for unbounded states. The bold-dashed line indicates the period right before the federal minimum wage change. We find that the bounded and unbounded states followed similar business before and after the federal minimum wage. Further, we saw the business cycle effect is more pronounced in unbounded states then bounded states. These results give us relief that we are not picking up the recession effect in our regression model (1).

Also, if the federal government's decision to adjust minimum wages is affected by or correlated with some other observable and unobservable differences in the economies of bound versus unbound states, we may not be able to identify our effect. For the various state, county and zip-level observable characteristics, we directly control them in regression estimates (see section IV.A.2 on local economic conditions) and also use them in matching methods (see IV.A.5 on nearest neighbor matching and section IV.A.6 on bordering county) to identify the right control group. To ensure that different unobservable local economic conditions in the bounded vs. unbounded state do not derive our results, we also control for state-year and county-year fixed effects in various cross-sectional results (see section IV.A.8 on heterogeneity).

III. Data

A. Sample Selection

We use establishment-level data for all the establishments in the United States from the National Establishment Time-Series (NETS) Database (Walls & Associates, 2014).[9] The database provides an annual record for a large part of the U.S. economy that includes establishment job creation and destruction, sales growth performance, survivability of business startups, mobility patterns, changes in primary markets, corporate affiliations that highlight M&A, and historical D&B credit and payment ratings.

[9]Walls & Associates converts Dun and Bradstreet (D&B) archival establishment data into a time-series database of establishment information.

The database covers almost 50 million US businesses of which data for *Paydex Score* is available for 15 million businesses over 25 years, i.e., 1989-2013. We keep only employing firms by dropping businesses with only one employee (dropping almost 3 million businesses). From 12.79 million businesses we keep only stand-alone businesses (i.e., drop 900,000 affiliated establishments with the large business firms). Further, we lose 3.8 million establishments in finance and real estate, utilities and those in professional services that are less likely to employ minimum wage workers.[10] Finally, to create the lagged value of sale growth (one of our control variables in baseline specification), we need at least three observation, and therefore we lose data on about another 3 million businesses. Our results are robust if we include these businesses in our sample (see section IV.A.3). In our final sample, we have 4.4 million small businesses that survived more than three years.

Table I, Panel A provides the summary statistics. We have about 72 million establishment-year observations for which we have all the data except Paydex Score. The *Paydex Score* is available for only 42.9% of the observations, i.e., around 31 million. Note that based on observable establishment characteristics, establishments with *Paydex Score* have lower exit rate, tend to be large both regarding sales and number of employees, older, labor-intensive (with a higher number of employees per thousand sales) and with low HHI index.

B. Summary Statistics

In this section, we provide summary statistics of our database. Firstly, we will discuss our primary variable of interest, i.e., *Paydex Score*, how it relates to various firm characteristics and summary statistics on state and federal minimum wage changes.

[10]Specifically, we drop establishments in following industries , utilities (NAICS2 22), finance and insurance (NAICS2 52), real estate (NAICS2 53), professional services and management of companies (NAICS 54, 55), educational services (NAICS 61), health care (NAICS2 62), religious organizations (NAICS3 813) and public administration (NAICS 92).

B.1. Paydex Score

The *Paydex Score* is a business credit score assigned by Dun and Bradstreet (D&B) to a company. It is a dollar-weighted numerical indicator of how a firm paid its bills based on trade experiences reported to D&B through its trade exchange program. D&B acquires its trade data from over 12,000 trade exchange participants globally in 35 markets, of which 4,200 are located in the US.

It compares payments to terms of sale, is dollar-weighted and is calculated based on the overall manner of payments reported to D&B. The score rates the likelihood of business will make payments to suppliers/vendors on time. Like a personal credit score, it is primarily used to measure the financial risk to lenders, and it can affect the premiums and interest rates company pays when it comes to financing bank loans or credit cards for small businesses.

In addition to lenders, the Paydex score is used by vendors, who often deliver goods and services and invoice a business for payment afterward. As a result, vendors have some financial risk of not getting paid. The Paydex score is one metric such suppliers can use to determine whether a new client or business partner might present possible risks going forward. Poor scores may make suppliers reluctant to do business or may limit the size and scope of services they are willing to agree to.

In Figure 4 bars plot the % of observations (left-axis) in each Paydex group, while the circle dots represent the mean Paydex (right-axis) score in each group in our sample. Note that a score of 80 and above means that the business is making its payments on time or in advance. A perfect score of 100 implies business makes payments one month in advance of when they are due. From NETS, we observe minimum and maximum Paydex score for a given establishment over a given year. We take the mean of the two measures and create *Average Paydex Score*. In our sample, the median of Average Paydex score is about 76.5, which implies that the business make payment five days after the terms, where the term is typically 30 days.[11]

[11] See `https://www.dandb.com/glossary/paydex/` for more information.

B.2. Establishment Characteristics

Table I, Panel A report the summary statistics of various establishment-level characteristics. The median establishment has sales of about $250,000, while for the ones with the *Paydex Score* is nearly double. Similarly, a median establishment with Paydex score employs about five workers, while this is 3 for the full sample. The median establishment with the Paydex score is about 17 years old, with about 12 employees per $ million sales. The mean HHI index measures at NAICS5 for a given county and is about 0.19.

B.3. Minimum Wage

Table I, Panel B, reports the summary statistics on federal and state minimum wage and their growth rate. We find that average annual state minimum wage (per hour) is about $5.50 per hour which is above the federal minimum wage, i.e., $5.25 per hour. This is especially the case for unbounded states. Note that, whenever the federal government decides to change the minimum wage, the average level of change or growth is much higher for bounded states compared to the unbounded states. For example, the median $\%\Delta MW(S)$ is about 6.0% for bounded states while for unbounded it is 3.0%.

IV. Results

A. Paydex Results

In this sub-section we will discuss our baseline results (section IV.A.1) for equation (1). We control for location economic conditions (section IV.A.2), test for robustness of baseline model (section IV.A.3) and do placebo tests (section IV.A.4). We use nearest neighbor matching (section IV.A.5) and bordering county tests (section IV.A.6) to further addresses endogeneity concerns. Further, test for pre and post dynamics (section IV.A.7), and finally, heterogeneity over various firm characteristics (section IV.A.8).

A.1. Baseline

We begin our analysis by plotting the average Paydex Score for establishments in bounded states and unbounded states around federal minimum wage increase. Figure 5 plots the average score with ninety-five percent confidence interval. The solid line with circle plots the average Paydex score for establishments located in bounded states, while the dashed line with diamonds plots the average of the Paydex score for unbounded states. The bold-dashed line indicates the period right before the federal minimum wage change. Firstly, we observe that the average *Paydex Score* trended parallel for establishments in bounded and unbounded states. Second, within two years of the federal minimum wage increase, there is a sharp decline in the *Paydex Score* for establishments in bounded states. Finally, we observe that the difference between the *Paydex Score* for establishments in the bounded and unbounded states converges over three to five years. We test these observations further in section IV.A.7

Note that the above results do not take in to account firm-specific and time-specific unobserved heterogeneity that may lead to lower credit score for establishments located in bounded states. Next, we estimate our difference-in-difference equation (1). Note that here, the interaction-term, $Bound_{s,t-1} \times \Delta MW(F)_t$ identifies the differential effect of federally mandated minimum wage over and above the effect of state-level variation caused by a change in the state-determined minimum wage and changing status of state from bound to unbound or vice-à-versa. As discussed before in section II.A, the number of states that are bounded by federal minimum wage change with time. Here we also control for establishment fixed effects and year fixed effects to identify results within the same establishment after controlling for macroeconomic trends. Table II, Panel A reports the effect of minimum wage change on the financial health of small businesses using difference-in-difference equation (1).

In Column (1)-Column (3), we estimate the regression equation without establishment controls, while Column (4)-Column (6) report results with a full set of establishment-level control variables ($X_{i,t-1}$) in our regressions: size (measured as Log(sales)), age (Log(age)),

number of employees (Log(employees)) and sales growth and are winsorized at their 1^{st} and 99^{th} percentiles. Column (1) and (4) report results for a minimum Paydex score during the year, while Column (2) and (5) report results for a maximum Paydex score during the year. In Column (3) and (6), we report results for an average score during the year measured as mean of minimum and maximum score during the year.

The -0.87 implies that, for a dollar increase in federal minimum wage, for establishments in bounded states, their minimum *Paydex Score* reduces by 0.87 points more compared to the establishments in unbounded states. For average Paydex Score, this is a reduction of 0.73 points. The median establishment in our sample has a score of 76.5, which implies a delay of 5 days compared to 30 days term. Now the reduction by 0.87 points implies delay by one more day, so effectively it's an increase in delay by 20%.

A.2. Local economic conditions

Note that whether state governments keep minimum wage at federal level or above may not be random. As discussed before, Allegretto, Dube, Reich, and Zipperer (2017) show that states that increase minimum wages have different business cycle severity, inequality, and composition of the labor force. We test for state-level variables that may affect state's decision to keep minimum wage at federal level. Table IA1 report the results where we regress bound dummy on state-level economic conditions and partisan. We find that large states based on population size and states with democratic senate are more likely to keep state minimum wage above the federal minimum wage. In this section we control for these state-level variables. Further, counties or zip codes in treatment and control states may differ in other economic conditions like unemployment rate, per capita income, house price and aggregate demand. These factors may influence the credit score of establishments located in bounded states.

In this section, we report results for regression estimates where we include various state, county, and zip-level observable characteristics. In Table II, Panel B, we include additi-

onal controls for local economic conditions at state, county and zip-level to our baseline specification, i.e., Column (6) of Panel A.

In Column (1), we control for lagged state-level economic conditions by including both level and growth in GSP and population. Note that after controlling for state economic conditions the negative effect increase from -0.73 to -0.83, and remain statistically significant. In Column (2), we control for partisan at the state-level and find consistent results.

In Column (3), we include county-level lagged unemployment rate, labour force and contemporaneous change in unemployment rate. We find that establishments located in counties with high unemployment rate (both level and changes) have low credit score. The effect of minimum wage diminishes to -0.67, but statistically significant.

While in Column (4) to (6), we control for aggregate sales growth, personal income (lagged level and growth) and house prices (lagged level and growth) at zip-level, respectively. We find that establishment's credit score is positively correlated these variables. In Column (7), we include all the controls at state, county and zip level.[12] Although observations drop significantly due to non-availability data, we do find significant negative effect on credit score. As a further robustness, we use these variables to create matched control sample and report results in section IV.A.5.

A.3. Robustness

In this section, we test the robustness of our results. For baseline specification, i.e. Column (6) of Panel A, Table II, we report our robustness results in Table II, Panel C.

It is possible that our results may be driven by many small unhealthy firms entering the bounded states. To control for this, we interact all establishment controls with bound dummy and report results in Column (1). We find that the negative effect reduces from -0.73 to -0.70, but remained statistically significant. Later, to address this issue further, in section IV.A.5 we use nearest neighbor matching.

[12]We calculate aggregate sales growth using NETS data, for personal income we use publicly available IRS zip-level individual income data, and we use Zillow's house price index at zip-level.

In Column (2), we replace year fixed effects with NAICS4×year fixed effects to control for industry-specific time-varying unobserved heterogeneity in establishment's Paydex Score. Our results are robust to the inclusion of these fixed effects.

In Column (3), we include all the establishments that we drop from our baseline. We make use of 90 million observations for 15 million establishments. Although the magnitude reduces by 0.10 points, it remained significant. In Column (4), we include all the industries that we drop from our baseline and find similar results.

In Column (5), we include multi-establishment businesses that are less likely to be affected by minimum wage increase and find that our negative effect reduces but remains statically significant at 1% level. In Column (6), we report results for businesses connected with multiple establishment firms and find an almost insignificant effect on their credit score.

In Column (7) and Column (8), we replace $\Delta MW(F)_t$ with $\%\Delta MW(F)_t$ and $\Delta Dummy(F)_t$, respectively and report regression results. $\Delta MWDummy(F)_t$ is an indicator variable equal to 1 if there is an increase in maximum federal minimum wage in year t, otherwise zero. While, $\%\Delta MW(F)_t$ is change measure indicating the percentage increase in minimum wage by the federal government in year t, otherwise zero. In the year 2007, the federal minimum wage increased from \$5.15 to \$7.25, which implies an increase of almost 40%. The regression coefficient suggests a decline in score by (0.40*3.85=) 1.85 points. This reduction in score implies a delay in payment by nearly three days. We find consistent results when we use a dummy instead of change measure.

In Column (8), we report the dynamics. $\Delta MWDummy(F)_t$ Yr1 is an indicator variable equal to 1 that identifies the year 1990, 1996 and 2007. $\Delta MWDummy(F)_t$ Yr2 identifies the year 1991, 1997 and 2008. $\Delta MWDummy(F)_t$ Yr3 identifies the year 2009. We find the effect is negative and reduces over time. We further explore the dynamics in section IV.A.7.

A.4. Placebo Test

As mentioned in data section III.A, we drop industries that are not likely to hire minimum wage workers, i.e., researchers, management consultants. In this section, we report results for establishments in such industries and use them as our placebo samples. If the negative effect is driven by local economic conditions and not minimum wage increase, then we should observe a decline in Paydex score of establishments that are less likely to employ minimum wage workers and likely to be affected by local economic conditions.

Table II, Panel D, report results for our placebo tests. Column (1) we report results for establishments that employ researchers (NAICS4 5416, 5417). Column (2) report results for Physicians (NAICS3 621), Column (3) for religious institutions (NAICS3 813), Column (4) for management consultants (NAICS2 55) and Column (5) for education services (NAICS2 61). Notice that for all these samples we do not find a statistically significant negative effect on Paydex Score.

A.5. Nearest Neighbor Matching

As we discussed in the previous section, one of the important concern for identification of our results includes establishments in the unbounded states may not be a good control group if there are pre-selection financially unhealthy firms in the bounded states. To control for this selection issue, we use narrow event window, and in the pre-event year, we match establishments in the bounded states (treatment group) with those in unbounded states (control group) based on the pre-shock level of credit score and establishment-, state-, county- and zip-level observable characteristics.

Since, in the year 2007, the federal minimum wage increased from \$5.15 to \$7.25, which implies an increase of almost 40%. For this particular series of the federal minimum wage increase, we match firms in the year 2006. Firstly, we use the credit score in the year 2006 and exactly match establishments in the bounded states (treatment group) with the possible set of control establishments within the same NAICS4 industry donor group in the

unbounded states (control group). Next, for the exactly matched control sample, we compute the Euclidean distance between treatment and control samples based on establishment-, state-, county- and zip-level observable characteristics.

Table III, Panel A reports the means of the Euclidean distance based nearest neighbor pairs in the year 2006. Column (1) reports the balance for establishment-level characteristics, i.e., sales, employees, employee-to-sales and sales growth. In Column (2), we match state-level economic conditions by including both level and growth in GSP and population. In column (3), we match for partisan at the state-level. In Column (4), we match county-level unemployment rate, labor force and change in unemployment rate. While in Column (5) to (7), we match for aggregate sales growth, personal income (lagged level and growth) and house price (lagged level and growth) at zip-level, respectively. In Column (8), we include all variables to match at state, county and zip level covariates. Note that, for establishments located in bounded states in year 2006, We found about 600,000 to 800,000 matched pairs in different matching models.

Panel B report the results for our baseline regressions equation (1) for year 2006 to 2013 for the *matched pairs*. $Bound_{s,t-1}$ is a dummy variable equal to 1 if at the beginning of fiscal year t if state s has a state minimum wage less than or equal to the maximum federal minimum wage. $\Delta MW(F)_t$ is the dollar increase in maximum federal minimum wage in year 2007, 2008 and 2009, otherwise zero. Therefore, the interaction-term, $Bound_{s,t-1} \times \Delta MW(F)_t$ identifies the differential effect of federally mandated minimum wage over and above the effect of state-level variation caused by a change in state-determined minimum wage and changing status for bound to unbound or vice-à-versa. In Column (2)– Column (8), in addition to establishment-level controls, we also include the matching variables as controls. Here, we also include matched-pair fixed effects and year fixed effects. Notice that for the matched sample we find consistent results in all specifications and the magnitude in Column (8) matches our baseline estimates.

The results suggest that for establishments in the bounded state, with a dollar increase in

federal minimum wage, the *Paydex Score* declines by 0.75 points more, compared to similar establishments located in the unbounded state.

A.6. Bordering County

In section IV.A.5, we used nearest neighbor based on observed variables to control for differences in local economic conditions. We further attempt to control for local economic conditions by analyzing the establishments located in the contiguous counties close to state borders. The underlying assumptions for this identification strategy includes 1) the adjacent counties at state borders have similar economic conditions except for the minimum wage, and 2) there are no spillovers around the state borders, i.e., minimum wage workers do not cross borders for a higher minimum wage.

Table IV reports the heterogeneity of our results based on distance from state borders. Column (1)-Column (3), we report results for establishments located in contiguous counties at state borders. Column (1) includes all the establishments in contiguous counties. We find that the negative effect is lower compared to the baseline specification. One possible reason for this could be spill-overs at state borders. Column (2) we include counties where both the states are either bounded or unbounded by federally mandated minimum wage. We find that there are more county-pairs where "bounded" states bordering other "bounded" states rather than the "unbounded" states. In Column (3), in the treatment group, we only include state-borders where only one state is bounded by federally mandated minimum wage. We find no effect for establishments located in county-pairs where "bounded" states bordering "unbounded" states. Spillovers at the state borders may be one reason for no effect, i.e., minimum wage workers are more likely to cross state borders for a higher wage.

Further, in Column (4)-Column (7) we include establishments located in non-contiguous counties. Column (5), Column (6) and Column (7) report results for establishments located within 50-100 miles, 100-150 miles and more than 150 miles, respectively from the state border. We find that establishments located far from state borders have strong negative

effect on Paydex Score, which further confirm the possibility of spill-over at state borders.

In Column (8), we report the difference of Column (7) and Column (5). Here, we only include establishments located within 50-100 miles and those more than 150 miles from the state borders. $Distance(> 150)$ is a dummy variable that identifies establishments located more than 150 miles from the state border. Here we include establishment fixed effects and group specific-year fixed effects. To ensure that local economic conditions in the bounded vs. unbounded state do not derive our results, we also control for state-year fixed effects. The results suggest that among the bounded states within the same state, establishments located far from state borders are adversely by an increase in federal minimum wage increase compared to establishments close to state borders.

A.7. Pre and Post Dynamics

As discussed before in section II.B, our above results can only identify the causal effect of minimum wage increases to the extent that *Paydex Score* of establishments in bound and unbound states are evolving similarly around the time that the federal government adjusts minimum wages. We test this assumption in this sub-section. We estimate the following equation:

$$Y_{it} = \sum_{j=-5}^{5} \alpha_j BD_{s,t}(j) + \sum_{j=-5}^{5} \alpha_j Bound_{s,t}(j) + \kappa X_{i,t-1} + \nu_i + \omega_t + \epsilon_{ist} \tag{3}$$

In the above equation $BD_{s,t}$ is defined as $Bound_{s,t-1} \times \Delta MWDummy(F)_t$ and all the controls are similar to equation (1). The inclusion of $Bound_{s,t-1}$ dummy for both pre and post window controls for changing status for bound to unbound or vice-à-versa. Here, we estimate these interaction terms for five years before and five years after the minimum wage increase.

In Figure 6 we report our results. The figure plots the regression coefficients of the interaction terms in equation (3) with ninety-five percent confidence interval. The bars

plots the regression coefficients of interaction term identifying bounded states for five years before and after the federal minimum wage increase, while dashed lines plots the ninety-five percent confidence interval. The bold-dashed line indicates the period right before the federal minimum wage change.

Similar to Figure 5, we observe that the difference between the average Paydex Score for establishments in bounded and unbounded states is insignificant, five years before the federal minimum wage increase. So, our results documented above are causal. Second, we note that in the year of the federal minimum wage increase, there is a sharp decline in the Paydex score for establishments in bounded states. This is consistent with our baseline results reported in section IV.A.1. Finally, we observe that the difference between the Paydex score for establishments in the bounded and unbounded states converges over three to five years. One possible reason for this could be that establishments that managed to survive may be able to pass through some of these extra labor costs to customers over a more extended period.

A.8. Heterogeneity

In this sub-section, we test the heterogeneity of our results. We examine heterogeneity based on minimum wage sensitive industry, establishment labor intensity, size, age, local competition, local income and ex-ante level of Paydex score.

A.8.1 Minimum Wage Sensitive Industries

As per 2015 Current Population Survey, Restaurants (NAICS 72) and Retail Trade (NAICS 44,45) are the only industries where over 10% of employees make minimum wage. In this sub-section, we test if the magnitude of the impact is higher for such industries. We estimate equation (3) separately for each industry and plot the regression coefficient of interaction terms in Figure 7. We find that the negative effect is more for restaurants and retail, but the impact is not limited to these industries. The pre and post dynamics are similar to baseline results on dynamics.

A.8.2 Labour Intensity

In this sub-section, we test the differential effect of a federal minimum wage increase on the establishment's financial health based its labor utilization. In our data median establishment employs 12 employees per $ million sales. We hypothesize that the negative effect of the federal minimum wage increase should be more for labor-intensive businesses. Firstly, we partition our sample into quintiles based on labor intensity one year before the federal minimum wage change. Then, we reestimate equation (1) where we interact the equation by each quintile group. In Figure 8 we plot the regression coefficient on triple interaction terms with 95% confidence interval. We find that with the minimum wage increase, the more labor-intensive establishments are adversely affected compared to less labor-intensive establishments.

As discussed before in section II.B, one identification challenge in our case, if the federal government's decision to adjust minimum wages is affected by or correlated with unobservable differences in the economies of bound versus unbound states we may not be able to identify our effect. To ensure that local economic conditions in the bounded vs. unbounded state do not derive our results, we also control for state-year fixed effects in our cross-sectional results. Table V reports the results of analysis using triple-interaction.

We partition our sample into two groups using the median establishment labor-intensity one year before the federal minimum wage change. We define $MoreLabour$ as indicator variable equal to 1 if the establishment's labor-intensity measure is above median labor-intensity, otherwise zero. We define $LessLabour$ as 1-$MoreLabour$. For $LessLabour$ and $MoreLabour$ establishments, we run our baseline model i.e. column (6) of Table II, Panel A, and report results in column (1) and column (2) of Table V, respectively. Note that we find strong negative results for both $LessLabour$ and $MoreLabour$ establishments, while the negative effect is more for $MoreLabour$ establishments. In column (3), we include establishment controls, establishment fixed effects, and state-year fixed effects. While in

column (4), we further include NAICS4-year fixed effects. We find consistent results.

We redo our analysis with labor cost. We measure the establishment's labor cost as the number of employees $\times$ average salary divided by sales. We use QCEW data to estimate average compensation at county-NAICS4 level. Table VI report the regression results. The results are similar to labor-intensity results.

Further, using both measures of labor utilization, we re-estimate equation(3) by interacting the equation with each median group. The Figure 9 plot the regression coefficients with ninety-five percent confidence interval. The solid line with circle plots the regression coefficients for more labor intensive/cost establishments, while the dashed line with diamonds plots the coefficient for less labor intensive/cost establishments. The bold-dashed line indicates the period right before the federal minimum wage change.

Consistent with previous findings, the difference between the Paydex score before the minimum wage increase is insignificant for two groups and difference increases after the minimum wage increase. Overall, we find consistent negative results for labor-intensive businesses.

A.8.3 Establishment Size and Age

In this sub-section, we test the differential effect of a federal minimum wage increase on the establishment's financial health based its size and age. These measures may proxy the ability of the businesses to absorb the financial shock caused by an increase in labor cost. We test this hypothesis and report results in Table VII and Table VIII.

Like labor-intensity, firstly, we partition our sample into quintiles based on size (measures as total as sales) and age one year before the federal minimum wage change. Then, re-estimate (1) where we interact the equation by each quintile group. In Figure 10 we plot the regression coefficient on triple interaction terms with 95% confidence interval. We find that with the minimum wage increase, small and young establishments are adversely affected.

Next, we partition our sample into two groups using median sales. We define size-median

one year before the federal minimum wage change and define *Small* as indicator variable equal to 1 if establishment's sale is below median sales, otherwise zero. We define *Large* as 1-*Small*. For *Small* and *Large* establishments, we run our baseline model i.e. Column (6) of Table II, Panel A, and report results in Column (1) and Column (2), respectively. Note that we find strong negative results for both *Small* and *Large* establishments, while the negative effect is more for *Small* establishments.

In Column (3), we include establishment controls, establishment fixed effects, and state-year fixed effects. We interact *Small* with equation (1). We do find that effect is strong for small establishments compare to the large establishments within the bounded states. Finally, in Column (4), we further include NAICS4-year fixed effects to identify effects within the same NAICS4-industry year.

We do the same analysis for establishment age and report our results in Table VIII. We find similar results, i.e., the negative effect is strong for young establishments.

A.8.4 Local Competition

With the increase in labor cost, the cost of goods sold (COGS) increases for businesses. If establishments can completely pass on these increased costs on to the customers immediately, then they may not feel financial stress. In this sub-section, we test this possibility by looking at the relative local competitiveness in the given firm's industry. The establishments in our sample are relatively small businesses, and the local competition determines their cash flows. We expect that an establishment within the same industry, located in the less competitive neighborhood may find it easy to pass on the increased labor costs compared to other establishments and may observe a lower reduction in Paydex score

To test the effect of local competition on a firm's ability to pass through these costs, we measure local product market competition using the HHI index measured at NAICS5-county-year. To create the HHI index we used the full set of 50 million establishments. Similar to the previous sub-section, firstly, we partition our sample into quintiles based on

HHI index one year before the federal minimum wage change. Then, re-estimate (1) where we interact the equation by each quintile group. In Figure 10 we plot the regression coefficient on triple interaction terms with 95% confidence interval. We find that with the minimum wage increase, establishments in more competitive location are adversely affected.

We partition our sample into two groups and define HHI median one year before the federal minimum wage change and define $HighCompetition$ as indicator variable equal to 1 if establishment's NAICS5-county-year HHI measure is below median HHI, otherwise zero. We define $LowCompetition$ as 1-$HighCompetition$. For establishments in $HighCompetition$ and $LowCompetition$ industry-county-years, we run our baseline model, i.e., Column (6) of Table II, Panel A, and report results in Table IX, Column (1) and Column (2), respectively. We find that the effect is very strong and dominant for establishments in more competitive areas.

In Column (3) and (4), we do this analysis using triple-interaction. In Column (3), we include we include establishment controls, establishment fixed effects, and state-year fixed effects. While in Column (4), we further include NAICS4-year fixed effects. Here, our tests essentially compare two establishments in the same industry and in the bounded state, we find a strong negative effect for establishments located in counties where they face more competition.

Overall, these results suggest that small businesses located in bounded states are more effected by federally imposed minimum wage increase, especially those located in more competitive counties. Thus, establishments may not be able completely to pass on these increased costs on to the customers immediately, and therefore they observe some financial stress.

A.8.5 Local Personal Income

Similar to local competitiveness, the ability of establishments to completely pass on increased labor costs on to the customers immediately depends on local personal income. The increase in minimum wage, on one hand, increase labor costs for businesses, but at the

same time, it increases the per-capita local income. If businesses can pass on these costs in low-income zip-codes, then we should not find a decline in their score. Otherwise, we should expect more negative effect in a low-income neighborhood.

To test the effect of local personal income on a firm's ability to pass-through these costs, we use zip code level IRS data on personal income. Similar to the previous sub-section, firstly, we partition our sample into quintiles based on local personal income one year before the federal minimum wage change. Then, re-estimate (1) where we interact the equation by each quintile group. In Figure 10 we plot the regression coefficient on triple interaction terms with 95% confidence interval. We find that with the minimum wage increase, establishments in the low-income neighborhood are adversely affected

We partition our sample into two groups and define income median one year before the federal minimum wage change and define $HighIncome$ as indicator variable equal to 1 if establishment's zip code is above median income, otherwise zero. We define $LowIncome$ as 1-$HighIncome$. For establishments in $HighIncome$ and $LowIncome$ zip coded, we run our baseline model, i.e., Column (6) of Table II, Panel A, and report results in Table X, Column (1) and Column (2), respectively. We find that the effect is very strong and dominant for establishments in low-income areas.

In Column (3) and (4), we do this analysis using triple-interaction. In Column (3), we include we include establishment controls, establishment fixed effects, and county-year fixed effects. While in Column (4), we further include NAICS4-year fixed effects. Here, our tests essentially compare two establishments in the same industry and the bounded state; we find a strong negative impact on establishments located in zip codes with low income.

A.8.6 Ex-ante Paydex Score Group

In this sub-section, we test if the ex-ante financial health affects the magnitude of the impact. In other words, if the business is already delaying payments and have cash flow problems, then we expect the adverse effect should be more for financially unhealthy firms.

We test this hypothesis and report results in Figure 11.

The figure plots the regression coefficients of equation (1) with 95% confidence interval for different Paydex groups defined one year before the federal minimum wage change. We do find a significant negative effect on the Paydex score for establishments with ex-ante low scores, with the effect diminishing with the high ex-ante Paydex score.

B. Bank Loan and Default Results

As discussed in section III.B.1, *Paydex Score* is used very frequently by lenders to measure the financial risk. In this section, we test if minimum wage increase also affects the small businesses ability to obtain a loan from banks.

We make use of SBA publicly available 1 million loan transactions of all 7(a) and 504 loans approved since January 1, 1990. The Small Business Administration (SBA) 7(a) Loan Guarantee program is one of the most popular loan programs offered by the agency and is the basic SBA loan program. A 7(a) loan guarantee is provided to lenders to make them more willing to lend money to small businesses with "weaknesses" in their loan applications. We drop all the canceled loans and to be consistent with our Paydex sample; we apply the same industry filter. The average loan is about $100,000 with maximum loan size $ 0.5 million. In this section, we test the differential effect of federally mandated minimum wage on the amount of SBA guaranteed bank loans offered to small businesses. We also look at the default risk on previously issued loans around the minimum wage increase.

B.1. Loan Amount

We estimate our dynamic regression equation(3) with on logged loan amount as dependent variable. We report our results in Table XI. Column (1) we report results with state and NAICS4×year fixed effects. We report only interaction terms five years before and after the minimum wage increase. We find that there is no difference in loan amount between the bounded and unbounded states before the federally mandated minimum wage increase.

We find loan amount reduces by 15% one year after the minimum wage increase. The result implies a 9% decline for a dollar increase in federal minimum wage. Similar to Paydex results, the difference between bounded and unbounded states diminishes within 5 years. In Column(2) we add state-level control on economic conditions i.e., GSP and population (both level and growth). In Column (3) and (4), we replace state fixed effects with borrower zip code fixed effects. We find consistent results.

B.2. Loan Default

Next, for the loans issued we test if the probability of default of granted loans increases with an increase in minimum wage. In Figure 12, we plot the regression coefficient of the dynamics of the differential effect of federal minimum wage for establishments located in bounded versus unbounded states on default of bank loans issued before the minimum wage increase. The figure plots the regression coefficients of equation (3) with 95% confidence interval, where we run cox-survival model stratified over loan term and NAICS4 $\times$ year after controlling for loan size. The bars plots the regression coefficients of interaction term identifying bounded states for five years before and after the federal minimum wage increase, while dashed lines plots the ninety-five percent confidence interval. The bold-dashed line indicates the period right before the federal minimum wage change. We find that for a dollar increase in the federal minimum wage increase, risk of default on loan increase by almost 12% by the end of five years.

C. Exit Results

In the previous section, we find that with an increase in minimum wage by the federal government, there is a differential effect on the Paydex score of establishments located in bounded versus unbounded states. The effect is stronger for labor-intensive, small and young business and those located in the low income and competitive neighborhood. Further, we find a lower loan amount and higher default risk on bank loans. In this context, it is important

to understand, whether this increased cost of labor significantly affect the exit risk of small businesses.

Note that the Paydex score is one metric such suppliers can use to determine whether a new client or business partner might present possible risks going forward. Poor scores may make suppliers reluctant to do business or may limit the size and scope of services they are willing to agree to. We check if Paydex score correlates with observed exit rates or not. In Figure 13, we plot exit rates for establishments without a Paydex score and for each group of the Paydex score. We find a clear negative pattern, i.e., the average exit rate is about 11% for establishments without a Paydex score, and this rate decreases with increase in the Paydex score.

Next, we calculate the exit rate within each county at NAICS5 digit level. We define the exit rate as ratio number of firm exits within each county-NAICS5 industry in a given year divided by the number of establishments one year before. Figure 14 plots the regression coefficient of the dynamics of the differential effect of federal minimum wage for establishments located in bounded versus unbounded states on exit rates for restaurants (NAICS 72). The figure here plots the regression coefficients of equation (3) with 95% confidence interval, where the exit rate at FIPS-NAICS5 level is calculated using NETS data. In regressions, we include FIPS×NAICS5 and year fixed effects. The bars plots the regression coefficients of interaction term identifying bounded states for five years before and after the federal minimum wage increase, while dashed lines plots the ninety-five percent confidence interval. The bold-dashed line indicates the period right before the federal minimum wage change. We find that the exit rate increase to 1.1% for restaurants one year after the minimum wage increase compares to the sample mean of 8%. We do not see an increase in the exit rate in other industries. Overall, we find an increase in exit rates for minimum wage sensitive industry with an increase in the minimum wage when their state is bounded federal minimum wage.

V. Conclusion

The policymakers discussion on increasing federal minimum wage to \$15 *per hour* requires a thorough analysis of its impact on small businesses. Using inter-temporal variation in whether a state's minimum wage is bound by the federal minimum wage and credit-score data for approximately 15.2 million establishments for the period 1989-2013, we find that increases in federal minimum wage worsen the financial health of small businesses in the affected states. Small, young, labor-intensive, minimum-wage sensitive establishments located in bounded states and businesses located in competitive and low-income areas experience higher financial stress. Increases in minimum wage also lead to lower bank loans, a higher risk of loan default and higher exit rate for affected small businesses. The evidence suggests that some small businesses are unable or unwilling to pass-through costs to customers immediately and consequently experience financial stress. Overall, our results document the unintended effect of the federally imposed uniform rule that may increase the minimum wage in areas where businesses are not being able to absorb the increased cost of labor and thereby feel financially stressed or may even get bankrupt.

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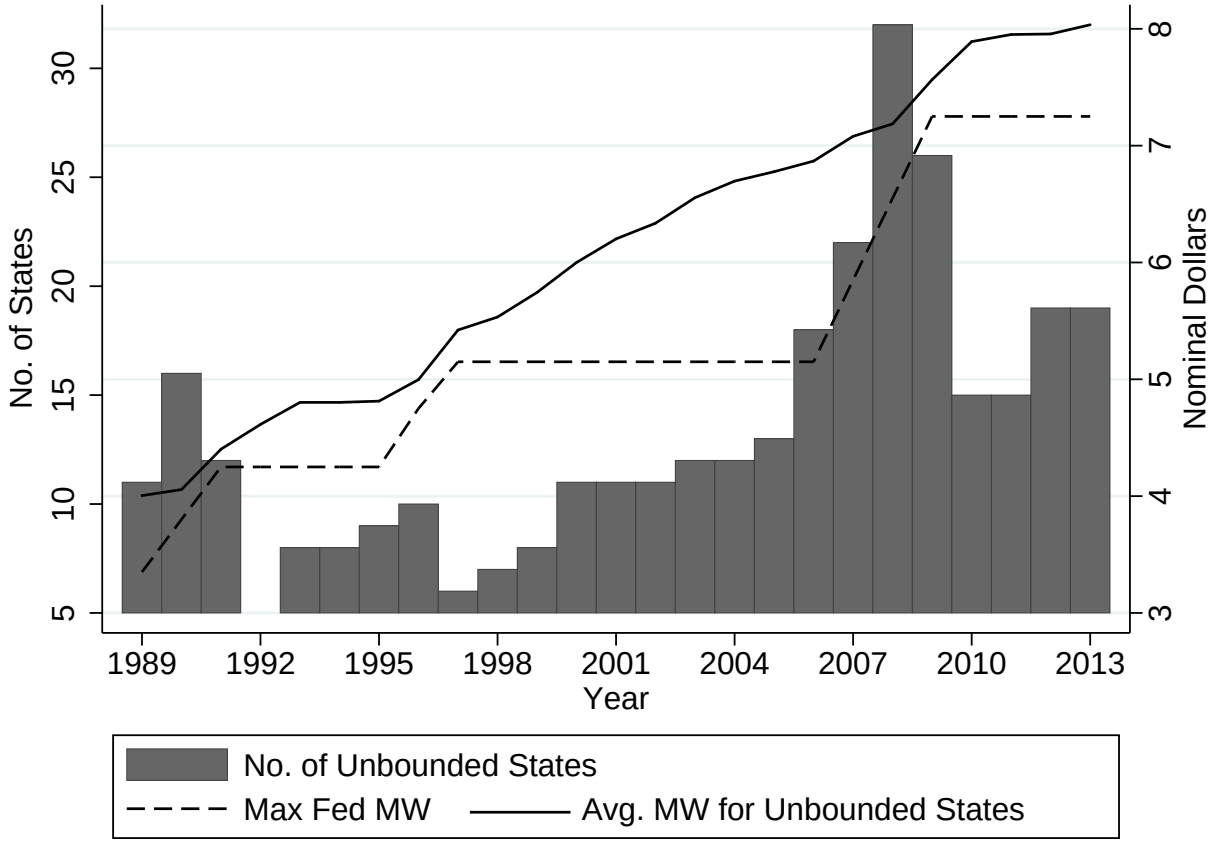

Figure 1: Minimum Wage and Unbounded States: The bar (left-axis) shows by year the number of states with minimum wage above the federal mandated minimum wage (unbounded states) in each year between 1989 and 2013. The dash line and solid line (right-axis) plots the average federal minimum wage per hour and average minimum wage in unbounded states, respectively. Calculated based on Source: Bureau of Labour Statistics

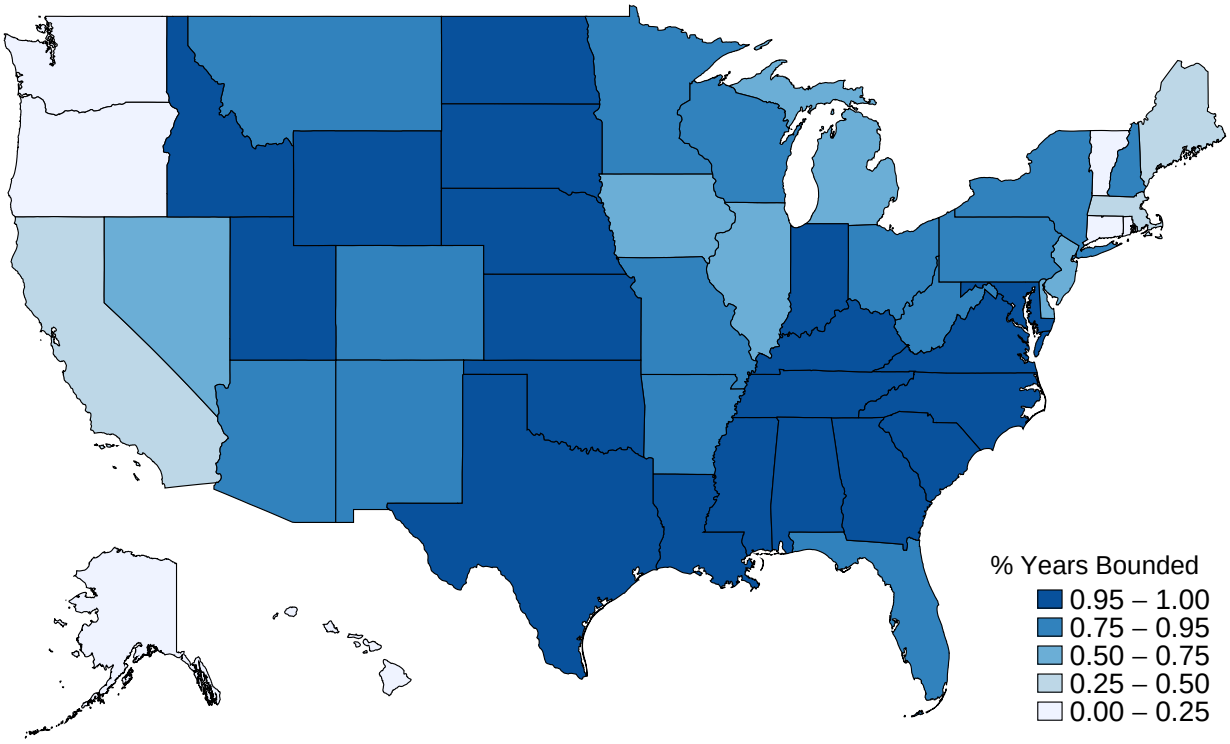

Figure 2: Bounded States by Year: The map plots the % of years during 1989-2013 a given state has average minimum wage bounded by maximum federal minimum wage. The dark shade reflects that states which are mostly bounded by federal mandated minimum wage. Calculated based on Source: Bureau of Labour Statistics

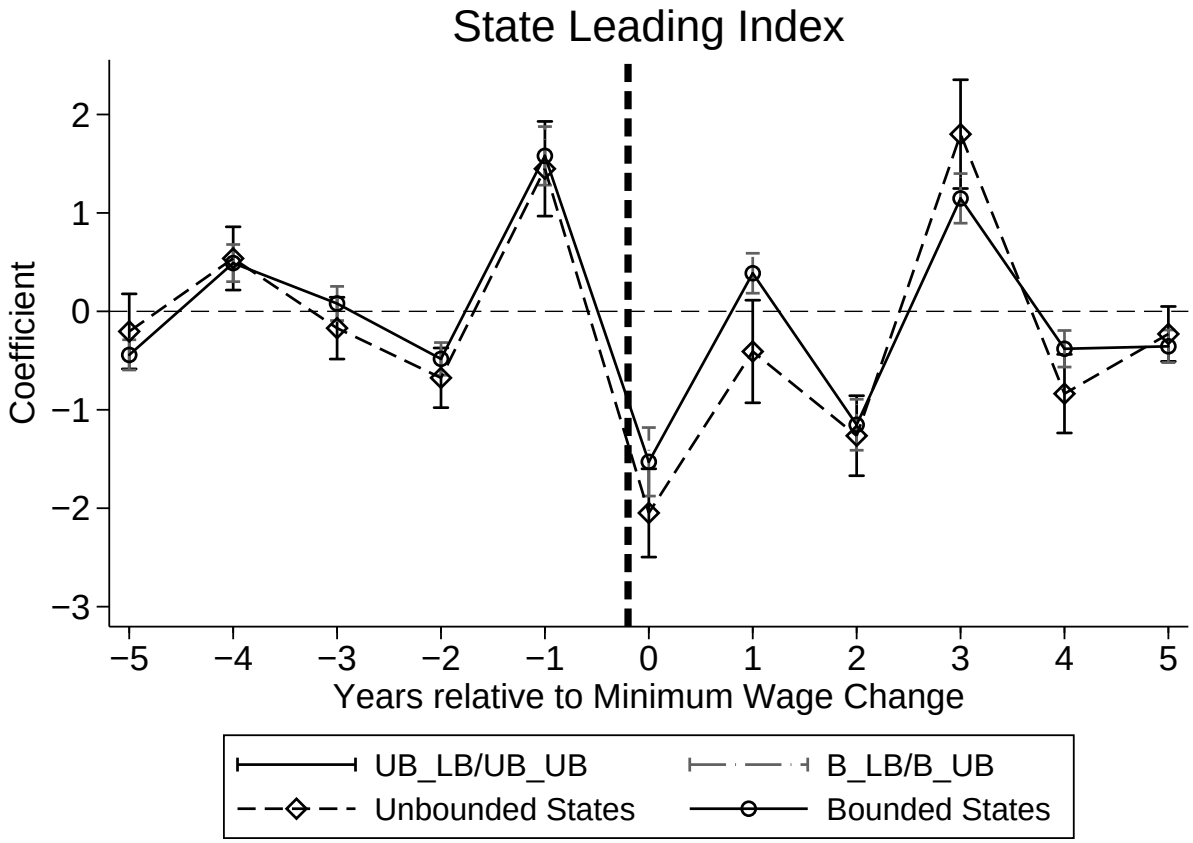

Figure 3: State Leading Index Dynamics: We test the dynamics of the differential trends of bounded versus unbounded states around federal minimum wage increase. This figure plots the regression coefficients of equation (2) with ninety five percent confidence interval. The solid line with circle plots the regression coefficients for bounded states, while dashed line with diamonds plots the coefficient for unbounded states. The bold-dashed line indicates the period right before the federal minimum wage change.

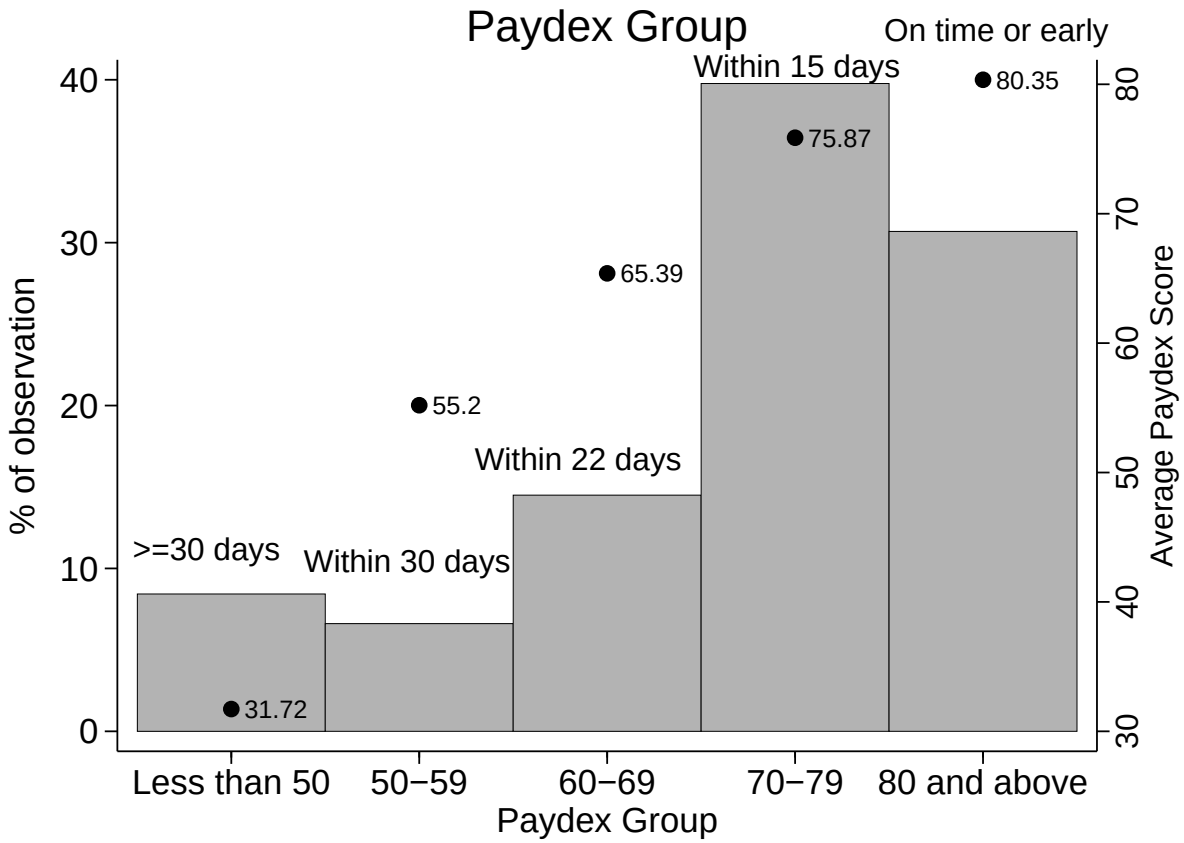

Figure 4: Paydex Group Summary: The bars in the figure plots the % of observations (left-axis) in each paydex group, while the circle dots represent the mean paydex (right-axis) score in each group.

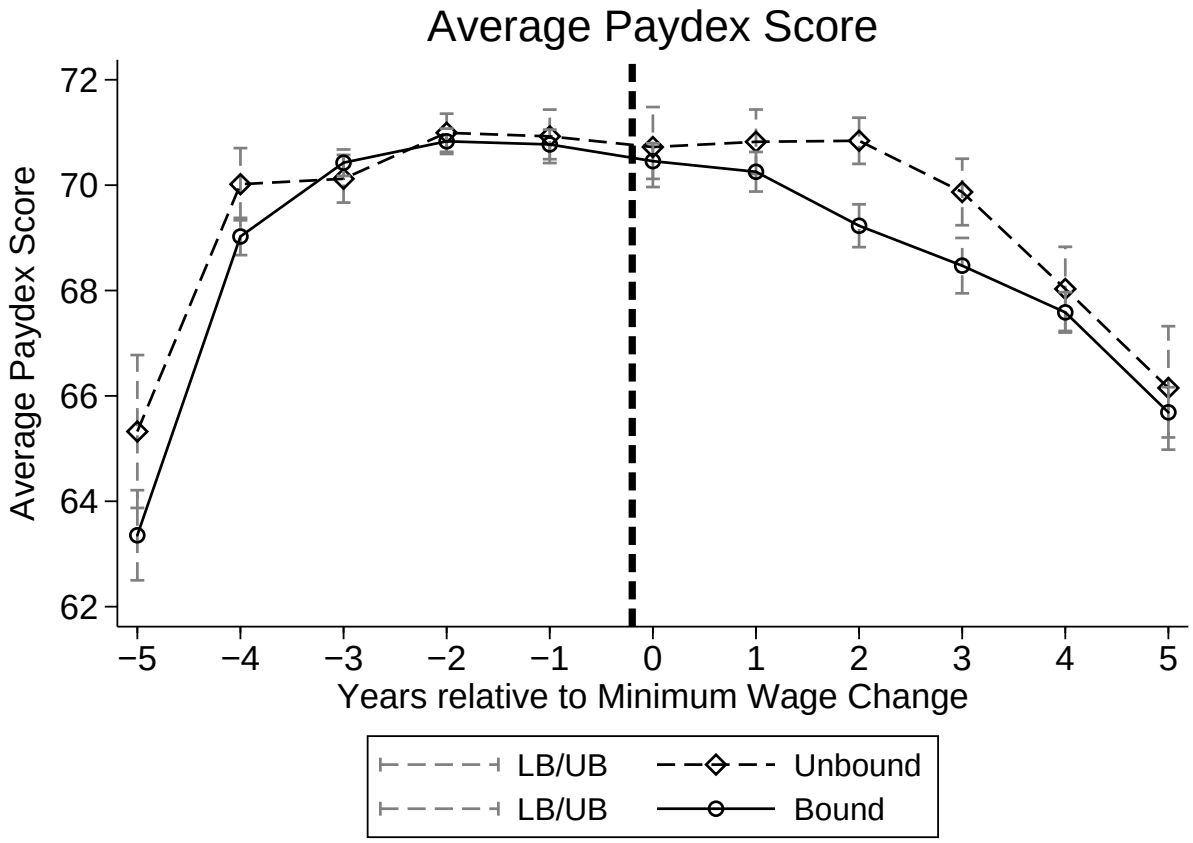

Figure 5: Paydex Score Dynamics I: We test the dynamics of the differential effect of federal minimum wage on Paydex score for establishments located in bounded versus unbounded states. This figure plots the Average Paydex Score with ninety-five percent confidence interval. The solid line with circle plots the average Paydex score for establishments located in bounded states, while dashed line with diamonds plots the average of Paydex score for unbounded states. The bold-dashed line indicates the period right before the federal minimum wage change. Standard errors in brackets and are clustered at the state level.

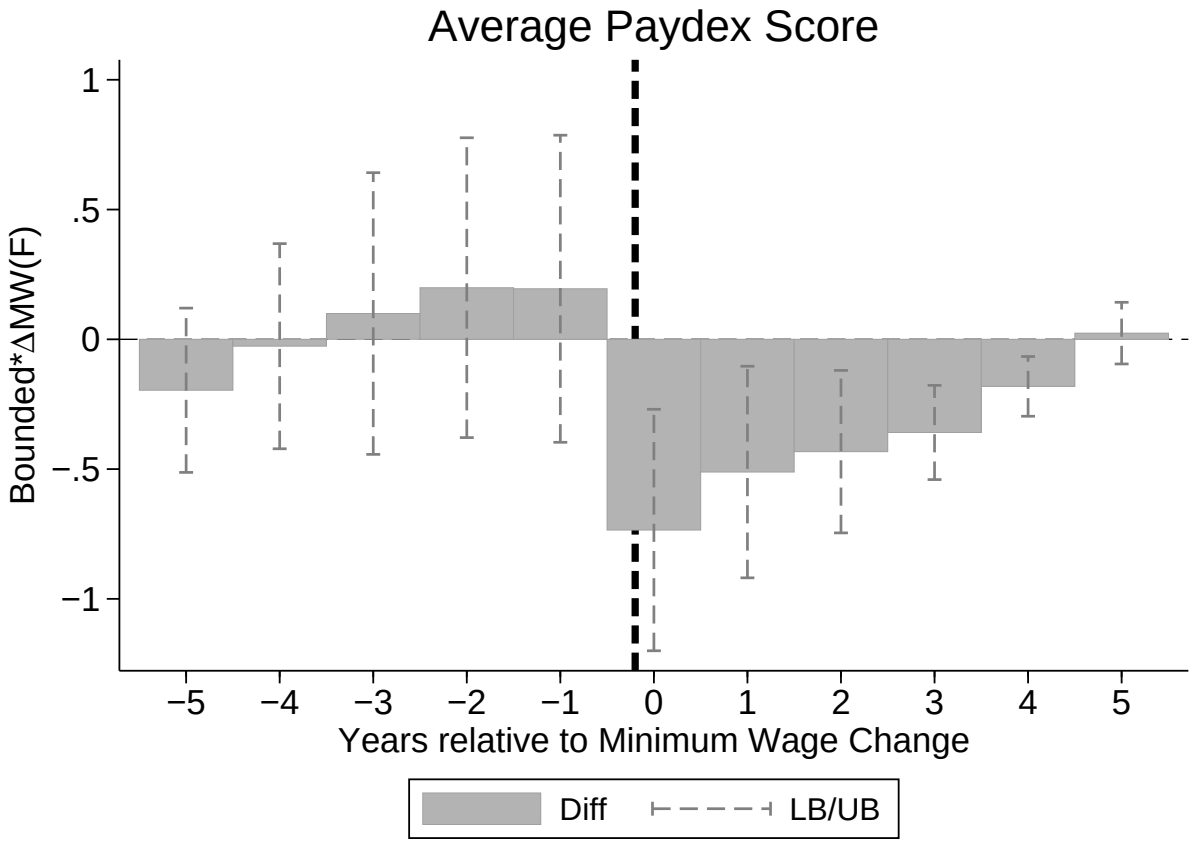

Figure 6: Paydex Score Dynamics II: We test the dynamics of the differential effect of federal minimum wage on the Paydex score for establishments located in bounded versus unbounded states. This figure plots the regression coefficients of equation (3) with ninety-five percent confidence interval. The bars plots the regression coefficients of interaction term identifying bounded states for five years before and after the federal minimum wage increase, while dashed lines plots the ninety-five percent confidence interval. The bold-dashed line indicates the period right before the federal minimum wage change.

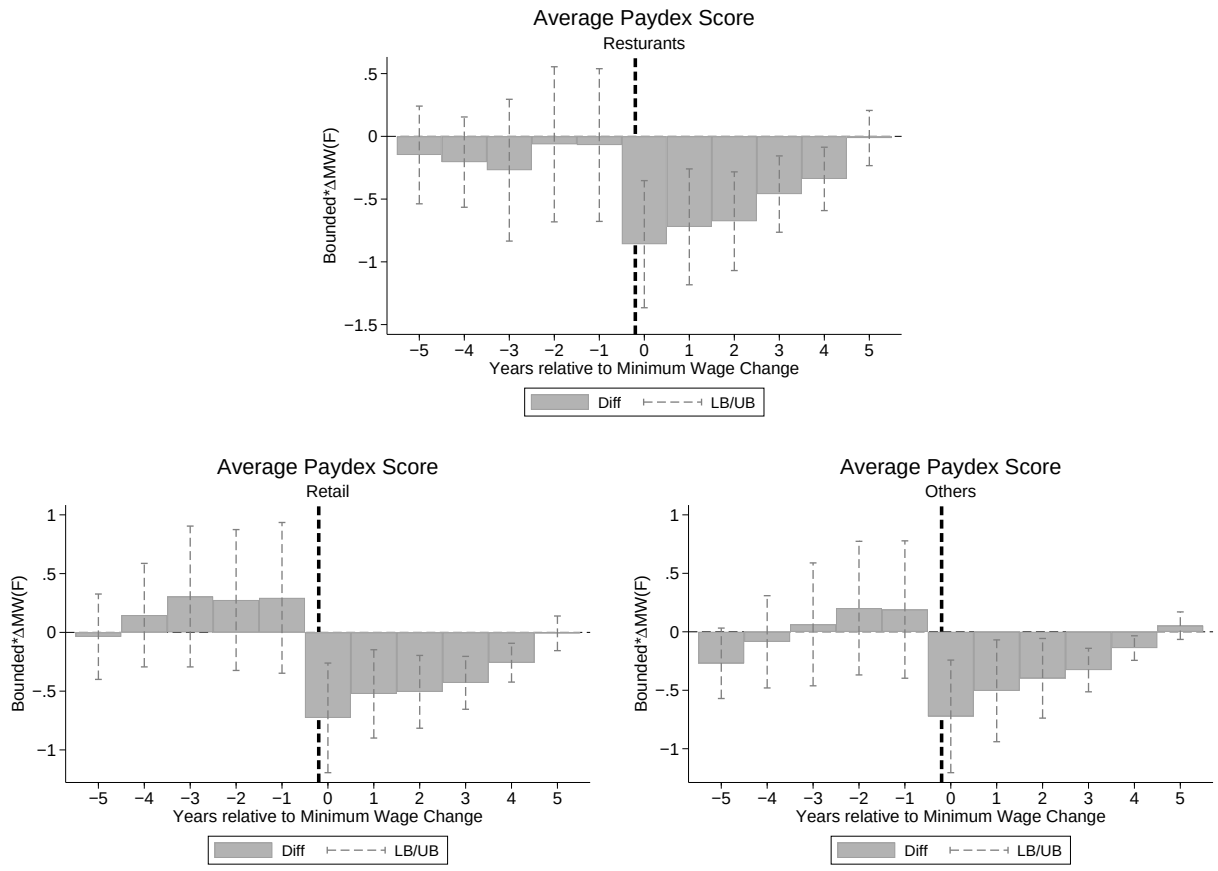

Figure 7: Paydex Score Dynamics–Industry Heterogeneity: We test the dynamics of the differential effect of federal minimum wage on the Paydex score for establishments located in bounded versus unbounded states based on industry heterogeneity. The figures here plot the regression coefficients of equation (3) with 95% confidence interval for each group. The bold-dashed line indicates the period right before the federal minimum wage change. We present plots for a) Restaurants (NAICS2 72) b) Retail (NAICS2 44 and 45) and c) Others.

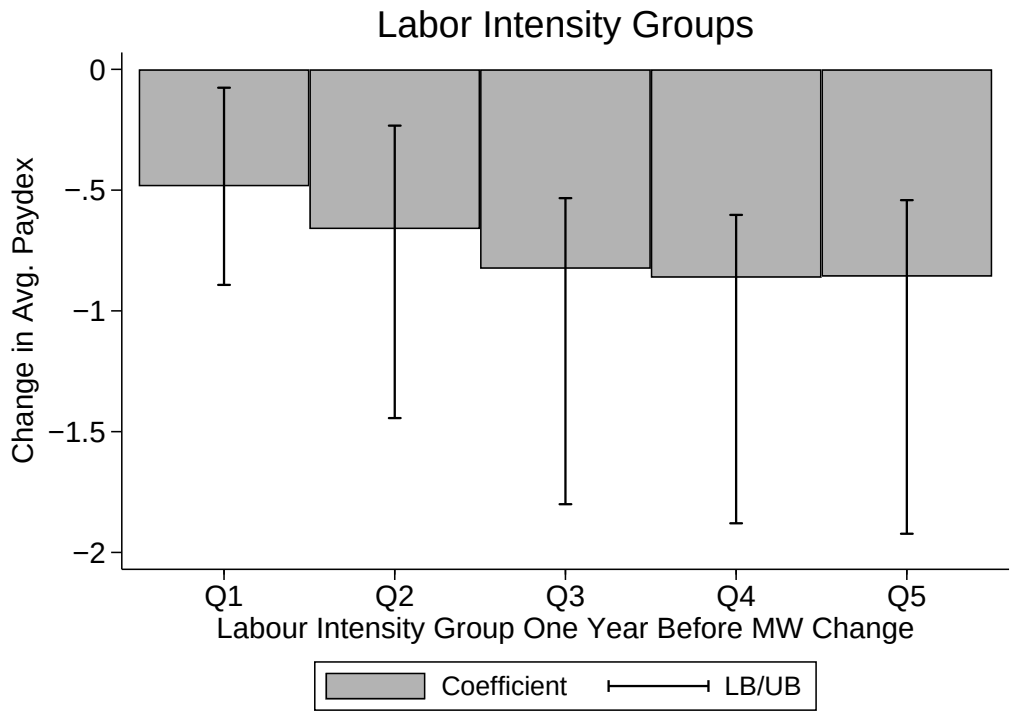

Figure 8: Paydex Score–Labour Heterogeneity: We test the differential effect of federal minimum wage on the Paydex score for establishments located in bounded versus unbounded states based on establishment's labor intensity. The figures here plot the regression coefficients of equation 1 with 95% confidence interval, where we interact the equation by each quintile group based on labor intensity one year before the federal minimum wage change.

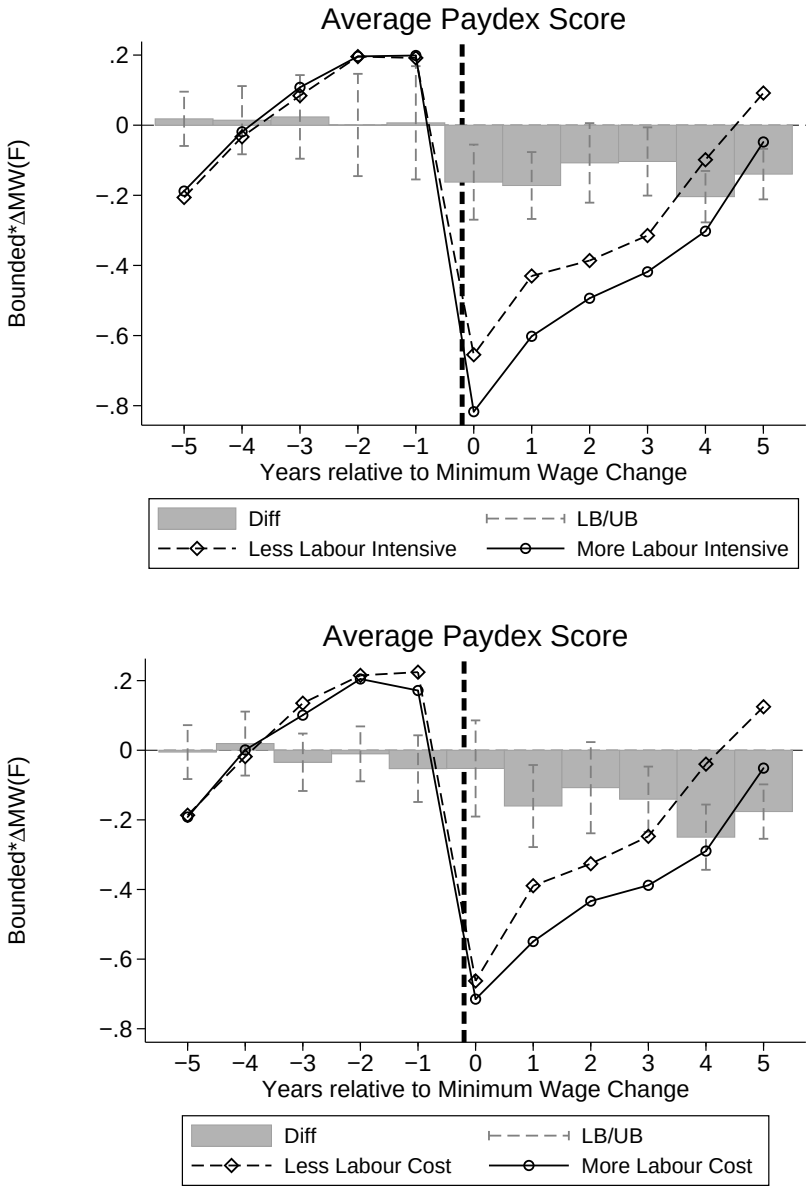

Figure 9: Paydex Score Dynamics–Labour Heterogeneity: We test the dynamics of the differential effect of federal minimum wage on Paydex score for establishments located in bounded versus unbounded states based on establishment's labour utilization heterogeneity. The figures here plot the regression coefficients of equation 3 with 95% confidence interval, where we interact the equation by each median group. The solid line with circle plots the regression coefficients for more labour intensive/cost establishments, while dashed line with diamonds plots the coefficient for less labour intensive/cost establishments. The bold-dashed line indicates the period right before the federal minimum wage change.

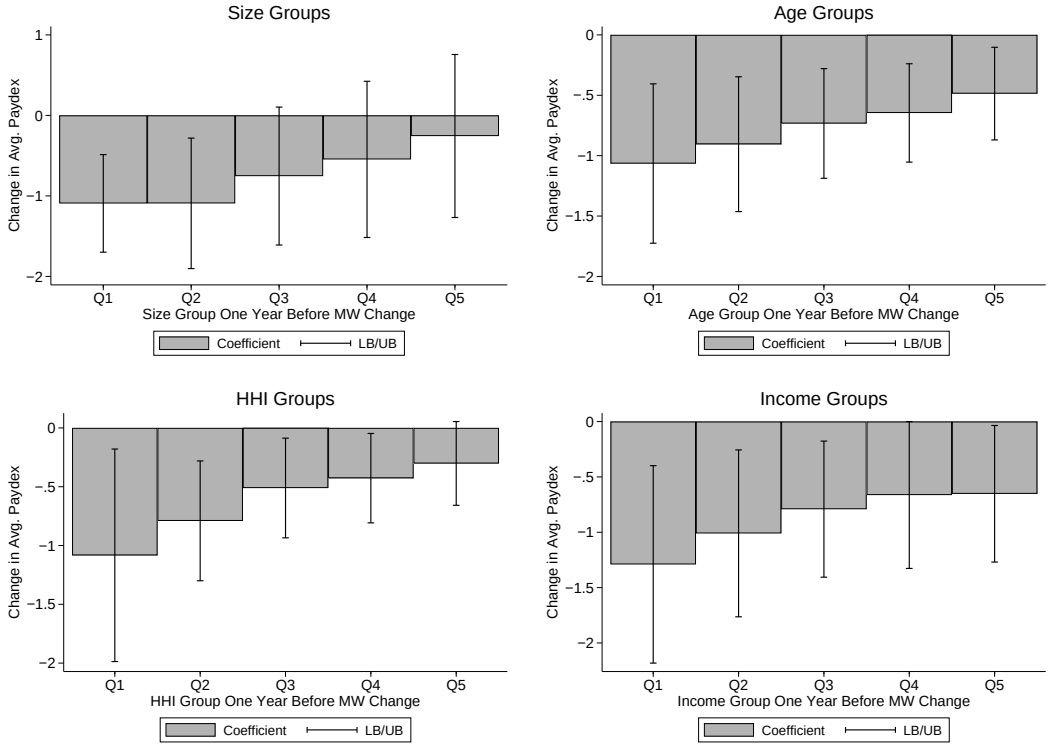

Figure 10: Paydex Score–Heterogeneity: We test the differential effect of federal minimum wage on Paydex score for establishments located in bounded versus unbounded states based on establishment's a) size, b) age, c) competition in local area and d) local personal income. The figures here plot the regression coefficients of equation 1 with 95% confidence interval, where we interact the equation by each quintile group based on above measures one year before the federal minimum wage change.

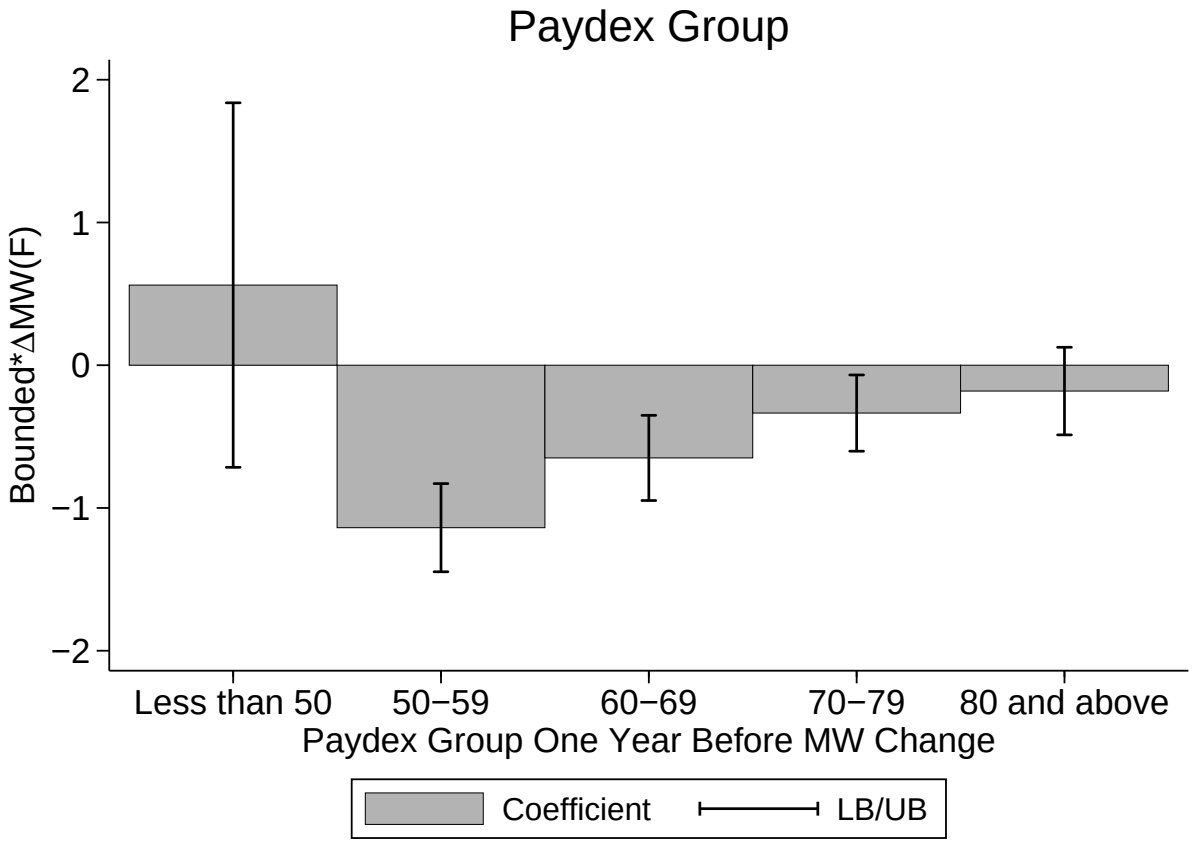

Figure 11: Paydex Group: The figure plots the regression coefficients of equation 1 with 95% confidence interval for different paydex groups defined one year before the federal minimum wage change for bounded and unbounded states.

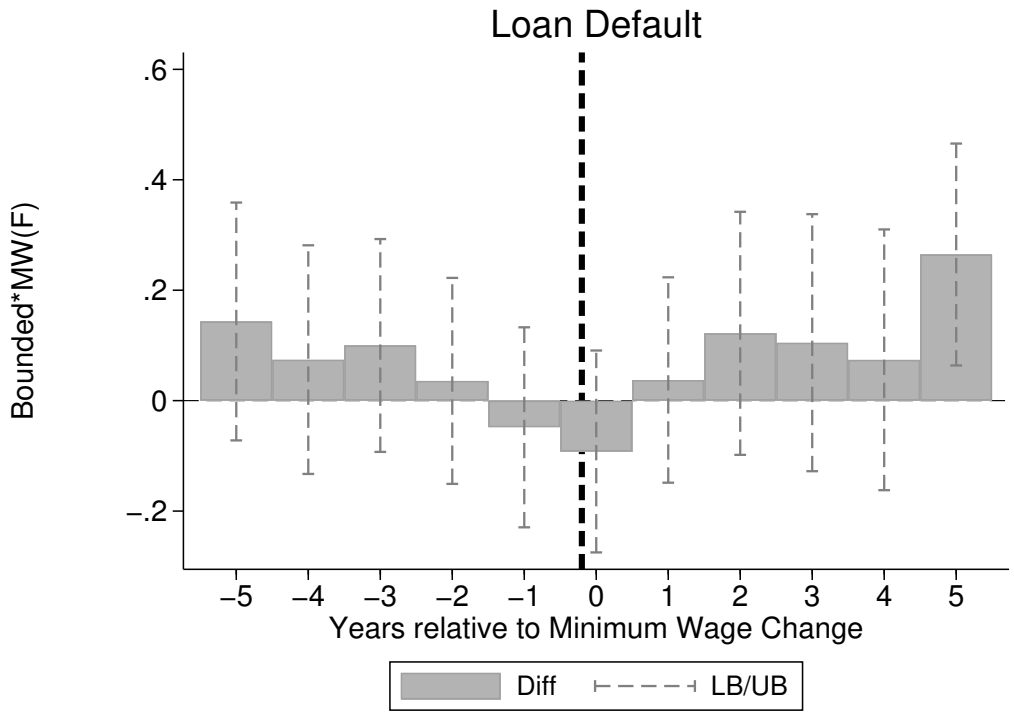

Figure 12: Bank Loans Default: The figure plots the regression coefficient of the dynamics of the differential effect of federal minimum wage on Paydex score for establishments located in bounded versus unbounded states on default of bank loans issued before the minimum wage increase. The figure here plots the regression coefficients of equation 3 with 95% confidence interval, where we run cox-survival model stratified over loan term and NAICS4 $\times$ year after controlling for loan size. The bars plots the regression coefficients of interaction term identifying bounded states for 5 year before and after the federal minimum wage increase, while dashed lines plots the ninety five percent confidence interval. The bold-dashed line indicates the period right before the federal minimum wage change.

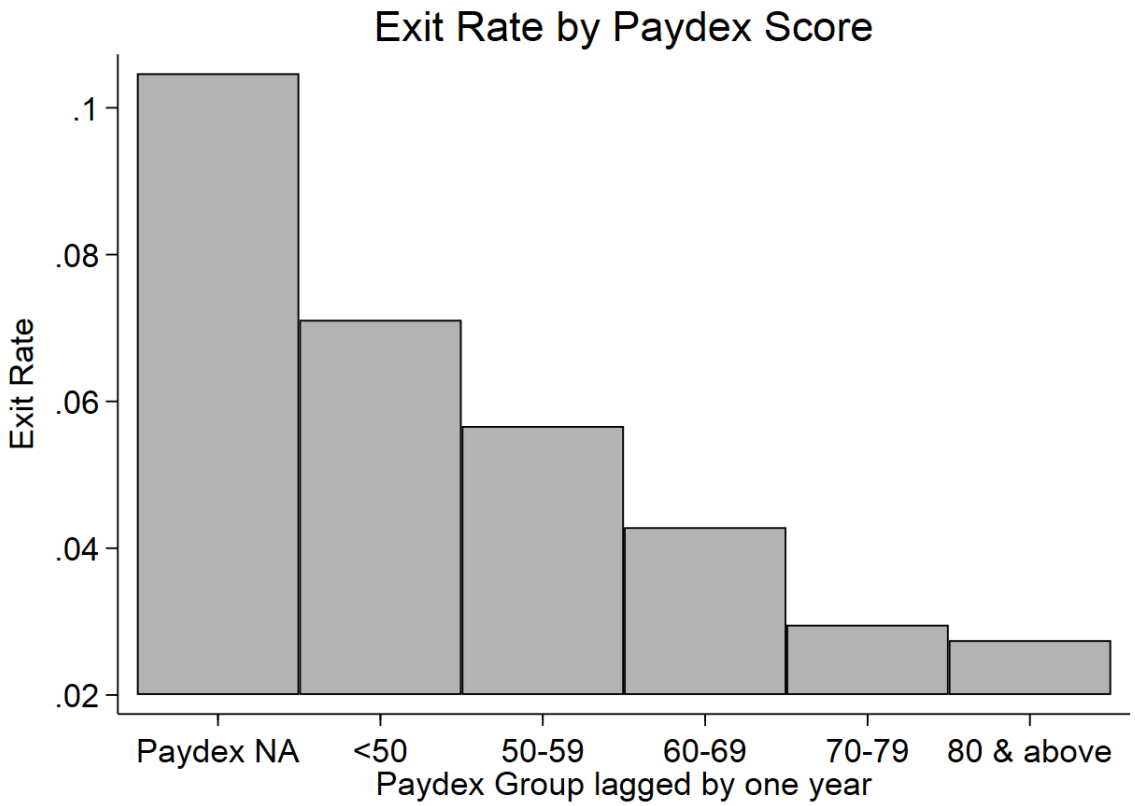

Figure 13: Exits by Paydex Group: The figure plots average exit rate sample without Paydex score and for different Paydex groups lagged by one year.

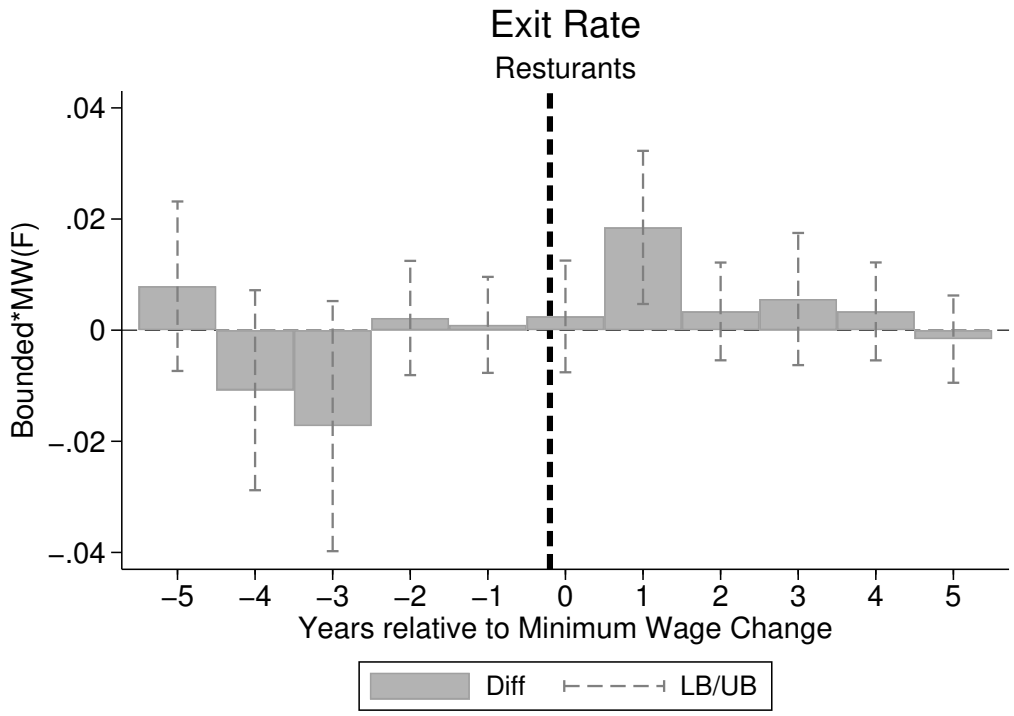

Figure 14: Exit Rate: The figure plots the regression coefficient of the dynamics of the differential effect of federal minimum wage for establishments located in bounded versus unbounded states on exit rates for restaurants (NAICS 72). The figure here plots the regression coefficients of equation (3) with 95% confidence interval, where the exit rate at FIPS-NAICS5 level is calculated using NETS data. In regression, we include FIPS×NAICS5 and year fixed effects. The bars plots the regression coefficients of interaction term identifying bounded states for five years before and after the federal minimum wage increase, while dashed lines plot the ninety five percent confidence interval. The bold-dashed line indicates the period right before the federal minimum wage change.

Table I: Summary Statistics

This table reports summary statistics for our sample. Panel A report the summary statistics. Panel B reports summary statistics for federal and state minimum wage during 1989-2013.

Panel A: Establishment Sample

	All			With Paydex Score			Without Paydex Score		
Observations	72,375,466			31,083,694			41,291,772		
	Median	Mean	SD	Median	Mean	SD	Median	Mean	SD
Paydex Score									
Minimum	74	67.35	17.13	74	67.35	17.13	-	-	-
Maximum	80	73.92	12.74	80	73.92	12.74	-	-	-
Average	76.5	70.63	13.12	76.5	70.63	13.12	-	-	-
Exit	0	0.05	0.21	0	0.03	0.16	0	0.06	0.24
Sales ($ million)	0.25	0.71	1.33	0.49	1.41	3.12	0.17	0.34	0.68
Employees	3	6.8	9.7	5	10.90	17.68	2	4.29	5.82
Age (in years)	12	17.7	17.0	17	22	18.77	9	14.5	14.7
Employee-to-Sales	14.28	18.28	15.39	12.0	15.34	12.99	16.1	20.48	16.30
HHI Index	0.07	0.17	0.24	0.09	0.19	0.25	0.06	0.16	0.23

Panel B: Minimum Wage

	N	Median	Mean	SD
All				
Average Federal Minimum Wage ($ per hour)	1,275	5.15	5.25	1.13
Average State Minimum Wage ($ per hour)	1,275	5.15	5.50	1.29
Bound_{t-1}	1,275	1	0.74	0.44
$\Delta MWDummy(F)$	1,275	0.00	0.44	0.50
For $\Delta MWDummy(F)$=1				
$\Delta MW(F)$ ($ per hour)	561	0.34	0.35	0.22
$\%\Delta MW(F)$	561	0.06	0.07	0.04
Bounded States				
Average Federal Minimum Wage ($ per hour)	939	5.15	5.14	1.09
Average State Minimum Wage ($ per hour)	939	5.15	5.17	1.10
For $\Delta MWDummy(F)$=1				
$\Delta MW(S)$($ per hour)	399	0.34	0.34	0.26
$\%\Delta MW(S)$	399	0.06	0.07	0.05
Unbounded States				
Average Federal Minimum Wage ($ per hour)	336	5.15	5.55	1.18
Average State Minimum Wage ($ per hour)	336	6.75	6.42	1.35
For $\Delta MWDummy(F)$=1				
$\Delta MW(S)$ ($ per hour)	162	0.15	0.24	0.26
$\%\Delta MW(S)$	162	0.03	0.04	0.05

Table II: Effect of Minimum Wage on Firm Credit Quality

This table report results from our baseline regressions equation(1) estimating the differential effect of federally mandated minimum wage on establishment's credit score using Paydex Score as a dependent variable.

Panel A report results for baseline specification. In Column (1)-Column (3) we estimate the regression equation without establishment controls, while Column (4)-Column (6) report results with a full set of establishment-level control variables ($X_{i,t-1}$) in our regressions: size (measured as Log(sales)), age (Log(age)), number of employees (Log(employees)) and sales growth and are winsorized at their 1^{st} and 99^{th} percentiles. Column (1) and (4) report results for a minimum Paydex score during the year, while Column (2) and (5) report results for a maximum Paydex score during the year. In Column (3) and (6), we report results for an average score during the year measured as mean of minimum and maximum score during the year. $Bound_{s,t-1}$ is a dummy variable equal to 1 if at the beginning of fiscal year t if establishments' state s has a state minimum wage less than or equal to the maximum federal minimum wage. $\Delta MW(F)_t$ measures the nominal dollar increase in maximum federal minimum wage in year t, otherwise zero. Therefore, the interaction-term, $Bound_{s,t-1} \times \Delta MW(F)_t$ identifies the differential effect of federally mandated minimum wage over and above the effect of state-level variation caused by a change in state-determined minimum wage and changing status for bound to unbound or vice-à-versa.

In Panel B, we include additional controls for local economic conditions at state, county and zip-level to our baseline specification, i.e., Column (6) of Panel A. In Column (1), we control for state-level economic conditions by including both level and growth in GSP and population. In Column (2), we control for partisan at the state-level. In Column (3), we include the county-level lagged unemployment rate, labor force and growth in the unemployment rate. While in Column (4) to (6), we control for aggregate sales growth, personal income (lagged level and growth) and house price (lagged level and growth) at zip-level, respectively. In Column (7), we include all the controls at state, county and zip level.

In Panel C, we report results for various robustness test on our baseline specification, i.e., Column (6) of Panel A. In Column (1), we report results where we interact the establishment controls with the bound dummy. Column (2) reports regression results where we include NAICS4 industry-year fixed effects. In Column (3), we do not drop any data and report regression results on the full sample. Column (4) we include all the industries that we drop from our baseline specification. Column (5) we also include multi-establishment businesses to our baseline specification. Column (6), we report results for multi-establishment businesses. We replace $\Delta MW(F)_t$ with $\%\Delta MW(F)_t$ and $\Delta Dummy(F)_t$ report results in Column (7) and Column (8), respectively. $\Delta MWDummy(F)_t$ is an indicator variable equal to 1 if there is an increase in maximum federal minimum wage in year t, otherwise zero. While, $\%\Delta MW(F)_t$ is change measure indicating the percentage increase in minimum wage by the federal government in year t, otherwise zero. In Column (9), we report the dynamics. $\Delta MWDummy(F)_t$ Yr1 is an indicator variable equal to 1 that identifies the year 1990, 1996 and 2007. $\Delta MWDummy(F)_t$ Yr2 identifies the year 1991, 1997 and 2008. $\Delta MWDummy(F)_t$ Yr3 identifies year 2009.

In Panel D, we report results for our placebo tests. In Column (1) we report results for establishments that employ researchers (NAICS4 5416, 5417). Column (2) report results for Physicians (NAICS3 621), Column (3) for religious institutions (NAICS3 813), Column (4) for management consultants (NAICS2 55) and Column (5) for education services (NAICS2 61). Standard errors in brackets and are clustered at the state level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel A: Baseline

Dependent Variable:	Paydex Score					
	(1) Min.	(2) Max.	(3) Average	(4) Min.	(5) Max.	(6) Average
$\text{Bound}_{s,t-1} \times \Delta MW(F)_t$	-0.90***	-0.60**	-0.75***	-0.87***	-0.58***	-0.73***
	[0.30]	[0.23]	[0.24]	[0.30]	[0.21]	[0.23]
$\text{Bound}_{s,t-1}$	-0.04	-0.00	-0.02	-0.07	-0.03	-0.05
	[0.16]	[0.13]	[0.14]	[0.16]	[0.12]	[0.14]
Establishment & Year FE	✓	✓	✓	✓	✓	✓
Establishment Controls				✓	✓	✓
Adj.-R^2	0.59	0.56	0.61	0.59	0.56	0.62
No. of Establishments		4,447,312			4,447,312	
Obs.		31,031,426			31,031,426	

Panel B: Local economic conditions

Dependent Variable:	Average Paydex Score						
	State-Level		County-Level		Zip-Level		All
	(1) Economic Conditions	(2) Political Conditions	(3) Unemp. Rate	(4) Agg. Sales Growth	(5) Personal Income	(6) House Price	(7) All
$\text{Bound}_{s,t-1} \times \Delta MW(F)_t$	-0.83***	-0.71***	-0.67***	-0.73***	-0.88***	-0.64**	-0.59***
	[0.23]	[0.22]	[0.19]	[0.23]	[0.32]	[0.25]	[0.20]
$\text{Bound}_{s,t-1}$	-0.06	-0.01	-0.04	-0.05	0.12	0.05	0.10
	[0.11]	[0.15]	[0.12]	[0.14]	[0.23]	[0.15]	[0.14]
$\text{Log(GSP)}_{s,t-1}$	1.25***						0.69**
	[0.19]						[0.33]
GSP Growth $_{s,t-1}$	0.11*						0.01
	[0.06]						[0.07]
$\text{Log(Population)}_{s,t-1}$	-1.12***						-0.47*
	[0.24]						[0.26]
$\text{Population Growth}_{s,t-1}$	0.34***						0.19*
	[0.11]						[0.10]
$\text{Democratic Governor}_{s,t}$		0.03					-0.01
		[0.12]					[0.15]
$\text{Democratic House}_{s,t}$		0.11					0.20*
		[0.11]					[0.12]
$\text{Democratic Senate}_{s,t}$		0.21					0.03
		[0.13]					[0.15]
$\text{Democratic Both}_{s,t}$		-0.08					-0.07
		[0.14]					[0.19]
$\text{Unemployment Rate}_{c,t-1}$			-0.26***				-0.28***
			[0.03]				[0.05]
$\Delta\text{Unemployment Rate}_{c,t}$			-0.12***				-0.16***
			[0.02]				[0.02]
$\text{Log(Labour Force)}_{c,t-1}$			-0.00				0.06
			[0.04]				[0.06]
$\text{Agg. Sales Growth}_{z,t}$				0.05*			0.05
				[0.03]			[0.03]
$\text{Log(Personal Income)}_{z,t-1}$					0.58***		-0.74***
					[0.11]		[0.18]
$\Delta\text{Log(Personal Income)}_{z,t}$					0.16***		-0.10
					[0.06]		[0.12]
$\text{Log(House Price Index)}_{z,t-1}$						1.28***	1.11***
						[0.13]	[0.23]
$\Delta\text{Log(House Price Index)}_{z,t}$						0.35	-0.86**
						[0.33]	[0.38]
Est & Year FE	✓	✓	✓	✓	✓	✓	✓
Est. controls	✓	✓	✓	✓	✓	✓	✓
Adj.-R^2	0.62	0.62	0.62	0.62	0.68	0.64	0.68
No. of Est	4,420,503	4,447,312	4,419,080	4,447,287	3,692,469	3,503,129	3,131,759
Obs.	30,871,118	31,031,426	30,845,366	31,030,782	18,732,437	21,710,331	15,690,130

Panel C: Robustness

Dependent Variable:	Average Paydex Score								
	(1) Bound× Controls	(2) NAICS4 × Year FEs	(3) No Drop	(4) All Industries	(5) Include Multi-Est	(6) Only Multi-Est	(7) Percentage Change	(8) Dummy	(9) Series
$\text{Bound}_{s,t-1}$ ×	-0.70***	-0.74***	-0.63***	-0.68***	-0.65***	-0.24*			
$\Delta MW(F)_t$	[0.24]	[0.23]	[0.21]	[0.23]	[0.22]	[0.13]			
$\text{Bound}_{s,t-1}$ ×						-3.85***			
$\%\Delta MW(F)_t$						[1.33]			
$\text{Bound}_{s,t-1}$ ×							-0.43***		
$\Delta MWDummy(F)_t$							[0.15]		
$\text{Bound}_{s,t-1}$ ×								-0.48*	
$\Delta MWDummy(F)_t$ Yr1								[0.25]	
$\text{Bound}_{s,t-1}$ ×								-0.40**	
$\Delta MWDummy(F)_t$ Yr2								[0.17]	
$\text{Bound}_{s,t-1}$ ×								-0.42**	
$\Delta MWDummy(F)_t$ Yr3								[0.17]	
$\text{Bound}_{s,t-1}$	-0.57	-0.03	-0.04	-0.07	-0.07	-0.20	-0.06	-0.07	-0.07
	[0.55]	[0.13]	[0.12]	[0.13]	[0.14]	[0.16]	[0.13]	[0.14]	[0.13]
Est. & Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Est. Controls	✓	✓		✓	✓	✓	✓	✓	✓
Adj.-R^2	0.62	0.62	0.59	0.62	0.60	0.44	0.62	0.62	0.62
No. of Est	4,447,312	4,447,312	15,046,496	6,632,327	4,921,821	474,509	4,447,312	4,447,312	4,447,312
Obs.	31,031,426	31,031,419	90,291,929	45,172,568	37,235,728	6,204,302	31,031,426	31,031,426	31,031,426

Panel D: Placebo

Dependent Variable:	Average Paydex Score				
	(1) Researchers	(2) Physicians	(3) Religious Organizations	(4) Management Consultant	(5) Education Services
$\text{Bound}_{s,t-1} \times \Delta MW(F)_t$	-0.46	-0.53	-0.38	-0.12	-0.23
	[0.34]	[0.34]	[0.26]	[0.53]	[0.32]
$\text{Bound}_{s,t-1}$	-0.02	-0.07	-0.17	-0.36*	-0.13
	[0.11]	[0.14]	[0.12]	[0.18]	[0.18]
Establishment & Year FE	✓	✓	✓	✓	✓
Establishment Controls	✓	✓	✓	✓	✓
Adj.-R^2	0.67	0.57	0.61	0.74	0.63
No. of Establishments	150,394	457,352	259,190	12,431	68,674
Obs.	781,528	2,954,854	1,798,595	44,857	475,002

Table III: Exact and Nearest-Neighbor Matching

This table report results for an exact/nearest neighbor match for our baseline regressions equation (1). For federally mandated minimum wage increase from 2007 to 2009, we use matching methods to identify the right control group. First, for the establishment in the bounded states (treatment group) in the year 2006, we identify exact match based on average Paydex Score within the same NAICS4 industry from the unbounded state (control group). For these exact matches, we determine the nearest neighbor based on other covariates using Euclidean distance. Panel A reports the means of the Euclidean distance based nearest neighbor pairs in the year 2006. Column (1) reports the balance for establishment-level characteristics, i.e., sales, employees, employee-to-sales and sales growth. In Column (2), we match state-level economic conditions by including both level and growth in GSP and population. In column (3), we match for partisan at the state-level. In Column (4), we match county-level unemployment rate, labor force and change in unemployment rate. While in Column (5) to (7), we match for aggregate sales growth, personal income (lagged level and growth) and house price (lagged level and growth) at zip-level, respectively. In Column (8), we include all variables to match at state, county and zip level covariates.

Panel B reports the results of our baseline regressions equation (1) for the year 2006 to 2013 for the *matched pairs*. $Bound_{s,t-1}$ is a dummy variable equal to 1 if at the beginning of fiscal year t if state s has a state minimum wage less than or equal to the maximum federal minimum wage. $\Delta MW(F)_t$ is the dollar increase in maximum federal minimum wage in year 2007, 2008 and 2009, otherwise zero. Therefore, the interaction-term, $Bound_{s,t-1} \times \Delta MW(F)_t$ identifies the differential effect of federally mandated minimum wage over and above the effect of state-level variation caused by a change in the state-determined minimum wage and changing status for bound to unbound or vice-à-versa. In Column (2)-Column (8), in addition to establishment-level controls, I also include the matching variables as controls. All regression are with matched-pair fixed effect and year fixed effects. Standard errors in brackets and are clustered at the state level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel A: Balance of Matched Sample

		Establishment-Level	State-Level		County-Level	Zip-Level			All
		(1) Establishment Characteristics	(2) Economic Conditions	(3) Political Conditions	(4) Unemp. Rate	(5) Agg. Sales Growth	(6) Personal Income	(7) House Price	(8) All
No. of Matched Pairs		869,428	869,428	869,428	869,428	869,428	869,428	667,193	659,107
Mean of									
$\text{Sales}_{i,t}$	Bounded	1.42	1.42	1.42	1.42	1.42	1.42	1.44	1.44
	Unbounded	1.30	1.20	1.18	1.18	1.26	1.31	1.17	1.19
$\text{Employees}_{i,t}$	Bounded	10.84	10.84	10.84	10.84	10.84	10.84	10.97	10.99
	Unbounded	10.16	9.42	9.50	9.32	9.87	9.76	9.42	9.50
$\text{Employees-Sales}_{i,t}$	Bounded	16	16	16	16	16	16	16	16
	Unbounded	15	15	15	15	15	15	16	15
$\text{Sales Growth}_{i,t}$	Bounded	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	Unbounded	0.03	0.04	0.03	0.04	0.04	0.03	0.04	0.04
$\text{Log(GSP)}_{s,t}$	Bounded		12.46						12.52
	Unbounded		12.57						12.70
$\text{GSP Growth}_{s,t}$	Bounded		-0.14						-0.12
	Unbounded		-0.10						-0.04
$\text{Log(Population)}_{s,t}$	Bounded		15.70						15.76
	Unbounded		15.71						15.85
$\text{Population Growth}_{s,t}$	Bounded		1.01						1.01
	Unbounded		1.01						1.01
$\text{Democratic Governor}_{s,t}$	Bounded			0.43					0.43
	Unbounded			0.36					0.46
$\text{Democratic House}_{s,t}$	Bounded			0.34					0.32
	Unbounded			0.35					0.30
$\text{Democratic Senate}_{s,t}$	Bounded			0.28					0.26
	Unbounded			0.29					0.35
$\text{Democratic Both}_{s,t}$	Bounded			0.13					0.11
	Unbounded			0.12					0.12
$\text{Unemployment Rate}_{c,t}$	Bounded				5.23				5.10
	Unbounded				5.08				4.72
$\Delta\text{Unemployment Rate}_{c,t}$	Bounded				-0.51				-0.50
	Unbounded				-0.47				-0.33
$\text{Log(Labour Force)}_{c,t}$	Bounded				11.52				11.80
	Unbounded				11.74				11.97
$\text{Agg. Sales Growth}_{z,t}$	Bounded					0.04			0.04
	Unbounded					0.03			0.03
$\text{Log(Personal Income)}_{z,t}$	Bounded						10.74		10.80
	Unbounded						10.79		10.80
$\Delta\text{Log(Personal Income)}_{z,t}$	Bounded						0.04		0.05
	Unbounded						0.04		0.04
$\text{Log(House Price Index)}_{z,t}$	Bounded							11.94	11.94
	Unbounded							12.04	12.18
$\Delta\text{Log(House Price Index)}_{z,t}$	Bounded							0.05	0.04
	Unbounded							0.04	0.04

Panel B: Regression using Matched Sample

	Establishment-Level	State-Level		County-Level	Zip-Level			All
	(1) Establishment Characteristics	(2) Economic Conditions	(3) Political Conditions	(4) Unemp. Rate	(5) Agg. Sales Growth	(6) Personal Income	(7) House Price	(8) All
$\text{Bound}_{s,t-1} \times \Delta MW(F)_t$	-0.79**	-0.76***	-0.65**	-0.56***	-0.75*	-0.65**	-0.38**	-0.75***
	[0.38]	[0.28]	[0.28]	[0.20]	[0.38]	[0.28]	[0.17]	[0.18]
$\text{Bound}_{s,t-1}$	0.54**	0.20	0.58***	0.00	0.52**	0.72***	0.27**	0.23*
	[0.24]	[0.17]	[0.18]	[0.11]	[0.23]	[0.18]	[0.11]	[0.12]
Matched-Pair & Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓
Adj.-R^2	0.49	0.50	0.49	0.50	0.49	0.55	0.50	0.51
No. of Pairs	861,804	862,818	861,822	863,184	862,303	837,103	662,299	654,266
Obs.	10,699,327	10,809,094	10,664,903	10,770,820	10,683,110	7,120,312	8,234,942	7,780,297

Table IV: Bordering County

This table report heterogeneity of results, our baseline regressions equation 1, based on distance of establishment location from state borders. Column (1)-Column (3), we report results for establishments located in contiguous counties at state borders. Column (1) include al the establishments in contiguous counties. Column (2) we include counties where both the states are either bounded or unbounded by federally mandated minimum wage. In Column (3), in the treatment group we only include state-borders where only one state is bounded by federally mandated minimum wage. In Column (4)-Column (7) we include establishments located in non-contiguous counties. Column (5), Column (6) and Column (7) report results for establishments located within 50-100 miles, 100-150 miles and more than 150 miles, respectively from the state border. In Column (8), we report the difference of Column(7) and Column (5). Here, we only include establishments located within 50-100 miles and those more than 150 miles. $Distance(>150)$ is a dummy variable that identifies establishments located more than 150 miles from the state border. Here we include establishment fixed effects, group specific-year fixed effects and state-year fixed effects. Standard errors in brackets and are clustered at the state level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dependent Variable:	Average Paydex Score							
	Contiguous Counties			Non-Contiguous Counties				
	All	Both Bounded	One Bounded	All	Distance from Border (in Miles) 50-100	100-150	>150	Diff (7)-(5)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\text{Bound}_{s,t-1} \times \Delta MWDummy(F)_t$	-0.40**	-0.46**	-0.17	-0.83***	-0.19	-1.16***	-1.46***	
	[0.18]	[0.20]	[0.18]	[0.22]	[0.23]	[0.41]	[0.41]	
$\text{Bound}_{s,t-1}$	-0.08	-0.41***	-0.06	-0.05	-0.04	0.38	0.11	
	[0.17]	[0.14]	[0.11]	[0.13]	[0.17]	[0.23]	[0.13]	
$\text{Distance}(>150) \times \text{Bound}_{s,t-1} \times \Delta MWDummy(F)_t$								-0.83***
								[0.25]
$\text{Distance}(>150) \times \text{Bound}_{s,t-1}$								-0.10
								[0.20]
Establishment FE	✓	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓
Group × Year FE								✓
State × Year FE								✓
Adj.-R^2	0.61	0.62	0.66	0.62	0.63	0.62	0.62	0.62
No. of Est.	1,216,115	1,000,972	707,568	3,080,186	1,050,885	403,992	952,167	2,013,780
Obs.	8,793,053	6,574,411	3,739,674	21,056,855	7,370,887	2,697,646	6,002,619	13,448,768

Table V: Labour Intensity

This table reports labour heterogeneity for our baseline regression equation (1). We measure the establishment's labor intensity as number of employees per $\$million$ sales. We partition our sample into two groups using the median establishment labor-intensity. We define labor-intensity median one year before the federal minimum wage change and define $MoreLabour$ as indicator variable equal to 1 if the establishment's labor-intensity measure is above median labor-intensity, otherwise zero. We define $Less$ as 1-$MoreLabour$. For $LessLabour$ and $MoreLabour$ establishments, we run our baseline model, i.e., Column (6) of Table II, Panel A, and report results in Column (1) and Column (2), respectively. In Column (3) and (4), we do this analysis using triple-interaction. In Column (3), we include we include establishment controls, establishment fixed effects, and state-year fixed effects. While in Column (4), we further include NAICS4-year fixed effects. Standard errors in brackets and are clustered at the state level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dependent Variable:	Average Paydex Score			
	(1) Less	(2) More	(3) All	(4) All
$\text{Bound}_{s,t-1} \times \Delta MW(F)_t$	-0.56**	-0.84***		
	[0.22]	[0.26]		
$\text{Bound}_{s,t-1}$	-0.05	-0.03		
	[0.14]	[0.13]		
More Labour $\times$ $\text{Bound}_{s,t-1} \times \Delta MW(F)_t$			-0.24***	-0.24***
			[0.08]	[0.08]
More Labour $\times$ $\text{Bound}_{s,t-1}$			0.01	-0.01
			[0.04]	[0.03]
More Labour $\times$ $\Delta MW(F)_t$			0.23***	0.27***
			[0.06]	[0.04]
Establishment & Year FE	✓	✓	✓	✓
Establishment Controls	✓	✓	✓	✓
State $\times$ Year FE			✓	✓
NAICS4 $\times$ Year FE				✓
Adj.-R^2	0.59	0.66	0.62	0.62
No. of Establishments	2,073,441	2,829,919	4,420,503	4,420,503
Obs.	15,324,301	15,314,557	30,871,118	30,871,111

Table VI: Labour Cost

This table reports labour heterogeneity for our baseline regressions equation (1). We measure the establishment's labor cost as number of employees × average salary divided by sales. We use QCEW data to estimate average compensation at county-NAICS4 level. We partition our sample into two groups using the median establishment labor-cost. We define labor-cost median one year before the federal minimum wage change and define $MoreLabourCost$ as indicator variable equal to 1 if the establishment's labor-cost measure is above median labor-cost, otherwise zero. We define $Less$ as 1-$MoreLabourCost$. For $LessLabourCost$ and $MoreLabourCost$ establishments, we run our baseline model, i.e., Column (6) of Table II, Panel A, and report results in Column (1) and Column (2), respectively. In Column (3) and (4), we do this analysis using triple-interaction. In Column (3), we include we include establishment controls, establishment fixed effects, and state-year fixed effects. While in Column (4), we further include NAICS4-year fixed effects. Standard errors in brackets and are clustered at the state level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dependent Variable:	Average Paydex Score			
	(1) Less	(2) More	(3) All	(4) All
$\text{Bound}_{s,t-1} \times \Delta MW(F)_t$	-0.50***	-0.73**		
	[0.18]	[0.31]		
$\text{Bound}_{s,t-1}$	-0.09	-0.07		
	[0.16]	[0.16]		
More Labour Cost × $\text{Bound}_{s,t-1} \times \Delta MW(F)_t$			-0.21**	-0.17**
			[0.09]	[0.08]
More Labour Cost × $\text{Bound}_{s,t-1}$			0.01	0.05
			[0.04]	[0.03]
More Labour Cost × $\Delta MW(F)_t$			0.44***	0.27***
			[0.05]	[0.05]
Establishment & Year FE	✓	✓	✓	✓
Establishment Controls	✓	✓	✓	✓
State × Year FE			✓	✓
NAICS4 × Year FE				✓
Adj.-R^2	0.58	0.68	0.62	0.62
No. of Establishments	1,821,320	2,431,749	3,778,189	3,778,182
Obs.	12,634,843	12,106,979	25,084,109	25,084,109

Table VII: Establishment Size

This table reports size heterogeneity for our baseline regressions equation (1). We partition our sample into two groups using median sales. We define size median one year before the federal minimum wage change and define *Small* as indicator variable equal to 1 if establishment's sale is below median sales, otherwise zero. We define *Large* as 1-*Small*. For *Small* and *Large* establishments, we run our baseline model, i.e., Column (6) of Table II, Panel A, and report results in Column (1) and Column (2), respectively. In Column (3) and (4), we do this analysis using triple-interaction. In Column (3), we include establishment controls, establishment fixed effects, and state-year fixed effects. While in Column (4), we further include NAICS4-year fixed effects. Standard errors in brackets and are clustered at the state level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dependent Variable:	Average Paydex Score			
	(1) Small	(2) Large	(3) All	(4) All
$\text{Bound}_{s,t-1} \times \Delta MW(F)_t$	-1.02***	-0.46**		
	[0.30]	[0.21]		
$\text{Bound}_{s,t-1}$	0.02	-0.09		
	[0.15]	[0.15]		
$\text{Small} \times \text{Bound}_{s,t-1} \times \Delta MW(F)_t$			-0.54***	-0.50***
			[0.08]	[0.08]
$\text{Small} \times \text{Bound}_{s,t-1}$			0.12**	0.09**
			[0.05]	[0.04]
$\text{Small} \times \Delta MW(F)_t$			0.70***	0.62***
			[0.06]	[0.05]
Establishment & Year FE	✓	✓	✓	✓
Establishment Controls	✓	✓	✓	✓
State × Year FE			✓	✓
NAICS4 × Year FE				✓
Adj.-R^2	0.69	0.55	0.62	0.62
No. of Establishments	2,073,441	2,829,919	4,420,503	4,420,503
Obs.	15,324,301	15,314,557	30,871,118	30,871,111

Table VIII: Establishment Age

This table reports age heterogeneity for our baseline regressions equation (1). We partition our sample into two groups using the median establishment age. We define age median one year before the federal minimum wage change and define $Young$ as indicator variable equal to 1 if the establishment's age is below median age, otherwise zero. We define *Old* as 1-$Young$. For $Young$ and *Old* establishments, we run our baseline model, i.e., Column (6) of Table II, Panel A, and report results in Column (1) and Column (2), respectively. In Column (3) and (4), we do this analysis using triple-interaction. In Column (3), we include we include establishment controls, establishment fixed effects, and state-year fixed effects. While in Column (4), we further include NAICS4-year fixed effects. Standard errors in brackets and are clustered at the state level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dependent Variable:	Average Paydex Score			
	(1) Young	(2) Old	(3) All	(4) All
$\text{Bound}_{s,t-1} \times \Delta MW(F)_t$	-0.84***	-0.58***		
	[0.29]	[0.21]		
$\text{Bound}_{s,t-1}$	-0.04	-0.05		
	[0.14]	[0.12]		
Young $\times$ $\text{Bound}_{s,t-1} \times \Delta MWDummy(F)_t$			-0.28**	-0.25**
			[0.12]	[0.12]
Young $\times$ $\text{Bound}_{s,t-1}$			-0.35***	-0.35***
			[0.04]	[0.04]
Young $\times$ $\Delta MWDummy(F)_t$			0.62***	0.58***
			[0.08]	[0.09]
Establishment & Year FE	✓	✓	✓	✓
Establishment Controls	✓	✓	✓	✓
State $\times$ Year FE			✓	✓
NAICS4 $\times$ Year FE				✓
Adj.-R^2	0.69	0.57	0.62	0.62
No. of Establishments	2,073,441	2,829,919	4,420,503	4,420,503
Obs.	15,324,301	15,314,557	30,871,118	30,871,111

Table IX: Local Competition

This table reports local competition heterogeneity for our baseline regression equation (1). We measure local product market competition using the HHI index measured at NAICS5-county-year. We partition our sample into two groups and define HHI median one year before the federal minimum wage change and define *HighCompetition* as indicator variable equal to 1 if establishment's NAICS5-county-year HHI measure is below median HHI, otherwise zero. We define *LowCompetition* as 1-*HighCompetition*. For establishments in *HighCompetition* and *LowCompetition* industry-county-years , we run our baseline model, i.e., Column (6) of Table II, Panel A, and report results in Column (1) and Column (2), respectively. In Column (3) and (4), we do this analysis using triple-interaction. In Column (3), we include establishment controls, establishment fixed effects and state-year fixed effects. While in Column (4), we further include NAICS4-year fixed effects. Standard errors in brackets and are clustered at the state level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dependent Variable:	Average Paydex Score			
	(1) High	(2) Low	(3) All	(4) All
$\text{Bound}_{s,t-1} \times \Delta MW(F)_t$	-0.76**	-0.47**		
	[0.29]	[0.19]		
$\text{Bound}_{s,t-1}$	-0.07	-0.07		
	[0.15]	[0.12]		
High Competition $\times$ $\text{Bound}_{s,t-1} \times \Delta MW(F)_t$			-0.24**	-0.21**
			[0.10]	[0.10]
High Competition $\times$ $\text{Bound}_{s,t-1}$			0.07*	0.03
			[0.04]	[0.03]
High Competition $\times$ $\Delta MW(F)_t$			0.39***	0.29***
			[0.07]	[0.08]
Establishment & Year FE	✓	✓	✓	✓
Establishment Controls	✓	✓	✓	✓
State $\times$ Year FE			✓	✓
NAICS4 $\times$ Year FE				✓
Adj.-R^2	0.63	0.62	0.62	0.62
No. of Establishments	2,073,441	2,829,919	4,420,503	4,420,503
Obs.	15,324,301	15,314,557	30,871,118	30,871,111

Table X: Local Personal Income

This table reports local personal income heterogeneity for our baseline regressions equation (1). We measure local personal income using IRS data at zip-level. We partition our sample into two groups and define income median one year before the federal minimum wage change and define $MoreIncome$ as indicator variable equal to 1 if personal income in establishment's zip code is above median income, otherwise zero. We define $LessIncome$ as 1-$MoreIncome$. For establishments in $Lessincome$ and $MoreIncome$ zip codes , we run our baseline model, i.e., Column (6) of Table II, Panel A, and report results in Column (1) and Column (2), respectively. In Column (3) and (4), we do this analysis using triple-interaction. In Column (3), we include we include establishment controls, establishment fixed effects and county-year fixed effects. While in Column (4), we further include NAICS4-year fixed effects. Standard errors in brackets and are clustered at the state level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dependent Variable:	Average Paydex Score			
	(1) Less	(2) More	(3) All	(4) All
Bound$_{s,t-1}$ × $\Delta MW(F)_t$	-1.08***	-0.61*		
	[0.37]	[0.31]		
Bound$_{s,t-1}$	0.21	0.03		
	[0.26]	[0.20]		
Less Income × Bound$_{s,t-1}$ × $\Delta MWDummy(F)_t$			-0.23***	-0.23***
			[0.06]	[0.06]
Less Income × Bound$_{s,t-1}$			0.10***	0.11***
			[0.03]	[0.03]
Less Income × $\Delta MWDummy(F)_t$			0.29***	0.29***
			[0.06]	[0.04]
Establishment & Year FE	✓	✓	✓	✓
Establishment Controls	✓	✓	✓	✓
County × Year FE			✓	✓
NAICS4 × Year FE				✓
Adj.-R^2	0.68	0.67	0.67	0.67
No. of Establishments	2,359,556	1,757,668	3,885,352	3,885,352
Obs.	12,278,824	8,511,296	21,151,603	21,151,603

Table XI: Loan Amount

This table report results from regressions equation(3) estimating the differential effect of federally mandated minimum wage on SBA guaranteed bank loans to small businesses. In Column (1) we report results with state and NAICS4×year fixed effects. In Column(2) we add state-level control on economic conditions i.e., GSP and population (both level and growth). In Column (3) and (4), we replace state fixed effects with borrower zip code fixed effects. Standard errors in brackets and are clustered at the state level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dependent Variable:	Log(Loan Amount)			
	(1)	(2)	(3)	(4)
$\text{Bound}_{s,t-1} \times \Delta MWDummy(F)_{t-5}$	0.03	0.03	0.04	0.05
	[0.11]	[0.09]	[0.11]	[0.09]
$\text{Bound}_{s,t-1} \times \Delta MWDummy(F)_{t-4}$	0.08	0.07	0.07	0.08
	[0.08]	[0.08]	[0.07]	[0.08]
$\text{Bound}_{s,t-1} \times \Delta MWDummy(F)_{t-3}$	-0.01	-0.03	-0.01	-0.01
	[0.07]	[0.08]	[0.07]	[0.08]
$\text{Bound}_{s,t-1} \times \Delta MWDummy(F)_{t-2}$	-0.12	-0.15	-0.10	-0.13
	[0.07]	[0.08]	[0.07]	[0.08]
$\text{Bound}_{s,t-1} \times \Delta MWDummy(F)_{t-1}$	-0.04	-0.08	-0.04	-0.06
	[0.07]	[0.09]	[0.06]	[0.09]
$\text{Bound}_{s,t-1} \times \Delta MWDummy(F)_{t}$	-0.04	-0.07	-0.04	-0.07
	[0.07]	[0.10]	[0.07]	[0.10]
$\text{Bound}_{s,t-1} \times \Delta MWDummy(F)_{t+1}$	-0.15**	-0.17*	-0.14**	-0.16*
	[0.07]	[0.09]	[0.06]	[0.09]
$\text{Bound}_{s,t-1} \times \Delta MWDummy(F)_{t+2}$	-0.17**	-0.19**	-0.15*	-0.17*
	[0.08]	[0.09]	[0.08]	[0.09]
$\text{Bound}_{s,t-1} \times \Delta MWDummy(F)_{t+3}$	-0.14**	-0.17**	-0.13**	-0.16**
	[0.06]	[0.07]	[0.06]	[0.07]
$\text{Bound}_{s,t-1} \times \Delta MWDummy(F)_{t+4}$	-0.10*	-0.12**	-0.11*	-0.12**
	[0.06]	[0.05]	[0.06]	[0.05]
$\text{Bound}_{s,t-1} \times \Delta MWDummy(F)_{t+5}$	-0.05	-0.08	-0.05	-0.07
	[0.06]	[0.05]	[0.06]	[0.05]
State FE	✓	✓		
Zip code FE			✓	✓
State Controls		✓		✓
NAICS4 × year	✓	✓	✓	✓
Adj.-R^2	0.21	0.21	0.24	0.24
Obs.	909,393	775,772	902,409	768,633

Internet Appendix

Do Minimum Wage Increases Cause Financial Stress to Small Businesses? Evidence from 15 Million Establishments

Table IA1: Reverse: State Economic Conditions

All regressions are with establishment controls, establishment fixed effects and NAICS4 industry-year fixed effects. Standard errors in brackets and are clustered at the state level (except in column (6)). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dependent Variable:	Bound					
	(1)	(2)	(3)	(4)	(5)	(6)
	State-Economic Conditions			Political Conditions		
$\text{Log(GSP)}_{s,t-1}$	-0.06		0.19			0.28
	[0.27]		[0.31]			[0.30]
GSP Growth $_{s,t-1}$	0.78*		0.31			0.35
	[0.45]		[0.33]			[0.33]
$\text{Log(Population)}_{s,t-1}$		-0.29	-0.46			-0.65**
		[0.31]	[0.37]			[0.32]
$\text{Population Growth}_{s,t-1}$		4.05	3.00			1.99
		[2.83]	[2.69]			[2.56]
$\text{Democratic Governor}_{s,t}$				-0.08**		-0.06*
				[0.03]		[0.04]
$\text{Democratic House}_{s,t}$					0.03	0.02
					[0.04]	[0.05]
$\text{Democratic Senate}_{s,t}$					-0.13***	-0.14***
					[0.05]	[0.04]
$\text{Democratic Both}_{s,t}$					-0.09**	-0.04
					[0.04]	[0.05]
State FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Adj.-R^2	0.59	0.59	0.59	0.59	0.60	0.61
No. of States	51	51	51	51	51	51
Obs.	1,275	1,275	1,275	1,275	1,275	1,275