**Demand-Based Tax Policies and Labor Market Outcomes:
Evidence from the Restaurant Industry**

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Abstract: This study examines the effect of demand-based tax policies on labor market outcomes, focusing on the temporary 100% business meals deduction enacted during the COVID-19 pandemic. Restaurants were one of the industries hardest hit by the COVID-19 pandemic, and the temporary deduction was enacted with the goal of boosting demand for restaurant meals. Using two alternative identification strategies, we find evidence that the increased deduction had a positive impact on the number of employees and employee wages, on average, but not on the number of restaurant establishments. Our cross-sectional analyses reveal that the positive effects of the deduction were more pronounced in areas with lower restaurant start-up activity, larger restaurant establishments, and in rural regions. These results suggest that the benefits of the tax policy largely accrued to older, more established restaurants in less competitive markets, which were likely better positioned to withstand the demand shocks brought on by the pandemic.

Keywords: tax policy, state tax conformity, COVID-19, business meals deduction, restaurant industry
JEL Classification Codes: E62, H25, H71, H73, J23, K34

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1. Introduction

The U.S. government often enacts tax policies to support industries facing economic hardships, frequently structuring these policies to stimulate consumption. Examples include the 2008 First-Time Homebuyer Credit and the 2009 Cash For Clunkers program, which aimed to boost home and auto purchases during the Great Recession by providing tax rebates for qualifying purchases (Mian and Sufi 2012; Hembre 2018; Berger et al. 2020). Research examining such demand-based policies largely focuses on how these policies affect sales volume and sales prices. While important, examining sales volume alone does not reveal whether and to what extent these policies improve labor market conditions in struggling industries—a key policy concern (e.g., White House 2011; White House 2021). We address this gap by examining the temporary 100% business meals tax deduction, a demand-based policy enacted to aid the restaurant industry during the COVID-19 pandemic, and its effects on employment, wages, and the number of establishments in the restaurant industry. Understanding the effects of this policy on labor market outcomes is of particular importance due to the labor-intensive nature of the restaurant industry.

The temporary 100% business meals tax deduction was enacted as part of the Consolidated Appropriations Act of 2021 with the goal of "helping out beleaguered restaurants that .. suffered from restrictions during the pandemic" (The New York Times 2021). This policy temporarily increased the standard deduction for business meals from 50% to 100%, provided the meals were purchased from restaurants. Given the indirect nature of the incentive—targeting patrons rather than restaurants directly—the effectiveness of the policy hinges on whether it successfully stimulated demand for restaurant meals. Highlighting the intent of the policy, then-President Donald Trump stated, "They'll send their executives, they'll send people there, and they get a deduction. That is something that will really bring life back to the restaurants; I think make them hotter than before" (White House 2020). Despite these intentions, economists expressed skepticism about whether the enhanced deduction would significantly influence consumer behavior. For example, a Senior Fellow at the Institute on Taxation and Economic Policy (ITEP) argued, "There is precisely zero evidence that … increasing the meals deduction beyond the level it's been at for the past quarter-century would be helpful in encouraging the restaurant sector even during normal economic times. And these are not normal economic times" (ITEP 2020).

To examine our research question, we utilize two difference-in-differences (DiD) research designs. The first design compares the restaurant industry (NAICS Code 7225) to other industries in the same geographic locations that experienced similar employment declines during the onset of the pandemic, but for whom purchases do not qualify for the enhanced deduction (i.e., a cross-industry design). The second design leverages variation in state-level conformity with the federal-level policy as well as variation in state tax rates, comparing outcomes for restaurants located in conforming states to restaurants located in non-conforming states (i.e., a within-industry design). For purposes of this design, we match treatment and control locations based on either economic similarity or geographic proximity. In combination, these two research designs address concerns regarding the potential for our tests to capture geographic differences in pandemic-related restrictions, heterogenous effects of the pandemic across industries, or the effects of other pandemic-related federal-level relief policies (such as the Restaurant Revitalization Fund or Paycheck Protection Program).

Our primary data source is the Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW) data series, which reports aggregate data at the level of metropolitan statistical area (MSA) or county (hereafter referred to collectively as "locations").[1]

[1] An MSA is "a Core Based Statistical Area associated with at least one urbanized area that has a population of at least 50,000" (Office of Management and Budget 2010).

Our period of analysis is 2019 through 2021, covering eight calendar quarters prior to the enactment of the enhanced deduction and four quarters after its enactment. We control for geographic variation in the severity of the COVID-19 pandemic, the stringency of related government restrictions, direct federal aid received via the Restaurant Revitalization Fund (RRF) and Paycheck Protection Program (PPP), and regional economic characteristics. Graphical analyses of our various treatment and control samples support the existence of pre-period parallel trends.

Results of our cross-industry analyses suggest improved labor market outcomes in the restaurant industry following the enactment of the enhanced deduction. Specifically, we estimate increases in restaurant employment of 3.67% to 5.13% and restaurant wages of 5.13% to 6.61%, relative to control industries. These effect sizes translate to increases in total quarterly restaurant industry wages paid (total restaurant industry headcount) of $4.9 million (677 people) per MSA. We do not find evidence that the enhanced deduction had a significant impact on the number of restaurant establishments, on average, suggesting the magnitude of the tax incentive is not large enough to meaningfully affect restaurant openings or closings. The results of our within-industry analyses are consistent with these findings. Specifically, we find evidence that the positive impact of the enhanced deduction is greatest among restaurants in high-tax conforming states, where the tax benefits associated with the enhanced deduction are greatest. In total, these findings support that despite the indirect nature of the tax benefit, the temporary 100% business meals deduction was successful in boosting demand for restaurant meals.

We next perform several cross-sectional tests to provide greater insight into the effects of the enhanced deduction. The results of these analyses suggest that the policy provided a greater benefit to older more established restaurants than to startups, larger restaurants, and restaurants in rural areas compared to those in urban locations. Taken together, these results suggest that demand-based policies may be less effective at improving labor market conditions among more resource-constrained (smaller or younger) businesses and in areas with greater competition. We do not observe differential effects of the policy in locations with higher proportions of chain restaurants relative to locations with fewer chains.

We perform a number of robustness tests. First, we re-estimate our cross-industry tests using the hotel industry as an alternative control group. We focus on the hotel industry because it is a labor-intensive industry and because anecdotal evidence suggests it was especially hard hit by the pandemic (Aigbedo 2021; Singh 2020). We obtain similar inferences when using this alternative control group. Second, we re-estimate our cross-industry and within-industry analyses with alternative sample constructions such as requiring balanced panels or forming the sample at the three-digit NAICS code level. Our inferences remain unchanged when utilizing these alternative samples. Third, we find our inferences are robust to using alternative measures of state tax rates to determine treatment intensity in our within-industry tests. Lastly, our results are robust to controlling for several alternative measures of RRF funds received and to limiting our cross-industry analysis to the pre-RRF period.

This study makes three primary contributions. First, this study contributes to the literature on demand-based tax policies (e.g., Hembre 2018; Mian and Sufi 2012). While prior research shows that such policies effectively stimulate consumption, we extend this understanding by documenting how increased demand from fiscal incentives translates into improved labor market outcomes—an important consideration for industries characterized by low wages and high employment elasticity, such as the restaurant industry. Second, this study adds to the emerging literature on the economic effects of COVID-19-related policy interventions (e.g., Coibion et al.

2020; Lourie et al. 2022), providing additional insights into the effectiveness of pandemic relief policies. Finally, our findings are broadly informative to policymakers in drafting targeted tax incentives aimed at helping industries hardest hit during periods of economic downturn.

2. Institutional Background and Hypothesis Development

The onset of the COVID-19 pandemic in early 2020 crippled the restaurant industry as states implemented stay-at-home orders and social distancing requirements. Recent studies highlight the drastic effect of the pandemic on restaurants, finding a decline in restaurant sales of approximately 70% by the second week of March 2020 (Dunn et al. 2020) and annual spending on food away from home during 2020 down 19.5% (Zeballos and Sinclair 2021). A survey of restaurant workers conducted by Restaurant Opportunities Centers United found that 95% of those surveyed experienced a loss in work in 2020 (including furlough, layoffs, job loss, cut hours, etc.). The White House further reported that "Nearly half of all restaurant, bar, and other food and drinking place workers (6 million people) lost or left their jobs between February and April 2020" (White House 2021).

As the pandemic raged on, lawmakers sought to help the restaurant industry by increasing the business meals tax deduction. In recent history, the deduction for business meals as defined by I.R.C. Section 274(n) was limited to 50% of qualifying expenses.[2] The Consolidated Appropriations Act of 2021 (enacted December 27, 2020) temporarily amended the tax law to allow for a 100% deduction for business meals purchased from restaurants during tax years 2021 and 2022. At the time of the enactment, President Donald Trump expressed the intent of the policy in a tweet stating "Bring restaurants… back - and stronger than ever. Move quickly, they will all

[2] The business meals deduction was cut from 100 percent to 80 percent in 1986, and then again to 50 percent in 1994 (The Tax Adviser 2021). Prior to the Tax Cuts and Jobs Act (TCJA) of 2017, business entertainment expenses were also 50 percent deductible. TCJA eliminated the deduction for business entertainment, and business entertainment expenses were not included in the enhanced deduction under the Consolidated Appropriations Act of 2021.

be saved!" (CNN 2020) and again in a White House briefing stating "It'll keep our restaurants going… In fact, I think the restaurant business will be actually bigger and better than it is right now" (WSJ 2020). As expressed in numerous tweets, news briefings, and articles, the intent of expanding the business meals deduction was to keep restaurants open and restaurant employees working (e.g., NPR 2020).[3] Despite these claims, there is scant research supporting the economic effects of the business meals deduction (Clotfelter 1983).

Although the enhanced business meals deduction was enacted to aid the restaurant industry, there are at least two reasons why the tax policy may be ineffective at this goal. First, while the enhanced deduction directly benefits the businesses purchasing restaurant meals, it affects the restaurant industry indirectly and only to the extent it increases demand for restaurant meals (e.g., Marples 2020). Second, it is unclear whether the enhanced deduction will incentivize companies to hold more business-related dinners given the magnitude of the tax benefit. Third, the pandemic was ongoing during the period of deductibility (e.g., CNN 2020) and much of the decrease in restaurant business during this period stemmed from individuals not wanting to contract the virus (Marples 2020). Accordingly, we state our hypothesis in the null as follows:

H1: *The enhanced business meals deduction did not affect the labor market outcomes of the restaurant industry.*

3. Cross-Industry Research Design, Sample Selection, and Descriptives

3.1 Research Design

Our first research design exploits variation across industries in the same location. Specifically, we examine the effect of the enhanced business meals deduction by comparing the

[3] Consistent with this goal, prior research finds cash windfalls are associated with increases in employee wages (Howell and Brown 2023).

labor market outcomes of the restaurant industry to the outcomes of other non-restaurant industries in the same MSA or county. We estimate the following difference-in-differences model:

$$\begin{aligned} &\mathit{Log(Wages_{inq})\ or\ Employees_{inq}\ or\ Establishments_{inq}} \\ &\quad = \beta_0 + \beta_1 \mathit{Restaurant_n} \times \mathit{Post_q} + \mathit{COVID\ Controls_{sq}} + \mathit{Other\ Controls_{iq\text{-}1}} \\ &\qquad + \mathit{Location\ FE} + \mathit{Industry\ FE} + \mathit{Year\text{-}Quarter\ FE} + \varepsilon_{inq} \end{aligned} \tag{1}$$

where subscript i indexes the location (i.e., MSA or county), subscript n indexes the NAICS four-digit industry, subscript q indexes the quarter, subscript s indexes the state, and subscript t indexes the year. The unit of observation is at the industry-location-quarter level. We measure labor market outcomes using total wages (*Wages*), the average number of employees (*Employees*), and the number of establishments (*Establishments*). We obtain data for our dependent variables from the Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW) data series. The QCEW dataset reports aggregated data at the MSA- and county-levels. Accordingly, we construct two samples for each analysis (one at the MSA-level and one at the county-level). *Restaurant* is an indicator variable set equal to one for observations related to NAICS Code 7225 (Restaurants and Other Eating Places), and zero otherwise. *Post* is an indicator variable set equal to one for calendar-year quarters beginning after 2020, and zero otherwise. Due to our fixed effect structure (described below), the coefficients on *Restaurant* and *Post* are subsumed. Where our dependent variables are continuous measures (i.e., *Wages*), we estimate log-linear ordinary least square regressions. When using count variables as the dependent variable (i.e., *Employees* and *Establishments*) we estimate Poisson pseudo-likelihood regressions (Cohn, Liu, and Wardlaw 2022). A positive and significant β_1 coefficient would support that the expanded business meals deduction achieved the policy objective of increasing business at eligible restaurant establishments. To account for the potential correlation of residuals within locations across time, we cluster standard errors at the location level (Cameron et al. 2011; Cameron and Miller 2015).

Our treatment group (NAICS Code 7225) falls within the broader NAICS Code 722 industry (Food Services and Drinking Places). We focus specifically on NAICS Code 7225 because other subsectors in NAICS Code 722 industry include a wider variety of establishments, purchases from which would not as clearly qualify for the expanded business meals deduction. For example, the subsector NAICS Code 7223 (Special Food Services) includes caterers and food service contractors that do not fall under the definition of restaurants detailed in IRS Notice 2021-25. Similarly, as the business meals deduction is targeted specifically toward business activities, it is less likely to apply to purchases made at establishments in NAICS Code 7224 (Drinking Places - Alcoholic Beverages). Conversely, NAICS Code 7225 is comprised largely of restaurants that qualify for the expanded 100% business meals deduction (U.S. Census Bureau 2023). Therefore, focusing on NAICS Code 7225 enables us to examine the effects of the enhanced business meals deduction on the specific industry policymakers intended to support.

To identify our control subsectors, we calculate the aggregate percentage change in quarterly employment from the second quarter of 2019 to the second quarter of 2020 for each subsector. We then compare the change in quarterly employment for the NAICS 7225 subsector to the changes for all other 4-digit NAICS subsectors and retain as our control group the ten subsectors whose changes in quarterly employment (in absolute value terms) are most similar to that of the restaurant industry. The resultant control group includes NAICS subsectors 2131 (Support Activities for Mining), 3152 (Cut and Sew Apparel Manufacturing), 3363 (Motor Vehicle Parts Manufacturing), 4422 (Home Furnishings Stores), 4522 (Department Stores), 4531 (Florists), 4542 (Vending Machine Operators), 6116 (Other Schools and Instruction), 6121 (Museums, Historical Sites, and Similar Institutions), and 8129 (Other Personal Services). Table

1, Panel A reports the average percentage changes in employment from the second quarter of 2019 to the second quarter of 2020 for the restaurant industry and the ten control industries.

Given the timing of the effective date for the enhanced business meals deduction and the direct influence of COVID-19 severity on industry performance (Eichenbaum et al. 2021), capturing geographic variation in both the severity of the COVID-19 pandemic and the stringency of related government restrictions is an important element of our research design. *COVID Controls* represents a vector of pandemic-related control variables, including *Log(COVID Deaths), School Closings, Work Closings,* and *Transit Closings* described below. To control for the severity of the pandemic, we include the number of COVID-related deaths (*Log(Covid Deaths)*), as compiled by the Centers for Disease Control and Prevention (CDC). To control for the associated governmental restrictions, we include COVID-related governmental restrictions on schools (*School Closings*), workplaces (*Work Closings*), and public transit (*Transit Closings*), as identified by the University of Oxford COVID-19 Government Response Tracker. For each closing measure (i.e., schools, workplaces, and public transit), a value of zero to three is assigned, where zero represents no COVID closures, one represents some *recommended* closures, two represents some *required* closures, and three represents *broadly required* closures.[4]

Finally, we control for regional economic characteristics that may affect the labor market including total population (*Log(Population)*), GDP per capita (*GDP per Capita*), and unemployment rate (*Unemployment Rate*). Importantly, we also control for direct financial aid programs administered by the federal government that may impact labor market outcomes,

[4] The data and codebook are available here: https://github.com/OxCGRT/covid-policy-dataset.

including the RRF and the PPP.[5] Specifically, *RRF Ratio* is the ratio of total RRF grants received to the number of restaurant establishments for a given location-quarter. We assign this value to all industries in each location.[6] *PPP Uptake* is the number of jobs reported on PPP loan application forms in an industry-location-quarter divided by the employment level in that industry-location-quarter. *RRF Ratio* (*PPP Uptake*) is set equal to zero in quarters in which no RRF grants (PPP loans) are received. Finally, we include location (i.e., MSA or county), industry, and year-quarter fixed effects to absorb static geographic differences and the effects of other macroeconomic shocks not captured by our control variables.

3.2 Sample Selection

The sample for our cross-industry research design spans the calendar years 2019 through 2021 and includes eight quarters in the pre-period and four quarters in the post-period. For our MSA-quarter (county-quarter) sample, our sample selection procedure begins with all private-sector BLS QCEW MSA-quarter (county-quarter) observations for the years 2019 through 2021 in the NAICS Code 7225 subsector and the ten control subsectors. To ensure sufficient comparability across locations, we drop observations relating to locations in U.S. territories (e.g., Puerto Rico) and observations with undefined locations in the QCEW database. We also require non-missing control variables and at least one treatment and one control observation in each location-quarter. Lastly, we also require each location-subsector to have at least one observation in both the pre- and the post-periods. This sample selection procedure results in 21,384 (79,330) observations in the MSA-level (county-level) sample for our cross-industry research design, as

[5] The Restaurant Revitalization Fund (RRF) was established by the American Rescue Plan Act to provide restaurants with funding equal to their pandemic-related revenue losses of up to $10 million, largely in the second quarter of 2021 (U.S. Small Business Administration 2023a). The Paycheck Protection Program (PPP) was established by the Coronavirus Aid, Relief, and Economic Security (CARES) Act to provide small businesses with loans designed to keep employees on the payroll and at their pre-pandemic pay level, largely from the second quarter of 2020 through the second quarter of 2021 (U.S. Small Business Administration 2023b).

[6] See Section 6.3 for robustness tests using alternative definitions of *RRF Ratio*.

shown in Table 1, Panel B (Panel C). Figure 1 depicts the locations included in our MSA-level and county-level samples for the cross-industry research design.

3.3 Descriptive Statistics

Table 2 presents descriptive statistics for the MSA-level (Panel A) and county-quarter (Panel B) samples used in our cross-industry research design. As shown in Panel A, our MSA-quarter sample has average quarterly employment of approximately 3,987 employees, average total quarterly wages of $23.74 million, and an average of 226 establishments. Regarding the COVID-related closure measures, MSAs in our sample faced at least recommended closures of schools and workplaces, on average, during the second half of 2020 and the first half of 2021.

As shown in Panel B, the counties in our county-level sample are generally smaller than the MSAs in the MSA-level sample, with average quarterly employment of approximately 1,463 employees, average total quarterly wages of $9.03 million, and an average of 87 establishments. Similar to our MSA-level sample (Panel A), the counties in our county-level sample exhibit similar COVID-related closure trends. Specifically, more than half of the counties in this sample experience at least some recommended school closures, with work and transit closing being the next most likely recommended closures, respectively (untabulated).

We conduct tests of the differences in means for these descriptive statistics across our treatment and control groups. Table 3 Panels A (MSA-level) and B (county-level) report the results of these tests. Due to our matching procedure in our cross-industry sample, which allows for a one-to-many treatment-to-control match in each location, we observe some significant differences in means of the control variables across restaurant and non-restaurant industries.

An important assumption underlying our difference-in-differences design is that treatment and control industries exhibit similar trends in labor market outcomes in the pre-event period. To assess the existence of pre-period parallel trends, we plot our dependent variables in event-time.

Figure 2 reports the results for cross-industry samples. Panel A reports results for the total quarterly wages in millions, Panel B reports results for the average employee level, and Panel C reports results for the number of establishments. Across all panels, the figures show similar pre-event trends in calendar year 2019. In calendar year 2020, the figures depict a decline in total quarterly wages (Panel A) and average employment (Panel B) for all industry subsectors, with the subsequent recovery appearing to be greatest for the restaurant industry (NAICS Code 7225). Across both samples, the number of establishments (Panel C) appears relatively flat for all industry subsectors in the pre-event period.

4. Within-Industry Research Design, Sample Selection, and Descriptives

A potential concern with our cross-industry research design is that different industries may be differentially affected by the COVID-19 pandemic (and related relief efforts) and thus exhibit different trends in labor market outcomes as they recover from the economic shock of the pandemic. To address this concern, we utilize a second difference-in-differences design that focuses solely on the restaurant industry (i.e., a within-industry research design). We describe this alternative research design below.

4.1 Research Design

Our second research design exploits variation in state-level conformity with the federal-level enhanced business meals deduction by comparing restaurants in conforming states to restaurants in non-conforming states. We estimate the following difference-in-differences model:

$$\begin{aligned}
&Log(Wages_{iq}) \text{ or } Employees_{iq} \text{ or } Establishments_{iq} = \\
&\quad \beta_0 + \beta_1 Conforming_i \times Post_q \times High\ Tax_i + \beta_2 Conforming_i \times Post_q \\
&\quad + \beta_3 Post_q \times High\ Tax_i + COVID\ Controls_{sq} \\
&\quad + Other\ Controls_{iq-1} + Location\ FE + Year\text{-}Quarter\ FE + \varepsilon_{iq} \qquad (2)
\end{aligned}$$

where subscript i indexes the location (i.e., MSA or county), subscript q indexes the quarter, subscript s indexes state, and subscript t indexes year. The unit of observation is at the industry-location-quarter level. In both samples, *Conforming* is an indicator variable set equal to one for locations in conforming states (described below – see Section 4.2), and zero otherwise. All other variables are as previously described. We include location (MSA or county) and year-quarter fixed effects to absorb static geographic differences and the effects of macroeconomic shocks that are not captured by our control variables. We cluster standard errors at the location level.

By focusing solely on the restaurant industry, this within-industry analysis holds constant all federal-level relief policies affecting the restaurant industry, including the enhanced business meals deduction and the RRF program. Our identification strategy thus leverages variation in state-level tax rates, where the tax benefits for restaurant meals are greatest in conforming high-tax states. We construct an indicator variable, *High Tax,* set equal to one for locations in states with a maximum corporate income tax rate or maximum individual income tax rate that exceeds the country-wide median in that particular year, and zero otherwise.[7] We include location and year-quarter fixed effects. Accordingly, the coefficients on *Conforming, Post, High Tax,* and *Conforming* × *High Tax* are subsumed.

In each test, the sum of the β_1 and β_2 coefficients represents the DiD estimate for restaurants in high-tax locations and the β_2 coefficient represents the DiD estimate for restaurants in low-tax locations. The difference in these two estimates is β_1, our variable of interest. We expect that any effect of the enhanced deduction on the restaurant industry is greatest in conforming high-tax states. A positive and significant β_2 coefficient would be consistent with this prediction and suggest greater improvements in labor market outcomes for restaurants in high-tax conforming states than for restaurants in low tax conforming states, relative to their respective control groups.

[7] Tax policy related to business meals may be relevant to corporate taxpayers and noncorporate business taxpayers who are subject to state income taxes imposed on pass-through income at the individual taxpayer level. Thus, we focus our analysis on states that impose either a corporate income tax or individual income tax.

Although state tax law frequently conforms to federal tax law, states can choose to decouple from federal tax law on any federal provision (e.g., Luna and Watts 2008). There are many reasons why a state may choose to decouple from the federal tax law.[8] First, conforming with federal tax policies can be costly to states, who, unlike the federal government, are often constitutionally required to maintain a balanced budget year to year. We control for several factors that may influence a state's decision to conform to the enhanced business meals deduction including population, GDP per capita, and the unemployment rate as well as several COVID-related controls (e.g., the number of COVID deaths and the closings of schools, work, and transit). Our fixed effect structure subsumes static state-level characteristics that may affect the decision to conform with federal-level policies, such as the political affiliation of the state governor at the time the Consolidated Appropriations Act of 2021 was enacted.

4.2 Sample Selection

We first identify four non-conforming states: Colorado, Florida, Indiana, and Maine. We then match locations in non-conforming states to those in conforming states using one of two methods: (1) we match treatment and control MSAs with comparable restaurants per capita in the pre-pandemic period and (2) we match treatment and control counties located within 50 miles of each other. Thus, our MSA-level sample includes *economically* similar locations while our county-level sample includes *geographically* similar locations. Within each sample, we exclude locations in states that lack both a corporate income tax and individual income tax (i.e., Nevada, South Dakota, Texas, Washington, and Wyoming) because the state-level business meals deduction is only applicable for state income tax purposes.

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[8] Conformity decisions are made at the state level, not the business level. In other words, the state decides whether or not it will conform to a federal tax provision, and all businesses operating in that state must abide by that decision.

For our MSA-level sample, we match control MSAs to treatment MSAs using restaurants per capita as of the first quarter of the sample (i.e., the first calendar-quarter of 2019). Our sample selection procedure begins with all MSAs in the QCEW database.[9] We then pair each MSA from every non-conforming state with each MSA from every conforming state. For each MSA located in non-conforming states, we retain the most economically similar MSA located in a conforming state, without replacement. We measure economic similarity using restaurants per capita (the number of establishments divided by the total population) as of the first calendar-quarter of 2019. We again require all locations to have an observation in the pre- and post-period and all control variables data necessary to estimate Equation (2). Table 1, Panel D summarizes this sample selection process to arrive at our sample of 943 MSA-quarters.

For our county-level sample, we ensure treatment and control observations are comparable on geographical dimensions that may influence labor market outcomes by requiring the county seats of treatment and control counties to be within 50 miles of each other. To construct our county-level sample, we pair each county in every control state with each county in every bordering treatment state. From this set of paired observations, we retain all county-pairs that are within 50 miles of each other (i.e., a one-to-many match).[10] We measure county distances using the U.S. Counties Database from Simple Maps, which uses U.S. Census Bureau and BLS data to construct county latitudes and longitudes.[11] Lastly, we require each treatment and control county to have at least one observation in the pre- and post-period and data necessary to estimate Equation (2). Table

[9] In instances where an MSA overlaps multiple states, we define the MSA state as the state that encompasses the largest Principal City of the MSA (Office of Management and Budget 2010).
[10] We implement a 50 mile cutoff to ensure treatment and control counties are geographically similar. In untabulated analyses, we examine alternative distance cutoffs, including 100 miles and 25 miles. The 100-mile cutoff results in a larger sample (approximately 26,500 observations) but the county-pairs exhibit large pre-period differences in labor market outcomes. When implementing a 25-mile cutoff, county-pairs are similar on pre-event labor market outcomes, but the sample size is limited to less than 400 observations.
[11] The database is available here: https://simplemaps.com/data/us-counties.

1, Panel E summarizes this sample selection process to arrive at our sample of 2,070 county-quarters.

Figure 3 depicts the locations included in our MSA-level and county-level samples for the within-industry research design.

4.3 Descriptive Statistics

Table 2, Panels C and D present descriptive statistics for our MSA-level and county-level samples, respectively. As shown in Panel C, our MSA-level sample has average quarterly employment of approximately 18,501 employees, total quarterly wages of $96.67 million, and an average of 1,029 restaurant establishments. As shown in Panel D, the counties in our sample are generally smaller than the MSAs in our MSA-level sample, with average quarterly employment of about 3,298 employees, total quarterly wages of $15.82 million, and an average of 172 restaurant establishments. Regarding the COVID-related closure measures, the descriptive statistics indicate that both MSAs and counties in our samples faced at least *recommended* closures of schools and workplaces, on average, during the second half of 2020 and the first half of 2021.

Table 3, Panels C and D present a test of the difference in means for the conforming and non-conforming groups in our MSA-quarter sample and county-quarter sample, respectively. Across both samples, locations in conforming and non-conforming states have statistically similar COVID-related deaths. Additionally, treatment and control locations exhibit similar levels of *RRF Ratio* and *PPP Uptake*, providing further assurance that our within-industry research design holds constant the availability of federal-level pandemic-related relief programs. Although there are some statistically significant differences between the treatment and control groups, the lack of consistency in the sign and statistical significance of these differences across the two samples provides some assurance that any results captured by our tests are unlikely to be driven by underlying differences in treatment and control locations. For example, in the MSA-level sample

(Panel C), MSAs in conforming states are smaller and have more stringer school shutdowns, relative to MSAs in non-conforming states. In contrast, in the county-level sample (Panel D), counties in conforming states are of similar size and have similar school restrictions.

Finally, we assess the validity of the parallel trends assumption underlying our difference-in-differences design by plotting our dependent variables in event-time. Figure 4 reports the results for both the MSA-level and county-level samples. Panel A reports results for the total quarterly wages in millions, Panel B reports results for the average employee level, and Panel C reports results for the number of establishments. Across all panels, the figures show similar pre-event trends in total wages, average employment level, and establishments, including a sizeable dip in wages (Panel A) and employment (Panel B) for both conforming and non-conforming states at the onset of the COVID-19 pandemic in the U.S. (i.e., the first quarter of 2020). Across both samples, the number of establishments appears relatively flat in the pre-event period (Panel C).

5. Results

5.1 Descriptive Analysis

We first present a descriptive analysis of the trends in seated U.S. restaurant diners, using data from the OpenTable State of the Industry website.[12] This dataset reports the annual percentage change in diners in 2020, relative to the same date in 2019. Figure 5 reports this data over the period February 18, 2020 through December 31, 2021. We plot vertical lines at two key dates relevant to the enhanced business meals deduction: (1) the date the Consolidated Appropriations Act of 2021 passed (December 27, 2020) and (2) the date the IRS issued IRS Notice 2021-25 (April 8, 2021). The graph shows a decline in seated diners of approximately 100% at the onset of the COVID-19 pandemic in early 2020. Seated diners subsequently recover to approximately 50%

[12] This data is available at: https://web.archive.org/web/20221228131511/https:/www.opentable.com/state-of-industry.

of 2019 numbers until the end of 2020. Concurrent with the enactment of the enhanced business meals deduction, the graph depicts an increase in seated diners in early 2021. While anecdotal, this data supports the drastic effect of the pandemic on the restaurant industry and shows that its recovery appears to coincide with the availability of the enhanced business meals deduction.

5.2 Main Results

Table 4 reports the results of our main analyses. Panel A reports the results of estimating Equation (1) for the MSA-quarter sample in Columns (1) through (3) and the county-quarter sample in Columns (4) through (6). Across both samples, the coefficients on *Restaurant* × *Post* are positive and statistically significant when measuring labor market outcomes using total quarterly wages (Columns 1 and 4) and average employees (Columns 2 and 6). However, we do not observe a statistically significant coefficient in either the MSA-level or county-level sample when examining the number of establishments as the dependent variable (Columns 3 and 6). In terms of economic significance, the coefficient estimates suggest that restaurants in MSAs (counties) experience an increase in total quarterly wages of 6.61% (5.13%) and average employment of 3.67% (5.13%), after the enactment of the enhanced deduction, relative to the other industry subsectors.[13] Based on the average quarterly wages (average total employment) for restaurants in the MSA-level sample of $96.2 million (18,400 people) (untabulated), this translates to an increase in total restaurant industry wages paid (total restaurant industry headcount) of $4.9 million (677 people) per MSA-quarter.[14]

[13] We compute effect sizes as the exponent of the coefficient minus one.

[14] The Joint Committee on Taxation estimated the temporary expansion of the business meals deduction would result in $6.296 million in foregone tax revenue (JCT 2020). By comparison, our estimate of increased quarterly wages of $4.9 million suggests an annual aggregate increase in restaurant industry wages (across all 393 MSAs in the U.S.) of $7,702.8 million ($4.9 million * four quarters * 393 MSAs).

Overall, these results are consistent with restaurants experiencing improved labor market outcomes after the business meals deduction is temporarily expanded, relative to other industry subsectors in the same locations. The insignificant coefficients on the interaction terms when examining restaurant establishments as the outcome variable suggest that the magnitude of the federal tax incentive is not large enough to meaningfully affect the number of restaurants, on average. [15]

Turning to the coefficients on the control variables, we find some evidence that the severity of government restrictions affects labor market outcomes. For example, in Columns (2), (4), and (5), the coefficient on *Work Closing* is negative and significant, consistent with restaurants experiencing lower demand in locations with COVID-19 lockdown orders. The results also provide some support that the RRF is associated with greater wages, as evidenced by the positive and significant coefficients on *RRF Ratio* in Columns (1) and (4). In contrast, the results indicate that the PPP is negatively associated with labor outcomes. Specifically, the coefficients on *PPP Uptake* are negative and significant in all columns. We interpret these negative coefficients as consistent with greater PPP uptake in locations that were hardest hit by COVID-19.

Panel B reports the results of estimating Equation (2) for the MSA-quarter sample (Columns 1 through 3) and the county-quarter sample (Columns 4 through 6). In Columns (1) and (4), the positive and significant coefficients on the triple interaction term indicate 3.98% to 6.18% greater wages at restaurants in high-tax conforming states than for restaurants in low-tax conforming states, relative to their respective control groups, after the business meals deduction is expanded. In addition, the positive and significant coefficient on the triple interaction term in Column (2) indicates 5.76% greater restaurant employees in MSAs in high-tax conforming states

[15] We obtain similar inferences when using location-quarter and industry fixed effects (untabulated).

than among MSAs in low-tax conforming states, relative to their respective control groups. With respect to the control variables, we again find evidence that government restrictions adversely impacted labor outcomes in the restaurant industry, as evidenced by the negative and significant coefficients on the closing variables (*School Closing*, *Work Closings,* and *Transit Closing*) in several specifications.

6. Additional Analyses

6.1 Cross-Sectional Analyses

Next, we conduct several cross-sectional analyses. For our cross-industry tests, we estimate the following model:

$$\begin{aligned} &Log(Wages_{inq})\text{ or }Employees_{inq}\text{ or }Establishments_{inq} \\ &\quad = \beta_0 + \beta_1 Restaurant_n \times Post_q \times Characteristic_i + \beta_2 Restaurant_n \times Post_q \\ &\qquad + \beta_3 Restaurant_n \times Characteristic_i + \beta_4 Post_q \times Characteristic_i \\ &\qquad + COVID\ Controls_{sq} + Other\ Controls_{iq-1} \\ &\qquad + Location\ FE + Industry\ FE + Year\text{-}Quarter\ FE + \varepsilon_{inq} \end{aligned} \tag{3}$$

where *Characteristic* includes one of three cross-sectional indicator variables, including *High Startups, High Small,* and *High Rural*, described below. In each test, the coefficients on *Restaurant, Post,* and *Characteristic* are subsumed by our fixed effects. The sum of the β_1 and β_2 coefficients represents the DiD estimate for restaurants in *focal* locations (i.e., locations with greater proportions of startup restaurants, small restaurants, and more rural locations). The β_2 coefficient represents the DiD estimate for restaurants in *benchmark* locations (i.e., locations with fewer startup restaurants, larger restaurants, and more urban locations). The difference in these two difference-in-differences estimates is β_1, our variable of interest.

For our cross-sectional within-industry tests, we re-estimate Equation (2) with the sample bifurcated on each *Characteristic* measure.

6.1.1 Startup Establishments

Our first cross-sectional analysis considers the potential for heterogeneous effects of the temporary increased deduction, focusing specifically on the age of restaurants in each location.[16] We construct an indicator variable representing locations with higher proportions of restaurant startup activity (*High Startups*). To identify startup activity, we use the Census Business Dynamics Statistics (BDS) data series. This data reports the total number of firms in each MSA-sector (where the sector is defined at the two-digit NAICS level) across four age-groupings (age less than one year, one to five years, six to ten years, and eleven or more years). For each MSA, we calculate the percentage of firms in NAICS industry 72 (Accommodation and Food Services) that are less than one year old as of 2019.

Table 5 presents the results of the startup activity cross-sectional test. Panel A presents the results for our cross-industry research design and Panel B presents the results for our within-industry research design. In Panel A, we find the positive effects of the enhanced business meals deduction are greater among locations with less startup activity. Specifically, the negative and significant coefficients on the triple interaction terms in all columns suggest smaller increases in restaurant employees, wages, and establishments in locations with more startup restaurants. The results in Panel B further support this conclusion. Specifically, the coefficient on the triple interaction term *Conforming* × *Post* × *High Tax* is positive and statistically significant when examining total wages and average employment in low startup locations (*High Startup* = 0), whereas these coefficients are statistically insignificant in high startup locations (*High Startup* = 1). In sum, these results suggest that the labor market benefits of the temporary enhanced deduction largely accrued to older, more established restaurants.

[16] We conduct the firm age and size tests only at the MSA level because the underlying data necessary is not available at the county level.

6.1.2 Establishment Size

Our next cross-sectional analysis considers the potential for heterogeneous effects of the temporary increased deduction across restaurants of different sizes. For this test, we construct an indicator variable representing locations with higher proportions of small restaurants (*High Small*). To identify the prevalence of small restaurants, we again use the Census BDS data series, which reports the total number of firms in each MSA-sector (two-digit NAICS) across three employee-size groupings (one to 19 employees, 20 to 499 employees, and 500 or more employees). For each MSA, we calculate the percentage of companies in NAICS industry 72 that have 19 or fewer employees as of 2019. We construct an indicator variable, *High Small*, set equal to one if an MSA's small firm percentage is in the top half of all U.S. MSAs, and zero otherwise.

Table 6 presents the results of the cross-sectional analysis of establishment size for the cross-industry research design (Panel A) and the within-industry research design (Panel B). In Panel A, we do not observe evidence consistent with the impact of the enhanced deduction on wages or employees varying with establishment size. However, the results in Column (3) suggest fewer establishments for small firms, relative to large firms, in the post-period. This finding suggests that the enhanced business meals deduction may have been less effective at increasing demand at smaller restaurant establishments.

In Panel B, we find evidence of increased employment in locations with larger, more established restaurants as seen by the positive and significant coefficient on the triple interaction term in Column (2) when *High Small* = 0. We note that due to limited overlap between *High Small* and *High Tax* locations, the variable *Conforming* × *Post* × *High Tax* drops out of the model in Columns (4) through (6). Overall, we interpret these results as providing some evidence that the labor market benefits of the temporary increased business meals deduction were not equally distributed across restaurants of different sizes.

6.1.3 Location Ruralness

Our third cross-sectional analysis examines location ruralness. For this test, we use the 2020 Census population data series on urban blocks data to construct an indicator variable, *High Rural,* set equal to one for locations classified as rural, and zero otherwise.[17] We classify a county as rural if it has a below-median percentage of the population located in urban blocks, and zero otherwise. Since the underlying Census data is only available at the county-level, we construct MSA-level data by matching each county in the database to all of the MSAs in the U.S. using the BLS county-MSA crosswalk data series. Next, for each MSA we calculate an average of its matched counties' percent of the 2020 Census population of the county within urban blocks. We then construct an indicator variable, *High Rural*, set equal to one for MSAs with an average percent of the 2020 Census population of the county within urban blocks in the bottom half of all U.S. MSAs, and zero otherwise.

Table 7, Panel A presents the results of the ruralness cross-sectional analysis using our cross-industry research design. The results provide some evidence of a greater positive effect of the enhanced deduction for restaurants in rural locations, relative to restaurants in other locations. Specifically, the positive and significant coefficients on the triple interaction terms in Columns (5) and (6) suggest greater restaurant employees and establishments in more rural counties than in restaurants in more urban counties after the expansion of the business meals deduction.

Panel B (Panel C) reports the results for the MSA-level (county-level) within-industry tests. In Panel B, we see some evidence that the enhanced business meals deduction has less of an effect in more urban MSAs, as indicated by the negative and statistically significant coefficient on the triple interaction term in Column (3). Finally, in Panel C, we find some evidence that the deduction

[17] The Census defines an urban block as a census block that lies within an urban area (U.S. Department of Commerce 2022).

has a greater effect on wages in more rural locations, as evidenced by the positive and statistically significant coefficient on the triple interaction term in Column 1.

Overall, the results of the ruralness tests provide some support that the enhanced business meals deduction was more effective in rural locations than in more urban locations.

6.1.4 Restaurant Chainness

We conduct a final, untabulated cross-sectional analysis that considers the impact of the composition of the restaurant industry in each location. Specifically, we examine how much of the area's restaurant industry is comprised of chain restaurants. We obtain data on restaurant "chainness" from Liang and Andris (2021), who use data from the LeadsDeposit (2021) restaurant database to classify restaurants as chain or non-chain. Using this data, we construct a variable, *High Chain*, which is set equal to one for locations that have above-median percentages of chain restaurants, and zero otherwise. In untabulated analyses, we do not observe that restaurant chainness moderates the effects of the enhanced business meals deduction.

6.2 Hotel Industry as an Alternative Control Sample

The control sample for our cross-industry analysis includes industries with declines in employment at the onset of the pandemic that are similar to that of the restaurant industry. However, anecdotal insights suggest the hotel industry faced extreme declines in business as a result of the pandemic (Aigbedo 2021; Singh 2020). Specifically, the hotel industry suffered a 50% decrease in hotel revenue per available room and almost an 85% decrease in gross operating profit per available room in 2020 (STR 2021a; STR 2021b). Hotels are not included as a control industry in our main tests because the industry decline in employment from the second quarter of 2019 to the second quarter of 2020 was -51.18%, and thus hotels were significantly harder hit (in terms of employment declines) by the pandemic than restaurants and the ten industries included in our main sample.

In additional analyses, we re-estimate our cross-industry tests using the hotel industry (NAICS Code 7211 - Traveler Accommodation) as an alternative control group.[18] To construct the MSA and county-level samples, we require each location to have an observation for both industries in each quarter in the sample period. The rest of the sample selection process (i.e., requiring non-missing control variables, dropping non-U.S. observations, dropping singleton observations, etc.) mirrors the sample selection process for our main samples. This sample selection procedure results in 5,146 MSA-level observations and 26,768 county-level observations, respectively, untabulated.

Table 8 reports the results for the full sample period analyses (Panel A) and the limited post-period analyses (Panel B). In Panel A, the coefficients on *Restaurant* × *Post* are positive and significant when examining total quarterly wages (Columns 1 and 3) and average employee level (Columns 2 and 4), consistent with our main tests. In Column (6), we also observe a negative and significant coefficient on *Restaurant* × *Post*, suggesting that restaurants were more likely to close than hotels located in the same county during 2021. In Panel B, we re-estimate Equation (1) using a restricted sample that limits the post-period to the first quarter of 2021. We continue to see positive and significant coefficients on *Restaurant* × *Post* when examining quarterly wages and average employee level at the MSA- and county-levels. In total, these results further support the positive effect of the enhanced deduction on labor market outcomes in the restaurant industry.

6.3 Robustness Tests

The results of our main tests support that the enhanced business meals deduction let to labor market improvements in the restaurant industry. To ensure that our inferences are not unduly influenced by our research design choices, we conduct several untabulated robustness analyses.

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[18] We do not examine grocery stores (NAICS Code 4244) as an alternative control group because groceries and restaurant meals are, in some cases, substitutes, and thus the enhanced deduction may indirectly impact grocery stores.

First, to alleviate concerns that our results are attributable to changes in the sample composition, we re-estimate Equations (1) and (2) requiring balanced panels. We obtain similar inferences regarding the effect of the enhanced deduction on wages and employees at both the MSA- and county-levels.

Second, as purchases from some businesses in the broader NAICS Code 722 (Food Services and Drinking Places) industry may qualify for the enhanced business meals deduction (such as food purchases from bars or other drinking places), we re-estimate Equations (1) and (2) using samples constructed at the three-digit NAICS code level. We find obtain similar inferences using this alternative methodology.

Third, we re-examine our within-industry analyses using alternative definitions of *High Tax*. We continue to find positive and significant increases in MSA-level employees and wages when defining *High Tax* solely using the corporate income tax rate or the individual income tax rate, rather than considering these taxes jointly (untabulated). In the county-level analyses, we continue to find a positive and significant increase in total wages when defining *High Tax* based solely on the corporate income tax rate. However, we do not observe a statistically significant effect when measuring *High Tax* based solely on the personal income tax rate.

Lastly, we perform several tests to address concerns that our cross-industry tests capture the effects of other pandemic-related relief policies targeted at the restaurant industry (such as the RRF program) rather than the effects of the enhanced business meals deduction. While we control for RRF funds in all analyses and our within-industry research design holds the availability of the RRF program constant across treatment and control locations, we further address this concern in a number of ways. First, we re-estimate Equation (1) with the post-period limited to the pre-RRF period (i.e., the first quarter of 2021). As shown in Table 9, we continue to find the coefficients on

Restaurant × *Post* are positive and statistically significant when examining total quarterly wages in both the MSA-level and county-level samples (Columns 1 and 4). In addition, in the county-level sample, the coefficient on *Restaurant* × *Post* is positive and statistically significant when examining average employment (Column 5). These findings further support that the results of our cross-industry tests are attributable to the temporary 100% business meals deduction and not to the RRF. In addition, we re-estimate Equations (1) and (2) using two alternative definitions of *RRF Ratio*, one continuous and one indicator (untabulated). The continuous measure retains the value of *RRF Ratio* once it's assigned through the end of the sample period or until a new value is assigned, if applicable.[19] The indicator measure sets *RRF Ratio* equal to one if the *RRF Ratio* value is in the top tercile for all locations, and zero otherwise. We reach similar conclusions regarding the effects of the enhanced deduction when employing these alternative definitions of *RRF Ratio*.

7. Conclusion

We examine the impact of the temporary 100% business meals deduction on the labor market outcomes of the restaurant industry using two alternative identification strategies: (1) a cross-industry difference-in-differences design that exploits variation in the applicability of the enhanced deduction across industries in the same locations and (2) a within-industry difference-in-differences design that exploits variation in state-level conformity with the federal tax policy and variation in state-level tax rates. Results of our analyses support that the enhanced deduction led to improvements in the restaurant industry labor market outcomes, including increases in total quarterly wages and average employment levels. Results of our cross-sectional analysis suggest heterogeneity in the policy's effectiveness, with greater labor market improvements occurring in locations with fewer startup restaurants, larger restaurants, and in more rural locations. We also

[19] There are a small number of instances (approximately 0.15% of the county-quarters in our sample) of locations receiving additional RRF funding after the initial funding in Q2 2021.

find some evidence that larger restaurants benefited more from the policy than smaller restaurants. Overall, our study provides support that, despite the indirect nature of the tax policy, the temporary enhanced business meals deduction was successful in its goal of helping the restaurant industry rebound from the COVID-19 pandemic. More broadly, our findings are informative to policymakers in drafting demand-based tax incentives to aid labor-intensive industries in periods of economic distress.

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Appendix A: Variable Descriptions

Variable	Source data unit of observation	Description
Characteristic	Location-year	One of four measures of locational characteristics, including *High Rural, High Chain, High Startup,* and *High Small.*
Conforming	Location-quarter	An indicator variable set equal to one for locations (MSA or county) in treatment states, and zero otherwise.
COVID Controls	State-quarter	A vector of control variables including *Log(COVID Deaths), School Closings, Work Closings,* and *Transit Closings*
Employees	Industry-location-quarter	Average number of employees by location-quarter from the BLS QCEW data series.
Establishments	Industry-location-quarter	Total number of establishments by location-quarter from the BLS QCEW data series.
GDP per Capita	Location-year	Estimated GDP per capita by location-quarter. GDP data is obtained from the BEA table "CAGDP1 County and MSA gross domestic product (GDP) summary." We estimate quarterly values of GDP by calculating the year-over-year change, and then assuming that the change happens ratably across calendar-year quarters. We then compute GDP per capita as estimated quarterly GDP divided by *Population.*
High Chain	Location-year	An indicator variable set equal to one for locations where the percentage of chain restaurants is above the median of all U.S. locations. The underlying data for this measure was collected in April 2021. We obtain data on restaurant chainness from Liang & Andris (2021).
High Rural	Location-year	For counties, an indicator variable set equal to one for counties with a percent of the 2020 Census population of the county within urban blocks in the bottom half of all U.S. counties. For MSAs, we calculate the average percent of the 2020 census population of the county within urban blocks for all counties in the MSA. Next, the indicator variable is set equal to one for MSAs with an average percent of the 2020 census population within urban blocks in the bottom half of all U.S. MSAs. We obtain data on the 2020 Census population within urban blocks from the Census.
High Small	MSA-year	An indicator variable set equal to one for MSAs where the percentage of firms in NAICS industry 72 that have fewer than 20 employees out of all of the firms in the NAICS industry 72 in the MSA is in the top half of all U.S. MSAs. We measure this variable using data

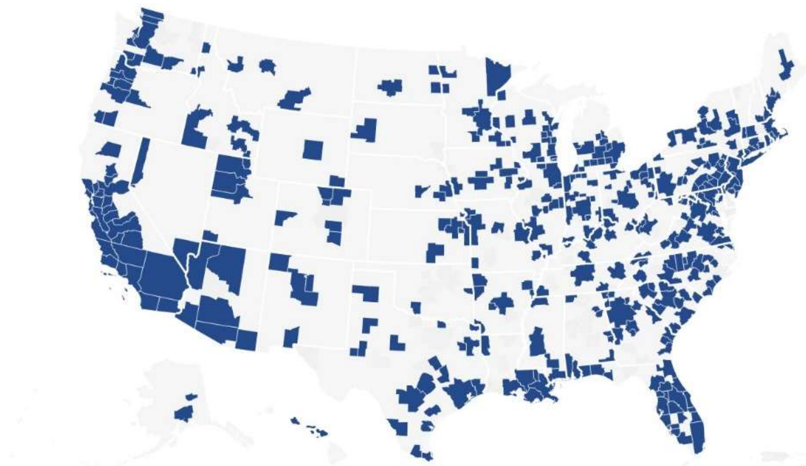
		from the end of 2019. We obtain data on MSA-industry-firm size from the Census BDS data.
High Startup	MSA-year	An indicator variable set equal to one for MSAs where the percentage of firms in NAICS industry 72 that are less than one year old out of all of the firms in the NAICS industry 72 in the MSA is in the top half of all U.S. MSAs. We measure this variable using data from the end of 2019. We obtain data on MSA-industry-firm age from the Census Business Dynamics Statistics (BDS) data.
High Tax	Location-year	An indicator variable set equal to one for locations in states where either the maximum state-level corporation income tax rate or the maximum state-level individual tax rate is in the top half of all U.S. states. We obtain data on income tax rates from the Tax Policy Center.
Log(COVID Deaths)	State-quarter	The natural logarithm of the number of COVID-related deaths by state-quarter as identified by the CDC case surveillance data series.
Log(Population)	Location-year	The natural logarithm of *Population*.
Log(Wages)	Industry-location-quarter	The natural logarithm of *Wages*.
Other Controls	Various	A vector of control variables including *Log(Population), GDP per Capita, UE Rate, RRF Ratio,* and *PPP Uptake.*
Population	Location-year	Estimated population, in millions, by location-quarter. Population data is obtained from the BEA table "CAINC1 County and MSA personal income summary: personal income, population, per capita personal income." We estimate location-quarter values by calculating the year-over-year change, and then assuming that the change happens ratably across calendar-year quarters.
Post	Location-quarter	An indicator variable set equal to one for calendar-year quarters beginning after 2020, and zero otherwise.
PPP Uptake	Industry-location-quarter	The sum of all jobs saved by Paycheck Protection Program (PPP) loans divided by the end of quarter *Employees* by location-quarter. PPP data is obtained from the U.S. SBA.
Restaurant	Industry-location-quarter	An indicator variable set equal to one for restaurant industry observations (NAICS Code 7225), and zero otherwise.
RRF Ratio	Location-quarter	The sum of all Restaurant Revitalization Fund (RRF) grants, in millions, divided by *Establishments* by location-quarter. RRF data is obtained from the U.S. SBA.

School Closing	State-quarter	A rank variable ranging from zero to three, where zero indicates there are no COVID-19 school closures, one indicates there are some *recommended* school closures, two indicates there are some *required* school closures, and three indicates there are *widespread required* school closures. Data to construct this variable is obtained from the Oxford University COVID-19 Government Response Tracker.
Transit Closing	State-quarter	A rank variable ranging from zero to three, where zero indicates there are no COVID-19 transit closures, one indicates there are some *recommended* transit closures, two indicates there are some *required* transit closures, and three indicates there are *widespread required* transit closures. Data to construct this variable is obtained from the Oxford University COVID-19 Government Response Tracker.
UE Rate	Location-year	Estimated unemployment rate by location-quarter. Unemployment rate data is obtained from the BLS LAUS data series. We estimate location-quarter values by calculating the year-over-year change, and then assuming that the change happens ratably across calendar-year quarters.
Wages	Industry-location-quarter	Total wages, in millions, by location-quarter from the BLS QCEW data series.
Work Closing	State-quarter	A rank variable ranging from zero to three, where zero indicates there are no COVID work closures, one indicates there are some *recommended* work closures, two indicates there are some *required* work closures, and three indicates there are *widespread required* work closures. Data to construct this variable is obtained from the Oxford University COVID-19 Government Response Tracker.

Figure 1: Cross-Industry Research Design Sample Coverage

These figures depict the sample coverage for the cross-industry research design. In each figure, the blue shaded areas represent the locations included in the sample.

MSA



County

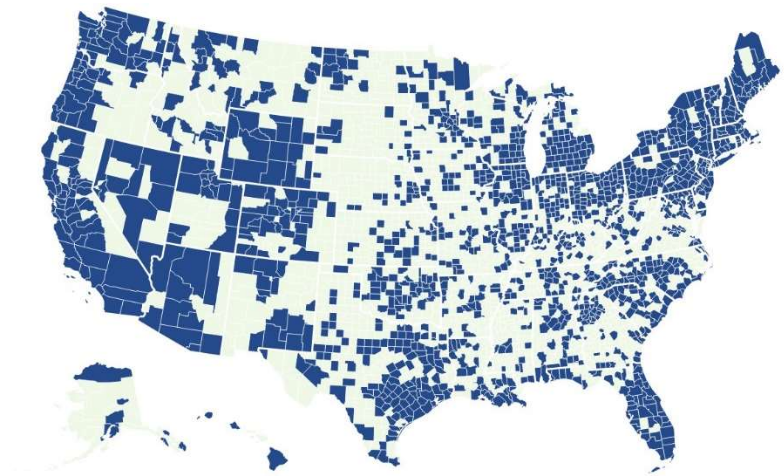
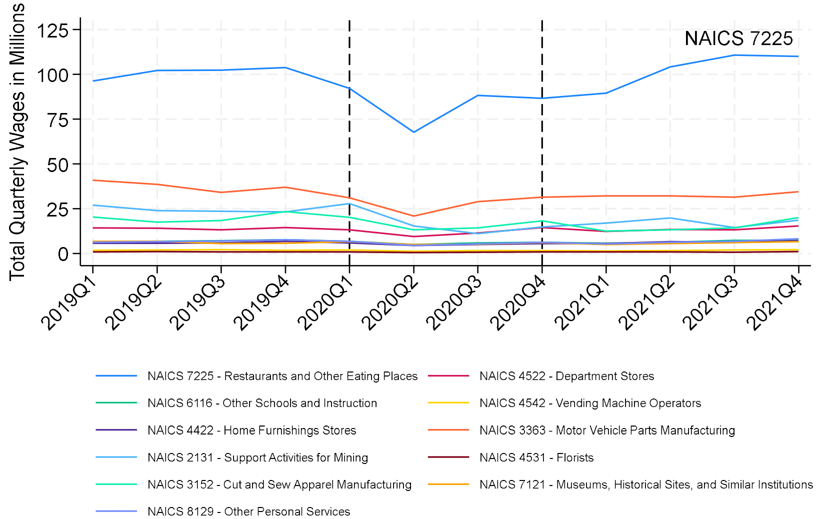


Figure 2: Cross-Industry Research Design - Parallel Trends

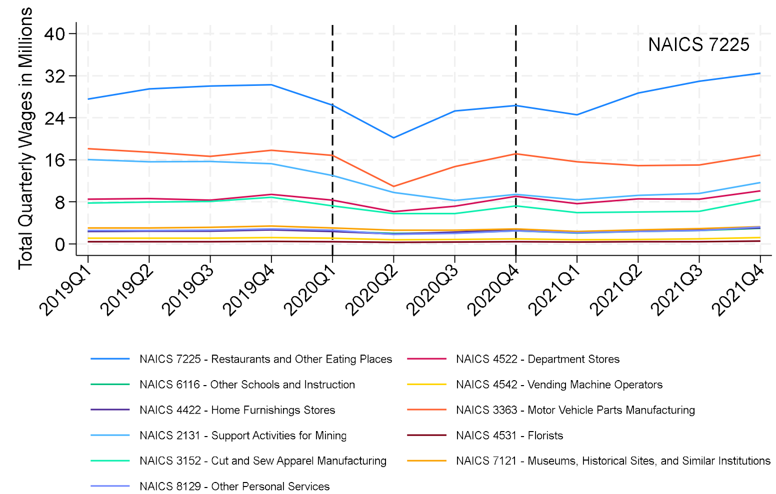
This figure depicts wages in millions *(Wages)* (Panel A), average employees *(Employees)* (Panel B), and number of establishments *(Establishments)* (Panel C) by calendar-quarter for the cross-industry MSA-level and county-level samples, with each sample split by treatment and control industry subsectors. Vertical lines are plotted at the beginning of the COVID-19 pandemic (i.e., quarter 1 of 2020) and the end of the pre-period (i.e., quarter 4 of 2020).

Panel A: *Wages*

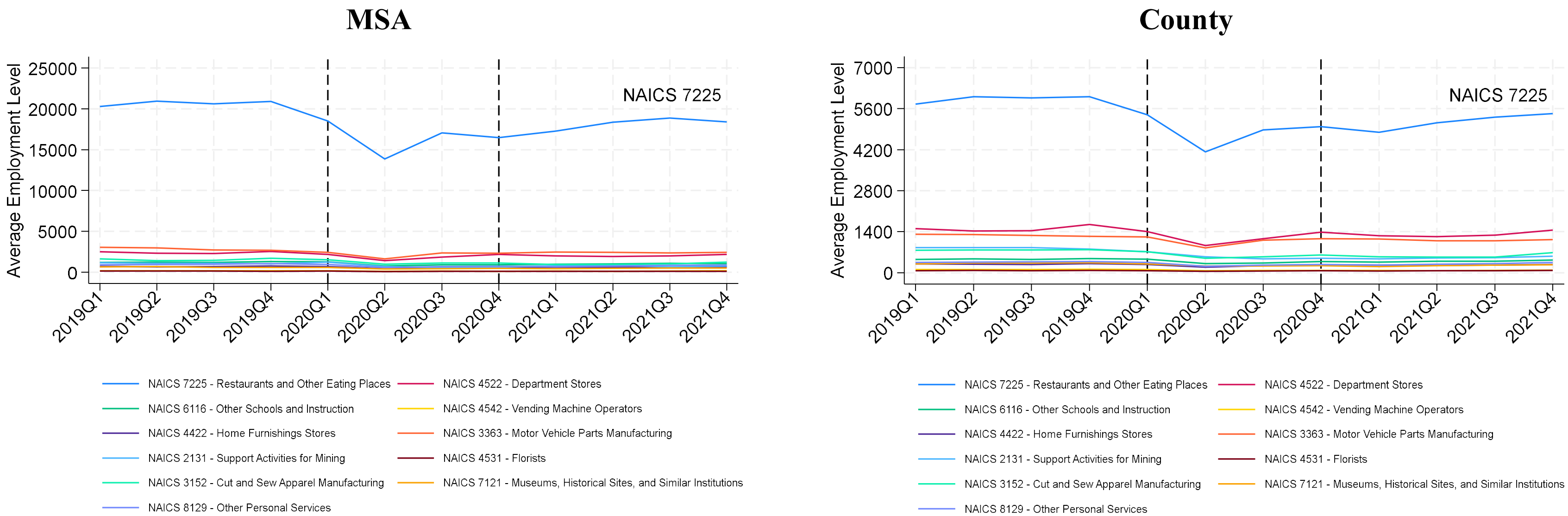
MSA



County

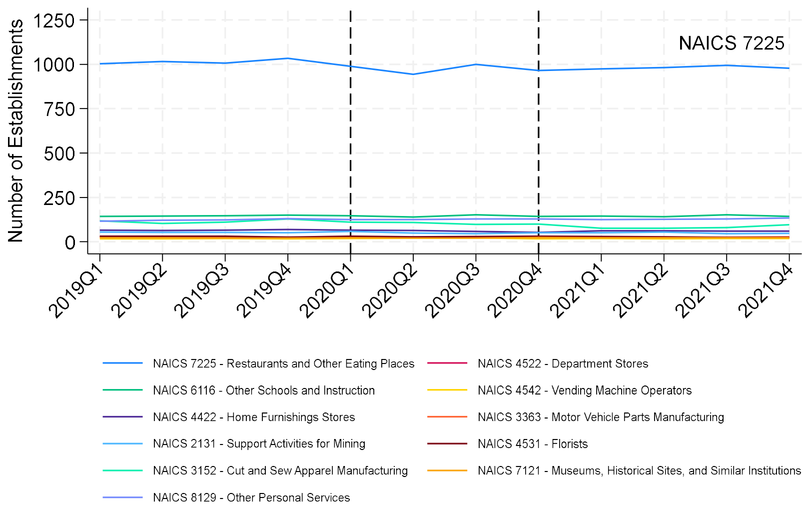


Panel B: *Employees*



Panel C: *Establishments*

MSA



County

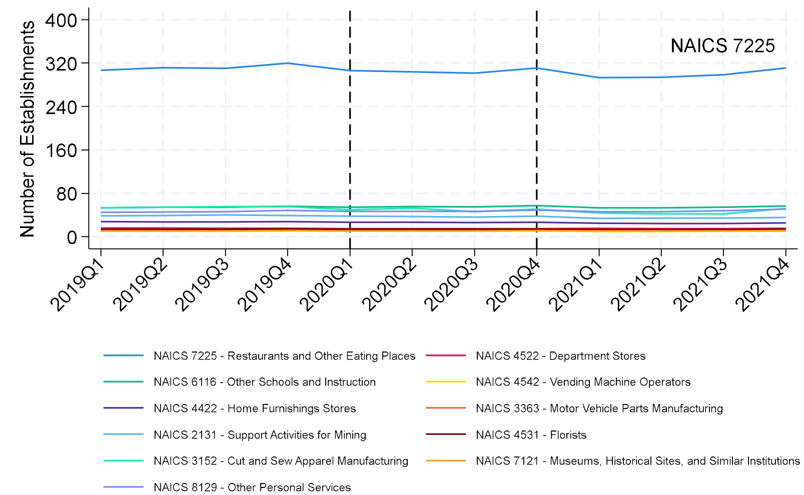
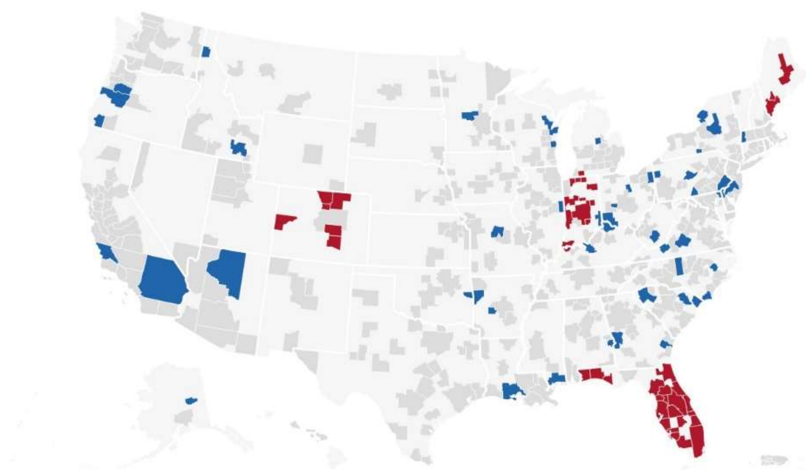


Figure 3: Within-Industry Research Design Sample Coverage

These figures depict the sample coverage for the within-industry research design. In each figure, locations in conforming (non-conforming) states included in the sample are shaded in blue (red). Light grey shaded areas represent locations that are not included in our within-industry sample.

MSA



County

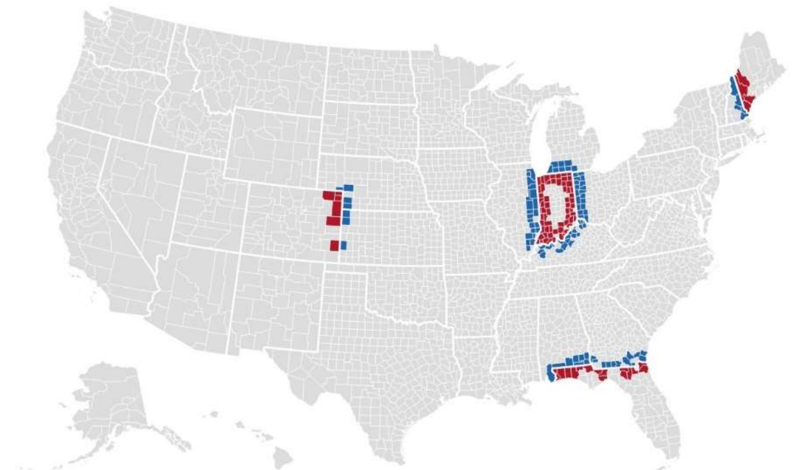
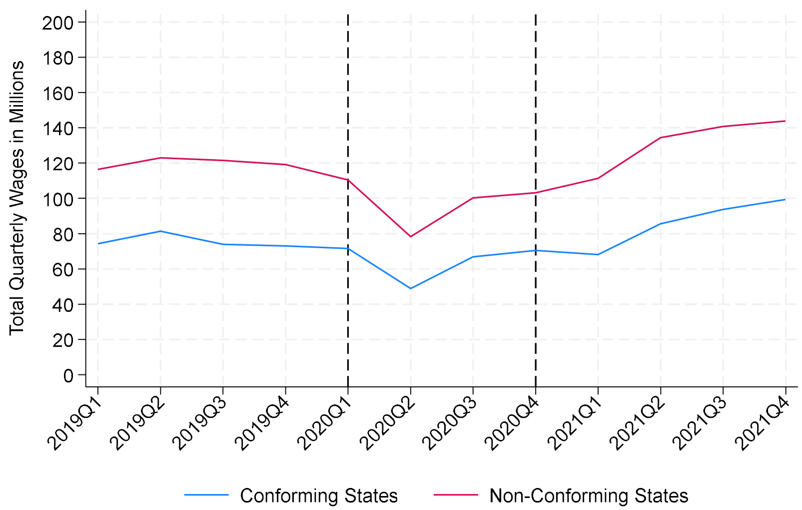


Figure 4: Within-Industry Research Design - Parallel Trends

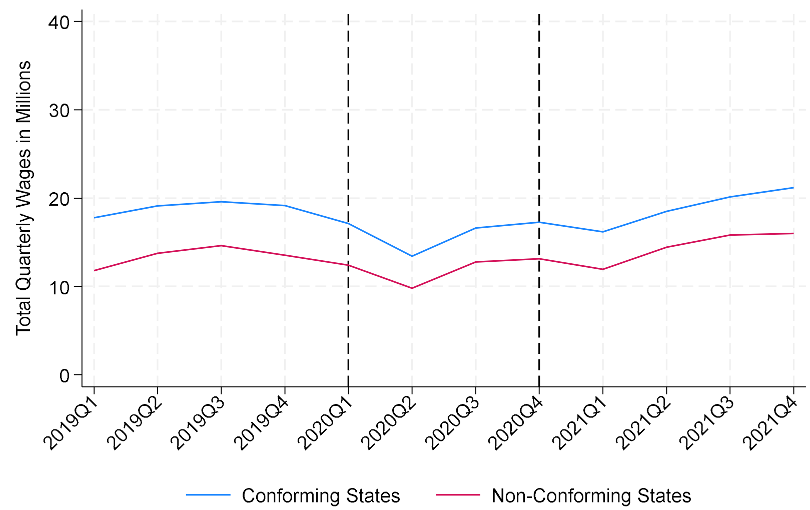
This figure depicts wages in millions *(Wages)* (Panel A), average employees *(Employees)* (Panel B), and number of establishments *(Establishments)* (Panel C) by calendar-quarter for the within-industry MSA-level and county-level samples, with each sample split by treatment and control locations. Vertical lines are plotted at the beginning of the COVID-19 pandemic (i.e., quarter 1 of 2020) and the end of the pre-period (i.e., quarter 4 of 2020).

Panel A: *Wages*

MSA

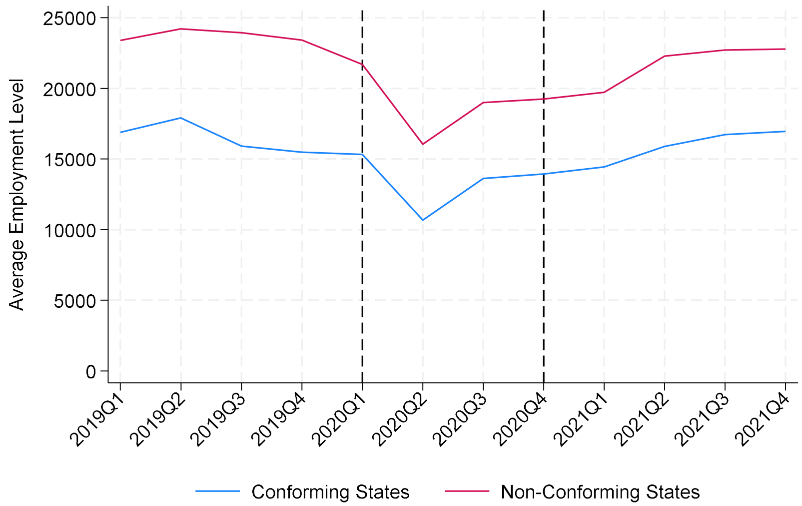


County

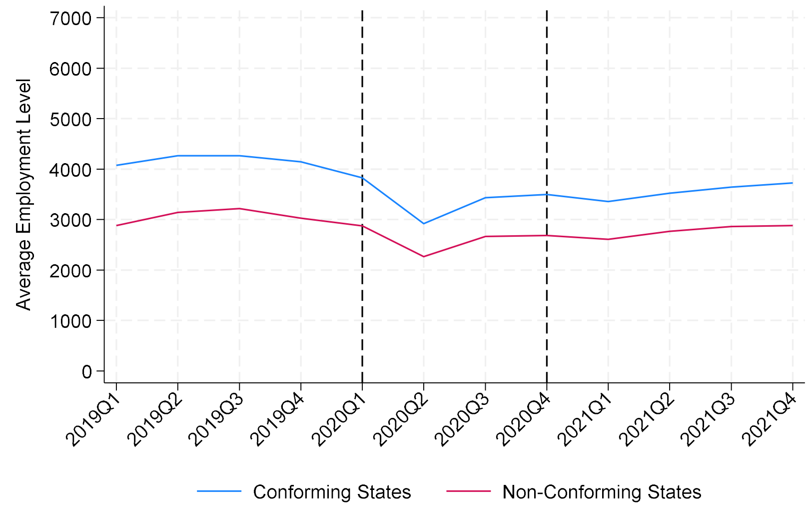


Panel B: *Employees*

MSA

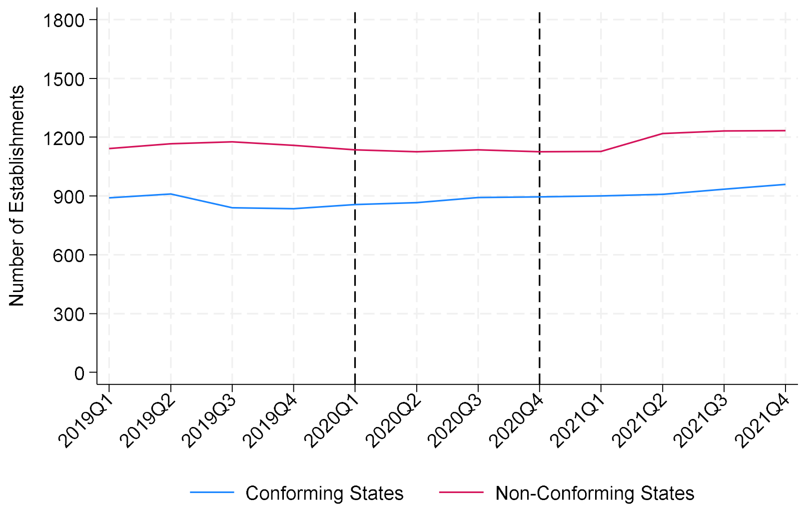


County



Panel C: *Establishments*

MSA



County

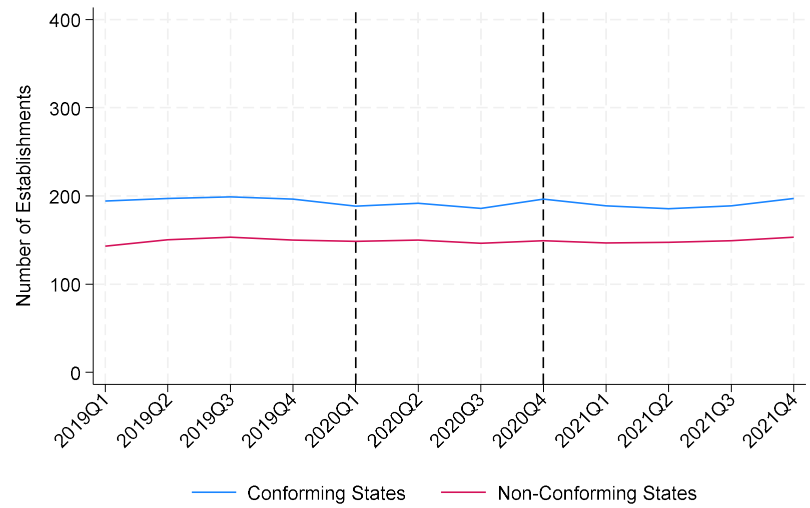


Figure 5: Trend in Seated Diners Relative to 2019

This figure depicts the percentage change in seated diners at U.S. restaurants by day, relative to the same day in 2019. Data to construct this figure is obtained from the OpenTable State of the Industry website. Vertical lines appear at two key dates: (1) the date the Consolidated Appropriations Act of 2021 passed (December 27, 2020) and (2) the date the IRS issued IRS Notice 2021-25 (April 8, 2021). All continuous values are winsorized at the 1st and 99th percentiles.

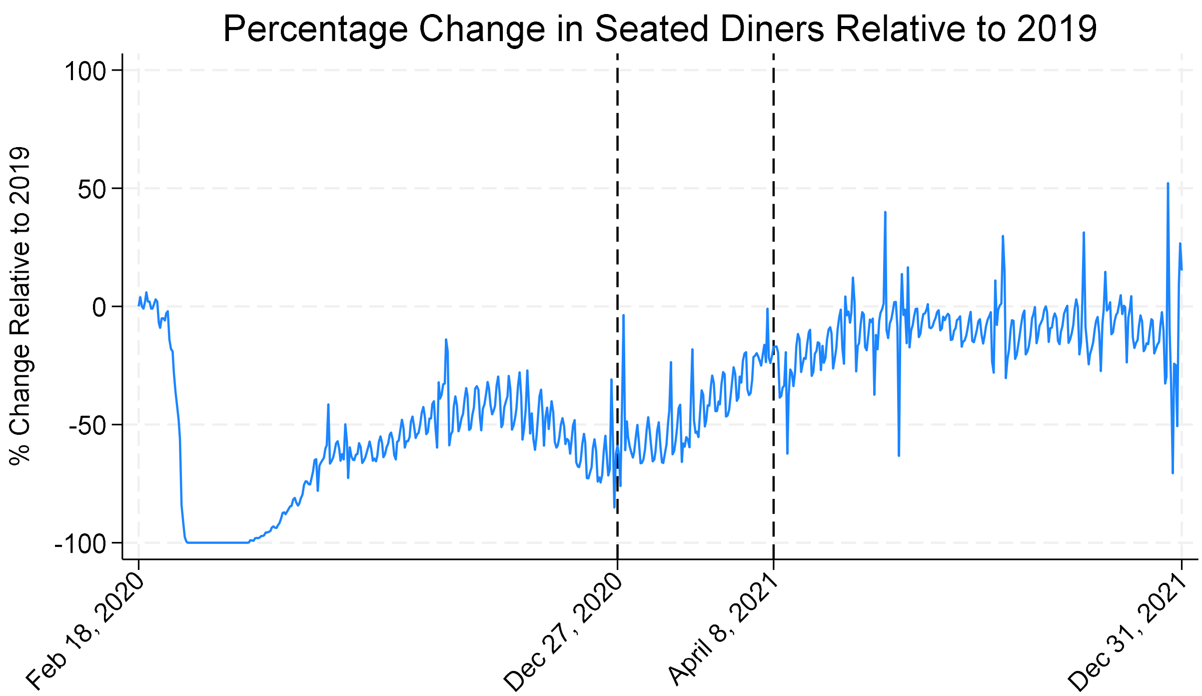


Table 1: Sample Selection

This table reports the matching process used to identify the ten control industries used in our cross-industry research design (Panel A), as well as the sample selection process for the cross-industry MSA- and county-level samples (Panels B and C, respectively), and the within-industry MSA- and county-level samples (Panels D and E, respectively).

Panel A: Percentage Change in Employment from Q2 2019 to Q2 2020

(1) Control Industry (NAICS Code)	(2) Control Industry Employment Change	(3) Restaurant Industry Employment Change	(4) Abs(Diff)
Department Stores (4522)	-33.99%	-34.22%	0.0023
Other Schools and Instruction (6116)	-33.97%	-34.22%	0.0025
Vending Machine Operators (4542)	-33.46%	-34.22%	0.0077
Home Furnishings Stores (4422)	-33.20%	-34.22%	0.0103
Auto Parts Manufacturing (3363)	-33.10%	-34.22%	0.0112
Support Activities for Mining (2131)	-33.02%	-34.22%	0.0120
Florists (4531)	-32.34%	-34.22%	0.0188
Cut and Sewing Manufacturing (3152)	-32.26%	-34.22%	0.0197
Museums and Historical Sites (7121)	-31.46%	-34.22%	0.0277
Other Personal Services (8129)	-37.02%	-34.22%	0.0280

Panel B: Cross-Industry MSA-Level Sample

	Observations
All MSA-quarters in the QCEW dataset for 11 industries included in the sample	26,169
Less: Puerto Rico MSA-quarters	(226)
Less: MSA-quarter observations without necessary data	(153)
Less: MSA-quarter observations without one treatment and one control observation in every quarter	(2,854)
Less: MSA-industry observations without an observation in both the pre and post-period	(1,552)
Total observations in the MSA-level sample	21,384

Panel C: Cross-Industry County-Level Sample

	Observations
All county-quarters in QCEW dataset for 11 industries included in the sample	102,056
Less: Undefined or outside of the U.S. county-quarters	(3,846)
Less: County-quarter observations without necessary data	(1,575)
Less: County-quarter observations without one treatment and one control observation in every quarter	(13,490)
Less: County-industry observations without an observation in both the pre and post-period	(3,815)
Total observations in the county-level sample	79,330

Panel D: Within-Industry MSA-Level Sample

	Observations
All paired MSA-quarters	114,874
Less: least similar observations (using restaurants-per-capita)	(113,931)
Total observations in the MSA-level sample	943

Panel E: Within-Industry County-Level Sample

	Observations
All paired county-quarters within 50 miles of each other	3,666
Less: redundant county-quarter pairs	(1,596)
Total observations in the county-level sample	2,070

Table 2: Descriptive Statistics

This table reports descriptive statistics for the cross-industry MSA-level sample (Panel A), cross-industry county-level sample (Panel B), within-industry MSA-level sample (Panel C), and within-industry county-level sample (Panel D). All continuous variables are winsorized at the 1st and 99th percentiles. Variable descriptions are available in the appendix.

Panel A: Cross-Industry Research Design - MSA-Level Sample						
Variable	N	Mean	SD	p25	p50	p75
$Employees_{it}$	21,384	3,987	12,630	80	316	2,088
$Wages_{it}$	21,384	23.737	71.889	0.519	2.060	13.772
$Log(Wages_{it})$	21,384	0.993	2.137	-0.656	0.723	2.623
$Establishments_{it}$	21,384	226	670	9	22	131
$Post_t$	21,384	0.348	0.476	0.000	0.000	1.000
$COVID\ Deaths_{jt}$	21,384	10,665.980	17,125.410	0.000	2,480.000	14,748.000
$Log(COVID\ Deaths_{jt})$	21,384	5.649	4.402	0.000	7.816	9.599
$School\ Closing_{jt}$	21,384	1.070	1.083	0.000	0.685	2.000
$Work\ Closing_{jt}$	21,384	0.731	0.821	0.000	0.473	1.317
$Transit\ Closing_{jt}$	21,384	0.222	0.423	0.000	0.000	0.154
$Population_{it-1}$	21,384	0.891	1.562	0.156	0.288	0.777
$Log(Population_{it-1})$	21,384	-0.938	1.158	-1.859	-1.246	-0.253
$GDP\ per\ capita_{it-1}$	21,384	48.191	13.916	38.595	46.390	55.189
$UE\ Rate_{it-1}$	21,384	4.911	1.892	3.600	4.400	5.750
$RRF\ Ratio_{it-1}$	21,384	0.002	0.010	0.000	0.000	0.000
$PPP\ Uptake_{it-1}$	21,384	0.111	0.354	0.000	0.000	0.000
$High\ Tax_{it}$	21,384	0.552	0.497	0.000	1.000	1.000
$High\ Rural_{it}$	21,384	0.196	0.397	0.000	0.000	0.000
$High\ Chain_{it}$	21,384	0.414	0.492	0.000	0.000	1.000
$High\ Startup_{it}$	21,384	0.743	0.437	0.000	1.000	1.000
$High\ Small_{it}$	21,384	0.340	0.474	0.000	0.000	1.000

Panel B: Cross-Industry Research Design - County-Level Sample						
Variable	N	Mean	SD	p25	p50	p75
Employees$_{it}$	79,330	1,463	3,875	45	193	947
Wages$_{it}$	79,330	9.030	23.760	0.280	1.278	5.913
Log(Wages$_{it}$)	79,330	0.310	2.033	-1.273	0.246	1.777
Establishments$_{it}$	79,330	87	228	6	15	56
Post$_{t}$	79,330	0.343	0.475	0.000	0.000	1.000
COVID Deaths$_{jt}$	79,330	9,435.620	15,358.690	0.000	2,002.000	13,038.000
Log(COVID Deaths$_{jt}$)	79,330	5.526	4.367	0.000	7.602	9.476
School Closing$_{jt}$	79,330	1.063	1.060	0.000	0.783	2.000
Work Closing$_{jt}$	79,330	0.712	0.803	0.000	0.440	1.043
Transit Closing$_{jt}$	79,330	0.237	0.442	0.000	0.000	0.176
Population$_{it-1}$	79,330	0.333	0.478	0.068	0.155	0.373
Log(Population$_{it-1}$)	79,330	-1.817	1.202	-2.684	-1.863	-0.985
GDP per capita$_{it-1}$	79,330	52.741	22.572	38.660	47.933	60.472
UE Rate$_{it-1}$	79,330	4.673	1.720	3.425	4.275	5.525
RRF Ratio$_{it-1}$	79,330	0.002	0.008	0.000	0.000	0.000
PPP Uptake$_{it-1}$	79,330	0.113	0.385	0.000	0.000	0.000
High Tax$_{it}$	79,330	0.527	0.499	0.000	1.000	1.000
High Rural$_{it}$	79,330	0.104	0.305	0.000	0.000	0.000
High Chain$_{it}$	79,330	0.561	0.496	0.000	1.000	1.000

Panel C: Within-Industry Research Design - MSA-Level Sample						
Variable	N	Mean	SD	p25	p50	p75
Employees$_{it}$	943	18,501	32,659	3,822	7,332	16,050
Wages$_{it}$	943	96.667	183.421	16.846	32.361	81.479
Log(Wages$_{it}$)	943	3.731	1.148	2.824	3.477	4.400
Establishments$_{it}$	943	1,029	1,976	209	353	792
Conforming$_{i}$	943	0.496	0.500	0.000	0.000	1.000
Post$_{t}$	943	0.340	0.474	0.000	0.000	1.000
COVID Deaths$_{jt}$	943	9,983.406	15,497.500	0.000	2,002.000	14,313.000
Log(COVID Deaths$_{jt}$)	943	5.490	4.432	0.000	7.602	9.569
School Closing$_{jt}$	943	0.945	1.031	0.000	0.538	2.000
Work Closing$_{jt}$	943	0.667	0.800	0.000	0.374	1.011
Transit Closing$_{jt}$	943	0.221	0.404	0.000	0.000	0.176
Population$_{it-1}$	943	0.594	1.140	0.129	0.207	0.479
Log(Population$_{it-1}$)	943	-1.266	1.028	-2.049	-1.575	-0.736
GDP per capita$_{it-1}$	943	42.929	11.257	34.925	40.268	48.988
UE Rate$_{it-1}$	943	4.662	1.521	3.575	4.325	5.450
RRF Ratio$_{it-1}$	943	0.002	0.008	0.000	0.000	0.000
PPP Uptake$_{it-1}$	943	0.082	0.205	0.000	0.000	0.009
High Tax$_{it}$	943	0.416	0.493	0.000	0.000	1.000
High Rural$_{it}$	943	0.191	0.393	0.000	0.000	0.000
High Chain$_{it}$	943	0.422	0.494	0.000	0.000	1.000
High Startup$_{it}$	943	0.682	0.466	0.000	1.000	1.000
High Small$_{it}$	943	0.352	0.478	0.000	0.000	1.000

Panel D: Within-Industry Research Design - County-Level Sample						
Variable	N	Mean	SD	p25	p50	p75
$Employees_{it}$	2,070	3,298	6,401	380	945	3,184
$Wages_{it}$	2,070	15.824	33.351	1.427	3.617	14.612
$Log(Wages_{it})$	2,070	1.387	1.720	0.355	1.286	2.682
$Establishments_{it}$	2,070	172	325	24	58	168
$Conforming_{i}$	2,070	0.533	0.499	0.000	1.000	1.000
$Post_{t}$	2,070	0.342	0.474	0.000	0.000	1.000
COVID $Deaths_{jt}$	2,070	7,854.021	10,887.710	0.000	2,525.000	13,469.000
Log(COVID $Deaths_{jt}$)	2,070	5.580	4.315	0.000	7.834	9.508
School $Closing_{jt}$	2,070	1.015	1.043	0.000	0.571	2.000
Work $Closing_{jt}$	2,070	0.606	0.724	0.000	0.330	1.000
Transit $Closing_{jt}$	2,070	0.219	0.479	0.000	0.000	0.033
$Population_{it-1}$	2,070	0.100	0.172	0.021	0.042	0.093
$Log(Population_{it-1})$	2,070	-3.112	1.228	-3.878	-3.161	-2.373
GDP per $capita_{it-1}$	2,070	45.460	18.936	33.740	42.820	51.457
UE $Rate_{it-1}$	2,070	4.322	1.381	3.400	4.075	4.975
RRF $Ratio_{it-1}$	2,070	0.002	0.007	0.000	0.000	0.000
PPP $Uptake_{it-1}$	2,070	0.083	0.261	0.000	0.000	0.001
High Tax_{it}	2,070	0.249	0.432	0.000	0.000	0.000
High $Rural_{it}$	2,070	0.427	0.495	0.000	0.000	1.000
High $Chain_{it}$	2,070	0.691	0.462	0.000	1.000	1.000

Table 3: Tests of Differences

This table reports the descriptive statistics for the cross-industry MSA-level sample (Panel A) and cross-industry county-level sample (Panel B) with the samples split on the *Restaurant* indicator. Panels C and D report the descriptive statistics for the within-industry MSA-level and within-industry county-level samples with the samples split on the *Conforming* indicator. All continuous variables are winsorized at the 1st and 99th percentiles. Variable descriptions are available in the appendix.

Panel A: Cross-Industry MSA-Level Sample

	Restaurant = 0		*Restaurant = 1*		
	N	Mean	N	Mean	Diff. in Means
Log(COVID Deaths$_{jt}$)	17,723	5.665	3,661	5.568	0.097
School Closing$_{jt}$	17,723	1.071	3,661	1.066	0.005
Work Closing$_{jt}$	17,723	0.733	3,661	0.719	0.014
Transit Closing$_{jt}$	17,723	0.221	3,661	0.226	-0.005
Log(Population$_{it-1}$)	17,723	(0.907)	3,661	(1.088)	0.180***
GDP per Capita$_{it-1}$	17,723	48.315	3,661	47.589	0.726***
UE Rate$_{it-1}$	17,723	4.919	3,661	4.876	0.042
RRF Ratio$_{it-1}$	17,723	0.003	3,661	0.002	0.000
PPP Uptake$_{it-1}$	17,723	0.115	3,661	0.092	0.023***

Panel B: Cross-Industry County-Level Sample

	Restaurant = 0		*Restaurant = 1*		
	N	Mean	N	Mean	Diff. in Means
Log(COVID Deaths$_{jt}$)	63,156	5.541	16,174	5.468	0.073*
School Closing$_{jt}$	63,156	1.063	16,174	1.064	-0.001
Work Closing$_{jt}$	63,156	0.714	16,174	0.701	0.013*
Transit Closing$_{jt}$	63,156	0.235	16,174	0.242	-0.007*
Log(Population$_{it-1}$)	63,156	(1.678)	16,174	(2.359)	0.680***
GDP per Capita$_{it-1}$	63,156	53.537	16,174	49.631	3.906***
UE Rate$_{it-1}$	63,156	4.674	16,174	4.671	0.003
RRF Ratio$_{it-1}$	63,156	0.002	16,174	0.002	0.000***
PPP Uptake$_{it-1}$	63,156	0.117	16,174	0.097	0.020***

Panel C: Within-Industry MSA-Level Sample					
	Conforming = 0		*Conforming = 1*		
	N	Mean	N	Mean	Diff. in Means
Log(COVID Deaths$_{jt}$)	475	5.632	468	5.346	0.286
School Closing$_{jt}$	475	0.856	468	1.035	-0.179***
Work Closing$_{jt}$	475	0.636	468	0.698	-0.063
Transit Closing$_{jt}$	475	0.246	468	0.195	0.050*
Log(Population$_{it-1}$)	475	(1.064)	468	(1.471)	0.407***
GDP per Capita$_{it-1}$	475	43.547	468	42.301	1.246*
UE Rate$_{it-1}$	475	4.406	468	4.922	-0.516***
RRF Ratio$_{it-1}$	475	0.002	468	0.002	0.000
PPP Uptake$_{it-1}$	475	0.082	468	0.083	-0.001

Panel D: Within-Industry County-Level Sample					
	Conforming = 0		*Conforming = 1*		
	N	Mean	N	Mean	Diff. in Means
Log(COVID Deaths$_{jt}$)	967	5.632	1,103	5.535	0.097
School Closing$_{jt}$	967	0.988	1,103	1.039	-0.051
Work Closing$_{jt}$	967	0.568	1,103	0.640	-0.072**
Transit Closing$_{jt}$	967	0.138	1,103	0.289	-0.151***
Log(Population$_{it-1}$)	967	(3.112)	1,103	(3.112)	-0.001
GDP per Capita$_{it-1}$	967	43.227	1,103	47.418	-4.191***
UE Rate$_{it-1}$	967	4.039	1,103	4.569	-0.530***
RRF Ratio$_{it-1}$	967	0.001	1,103	0.002	0.000
PPP Uptake$_{it-1}$	967	0.079	1,103	0.088	-0.009

Table 4: Main Analysis

This table presents the results of estimating Equations (1) and Equation (2) in Panels A and B, respectively. In Panel A, *Restaurant* is an indicator variable set equal to one for observations in the NAICS Code 7225 (Restaurants and Other Eating Places), and zero otherwise. *Post* is an indicator variable set equal to one for calendar-year quarters beginning after 2020, and zero otherwise. In Panel B, *Conforming* is an indicator variable set equal to one for locations in conforming states, and zero otherwise. *High Tax* is an indicator variable set equal to one for locations in states that have above-median corporate income tax rates or above-median individual income tax rates, and zero otherwise. In both panels, Columns (1) and (4) report results of OLS regression estimations; all other columns report results of Poisson pseudo-likelihood regressions. All variables are defined in the appendix. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the location level. T-statistics are reported in brackets beneath the coefficients. Significance levels are based upon two-sided t-tests and are indicated as follows: * p<0.10, ** p<0.05, *** p<0.01.

Panel A: Cross-Industry Research Design

	(1)	(2)	(3)	(4)	(5)	(6)
Sample		MSA			County	
Variables	*Log(Wages$_{inq}$)*	*Employees$_{inq}$*	*Establishments$_{inq}$*	*Log(Wages$_{inq}$)*	*Employees$_{inq}$*	*Establishments$_{inq}$*
Restaurant$_i$* × *Post$_q$	**0.064*****	**0.036*****	**-0.004**	**0.050*****	**0.050*****	**-0.005**
	[7.302]	**[2.842]**	**[-0.314]**	**[7.047]**	**[8.379]**	**[-1.016]**
Log(COVID Deaths$_{sq}$)	0.001	-0.003	-0.001	-0.003	-0.005***	0.002*
	[0.103]	[-0.861]	[-0.525]	[-0.946]	[-2.987]	[1.939]
School Closings$_{sq}$	-0.006	-0.002	-0.002	-0.007	-0.006**	-0.002
	[-0.875]	[-0.399]	[-0.372]	[-1.552]	[-2.135]	[-1.463]
Work Closings$_{sq}$	-0.014	-0.015***	-0.002	-0.027***	-0.012***	-0.000
	[-1.552]	[-3.040]	[-0.456]	[-5.087]	[-4.373]	[-0.261]
Transit Closings$_{sq}$	-0.010	0.002	0.007**	-0.003	-0.011***	0.003
	[-1.088]	[0.364]	[2.059]	[-0.552]	[-2.978]	[1.527]
Log(Population$_{iq-1}$)	1.668***	0.716***	0.850***	1.250***	0.866***	0.799***
	[3.230]	[2.712]	[3.107]	[5.277]	[4.599]	[8.358]
GDP per Capita$_{iq-1}$	0.001	-0.002***	-0.001	-0.003**	-0.002***	-0.000
	[0.370]	[-3.013]	[-0.769]	[-2.537]	[-2.602]	[-1.601]
UE Rate$_{iq-1}$	-0.002	-0.004	-0.004*	-0.004	-0.004**	-0.004***
	[-0.231]	[-1.174]	[-1.767]	[-1.369]	[-2.009]	[-3.806]
RRF Ratio$_{iq-1}$	1.239**	-0.390	-0.906**	1.247***	-0.097	-0.130
	[2.177]	[-1.088]	[-2.267]	[3.994]	[-0.549]	[-1.273]
PPP Uptake$_{iq-1}$	-0.211***	-0.191***	-0.068**	-0.181***	-0.212***	-0.085***
	[-7.528]	[-5.489]	[-2.192]	[-13.362]	[-9.629]	[-3.915]

Constant	2.555***	9.858***	6.735***	2.824***	9.631***	6.499***
	[5.115]	[88.056]	[55.361]	[6.528]	[48.714]	[78.431]
Location FE	MSA	MSA	MSA	County	County	County
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
N	21,384	21,384	21,384	79,330	79,330	79,330
R^2	0.8582	0.9501	0.9550	0.8175	0.9175	0.9291
Cluster	MSA	MSA	MSA	County	County	County

Panel B: Within-Industry Research Design						
	(1)	(2)	(3)	(4)	(5)	(6)
		MSA			County	
Variables	*Log(Wages$_{iq}$)*	*Employees$_{iq}$*	*Establishments$_{iq}$*	*Log(Wages$_{iq}$)*	*Employees$_{iq}$*	*Establishments$_{iq}$*
Conforming$_i$ × Post$_q$ × High Tax$_i$	**0.039****	**0.056*****	**0.001**	**0.060***	**0.012**	**-0.005**
	[2.003]	**[3.235]**	**[0.105]**	**[1.848]**	**[0.533]**	**[-0.553]**
Conforming$_i$ × Post$_q$	0.002	0.013	-0.010	-0.014	-0.003	0.009
	[0.156]	[0.948]	[-1.597]	[-1.211]	[-0.400]	[1.596]
Post$_q$ × High Tax$_i$	-0.050***	-0.069***	-0.014*	-0.026	-0.021	-0.002
	[-4.390]	[-3.495]	[-1.660]	[-0.926]	[-1.217]	[-0.289]
Log(COVID Deaths$_{sq}$)	-0.012**	-0.019*	0.002	0.001	0.004	-0.000
	[-2.129]	[-1.799]	[1.246]	[0.123]	[0.527]	[-0.056]
School Closings$_{sq}$	-0.020***	-0.018**	-0.005**	-0.014*	0.003	0.002
	[-2.771]	[-2.381]	[-2.524]	[-1.936]	[0.294]	[0.811]
Work Closings$_{sq}$	0.004	0.019	0.008**	-0.018*	-0.006	-0.002
	[0.327]	[1.483]	[2.096]	[-1.703]	[-0.693]	[-0.618]
Transit Closings$_{sq}$	-0.045***	-0.046***	-0.007*	-0.018**	-0.025**	0.004*
	[-3.248]	[-2.583]	[-1.956]	[-2.394]	[-2.106]	[1.682]
Log(Population$_{iq-1}$)	0.380	0.852*	0.337**	-0.151	0.985***	0.423***
	[0.797]	[1.793]	[1.980]	[-0.598]	[2.863]	[2.591]
GDP per Capita$_{iq-1}$	0.003	0.005	0.004*	-0.002	-0.006**	-0.002
	[0.569]	[1.112]	[1.958]	[-0.887]	[-2.418]	[-1.504]
UE Rate$_{iq-1}$	0.010	0.006	0.006**	0.006	-0.010*	-0.002
	[1.439]	[0.997]	[2.386]	[0.984]	[-1.909]	[-0.909]
RRF Ratio$_{iq-1}$	1.386*	0.271	-0.309***	1.003**	0.269	-0.117
	[1.947]	[0.534]	[-3.179]	[1.973]	[0.514]	[-1.082]
PPP Uptake$_{iq-1}$	-0.007	-0.034	-0.006	-0.007	0.013	-0.002
	[-0.223]	[-0.869]	[-0.955]	[-0.808]	[0.739]	[-0.571]
Constant	4.139***	10.279***	7.495***	0.995	10.832***	6.799***
	[6.056]	[45.277]	[66.247]	[1.309]	[19.725]	[28.165]
Location FE	MSA	MSA	MSA	County	County	County
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	No	No	No	No	No
N	943	943	943	2,070	2,070	2,070
R^2	0.9969	0.9985	0.9956	0.9980	0.9976	0.9818
Cluster	MSA	MSA	MSA	County	County	County

Table 5: Cross-sectional Analyses of Startup Activity

This table presents cross-sectional analyses of startup activity. Panel A reports results for the cross-industry startup activity analysis and Panel B reports results for the within-industry start-up activity analysis, respectively. *High Startup* is an indicator variable set equal to one for locations with an above-median startup firm percentage, and zero otherwise. In all panels, Columns (1) and (4) (where applicable) report results of OLS regression estimations; all other columns report results of Poisson pseudo-likelihood regressions. All variables are defined in the appendix. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the location level. T-statistics are reported in brackets beneath the coefficients. Significance levels are based upon two-sided t-tests and are indicated as follows: * p<0.10, ** p<0.05, *** p<0.01.

Panel A: Cross-Industry Startup Activity

Variables	(1) $Log(Wages_{inq})$	(2) $Employees_{inq}$	(3) $Establishments_{inq}$
$Restaurant_i \times Post_q \times High\ Startup_{iq}$	**-0.034***	**-0.062****	**-0.043****
	[-1.676]	**[-2.220]**	**[-1.964]**
$Restaurant_i \times Post_q$	0.089***	0.087***	0.030*
	[5.150]	[3.651]	[1.887]
$Restaurant_i \times High\ Startup_{iq}$	0.020	0.039	-0.122
	[0.297]	[0.266]	[-0.763]
$Post_q \times High\ Startup_{iq}$	0.037**	0.050*	0.035
	[2.025]	[1.834]	[1.473]
Controls	Yes	Yes	Yes
Location FE	MSA	MSA	MSA
Year-Quarter FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
N	21,384	21,384	21,384
R^2	0.8582	0.9502	0.9551
Cluster	MSA	MSA	MSA

Panel B: Within-Industry Startup Activity						
	(1)	(2)	(3)	(4)	(5)	(6)
		High Startup = 0			High Startup = 1	
Variables	$Log(Wages_{inq})$	$Employees_{inq}$	$Establishments_{inq}$	$Log(Wages_{inq})$	$Employees_{inq}$	$Establishments_{inq}$
$\boldsymbol{Conforming_i \times Post_q \times High\ Tax_i}$	**0.068***	**0.095*****	**-0.000**	**0.032**	**0.040**	**-0.021***
	[1.868]	**[4.073]**	**[-0.037]**	**[1.176]**	**[1.481]**	**[-1.698]**
$Conforming_i \times Post_q$	-0.016	-0.015	-0.003	0.022	0.019	-0.015**
	[-0.749]	[-1.156]	[-0.211]	[0.963]	[1.087]	[-2.436]
$Post_q \times High\ Tax_i$	-0.067**	-0.107***	-0.019***	-0.062***	-0.052**	0.014*
	[-2.452]	[-3.670]	[-2.703]	[-4.058]	[-2.179]	[1.795]
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Location FE	MSA	MSA	MSA	MSA	MSA	MSA
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
N	300	300	300	643	643	643
R^2	0.9968	0.9969	0.9842	0.9969	0.9986	0.9964
Cluster	MSA	MSA	MSA	MSA	MSA	MSA

Table 6: Cross-sectional Analyses of Business Size

This table presents cross-sectional analyses of business size. Panel A reports results for the cross-industry business size analysis and Panel B reports results for the within-industry business size analysis, respectively. *High Small* is an indicator variable set equal to one for locations with an above-median small firm percentage, and zero otherwise. In all panels, Columns (1) and (4) (where applicable) report results of OLS regression estimations; all other columns report results of Poisson pseudo-likelihood regressions. All variables are defined in the appendix. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the location level. T-statistics are reported in brackets beneath the coefficients. Significance levels are based upon two-sided t-tests and are indicated as follows: * p<0.10, ** p<0.05, *** p<0.01.

Panel A: Cross-Industry Design

	(1)	(2)	(3)
Variables	$Log(Wages_{inq})$	$Employees_{inq}$	$Establishments_{inq}$
$\boldsymbol{Restaurant_i \times Post_q \times High\ Small_{iq}}$	**-0.026**	**-0.013**	**-0.046****
	[-1.527]	**[-0.643]**	**[-2.018]**
$Restaurant_i \times Post_q$	0.074***	0.040**	0.008
	[6.391]	[2.540]	[0.454]
$Restaurant_i \times High\ Small_{iq}$	0.076	0.149	0.031
	[1.330]	[1.078]	[0.172]
$Post_q \times High\ Small_{iq}$	0.032**	0.010	0.024
	[2.034]	[0.489]	[1.407]
Controls	Yes	Yes	Yes
Location FE	MSA	MSA	MSA
Year-Quarter FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
N	21,384	21,384	21,384
R^2	0.8582	0.9503	0.9550
Cluster	MSA	MSA	MSA

Panel B: Within-Industry Design

	(1)	(2)	(3)	(4)	(5)	(6)
		<u>*High Small* = 0</u>			<u>*High Small* = 1</u>	
Variables	*Log(Wages$_{inq}$)*	*Employees$_{inq}$*	*Establishments$_{inq}$*	*Log(Wages$_{inq}$)*	*Employees$_{inq}$*	*Establishments$_{inq}$*
Conforming$_i$* × *Post$_q$* × *High Tax$_i$	**0.014**	**0.062*** **	**0.008**			
	[0.602]	**[2.846]**	**[0.806]**			
Conforming$_i$ × *Post$_q$*	0.003	-0.003	-0.013*	0.056***	0.044	-0.025**
	[0.182]	[-0.189]	[-1.744]	[2.994]	[1.586]	[-2.344]
Post$_q$ × *High Tax$_i$*	-0.030*	-0.050***	-0.010	-0.082***	-0.048	-0.006
	[-1.840]	[-2.656]	[-1.484]	[-3.636]	[-1.502]	[-0.444]
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Location FE	MSA	MSA	MSA	MSA	MSA	MSA
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
N	611	611	611	332	332	332
R^2	0.9966	0.9982	0.9923	0.9975	0.9989	0.9974
Cluster	MSA	MSA	MSA	MSA	MSA	MSA

Table 7: Ruralness

This table presents cross-sectional analyses of a location's ruralness. Panel A reports results for the cross-industry analysis. Panels B and C report results for the within-industry MSA-level and county-level samples, respectively. *High Rural* is an indicator variable set equal to one for locations with a below-median percentage of population within urban blocks, and zero otherwise. In all panels, Columns (1) and (4) report results of OLS regression estimations; all other columns report results of Poisson pseudo-likelihood regressions. All variables are defined in the appendix. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the location level. T-statistics are reported in brackets beneath the coefficients. Significance levels are based upon two-sided t-tests and are indicated as follows: * p<0.10, ** p<0.05, *** p<0.01.

Panel A: Cross-Industry Design

	(1)	(2)	(3)	(4)	(5)	(6)
Sample		MSA			County	
Variables	$Log(Wages_{inq})$	$Employees_{inq}$	$Establishments_{inq}$	$Log(Wages_{inq})$	$Employees_{inq}$	$Establishments_{inq}$
$\boldsymbol{Restaurant_i \times Post_q \times High\ Rural_{iq}}$	**0.037**	**-0.025**	**0.001**	**0.046**	**0.103*** **	**0.035** **
	[1.604]	**[-0.605]**	**[0.050]**	**[1.479]**	**[3.219]**	**[2.066]**
$Restaurant_i \times Post_q$	0.056***	0.037***	-0.010	0.050***	0.049***	-0.005
	[5.993]	[2.765]	[-0.746]	[7.539]	[8.066]	[-1.079]
$Restaurant_i \times High\ Rural_{iq}$	-0.016	0.246*	0.451***	-0.831***	-0.840***	-0.340***
	[-0.256]	[1.898]	[4.379]	[-9.726]	[-6.058]	[-4.386]
$Post_q \times High\ Rural_{iq}$	-0.031*	0.022	0.024	-0.015	-0.091***	-0.026*
	[-1.787]	[0.577]	[1.013]	[-0.712]	[-3.100]	[-1.744]
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Location FE	MSA	MSA	MSA	County	County	County
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
N	21,384	21,384	21,384	79,330	79,330	79,330
R^2	0.8582	0.9505	0.9562	0.8205	0.9182	0.9292
Cluster	MSA	MSA	MSA	County	County	County

Panel B: Within-Industry Design – MSA-Level Sample						
	(1)	(2)	(3)	(4)	(5)	(6)
		High Rural = 0			*High Rural* = 1	
Variables	$Log(Wages_{inq})$	$Employees_{inq}$	$Establishments_{inq}$	$Log(Wages_{inq})$	$Employees_{inq}$	$Establishments_{inq}$
$\boldsymbol{Conforming_i \times Post_q \times High\ Tax_i}$	**0.033**	**0.008**	**-0.021****	**-0.030**	**0.033**	**0.005**
	[1.451]	**[0.368]**	**[-2.116]**	**[-0.668]**	**[0.772]**	**[0.159]**
$Conforming_i \times Post_q$	0.015	0.035**	0.000	0.017	-0.026	-0.008
	[0.851]	[2.286]	[0.051]	[0.745]	[-1.418]	[-0.387]
$Post_q \times High\ Tax_i$	-0.049***	-0.038*	-0.003	-0.012	-0.030	-0.012
	[-3.641]	[-1.724]	[-0.477]	[-0.449]	[-1.190]	[-0.692]
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Location FE	MSA	MSA	MSA	MSA	MSA	MSA
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
N	763	763	763	180	180	180
R^2	0.9973	0.9987	0.9961	0.9951	0.9970	0.9834
Cluster	MSA	MSA	MSA	MSA	MSA	MSA

Panel C: Within-Industry Design – County-Level Sample						
	(1)	(2)	(3)	(4)	(5)	(6)
		High Rural = 0			*High Rural* = 1	
Variables	*Log(Wages$_{inq}$)*	*Employees$_{inq}$*	*Establishments$_{inq}$*	*Log(Wages$_{inq}$)*	*Employees$_{inq}$*	*Establishments$_{inq}$*
Conforming$_i$* × *Post$_q$* × *High Tax$_i$	**0.030**	**0.012**	**-0.003**	**0.127***	**0.023**	**-0.008**
	[1.223]	**[0.521]**	**[-0.345]**	**[1.815]**	**[0.580]**	**[-0.270]**
Conforming$_i$ × *Post$_q$*	-0.012	-0.002	0.010*	-0.016	-0.004	-0.002
	[-1.151]	[-0.240]	[1.664]	[-0.700]	[-0.197]	[-0.137]
Post$_q$ × *High Tax$_i$*	0.009	-0.021	-0.002	-0.086	-0.031	-0.019
	[0.479]	[-1.109]	[-0.303]	[-1.393]	[-0.999]	[-0.942]
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Location FE	County	County	County	County	County	County
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
N	1,187	1,187	1,187	883	883	883
R^2	0.9980	0.9972	0.9822	0.9942	0.9723	0.7886
Cluster	County	County	County	County	County	County

Table 8: Alternative Control Group

This table presents the results of estimating Equation (1) where hotels (NAICS Code 7211 - Traveler Accommodation) serve as an alternative control group. Panel A reports results for the full sample period. Panel B reports results as estimated using a restricted sample that limits the post-period to quarter one of 2021. Column (1) reports results of OLS regression estimations; all other columns report results of Poisson pseudo-likelihood regressions. All variables are defined in the appendix. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the location level. T-statistics are reported in brackets beneath the coefficients. Significance levels are based upon two-sided t-tests and are indicated as follows: * p<0.10, ** p<0.05, *** p<0.01.

Panel A: Regression Results – Full Sample Period

	(1)	(2)	(3)	(4)	(5)	(6)
Sample		MSA			County	
Variables	*Log(Wages$_{inq}$)*	*Employees$_{inq}$*	*Establishments$_{inq}$*	*Log(Wages$_{inq}$)*	*Employees$_{inq}$*	*Establishments$_{inq}$*
Restaurant$_i$* × *Post$_q$	**0.120*** **	**0.207*** **	**0.018**	**0.044*** **	**0.122*** **	**-0.016*** **
	[7.702]	**[6.401]**	**[1.225]**	**[4.066]**	**[8.717]**	**[-3.082]**
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Location FE	MSA	MSA	MSA	County	County	County
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
N	5,146	5,146	5,146	26,768	26,768	26,768
R^2	0.9481	0.9638	0.9899	0.9365	0.9596	0.9729
Cluster	MSA	MSA	MSA	County	County	County

Panel B: Regression Results – Pre-RRF Period						
	(1)	(2)	(3)	(4)	(5)	(6)
Sample		MSA			County	
Variables	*Log(Wages$_{inq}$)*	*Employees$_{inq}$*	*Establishments$_{inq}$*	*Log(Wages$_{inq}$)*	*Employees$_{inq}$*	*Establishments$_{inq}$*
Restaurant$_i$* × *Post$_q$	**0.206******	**0.349******	**0.013**	**0.150******	**0.278******	**-0.001**
	[10.289]	**[12.332]**	**[0.851]**	**[11.009]**	**[12.618]**	**[-0.155]**
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Location FE	MSA	MSA	MSA	County	County	County
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
N	3,860	3,860	3,860	20,174	20,174	20,174
R^2	0.9468	0.9624	0.9899	0.9365	0.9589	0.9730
Cluster	MSA	MSA	MSA	County	County	County

Table 9: Pre-Restaurant Revitalization Fund (RRF) Period

This table presents the results of estimating Equations (1) using a restricted sample that limits the post-period to quarter one of 2021. Columns (1) and (4) report results of OLS regression estimates; all other columns report results of Poisson pseudo-likelihood regressions. All variables are defined in the appendix. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the location level. T-statistics are reported in brackets beneath the coefficients. Significance levels are based upon two-sided t-tests and are indicated as follows: * p<0.10, ** p<0.05, *** p<0.01.

Panel A: Cross-Industry Research Design

	(1)	(2)	(3)	(4)	(5)	(6)
Sample		MSA			County	
Variables	*Log(Wages$_{inq}$)*	*Employees$_{inq}$*	*Establishments$_{inq}$*	*Log(Wages$_{inq}$)*	*Employees$_{inq}$*	*Establishments$_{inq}$*
Restaurant$_i$* × *Post$_q$	**0.040***** **[3.702]**	**0.039**** **[2.460]**	**0.010** **[0.655]**	**0.024***** **[3.165]**	**0.044***** **[5.893]**	**0.008*** **[1.677]**
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Location FE	MSA	MSA	MSA	County	County	County
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
N	15,079	15,079	15,079	57,298	57,298	57,298
R^2	0.8615	0.9492	0.9549	0.8202	0.9165	0.9295
Cluster	MSA	MSA	MSA	County	County	County

Panel B: Within-Industry Research Design						
	(1)	(2)	(3)	(4)	(5)	(6)
		MSA			County	
Variables	*Log(Wages$_{iq}$)*	*Employees$_{iq}$*	*Establishments$_{iq}$*	*Log(Wages$_{iq}$)*	*Employees$_{iq}$*	*Establishments$_{iq}$*
Conforming$_i$* × *Post$_q$* × *High Tax$_i$	**0.151****	**0.184*****	**0.014**	**0.210*****	**0.159*****	**-0.001**
	[2.465]	**[4.460]**	**[1.605]**	**[2.700]**	**[4.126]**	**[-0.072]**
Conforming$_i$ × *Post$_q$*	-0.014	0.008	-0.015**	0.000	-0.004	0.003
	[-0.788]	[0.423]	[-2.324]	[0.004]	[-0.317]	[0.615]
Post$_q$ × *High Tax$_i$*	-0.192***	-0.243***	-0.029***	-0.190***	-0.187***	-0.006
	[-3.381]	[-5.302]	[-4.461]	[-2.686]	[-5.629]	[-1.046]
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Location FE	MSA	MSA	MSA	County	County	County
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	No	No	No	No	No
N	699	699	699	1,498	1,498	1,498
R^2	0.9967	0.9984	0.9956	0.9982	0.9976	0.9820
Cluster	MSA	MSA	MSA	County	County	County