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The Job-Preservation Effects of Paycheck Protection Program Loans

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Abstract

The Paycheck Protection Program (PPP) supported over 60 million jobs through August 2020. How many of those jobs would have otherwise been lost? We estimate the number of jobs saved by leveraging the relationship between local banking markets and the average speed to loan approval. With county-level weekly unemployment insurance (UI) data, we estimate that a 10 percentage point increase in PPP payroll coverage at sub-100 employee businesses led to a 1.0 percentage points suppression of initial UI claims. That same increase suppressed the insured unemployment rate (IUR) by 2.5 percentage points. In aggregate, we estimate that PPP loans saved 10.9 million jobs at sub-100 employee businesses and 14.0 million overall.

JEL Codes: E0, G0, H0, J0.

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Disclosure Statements

Michael Faulkender: I led Treasury's efforts to support the Small Business Administration's implementation of PPP, in my capacity as Treasury's Assistant Secretary for Economic Policy.

Robert Jackman: I have nothing to disclose.

Stephen Miran: I contributed to Treasury's efforts to support the Small Business Administration's implementation of PPP, in my capacity as Senior Advisor at Treasury's Office of Economic Policy.

I. Introduction

The Paycheck Protection Program (PPP) was intended to sustain U.S. small businesses and their employees through an economic crisis.[1] With the onset of Covid-19 in spring 2020, most U.S. small businesses faced mandatory closures and drastically reduced revenue. The U.S. lost 20.5 million jobs (13.6%) in a single month,[2] while single-week initial unemployment insurance (UI) claims peaked at 6.1 million – over 9 times more than the worst week of the global financial crisis. In the second quarter of 2020, the economy contracted at an annualized 28.0% rate. In April 2020, the press, markets, and academics expected conditions to deteriorate further. Widespread and permanent small business closures seemed likely, which would result in continuing mass layoffs (Bartik et al. (2020a), Barrero, Bloom, and Davis (2020), Humphries, Neilson, and Ulyssea (2020)).[3] In response, the Federal Government enacted PPP as part of the CARES Act on March 27, 2020.[4] PPP coverage was broad: it covered over 60 million total jobs when the second tranche closed on August 8th, 2020. While calculating the number of jobs supported by the PPP is relatively simple, calculating the number of jobs preserved poses a harder task. This paper addresses that thornier question: how many more workers would have been on UI, in the absence of PPP? In other words, how many paychecks did the Paycheck Protection Program protect?

This question is empirically challenging to answer, due primarily to the absence of an obvious observed counterfactual. The program intentionally set minimal eligibility restrictions, and nearly all small businesses qualified for a PPP loan. With extraordinarily generous financing terms, take-up reflected the near-universal eligibility: PPP loans ultimately supported 85% of jobs at businesses with fewer than 100 employees. Likewise, by the time of program closure in August 2020, geographic coverage was relatively uniform across the nation. Any effort to compare some PPP "treatment" and "control" faces the obstacle of finding businesses who weren't truly treated, even before dealing with selection into that treatment.

One proposed solution has been to use the PPP's 500-employee eligibility cutoff. In most industries, only firms with 500 or fewer employees were eligible for a PPP loan. Prominent examples include Chetty et al. (Forthcoming, 2024), Autor et al. (2022a), and Hubbard and Strain (2020), which estimate PPP's employment effects by comparing employment changes at firms falling just below the eligibility cutoff to firms just above it. When extrapolated to PPP recipients of all sizes, these

[1] Throughout this paper, our discussion of PPP is restricted to the loans approved through August 8, 2020. In our calculations and considerations, we do not account for the "second round" of PPP loans, which was authorized in the Consolidated Appropriations Act signed into law on December 21, 2020.

[2] Though commonly attributed to April 2020, this number reflects the change in total nonfarm payrolls from the week of March 12, 2020 to the week of April 12, 2020.

[3] Similar sentiment was widespread in the popular press (e.g., Cohen (2020) and Irwin (2020)) and among professional forecasters. The Bloomberg median forecast for May 2020 payrolls was a loss of 7.5 million further jobs, with the most optimistic forecast showing a loss of 2.5 million.

[4] CARES is an acronym for Coronavirus Aid, Relief, and Economic Security.

estimates imply at 3.6 million or fewer jobs were saved by PPP. Considering the program's overall cost—$525 billion—this would be a relatively inefficient use of government funds.

Such an approach assumes that PPP loans were equally effective in saving jobs, regardless of firm size. We challenge that assumption. Decades of finance and economics literature has documented that smaller firms, like lower-income individuals, have weaker access to capital, face stricter credit constraints, maintain smaller cash reserves and credit lines, and are more vulnerable to economic shocks than their larger counterparts (e.g., Duygan-Bump, Levkov, and Montoriol-Garriga (2015); Siemer (2019); Petersen and Rajan (1997)).

The difference in credit access via banks, long-established, was particularly acute during the Covid crisis (Chodorow-Reich et al. (2022)). Further, evidence from the 2008-2009 financial crisis suggests that credit frictions are directly linked to employment outcomes, particularly for the smallest firms. For example, Chodorow-Reich (2014) finds that credit loss accounted for between one-third and one-half of job loss at small firms through that crisis - while finding no significant evidence of an impact at larger firms. According to this literature's results, the effects of the pandemic recession should have been much greater on firms with fewer than 100 employees—which accounted for 68.5% of the jobs covered by PPP loans—than those just below 500 employees. However, if that is not the case—if firms of all sizes would have suffered relatively moderate losses in the absence of PPP—it is a great challenge to this literature.[5]

A complete study of PPP must estimate the job effects across the entire distribution of firm sizes. Therefore, we propose a different source of variation to identify the employment effects of PPP loans. Specifically, we use delays in loan approval to evaluate the difference between firms and regions that enjoyed earlier PPP financing to those that experienced delays. However, an identification problem remains: differences in timing alone are insufficient, since small business finances and local employment are not independent. For example, stronger businesses are more likely to have well-established relationships with banks, which would increase the likelihood of rapid loan approval and reduce the likelihood of immediate layoffs.

To address the endogeneity arising from the financing process, we add geographic variation stemming from heterogeneity in local banking markets. Differences in banking market structure help to isolate an exogenous component of loan timing: due to differing perceptions of regulatory risk, community banks were markedly quicker to approve and disburse first tranche PPP funds than national banks and non-bank lenders. Financing delays during the first tranche of funding (from April 3 – 16, 2020) were exacerbated by the exhaustion of PPP's initial appropriation of roughly $350 billion. Firms without an approved loan on April 16 would have to wait until at least April 27, when a second tranche of funding re-opened the program.[6]

[5]The suggested loss of 3.6 million jobs at firms sized 0-499 would be roughly half the loss suffered during the Great Recession.

[6]See Doniger and Kay (2023) and Kurmann et al (2024) for an evaluation of PPP's effects using this gap as an

Under the condition that the composition of the local banking market has no relationship with early pandemic changes in local employment—save through PPP loans—this variation can identify the employment effects of PPP loans. This empirical approach—leveraging geographic variation in banking markets which generate differences in time to loan approval—is shared by Granja et al. (2022) and Bartik et al. (2020c). Though the approaches in these papers differ on crucial details, at a high-level their identification strategies are related.

This paper's core contribution is the estimation of PPP's employment effects across firms of different sizes. We leverage novel data on UI claims to disambiguate PPP's effects on the "smallest" businesses (1 to 99 employees) from the effects on larger businesses (100 to 499 employees). Not only do we observe UI claims at the county-week level, but we can split these claims into three bins, based on the number of firm-level employees at each claimant's former employer.[7] We are thus able to precisely observe increases in unemployment stemming from job cuts at PPP's target firms, as opposed to the noisier measure of all unemployment claims. Further, we observe both initial and continuing UI claims, giving a measure of both job loss (initial claims), and the persistence of job loss (continuing claims). With uncensored data on the universe of PPP loans, we are also able to match these UI data to precise measures of the program's rollout.

This paper's core result is that PPP saved substantially more jobs than has been previously suggested in the literature. Further, those savings were concentrated at the smallest firms, consistent with and contributing to the literature on firm size and resilience. When restricting our focus to firms with fewer than 100 employees, we find that a 10 percentage point increase in early-April PPP coverage suppressed the jump in their employees' initial claims rate by 1.03 percentage points during a single week. The same increase in payroll coverage suppressed the insured unemployment rate (IUR, or "continuing claims rate") among small business employees by 2.52 percentage points.

Expanding that focus to all firms with fewer than 500 employees, a 10 percentage point increase in early-April PPP coverage suppressed the jump in their employees' initial claims rate by 1.14 percentage points during a single week. With a lag in time, the same increase in PPP coverage suppressed the increase in continuing claims rate by 2.38 percentage points, also among workers at sub-500 employee firms.

Though the difference between the two estimated continuing claims rates – one for sub-100 employee firms, the other for all sub-500 employee firms – is seemingly small and insignificant, it implies a meaningful gap in PPP's effectiveness. As a fraction of total pre-pandemic employment, this gap indicates that PPP preserved jobs at the smallest firms (0-99) at a rate between 5.5 and 7.1 percentage points greater than it did at mid-sized firms (100-499). The difference between the two continuing claims rate estimates increases through April and May 2020, reinforcing the importance

exogenous source of funding delays.

[7] Based on pre-pandemic employment. Those bins are for firms with 1 to 99 employees, those with 100 to 499 employees, and those with 500 or more.

of firm-size heterogeneity.

Extrapolating these estimates, our results suggest that PPP saved 10.9 million jobs at sub-100 employee businesses and 14.0 million jobs overall, at an average cost of approximately $33,200 to $37,600 per job saved.

The rest of this paper is organized as follows: Section II details the context and background of PPP loans. Section III engages further with PPP literature. Section IV offers back-of-the-envelope calculations, with the intent of establishing a reasonable expectation of potential estimates. Section V reviews the data used, while Section VI discusses the empirical model, exclusion restriction, and results. Section VII concludes.

II. The Paycheck Protection Program

In January 2020, the CDC announced the first case of COVID-19 had been diagnosed in the United States. In early March, the White House National Economic Council convened an inter-agency working group to evaluate the economic impacts of COVID-19 and generate policy proposals to ease the economic hardship that would result. Michael Faulkender, in his capacity as Assistant Secretary for Economic Policy at the time, represented Treasury on this working group and led the PPP implementation team at the US Treasury. Stephen Miran was part of that implementation team. Therefore, the narrative in this section provides a unique primary source explanation for why the program was structured and implemented as it was.

Given the pace with which the public health crisis was building, Congress and the Administration prioritized speed over precision in their economic support programs. Delays, whether due to time spent on refining targeting or fraud mitigation, might have produced a better program in those respects; but as we document in this paper, it also would have resulted in significantly higher unemployment levels.

PPP was structured as a modification of the Small Business Administration's (SBA) existing 7(a) loan program and provided small businesses with forgivable loans to eligible small businesses, sole proprietors, and small non-profits equivalent to 2.5 months of average monthly payroll. Borrowers were able to apply for these 100% SBA guaranteed loans from eligible lenders (banks, credit unions, farm credit institutions, and non-bank lenders, ultimately totaling more than 5,400 institutions) by filling out a two-page application on which they self-certified that they met most of the eligibility criteria. Their lenders then ensured that Bank Secrecy Act and Anti Money Laundering requirements were met and verified the amount of eligible monthly payroll.

If borrowers used all the money on payroll, utilities, mortgage interest, and rent within the covered period (originally eight weeks but later extended to up to 24 weeks), with at least 75% going

towards eligible payroll (later reduced by Congress to 60%), the full amount of the loan could be forgiven. Congress originally appropriated $350 billion to fund PPP loans. Within two weeks of the program opening, these funds were fully allocated. Congress appropriated another $310 billion of funding and the program reopened on April 27, 2020.

The program was generous for borrowers, provided that they used the funds for forgivable expenses. For the program to work, lenders also needed to voluntarily participate. This was accomplished through a statutorily defined fee structure on the loans that paid five percent of the loan amount on loans up to $350,000, three percent on loans from $350,000 to $2 million, and one percent on loans above $2 million. While the original statute did not stipulate the interest rate on the loan or the specific maturity, Treasury and SBA issued rulings that all PPP loans would share common terms. For that reason, borrowers gained nothing from shopping around for their loan, knowing instead they were getting the same terms from all lenders.

Policymakers set interest rates to cover the lenders' cost of funds and any ongoing expenses associated with billing and collecting from the borrower. A loan fee would cover the cost of underwriting on the front end and processing of forgiveness on the back end. Both interest and the loan fee were covered by SBA as a forgivable expense, so any money spent on interest took away from the finite appropriation that was available to fund payroll. Therefore, Treasury and SBA wanted to set the interest rate as low as possible, but high enough to ensure lender participation. For large lenders with access to the Fed, the Federal Funds rate was 0.0 to 0.25 percent at the time. For smaller lenders, Treasury worked with the Federal Reserve to create a facility that would allow the banks to use their PPP loans as collateral to obtain additional funds. The Fed facility would charge 35 basis points. Given that the highest cost of funds for lenders should only be 35 basis points, the uniform interest rate on PPP loans was set at one percent.

Because the program launched so quickly, the rules and list of frequently asked questions (FAQs) were incomplete. Within days of passage, a term sheet and initial borrower and lender applications were published by the SBA in cooperation with the Department of the Treasury. The first interim final rule (IFR) was released on April 2, 2020. It explained the eligibility requirements of borrowers, the obligations of lenders, and described the forgiveness process. The forgiveness application and accompanying IFR were issued in May 2020. As borrowers, lenders, and the media started interacting with the program, additional issues arose requiring SBA and Treasury to regularly publish updates and additional rules as well as answer questions regarding situations lenders or borrowers may find themselves confronting.

The result of the ongoing updating of the rules and requirements was that there was variation across lenders in the speed with which they participated in the program. Some lenders were more willing than others to begin accepting and processing loans in early April as they needed to establish their own policies and systems for providing these loans and to train their personnel on these

policies and systems. As we document in section VI.A.ii, community banks were the most likely to participate in the program earlier, while the largest banks mostly sat out the program's first week. These empirical observations of program uptake are supported by the authors' conversations with lenders[8], which featured a reticence on the part of many of the largest banks to start issuing loans until there was greater clarity on the rules and a better understanding of the legal standards to which the lenders would be subject. In contrast, smaller lenders felt that they were less likely to be targeted by regulators for minor processing errors and they commenced issuing PPP loans to their customers as soon as the program opened. These subjective differences in regulatory risk led to substantial differences in initial program participation, and play a critical role in our empirical strategy. We argue that this dynamic created a source of variation in the supply of PPP funds that should be orthogonal to demand for these loans from borrowers.

III. Literature

Three significant studies, Chetty et al. (Forthcoming, 2024), Autor et al. (2022a), and Hubbard and Strain (2020) use innovative high frequency, large datasets to study the effects of PPP. In most industries, only firms with fewer than 500 employees were eligible to receive PPP money, and these studies leverage this eligibility cutoff, comparing employment at firms just above and below that threshold. Autor et al. (2022a) estimate that PPP preserved 3.6 million jobs at its peak, while Chetty et al. (Forthcoming, 2024) and Hubbard and Strain (2020) estimate smaller effects.

In contrast, some market participants have argued that the PPP was pivotal in mitigating the pademic's potential economic devastation. Jamie Dimon of JPMorgan Chase stated that he estimates the program to have saved "30 to 35 million jobs" (Ruhle, Miranda, and Capetta (2020)) while the chief economist at Standard & Poors (Fox et al. (2020)) publicly stated that 13.6 million jobs were saved. Goldman Sachs' chief US economist stated that PPP was a prime factor preventing what "really seemed like it had the potential to be a huge collapse...[the lack of bankruptcies] has come as a pleasant surprise". How do we reconcile the significant differences in the estimated impact of the program between recent academic studies and market participants?

One explanation is that the program's impact was not uniform across firms of different sizes. While the empirical design of Autor et al. (2022a) and Hubbard and Strain (2020) is credible in the neighborhood of the eligibility cutoff, projecting those estimates onto smaller firms raises the question of external validity. Estimates based on larger firms would apply to smaller firms only if we believe large and small firms were equally vulnerable to the pandemic's economic shock. However, decades of economic literature document that smaller firms are more sensitive to economic shocks than larger ones. Larger firms tend to have more sophisticated managers, larger cash buffers, more

[8] Occurring in the context of policymakers speaking to banks, not as researchers speaking to banks.

ready access to established lines of credit, fixed contracts with customers, and more bargaining power with suppliers. This puts larger firms in a stronger position to weather economic shocks than smaller businesses. Because of their superior ability to access lending and financial markets, larger firms were able to benefit from other treatments not available to smaller firms, like the Federal Reserve's interventions. If the equal vulnerability assumption is violated, then these studies can only tell us what happened in the neighborhood of those large firms.

This is particularly an issue for PPP because smaller firms (fewer than 100 employees) comprise the vast majority of program participants. Based on comprehensive PPP loan microdata, Figure I displays the density of PPP loan recipients based on firm size, as measured by self-reported employment on loan applications. We make some limited adjustments to these data, as detailed in appendix A. Table I shows the fraction of PPP loans that went to firms of various sizes, by number of loans, number of workers covered, and total PPP dollars. The firm-size distribution of PPP loans is roughly proportional to the firm-size distribution itself – meaning that smaller firms took up most of the program's resources. One of this paper's empirical estimates highlights PPP's effects on firms with fewer than 100 employees, and that group of firms received 69.2% of all dollars loaned. Similarly, PPP loans covered 41.5 million workers at sub-100 employee firms (68.5% of the total). Since PPP dollars skewed towards smaller firms, we must know PPP's effects on small firms, if we are to accurately estimate program effectiveness.

TABLE I
PPP Loans and Firm Sizes, by Three Measures

Firm Size	No. of Loans	Total Dollars	Total Workers
	Panel A. Larger Firms		
≥ 500	3,016 (0.1%)	\$15.7 (3.0%)	1.9 (3.2%)
≥ 450	5,494 (0.1%)	\$25.3 (4.8%)	3.1 (5.1%)
≥ 400	8,108 (0.2%)	\$33.9 (6.5%)	4.2 (6.9%)
≥ 350	11,356 (0.2%)	\$43.3 (8.3%)	5.4 (8.9%)
≥ 250	22,786 (0.4%)	\$70.8 (13.6%)	8.7 (14.4%)
	Panel B. Smaller Firms		
< 250	5,113,576 (99.6%)	\$451.1 (86.4%)	52.0 (85.6%)
< 150	5,083,959 (99.0%)	\$403.6 (77.3%)	46.4 (76.4%)
< 100	5,043,726 (98.2%)	\$361.0 (69.2%)	41.5 (68.5%)
< 50	4,914,410 (95.7%)	\$282.3 (54.1%)	32.7 (54.0%)
< 25	4,630,653 (90.2%)	\$198.7 (38.1%)	23.1 (38.0%)
< 10	3,858,764 (75.1%)	\$103.4 (19.8%)	11.6 (19.1%)
< 5	2,904,529 (56.5%)	\$52.2 (10.0%)	5.3 (8.8%)

Source: SBA and author's calculations. Data as of 8 August, 2020. Firm Size is as reported by the SBA, with adjustments as reported in appendix A.

Mindful of the differences between small and mid-sized firms, we need an empirical strategy to

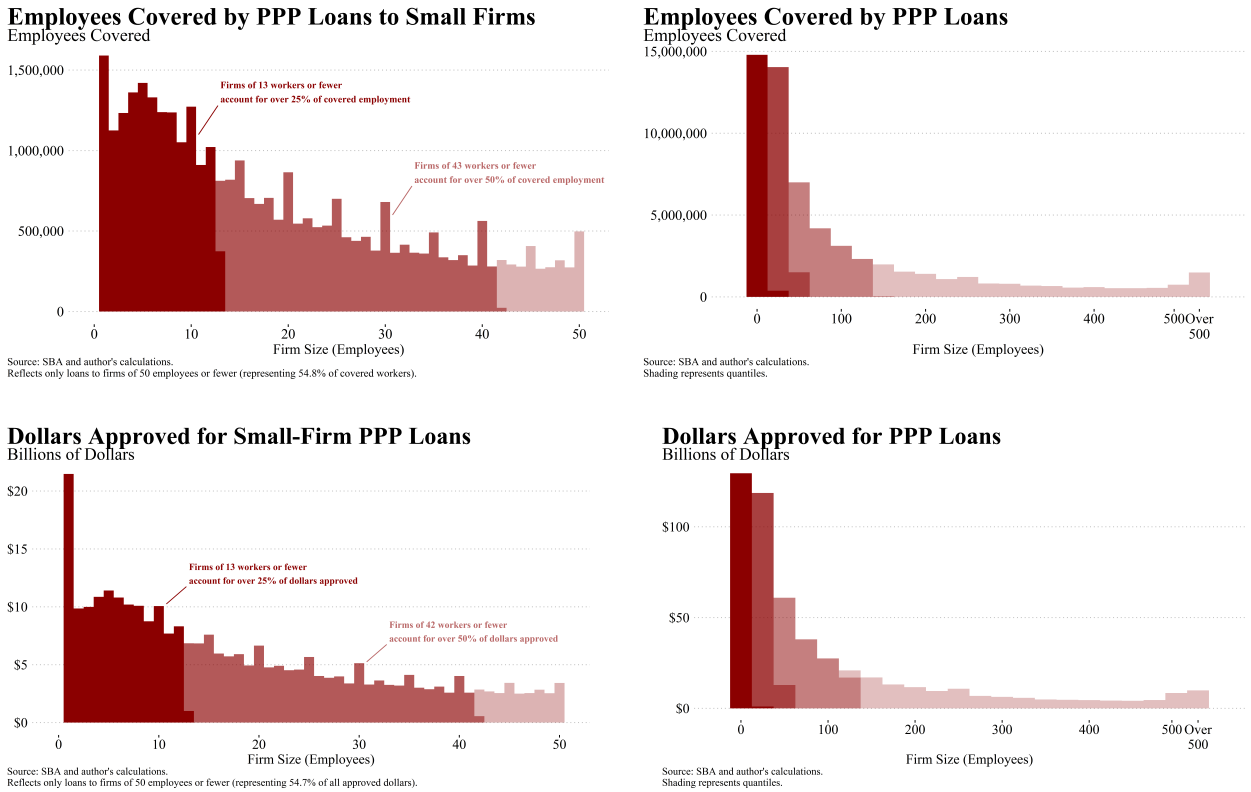


Figure I

Who Received PPP Loans? Employees and Dollars. Source: SBA and author's calculations. Data as of 8 August, 2020. Firm Size is as reported by the SBA, with adjustments as reported in appendix A.

identify the effect across the spectrum of firm sizes. This is particularly important if we are to evaluate PPP's aggregate employment effect. As we have argued, the assumption that small and mid-sized firms are equally vulnerability is unsupported by either theory or prior research. If that assumption is violated, then Chetty et al. (Forthcoming, 2024) and Autor et al. (2022a) only accurately tell us what happened in the neighborhood of the 500-employee cutoff. Those results would be uninformative about the outcomes at smaller firms, who received the vast majority of loans and dollar amount of PPP funding. As such, evaluations using the employee size cutoff likely underestimate the true impact of PPP by a significant margin.

Autor et al. (2022b) addresses the differences between small and mid-sized firms via a differences-in-differences framework, estimated only firms of fewer than 50 employees. That paper uses a Sun and Abraham (2020) estimator, meaning that firms are grouped by the week they took a loan, then the coefficient for each group is separately estimated, then those estimates are averaged.[9]

[9]In each of those individual regressions, the control group is all firms (of fewer than 50 employees) who took a loan in the week ending June 27, 2020 through the end of the program on August 8, 2020. The critical parallel trends assumption: firms which took a PPP loan sometime between April 3, 2020 and mid-June would have, in the absence of PPP, followed an employment trajectory in April, May, and June 2020 equal those firms that chose to take loans

The estimates suggest that PPP loans temporarily increased employment by 12% at firms of fewer than 50 employees, relative to similarly-sized firms that did not take PPP loans over the initial 2.5 months of the program.

A fourth study, conducted by Granja et al. (2022), finds precisely estimated and small effects of PPP on hours worked, business shutdowns and UI claims. With respect to hours worked and business shutdowns, we note that the goal of PPP was to facilitate employees being paid while not necessarily physically showing up to workplaces, often working zero hours, and for businesses to shut down temporarily without laying off workers, closing permanently or filing for bankruptcy. In normal recessions, hours worked and business shutdowns are a good indicator of severity. However, a public-health recession is unusual in many ways. Unique to these circumstances, policy was explicitly aimed at reducing business activity and face-to-face interaction, and provided liquidity to facilitate compliance with stay-at-home orders.

Further, Granja et al. (2022) study employment outcomes as a function of ultimate PPP penetration. However, since final PPP penetration is very high everywhere—in excess of 80% of eligible employment is covered, nationally—there might not be enough variation in the underlying independent variable of interest to identify the key effects. Granja et al. (2022) instead use an alternative independent variable, which is a function of bank market shares like ours below, and which likely induces more variation than ultimate PPP penetration itself. Our approach is distinct, precisely because it exploits the dynamic variation in PPP receipt.

Using survey data, Bartik et al. (2020c) estimates a larger employment effect for the PPP. However, their core employment estimates are not statistically significant. Bartik et al. (2020c) uses pre-existing relationships with banks to instrument for loan receipt, marking a similarity with this paper's use of banking market structure. The two banking-relationship instruments yield point estimates of 3.31 and 4.99 jobs saved per loan, though the associated standard errors are also large. If we multiply the point estimates by the roughly five million loans, this would imply between 16.6 and 25 million jobs preserved by the PPP, somewhat larger than our main results.

The work which comes closest to our own approach is that in Doniger and Kay (2023), which exploits the discontinuity in loan receipt around a ten-day window in which the Program had run out of funds from the first Congressional appropriation until the Program received the second Congressional appropriation. From April 17th through 26th, no new loans were approved. Doniger and Kay (2023) compares geographies which had large portions of loans approved between April 14th to 16th to geographies which had large portions of loans approved on April 27th and 28th, and, like our own work, finds large and significant job preservation effects of early PPP receipt. On the margin, Doniger and Kay (2023) find that an extra $35 billion of funding in the first tranche

in late-June through early-August 2020. This assumption stands in contrast to our paper, which argues that loan timing is endogenous, and uses geographic differences in banking structure to instrument for loan timing.

would have increased employment in June by 2.8 million. That implies a marginal flow-cost of jobs at $12,500. Doniger and Kay (2023) estimates that, on this same margin, 1.4 million jobs were saved in each month through November, implying a marginal flow-cost of $25,000 per job. However, these estimates are not directly comparable with this paper's, which are an estimate of average cost per job, not marginal cost. Further, Doniger and Kay (2023) conduct an exercise on firm-size heterogeneity, finding that the effect was heavily concentrated in firms with fewer than 10 employees, which is consistent with our own estimates.

Using the empirical strategy from Doniger and Kay (2023), Kurmann et al (2024) find that the ten-day delay of funding reduced employment in four key sectors by 3 million as of July 2020. Kurmann et al (2024) makes a crucial point that most of the employment effect was on the extensive margin of firm closure, a point also emphasized in Dalton (2023) and Autor et al. (2022b). Therefore, failing to distinguish sample churn from firm closures in microdata would lead researchers to miss the bulk of PPP's effect. Kurmann et al (2023) also find that the ten-day delay still had a significant effect on employment as of the end of their sample in January 2021. Using a related timing strategy, Denes, Lagaras, and Tsoutsoura (2021) estimates that firms receiving delayed PPP loans experience a significant increase in the likelihood of facing financial distress and of permanently shutting down. Of note, these papers study outcomes relative to a counterfactual with no-delays implementation of PPP, not one with no PPP at all.

Finally, work by Cole (2024) also focuses on smaller firms (median 5 employees), and finds in data from a private payroll processor that PPP recipients increased their employment relative to nonparticipants by 7.5% five months after loan receipt. Cole (2024) finds that PPP works primarily through job preservation rather than via incentivizing hiring, and further finds significant heterogeneity in PPP take-up and effectiveness. In this sample more job preservation occurs in firms that have fewer hourly workers, are better at incorporating remote work, and are essential businesses. By corroborating that PPP effects are much greater for smaller firms than for larger firms, Cole (2024) helps reconcile our results to the rest of the literature.

IV. Back-of-the-Envelope Calculations

At the onset of the pandemic recession, economists anticipated high job losses for extended periods of time. According to the BLS establishment survey (CES), 20.5 million jobs were lost in April 2020, following March's loss of 1.5 million jobs.[10] Markets expected that job losses would continue into the summer, with concerns that the unemployment rate would exceed 20%.[11] For May 2020,

[10] Losses were deeper in the household survey (CPS), where employment fell by 3.3 million in March, followed by the loss of an additional 22.3 million in April. The household survey counts the unincorporated self-employed, while the establishment survey does not.

[11] The Bloomberg median forecast for the May 2020 U3 unemployment rate was 19.7%. Instead, U3 fell 1.5 percentage points to 13.2% that month.

the Bloomberg median forecast projected 7.5 million additional jobs lost. The most optimistic forecast in Bloomberg projected a loss of over two million jobs that month. The forecast error was pervasive and historic: the economy added more than 2.6 million jobs in May, a surprise of more than 10 million jobs. While PPP was just one part of the CARES Act, it was the largest component by dollars appropriated and was fully implemented by the May 12 reference week of the May employment surveys. Given the astonishing reversal in the employment situation – immediately following the hundreds of billions of dollars of PPP lending – the claim that PPP had minimal impact on the unexpected job rebound would require an alternate explanation with strong evidence.

To further provide context for the more rigorous results documented below, we propose two simple back-of-the-envelope calculations to guide thinking about job preservation through the PPP. The first takes the threat of large-scale small business closure seriously, and estimates the job losses that might arise from those closures. The second uses the small business survey responses from Bartik et al. (2020b) and estimates potential job losses based on those data. Though not rigorous empirical work, these back-of-the-envelope calculations offer a ballpark estimate of PPP's effects – a kind of check on empirical studies on PPP, including our own.

At the outset of the pandemic, small businesses suddenly found themselves facing significant revenue declines that would likely cause insolvency. Smaller businesses are less likely to have access to an established credit line; and indeed if all small businesses sought credit simultaneously, it would strain the banking system's capacity to respond, and at minimum would lead to a substantial increase in the relevant interest rates.[12] A study by Farrell and Wheat (2016) found that the median small business had cash buffers to last only 27 days without revenue, and only 25% of small businesses could last more than 62 days without income. Their sample comprised roughly 600,000 small businesses; of these, 70% had five or fewer employees, which closely matches the universe of PPP loans wherein 70% of recipients had seven or fewer employees.

Against this backdrop, economic theory and evidence from past recessions would indicate a surge in small business bankruptcies, particularly given the magnitude of Covid's economic shock. Nevertheless, small business bankruptcies increased relatively modestly, despite the largest economic shock in nearly a century, according to data from the Justice Department and analysis by the Council of Economic Advisers (2020). Indeed, contrary to expectations that small business bankruptcies should surge in this economic environment, The Council of Economic Advisors found that after spiking in February and March due to regulatory changes around Chapter 11 filings,[13] increases

[12] Although the Federal Reserve eased conditions in financial markets, it did not provide regulatory relief that would have explicitly eased the ability or willingness of banks to directly make loans to the number of small businesses under stress.

[13] For a discussion of the rules changes, see Ekvall and Evanston (2020). Small businesses took advantage of the easing criteria for Chapter 11 reorganizations, in the weeks before the pandemic hit. The Small Business Reorganization Act was signed in August 2019, and thus forward-looking firms had plenty of time to plan for the implementation

in small business bankruptcies in April through June were lower than they were before pandemic struck. In aggregate, business exits were little affected by the pandemic. Despite a notable increase in 2020:Q2, the total number of exits in the first year of the pandemic (2020:Q2 – 2021:Q1) were only 4.4% higher than the total number of exits in the year leading up to the pandemic.[14]

Indeed, industry economists expected economy-wide bankruptcies throughout the recession. According to David Mericle, head of US economics at Goldman Sachs, "This really seemed like it had the potential to be a huge collapse. For most people, and I would include myself, [the lack of bankruptcies] has come as a pleasant surprise." For Mericle, the Paycheck Protection Program was the top item explaining the lower-than-expected number of bankruptcy filings (Coy (2020)).

First, we consider the consequences of large-scale small business closure. Although we cannot directly observe the cash flows of small firms, we draw on findings in Farrell and Wheat (2016) that fewer than 75% of small firms hold cash buffers to cover more than 62 days of expenses. The PPP gave these financially vulnerable small businesses vital cash flow to replace the drastic reduction in revenues caused by the pandemic and economic shutdown, thereby facilitating their survival. The fragility of small businesses found in Farrell and Wheat (2016) is corroborated in Bartik et al. (2020a), which finds in an independent survey that fewer than 30% of firms had cash on hand to cover more than two months' expenses. Additionally, the Census Bureau's Small Business Pulse Survey found in the week ending May 2 that only 16.7% of small businesses had enough cash on hand to cover three or more months of business operations.

If, following Farrell and Wheat (2016), 75% of small businesses covered by PPP would have shut down, at least temporarily, then their workers would in the Program's absence have been laid off. This assumption is strong, but the evidence cited on small business fragility provides some justification. While it is possible small businesses could secure liquidity from private sources to help them manage shocks, evidence from the Joint Small Business Credit Survey in Federal Reserve Banks of New York, Atlanta, Cleveland, and Philadelphia (2014) suggests otherwise. According to these Fed Banks' report, only 32% of firms with 1-9 employees (which correspond to 75% of PPP recipients) received any credit in 2014, and a majority of firms with less than $1 million in revenue did not secure any credit whatsoever. Moreover, 40% of firms seeking credit said the primary purpose was for expansion, suggesting that fewer than 13% of firms with 1-9 employees had a line of credit which could be used to buffet revenue shocks.

The Fed report further finds that the primary means of financing of firms with less than $250,000 in revenues is personal savings; that the average time it takes a small business to fill out a credit application is 24 hours; and that typical wait times for approval are on the order of months. Credit became harder to get after the onset of the pandemic: according to the Federal Reserve's Senior

in February.

[14] BLS' Business Employment Dynamics, Private Sector Establishment Deaths.

Loan Officer Survey, the net percentage of banks tightening lending conditions for commercial and industrial loans to small firms reached 70% in the third quarter of 2020, only a few percentage points away from the previous peak in the series in the fourth quarter of 2008.

In recognizing that some firms will have access to alternate lines of credit, and that revenues did not fall to zero for many businesses, we make a more conservative assumption regarding which firms close (at least temporarily). We assume that only the smallest firms who received PPP stop operations. Further, insofar as this particular assumption misses the mark, it leads us to understate the true number of jobs preserved. Therefore, this back-of-the-envelope calculation assumes that the smallest 75% of PPP recipients would have had to lay off their workers without PPP. Implementation of this assumption suggests that 13.4 million workers had their jobs preserved due to PPP - almost precisely the upper bound of our estimate range.

An alternative back-of-the-envelope calculation can be derived from surveys in Bartik et al. (2020b). These surveys indicated that small firms in early April 2020 expected to have employment levels relative to January fall 40% by year-end. However, when told about the forgiveness provisions in the CARES Act loans, the survey results reduced that forecast to a 6% reduction (firms told about loans but not forgiveness expected reductions of 14%). Extrapolated over the 59 million small business employees supported by PPP, this implicit reduction in unemployment is equal to 20.1 million workers.

One final point of reference is results in Barlett and Morse (2021), who find in a survey of 278 small businesses in Oakland, CA, that PPP receipt reduced the subjective risk of medium-term small business closure by an average 20.5 percentage points; if 20.5% of firms with fewer than 500 employees were forced to shut down due to the recession, that would destroy approximately 12.4 million jobs. Because the sample is small and localized, the results from this survey may generalize less readily than those of our other calculations above.

While these back-of-the-envelope calculations are useful for providing context, they are not careful empirical work. We now turn to an empirical strategy to identify and estimate the employment effects of PPP.

V. Data

Courtesy of the Small Business Administration (SBA), we observe the universe of approved SBA loans through August 8th, when the Program closed to new applicants. These data include loan recipient, address, exact loan amount and date, a self-reported number of jobs covered made at application, plus a follow-up report of jobs covered.[15] In contrast to the publicly available data,

[15] We exclude loans that were subsequently canceled or never disbursed. Further modifications to the raw data are detailed in appendix A

our jobs covered data is not winsorized at 500 employees. Further, we observe the lender for each loan, which we match up to FDIC data in order to identify community banks.

County-level Unemployment Insurance (UI) claims weekly data are furnished by the Bureau of Labor Statistics (BLS). Initial claims data reflect the number of initial claims *approved* by the state. Importantly, the approved claims measure is distinct from the number of claims filed, which report claims whether or not they are ultimately accepted.[16] While this may seem like a relatively minor distinction, it is critical in the context of March and April 2020. Not only does this distinction explain a key timing issue in our results, but it also serves as an imperfect filter for problems stemming from fraudulent claims. Finally, note that each observed claim is recorded for the week that was claimed, which is distinct from the week filed and the week approved.

Critical to our empirical approach – and unique in this literature - these BLS data allows us to observe the size of the employer linked to each claim, split into three size buckets ({1 – 99, 100 – 499, 500+}). To be clear, these data feature three observations for every county-week pair. This allows us to precisely measure the effects of loans to small firms on the UI claims that originated from employees of small firms. Absent this disambiguation, we would be inferring the effect of small-firm loans on UI claims originating from *any* employer. At best, that would attenuate our estimates. At worst, it would introduce significant bias.

Continuing UI claims data are also furnished by the BLS, and similarly reflect approved continuing claims, not filed continuing claims. Unlike the data on initial UI claims, we observe these data monthly, not weekly. We impute the data for the interim weeks using both approved initial claims and the attrition rate implied by the monthly difference in continuing claims. We observe continuing claims with employer-size buckets as well. These data reliably cover 45 states and DC. The remaining 5 states either do not report county-level statistics to the BLS, or their county-level data suffer from inconsistent reporting.[17]

We construct data for community bank penetration from the Federal Deposit Insurance Company's (FDIC) Summary of Deposits data, and we define community banks following the FDIC's Institution Directory. Data on county population size and density are from the US Census Bureau. Additionally, measures of eligible county-level payroll for firms with fewer than 500 employees are estimated based on Census' 2018 Statistics of U.S. Business (SUSB). The reported payrolls have been adjusted for two years of estimated growth. These estimates are further adjusted to account for the fact that larger firms in the Accommodation and Food Services industry were also permitted

[16]The widely-used weekly state-level UI release reports the number of claims filed. Given that our data include only claims which are accepted, they avoid some of the double-counting issues involved in applications for ordinary state programs and Pandemic Unemployment Assistance funds, discussed in Cajner et al. (2020) and elsewhere. Our metric of initial UI claims is arguably cleaner than the state-level releases made available to the public. This measure will cause a timing issue in the data that will further facilitate precise identification, something we will return to in section VI.B.iv.

[17]The omitted states are California, Florida, Hawaii, Michigan, and Minnesota.

loans. With the exception of Nevada, this adjustment was relatively small. We also use SUSB to measure industry shares by firm size in each county.

County-level data on Covid-19 cases and deaths are from the New York Times, based on reports from state and local health agencies. Additional data on small business revenues by county-week, and job losses by industry-week come from Chetty et al. (Forthcoming, 2024) and Opportunity Insights. Data by industry-month come from the BLS' Current Employment Statistics. Finally, we use the metric calculated in Dingel and Neiman (2020) to measure the fraction of jobs that can by done from home, by NAICS 2-digit industry.

VI. Empirics and Results

VI.A. Empirical Strategy

VI.A.i. Overview

Did PPP loans preserve jobs? If so, to what extent? To credibly estimate answers to those two questions, we first address two crucial complications: endogeneity and how to distinguish treatment from control. Before turning to our results, we discuss how we address those complications, and how the approach differs from other studies on PPP loans.

First, endogeneity: the factors influencing early PPP loan approval also drive business outcomes like employment and firm survival. On one hand, factors like managerial competence, attentiveness, and a pre-existing banking relationship may increase the likelihood of early loan approval and of salutary business outcomes. On the other hand, firms in financial distress face worse business outcomes, while also having a strong incentive to apply for a PPP loan urgently. Regardless of which effect is stronger, a regression of business outcomes of PPP loan receipt would not recover the causal effects of the PPP loans themselves. The core problem is that firms are on the demand side for both PPP loans and for labor. Any firm-level shocks can potentially affect both loan and labor demand, ruling out a direct OLS regression of employment on PPP loans.

To estimate the causal effect of PPP loans on employment, we propose an instrumental variable approach. Our strategy leverages local variation that temporarily differentiates the supply of loans (i.e. bank lending) from firms' demand for loans. Specifically, we use county-level Community Bank market shares as an instrument for the fraction of county-level small business payroll covered by a PPP loan on April 11, 2020 (eight days after the program's debut).[18] Community Banks submitted PPP loans to the SBA more quickly than bigger banks did, for reasons we discuss in the following section.

[18] Market share is measured by pre-pandemic value of deposits, by branch location.

To address endogeneity concerns, our instrument isolates a supply shifter from demand-side determinants. In contrast to firms, banks typically do not influence the supply and demand of labor, save through firm financing.[19]

The second complication lies in distinguishing treatment from control. The near universal take-up of PPP loans presents an empirical challenge: if (nearly) every firm is 'treated' with a loan, then comparisons to observed counterfactual outcomes are impossible. However, many firms were unable to secure a loan at the program's outset. Delays in loan approval—at least those otherwise orthogonal to business outcomes—open a brief window for the study of PPP's effects. The brevity of this opening has important, and precise, implications for employment dynamics, which we will test. PPP loans had nearly saturated the market by early June, so there is no meaningful control to be observed at that point, at least in the sense of loan receipt. Once both 'treatment' and 'control' firms had received loans, earlier access to loans is manifested in the likelihood of early- vs. late-loan approval, a less informative division for our study.

To emphasize the point, this paper's identification strategy has two fulcra, first and foremost being geography. Specifically, geography yields unequal access to early-moving lenders. The likelihood of early loan approval, in turn, is a function of this access. However, geography alone is insufficient, since ultimate loan receipt is nearly universal. We therefore lean on our second fulcrum, differences in timing, to separate treatment from control.

VI.A.ii. Community Bank Share as an Instrument

What distinguished Community banks from other lenders during PPP's initial roll-out? Community banks were markedly quicker than larger banks in submitting PPP loans to the SBA. Larger banks, with the institutional memory of the post-TARP fallout, were reticent to issue loans absent clear guidance from SBA and Treasury.[20] Several large banks told Michael Faulkender directly, in his capacity as the Treasury principal responsible for implementation of PPP, that they were hesitant to extend PPP loans until SBA and Treasury issued further regulatory clarification via Interim Final Rules (IFRs) and frequently asked questions.[21] These banks had suffered years of legal and regulatory disputes following TARP, when they had acted quickly and without comprehensive guidance. The consequence of these disputes was an aversion to regulatory risk – larger banks

[19] Theoretically, banks can influence labor supply through personal loans. However, personal loans did not increase during the early pandemic – instead, household balance sheets became much healthier due to government stimulus. Also, banks themselves were not eligible for PPP loans.

[20] TARP stands for the Troubled Assets Relief Program, enacted in October 2008 to help stabilize the U.S. financial system.

[21] Michael Faulkender, an author of this paper, was the Treasury principal responsible for policy implementation of PPP. The first IFR for PPP was issued on April 2, but was frequently updated in response to concerns expressed by a variety of stakeholders, including banks. The IFR was updated on April 3, then a further five times in April and four times in May. Additionally, Treasury and SBA issued 39 FAQs in April, including 17 on April 6 alone.

wanted explicit official guidance to serve as legal protection from regulators.[22] Empirically, we observe significant delays from the largest banks, illustrated in Figure IIb. Over the program's first five days, the largest five banks issued a *total* of 568 loans, worth $172 million. In that same timeframe, community banks issued 218,984 loans, worth $46.3 billion.

In contrast to the largest banks, community and other small banks did not believe they would be an attractive political target, and did not have the same memory of recent regulatory trauma: no Administration of either party would be eager to sue them. Smaller banks therefore demonstrated a willingness to act quickly to fill this market opening, taking regulatory risk before all the program's details were entered into the Federal Register. This difference in perceived regulatory risk exposure was the key contributor to speed of PPP loan disbursement. Crucially, geographic variation in small businesses' banks' perceived regulatory risk exposure, conditioned on controls, should be orthogonal to the spread of the virus or firms' demand for PPP loans.

The primary source testimonial is supplemented by contemporaneous press articles and statements from Congressional leaders. On May 6, 2020, Merker (2020) wrote in American Banker, "Given the uncertainties surrounding the PPP, banks need both better guidance and more reassurance from the financial regulators. Otherwise, the ghosts of 2008 could continue to haunt bankers as they try to carry out government policy at a perilous moment in the nation's economic history." However, these concerns were not uniformly felt by all banks. Also in American Banker, Haggerty (2020) quotes Ian Katz, a director at Capital Alpha Partners, "If I were the big banks on the second go-around, I would want more clarity from the administration on what's permitted and what's not." Notably, these regulatory risk warnings concentrated on big banks – the perception was that other banks were less exposed to this threat.

Statements from Congressional leaders of both parties raised the specter of regulatory risk. They expressed particular concern that big banks reportedly gave preference to pre-existing customers, as opposed to issuing loans on a first-come, first-served basis. Republican Senator Marco Rubio – then Chair of the Senate Small Business Committee – wrote to the CEOs of twelve large banks, "I, as well as other members of the Senate, have received reports of priority being given to certain applicants over others. While I recognize the challenges of setting up a program of this size, processes to handle applications, and appropriate guidance to administer the program, it is important for small businesses and nonprofits of various sizes, regional locations, and missions to have equal access to PPP assistance."[23] Senator Rubio's letter went on to request responses to a series of questions about prioritizing some borrowers over others. Democrats Maxine Waters (then Chair of the House Financial Services Committee) and Nydia Velazquez (then Chair of the House Small Business

[22] For example, U.S. Bank did not have a single PPP loan approved during the programs' first five days.

[23] Rubio (2020), April 23, 2020. The letters were sent to the Chief Executive Officers of Bank of America Corporation, JPMorgan Chase, Wells Fargo, PNC Financial Services Group, Inc., KeyBank, NA, M&T Bank, Huntington Bancshares, Inc., TD Bank, Truist Bank, Zions Bank, Regions Bank, and US Bancorp.

Committee), wrote the CEOs of four large banks, "...we are troubled by concerns expressed by small business owners that megabanks are favoring certain customers and shutting out others. We expect each of you to make a commitment that your institutions will do all you can to help consumers and small businesses... As your participation in the [Paycheck Protection Program] moves forward, we would appreciate periodic updates on... PPP implementation and other pandemic recovery efforts."[24]

These differences in perceived regulatory risk generated substantial differences across markets in early PPP penetration, based in part on significant variation in community bank market share. Liu and Volker (2020) documented that community banks were among the fastest to issue PPP loans. We also document this dynamic: Figure IIa illustrates the strength of community banks in issuing early loans. Community banks facilitated more dollars of PPP loans during the program's first six days than all other lenders combined. When funding for the first tranche of loans was exhausted on April 16, 46.8% of all loans approved had originated at community banks. At that same point, community banks had originated 47.9% of their final total PPP loans. For all other lenders, that number was 24.0%. Put simply, it was much easier to secure an early PPP loan with a community bank. Given the clear evidence that community banks were quicker to disburse PPP loans, we use geographic variation in community bank market share to instrument for early loan receipt (for a map, see Figure III). We also illustrate the strong relationship between county-level community bank shares and early PPP loans with a first-stage binscatter (Figure VIb).

Before describing our empirical model, we pause to contrast our approach with Granja et al. (2022), which also leverages local banking conditions to assess the employment effects of PPP loans. We highlight a number of differences and note their importance. First, this paper's instrument is a supply-shifter, in the spirit of Wright (1928). In contrast, Granja et al. (2022) use a Bartik approach, measuring the shift in shares from the pre-pandemic small business loan market to the PPP loan market.

In our view, there are several drawbacks to the Bartik approach in this context. First, it treats a standard small business loan and a PPP loan as the same (or very similar) products. We argue that these are very different financial products. Most obviously, while structured as a forgivable loan, PPP loans were, economically, effectively a grant, and the Federal government was very clear on that matter from the outset. PPP "loans" were loans in name only, and both banks and firms knew that. Second, a standard business loan is typically meant to finance capital expenditures, not operating costs. PPP loans were intended to support operating costs, and the condition of forgiveness was that loaned money directly financed operating costs, particularly labor.

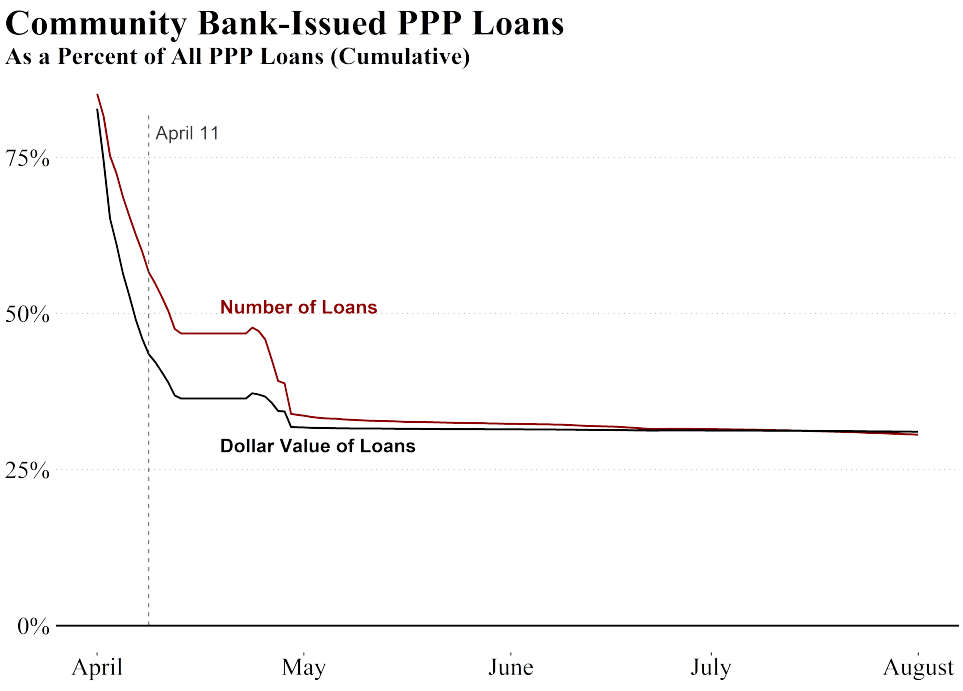
Moreover, since the goal of the instrument is to isolate exogenous variation in PPP loan coverage,

[24] Velazquez and Waters (2020), April 10, 2020. The letters were sent to the Chief Executive Officers of Citigroup, JPMorgan Chase, Bank of America, and Wells Fargo.

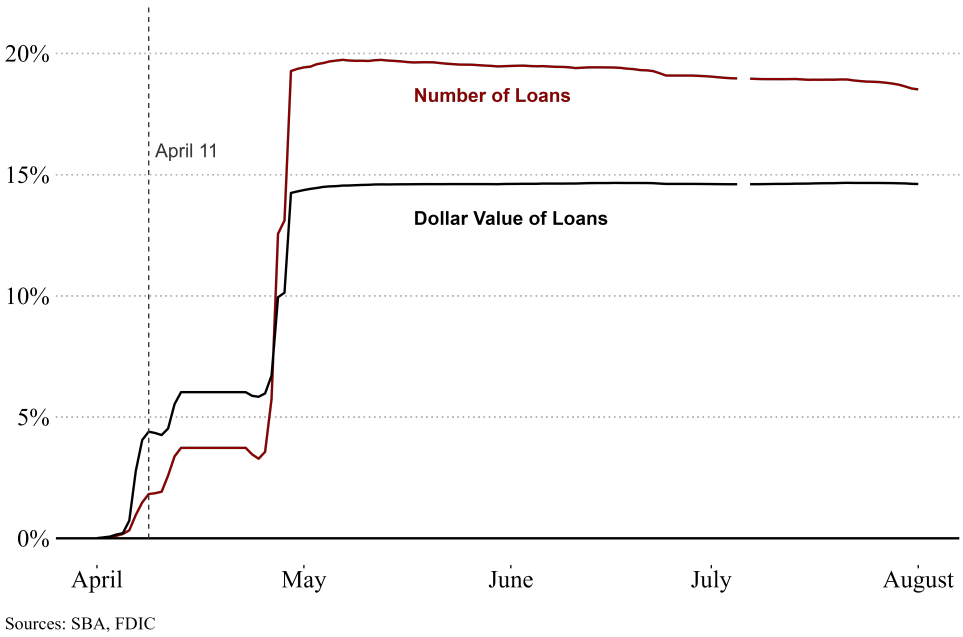
the difference between pre-pandemic small business loan market share and PPP loan market share is not necessarily a relevant metric. For example, suppose a bank exclusively covers some geographic area, both before and during the pandemic. That bank may end up with the same market share of pre-pandemic loans and PPP loans, leading to a measured shift share of 0, though that bank might have been very effective in delivering PPP loans during the program's first week. The central issue is that the total share of PPP loans is the relevant metric for studying the employment effects of PPP loans – not the change in share, relative to pre-pandemic small business loans.

A second major distinction between this paper and Granja et al. (2022) is the effective baseline. In this paper, the baseline is February 2020, prior to the pandemic's American economic effects. In Granja et al. (2022), the baseline is the final weeks of March. Those weeks followed the onset of the pandemic, but preceded PPP loans.

Those weeks were among the most tumultuous in U.S. economic history, with 8.9 million initial claims for unemployment insurance filed in the weeks ending March 21 and March 28, 2020 combined. The following week (ending April 4) saw an additional 6.1 million claims alone. Using a late-March baseline means that any measure is exquisitely sensitive to the exact timing of the Covid shock across region. For example, if the worst of the economic shock hits one area in the week ending March 28, then metrics using the late-March baseline will show recovery. Contrast that with a region that is hit just one week later: metrics with the late-March baseline will immediately show deterioration, regardless of which region sustains worse job loss as a percentage of pre-pandemic employment.



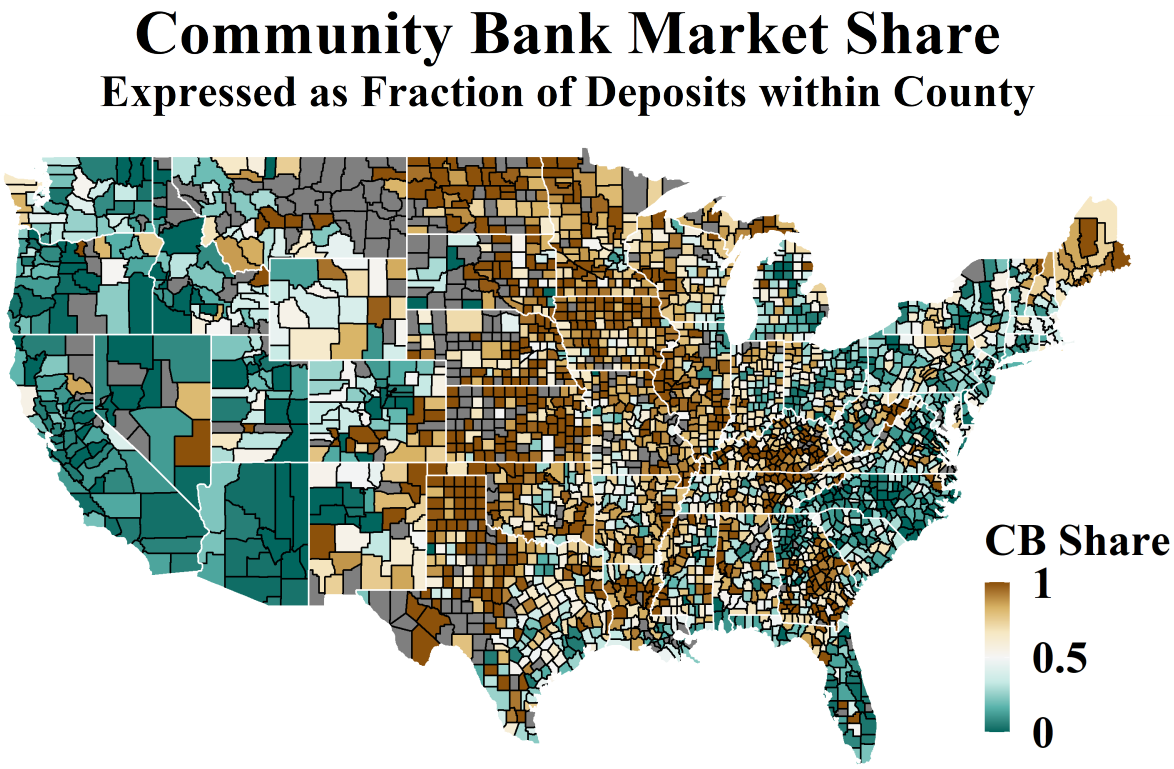
(a) Community Bank Share of Cumulative PPP Loans, by Approval Date



(b) Top-Five Largest Bank Share of Cumulative PPP Loans, by Approval Date

Figure II

Bank Types and PPP Loans Issuance Over Time. Source: SBA, Treasury, and author's calculations. All loans which were eventually canceled are excluded from calculations.



Source: FDIC, Author's Calculations.

Figure III
Community Bank Share of County-Level Banking Market, by Deposits
Figure IV
Community Bank Share of County-Level Banking Market, by Deposits. Source: FDIC and author's calculations.

VI.A.iii. Empirical Model

We instrument early PPP loan receipt (measured at the county x firm-size level) with community bank shares, thereby exploiting variation in local banking markets to predict early PPP receipt. For the first stage, we model the endogenous variable at time t' as

$$PPP_{cjt'} = \alpha_{0,s(c)jt} + \alpha_{1,jt}\text{CB\_Share}_c + X'_{cjt}\alpha_{2,jt} + \eta_{cjt} \tag{1}$$

The exclusion restriction is that CB_Share_c does not enter 2, save through 1. The second stage,

which we refer to as our primary specification, is repeated cross-sections of

$$y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt} \tag{2}$$

where y_{cjt} is an unemployment outcome in county c from firms of size j, during week t, $s(c)$ is the state of county c, and X_{cjt} is a vector of controls. Summarizing the covariates in our 'primary specification': we include $\beta_{0,s(c)jt}$ - a state-week fixed effect, $y_{cj,Feb.}$ - the February 2020 average of the outcome variable, county-level median income and poverty rate, a battery of Covid-19 controls covering the rates of new cases and deaths over the prior week and month, the log of county population density, and finally a county-level work from home (WFH) index.

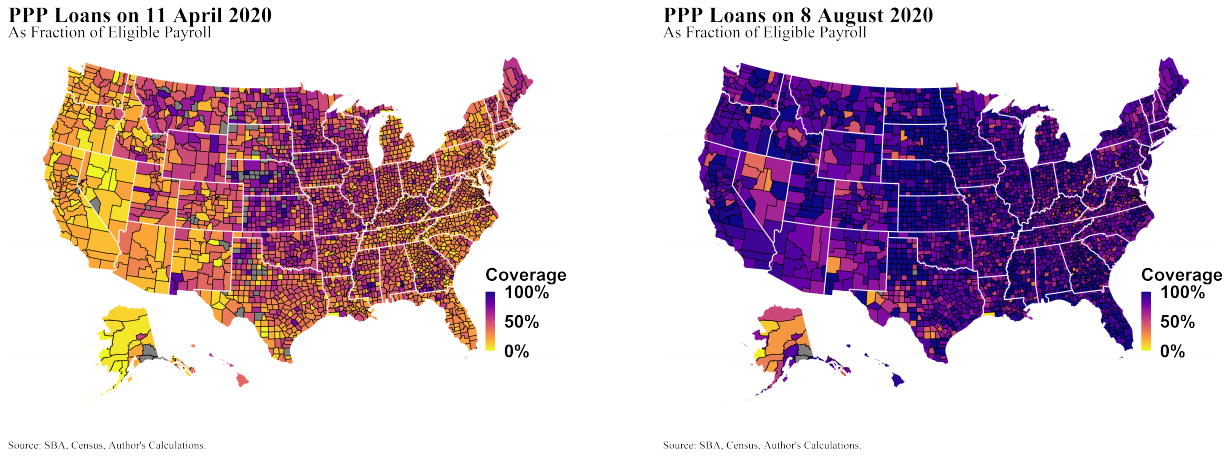
Our key variable of interest, $PPP_{cjt'}$, is the cumulative percentage of small business payroll covered (at firms of size j in county c) by a PPP loan, as of t' = April 11, 2020. In all cases, the percentage of UI claims is measured as (a) the number of approved UI claims originating from employees in county c during week t (employed by firms of size j), divided by (b) the number of pre-pandemic employees eligible for UI in county c, who were employed by firms of size j. We estimate this regression in repeated cross-sections, separately for each week, in order to illustrate the dynamic effects of early loan receipt. Note that t' is held constant in each regression while t varies. The regression studies the dynamic relationship of employment with early PPP receipt; the key independent variable is fixed in time while the dependent variable evolves. The treatment is not the receipt of PPP money, but the *early* receipt of PPP money. The core dynamic hypothesis, which we test, is the rapid convergence of outcomes across counties, as loans saturate the market. As $(t - t')$ gets large, $\beta_{PPP,jt}$ should converge to 0.

Why April 11 in particular? In terms of cumulative small business payroll covered by PPP loans, we observe the greatest county-level variation early in the program's first round. By a variety of measures, the highest degree of dispersion in PPP coverage occurs during the week ending April 11, shortly after the program begins and when the first tranche of funds was nearly exhausted. On April 16, the first tranche of $349 billion dollars had been fully depleted, and the program closed for 11 days. The resulting delay until the SBA resumed accepting loans bolsters our timing strategy by opening a substantial temporal gap between first- and second-tranche loan recipients. In Figure V, we show dispersion in PPP loan coverage across counties. Though dispersion is high on April 11, it had mostly disappeared by August 8, more-or-less eliminating the variation needed to evaluate the Program's effects.

We feature two primary outcome variables. The first is the insured unemployment rate (IUR) for regular state programs (i.e. approved continuing claims as a share of covered employment[25]) at

[25] "Covered employment" refers to the pre-pandemic number of UI-eligible workers at the county-firm size level,

the county-firm size level. Using the weekly IUR avoids the double counting problems introduced by the Pandemic Unemployment Assistance program and captures high-frequency reentry into the workplace. The second outcome variable is approved initial claims at the county-firm-size level, also expressed as a share of covered employment. As robustness checks, we will also consider several other variables as outcomes.



(a) Early Variation in Loan Coverage **(b)** Late Variation in Loan Coverage

Figure V

Early in the program, there was significant geographical heterogeneity in PPP receipt. Later in the program, there was very little, limiting the ability of ultimate PPP receipt to identify the Program's effects. Source: SBA, Treasury, and author's calculations. Coverage calculated as loan dollars, as fraction of total estimated eligible payrolls. Eligible payroll estimated by projecting payrolls from the 2018 Census SUSB forward for two years growth.

VI.A.iv. The Exclusion Restriction

Though it may be exceedingly unlikely that community bank shares are causally related to business outcomes – financing channel aside – this alone does not satisfy the exclusion restriction. If community bank market shares are correlated with variables that determine business outcomes, that correlation would likewise violate the exclusion restriction. Throughout this section, it is important to keep in mind that our hypothesis is about the timing of business outcomes. This means that any potential confounder would not merely have to correlate with community bank market shares, but also correlate with employment outcomes in a rapidly changing manner as the weeks progressed. In other words, confounding variable(s) would have to introduce bias in April and May, but not in July through October. Any alternative explanation of the estimated effects would have to account for why these community bank shares are relevant in some weeks but not others.

The spread of the virus itself is one obvious threat to our identification strategy. As Granja et al. (2022) notes, first-round PPP loans tended to flow to areas that were not as hard hit by the

not PPP coverage.

pandemic. Since community banks tend to have stronger market shares in rural areas, it's possible that our instrument is negatively correlated with early virus prevalence—which is in turn negatively correlated with unemployment. We address this concern via two types of control variables. First, we include new Covid-19 cases reported in county c in week t, as well as the preceding 4 weeks. Additional controls for Covid-19 deaths are included for the same timeframe, all measured as a fraction of the county's population. Second, to account for the differences between urban and rural areas, we control for the log of county population density. Finally, we include controls for the insured unemployment rate for the week of February 15th, 2020, to avoid mistaking pre-existing level differences for early effects.

Directly related to the spread of Covid is the government's reaction. States controlled many of the decisions regarding lockdowns and economic restrictions during March and April, and these states took a variety of approaches to combating the virus, both in terms of severity and timing. To account for this, we include state-week fixed effects in all our specifications. This is crucial: we exploit *within-state* and within-week variation to identify the parameter of interest, $\beta_{PPP,jt}$. Our results don't capture the difference between New York and Nebraska, but differences within each of those states, in a given week. In many cases, state laws and other measures had a direct impact on employment, for example when restaurants were prohibited from offering dine-in service, or when non-essential businesses were ordered to close. Insofar as individual attitudes towards Covid varied across states, these fixed effects would also control for that. States also determine the major sub-national regulations that affect the local banking markets, as well as the relative capacity of localities to cope with economic shocks. Cognizant of these heterogeneous economic restrictions, we focus on within-state-week variation at the county-level.

To address possible differences across counties that pre-date the pandemic, we control for the 2019 county-level median income and poverty rates. We might be concerned that the change in economic activity varies with income. For example, a lower-income area might see a smaller decline in economic activity if pre-pandemic spending was more concentrated on necessities like groceries. Additionally, we control for the February 2020 average of the relevant IUR (measured at the country x firm-size level to match the outcome variable). This control effectively establishes a pre-pandemic baseline for UI claims.

We also need to be aware of any differential actions taken by community banks themselves - aside from the provision of PPP loans. These actions would need to have taken place at the outset of the pandemic, and not have been contemporaneously replicated by other banks. For example, if community banks extended small businesses credit in greater volume than large banks prior to the debut of PPP, this may have supported small business employment more strongly in counties with high community bank shares. However, there is no evidence that community banks were extending small businesses credit at relatively high volumes prior to PPP. As documented in Lopez

and Spiegel (2023), non-PPP small business lending declined at small and medium sized banks in the first half of 2020, but not at large banks. Such an outcome is the opposite of what would be required for our estimates to be confounded by differential lending activity unrelated to PPP.

Finally, we construct a metric to measure how easily a county's employment base could shift to a work from home environment. The concern here is that some areas may be better suited to handle the pandemic shock, simply because they had more jobs that could be done remotely. We use data from Dingel and Neiman (2020) to measure the share of jobs that can be done at home, by 2-digit NAICS code. We then take the inner product of those shares with the share of employment at firms of 1-99 workers in each industry for each county, based on the 2018 Census SUSB. We call this product the "Work From Home (WFH) Index".

To reiterate, we estimate our primary specification in a repeated cross-section. Therefore, each of these controls can dynamically covary with the outcomes of interest. We consider this crucial in such a rapidly changing economic environment. Even if a covariate itself remains constant from week-to-week, its correlation with outcomes can and does change over time.

Near the end of subsection VI.B, we consider alternate outcomes and covariates as robustness checks. In particular, we include the decline in county-level small business revenue from pre-pandemic to an average of mid to late-March – i.e. following the outset of the pandemic, but before PPP. While this considerably reduces our sample size due to the limited data coverage, the point estimates in our main results are little changed with this inclusion.

Finally, note that our study cannot fully address general equilibrium concerns: if there are spillovers because layoffs in one location or firm can cause layoffs in another location, then no county-level or firm-level analysis will truly isolate treatment effects. If the "control group" is affected by outcomes at a treatment group, any empirical strategy will be problematic. However, the other PPP studies cited face the same challenge.

VI.B. Results

We present our main results sequentially. In our primary results, firm-size j represents all firms with fewer than 100 pre-pandemic employees. In the secondary results, we expand our analysis to all small businesses with fewer than 500 pre-pandemic employees.

VI.B.i. First Stage: Firms Sized 0-99

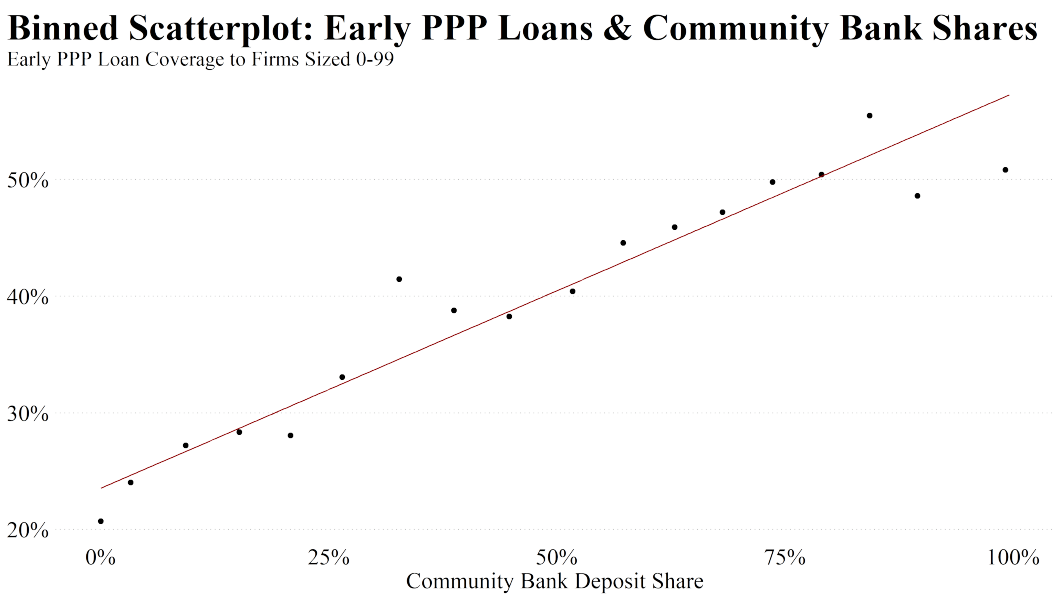
Figure VIb shows (a) a county-level binned scatterplot of community bank shares against early PPP coverage, and (b) a binned scatterplot of residuals from the first-stage regression.[26] With

[26] Using data from the week ending April 11, 2020, with Initial Claims as the control for 'average February IUR'.

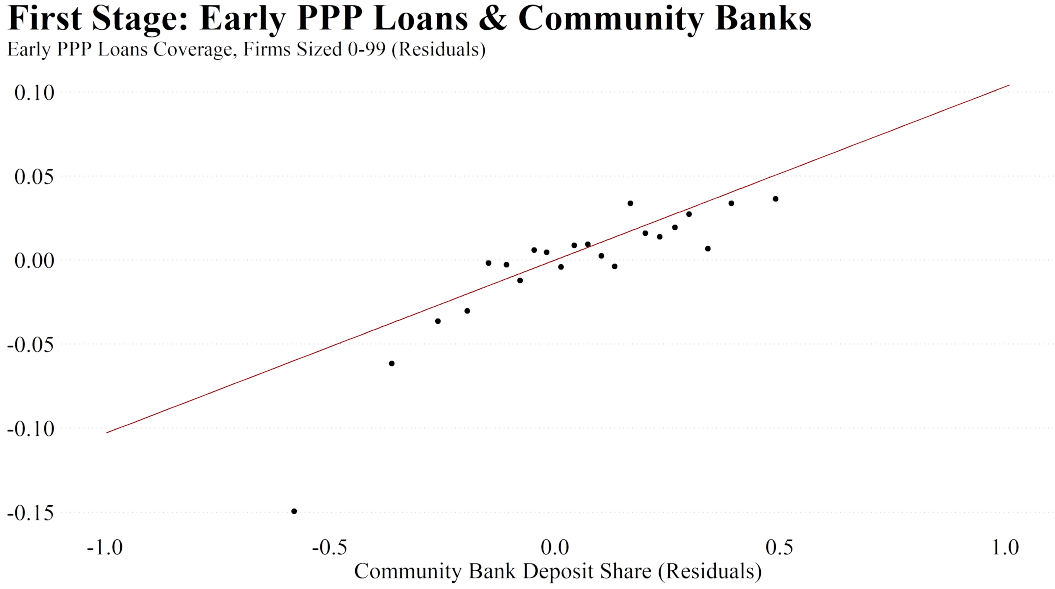
the full battery of controls and standard errors clustered at the state level, the initial claims regression's standard first stage F-Stat is 73.7 (Kleibergen-Paap: 9.2) during the week of April 11, for example. We report first-stage statistics and second-stage tests following the recommendations given in Andrews, Stock, and Sun (2019).

Since we do not assume our errors are i.i.d. – we cluster at the state-level – we also report tests developed in Kleibergen and Paap (2006). In Appendix F and in all regression tables, we report the robust Kleibergen-Paap F-Statistics alongside the Anderson-Rubin confidence intervals and p-values. Since our specification is just-identified with one endogenous regressor, the Kleibergen-Paap F-Stat is identical to the effective F-Statistics proposed by Olea and Pflueger (2013), which is itself robust to heteroskedasticity and clustering. The Anderson-Rubin confidence intervals are also robust to heteroskedasticity and clustering. More importantly, they assure the correct coverage in the case of weak instruments (Moreira (2009)).

While the traditionally reported F-Statistics for our primary estimates are very strong, Kleibergen-Paap F-Statistics typically fall just below the 'rule-of-thumb' cutoff statistic of 10. While it is generally good practice to report Anderson-Rubin confidence intervals with any application of IV, they carry particular importance in our case, in order to address any concerns of weak instrument bias. However, our figures present traditional confidence intervals based on clustered standard errors. We do this to keep the figures legible – Anderson-Rubin confidence intervals are asymmetric and can often have one long tail. Further, there is no assurance that they are finite, nor are they always continuous. We note that our primary results for firms sized 0-99 hold up with Anderson-Rubin confidence intervals, and in some cases the p-values shrink under Anderson-Rubin (compared to the standard Wald test). This is made possible by the asymmetry of Anderson-Rubin: a longer confidence interval can be consistent with a smaller upper bound.



(a) Binned Scatterplot: Early PPP loan coverage for firms sized 0-99 and community bank deposit shares. Bins calculated with small firm employment weights.



(b) First Stage Binscatter: residuals from regressions of (i) the instrument & (ii) the endogenous variable, on the full set of controls. Regressions weighted by small business employment.

Figure VI

First stage correlation, with and without controls. Full set of first-stage F-Stats presented in appendix Appendix F. "Full set of controls" as described in Table III, column (4) and the associated footnote.

VI.B.ii. Second Stage: Firms Sized 0-99

Figure VII as well as Tables A.5 and A.6 present the results for the second stage coefficient ($\beta_{PPP,0-99,t}$ from Equation 2). Additionally, we report traditional regression tables with alternate specifications for all weeks in the online appendix.[27] As an example, we include results for the week ending March 21, 2020 for approved initial claims (Table II) and the week ending April 11, 2020 for approved continuing claims (Table III). Results for our primary specification are in column (4), with columns (5) and (6) showing results from robustness checks (discussed in Section VI.B.v and Appendix Appendix B). To reiterate, we estimate these results separately for each week. For both initial and continuing claims, we estimate precise zeros through mid-March, and once again as take-up nears saturation. This is a baseline sanity check: we should not observe an effect for April's PPP loans in February. Further, we should not observe large effects for early loans receipt after the vast majority of firms secured PPP funding, unless delays proved fatal to a meaningful number of firms.[28]

The estimates follow different dynamics for initial and continuing claims, reflecting their stock/flow distinction. The estimates $\beta_{PPP,0-99,t}$ are precise zeros until the week ending March 21, when it plummets to its minimum estimate of -0.099. In plain English: increasing early PPP coverage of small-firm payrolls by 1 percentage point resulted in a 0.099 percentage points *smaller* increase in the approved initial UI claims rate (among small-firm employees), during the week ending March 21, 2020, alone. The initial claims estimates ease slightly over the weeks ending March 28 and April 4, then continue to ease before returning to statistical insignificance – permanently - in the week ending May 23. This pattern matches our hypothesis that stronger early penetration of PPP loans led to substantially reduced approved initial UI claims.

Naturally, estimates of the effects on continuing claims lag the effects on initial claims. Our point estimate is first statistically significant during the week ending March 28.[29] The estimated effects increase quickly over the next two weeks, reaching a minimum of -0.252 during the week ending April 11. In plain English: increasing early PPP coverage of small-firm payrolls by 1 percentage point resulted in a 0.252 percentage points *smaller* increase in the approved continuing UI claims rate. The estimated effects level off from there, then gradually decline until they are no longer statistically significant during the week ending May 30.

We note that our initial claims estimates reach their minimum values before the CARES Act is even

[27] In the online appendix, we also report regressions where the cross-sections have been pooled into five groups of weeks: Pre-Covid, Covid-Onset, First PPP Tranche, Second PPP Tranche, and Full PPP Rollout

[28] Our estimate are precise zeros, starting in July, suggesting that the delays correlated with our instrument did not lead to lasting damage. This stands in contrast with papers such as Doniger and Kay (2023), Kurmann et al (2024), and Cole (2024), which find statistically significant effects persisting into late 2020.

[29] This is true for both traditional clustered standard errors and the weak-IV robust Anderson-Rubin standard errors.

passed. We discuss this issue in detail in subsection VI.B.iv, showing why this occurs and how it is consistent with our causal claims. In short, the observation of an *approved* claim is conditional on the approval itself, which necessarily follows a process where claims are filed, challenged, withdrawn, and finally approved or rejected. The lag between filing and approval was particularly important during the explosion of UI claims during the early pandemic, when state UI offices were subject to an overwhelming volume of initial claims.

In all of the papers in the PPP literature, translating point estimates into an aggregate number of jobs saved (more precisely in our case, number of approved initial UI claims averted) requires further assumptions and nuance. There are good reasons to be cautious of these extrapolation exercises. However, given their prevalence in the literature and in comparable papers, we offer the aggregate numbers based on our own estimates.

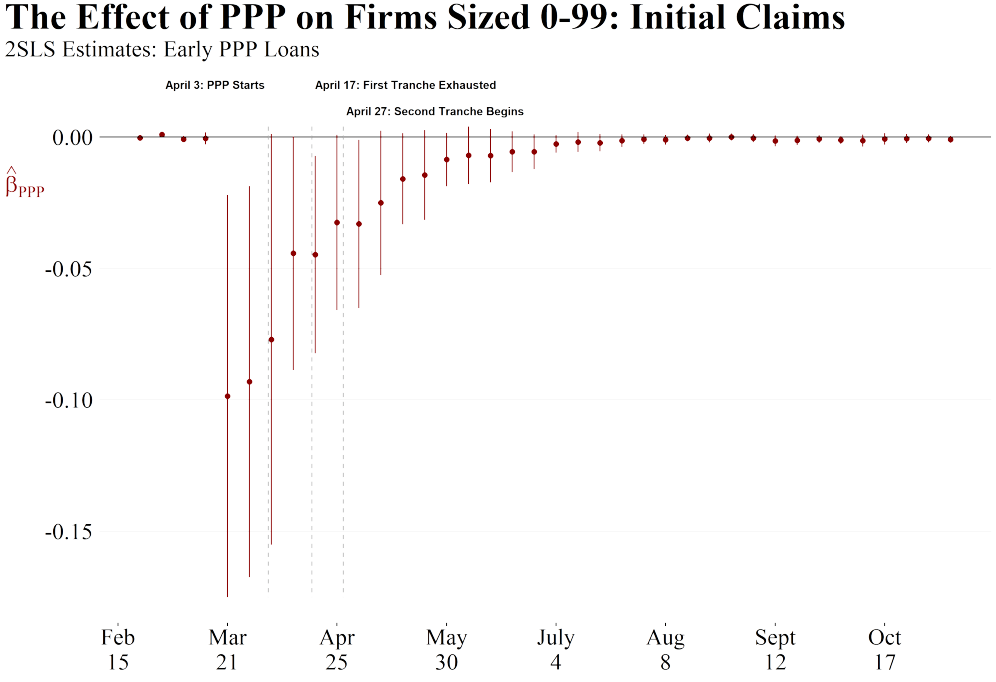
Multiplying the pre-pandemic observed total national covered employment (144.50 million, from the Quarterly Census of Employment and Wages (QCEW)) by the fraction of national employment in firms sized 0-99 (34.3%, based on the 2018 Census SUSB), we get covered employment at firms sized 0-99 of 49.53 million. Our calculation of the final percentage of small firm payroll covered by PPP loans is 88.1%. Multiplying these by our minimum weekly estimate (-0.252), we arrive at 10.9 million jobs saved at firms sized 0-99 (alternatively, approved continuing UI claims averted in each week).

One potential objection here is that we have inflated this aggregate number by selecting our minimum estimate. In response, we note that our estimates compare the effect of earlier treatment to the effect of later treatment – a weaker comparison than treatment and control. Consequently, we can never truly recover the full effects of PPP loans – each estimate is attenuated by our imperfect and vanishing control, and our aggregation exercise is attenuated along with it. We therefore likely underestimate the true treatment effect, however we believe the underestimation is significantly less than in other studies.

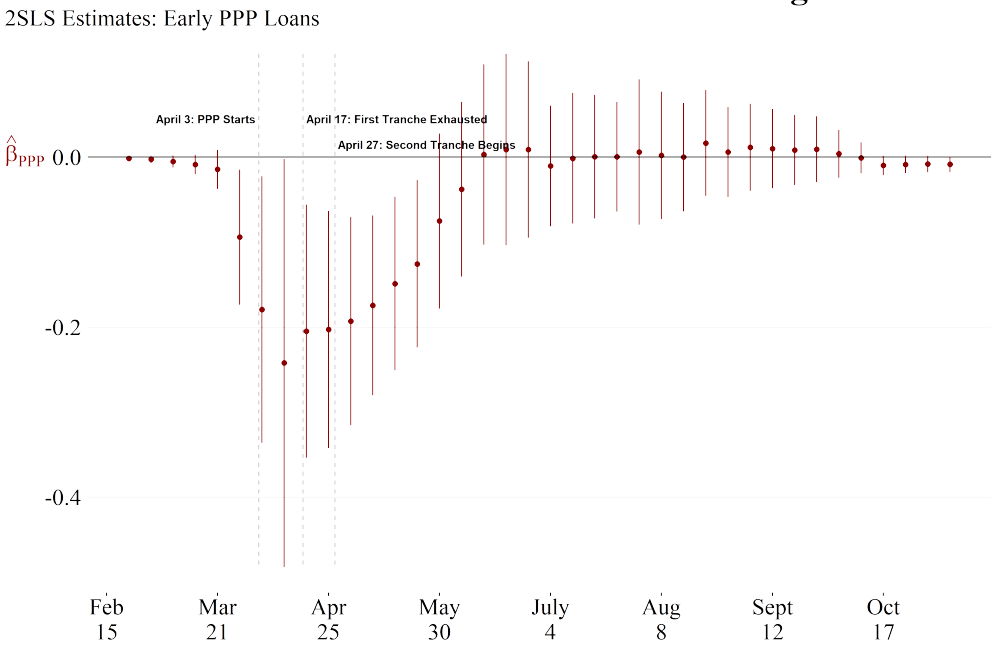
VI.B.iii. Results for Firms Sized 0-499

We estimate PPP's employment effects for all firms sized 0-499 using the same specification, with variables adjusted to reflect the larger set of firms. The specific adjustments are to county-week unemployment claims (which now reflect claims from employees of all firms 0-499), the county-level February average of those claims, and PPP loan coverage as of April 11. Regression weights are also also adjusted to reflect pre-pandemic county-level covered employment at all firms of fewer than 500 workers.

At first glance (see Figure VIII), the results for firms sized 0-499 look very similar to the those at firms sized 0-99. This is a consequence of composition, at least in part: firms sized 0-99 employ



(a) Initial UI Claims, Firms Sized 0-99



(b) Continuing UI Claims, Firms Sized 0-99

Figure VII

IV estimates of the effect of PPP penetration as of April 11^{th} on employment outcomes at firms sized 0-99. Full results with multiple specifications and an extended footnote are available in the online appendix. Example tables for 2020-03-21 (for Initial Claims) and 2020-04-11 (for Continuing Claims) are available in Tables A.5 and A.6, respectively.

TABLE II

Initial Claims, Firms Size 0-99 (Week Ending 2020-03-21)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.005	-0.079***	-0.105*	-0.103**	-0.044**	-0.086**
	(0.016)	(0.019)	(0.044)	(0.039)	(0.017)	(0.029)
February IUR			3.366*	3.431*	4.026***	3.671*
			(1.627)	(1.559)	(0.940)	(1.572)
Log(Med. Income)			-0.019*	-0.019	-0.016**	-0.019*
			(0.009)	(0.010)	(0.006)	(0.008)
Poverty Rate			-0.001*	-0.001*	-0.001**	-0.001**
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	0.000	0.001	-0.001
			(0.001)	(0.002)	(0.001)	(0.001)
Covid Cases, 1w				-47.049	-46.439	-37.961
				(32.431)	(24.271)	(27.573)
Covid Cases, 4w				39.550	36.156	29.540
				(29.004)	(21.136)	(23.960)
Covid Deaths, 1w				571.098	499.412	606.625
				(633.069)	(524.802)	(623.377)
Covid Deaths, 4w				-197.636	-232.353	-221.566
				(404.064)	(325.509)	(390.597)
WFH Index				-0.005	0.083***	0.005
				(0.046)	(0.023)	(0.036)
Industry Index					0.305***	
					(0.040)	
March Small-Firm Rev.						-0.026***
						(0.006)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,584
Wald F-Stat	0.1	0.4	47.0	13.6	399.2	90.3
K-P F-Stat	86.5	51.2	9.8	12.2	18.3	15.6
A-R 95% Conf. Set	[-0.044, 0.027]	[-0.152, -0.049]	[-0.336, -0.039]	[-0.289, -0.045]	[-0.102, -0.013]	[-0.210, -0.040]
A-R p-value	0.749	0.000	0.003	0.001	0.011	0.001

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-03-21.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE III

Continuing Claims, Firms Size 0-99 (Week Ending 2020-04-11)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.111**	-0.164***	-0.274*	-0.252*	-0.135**	-0.185*
	(0.034)	(0.035)	(0.112)	(0.107)	(0.051)	(0.078)
February IUR			1.580***	1.507***	1.391***	1.458***
			(0.256)	(0.285)	(0.191)	(0.238)
Log(Med. Income)			-0.053*	-0.043	-0.044*	-0.039
			(0.023)	(0.029)	(0.018)	(0.025)
Poverty Rate			-0.003*	-0.002	-0.002**	-0.002
			(0.001)	(0.001)	(0.001)	(0.001)
Log(Pop. Density)			0.000	0.001	0.002	-0.001
			(0.003)	(0.005)	(0.002)	(0.004)
Covid Cases, 1w				-12.599	-8.205	-10.194
				(7.567)	(5.727)	(7.303)
Covid Cases, 4w				2.983	1.937	2.253
				(3.260)	(2.458)	(2.980)
Covid Deaths, 1w				-228.778***	-172.036**	-240.967***
				(54.139)	(55.083)	(50.009)
Covid Deaths, 4w				158.201***	111.486***	162.884***
				(35.273)	(33.758)	(30.422)
WFH Index				0.027	0.191*	0.040
				(0.132)	(0.091)	(0.108)
Industry Index					0.594***	
					(0.101)	
March Small-Firm Rev.						-0.050***
						(0.014)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,352	2,352	2,339	2,337	2,337	1,486
Wald F-Stat	10.1	0.5	31.1	80.6	142.3	217.8
K-P F-Stat	72.9	55.9	8.2	8.9	11.6	10.5
A-R 95% Conf. Set	[-0.181, -0.029]	[-0.257, -0.081]	[-0.927, -0.083]	[-0.840, -0.068]	[-0.309, -0.012]	[-0.499, -0.020]
A-R p-value	0.017	0.007	0.013	0.015	0.040	0.036

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-04-11.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

70% of the workers at all firms sized 0-499. Despite the apparent similarity in estimates, we want to differentiate the effects at small firms (0-99 employees) from the effects at mid-sized firms (100-499 employees). By distinguishing PPP's employment effects across the firm-size distribution, we can start to reconcile the difference between this paper's estimates and those in Chetty et al. (Forthcoming, 2024) and Autor et al. (2022a).

Our primary approach to differentiate the effect size is to leverage the just-introduced aggregation exercise (Section VI.B.ii) to estimate the number of jobs preserved at mid-sized firms. For the sake of direct comparison, we repeat the aggregation exercise for all firms sized 0-499 using estimates from the same week. In both regressions, the minimum estimates (i.e., largest estimated effects) are observed during the week of 11 April 2020. In that week, $\hat{\beta}_{PPP,0-499,t}$ is -0.240, little different than that week's $\hat{\beta}_{PPP,0-99,t}$. However, the relatively small difference in estimates significantly understates the difference in underlying effects. To illustrate this, consider the same aggregation exercise with the covered employment and final PPP loan payroll coverage measured for all firms sized 0-499 (70.1 million and 82.7%, respectively). Multiplying these together yields 14.0 million jobs preserved at firms sized 0-499. Then, subtracting the estimated 10.9 million jobs saved at small firms yields 3.3 million jobs saved at firms with between 100 and 499 employees. As a fraction of pre-pandemic employment, that aggregate number implies a 'preservation rate' of 15.8% - indicating the fraction of all jobs saved at mid-sized firms. This rate is 5.5 percentage points below the small-firm rate.

This direct method of calculating 'preservation rates' likely understates the true difference between mid- and small-sized firms. The understatement comes from two sources: first, the choice of April 11 as the reference week. The gap in that week is relatively small in that week, as it grows through the PPP's initial weeks. If we use the week of April 18 instead, the rate difference would be 6.4 percentage points. From the week ending April 18 to the final week of June, the average difference in point estimates is over twice that of April 11's, and never falls back to April 11's level. If we use that average difference as a basis for calculations, then the gap between preservation rates grows to 7.1%, implying that loans were one-third less effective at preserving jobs at mid-sized firms than at small firms.

Instrument relevance is the second source of understatement. Specific to firms sized 100-499, the correlation between community bank shares and early PPP loan penetration is relatively weak, once conditioned on controls. For this reason, we do not separately estimate coefficients for these mid-sized firms. While the instrument remains relevant for all firms sized 0-499, the correlation is primarily driven by loans to smaller firms.[30] Hence the 2SLS estimates for all firms 0-499 reflect variation that is disproportionately driven by firms sized 0-99. This is also why we caution that

[30]For simple regressions of residualized community bank shares on residualized PPP loan payroll coverage, the coefficient estimate is 0.10 (p = 0.000) for firms sized 0-99. For firms sized 100-499, it is 0.04 (p = 0.055). For all firms sized 0-499, the same estimate is 0.08 (p = 0.000). Figure XIX shows the first-stage for all firms 0-499.

our identification is cleaner for small firms than for mid-sized firms.

VI.B.iv. Discussion of Pre-Effects

We estimate that PPP loans have statistically significant and meaningful effects on UI claims – before the first PPP loan is approved. This observation casts fundamental doubt on our results. *Post hoc ergo propter hoc* is a fallacy; *pre hoc ergo propter hoc* is nonsense.

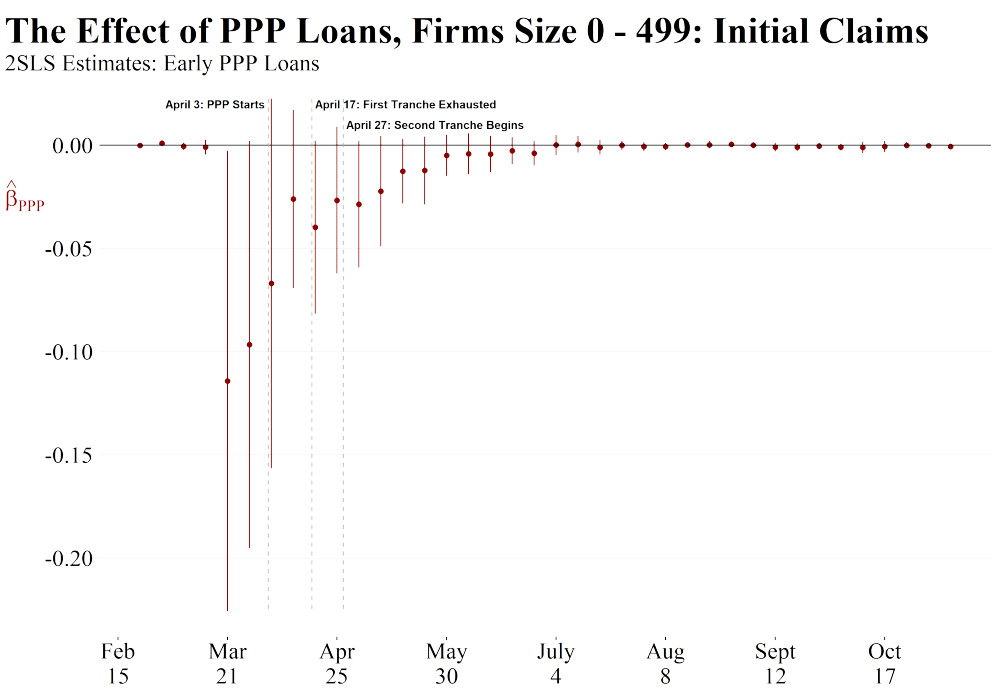
What could explain these estimated pre-effects? If workers exhibited anticipatory behavior, then we could satisfy our hypothesis while observing the 'inverted' causal timeline. However, we view that as exceedingly unlikely. It would require workers to accurately forecast the probability that their firm would receive an early PPP loan, then refrain from applying for UI benefits as a result. Alternately, firms could forecast this likelihood and refrain from laying off their workers, though we also view this as unlikely. More realistically, we should be worried that pre-effects are evidence of bias. If counties with high and low community bank shares differ in ways correlated with early-pandemic UI claims (and not accounted for in our specifications), then our estimated effects would be spurious.

However, there is a mechanism that brings our core results back into alignment with the principles of temporal cause and effect. That mechanism lies within the UI claims process, and we show how post-PPP actions affect pre-PPP approved UI claims data. Further, this mechanism was prevalent in the UI claims process in March and April 2020.

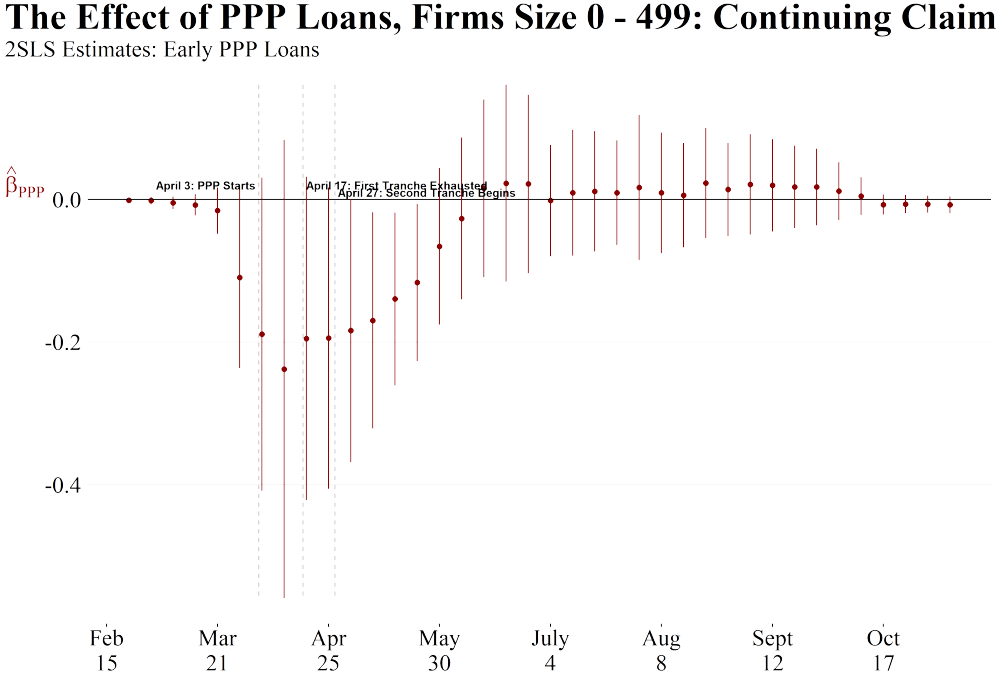
Crucially, *approved* UI claims are the dependent variable in all of section VI.B's estimated regressions. Approved UI claims are distinct from filed UI claims. Filed claims are relatively simple: if a worker (or employer) files a claim, then we observe a filed claim.[31] In contrast, an approved UI claim is observed only when all the following are satisfied: (a) a claim is filed, (b) the state UI office determines the claim is valid, (c) the employer does not appeal the claim (or that appeal fails), and (d) the worker does not rescind the claim prior to final approval. The observation of an approved UI claim is conditional on subsequent events.

We illustrate the sequence of events involved in an initial UI claim in Figure IX. Note: the date attached to an approved claim reflects the actual week of unemployment being claimed – not when the claim was filed, nor when the claim was finally approved. As a result, an observed approved claim which compensates a worker for the week of March 21, 2020 depends on actions and decisions that come later – potentially much later. In the example, the firm lays off a worker on Tuesday, March 17. The worker files an initial UI claim a week later, on March 24. The state then reviews the claim, eventually approving it on April 8. Since the worker filed the claim on March 24, we observe a filed UI claim with an observed date of March 28 (UI claims are always dated to

[31] Employers may file claims on behalf of their workers in certain cases.



(a) Initial UI Claims, Firms Sized 0-499

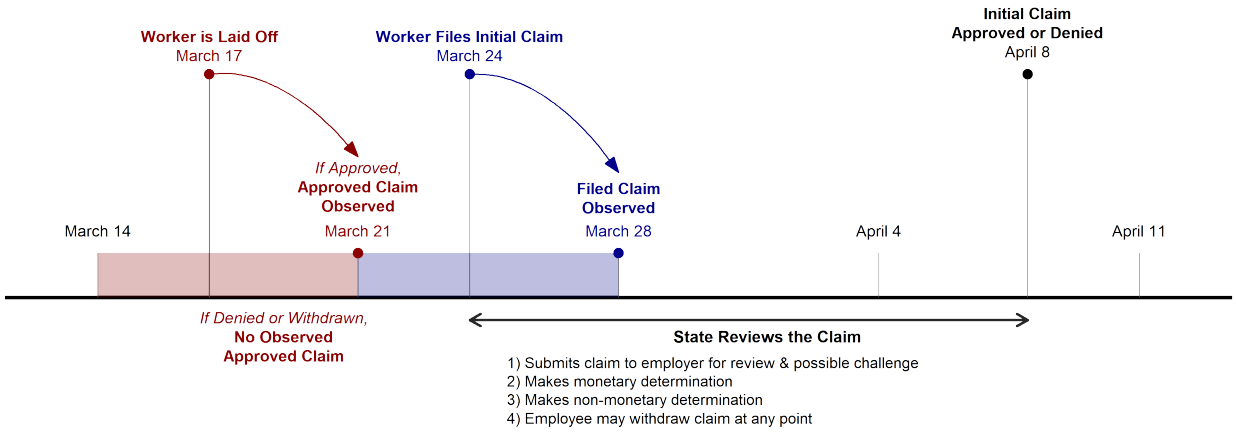


(b) Continuing UI Claims, Firms Sized 0-499

Figure VIII

IV estimates of the effect of PPP penetration as of April 11^{th} on employment outcomes at firms sized 0-499. Full results reported in Appendix Appendix F and the online appendix.

Saturdays). We also observe an approved UI claim dated March 21 - though this is only observed because the state approved the claim weeks later. Had the state denied the claim (or if it were challenged/withdrawn), only the filed claim would have been observed.



Claims are observed on a weekly basis.
Observed dates are always Saturdays, which is the last day of a claims week.

Figure IX
Example Timeline of a UI Claim.

We can directly test whether our proposed mechanism appears in the data, since we observe both filed and approved initial claims for a subset of counties. Keep in mind that filed claims and approved claims are not directly comparable in a given week: a claim may be 'approved' for some week, but filed two weeks later. Therefore, we calculate ϕ_c as the ratio of approved:filed initial claims in county c over a longer time period than just the weeks in question. The metric is the sum of all approved initial claims over a given period (for workers from firms of all sizes, a data limitation) divided by the sum of all initial claims over a given period, i.e.

$$\frac{\sum_{\mathcal{T}} (ApprovedClaims)_c}{\sum_{\mathcal{T}} (FiledClaims)_c}$$

Where we consider a number of different time periods, $\mathcal{T}$. If our proposed mechanism is in the data, it would manifest itself as a negative correlation between our instrument and this metric.[32] In other words, the stronger the early PPP exposure, the lower the fraction of filed initial claims that end up approved. In our primary regression, where $\mathcal{T}$ encompasses the weeks ending February 29

[32] In practice, we also include state fixed effects in the regression, so as not to compare results from different state UI offices.

through May 2, the estimated coefficient is -0.258 (p = 0.007), suggesting that a 10 percentage point increase in community bank share was associated with a 2.6 percentage point decrease in the ratio of filed:approved claims.[33] As a placebo, we repeat the exercise during a period when we expect no effect, $\mathcal{T}$ encompassing the weeks ending August 8 (when the program ended) through October 31. There, the estimated coefficient is -0.015 (p = 0.102), meaning we detect no statistically significant effect post-PPP, as expected.[34]

We further use filed and approved initial claims to revisit the challenge to identification. Recall that the SBA approved the first PPP loan on April 3, 2020. Meanwhile, our estimates imply that early PPP loans first suppressed initial UI claims during the week ending March 21 – reflecting unemployment dating back to the preceding Monday (the 16th). Moreover, the weeks ending on March 21, March 28, and April 4, 2020 feature the largest point estimates for initial claims. Estimates for these three weeks are the focus of this section.

While approved UI claims are conditional on subsequent actions, filed UI claims are not. If an early PPP recipient re-hires its employees quickly after they are laid off, it is significantly more likely that the initial UI claim will either be canceled by the employee or appealed by the employer. This would reduce the number of approved claims, while leaving filed claims unaffected. Therefore, we test our claim by replicating our core regressions, using filed initial claims as a dependent variable.

The filed initial UI claims data come from Chetty et al. (Forthcoming, 2024), who collected these data and kindly shared them for public use. There are two important differences to highlight between our approved claims data and these filed claims data. First, the approved claims data is observed at the (county x week x establishment size bin) level, while the filed claims data is observed at the (county x week) level. Second, the approved initial claims data has a consistent set of 2,643 counties in its panel, while the filed initial claims data reaches 1,134 counties per week at most.

Of these two differences, the level of observation requires more consideration. To compare like regressions, we aggregate the approved claims data up to the (county x week) level. However, aggregation means the outcome variables now reflect population bases that are partly ineligible for PPP support, requiring an adjustment to make these coefficients comparable to our primary estimates. To make that adjustment, consider this simple model of an economy with small and large firms (indexed by $j \in \{\omega, \Omega\}$).

Total unemployment claims in each county, c, at time, t, are simply the sum of unemployment claims from small and large firms:

[33] If we consider the tight timeframe of February 29 - April 4, then the coefficient is -0.423 (p = 0.016).

[34] The results are nearly identical if we consider earlier timeframes. For example, when $\mathcal{T}$ encompasses the weeks ending July 4 through October 31, the estimate is also -0.015 (p = 0.094).

$$Y_{ct} = Y_{\omega ct} + Y_{\Omega ct} \tag{3}$$

Define $\alpha_{\omega c}$ as the small firms' share of covered employment in county c, and $\alpha_{\Omega c} = (1 - \alpha_{\omega c})$. These shares are not dependent on t, since covered employment is deliberately fixed to pre-pandemic levels. Then, use y_{ct} to denote the overall county insured unemployment rate (IUR), with

$$y_{ct} = \alpha_{\omega c} y_{\omega ct} + (1 - \alpha_{\omega c})\, y_{\Omega ct} \tag{4}$$

For simplicity, consider a simple linear model for the claims rate at small and large firms:

$$y_{\omega ct} = \beta_{0,\omega s(c)t} + \beta_{1,\omega t} PPP_{ct'} + X'_{ct}\beta_{2,t} + \epsilon_{\omega ct} \tag{5}$$

$$y_{\Omega ct} = \beta_{0,\Omega s(c)t} + X'_{ct}\beta_{2,t} + \epsilon_{\Omega ct} \tag{6}$$

We assume that PPP loans have no effect on larger firms, thereby ruling out general equilibrium effects. Though we rule them out, we argue that PPP loans functioned as aggregate demand stimulus, which would lead general equilibrium effects to be strongly positive for employment. The additional labor income, continuing rent payments, reduction in canceled orders, and other small business expenditures should strongly outweigh any crowding out in employment. We have also assumed that covariates have equal effects on small and large-firm IURs, which is a practical limitation of using all-claims data.

Returning from the aside on general equilibrium, we then plug the above linear models into Equation 4, we get

$$y_{ct} = \beta_{0,\Omega s(c)t} + \alpha_{\omega c}\left(\beta_{0,\omega s(c)t} - \beta_{0,\Omega s(c)t}\right) + \beta_{1,t}\alpha_{\omega c} PPP_{ct'} + X'_{ct}\beta_{2,t} + \left(\alpha_{\omega c}\epsilon_{\omega ct} + \alpha_{\Omega c}\epsilon_{\Omega ct}\right). \tag{7}$$

We instrument for PPP using county-level community bank deposit share, in the same way as our primary specifications. In practice, this is the primary specification's second stage regression with two modifications. It adds $\alpha_{\omega c}$ as a covariate and as an interaction term for $PPP_{ct'}$. The results for this regression are shown in Figure X, with filed and approved claims estimated separately. We highlight the weeks ending March 21, March 28, and April 4, which are the weeks when pre-effects are a primary concern.

The standard errors for filed claims are relatively large, in part due to a smaller sample size. However, when we pool the claims from these three weeks, we get more precise estimates (see Table IV). Nonetheless, it is apparent that the disconcerting pre-trends are entirely absent from filed claims data, as we require. The *filed* initial UI claims estimates reach their nadir during the week ending March 21, with a coefficient estimate of -0.074 (p = 0.34). The two following weeks show positive estimates: 0.119 (p = 0.49) and 0.0.067 (p = 0.65) for March 28 and April 4, respectively. In contrast, the approved initial claims regression shows consistently negative effects. Chronologically, the three weeks of concern have estimates of {-0.117, -0.058, -0.056}, with corresponding p-values of {0.005, 0.404, 0.277}. When pooled, filed initial claims in these weeks carry a point estimate of 0.014 (p = 0.842) and approved initial claims carry a point estimate of -0.077 (p = 0.036).

We also note that filed initial claims seem to spike in the weeks following April 4. Though the standard errors are rather large, this still might be disconcerting - nothing in our theory predicts a correlation between filed initial claims and community bank shares, nor do we have an institutional explanation for why this might be the case. To investigate the effects over those weeks of spiking filed claims, we pool claims in the three weeks ending April 11, April 18, and April 25. Somewhat reassuringly, we find that the coefficient estimate remains statistically insignificant in the pooled regression (estimate = 0.104, p = 0.390). Tables A.3 and A.4 offer full results and details on the pooled regressions for filed initial UI claims.

TABLE IV
Regression Coefficients for Pooled Initial UI Claims

	Weeks ending 2020-03-21 - 2020-04-04	
	Filed Claims	**Approved Claims**
Point Estimate	0.014	-0.077**
Standard Error	(0.074)	(0.035)
	Weeks ending 2020-04-11 - 2020-04-25	
	Filed Claims	**Approved Claims**
Point Estimate	0.104	-0.033*
Standard Error	(0.074)	(0.019)

*, ** represent significance at the 10% at 5% level, respectively. Both regressions involve pooling three weeks of data together, and include state-by-week FE. Filed claims regressions are fully reported in Tables A.3 and A.4. See footnote to those tables for details on the regression and its covariates. Regressions for approved claims have similar adjustments, and are estimated to match concepts as closely as possible.

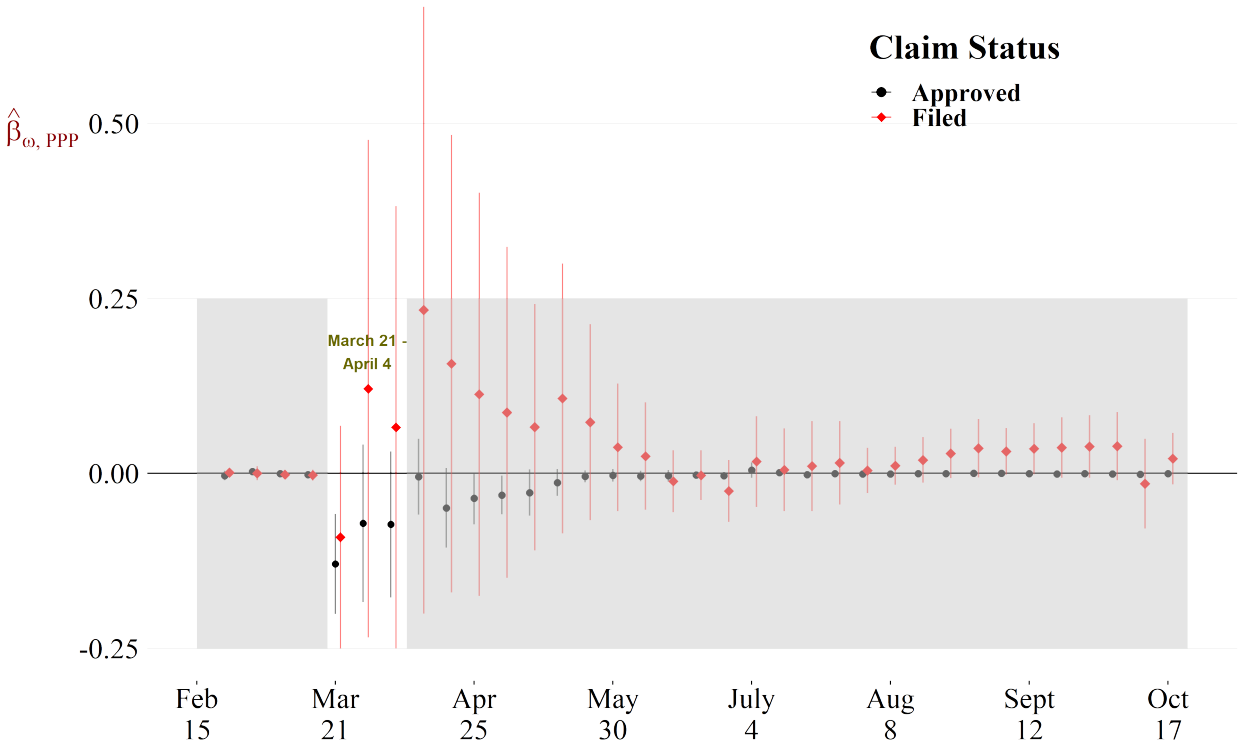


Figure X

Large and statistically significant effects between March 21 – April 4 are present in regressions with approved claims. Those weeks have no significant effects in regressions with filed claims.

VI.B.v. Small Business Revenue and Industry Index as Controls

As a robustness check, we repeat our primary exercise with an additional regressor measuring small business revenues. The county-level revenue data are from Womply, collected and publicly shared by Chetty et al. (Forthcoming, 2024). Covid brought a profound, dynamic, and heterogeneous economic shock, which naturally raises concerns about a host of unobservables. This exercise is intended to address a broad range of potential endogeneity concerns. While revenues should be a function of the loans *following* approval, that relationship should not hold prior to loan approval. For example, if April 11 PPP loans have a positive and significant effects of on March 21 revenues, then we may be concerned that our estimates reflect the effects of relatively weaker Covid rather than the loans themselves.

Specifically, we include the average change in revenue over the three weeks ending April 4, 2020. We do not include contemporaneous revenues, since those are an outcome of PPP loan approval

once the program debuted. The additional regressor should help to control for differences in the early (pre-PPP) Covid economic shocks. This would be particularly important if the impact and persistence of the initial shock was time-dependent.

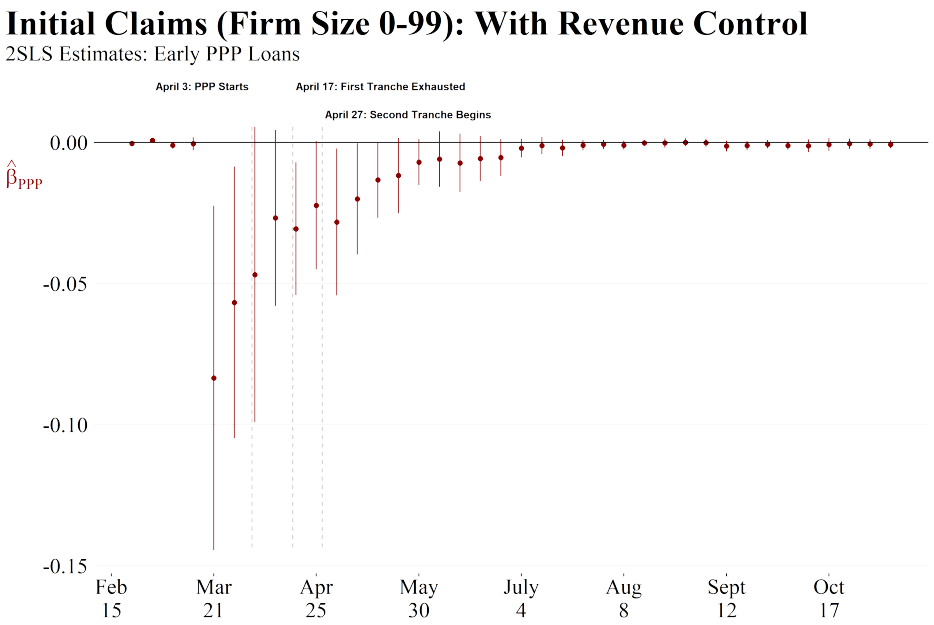
Shown in Figure XI, the estimates from these regressions - with both initial and continuing claims as outcome variables - illustrate that the main result is robust to controlling for pre-PPP revenue changes. The estimates follow the same pattern, with a small decrease in magnitudes. For example, the small firms continuing claims estimate for the week ending April 11 falls from 0.25 to 0.19. Though the Anderson-Rubin p-values drift up somewhat, this is primarily due to the roughly one-third reduction in sample size necessitated by the inclusion of Womply data. In our primary exercise, that week's sample has 2,338 counties, compared to 1,486 counties when including Womply data.

In a second robustness check, we also include an county-level industry index as a control. However, the inclusion of this covariate demands careful consideration, which we offer in appendix Appendix B. In the appendix, we show heavy job losses in Accomodation and Food Services during the first months of the pandemic, leading us to develop an industry-based model of job-losses. We show that both excluding and including the industry index in our primary regression can introduce bias. We conduct a regression based on the industry-based model of job losses, and the results are consistent with our main conclusions regarding the jobs saved by PPP. The considerations around industry controls are crucial to interpreting the estimates in column (5) of our regression tables (eg. table III), which on their face show meaningful differences relative to our primary specifications in column (4).

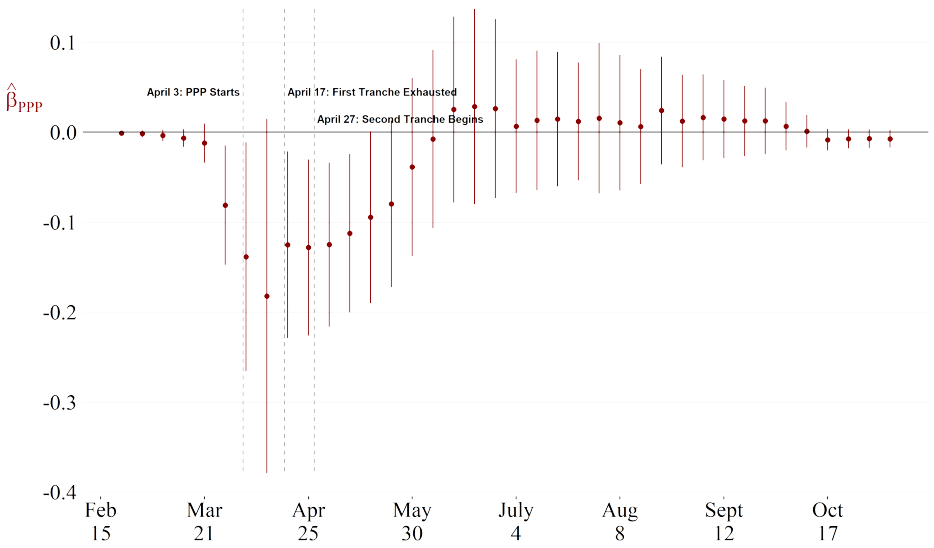
VI.B.vi. Social Welfare

From a social welfare maximization perspective, we should consider three points when evaluating the no-PPP counterfactual. First, as we and others document, state-based unemployment insurance systems were not prepared to handle the realized spike in claims, let alone the volume of claims that would have resulted absent PPP. This would have resulted in further extending the substantial delays in making payments that occurred. Second, PPP helped to stem business closures that would have lengthened UI spells and would have made it significantly harder for workers to return to employment.[35] Had the employee-employer relationships been broken, the costly, time-intensive, and uncertain matching process would have significantly slowed the economic recovery. Clearly, this is an important effect but given the nearly uniform coverage of PPP, evaluating these long-term benefits is beyond the scope of this paper. Third, putting workers on UI rather than PPP would likely have led to losses of health insurance coverage during a fast-moving public health crisis, since

[35]The literature on the effects of long-run unemployment that comes with such closures is vast (for instance, Jacobson, LaLonde, and Sullivan (1993), Davis and von Wachter (2012)).



(a) Initial UI Claims, Firms Sized 0-99



(b) Continuing UI Claims, Firms Sized 0-99, with added Revenue Control

Figure XI

IV estimates of the effect of PPP penetration as of April 11^{th} on employment outcomes at firms sized 0-499. 95% confidence bands shown. Regressions include control variables as described in Equation 2, in addition to the change in county-level small business revenue, January 2019 - (three-week average of March 21 - April 4, 2020). Data on small business revenues from Womply, as calculated, seasonally adjusted, and furnished by Chetty et al. (Forthcoming, 2024).

most Americans still receive health insurance via employer-sponsored plans.[36] Accordingly, the objective of the CARES Act was to economically facilitate compliance with temporary stay-at-home orders, as the public health establishment indicated that temporary work stoppages would "flatten the curve."

As Government Accountibility Office (2022) discusses, the state-based unemployment system struggled to handle the volume of claims submitted during the pandemic. Navarrete (2023) documents that in states where the UI system is COBOL based, the delays were significantly longer than those with a more modern computer language. Estimating the potential welfare losses that would have occurred absent PPP requires knowing how much longer delays in receiving UI payments would have been if the jobs PPP saved would have instead resulted in UI claims. We therefore gathered data from 2007 to the present on the payments for initial UI claims that were delayed. Prior to the pandemic, including during the Great Financial Crisis, in only one month did the percentage of initial claims that were delayed five weeks or more exceed ten percent (March 2014 had 11% of the payments be for claims filed in excess of five weeks earlier). Of the initial claims first paid in May 2020, 21% of them represented claims that were at least five weeks old. For June 2020, 38% of the paid initial claims were at least five weeks old. This delay percentage did not dip below 30% until November 2020.

We run univariate regressions of delayed UI payments on initial UI claims. Specifically, delayed UI payments are defined as payments more than five weeks since the first compensable week. They are measured by state, expressed as a fraction of pre-pandemic covered employment, and cover all payments initiated between May 2020 and October 2020. Initial UI claims are also measured by state, also expressed as a fraction of pre-pandemic covered employment, and cover all claims filed between March 2020 and May 2020. We estimate that for every ten percentage point increase in initial UI claims, there is a 1.7 percentage point increase in the fraction of pre-pandemic employed people receiving a late initial UI payment. Such a result suggests that states facing abnormally higher UI claims saw significantly greater delays in the processing of new UI claims. This evidence supports the contention that absent PPP, an even larger fraction of households would have suffered a multi-month loss of income. There are likely important non-linearities in delays and when we estimate this same regression using a 4th order polynomial, we find minimal difference going from UI claims of ten percent to twenty percent but when going from twenty to thirty percent, delays increase by a factor of almost 2.5. Projected across the US population, that represents an additional four million initial UI claim filings that would be delayed at least five weeks.

Putting aside the potential for further delays in UI processing and payments, UI was also an expensive proposition for the federal and state governments in 2020. With an additional $600/week

[36] While many job losers would have sought out Affordable Care Act plans while on UI or paid high COBRA premiums, there is no guarantee that all would have done so, and there would have been gaps between when some lost employer-sponsored coverage and when they gained ACA coverage.

Federal Pandemic Unemployment Compensation (FPUC) payment on top of the Q2 2020 average base UI payment of $319[37], a worker on UI for the 17 weeks of FPUC (April 4 - July 31) would have collected $15,617. If the estimated 14.0 million jobs saved by PPP loans had instead been 14.0 million additional workers collecting 17 weeks of UI payments, this would have cost federal and state governments an additional $218 billion dollars. Given the long length of UI spells over this period, we consider 17 weeks to be a relatively conservative assumption. The total number of weeks compensated in Q3 2020 was 166.7 million, down from Q2 2020's 207.9 million. Workers were not coming off the rolls *en masse* at the end of July 2020, and therefore would have likely had to have been compensated for more weeks of unemployment. Given the potential cost of the alternative-both in dollars and in additional UI wait time-PPP appears to be a relatively strong option from a social welfare perspective.

VII. Conclusion

We estimate the employment effects of PPP loans, finding significantly more job preservation than the extant literature. To do so, we leverage heterogeneity in local banking markets to identify exogenous differences between early loan recipients and later loan recipients. We find strong evidence that early PPP loan receipt led to superior labor market outcomes. As PPP loans achieved near-total saturation across the country, those advantages faded, a dynamic consistent with our hypothesis.

Our unique UI data, with observations at the (county x week x firm-size) level permits a finer firm-size disambiguation of PPP's effects than has been achieved to this point in the literature. We establish that coarser measures of outcomes will attenuate estimates, which emphasizes the importance of these more granular data.

PPP's effects were strongest for the smallest firms, who were the most vulnerable to the financial shock of COVID closures. In total, we estimate that PPP loans saved 10.9 million jobs at firms sized 0-99, thereby alleviating pressure on aging unemployment insurance systems that were not designed to handle the scale of layoffs the pandemic would have brought absent PPP. The empirical focus on the smallest firms is of first-order importance, since nearly 70% of all PPP dollars flowed to those companies, and preserving employment at these smaller companies was the primary goal of PPP. These findings are consistent with previous literature documenting that smaller firms are more likely to face financial constraints and be less resilient during economic shocks.

We also estimate the total number of jobs saved at all firms employing 0-499 workers. We estimate that PPP saved 14.0 million jobs in total – yielding an average cost between $33,200 and $37,600 per job.

[37]Source: Employment and Training Administration Unemployment Insurance Data

References

Andrews, Isaiah, James H. Stock, and Liyang Sun. 2019. "Weak Instruments in IV Regression: Theory and Practice." *Annual Review of Economics* .

Autor, David, David Cho, Leland Crane, Mita Goldar, Byron Lutz, Joshua Montes, William Peterman, David Ratner, Daniel Villar, and Ahu Yildirmaz. 2022a. "An Evaluation of the Paycheck Protection Program Using Administrative Payroll Microdata." *Journal of Public Economics* 211:104664.

Autor, David, David Cho, Leland D. Crane, Mita Goldar, Byron Lutz, Joshua Montes, William B. Peterman, David Ratner, Daniel Villar, and Ahu Yildirmaz. 2022b. "The $800 Billion Paycheck Protection Program: Where Did the Money Go and Why Did It Go There?" *Journal of Economic Perspectives* 36 (2):55–80.

Barlett, Robert P. and Adair Morse. 2021. "Small Business Survival Capabilities and Policy Effectiveness: Evidence from Oakland." *Journal of Financial and Quantitative Analysis* 56 (7):2500–2544.

Barraza, Santiago, Martín Rossi, and Timothy J. Yeager. 2020. "The Short-Term Effect of the Paycheck Protection Program on Unemployment." *Working Paper* .

Barrero, Jose Maria, Nicholas Bloom, and Steven J. Davis. 2020. "COVID-19 Is Also a Reallocation Shock." *Brookings Papers on Economic Activity* :329 – 371.

Bartik, Alexander, Marianne Bertrand, Zoë B. Cullen, Edward L. Glaeser, Michael Luca, and Christopher Stanton. 2020a. "How Are Small Businesses Adjusting to COVID-19? Early Evidence From a Survey." *NBER Working Paper No. 26989* .

———. 2020b. "The Impact of COVID-19 on Small Business Outcomes and Expectations." *Proceedings of the National Academy of Sciences* 117:202006991.

Bartik, Alexander W., Zoë B. Cullen, Edward L. Glaeser, Michael Luca, Christopher Stanton, and Adi Sunderam. 2020c. "The Targeting and Impact of Paycheck Protection Program Loans to Small Businesses." *NBER Working Paper 27623* .

Cajner, Tomaz, Andrew Figura, Brendan M. Price, David Ratner, and Alison Weingarden. 2020. "Reconciling Unemployment Claims with Job Losses in the First Months of the COVID-19 Crisis." *Finance and Economics Discussion Series 2020-055. Washington: Board of Governors of the Federal Reserve System* .

Chetty, Raj, John N. Friedman, Nathaniel Hendren, Michael Stepner, and The Opportunity Insights Team. Forthcoming, 2024. "The Economic Impacts of COVID-19: Evidence from a New Public Database Built Using Private Sector Data." *Quarterly Journal of Economics* .

Chodorow-Reich, Gabriel. 2014. "The Employment Effects of Credit Market Disruptions: Firm-level Evidence from the 2008-09 Financial Crisis." *Quarterly Journal of Economics* 129 (1):1–59.

Chodorow-Reich, Gabriel, Olivier Darmouni, Stephan Luck, and Matthew Plosser. 2022. "Bank Liquidity Provision Across the Firm Size Distribution." *Journal of Financial Economics* 144 (3):908–932.

Cohen, Patricia. 2020. "Another 2.4 Million Jobs Vanish, And Many May Be Gone Forever." *New York Times, Print Edition* URL https://www.nytimes.com/2020/05/21/business/economy/coronavirus-unemployment-claims.html.

Cole, Allison. 2024. "The Impact of the Paycheck Protection Program on Really Small Businesses." *Working Paper* .

Council of Economic Advisers. 2020. "Tracking Chapter 7 and Chapter 11 Bankruptcies." *Economic Issue Brief* .

Coy, Peter. 2020. "Bankruptcy Decline Surprises Goldman Chief Economist Mericle." *Bloomberg Businessweek* .

Dalton, Michael. 2023. "Putting the Paycheck Protection Program into Perspective: An Analysis Using Administrative and Survey Data." *National Tax Journal* 76 (2):393–437.

Davis, Steven J. and Till von Wachter. 2012. "Recessions and the Costs of Job Loss." *Brookings Papers on Economic Activity* .

Denes, Matthew, Spyridon Lagaras, and Margarita Tsoutsoura. 2021. "First Come, First Served: The Timing of Government Support and Its Impact on Firms." *Working Paper* .

Doniger, Cynthia and Benjamin Kay. 2023. "Long-Lived Employment Effects of Delays in Emergency Financing for Small Business." *Journal of Monetary Economics* 140.

Duygan-Bump, Burcu, Alexey Levkov, and Judit Montoriol-Garriga. 2015. "Financing Constraints and Unemployment: Evidence from the Great Recession." *Journal of Monetary Economics* 75:89–105.

Ekvall, Lei Lei Wang and Timothy Evanston. 2020. "The Small Business Reorganization Act: Big Changes for Small Businesses." *ABA Business Law Today* URL https://www.americanbar.org/groups/business_law/publications/blt/2020/02/small-business-reorg/.

Farrell, Diana and Chris Wheat. 2016. "Cash is King: Flows, Balances, and Buffer Days. Evidence from 600,000 Small Businesses." *JP Morgan Chase Research Institute Discussion Paper* URL https://institute.jpmorganchase.com/content/dam/jpmc/jpmorgan-chase-and-co/institute/pdf/jpmc-institute-small-business-report.pdf.

Federal Reserve Banks of New York, Atlanta, Cleveland, and Philadelphia. 2014. "Joint Small Business Credit Survey Report." URL https://www.newyorkfed.org/medialibrary/media/smallbusiness/SBCS-2014-Report.pdf.

Fox, Zach, Benjamin Yung, Ali Shayan Sikander, and Brian Scheid. 2020. "As virus crisis persists, PPP recipients lay off thousands." *Standard and Poors Market Intelligence* URL https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/as-virus-crisis-persists-ppp-recipients-lay-off-thousands-59602815.

Government Accountibility Office. 2022. "Unemployment Insurance: Transformation Needed to Address Program Design, Infrastructure, and Integrity Risks." *GAO-22-105162* .

Granja, João, Christos Makridis, Constantine Yannelis, and Eric Zwick. 2022. "Did the Paycheck Protection Program Hit the Target?" *Journal of Financial Economics* 145 (3):725–761.

Haggerty, Neil. 2020. "Did Banks Play Favorites in PPP or Were They Just Being Prudent?" *American Banker* .

Hubbard, Glenn and Michael R. Strain. 2020. "Has the Paycheck Protection Program Succeeded?" *Brookings Papers on Economic Activity* 51 (3):335–390.

Humphries, John Eric, Christopher A. Neilson, and Gabriel Ulyssea. 2020. "Information Frictions and Access to the Paycheck Protection Program." *Journal of Public Economics* 190:104244.

Irwin, Neil. 2020. "Despite Loans, Many Small Businesses Won't Survive." *New York Times, Print Edition* URL https://www.nytimes.com/2020/05/21/upshot/virus-small-business-closures.html.

Jacobson, Louis S., Robert J. LaLonde, and Daniel G. Sullivan. 1993. "Earnings Losses of Displaced Workers." *The American Economic Review* 83 (4):685–709.

Joaquim, Gustavo and Felipe Netto. 2021. "Bank Incentives and the Effect of the Paycheck Protection Program." *FRB of Boston Working Paper* .

———. 2024. "Optimal Allocation of Relief Funds: The Case of the Paycheck Protection Program." *Working Paper* .

Joaquim, Gustavo and J. Christina Wang. 2023. "What Do 25 Million Records of Small Businesses Say About the Effects of the PPP?" *FRB of Boston Working Paper* .

Kleibergen, Frank and Richard Paap. 2006. "Generalized Reduced Rank Tests Using the Singular Value Decomposition." *Journal of Econometrics* 133 (1):97–126.

Li, Lei and Philip E. Strahan. 2021. "Who Supplies PPP Loans and Does It Matter? Banks, Relationships, and the COVID Crisis." *Journal of Financial and Quantitative Analysis* 56 (7):2411–2438.

Liu, Haoyang and Desi Volker. 2020. "Where Have the Paycheck Protection Loans Gone So Far?." *New York Federal Reserve* URL https://libertystreeteconomics.newyorkfed.org/2020/05/where-have-the-paycheck-protection-loans-gone-so-far.html.

Lopez, Jose and Mark Spiegel. 2023. "Small Business Lending under the PPP and PPPLF Programs." *Journal of Financial Intermediation* 53:101017.

Merker, Vivian. 2020. "PPP is a Compliance Minefield for Banks." *American Banker* .

Moreira, Marcelo J. 2009. "Tests with Correct Size When Instruments Can Be Arbitrarily Weak." *Journal of Econometrics* 152 (2):131–140.

Olea, José Luis Montiel and Carolin Pflueger. 2013. "A Robust Test for Weak Instruments." *Journal of Business & Economic Statistics* 31 (3):358 – 369.

Petersen, Mitchell A. and Raghuram G. Rajan. 1997. "Trade Credit: Theories and Evidence." *The Review of Financial Studies* 10 (3):661–691.

Rubio, Marco. 2020. "Rubio Sends Letters to Large Banks Participating in the Paycheck Protection Program." *Press Release* URL https://www.rubio.senate.gov/public/index.cfm/2020/4/rubio-sends-letters-to-large-banks-participating-in-the-paycheck-protection-program.

Ruhle, Stephanie, Leticia Miranda, and Michael Capetta. 2020. "PPP likely saved 35 million jobs, says JP Morgan CEO Jamie Dimon." *NBC News* URL https://www.nbcnews.com/business/economy/ppp-likely-saved-35-million-jobs-says-jpmorgan-chase-ceo-n1236341.

Siemer, Michael. 2019. "Employment Effects of Financial Constraints during the Great Recession." *The Review of Economics and Statistics* 101 (1):16–29.

Splinter, David, Eric Heiser, Michael Love, and Jacob Mortenson. 2024. "The Paycheck Protection Program: Progressivity and Tax Effects." *Working Paper* .

Staples, Aaron J. and Thomas P. Krumel. 2023. "The Paycheck Protection Program and Small Business Performance: Evidence from Craft Breweries." *Small Business Economics* 61 (3):931–956.

Summers, Larry H. 2008. "Fiscal Stimulus Issues." *Testimony Before the Joint Economic Committee, January 16, 2008* .

Velazquez, Nydia and Maxine Waters. 2020. "Waters and Velazquez Write to Megabank CEOs to Express Strong Concerns About Small Business Access to Paycheck Protection Program." *Press Release* URL https://financialservices.house.gov/news/documentsingle.aspx?DocumentID=406496.

Wright, Philip G. 1928. *The Tariff on Animal and Vegetable Oils*. New York, NY: MacMillan.

Appendix A: Additional Figures

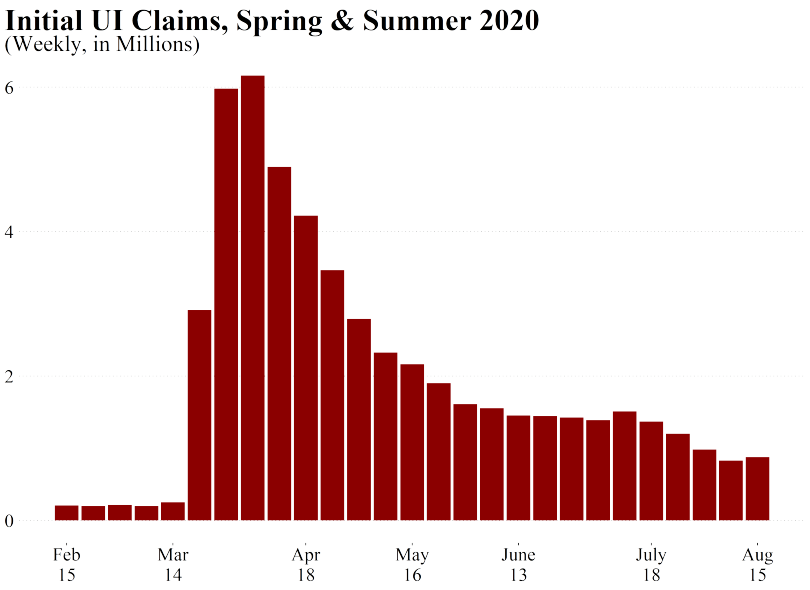


Figure XII
Filed initial UI claims per week, not seasonally adjusted.

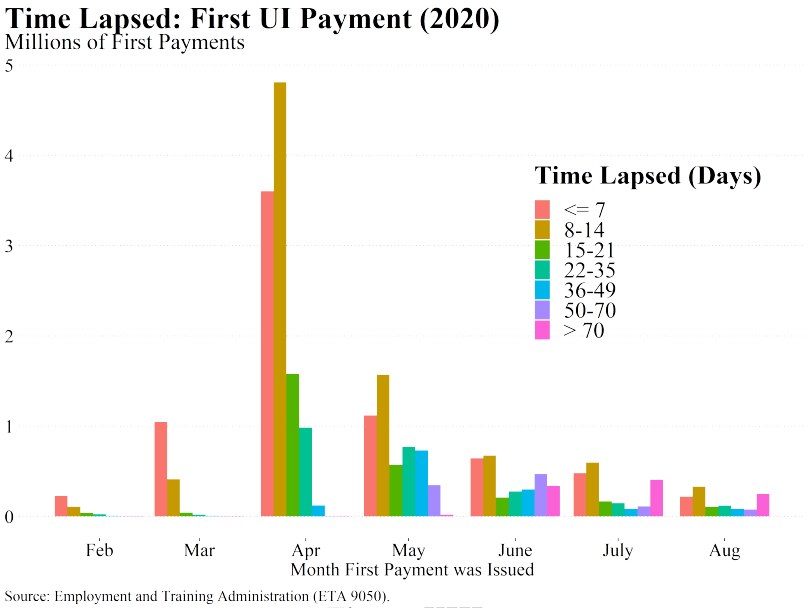


Figure XIII
Distribution of the time lapsed between initial claim filing and claim payment, by month of payment.

Appendix B: Industry Shares as a Covariate

Industry strongly affected the probability of job loss in March and April 2020 (see figure XIV). The Leisure and Hospitality industry stood at one end of the spectrum, losing 48% of all payroll jobs from February through April 2020, according to BLS' Current Employment Statistics. On the other end was the Utilities industry, which only shed 1% of its jobs. Based on this heterogeneity, it would seem important to control for industry shares in this paper's primary regressions - though there are conceptual complications with its inclusion.

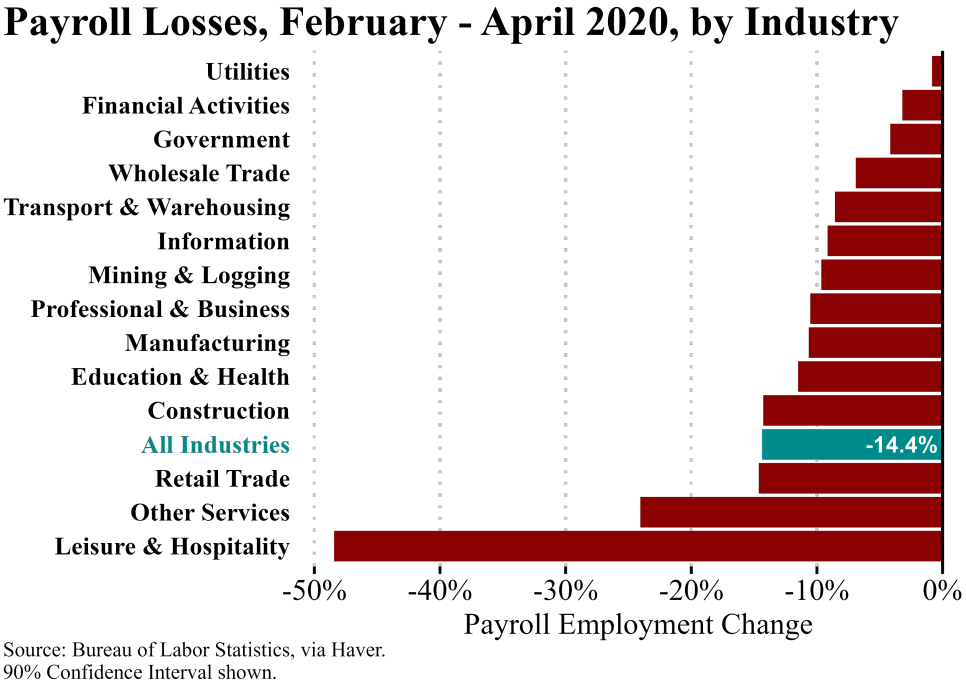


Figure XIV
Nationwide Job Loss by Industry, from February - April 2020, source: Bureau of Labor Statistics' Current Establishment Statistics.

As a robustness check, we include a Bartik-like control for county-level predicted job loss based on pre-pandemic industry shares. Specifically, the control Γ_{cj} is defined as

$$\Gamma_{cj} \equiv \sum_i \lambda_i s_{cji}$$

Where s_{cji} is the share of industry i in county c's small-firm employment at firms in size-bucket j, based on the 2019 Census SUSB. We define λ_i as the nationwide fraction of jobs lost between

February and April 2020 in the 2-digit NAICS industry i.[38] In regression tables, we call Γ_{cj} "Industry Share". More precisely, it is a sort of predicted county-level job loss, on the basis of pre-pandemic industry shares.

The 'predicted county-level job loss' industry index differs from other papers in the literature. In contrast, papers with firm-level microdata typically include industry fixed effects or industry-week fixed effects (e.g. Autor et al. (2022a) or Cole (2024)). Chetty et al. (Forthcoming, 2024), which uses aggregated data similar to this paper, pools all industries but weights its data by industry-level pre-pandemic shares (see that paper's Online Appendix Figure XXVIII). Doniger and Kay (2023) uses pre-pandemic employment shares (by county) in three select industries. Our single measure allows us to account for time-varying employment effects of industry shares across 2-digit NAICS codes without adding 19 extra covariates to each regression.

Including this covariate typically has a substantial impact on the estimated coefficients in our primary regressions. However, the case for including industry shares as a covariate is not as clear-cut as it might seem. To illustrate the relevant considerations, we write a simple model of PPP and heterogeneous job loss probabilities, based on industry. Suppose the data-generating process (DGP) for unemployment is given by

$$\begin{aligned} y_{cjt} &= \left(1 - \xi_{PPP,t} PPP_{cjt'}\right) \left(\sum_i \lambda_i s_{cji}\right) + X'_{cjt}\xi_{1,jt} + \mu_{cjt} \\ &= \Gamma_{cj} - \xi_{PPP,t} PPP_{cjt'}\Gamma_{cj} + X'_{cjt}\xi_{1,jt} + \mu_{cjt} \end{aligned} \tag{8}$$

where y_{cjt} is the insured unemployment rate in county c at time t for firms sized j, and $PPP_{cjt'}$ is the fraction of jobs covered by PPP loans at time t'. In words, baseline county-level unemployment is determined by industry shares, but PPP loans reduce unemployment at rate $\xi_{PPP,t}$. Note that the coefficient on PPP loans, $\xi_{PPP,t}$, differs from the coefficient in the main body of this paper ($\beta_{PPP,t}$). They have different interpretations: the main paper coefficient is simply the effect of PPP loans on unemployment. The coefficient $\xi_{PPP,t}$ is the efficacy of PPP loans in reducing the counterfactual baseline unemployment rate, Γ_{cj}.[39]

If this simple model describes the true data generating process, then - when Γ_{cj} is omitted - the

[38] In practice, we measure λ_i using the employment data from Opportunity Insights for the week ending April 3. This includes four aggregated industries (Leisure & Hospitality, Retail & Transportation, Education & Health Services, and Professional & Business Services) and their residual. We also conduct the regressions below using true 2-digit NAICS code data from BLS' Current Employment Statistics, measuring the decline in payrolls from the week of February 12 - the week of April 12. The differences in results were negligible.

[39] We do not make this our primary specification for a number of reasons, including the endogeneity inherent in the baseline rate, Γ_{cj}.

estimate in our primary regression is, in expectation,

$$\hat{\beta}_{PPP,t} = \frac{Cov\left(\tilde{PPP}_{cjt'}, \tilde{y}_{cjt}\right)}{Var\left(\tilde{PPP}_{cjt'}\right)}$$
$$= \frac{Cov\left(\tilde{PPP}_{cjt'}, \tilde{\Gamma}_{cj}\right)}{Var\left(\tilde{PPP}_{cjt'}\right)} + \xi_{PPP,t}\frac{Cov\left(\tilde{PPP}_{cjt'}, \tilde{PPP_{cjt'} * \Gamma_{cj}}\right)}{Var\left(\tilde{PPP}_{cjt'}\right)}$$

where the tilde operator represents the residuals from a regression of each given variable on the vector of controls, X'_{cjt}. The first term in this expression is classic omitted variable bias. The second term is an attenuated measurement of $\beta_{PPP,t}$, further attenuated if Γ_{cj} is included as a covariate. We deem this an "opportunity effect". In words, if PPP was poorly targeted at first, then this term underestimates the eventual effect of PPP loans once the industry index is included as a regressor. By analogy, suppose that a medicine is effective for sick patients, but in a trial the assignment of treatment is biased towards a healthier population. Then, controlling for pre-trial health appropriately corrects for the assignment bias, however the estimates do not reflect the true effect that the medicine would have in the sickest patients.

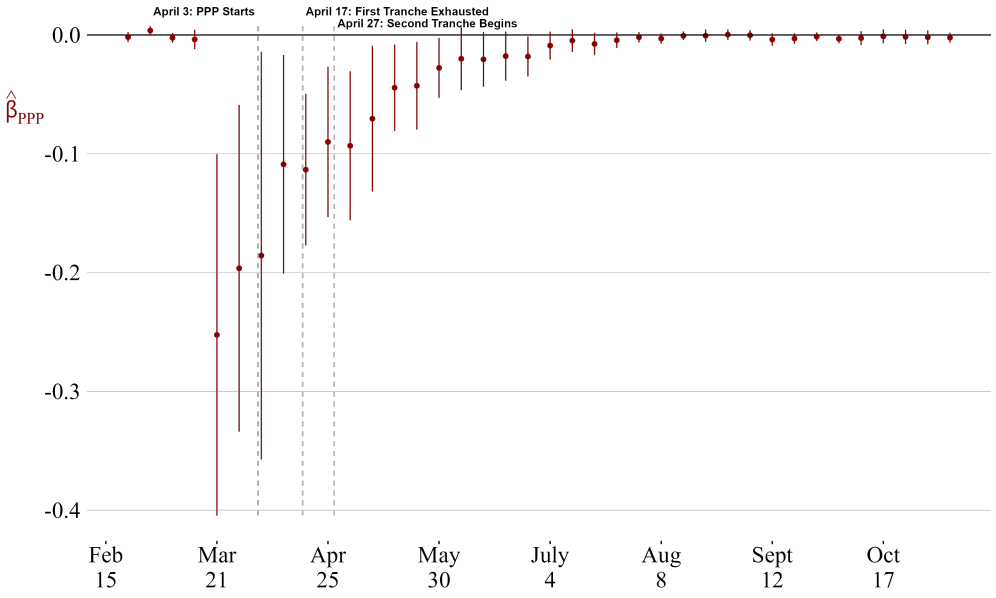
Since we observe or estimate all the terms in equation Appendix B, we can therefore estimate this regression directly. Like in the main paper, we first estimate each week separately and plot the coefficients $\xi_{PPP,t}$ in Figure XV. We also pool key weeks and present regression tables from that pooled cross-section below. For initial claims, we pool the three weeks ending on March 21, March 28, and April 4, 2020, while for continuing claims we pool the three weeks ending April 11, April 18, and April 25, 2020. These estimates are shown in Tables A.1 and A.2.

For the model in equation (8) (column 5), the estimate of $\xi_{PPP,t}$ in the initial claims regression is -0.248 (Anderson-Rubin p-value of 0.006). The estimate of $\xi_{PPP,t}$ in the continuing claims regression is -0.620 (Anderson-Rubin p-value of 0.012). This latter estimate would aggregate to 6.8 million jobs saved at firms sized 0 - 99 upon full roll-out of PPP loans.[40] This result differs from those in the main paper, and we still prefer the headline estimates to the results delivered by this stylized industry index-based model. The industry index-based estimate comes with an implicit assumption that job losses in the counterfactual 'no-PPP' scenario would have reached their maximum extent in the week ending April 3.[41] However, net job losses continued for two weeks after April 3, according to Opportunity Insights data. Further, we consider it likely that job losses would have continued

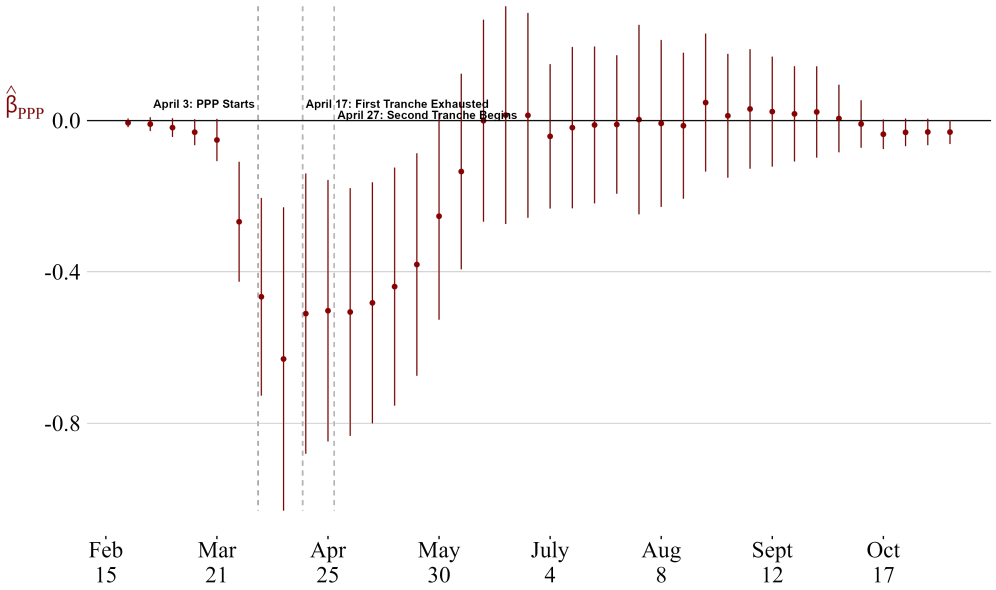
[40] The specific calculation is 0.620 * $\left(\sum_c PPP_{cjt'} * \Gamma_{cj} * Employment_{cj,Pre-Pandemic}\right)$ with j representing firms of 0 - 99 employees.

[41] The week ending April 3 is the week for which we measure industry-level job-loss shares (λ_i), as reported by Opportunity Insights. We choose this week since it is the last week before the shares are directly affected by PPP loans.

into later weeks without PPP, and that some industries which were lesser-hit initially would have increased layoffs once it became clear that the pandemic – and the shelter-in-place orders – would continue longer than initially expected.



(a) Initial UI Claims, Firms Sized 0-99



(b) Continuing UI Claims, Firms Sized 0-99

Figure XV

IV estimates of the effect of PPP penetration as of April 11^{th} on employment outcomes at firms sized 0-499.

TABLE A.1
(Continuing Claims * Industry Index), Firms Size 0-99 (Pooled Regression of First Tranche Weeks)

	(1)	(2)	(3)	(4)	(5)	(6)
(Early PPP Coverage x Industry Index)	-0.665***	-0.713***	-0.500*	-0.590*	-0.620**	-0.466**
	(0.171)	(0.149)	(0.226)	(0.263)	(0.192)	(0.180)
February IUR			1.582***	1.555***	1.402***	1.377***
			(0.187)	(0.216)	(0.164)	(0.165)
Log(Med. Income)			-0.027	-0.018	-0.049**	-0.047**
			(0.014)	(0.020)	(0.015)	(0.014)
Poverty Rate			-0.002*	-0.001	-0.003***	-0.003***
			(0.001)	(0.001)	(0.001)	(0.001)
Log(Pop. Density)			0.006***	0.006*	0.004**	0.004*
			(0.002)	(0.003)	(0.002)	(0.002)
Covid Cases, 1w				-6.386	-5.110*	-5.418*
				(3.495)	(2.315)	(2.585)
Covid Cases, 4w				1.423	1.302	1.435
				(1.563)	(0.917)	(0.956)
Covid Deaths, 1w				1.575	-6.791	-5.691
				(7.619)	(5.801)	(7.124)
Covid Deaths, 4w				1.655	-0.698	-1.601
				(7.907)	(4.384)	(4.523)
WFH Index				-0.093	0.141*	0.133*
				(0.074)	(0.061)	(0.052)
Industry Index					0.853***	0.764***
					(0.130)	(0.112)
March Small-Firm Rev.						-0.027***
						(0.008)
State-by-Week FE	No	Yes	Yes	Yes	Yes	Yes
N	7,081	7,081	7,014	7,011	7,011	4,465
Wald F-Stat	14.8	0.2	19.7	53.9	127.1	146.6
K-P F-Stat	88.4	75.4	16.2	14.4	15.1	14.0
A-R 95% Conf. Set	[-1.008, -0.262]	[-1.062, -0.339]	[-1.119, 0.020]	[-1.458, -0.057]	[-1.234, -0.220]	[-1.034, -0.058]
A-R p-value	0.007	0.008	0.057	0.036	0.012	0.034

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt}\,(PPP_{cjt'} * \Gamma_{cj}) + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage * Industry Index) is the product of (a) the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020 and (b) the predicted number of jobs lost, based on county-level industry composition of small firms. This variable is instrumented by the product of (a) the county-level share of deposit funds in community banks and (b) the same industry index. Details on measurements are covered in the Data section in the main paper and in this section of the appendix. Principal covariates: state, week, and state-by-week fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j nationwide, as of April 3, 2020 (from Opportunity Insights composite employment measure) and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. In this regression, the weeks ending 2020-04-11 through 2020-04-25 are pooled, with the remaining weeks excluded from the data.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.2

Initial Claims, Firms Size 0-99 (Pooled Regression of Covid-Onset Weeks)

	(1)	(2)	(3)	(4)	(5)	(6)
(Early PPP Coverage x Industry Index)	-0.035	-0.272***	-0.234*	-0.245*	-0.248**	-0.193**
	(0.073)	(0.061)	(0.115)	(0.106)	(0.076)	(0.066)
February IUR			3.985***	3.936***	4.366***	4.788***
			(1.112)	(1.029)	(0.743)	(0.684)
Log(Med. Income)			-0.012	-0.006	-0.017***	-0.016***
			(0.006)	(0.007)	(0.005)	(0.004)
Poverty Rate			-0.001**	-0.001	-0.001***	-0.001***
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.001	0.001	0.001	0.000
			(0.001)	(0.001)	(0.001)	(0.001)
Covid Cases, 1w				-0.852	-1.946***	-1.702**
				(0.706)	(0.530)	(0.571)
Covid Cases, 4w				0.551	1.189**	1.093*
				(0.600)	(0.397)	(0.429)
Covid Deaths, 1w				-69.099*	-39.322	-42.068
				(28.751)	(46.333)	(50.133)
Covid Deaths, 4w				43.659*	12.885	14.856
				(19.617)	(33.407)	(36.020)
WFH Index				-0.042	0.059*	0.060**
				(0.032)	(0.025)	(0.021)
Industry Index					0.356***	0.322***
					(0.055)	(0.048)
March Small-Firm Rev.						-0.009***
						(0.003)
State-by-Week FE	No	Yes	Yes	Yes	Yes	Yes
N	7,761	7,761	7,761	7,758	7,758	4,743
Wald F-Stat	0.2	0.1	60.3	15.6	128.2	146.6
K-P F-Stat	102.8	69.6	17.9	18.3	21.2	21.3
A-R 95% Conf. Set	[-0.209, 0.107]	[-0.454, -0.148]	[-0.559, 0.001]	[-0.586, -0.047]	[-0.475, -0.098]	[-0.388, -0.058]
A-R p-value	0.623	0.003	0.051	0.020	0.006	0.014

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} * \Gamma_{cj} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage * Industry Index) is the product of (a) the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020 and (b) the predicted number of jobs lost, based on county-level industry composition of small firms. This variable is instrumented by the product of (a) the county-level share of deposit funds in community banks and (b) the same industry index. Details on measurements are covered in the Data section in the main paper and in this section of the appendix. Principal covariates: state, week, and state-by-week fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j nationwide, as of April 3, 2020 (from Opportunity Insights composite employment measure) and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. In this regression, the weeks ending 2020-03-21 through 2020-04-04 are pooled, with the remaining weeks excluded from the data.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Appendix C: Pooled Regression Results for Filed Initial Claims

TABLE A.3

Initial Claims, Firms Size 0-99 (Pooled Regression of Covid-Onset Weeks)

	(1)	(2)	(3)	(4)	(5)	(6)
Share-Adjusted Early PPP Coverage	0.003	-0.000	0.018	0.014	0.059	0.023
	(0.022)	(0.019)	(0.077)	(0.074)	(0.081)	(0.074)
February IUR			3.196***	2.969***	2.972***	3.040***
			(0.812)	(0.836)	(0.832)	(0.884)
Log(Med. Income)			-0.011*	-0.007	-0.005	-0.007
			(0.005)	(0.007)	(0.007)	(0.007)
Poverty Rate			-0.001*	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.001	0.002	0.002*	0.002
			(0.001)	(0.001)	(0.001)	(0.001)
Eligible Firm Employment Share			-0.008	-0.017	-0.032	-0.017
			(0.023)	(0.026)	(0.029)	(0.027)
Covid Cases, 1w				1.381*	0.737	1.227
				(0.653)	(0.702)	(0.673)
Covid Cases, 4w				-0.475	0.103	-0.315
				(0.631)	(0.728)	(0.661)
Covid Deaths, 1w				1.435	-13.654	-4.697
				(19.312)	(21.764)	(19.515)
Covid Deaths, 4w				-10.226	-5.845	-8.106
				(13.960)	(15.800)	(15.928)
WFH Index				-0.038	-0.027	-0.041
				(0.022)	(0.026)	(0.025)
Industry Index					0.132*	
					(0.062)	
March Small-Firm Rev.						-0.009
						(0.005)
State-by-Week FE	No	Yes	Yes	Yes	Yes	Yes
N	3,982	3,982	3,233	3,233	3,233	2,163
Wald F-Stat	0.0	0.0	17.5	343.0	469.0	527.3
K-P F-Stat	71.1	98.1	6.4	6.2	6.3	5.9
A-R 95% Conf. Set	[-0.048, 0.054]	[-0.038, 0.057]	[-0.128, 0.763]	[-0.146, 0.582]	[-0.105, 0.718]	[-0.144, 0.740]
A-R p-value	0.899	0.997	0.805	0.851	0.430	0.747

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with a filed UI initial claim in the given week. The primary variable of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020, times the small firm share of employment in county c. The adjustment of the primary regressor (relative to the baseline model) is described in section VI.B.iv. The instrument remains the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state, week, and state-by-week fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. We also include county c's small firm employment share as a covariate, for reasons described in section VI.B.iv. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. In this regression, the weeks ending 2020-03-21 through 2020-04-04 are pooled, with the remaining weeks excluded from the data.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.4

Initial Claims, Firms Size 0-99 (Pooled Regression of First Tranche Weeks)

	(1)	(2)	(3)	(4)	(5)	(6)
Share-Adjusted Early PPP Coverage	-0.001	-0.003	0.089	0.104	0.107	0.124
	(0.031)	(0.028)	(0.117)	(0.116)	(0.113)	(0.112)
February IUR			1.822*	1.288	1.286	1.074
			(0.796)	(0.992)	(0.995)	(0.967)
Log(Med. Income)			-0.009	0.003	0.003	0.004
			(0.010)	(0.010)	(0.010)	(0.011)
Poverty Rate			-0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.001)	(0.001)
Log(Pop. Density)			0.002	0.004*	0.004*	0.004*
			(0.001)	(0.002)	(0.002)	(0.002)
Eligible Firm Employment Share			-0.027	-0.047	-0.048	-0.053
			(0.032)	(0.037)	(0.036)	(0.036)
Covid Cases, 1w				-0.183	-0.181	-0.108
				(0.460)	(0.453)	(0.456)
Covid Cases, 4w				0.255	0.261	0.275
				(0.244)	(0.249)	(0.232)
Covid Deaths, 1w				-6.626**	-6.736**	-7.332**
				(2.484)	(2.335)	(2.308)
Covid Deaths, 4w				-1.093	-1.165	-1.397
				(1.643)	(1.677)	(1.534)
WFH Index				-0.066	-0.065	-0.073*
				(0.038)	(0.040)	(0.037)
Industry Index					0.009	
					(0.039)	
March Small-Firm Rev.						-0.001
						(0.006)
State-by-Week FE	No	Yes	Yes	Yes	Yes	Yes
N	3,982	3,982	3,233	3,233	3,233	2,163
Wald F-Stat	0.0	0.0	367.5	8047.9	9018.3	17660.8
K-P F-Stat	71.2	98.3	6.4	5.7	5.8	5.5
A-R 95% Conf. Set	[-0.064, 0.081]	[-0.063, 0.081]	[-0.105, 1.373]	[-0.087, 1.258]	[-0.085, 1.061]	[-0.064, 1.438]
A-R p-value	0.971	0.912	0.377	0.290	0.267	0.185

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with a filed UI initial claim in the given week. The primary variable of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020, times the small firm share of employment in county c. The adjustment of the primary regressor (relative to the baseline model) is described in section VI.B.iv. The instrument remains the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state, week, and state-by-week fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. We also include county c's small firm employment share as a covariate, for reasons described in section VI.B.iv. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. In this regression, the weeks ending 2020-04-11 through 2020-04-25 are pooled, with the remaining weeks excluded from the data.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Appendix D: Online Appendix

Appendix E: Data

A. SBA (PPP Loans)

The data on PPP loans is courtesy of the Small Business Administration (SBA). It is an augmented version of the publicly available data on PPP loans.[42] The version used for this paper was furnished directly by the SBA following the conclusion of the first round of loans (the data cut was made in November 2020). While our data and the publicly available data are closely aligned, there are a handful of differences. The publicly available data has some censored information, which is not the case in our data. We also observe additional variables, though the crucial variables are observed in both versions of the data. We modify the raw data to improve data coverage and accuracy. In the end, we observe 5,136,362 first round loans. The publicly available SBA data has 5,136,386 loans for the first round.

- We drop loans which were approved, but later fully cancelled. We also drop loans that had an "Active Un-Disbursed" status in November 2020, but were not observed in later publicly available data (75,766 loans, or 1.5
- We start with the SBA's most recent report of firm-level jobs covered, instead of the initial reported number of jobs. The most recent number has better coverage – 1.3% observations do not include those data, whereas the initial jobs reported variable is missing in 6.5% observations. In cases where we have both an initial reported number of jobs and an updated one, 12.1% diverge.
- Where an initial jobs number is reported, but an updated one is not, we use the initial number (0.3%). When either (a) both counts are missing or (b) both counts exceed 1,000, then we replace with the most recent publicly reported number (0.9%). When jobs are not observed in any of the three variables (26 observations, total), then we use simple imputation based on dollars per employee.
- We set an upper bound on firm size at 1,000 employees. While the 500-employee cutoff became a popularly-known feature of PPP loans, the cutoff was not strict. Beyond the "NAICS 72" exemption for restaurants and accommodations, firms could also establish eligibility based on the SBA's definition of a "small business interest".[43] Therefore, when the updated count exceeds 1,000 while the initial count does not, then we use the initial count (0.3% of all loans).

[42] Publicly available data can be accessed at https://data.sba.gov/dataset/ppp-foia

[43] For a complete list of standards, see https://www.sba.gov/document/support-table-size-standards. In terms of 6-digit NAICS codes, 306 industries have explicit employee-size limits in excess of 500. A further 299 industries had revenue-based cutoffs of $16.5 million per year or greater.

  - For firms with $\geq$ 500 employees, we replace the number of jobs with a simple imputation if loans are less than $735,000 (affecting 952 loans). This brings the jobs count among these firms down from 567,569 to 22,139. We choose this specific cutoff so that a firm with only 500 part-time employees (working 20 hours per week), all earning the federal minimum wage, would not be affected – assuming they applied for full salary coverage.

- At the bottom, we winsorize jobs per loan to one, assuming that each loan covers at minimum one job. This is consistent with the SBA's methodology, and accounts for loan recipients who neglected to count themselves.

There are 46,347 observations where our final jobs number differs from the publicly available data. Most differences are small – see plot below. An exception is with some firms marked as having 500 employees in the public data. Based on loan sizes, we believe that many of these are misclassified. See comparative distributions (below) for the difference.

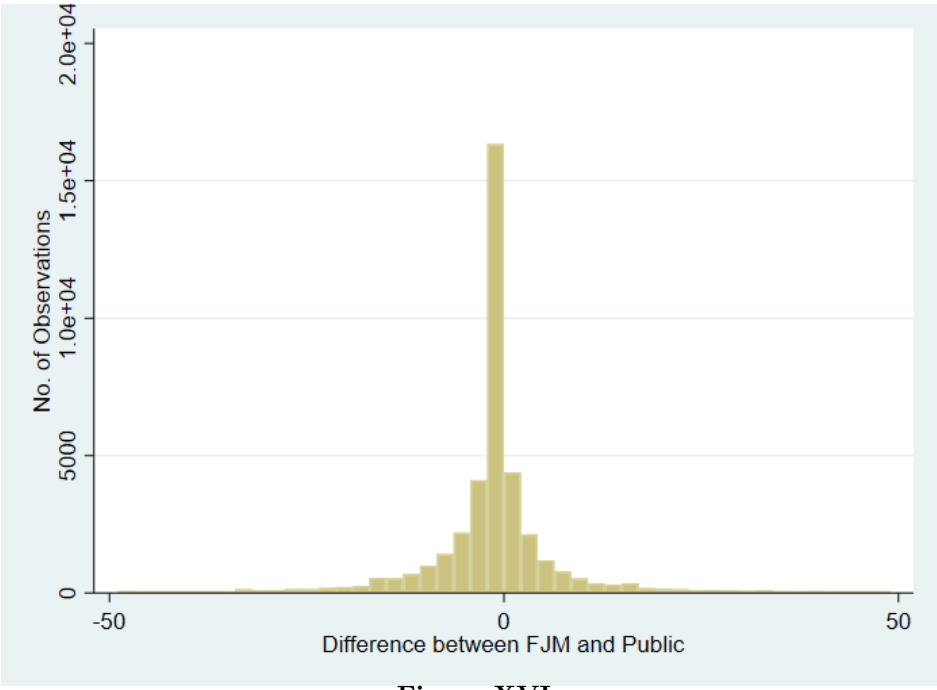
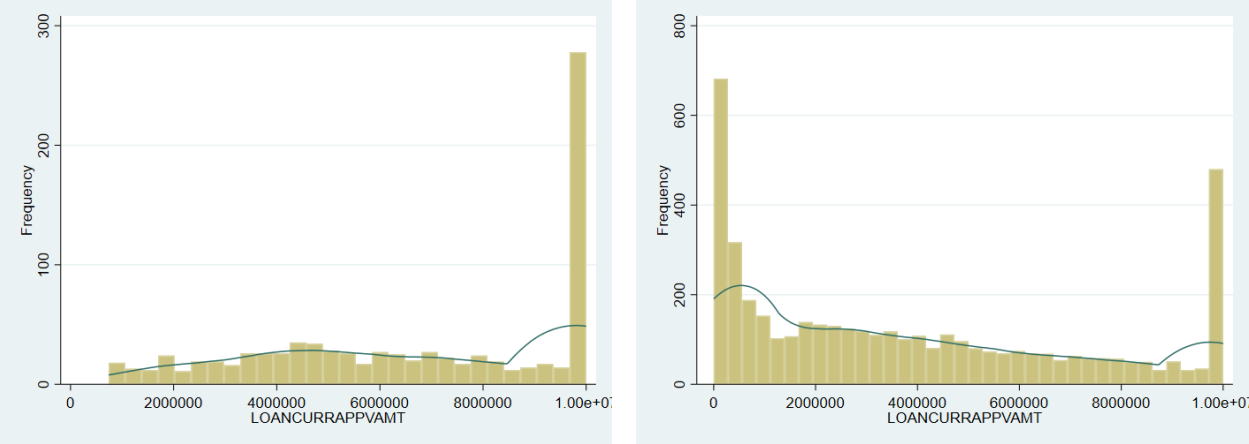


Figure XVI
Histogram of the difference between individual firm sizes observed in the publicly available data and this paper's data. Histogram is censored at a difference of 50 employees.



(a) Based on this Paper's Data **(b)** Based on Publicly Available Data

Figure XVII

Histograms of loan amounts, for loans to firms with 500 or more employees in the two data sets. The distribution of loan amounts in the publicly available data have a substantial mass of small loans going to the largest firms.

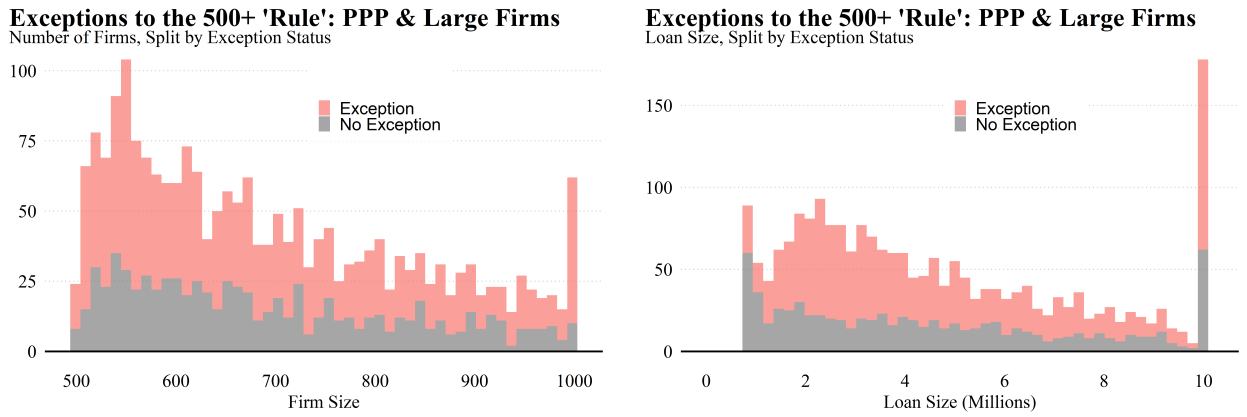


Figure XVIII

Histograms of observed/imputed firm sizes and observed loan amounts, for firms that appear to have more than 500 employees. Appendix section A describes the rule for determining whether or not a firms appears to have more than 500 employees. "Exception" and "No Exception" refer to whether or not a firm's NAICS code allowed for an exception to the 500-employee cutoff rule, based on SBA guidelines for "small business interests".

Appendix F: First Stage

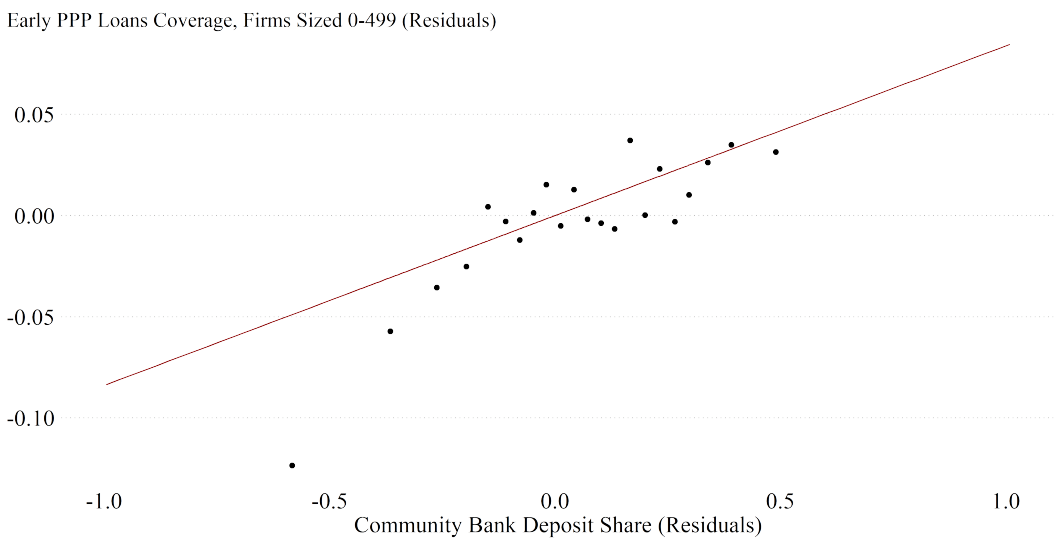


Figure XIX
First-stage binscatter for firms with 0-499 employees.

TABLE A.5

Estimates: Approved Initial Claims, Firms Sized 0-99

Week Ending	Estimate	Anderson-Rubin		Wald		F-Statistics		N
		p-val.	95% CI	p-val.	95% CI	F^{KP}	F^{N}	
Pre-Pandemic								
February 22	**-0.000**	0.584	[-0.002, 0.001]	0.589	[-0.001, 0.001]	14.9	91.0	2,586
February 29	**0.001****	0.047	[0.000, 0.003]	0.056	[0.000, 0.002]	16.2	98.4	2,586
March 7	**-0.001**	0.193	[-0.003, 0.000]	0.201	[-0.002, 0.000]	15.8	92.9	2,586
March 14	**-0.000**	0.674	[-0.003, 0.002]	0.674	[-0.002, 0.002]	14.6	85.6	2,586
Onset of COVID								
March 21	**-0.098*****	0.001	[-0.246, -0.046]	0.004	[-0.165, -0.031]	14.6	85.4	2,586
March 28	**-0.094*****	0.007	[-0.220, -0.036]	0.004	[-0.159, -0.030]	14.1	84.0	2,586
April 4	**-0.076****	0.037	[-0.190, -0.007]	0.025	[-0.142, -0.010]	14.5	83.4	2,586
PPP: 1^{st} Tranche								
April 11	**-0.043****	0.041	[-0.100, -0.003]	0.019	[-0.079, -0.007]	14.1	81.6	2,586
April 18	**-0.043****	0.012	[-0.093, -0.014]	0.003	[-0.071, -0.015]	14.0	81.9	2,586
April 25	**-0.031****	0.027	[-0.078, -0.005]	0.020	[-0.057, -0.005]	14.2	82.5	2,586
PPP: 2^{nd} Tranche								
May 2	**-0.032****	0.014	[-0.083, -0.008]	0.015	[-0.057, -0.006]	13.6	82.2	2,586
May 9	**-0.023****	0.046	[-0.064, -0.001]	0.043	[-0.046, -0.001]	14.4	84.4	2,586
May 16	**-0.015****	0.041	[-0.038, -0.001]	0.032	[-0.028, -0.001]	13.9	85.2	2,586
May 23	**-0.013***	0.052	[-0.035, 0.000]	0.048	[-0.026, 0.000]	14.1	83.8	2,586
May 30	**-0.008****	0.049	[-0.023, 0.000]	0.053	[-0.016, 0.000]	14.7	88.2	2,586
PPP Rolled-Out								
June 6	**-0.006**	0.139	[-0.021, 0.002]	0.155	[-0.014, 0.002]	15.2	86.6	2,586
June 13	**-0.006***	0.071	[-0.021, 0.001]	0.097	[-0.013, 0.001]	14.4	86.5	2,586
June 20	**-0.005***	0.087	[-0.018, 0.001]	0.114	[-0.011, 0.001]	14.5	86.6	2,586
June 27	**-0.005***	0.064	[-0.014, 0.000]	0.058	[-0.010, 0.000]	15.2	91.9	2,586
July 4	**-0.002**	0.249	[-0.005, 0.004]	0.120	[-0.005, 0.001]	15.2	90.4	2,586
July 11	**-0.001**	0.321	[-0.005, 0.002]	0.294	[-0.004, 0.001]	17.1	96.4	2,586
July 18	**-0.002**	0.208	[-0.005, 0.002]	0.151	[-0.004, 0.001]	17.2	96.1	2,586
July 25	**-0.001**	0.297	[-0.004, 0.002]	0.246	[-0.003, 0.001]	18.8	101.0	2,586
August 1	**-0.001**	0.391	[-0.002, 0.001]	0.381	[-0.002, 0.001]	19.7	96.2	2,586
August 8	**-0.001**	0.220	[-0.003, 0.001]	0.203	[-0.002, 0.000]	18.1	94.7	2,586
August 15	**-0.000**	0.693	[-0.001, 0.001]	0.685	[-0.001, 0.001]	17.9	96.4	2,586
August 22	**-0.000**	0.723	[-0.002, 0.002]	0.722	[-0.002, 0.001]	17.3	90.8	2,586
August 29	**0.000**	0.901	[-0.001, 0.002]	0.902	[-0.001, 0.001]	15.2	87.0	2,586
September 5	**-0.000**	0.586	[-0.002, 0.001]	0.589	[-0.002, 0.001]	15.1	89.0	2,586
September 12	**-0.001***	0.078	[-0.004, 0.000]	0.110	[-0.003, 0.000]	14.6	88.0	2,586
September 19	**-0.001***	0.097	[-0.004, 0.000]	0.139	[-0.002, 0.000]	14.3	87.4	2,586
September 26	**-0.001**	0.280	[-0.003, 0.000]	0.342	[-0.002, 0.001]	14.7	87.6	2,586
October 3	**-0.001****	0.047	[-0.003, 0.000]	0.064	[-0.002, 0.000]	16.1	78.9	2,586
October 10	**-0.001**	0.162	[-0.004, 0.000]	0.207	[-0.003, 0.001]	15.6	73.7	2,586
October 17	**-0.000**	0.575	[-0.003, 0.001]	0.598	[-0.002, 0.001]	15.5	70.1	2,586
October 24	**-0.000**	0.570	[-0.003, 0.001]	0.588	[-0.002, 0.001]	15.6	71.5	2,586
October 31	**-0.000**	0.627	[-0.002, 0.002]	0.623	[-0.002, 0.001]	15.8	72.7	2,586
November 7	**-0.001**	0.173	[-0.002, 0.000]	0.177	[-0.002, 0.000]	16.0	72.4	2,586

Estimates include indicators of significance * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, corresponding to the Anderson-Rubin Confidence Sets. Standard errors clustered at the state-level. Coefficients in each week are estimated separately.

TABLE A.6

Estimates: Approved Continuing Claims, Firms Sized 0-99

Week Ending	Estimate	Anderson-Rubin		Wald		F-Statistics		N
		p-val.	95% CI	p-val.	95% CI	F^{KP}	F^{N}	
Pre-Pandemic								
February 22	**-0.001**	0.354	[-0.007, 0.002]	0.369	[-0.004, 0.002]	12.2	70.7	2,337
February 29	**-0.002**	0.388	[-0.010, 0.003]	0.391	[-0.006, 0.002]	13.1	76.2	2,337
March 7	**-0.004**	0.203	[-0.015, 0.003]	0.198	[-0.010, 0.002]	12.8	71.4	2,337
March 14	**-0.007**	0.128	[-0.024, 0.003]	0.120	[-0.016, 0.002]	12.1	65.5	2,337
Onset of COVID								
March 21	**-0.012**	0.137	[-0.041, 0.005]	0.134	[-0.028, 0.004]	11.7	63.1	2,337
March 28	**-0.090*****	0.002	[-0.253, -0.040]	0.005	[-0.153, -0.028]	11.3	61.9	2,337
April 4	**-0.174*****	0.006	[-0.453, -0.071]	0.003	[-0.290, -0.058]	11.5	61.2	2,337
PPP: 1st Tranche								
April 11	**-0.233****	0.013	[-0.622, -0.072]	0.008	[-0.404, -0.061]	11.3	60.4	2,337
April 18	**-0.210*****	0.008	[-0.491, -0.087]	0.001	[-0.338, -0.082]	11.4	60.3	2,337
April 25	**-0.207*****	0.006	[-0.473, -0.093]	0.001	[-0.327, -0.087]	11.5	61.0	2,337
PPP: 2nd Tranche								
May 2	**-0.201*****	0.004	[-0.459, -0.099]	0.000	[-0.313, -0.089]	11.2	61.3	2,337
May 9	**-0.185*****	0.005	[-0.410, -0.092]	0.000	[-0.284, -0.086]	11.0	61.8	2,337
May 16	**-0.164*****	0.007	[-0.354, -0.076]	0.000	[-0.253, -0.074]	11.3	63.3	2,337
May 23	**-0.140****	0.011	[-0.305, -0.056]	0.001	[-0.222, -0.058]	11.4	63.0	2,337
May 30	**-0.092****	0.039	[-0.236, -0.009]	0.017	[-0.167, -0.017]	11.8	66.0	2,337
PPP Rolled-Out								
June 6	**-0.054**	0.158	[-0.174, 0.032]	0.132	[-0.124, 0.016]	12.4	65.8	2,337
June 13	**-0.012**	0.744	[-0.116, 0.090]	0.743	[-0.081, 0.058]	11.7	65.7	2,337
June 20	**-0.005**	0.891	[-0.118, 0.108]	0.891	[-0.080, 0.070]	11.7	66.1	2,336
June 27	**-0.004**	0.921	[-0.107, 0.101]	0.921	[-0.074, 0.067]	12.3	70.5	2,336
July 4	**-0.020**	0.457	[-0.078, 0.063]	0.418	[-0.067, 0.028]	12.1	68.2	2,336
July 11	**-0.010**	0.715	[-0.077, 0.075]	0.708	[-0.063, 0.043]	13.2	72.5	2,336
July 18	**-0.007**	0.792	[-0.071, 0.077]	0.788	[-0.058, 0.044]	13.0	71.7	2,336
July 25	**-0.007**	0.783	[-0.061, 0.068]	0.779	[-0.052, 0.039]	14.1	76.0	2,335
August 1	**-0.001**	0.981	[-0.096, 0.085]	0.981	[-0.065, 0.064]	14.8	72.5	2,335
August 8	**-0.003**	0.912	[-0.085, 0.076]	0.912	[-0.060, 0.054]	13.9	71.1	2,335
August 15	**-0.004**	0.882	[-0.078, 0.065]	0.882	[-0.054, 0.046]	14.0	73.7	2,335
August 22	**0.013**	0.581	[-0.042, 0.093]	0.587	[-0.033, 0.059]	13.9	69.6	2,335
August 29	**0.004**	0.834	[-0.048, 0.077]	0.835	[-0.037, 0.046]	12.5	66.8	2,335
September 5	**0.009**	0.644	[-0.041, 0.079]	0.648	[-0.031, 0.049]	12.6	68.9	2,335
September 12	**0.008**	0.682	[-0.039, 0.069]	0.685	[-0.029, 0.044]	12.8	69.7	2,335
September 19	**0.006**	0.700	[-0.035, 0.062]	0.702	[-0.026, 0.038]	12.2	68.7	2,335
September 26	**0.007**	0.631	[-0.031, 0.060]	0.634	[-0.023, 0.038]	12.5	68.8	2,335
October 3	**0.003**	0.790	[-0.026, 0.036]	0.790	[-0.020, 0.026]	14.1	60.7	2,335
October 10	**-0.001**	0.928	[-0.021, 0.023]	0.928	[-0.016, 0.015]	13.0	55.9	2,335
October 17	**-0.008**	0.137	[-0.022, 0.004]	0.094	[-0.017, 0.001]	13.2	53.0	2,335
October 24	**-0.007**	0.157	[-0.020, 0.004]	0.122	[-0.016, 0.002]	13.2	54.1	2,332
October 31	**-0.007**	0.156	[-0.020, 0.004]	0.121	[-0.015, 0.002]	13.0	54.7	2,332
November 7	**-0.007**	0.114	[-0.019, 0.003]	0.080	[-0.014, 0.001]	12.8	54.1	2,332

Estimates include indicators of significance * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, corresponding to the Anderson-Rubin Confidence Sets. Standard errors clustered at the state-level. Coefficients in each week are estimated separately.

TABLE A.7

Estimates: Approved Initial Claims, Firms Sized 0-499

Week Ending	Estimate	Anderson-Rubin		Wald		F-Statistics		N
		p-val.	95% CI	p-val.	95% CI	F^{KP}	F^{N}	
Pre-Pandemic								
February 22	**-0.000**	0.850	[-0.002, 0.002]	0.851	[-0.001, 0.001]	7.4	39.2	2,579
February 29	**0.001**	0.226	[-0.001, 0.004]	0.245	[-0.001, 0.002]	8.5	44.8	2,579
March 7	**-0.000**	0.585	[-0.004, 0.001]	0.606	[-0.002, 0.001]	8.0	41.7	2,579
March 14	**-0.001**	0.583	[-0.008, 0.003]	0.592	[-0.004, 0.002]	7.2	37.3	2,579
Onset of COVID								
March 21	**-0.114*****	0.001	[-0.470, -0.045]	0.024	[-0.213, -0.015]	8.1	40.5	2,579
March 28	**-0.102****	0.023	[-0.372, -0.020]	0.031	[-0.195, -0.009]	8.2	40.3	2,579
April 4	**-0.070***	0.090	[-0.255, 0.016]	0.084	[-0.150, 0.009]	8.6	41.1	2,579
PPP: 1st Tranche								
April 11	**-0.029**	0.164	[-0.108, 0.019]	0.144	[-0.067, 0.010]	8.5	40.3	2,579
April 18	**-0.040****	0.034	[-0.128, -0.005]	0.023	[-0.075, -0.005]	8.3	40.4	2,579
April 25	**-0.027***	0.081	[-0.095, 0.005]	0.074	[-0.056, 0.003]	8.4	40.7	2,579
PPP: 2nd Tranche								
May 2	**-0.028****	0.018	[-0.106, -0.006]	0.026	[-0.053, -0.003]	7.8	39.8	2,579
May 9	**-0.021****	0.047	[-0.082, 0.000]	0.055	[-0.042, 0.000]	8.0	40.0	2,579
May 16	**-0.012***	0.052	[-0.043, 0.000]	0.051	[-0.024, 0.000]	8.0	41.2	2,579
May 23	**-0.011***	0.066	[-0.045, 0.001]	0.078	[-0.024, 0.001]	7.9	41.0	2,579
May 30	**-0.004**	0.275	[-0.023, 0.005]	0.283	[-0.013, 0.004]	7.8	41.1	2,579
PPP Rolled-Out								
June 6	**-0.003**	0.353	[-0.021, 0.006]	0.364	[-0.011, 0.004]	7.8	39.2	2,579
June 13	**-0.004**	0.208	[-0.024, 0.002]	0.258	[-0.010, 0.003]	7.5	38.4	2,579
June 20	**-0.002**	0.339	[-0.019, 0.003]	0.373	[-0.008, 0.003]	7.2	36.9	2,579
June 27	**-0.003**	0.149	[-0.015, 0.002]	0.145	[-0.008, 0.001]	7.8	39.9	2,579
July 4	**0.000**	0.949	[-0.004, 0.015]	0.950	[-0.005, 0.005]	9.4	44.1	2,579
July 11	**0.001**	0.777	[-0.003, 0.008]	0.783	[-0.003, 0.004]	9.7	44.5	2,579
July 18	**-0.001**	0.574	[-0.005, 0.005]	0.550	[-0.004, 0.002]	10.0	44.4	2,579
July 25	**-0.000**	0.957	[-0.002, 0.004]	0.957	[-0.002, 0.002]	11.5	47.6	2,579
August 1	**-0.001**	0.559	[-0.003, 0.002]	0.553	[-0.002, 0.001]	10.0	42.1	2,579
August 8	**-0.001**	0.460	[-0.003, 0.001]	0.458	[-0.002, 0.001]	10.3	43.7	2,579
August 15	**0.000**	0.686	[-0.001, 0.002]	0.694	[-0.001, 0.001]	10.1	43.0	2,579
August 22	**0.000**	0.752	[-0.002, 0.003]	0.751	[-0.001, 0.002]	9.0	39.6	2,579
August 29	**0.000**	0.522	[-0.001, 0.003]	0.535	[-0.001, 0.002]	8.2	38.8	2,579
September 5	**0.000**	0.956	[-0.003, 0.002]	0.956	[-0.001, 0.001]	7.4	38.4	2,579
September 12	**-0.001**	0.215	[-0.006, 0.000]	0.289	[-0.002, 0.001]	7.3	38.1	2,579
September 19	**-0.001**	0.219	[-0.006, 0.001]	0.276	[-0.002, 0.001]	7.2	37.7	2,579
September 26	**-0.000**	0.611	[-0.004, 0.001]	0.640	[-0.001, 0.001]	7.5	37.7	2,579
October 3	**-0.001**	0.145	[-0.004, 0.000]	0.184	[-0.002, 0.000]	7.7	32.7	2,579
October 10	**-0.001**	0.373	[-0.007, 0.001]	0.422	[-0.003, 0.001]	7.1	29.6	2,579
October 17	**-0.000**	0.693	[-0.006, 0.002]	0.709	[-0.002, 0.002]	6.6	27.2	2,579
October 24	**-0.000**	0.893	[-0.003, 0.002]	0.894	[-0.001, 0.001]	7.0	28.6	2,579
October 31	**-0.000**	0.688	[-0.002, 0.002]	0.682	[-0.001, 0.001]	6.9	28.9	2,579
November 7	**-0.001**	0.277	[-0.003, 0.001]	0.294	[-0.002, 0.001]	6.8	27.7	2,579

Estimates include indicators of significance * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, corresponding to the Anderson-Rubin Confidence Sets. Standard errors clustered at the state-level. Coefficients in each week are estimated separately.

TABLE A.8

Estimates: Approved Continuing Claims, Firms Sized 0-499

Week Ending	Estimate	Anderson-Rubin		Wald		F-Statistics		N
		p-val.	95% CI	p-val.	95% CI	F^{KP}	F^{N}	
Pre-Pandemic								
February 22	**-0.001**	0.793	[-0.008, 0.011]	0.789	[-0.004, 0.003]	5.9	27.8	2,294
February 29	**-0.001**	0.826	[-0.009, 0.015]	0.822	[-0.007, 0.005]	6.8	32.3	2,294
March 7	**-0.003**	0.414	[-0.019, 0.012]	0.380	[-0.011, 0.004]	6.4	29.5	2,294
March 14	**-0.006**	0.355	[-0.039, 0.017]	0.326	[-0.017, 0.006]	5.7	26.0	2,294
Onset of COVID								
March 21	**-0.013**	0.223	[-0.099, 0.012]	0.246	[-0.034, 0.009]	6.0	27.0	2,294
March 28	**-0.106*****	0.008	[-0.806, -0.032]	0.045	[-0.210, -0.002]	6.0	27.0	2,294
April 4	**-0.190****	0.020	[-1.297, -0.041]	0.042	[-0.374, -0.007]	6.0	27.2	2,294
PPP: 1st Tranche								
April 11	**-0.241***	0.050	[-1.538, -0.001]	0.072	[-0.503, 0.022]	6.1	27.6	2,294
April 18	**-0.217****	0.038	[-1.390, -0.024]	0.053	[-0.437, 0.003]	6.0	27.0	2,294
April 25	**-0.213****	0.028	[-1.270, -0.035]	0.039	[-0.415, -0.011]	6.1	27.4	2,294
PPP: 2nd Tranche								
May 2	**-0.203****	0.020	[-1.255, -0.048]	0.029	[-0.386, -0.020]	5.9	27.3	2,294
May 9	**-0.187****	0.015	[-1.199, -0.062]	0.017	[-0.340, -0.034]	5.6	26.9	2,294
May 16	**-0.159****	0.015	[-0.731, -0.055]	0.008	[-0.277, -0.041]	6.0	28.5	2,294
May 23	**-0.134****	0.021	[-0.575, -0.039]	0.009	[-0.234, -0.034]	6.2	29.1	2,293
May 30	**-0.085***	0.073	[-0.399, 0.014]	0.044	[-0.168, -0.002]	6.1	29.2	2,293
PPP Rolled-Out								
June 6	**-0.045**	0.283	[-0.228, 0.091]	0.242	[-0.120, 0.030]	6.3	28.1	2,293
June 13	**0.000**	0.999	[-0.117, 0.262]	0.999	[-0.078, 0.078]	6.1	27.7	2,293
June 20	**0.007**	0.868	[-0.123, 0.380]	0.870	[-0.082, 0.097]	5.9	26.1	2,293
June 27	**0.008**	0.839	[-0.107, 0.301]	0.842	[-0.074, 0.091]	6.3	28.6	2,293
July 4	**-0.012**	0.656	[-0.082, 0.121]	0.637	[-0.062, 0.038]	7.0	31.2	2,293
July 11	**-0.000**	0.998	[-0.072, 0.170]	0.998	[-0.059, 0.059]	7.2	31.3	2,293
July 18	**0.003**	0.912	[-0.066, 0.182]	0.914	[-0.055, 0.061]	7.1	30.5	2,293
July 25	**0.002**	0.929	[-0.057, 0.130]	0.930	[-0.049, 0.053]	8.2	33.4	2,293
August 1	**0.010**	0.801	[-0.095, 0.188]	0.804	[-0.067, 0.087]	7.5	29.4	2,293
August 8	**0.004**	0.910	[-0.085, 0.142]	0.910	[-0.060, 0.067]	7.8	30.4	2,293
August 15	**0.002**	0.946	[-0.083, 0.125]	0.946	[-0.055, 0.059]	7.7	30.3	2,293
August 22	**0.019**	0.483	[-0.041, 0.222]	0.515	[-0.038, 0.076]	7.0	27.6	2,293
August 29	**0.011**	0.643	[-0.048, 0.205]	0.659	[-0.039, 0.062]	6.5	27.0	2,293
September 5	**0.018**	0.491	[-0.041, 0.283]	0.525	[-0.037, 0.072]	6.0	27.2	2,293
September 12	**0.016**	0.496	[-0.039, 0.218]	0.526	[-0.034, 0.066]	6.3	27.9	2,293
September 19	**0.014**	0.496	[-0.034, 0.223]	0.527	[-0.029, 0.058]	6.0	27.2	2,293
September 26	**0.014**	0.462	[-0.030, 0.181]	0.495	[-0.027, 0.056]	6.3	27.7	2,293
October 3	**0.009**	0.532	[-0.024, 0.105]	0.557	[-0.022, 0.041]	6.4	22.6	2,293
October 10	**0.003**	0.738	[-0.020, 0.084]	0.748	[-0.018, 0.024]	5.7	20.0	2,293
October 17	**-0.007**	0.322	[-0.041, 0.016]	0.295	[-0.019, 0.006]	5.2	18.1	2,293
October 24	**-0.006**	0.328	[-0.038, 0.013]	0.308	[-0.018, 0.006]	5.4	18.9	2,290
October 31	**-0.006**	0.296	[-0.041, 0.012]	0.273	[-0.017, 0.005]	5.3	19.1	2,290
November 7	**-0.007**	0.204	[-0.048, 0.007]	0.194	[-0.018, 0.004]	5.2	18.4	2,290

Estimates include indicators of significance * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, corresponding to the Anderson-Rubin Confidence Sets. Standard errors clustered at the state-level. Coefficients in each week are estimated separately.

TABLE A.9

Estimates: Approved Initial Claims, Firms Sized 0-99 (Includes control for average %(change) in small business revenue, weeks ending March 21 - April 4)

Week Ending	**Estimate**	**Anderson-Rubin**		**Wald**		**F-Statistics**		N
		p-val.	95% CI	p-val.	95% CI	F^{KP}	F^{N}	
Pre-Pandemic								
February 22	**-0.000**	0.472	[-0.002, 0.001]	0.487	[-0.001, 0.001]	18.6	73.9	1,585
February 29	**0.001**	0.146	[0.000, 0.002]	0.164	[0.000, 0.001]	21.0	81.3	1,585
March 7	**-0.001**	0.126	[-0.003, 0.000]	0.137	[-0.002, 0.000]	20.2	75.7	1,584
March 14	**-0.000**	0.733	[-0.003, 0.002]	0.732	[-0.002, 0.002]	18.6	69.3	1,584
Onset of COVID								
March 21	**-0.081*****	0.001	[-0.186, -0.040]	0.002	[-0.132, -0.031]	18.4	67.5	1,584
March 28	**-0.058****	0.019	[-0.117, -0.015]	0.003	[-0.097, -0.019]	18.0	66.2	1,579
April 4	**-0.045***	0.066	[-0.103, 0.004]	0.030	[-0.086, -0.004]	17.9	64.9	1,580
PPP: 1st Tranche								
April 11	**-0.025***	0.093	[-0.053, 0.007]	0.033	[-0.047, -0.002]	17.9	64.5	1,578
April 18	**-0.028****	0.014	[-0.049, -0.010]	0.000	[-0.043, -0.013]	17.8	64.8	1,579
April 25	**-0.020****	0.026	[-0.044, -0.004]	0.010	[-0.036, -0.005]	17.8	64.7	1,583
PPP: 2nd Tranche								
May 2	**-0.026*****	0.008	[-0.061, -0.009]	0.006	[-0.044, -0.007]	16.7	64.7	1,584
May 9	**-0.018****	0.021	[-0.043, -0.004]	0.017	[-0.032, -0.003]	17.3	65.5	1,583
May 16	**-0.012****	0.018	[-0.027, -0.003]	0.011	[-0.020, -0.003]	17.3	64.8	1,584
May 23	**-0.010****	0.029	[-0.024, -0.001]	0.027	[-0.018, -0.001]	17.8	66.6	1,583
May 30	**-0.006****	0.044	[-0.016, 0.000]	0.042	[-0.011, 0.000]	18.4	70.6	1,566
PPP Rolled-Out								
June 6	**-0.004**	0.192	[-0.016, 0.003]	0.201	[-0.011, 0.002]	18.9	69.8	1,583
June 13	**-0.006***	0.079	[-0.019, 0.001]	0.106	[-0.012, 0.001]	17.9	69.8	1,582
June 20	**-0.005***	0.098	[-0.017, 0.001]	0.121	[-0.011, 0.001]	18.5	70.1	1,584
June 27	**-0.004***	0.084	[-0.013, 0.001]	0.078	[-0.009, 0.001]	19.4	73.9	1,585
July 4	**-0.002**	0.412	[-0.004, 0.005]	0.315	[-0.005, 0.002]	19.0	68.5	1,556
July 11	**-0.000**	0.727	[-0.003, 0.003]	0.719	[-0.003, 0.002]	21.7	76.6	1,583
July 18	**-0.001**	0.226	[-0.004, 0.001]	0.173	[-0.004, 0.001]	21.1	75.7	1,585
July 25	**-0.001**	0.449	[-0.002, 0.002]	0.404	[-0.002, 0.001]	23.4	79.8	1,585
August 1	**-0.000**	0.623	[-0.001, 0.001]	0.613	[-0.001, 0.001]	24.8	77.5	1,583
August 8	**-0.001**	0.280	[-0.002, 0.001]	0.257	[-0.002, 0.000]	23.2	76.3	1,583
August 15	**0.000**	0.880	[-0.001, 0.002]	0.881	[-0.001, 0.001]	21.8	78.1	1,584
August 22	**0.000**	0.952	[-0.002, 0.002]	0.952	[-0.001, 0.001]	22.3	73.7	1,585
August 29	**0.000**	0.719	[-0.001, 0.002]	0.730	[-0.001, 0.001]	19.5	69.9	1,574
September 5	**0.000**	0.837	[-0.001, 0.002]	0.837	[-0.001, 0.001]	20.0	73.2	1,582
September 12	**-0.001**	0.154	[-0.003, 0.000]	0.170	[-0.002, 0.000]	19.2	72.8	1,547
September 19	**-0.001**	0.200	[-0.003, 0.000]	0.223	[-0.002, 0.000]	18.2	70.2	1,583
September 26	**-0.000**	0.512	[-0.002, 0.001]	0.540	[-0.001, 0.001]	18.7	70.4	1,582
October 3	**-0.001**	0.127	[-0.002, 0.000]	0.143	[-0.002, 0.000]	20.5	63.2	1,582
October 10	**-0.001**	0.364	[-0.003, 0.001]	0.379	[-0.002, 0.001]	19.3	58.4	1,578
October 17	**-0.000**	0.744	[-0.002, 0.001]	0.750	[-0.002, 0.001]	19.8	56.2	1,582
October 24	**-0.000**	0.851	[-0.003, 0.002]	0.853	[-0.002, 0.001]	19.7	57.8	1,582
October 31	**-0.000**	0.699	[-0.002, 0.002]	0.697	[-0.002, 0.001]	19.1	57.4	1,574
November 7	**-0.000**	0.434	[-0.002, 0.001]	0.433	[-0.002, 0.001]	19.6	56.2	1,581

Estimates include indicators of significance * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, corresponding to the Anderson-Rubin Confidence Sets. Standard errors clustered at the state-level. Coefficients in each week are estimated separately.

TABLE A.10

Estimates: Approved Continuing Claims, Firms Sized 0-99 (Includes control for average %(change) in small business revenue, weeks ending March 21 - April 4)

Week Ending	**Estimate**	**Anderson-Rubin**		**Wald**		**F-Statistics**		N
		p-val.	95% CI	p-val.	95% CI	F^{KP}	F^{N}	
Pre-Pandemic								
February 22	**-0.001**	0.673	[-0.005, 0.002]	0.681	[-0.003, 0.002]	13.6	57.1	1,493
February 29	**-0.001**	0.704	[-0.008, 0.004]	0.708	[-0.005, 0.003]	15.2	62.6	1,493
March 7	**-0.002**	0.402	[-0.012, 0.004]	0.402	[-0.008, 0.003]	14.7	57.9	1,492
March 14	**-0.004**	0.266	[-0.017, 0.005]	0.257	[-0.012, 0.003]	13.7	52.8	1,492
Onset of COVID								
March 21	**-0.009**	0.228	[-0.031, 0.009]	0.207	[-0.023, 0.005]	13.2	49.5	1,492
March 28	**-0.076*****	0.005	[-0.187, -0.032]	0.003	[-0.126, -0.026]	12.8	48.2	1,488
April 4	**-0.132****	0.016	[-0.303, -0.040]	0.003	[-0.219, -0.044]	12.6	47.1	1,488
PPP: 1st Tranche								
April 11	**-0.170****	0.034	[-0.393, -0.022]	0.009	[-0.298, -0.042]	12.8	47.3	1,486
April 18	**-0.133****	0.027	[-0.280, -0.026]	0.003	[-0.222, -0.044]	12.9	47.4	1,488
April 25	**-0.134****	0.020	[-0.277, -0.038]	0.002	[-0.217, -0.051]	12.9	47.3	1,491
PPP: 2nd Tranche								
May 2	**-0.135****	0.012	[-0.284, -0.051]	0.001	[-0.215, -0.056]	12.7	48.2	1,492
May 9	**-0.127****	0.012	[-0.264, -0.049]	0.001	[-0.199, -0.054]	12.2	47.9	1,491
May 16	**-0.115****	0.016	[-0.230, -0.038]	0.001	[-0.183, -0.047]	13.0	48.1	1,492
May 23	**-0.099****	0.020	[-0.208, -0.027]	0.002	[-0.161, -0.036]	13.0	49.6	1,491
May 30	**-0.060***	0.070	[-0.166, 0.007]	0.045	[-0.119, -0.001]	13.3	52.5	1,475
PPP Rolled-Out								
June 6	**-0.028**	0.325	[-0.120, 0.042]	0.314	[-0.084, 0.027]	13.7	52.7	1,491
June 13	**0.006**	0.835	[-0.079, 0.091]	0.835	[-0.051, 0.063]	12.8	52.2	1,491
June 20	**0.010**	0.756	[-0.084, 0.102]	0.754	[-0.052, 0.072]	13.2	52.8	1,492
June 27	**0.010**	0.741	[-0.077, 0.094]	0.739	[-0.048, 0.068]	14.1	56.2	1,493
July 4	**-0.006**	0.800	[-0.058, 0.071]	0.795	[-0.051, 0.039]	13.8	51.8	1,468
July 11	**0.002**	0.946	[-0.058, 0.074]	0.946	[-0.045, 0.049]	15.0	57.2	1,491
July 18	**0.004**	0.855	[-0.054, 0.079]	0.856	[-0.042, 0.051]	14.4	55.9	1,493
July 25	**0.003**	0.900	[-0.047, 0.068]	0.901	[-0.039, 0.044]	15.7	59.5	1,493
August 1	**0.006**	0.834	[-0.087, 0.076]	0.832	[-0.052, 0.064]	16.5	57.8	1,491
August 8	**0.003**	0.907	[-0.081, 0.068]	0.906	[-0.050, 0.056]	15.8	56.7	1,491
August 15	**0.001**	0.962	[-0.075, 0.060]	0.962	[-0.045, 0.048]	15.2	59.1	1,492
August 22	**0.019**	0.363	[-0.031, 0.084]	0.357	[-0.021, 0.059]	15.9	56.3	1,493
August 29	**0.010**	0.593	[-0.039, 0.068]	0.592	[-0.027, 0.047]	14.3	53.3	1,482
September 5	**0.013**	0.449	[-0.032, 0.065]	0.437	[-0.020, 0.047]	15.0	56.8	1,490
September 12	**0.012**	0.480	[-0.031, 0.059]	0.470	[-0.020, 0.043]	15.0	57.2	1,459
September 19	**0.010**	0.508	[-0.029, 0.053]	0.501	[-0.018, 0.037]	14.1	55.2	1,491
September 26	**0.010**	0.471	[-0.026, 0.051]	0.462	[-0.017, 0.037]	14.4	55.3	1,491
October 3	**0.006**	0.595	[-0.022, 0.032]	0.587	[-0.014, 0.025]	15.9	48.5	1,491
October 10	**0.001**	0.878	[-0.019, 0.022]	0.878	[-0.013, 0.016]	14.2	44.1	1,486
October 17	**-0.006**	0.245	[-0.019, 0.006]	0.214	[-0.015, 0.003]	14.9	42.1	1,490
October 24	**-0.005**	0.275	[-0.018, 0.006]	0.258	[-0.014, 0.004]	14.8	43.7	1,490
October 31	**-0.005**	0.258	[-0.019, 0.006]	0.239	[-0.014, 0.003]	14.1	43.5	1,484
November 7	**-0.005**	0.213	[-0.018, 0.004]	0.194	[-0.013, 0.003]	14.1	42.3	1,491

Estimates include indicators of significance * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, corresponding to the Anderson-Rubin Confidence Sets. Standard errors clustered at the state-level. Coefficients in each week are estimated separately.

TABLE A.11

Estimates: Approved Initial Claims, Firms Sized 0-499 (Includes control for average %(change) in small business revenue, weeks ending March 21 - April 4)

Week Ending	**Estimate**	**Anderson-Rubin**		**Wald**		**F-Statistics**		N
		p-val.	95% CI	p-val.	95% CI	F^{KP}	F^{N}	
Pre-Pandemic								
February 22	**0.000**	0.984	[-0.002, 0.002]	0.984	[-0.001, 0.001]	10.6	33.8	1,585
February 29	**0.000**	0.461	[-0.001, 0.002]	0.474	[-0.001, 0.001]	12.6	39.3	1,585
March 7	**-0.000**	0.677	[-0.003, 0.001]	0.692	[-0.002, 0.001]	11.8	36.2	1,584
March 14	**-0.001**	0.577	[-0.006, 0.003]	0.577	[-0.004, 0.002]	10.3	32.0	1,584
Onset of COVID								
March 21	**-0.091*****	0.001	[-0.282, -0.038]	0.011	[-0.161, -0.021]	11.0	33.8	1,584
March 28	**-0.057***	0.095	[-0.165, 0.016]	0.068	[-0.118, 0.004]	11.2	33.4	1,579
April 4	**-0.033**	0.223	[-0.108, 0.033]	0.187	[-0.081, 0.016]	11.6	33.9	1,580
PPP: 1st Tranche								
April 11	**-0.007**	0.633	[-0.040, 0.042]	0.616	[-0.036, 0.021]	11.6	33.4	1,578
April 18	**-0.023***	0.081	[-0.054, 0.005]	0.032	[-0.043, -0.002]	11.3	33.8	1,579
April 25	**-0.013**	0.164	[-0.038, 0.009]	0.119	[-0.029, 0.003]	11.4	33.4	1,583
PPP: 2nd Tranche								
May 2	**-0.022*****	0.009	[-0.065, -0.007]	0.010	[-0.039, -0.005]	10.4	32.8	1,584
May 9	**-0.016****	0.016	[-0.049, -0.004]	0.021	[-0.029, -0.002]	10.6	33.0	1,583
May 16	**-0.008****	0.017	[-0.022, -0.002]	0.019	[-0.014, -0.001]	10.7	32.5	1,584
May 23	**-0.008****	0.027	[-0.026, -0.001]	0.041	[-0.016, 0.000]	11.0	34.4	1,583
May 30	**-0.003**	0.336	[-0.012, 0.004]	0.338	[-0.008, 0.003]	11.2	35.0	1,566
PPP Rolled-Out								
June 6	**-0.002**	0.469	[-0.012, 0.005]	0.471	[-0.008, 0.004]	11.0	34.0	1,583
June 13	**-0.003**	0.230	[-0.016, 0.002]	0.275	[-0.009, 0.002]	10.6	32.7	1,582
June 20	**-0.003**	0.266	[-0.015, 0.003]	0.302	[-0.008, 0.003]	10.6	31.7	1,584
June 27	**-0.003**	0.203	[-0.011, 0.002]	0.194	[-0.007, 0.001]	11.5	34.0	1,585
July 4	**0.001**	0.795	[-0.003, 0.013]	0.805	[-0.004, 0.005]	12.8	35.9	1,556
July 11	**0.001**	0.642	[-0.002, 0.007]	0.658	[-0.002, 0.004]	13.7	37.4	1,583
July 18	**-0.001**	0.488	[-0.004, 0.003]	0.455	[-0.003, 0.001]	13.7	36.6	1,585
July 25	**0.000**	0.664	[-0.001, 0.004]	0.684	[-0.001, 0.002]	15.9	39.4	1,585
August 1	**-0.000**	0.545	[-0.002, 0.001]	0.531	[-0.002, 0.001]	15.0	35.9	1,583
August 8	**-0.000**	0.430	[-0.002, 0.001]	0.427	[-0.002, 0.001]	15.5	37.3	1,583
August 15	**0.000**	0.526	[-0.001, 0.002]	0.542	[-0.001, 0.001]	14.8	37.4	1,584
August 22	**0.000**	0.522	[-0.001, 0.003]	0.520	[-0.001, 0.002]	13.6	34.4	1,585
August 29	**0.000**	0.435	[-0.001, 0.003]	0.455	[-0.001, 0.002]	12.3	33.1	1,574
September 5	**0.000**	0.434	[-0.001, 0.002]	0.426	[-0.001, 0.002]	11.8	34.6	1,582
September 12	**-0.001**	0.279	[-0.003, 0.001]	0.318	[-0.002, 0.001]	11.5	35.0	1,547
September 19	**-0.000**	0.424	[-0.003, 0.001]	0.441	[-0.002, 0.001]	11.0	32.9	1,583
September 26	**-0.000**	0.811	[-0.002, 0.001]	0.816	[-0.001, 0.001]	11.5	33.4	1,582
October 3	**-0.001**	0.353	[-0.002, 0.001]	0.369	[-0.002, 0.001]	11.6	28.2	1,582
October 10	**-0.001**	0.516	[-0.004, 0.001]	0.533	[-0.003, 0.001]	10.7	25.4	1,578
October 17	**-0.000**	0.709	[-0.004, 0.001]	0.721	[-0.002, 0.002]	10.0	23.6	1,582
October 24	**-0.000**	0.973	[-0.002, 0.002]	0.973	[-0.001, 0.001]	10.5	24.8	1,582
October 31	**-0.000**	0.620	[-0.002, 0.001]	0.614	[-0.002, 0.001]	9.8	24.3	1,574
November 7	**-0.000**	0.397	[-0.002, 0.001]	0.400	[-0.001, 0.001]	10.0	23.0	1,581

Estimates include indicators of significance * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, corresponding to the Anderson-Rubin Confidence Sets. Standard errors clustered at the state-level. Coefficients in each week are estimated separately.

TABLE A.12

Estimates: Approved Continuing Claims, Firms Sized 0-499 (Includes control for average %(change) in small business revenue, weeks ending March 21 - April 4)

Week Ending	**Estimate**	**Anderson-Rubin**		**Wald**		**F-Statistics**		N
		p-val.	95% CI	p-val.	95% CI	F^{KP}	F^{N}	
Pre-Pandemic								
February 22	**0.000**	0.984	[-0.006, 0.008]	0.984	[-0.004, 0.004]	7.5	23.9	1,492
February 29	**-0.000**	0.968	[-0.008, 0.011]	0.968	[-0.006, 0.005]	8.9	28.2	1,492
March 7	**-0.003**	0.479	[-0.015, 0.010]	0.458	[-0.010, 0.005]	8.4	25.6	1,491
March 14	**-0.005**	0.404	[-0.025, 0.014]	0.379	[-0.015, 0.006]	7.3	22.2	1,491
Onset of COVID								
March 21	**-0.012**	0.238	[-0.061, 0.012]	0.241	[-0.031, 0.008]	7.2	22.4	1,491
March 28	**-0.090****	0.012	[-0.422, -0.027]	0.029	[-0.171, -0.009]	7.2	22.2	1,488
April 4	**-0.141****	0.049	[-0.623, -0.005]	0.047	[-0.280, -0.002]	7.0	22.2	1,488
PPP: 1st Tranche								
April 11	**-0.170**	0.114	[-0.722, 0.068]	0.102	[-0.374, 0.034]	7.4	22.7	1,486
April 18	**-0.131**	0.125	[-0.590, 0.055]	0.118	[-0.295, 0.033]	7.2	22.4	1,488
April 25	**-0.131***	0.093	[-0.561, 0.033]	0.083	[-0.279, 0.017]	7.3	22.4	1,491
PPP: 2nd Tranche								
May 2	**-0.127***	0.068	[-0.541, 0.015]	0.060	[-0.260, 0.006]	7.2	22.6	1,492
May 9	**-0.118****	0.048	[-0.494, -0.004]	0.035	[-0.227, -0.008]	6.7	22.1	1,491
May 16	**-0.101****	0.046	[-0.327, -0.006]	0.021	[-0.188, -0.015]	7.2	22.4	1,491
May 23	**-0.085***	0.053	[-0.264, 0.002]	0.021	[-0.157, -0.013]	7.7	24.3	1,490
May 30	**-0.048**	0.156	[-0.186, 0.034]	0.118	[-0.109, 0.012]	7.8	24.6	1,474
PPP Rolled-Out								
June 6	**-0.015**	0.619	[-0.113, 0.097]	0.607	[-0.073, 0.043]	7.9	24.1	1,490
June 13	**0.020**	0.536	[-0.062, 0.203]	0.549	[-0.045, 0.084]	7.5	23.2	1,490
June 20	**0.024**	0.506	[-0.071, 0.242]	0.519	[-0.049, 0.098]	7.4	22.1	1,491
June 27	**0.023**	0.501	[-0.064, 0.202]	0.513	[-0.046, 0.091]	8.0	24.0	1,492
July 4	**0.003**	0.883	[-0.051, 0.116]	0.885	[-0.043, 0.050]	8.4	25.1	1,467
July 11	**0.012**	0.635	[-0.047, 0.139]	0.648	[-0.040, 0.064]	8.8	25.9	1,490
July 18	**0.015**	0.568	[-0.044, 0.157]	0.586	[-0.039, 0.068]	8.5	24.7	1,492
July 25	**0.011**	0.623	[-0.040, 0.113]	0.636	[-0.035, 0.057]	9.8	27.3	1,492
August 1	**0.017**	0.626	[-0.079, 0.137]	0.626	[-0.051, 0.084]	9.7	24.7	1,490
August 8	**0.010**	0.733	[-0.076, 0.105]	0.732	[-0.048, 0.068]	10.0	25.6	1,490
August 15	**0.007**	0.791	[-0.074, 0.092]	0.790	[-0.044, 0.058]	9.6	26.1	1,491
August 22	**0.024**	0.300	[-0.028, 0.147]	0.325	[-0.024, 0.073]	9.2	23.9	1,492
August 29	**0.016**	0.446	[-0.036, 0.127]	0.461	[-0.027, 0.060]	8.3	22.7	1,481
September 5	**0.021**	0.345	[-0.031, 0.133]	0.362	[-0.024, 0.065]	8.5	24.6	1,489
September 12	**0.019**	0.352	[-0.028, 0.113]	0.365	[-0.022, 0.059]	8.8	25.3	1,458
September 19	**0.017**	0.358	[-0.026, 0.111]	0.374	[-0.020, 0.053]	8.1	23.7	1,490
September 26	**0.016**	0.349	[-0.024, 0.099]	0.365	[-0.019, 0.051]	8.6	24.4	1,490
October 3	**0.011**	0.392	[-0.020, 0.065]	0.402	[-0.015, 0.038]	8.5	19.5	1,490
October 10	**0.005**	0.588	[-0.018, 0.050]	0.598	[-0.014, 0.024]	7.4	17.2	1,485
October 17	**-0.005**	0.460	[-0.025, 0.014]	0.442	[-0.017, 0.007]	7.1	15.9	1,489
October 24	**-0.004**	0.457	[-0.025, 0.012]	0.447	[-0.016, 0.007]	7.3	16.7	1,489
October 31	**-0.005**	0.387	[-0.028, 0.011]	0.374	[-0.016, 0.006]	6.9	16.4	1,483
November 7	**-0.006**	0.288	[-0.029, 0.008]	0.280	[-0.016, 0.005]	7.0	15.7	1,491

Estimates include indicators of significance * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, corresponding to the Anderson-Rubin Confidence Sets. Standard errors clustered at the state-level. Coefficients in each week are estimated separately.

Appendix G: Online Appendix Continued: Continuing Claims Tables

TABLE A.14

Continuing Claims, Firms Size 0-99 (Pooled Regression of Pre-Covid Weeks)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.014	0.029**	-0.005	-0.004	-0.003	-0.002
	(0.009)	(0.011)	(0.003)	(0.003)	(0.003)	(0.003)
February IUR			0.909***	0.911***	0.910***	0.913***
			(0.020)	(0.020)	(0.020)	(0.022)
Log(Med. Income)			0.001	-0.000	-0.000	0.000
			(0.001)	(0.001)	(0.001)	(0.001)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				12.827	11.952	11.290
				(12.026)	(11.391)	(11.516)
Covid Cases, 4w				-8.419	-7.957	-7.377
				(9.080)	(8.582)	(8.679)
Covid Deaths, 1w				33.275	23.676	15.071
				(129.171)	(136.110)	(148.205)
Covid Deaths, 4w				299.640***	306.303***	316.881***
				(75.370)	(79.429)	(85.905)
WFH Index				0.005	0.006	0.005
				(0.003)	(0.004)	(0.003)
Industry Index					0.004	
					(0.006)	
March Small-Firm Rev.						-0.001
						(0.001)
State-by-Week FE	No	Yes	Yes	Yes	Yes	Yes
N	9,369	9,369	9,356	9,348	9,348	5,970
Wald F-Stat	2.2	0.0	19.8	28.9	46.0	35.3
K-P F-Stat	72.9	55.8	8.3	10.6	13.0	12.5
A-R 95% Conf. Set	[-0.004, 0.037]	[0.011, 0.073]	[-0.021, 0.003]	[-0.016, 0.003]	[-0.013, 0.003]	[-0.011, 0.004]
A-R p-value	0.126	0.002	0.178	0.230	0.269	0.445

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state, week, and state-by-week fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. In this regression, the weeks ending 2020-02-22 through 2020-03-14 are pooled, with the remaining weeks excluded from the data.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.15

Continuing Claims, Firms Size 0-99 (Pooled Regression of Covid-Onset Weeks)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.025	-0.040*	-0.090**	-0.095**	-0.053**	-0.074**
	(0.013)	(0.016)	(0.034)	(0.035)	(0.018)	(0.025)
February IUR			1.096***	1.096***	1.040***	1.080***
			(0.086)	(0.088)	(0.059)	(0.072)
Log(Med. Income)			-0.015*	-0.018	-0.018**	-0.017*
			(0.008)	(0.010)	(0.007)	(0.008)
Poverty Rate			-0.001*	-0.001	-0.001**	-0.001*
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	-0.000	0.000	-0.001
			(0.001)	(0.001)	(0.001)	(0.001)
Covid Cases, 1w				2.970	1.983	2.853
				(1.820)	(1.406)	(1.556)
Covid Cases, 4w				-2.298	-1.669	-2.267
				(1.506)	(0.913)	(1.182)
Covid Deaths, 1w				-257.353*	-243.874*	-255.617*
				(123.727)	(100.637)	(123.984)
Covid Deaths, 4w				217.110**	198.370**	214.056**
				(81.334)	(68.908)	(83.024)
WFH Index				0.013	0.079**	0.017
				(0.043)	(0.027)	(0.034)
Industry Index					0.236***	
					(0.037)	
March Small-Firm Rev.						-0.019***
						(0.005)
State-by-Week FE	No	Yes	Yes	Yes	Yes	Yes
N	7,056	7,056	7,017	7,011	7,011	4,468
Wald F-Stat	3.3	0.0	1.7	26.9	71.2	39.6
K-P F-Stat	72.9	55.9	8.2	9.8	12.3	11.4
A-R 95% Conf. Set	[-0.052, 0.006]	[-0.077, 0.003]	[-0.310, -0.037]	[-0.288, -0.039]	[-0.121, -0.015]	[-0.187, -0.027]
A-R p-value	0.102	0.061	0.004	0.004	0.019	0.010

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state, week, and state-by-week fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. In this regression, the weeks ending 2020-03-21 through 2020-04-04 are pooled, with the remaining weeks excluded from the data.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.16

Continuing Claims, Firms Size 0-99 (Pooled Regression of First Tranche Weeks)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.169***	-0.200***	-0.227**	-0.235**	-0.111*	-0.157**
	(0.039)	(0.036)	(0.076)	(0.083)	(0.043)	(0.054)
February IUR			1.566***	1.536***	1.397***	1.472***
			(0.210)	(0.229)	(0.156)	(0.189)
Log(Med. Income)			-0.045*	-0.043	-0.043**	-0.038
			(0.018)	(0.026)	(0.016)	(0.021)
Poverty Rate			-0.002**	-0.002	-0.002**	-0.002*
			(0.001)	(0.001)	(0.001)	(0.001)
Log(Pop. Density)			0.003	0.003	0.005**	0.002
			(0.002)	(0.003)	(0.001)	(0.003)
Covid Cases, 1w				-6.102	-4.989*	-5.807
				(3.326)	(2.457)	(3.372)
Covid Cases, 4w				1.107	1.246	1.226
				(1.389)	(1.051)	(1.301)
Covid Deaths, 1w				3.468	-6.957	-0.227
				(7.014)	(6.088)	(7.746)
Covid Deaths, 4w				3.857	-0.161	1.886
				(7.018)	(5.072)	(6.390)
WFH Index				-0.013	0.156**	-0.007
				(0.102)	(0.059)	(0.073)
Industry Index					0.616***	
					(0.089)	
March Small-Firm Rev.						-0.057***
						(0.014)
State-by-Week FE	No	Yes	Yes	Yes	Yes	Yes
N	7,084	7,084	7,017	7,011	7,011	4,465
Wald F-Stat	18.4	0.2	14.1	52.5	162.6	85.2
K-P F-Stat	72.8	55.7	8.2	9.1	11.7	10.6
A-R 95% Conf. Set	[-0.250, -0.079]	[-0.297, -0.117]	[-0.666, -0.095]	[-0.687, -0.095]	[-0.237, 0.009]	[-0.373, -0.045]
A-R p-value	0.004	0.004	0.007	0.007	0.060	0.018

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state, week, and state-by-week fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. In this regression, the weeks ending 2020-04-11 through 2020-04-25 are pooled, with the remaining weeks excluded from the data.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.17

Continuing Claims, Firms Size 0-99 (Pooled Regression of Second Tranche Weeks)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.180***	-0.210***	-0.127*	-0.159**	-0.075	-0.110**
	(0.036)	(0.027)	(0.057)	(0.049)	(0.038)	(0.037)
February IUR			0.752***	0.742***	0.632***	0.683***
			(0.111)	(0.124)	(0.094)	(0.104)
Log(Med. Income)			-0.022	-0.018	-0.019	-0.016
			(0.012)	(0.013)	(0.011)	(0.012)
Poverty Rate			-0.001*	-0.001	-0.001*	-0.001
			(0.000)	(0.001)	(0.000)	(0.001)
Log(Pop. Density)			0.005**	0.005***	0.006***	0.005***
			(0.002)	(0.001)	(0.002)	(0.001)
Covid Cases, 1w				-1.587	-1.496*	-2.761*
				(1.043)	(0.760)	(1.360)
Covid Cases, 4w				-0.836**	-0.588*	-0.485
				(0.304)	(0.250)	(0.336)
Covid Deaths, 1w				-17.892	-2.831	-10.867
				(14.284)	(11.321)	(15.004)
Covid Deaths, 4w				11.457***	5.075	7.703*
				(3.022)	(2.744)	(3.077)
WFH Index				-0.072	0.056	-0.073*
				(0.041)	(0.050)	(0.034)
Industry Index					0.461***	
					(0.079)	
March Small-Firm Rev.						-0.047***
						(0.011)
State-by-Week FE	No	Yes	Yes	Yes	Yes	Yes
N	11,830	11,830	11,695	11,685	11,685	7,441
Wald F-Stat	24.7	0.3	5.5	6.9	14.0	7.4
K-P F-Stat	72.8	55.6	8.3	9.4	11.8	10.8
A-R 95% Conf. Set	[-0.255, -0.098]	[-0.294, -0.155]	[-0.341, 0.027]	[-0.408, -0.069]	[-0.176, 0.047]	[-0.267, -0.034]
A-R p-value	0.002	0.001	0.077	0.008	0.130	0.018

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state, week, and state-by-week fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. In this regression, the weeks ending 2020-05-02 through 2020-05-30 are pooled, with the remaining weeks excluded from the data.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.18

Continuing Claims, Firms Size 0-99 (Pooled Regression of Post-PPP Rollout Weeks)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.042***	-0.061***	0.006	-0.004	0.005	0.003
	(0.008)	(0.007)	(0.033)	(0.021)	(0.020)	(0.018)
February IUR			0.111***	0.110***	0.096**	0.102**
			(0.033)	(0.031)	(0.032)	(0.032)
Log(Med. Income)			0.006	0.007	0.006	0.007
			(0.005)	(0.005)	(0.005)	(0.004)
Poverty Rate			0.000*	0.000**	0.000*	0.000**
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.002*	0.003**	0.003*	0.003**
			(0.001)	(0.001)	(0.001)	(0.001)
Covid Cases, 1w				0.277***	0.265***	0.266***
				(0.060)	(0.065)	(0.079)
Covid Cases, 4w				-0.089	-0.118	-0.119
				(0.110)	(0.107)	(0.096)
Covid Deaths, 1w				-1.290	-0.630	-0.335
				(2.052)	(1.941)	(2.362)
Covid Deaths, 4w				13.059*	13.470**	14.365**
				(5.700)	(4.570)	(5.130)
WFH Index				-0.024	-0.006	-0.026
				(0.018)	(0.029)	(0.022)
Industry Index					0.061*	
					(0.026)	
March Small-Firm Rev.						-0.007***
						(0.002)
State-by-Week FE	No	Yes	Yes	Yes	Yes	Yes
N	54,732	54,732	53,751	53,705	53,705	34,224
Wald F-Stat	28.3	0.1	0.1	0.2	0.3	0.2
K-P F-Stat	75.2	55.8	8.3	10.5	12.9	12.4
A-R 95% Conf. Set	[-0.057, -0.022]	[-0.084, -0.048]	[-0.070, 0.151]	[-0.064, 0.066]	[-0.043, 0.075]	[-0.048, 0.057]
A-R p-value	0.003	0.001	0.863	0.843	0.806	0.883

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state, week, and state-by-week fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. In this regression, the weeks ending 2020-06-06 through 2020-11-07 are pooled, with the remaining weeks excluded from the data.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.19

Continuing Claims, Firms Size 0-99 (Week Ending 2020-02-22)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.016	0.033**	-0.001	-0.001	-0.001	-0.000
	(0.009)	(0.012)	(0.001)	(0.002)	(0.002)	(0.001)
February IUR			0.964***	0.965***	0.964***	0.965***
			(0.009)	(0.009)	(0.009)	(0.010)
Log(Med. Income)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				111.499	132.102	118.423
				(93.795)	(98.893)	(81.755)
Covid Cases, 4w				-116.717	-138.574	-122.935
				(92.273)	(98.076)	(80.135)
Covid Deaths, 1w				0.000	0.000	0.000
				(.)	(.)	(.)
Covid Deaths, 4w				0.000	0.000	0.000
				(.)	(.)	(.)
WFH Index				0.002	0.003	0.002
				(0.001)	(0.002)	(0.001)
Industry Index					0.003	
					(0.003)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,339	2,339	2,339	2,337	2,337	1,493
Wald F-Stat	3.0	0.2	10896.7	17185.0	997.7	17126.0
K-P F-Stat	72.9	55.8	8.2	10.3	12.5	11.9
A-R 95% Conf. Set	[-0.002, 0.039]	[0.015, 0.081]	[-0.008, 0.002]	[-0.008, 0.002]	[-0.006, 0.003]	[-0.006, 0.003]
A-R p-value	0.078	0.001	0.302	0.406	0.562	0.722

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-02-22.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.20

Continuing Claims, Firms Size 0-99 (Week Ending 2020-02-29)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.015	0.030**	-0.002	-0.002	-0.001	-0.001
	(0.009)	(0.011)	(0.003)	(0.002)	(0.002)	(0.002)
February IUR			0.929***	0.931***	0.930***	0.933***
			(0.017)	(0.017)	(0.017)	(0.019)
Log(Med. Income)			0.001	0.000	0.000	0.000
			(0.001)	(0.001)	(0.001)	(0.001)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	-0.000	-0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				-127.346	-136.811	-149.471
				(85.485)	(88.444)	(92.001)
Covid Cases, 4w				10.160	9.729	14.276
				(15.708)	(16.145)	(18.024)
Covid Deaths, 1w				4801.676***	4796.020***	4926.635***
				(542.750)	(546.586)	(533.095)
Covid Deaths, 4w				0.000	0.000	0.000
				(.)	(.)	(.)
WFH Index				0.004	0.005	0.004
				(0.003)	(0.003)	(0.003)
Industry Index					0.003	
					(0.005)	
March Small-Firm Rev.						-0.001
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,339	2,339	2,339	2,337	2,337	1,493
Wald F-Stat	2.4	0.2	2722.8	300.1	417.3	328.7
K-P F-Stat	72.9	55.8	8.2	11.0	13.8	13.1
A-R 95% Conf. Set	[-0.003, 0.038]	[0.012, 0.076]	[-0.013, 0.004]	[-0.011, 0.004]	[-0.010, 0.004]	[-0.008, 0.004]
A-R p-value	0.109	0.002	0.335	0.420	0.541	0.734

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-02-29.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.21

Continuing Claims, Firms Size 0-99 (Week Ending 2020-03-07)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.014	0.028*	-0.005	-0.004	-0.004	-0.002
	(0.009)	(0.011)	(0.004)	(0.003)	(0.003)	(0.003)
February IUR			0.892***	0.894***	0.893***	0.897***
			(0.024)	(0.024)	(0.024)	(0.026)
Log(Med. Income)			0.001	-0.000	-0.000	0.000
			(0.001)	(0.001)	(0.001)	(0.001)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				28.780	32.622	35.333
				(37.502)	(38.092)	(41.070)
Covid Cases, 4w				-28.646	-32.232	-34.412
				(31.658)	(33.130)	(35.502)
Covid Deaths, 1w				458.485***	456.360***	467.216***
				(53.627)	(53.585)	(52.336)
Covid Deaths, 4w				0.000	0.000	0.000
				(.)	(.)	(.)
WFH Index				0.005	0.007	0.005
				(0.004)	(0.005)	(0.004)
Industry Index					0.004	
					(0.007)	
March Small-Firm Rev.						-0.001
						(0.001)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,339	2,339	2,339	2,337	2,337	1,492
Wald F-Stat	2.0	0.1	50.7	62.0	85.2	73.9
K-P F-Stat	72.9	55.8	8.2	10.7	13.3	12.7
A-R 95% Conf. Set	[-0.005, 0.037]	[0.010, 0.071]	[-0.025, 0.003]	[-0.017, 0.004]	[-0.015, 0.004]	[-0.013, 0.005]
A-R p-value	0.144	0.003	0.187	0.226	0.260	0.427

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-03-07.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.22

Continuing Claims, Firms Size 0-99 (Week Ending 2020-03-14)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.012	0.024*	-0.009	-0.007	-0.006	-0.005
	(0.010)	(0.010)	(0.006)	(0.005)	(0.004)	(0.004)
February IUR			0.851***	0.854***	0.853***	0.858***
			(0.032)	(0.032)	(0.031)	(0.034)
Log(Med. Income)			0.000	-0.001	-0.001	-0.000
			(0.001)	(0.001)	(0.001)	(0.001)
Poverty Rate			0.000	-0.000	-0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				5.592	3.491	2.705
				(15.919)	(14.243)	(14.768)
Covid Cases, 4w				-4.195	-2.843	-2.042
				(12.888)	(11.687)	(12.177)
Covid Deaths, 1w				-235.851	-260.684	-321.356*
				(169.895)	(169.768)	(159.174)
Covid Deaths, 4w				409.629***	424.662***	463.352***
				(105.101)	(105.521)	(99.462)
WFH Index				0.009	0.010	0.009
				(0.006)	(0.007)	(0.006)
Industry Index					0.005	
					(0.010)	
March Small-Firm Rev.						-0.001
						(0.001)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,352	2,352	2,339	2,337	2,337	1,492
Wald F-Stat	1.5	0.1	19.9	28.3	39.3	30.4
K-P F-Stat	72.9	55.9	8.2	10.0	12.4	11.7
A-R 95% Conf. Set	[-0.007, 0.035]	[0.007, 0.064]	[-0.041, 0.003]	[-0.029, 0.004]	[-0.023, 0.003]	[-0.020, 0.005]
A-R p-value	0.200	0.006	0.126	0.140	0.132	0.278

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-03-14.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.23

Continuing Claims, Firms Size 0-99 (Week Ending 2020-03-21)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.009	0.023*	-0.015	-0.013	-0.011	-0.010
	(0.009)	(0.010)	(0.012)	(0.009)	(0.007)	(0.008)
February IUR			0.859***	0.862***	0.860***	0.863***
			(0.038)	(0.037)	(0.036)	(0.039)
Log(Med. Income)			-0.001	-0.002	-0.002	-0.002
			(0.003)	(0.003)	(0.003)	(0.003)
Poverty Rate			0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				-4.186	-4.046	-4.624
				(3.350)	(3.353)	(3.527)
Covid Cases, 4w				2.480	2.276	2.598
				(3.175)	(3.172)	(3.240)
Covid Deaths, 1w				-255.092	-260.541	-228.799
				(157.771)	(149.532)	(172.292)
Covid Deaths, 4w				356.195***	358.015***	343.280***
				(77.149)	(74.180)	(85.790)
WFH Index				0.011	0.013	0.012
				(0.008)	(0.011)	(0.008)
Industry Index					0.008	
					(0.014)	
March Small-Firm Rev.						-0.002
						(0.001)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,352	2,352	2,339	2,337	2,337	1,492
Wald F-Stat	1.1	0.1	12.3	1074.7	1108.8	115.6
K-P F-Stat	72.9	55.9	8.2	9.6	12.3	11.1
A-R 95% Conf. Set	[-0.008, 0.031]	[0.006, 0.061]	[-0.075, 0.008]	[-0.052, 0.006]	[-0.036, 0.004]	[-0.038, 0.010]
A-R p-value	0.280	0.010	0.170	0.155	0.120	0.246

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-03-21.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.24

Continuing Claims, Firms Size 0-99 (Week Ending 2020-03-28)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.018	-0.040*	-0.078**	-0.098*	-0.055**	-0.082**
	(0.015)	(0.016)	(0.029)	(0.039)	(0.020)	(0.030)
February IUR			1.060***	1.066***	1.017***	1.052***
			(0.068)	(0.075)	(0.049)	(0.064)
Log(Med. Income)			-0.011	-0.017	-0.016*	-0.016*
			(0.007)	(0.009)	(0.006)	(0.008)
Poverty Rate			-0.000	-0.001	-0.001*	-0.001
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.001	-0.000	0.000	-0.001
			(0.001)	(0.002)	(0.001)	(0.001)
Covid Cases, 1w				-28.708*	-20.117	-24.629*
				(12.851)	(11.791)	(11.645)
Covid Cases, 4w				21.759*	14.863	18.446
				(10.485)	(9.523)	(9.419)
Covid Deaths, 1w				-212.683	-244.143*	-237.995
				(127.485)	(118.196)	(135.850)
Covid Deaths, 4w				259.579*	268.482*	279.727*
				(119.486)	(109.186)	(125.625)
WFH Index				0.010	0.066**	0.015
				(0.037)	(0.021)	(0.029)
Industry Index					0.207***	
					(0.033)	
March Small-Firm Rev.						-0.015**
						(0.005)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,352	2,352	2,339	2,337	2,337	1,488
Wald F-Stat	1.4	0.1	43.4	64.9	123.0	96.8
K-P F-Stat	72.9	55.9	8.2	9.1	11.9	10.6
A-R 95% Conf. Set	[-0.050, 0.015]	[-0.079, 0.002]	[-0.277, -0.036]	[-0.336, -0.040]	[-0.143, -0.020]	[-0.232, -0.033]
A-R p-value	0.245	0.057	0.001	0.003	0.009	0.005

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-03-28.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.25

Continuing Claims, Firms Size 0-99 (Week Ending 2020-04-04)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.065**	-0.104***	-0.178**	-0.190**	-0.096**	-0.144**
	(0.023)	(0.026)	(0.066)	(0.073)	(0.033)	(0.054)
February IUR			1.370***	1.342***	1.241***	1.326***
			(0.176)	(0.182)	(0.113)	(0.152)
Log(Med. Income)			-0.034*	-0.036	-0.035**	-0.033
			(0.015)	(0.020)	(0.013)	(0.017)
Poverty Rate			-0.002*	-0.002	-0.002**	-0.002*
			(0.001)	(0.001)	(0.001)	(0.001)
Log(Pop. Density)			0.001	-0.000	0.001	-0.001
			(0.002)	(0.003)	(0.002)	(0.003)
Covid Cases, 1w				-2.162	0.654	-0.882
				(1.840)	(2.188)	(1.745)
Covid Cases, 4w				0.856	-0.645	0.172
				(1.089)	(0.848)	(0.783)
Covid Deaths, 1w				-432.578***	-299.903***	-396.044***
				(105.044)	(70.592)	(94.031)
Covid Deaths, 4w				330.223***	221.310***	300.529***
				(74.117)	(48.437)	(65.500)
WFH Index				0.012	0.143**	0.020
				(0.089)	(0.052)	(0.071)
Industry Index					0.469***	
					(0.068)	
March Small-Firm Rev.						-0.037***
						(0.010)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,352	2,352	2,339	2,337	2,337	1,488
Wald F-Stat	8.1	0.4	24.9	45.1	54.2	39.9
K-P F-Stat	72.9	55.9	8.2	9.2	11.7	10.4
A-R 95% Conf. Set	[-0.113, -0.013]	[-0.172, -0.042]	[-0.592, -0.071]	[-0.612, -0.071]	[-0.217, -0.021]	[-0.386, -0.041]
A-R p-value	0.022	0.011	0.006	0.006	0.026	0.016

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-04-04.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.26

Continuing Claims, Firms Size 0-99 (Week Ending 2020-04-11)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.111**	-0.164***	-0.274*	-0.252*	-0.135**	-0.185*
	(0.034)	(0.035)	(0.112)	(0.107)	(0.051)	(0.078)
February IUR			1.580***	1.507***	1.391***	1.458***
			(0.256)	(0.285)	(0.191)	(0.238)
Log(Med. Income)			-0.053*	-0.043	-0.044*	-0.039
			(0.023)	(0.029)	(0.018)	(0.025)
Poverty Rate			-0.003*	-0.002	-0.002**	-0.002
			(0.001)	(0.001)	(0.001)	(0.001)
Log(Pop. Density)			0.000	0.001	0.002	-0.001
			(0.003)	(0.005)	(0.002)	(0.004)
Covid Cases, 1w				-12.599	-8.205	-10.194
				(7.567)	(5.727)	(7.303)
Covid Cases, 4w				2.983	1.937	2.253
				(3.260)	(2.458)	(2.980)
Covid Deaths, 1w				-228.778***	-172.036**	-240.967***
				(54.139)	(55.083)	(50.009)
Covid Deaths, 4w				158.201***	111.486***	162.884***
				(35.273)	(33.758)	(30.422)
WFH Index				0.027	0.191*	0.040
				(0.132)	(0.091)	(0.108)
Industry Index					0.594***	
					(0.101)	
March Small-Firm Rev.						-0.050***
						(0.014)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,352	2,352	2,339	2,337	2,337	1,486
Wald F-Stat	10.1	0.5	31.1	80.6	142.3	217.8
K-P F-Stat	72.9	55.9	8.2	8.9	11.6	10.5
A-R 95% Conf. Set	[-0.181, -0.029]	[-0.257, -0.081]	[-0.927, -0.083]	[-0.840, -0.068]	[-0.309, -0.012]	[-0.499, -0.020]
A-R p-value	0.017	0.007	0.013	0.015	0.040	0.036

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-04-11.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.27

Continuing Claims, Firms Size 0-99 (Week Ending 2020-04-18)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.200***	-0.218***	-0.207**	-0.228**	-0.103*	-0.145**
	(0.045)	(0.038)	(0.071)	(0.079)	(0.049)	(0.052)
February IUR			1.658***	1.587***	1.467***	1.538***
			(0.205)	(0.238)	(0.169)	(0.203)
Log(Med. Income)			-0.042**	-0.041	-0.041**	-0.035
			(0.016)	(0.025)	(0.015)	(0.020)
Poverty Rate			-0.002**	-0.002	-0.002**	-0.002*
			(0.001)	(0.001)	(0.001)	(0.001)
Log(Pop. Density)			0.005**	0.004	0.006***	0.004
			(0.002)	(0.003)	(0.002)	(0.002)
Covid Cases, 1w				-8.763	-6.243	-7.316
				(5.030)	(4.147)	(4.814)
Covid Cases, 4w				1.463	1.333	1.356
				(1.506)	(1.230)	(1.395)
Covid Deaths, 1w				-53.260	-29.370	-39.298
				(36.244)	(36.922)	(41.377)
Covid Deaths, 4w				26.037**	9.927	17.582
				(9.892)	(11.638)	(12.276)
WFH Index				-0.035	0.134*	-0.032
				(0.094)	(0.059)	(0.064)
Industry Index					0.615***	
					(0.093)	
March Small-Firm Rev.						-0.058***
						(0.014)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,366	2,366	2,339	2,337	2,337	1,488
Wald F-Stat	18.8	0.8	52.7	248.3	682.6	346.1
K-P F-Stat	72.8	55.6	8.2	8.9	11.5	10.5
A-R 95% Conf. Set	[-0.296, -0.096]	[-0.322, -0.131]	[-0.587, -0.072]	[-0.653, -0.092]	[-0.240, 0.040]	[-0.344, -0.034]
A-R p-value	0.003	0.004	0.013	0.007	0.101	0.024

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-04-18.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.28

Continuing Claims, Firms Size 0-99 (Week Ending 2020-04-25)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.197***	-0.218***	-0.199**	-0.224**	-0.100*	-0.147**
	(0.043)	(0.035)	(0.066)	(0.073)	(0.044)	(0.048)
February IUR			1.460***	1.426***	1.298***	1.361***
			(0.190)	(0.217)	(0.155)	(0.185)
Log(Med. Income)			-0.040**	-0.039	-0.039**	-0.035
			(0.015)	(0.024)	(0.014)	(0.019)
Poverty Rate			-0.002**	-0.002	-0.002**	-0.002*
			(0.001)	(0.001)	(0.001)	(0.001)
Log(Pop. Density)			0.004**	0.004	0.006***	0.003
			(0.002)	(0.003)	(0.001)	(0.002)
Covid Cases, 1w				-5.086*	-4.441*	-5.446
				(2.378)	(2.046)	(2.971)
Covid Cases, 4w				0.986	1.187	1.303
				(0.950)	(0.845)	(0.973)
Covid Deaths, 1w				-60.886	-25.743	-57.530
				(52.756)	(49.717)	(56.809)
Covid Deaths, 4w				15.852	1.973	11.837
				(9.412)	(8.783)	(10.645)
WFH Index				-0.031	0.133*	-0.027
				(0.087)	(0.052)	(0.060)
Industry Index					0.605***	
					(0.088)	
March Small-Firm Rev.						-0.058***
						(0.014)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,366	2,366	2,339	2,337	2,337	1,491
Wald F-Stat	20.1	0.9	40.3	142.1	398.1	271.1
K-P F-Stat	72.8	55.6	8.2	9.1	11.8	10.6
A-R 95% Conf. Set	[-0.288, -0.097]	[-0.317, -0.138]	[-0.545, -0.074]	[-0.619, -0.098]	[-0.219, 0.033]	[-0.339, -0.045]
A-R p-value	0.003	0.003	0.013	0.006	0.092	0.017

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-04-25.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.29

Continuing Claims, Firms Size 0-99 (Week Ending 2020-05-02)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.194***	-0.220***	-0.180**	-0.214**	-0.099*	-0.145**
	(0.041)	(0.033)	(0.060)	(0.066)	(0.042)	(0.045)
February IUR			1.213***	1.172***	1.060***	1.107***
			(0.158)	(0.189)	(0.127)	(0.157)
Log(Med. Income)			-0.035*	-0.032	-0.033*	-0.030
			(0.014)	(0.021)	(0.013)	(0.018)
Poverty Rate			-0.002**	-0.002	-0.002**	-0.002
			(0.001)	(0.001)	(0.001)	(0.001)
Log(Pop. Density)			0.005**	0.004	0.006***	0.004*
			(0.001)	(0.002)	(0.001)	(0.002)
Covid Cases, 1w				-1.071	-1.516	-2.861
				(1.180)	(1.060)	(1.740)
Covid Cases, 4w				-0.740	-0.254	-0.075
				(0.392)	(0.383)	(0.472)
Covid Deaths, 1w				-43.178	0.192	-38.974
				(25.879)	(22.950)	(25.299)
Covid Deaths, 4w				13.213***	2.091	8.624**
				(3.092)	(2.874)	(3.296)
WFH Index				-0.048	0.108*	-0.044
				(0.075)	(0.048)	(0.052)
Industry Index					0.575***	
					(0.085)	
March Small-Firm Rev.						-0.056***
						(0.013)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,366	2,366	2,339	2,337	2,337	1,492
Wald F-Stat	22.1	1.1	23.6	87.4	58.5	122.8
K-P F-Stat	72.8	55.6	8.2	9.0	11.7	10.6
A-R 95% Conf. Set	[-0.280, -0.100]	[-0.314, -0.149]	[-0.475, -0.058]	[-0.578, -0.103]	[-0.212, 0.025]	[-0.335, -0.056]
A-R p-value	0.002	0.002	0.018	0.004	0.080	0.011

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-05-02.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.30

Continuing Claims, Firms Size 0-99 (Week Ending 2020-05-09)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.191***	-0.223***	-0.158**	-0.196***	-0.092*	-0.135***
	(0.039)	(0.030)	(0.058)	(0.057)	(0.040)	(0.041)
February IUR			0.927***	0.914***	0.790***	0.844***
			(0.131)	(0.150)	(0.108)	(0.125)
Log(Med. Income)			-0.029*	-0.027	-0.027*	-0.024
			(0.013)	(0.018)	(0.012)	(0.015)
Poverty Rate			-0.001*	-0.001	-0.002**	-0.001
			(0.001)	(0.001)	(0.001)	(0.001)
Log(Pop. Density)			0.005**	0.005**	0.006***	0.004**
			(0.002)	(0.002)	(0.002)	(0.001)
Covid Cases, 1w				-1.643	-2.331	-2.280
				(2.257)	(1.821)	(2.313)
Covid Cases, 4w				-1.026*	-0.514	-0.824
				(0.399)	(0.269)	(0.486)
Covid Deaths, 1w				-0.042	15.348	15.642
				(19.449)	(15.962)	(17.071)
Covid Deaths, 4w				11.702***	3.255	7.218*
				(3.394)	(2.748)	(3.531)
WFH Index				-0.065	0.078	-0.067
				(0.055)	(0.049)	(0.039)
Industry Index					0.525***	
					(0.083)	
March Small-Firm Rev.						-0.052***
						(0.013)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,366	2,366	2,339	2,337	2,337	1,491
Wald F-Stat	24.0	1.3	5.1	10.2	23.9	19.0
K-P F-Stat	72.8	55.6	8.2	9.0	11.5	10.3
A-R 95% Conf. Set	[-0.273, -0.103]	[-0.314, -0.160]	[-0.406, -0.020]	[-0.500, -0.098]	[-0.198, 0.030]	[-0.306, -0.052]
A-R p-value	0.002	0.002	0.036	0.005	0.090	0.012

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-05-09.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.31

Continuing Claims, Firms Size 0-99 (Week Ending 2020-05-16)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.189***	-0.226***	-0.135*	-0.171***	-0.082*	-0.120**
	(0.037)	(0.028)	(0.062)	(0.050)	(0.040)	(0.038)
February IUR			0.632***	0.625***	0.510***	0.553***
			(0.117)	(0.131)	(0.105)	(0.115)
Log(Med. Income)			-0.023	-0.020	-0.020	-0.017
			(0.013)	(0.015)	(0.012)	(0.013)
Poverty Rate			-0.001	-0.001	-0.001*	-0.001
			(0.001)	(0.001)	(0.001)	(0.001)
Log(Pop. Density)			0.005**	0.005***	0.007***	0.005***
			(0.002)	(0.001)	(0.002)	(0.001)
Covid Cases, 1w				-0.045	-0.913	0.438
				(2.292)	(1.192)	(2.776)
Covid Cases, 4w				-1.175*	-0.808	-1.173
				(0.483)	(0.413)	(0.639)
Covid Deaths, 1w				-1.225	24.378	1.110
				(23.816)	(19.872)	(27.675)
Covid Deaths, 4w				11.974**	3.765	9.068
				(4.507)	(3.316)	(4.747)
WFH Index				-0.082*	0.048	-0.086*
				(0.040)	(0.056)	(0.035)
Industry Index					0.473***	
					(0.087)	
March Small-Firm Rev.						-0.048***
						(0.012)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,366	2,366	2,339	2,337	2,337	1,492
Wald F-Stat	25.9	1.5	2.8	5.4	18.1	5.9
K-P F-Stat	72.8	55.6	8.2	9.3	11.9	10.8
A-R 95% Conf. Set	[-0.269, -0.106]	[-0.315, -0.170]	[-0.360, 0.037]	[-0.418, -0.080]	[-0.183, 0.041]	[-0.260, -0.039]
A-R p-value	0.001	0.001	0.084	0.007	0.115	0.016

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-05-16.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.32

Continuing Claims, Firms Size 0-99 (Week Ending 2020-05-23)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.175***	-0.205***	-0.097	-0.146**	-0.070	-0.103**
	(0.034)	(0.025)	(0.062)	(0.045)	(0.037)	(0.034)
February IUR			0.543***	0.559***	0.455***	0.501***
			(0.098)	(0.109)	(0.088)	(0.093)
Log(Med. Income)			-0.014	-0.016	-0.017	-0.014
			(0.012)	(0.013)	(0.010)	(0.011)
Poverty Rate			-0.001	-0.001	-0.001	-0.001
			(0.000)	(0.001)	(0.000)	(0.001)
Log(Pop. Density)			0.006**	0.005***	0.006***	0.005***
			(0.002)	(0.001)	(0.002)	(0.001)
Covid Cases, 1w				-5.693**	-3.459*	-6.500**
				(2.187)	(1.609)	(2.431)
Covid Cases, 4w				-0.268	-0.400	0.100
				(0.364)	(0.278)	(0.492)
Covid Deaths, 1w				-25.198	-31.270	-20.873
				(32.343)	(26.801)	(34.150)
Covid Deaths, 4w				17.282**	12.909**	11.679*
				(6.528)	(4.524)	(5.928)
WFH Index				-0.077*	0.036	-0.079*
				(0.035)	(0.053)	(0.034)
Industry Index					0.408***	
					(0.076)	
March Small-Firm Rev.						-0.042***
						(0.010)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,366	2,366	2,339	2,337	2,337	1,491
Wald F-Stat	25.9	1.6	2.7	6.4	11.5	6.8
K-P F-Stat	72.8	55.6	8.2	9.5	11.9	11.0
A-R 95% Conf. Set	[-0.246, -0.097]	[-0.284, -0.156]	[-0.292, 0.102]	[-0.351, -0.059]	[-0.167, 0.045]	[-0.231, -0.028]
A-R p-value	0.002	0.001	0.188	0.010	0.135	0.021

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-05-23.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.33

Continuing Claims, Firms Size 0-99 (Week Ending 2020-05-30)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.150***	-0.177***	-0.065	-0.094*	-0.039	-0.061
	(0.030)	(0.022)	(0.060)	(0.040)	(0.035)	(0.032)
February IUR			0.445***	0.448***	0.368***	0.405***
			(0.082)	(0.082)	(0.073)	(0.075)
Log(Med. Income)			-0.008	-0.004	-0.007	-0.004
			(0.010)	(0.009)	(0.009)	(0.009)
Poverty Rate			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.005**	0.006***	0.006***	0.005***
			(0.002)	(0.001)	(0.002)	(0.002)
Covid Cases, 1w				-2.101	-0.740	-2.068
				(1.339)	(1.136)	(1.654)
Covid Cases, 4w				-1.009*	-1.019**	-0.859
				(0.477)	(0.393)	(0.569)
Covid Deaths, 1w				11.805	9.757	7.443
				(28.849)	(25.305)	(32.387)
Covid Deaths, 4w				16.006	10.833	12.990
				(8.532)	(5.657)	(7.980)
WFH Index				-0.083**	0.011	-0.087*
				(0.027)	(0.057)	(0.035)
Industry Index					0.327***	
					(0.071)	
March Small-Firm Rev.						-0.035***
						(0.008)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,366	2,366	2,339	2,337	2,337	1,475
Wald F-Stat	24.8	1.6	2.4	3.8	4.9	4.2
K-P F-Stat	72.8	55.6	8.2	9.8	12.2	11.4
A-R 95% Conf. Set	[-0.212, -0.081]	[-0.247, -0.135]	[-0.237, 0.145]	[-0.261, -0.005]	[-0.128, 0.075]	[-0.181, 0.012]
A-R p-value	0.002	0.001	0.334	0.043	0.321	0.082

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-05-30.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.34

Continuing Claims, Firms Size 0-99 (Week Ending 2020-06-06)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.121***	-0.146***	-0.027	-0.053	-0.012	-0.027
	(0.024)	(0.018)	(0.059)	(0.038)	(0.034)	(0.030)
February IUR			0.344***	0.346***	0.287***	0.313***
			(0.067)	(0.062)	(0.058)	(0.056)
Log(Med. Income)			0.001	0.004	0.002	0.005
			(0.010)	(0.008)	(0.009)	(0.008)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.005*	0.005***	0.006**	0.005**
			(0.002)	(0.001)	(0.002)	(0.002)
Covid Cases, 1w				0.982	0.366	-0.083
				(1.434)	(1.188)	(1.509)
Covid Cases, 4w				-1.239*	-0.886*	-0.903
				(0.573)	(0.417)	(0.537)
Covid Deaths, 1w				-29.806	-23.026	-30.638
				(30.389)	(26.812)	(39.066)
Covid Deaths, 4w				22.072**	15.781***	18.611**
				(8.336)	(4.613)	(6.981)
WFH Index				-0.076**	-0.006	-0.081*
				(0.028)	(0.056)	(0.037)
Industry Index					0.244***	
					(0.061)	
March Small-Firm Rev.						-0.026***
						(0.006)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,366	2,366	2,339	2,337	2,337	1,491
Wald F-Stat	24.7	1.6	2.1	3.6	4.0	3.2
K-P F-Stat	72.8	55.6	8.2	10.3	12.8	11.8
A-R 95% Conf. Set	[-0.171, -0.066]	[-0.206, -0.113]	[-0.180, 0.205]	[-0.187, 0.044]	[-0.094, 0.104]	[-0.127, 0.053]
A-R p-value	0.002	0.001	0.660	0.193	0.723	0.391

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-06-06.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.35

Continuing Claims, Firms Size 0-99 (Week Ending 2020-06-13)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.093***	-0.114***	0.011	-0.007	0.019	0.011
	(0.019)	(0.015)	(0.060)	(0.039)	(0.036)	(0.032)
February IUR			0.238***	0.232***	0.195***	0.212***
			(0.063)	(0.053)	(0.055)	(0.051)
Log(Med. Income)			0.009	0.013	0.012	0.014
			(0.010)	(0.008)	(0.010)	(0.008)
Poverty Rate			0.001	0.001*	0.001	0.001**
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.005*	0.005**	0.005**	0.005**
			(0.002)	(0.002)	(0.002)	(0.002)
Covid Cases, 1w				1.621	1.253	1.514
				(0.921)	(0.853)	(1.280)
Covid Cases, 4w				-1.081***	-0.842**	-1.056**
				(0.304)	(0.271)	(0.371)
Covid Deaths, 1w				28.315	31.880	40.674
				(17.598)	(19.046)	(22.122)
Covid Deaths, 4w				11.633	7.274	7.299
				(6.269)	(4.767)	(5.841)
WFH Index				-0.069*	-0.023	-0.076
				(0.034)	(0.056)	(0.041)
Industry Index					0.160**	
					(0.051)	
March Small-Firm Rev.						-0.018***
						(0.004)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,366	2,366	2,339	2,337	2,337	1,491
Wald F-Stat	24.4	1.3	1.9	2.8	3.6	2.8
K-P F-Stat	72.8	55.6	8.2	9.6	11.8	11.0
A-R 95% Conf. Set	[-0.132, -0.050]	[-0.167, -0.087]	[-0.130, 0.273]	[-0.121, 0.120]	[-0.064, 0.157]	[-0.082, 0.114]
A-R p-value	0.002	0.001	0.847	0.859	0.593	0.738

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-06-13.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.36

Continuing Claims, Firms Size 0-99 (Week Ending 2020-06-20)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.088***	-0.109***	0.013	-0.000	0.021	0.015
	(0.017)	(0.014)	(0.061)	(0.042)	(0.039)	(0.035)
February IUR			0.220***	0.212***	0.180**	0.194***
			(0.062)	(0.055)	(0.057)	(0.053)
Log(Med. Income)			0.009	0.014	0.012	0.014
			(0.009)	(0.009)	(0.010)	(0.009)
Poverty Rate			0.001	0.001*	0.001	0.001*
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.005*	0.005**	0.005*	0.005**
			(0.002)	(0.002)	(0.002)	(0.002)
Covid Cases, 1w				1.800	0.963	1.450
				(1.270)	(1.125)	(1.237)
Covid Cases, 4w				-0.850**	-0.596*	-0.855*
				(0.307)	(0.301)	(0.381)
Covid Deaths, 1w				16.797	19.142	37.457
				(22.151)	(21.701)	(27.497)
Covid Deaths, 4w				13.259*	9.991*	9.244
				(5.398)	(4.900)	(5.493)
WFH Index				-0.066	-0.026	-0.073
				(0.036)	(0.058)	(0.044)
Industry Index					0.140**	
					(0.051)	
March Small-Firm Rev.						-0.016***
						(0.004)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,365	2,365	2,338	2,336	2,336	1,492
Wald F-Stat	25.6	1.4	2.3	3.1	3.7	3.0
K-P F-Stat	72.8	55.6	8.2	9.7	11.8	11.3
A-R 95% Conf. Set	[-0.125, -0.049]	[-0.157, -0.083]	[-0.126, 0.279]	[-0.124, 0.141]	[-0.070, 0.169]	[-0.089, 0.125]
A-R p-value	0.002	0.001	0.821	0.991	0.576	0.679

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-06-20.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.37

Continuing Claims, Firms Size 0-99 (Week Ending 2020-06-27)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.085***	-0.103***	0.012	0.001	0.020	0.014
	(0.016)	(0.013)	(0.057)	(0.039)	(0.036)	(0.032)
February IUR			0.203***	0.196***	0.174***	0.183***
			(0.059)	(0.047)	(0.051)	(0.048)
Log(Med. Income)			0.009	0.013	0.011	0.013
			(0.009)	(0.009)	(0.010)	(0.008)
Poverty Rate			0.001	0.001*	0.001	0.001*
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.004*	0.005**	0.005*	0.005*
			(0.002)	(0.002)	(0.002)	(0.002)
Covid Cases, 1w				2.088	1.490	1.887
				(1.272)	(1.350)	(1.297)
Covid Cases, 4w				-0.729**	-0.626*	-0.784*
				(0.277)	(0.296)	(0.374)
Covid Deaths, 1w				-11.636	1.713	-10.594
				(6.735)	(6.444)	(7.356)
Covid Deaths, 4w				16.140*	12.882**	16.047**
				(7.479)	(4.962)	(5.830)
WFH Index				-0.060	-0.022	-0.066
				(0.034)	(0.054)	(0.041)
Industry Index					0.129**	
					(0.046)	
March Small-Firm Rev.						-0.015***
						(0.004)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,365	2,365	2,338	2,336	2,336	1,493
Wald F-Stat	27.6	1.5	2.9	3.6	3.6	3.2
K-P F-Stat	72.8	55.6	8.2	10.4	12.4	12.2
A-R 95% Conf. Set	[-0.118, -0.048]	[-0.146, -0.080]	[-0.118, 0.265]	[-0.113, 0.127]	[-0.067, 0.152]	[-0.080, 0.112]
A-R p-value	0.001	0.001	0.834	0.986	0.582	0.670

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-06-27.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.38

Continuing Claims, Firms Size 0-99 (Week Ending 2020-07-04)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.080***	-0.097***	0.010	-0.017	0.002	-0.003
	(0.014)	(0.011)	(0.054)	(0.027)	(0.027)	(0.025)
February IUR			0.184**	0.171***	0.153**	0.157**
			(0.056)	(0.047)	(0.048)	(0.048)
Log(Med. Income)			0.009	0.007	0.007	0.008
			(0.008)	(0.006)	(0.007)	(0.007)
Poverty Rate			0.001	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.004*	0.004**	0.004**	0.004**
			(0.002)	(0.001)	(0.001)	(0.001)
Covid Cases, 1w				2.687***	1.865*	2.421**
				(0.811)	(0.757)	(0.798)
Covid Cases, 4w				-0.695***	-0.553**	-0.713**
				(0.201)	(0.193)	(0.225)
Covid Deaths, 1w				50.856**	34.376	40.920*
				(17.038)	(17.680)	(18.540)
Covid Deaths, 4w				-1.060	3.615	1.395
				(7.055)	(7.504)	(7.592)
WFH Index				-0.048	-0.020	-0.053
				(0.026)	(0.045)	(0.033)
Industry Index					0.101*	
					(0.044)	
March Small-Firm Rev.						-0.012***
						(0.003)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,365	2,365	2,338	2,336	2,336	1,468
Wald F-Stat	31.1	1.7	3.7	16.9	33.8	30.1
K-P F-Stat	72.8	55.6	8.2	10.0	12.0	11.7
A-R 95% Conf. Set	[-0.110, -0.047]	[-0.135, -0.075]	[-0.112, 0.255]	[-0.081, 0.086]	[-0.051, 0.116]	[-0.060, 0.089]
A-R p-value	0.001	0.001	0.849	0.559	0.950	0.910

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-07-04.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.39

Continuing Claims, Firms Size 0-99 (Week Ending 2020-07-11)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.075***	-0.091***	0.008	-0.007	0.007	0.005
	(0.012)	(0.010)	(0.051)	(0.029)	(0.028)	(0.026)
February IUR			0.165**	0.165***	0.145**	0.153**
			(0.055)	(0.046)	(0.049)	(0.048)
Log(Med. Income)			0.009	0.009	0.008	0.010
			(0.008)	(0.006)	(0.007)	(0.006)
Poverty Rate			0.001*	0.001*	0.000	0.001*
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.004*	0.004**	0.004*	0.004*
			(0.002)	(0.001)	(0.001)	(0.001)
Covid Cases, 1w				-0.106	-0.159	-0.130
				(0.470)	(0.545)	(0.484)
Covid Cases, 4w				0.214	0.095	0.156
				(0.273)	(0.231)	(0.232)
Covid Deaths, 1w				-20.384	-8.940	-18.671
				(18.765)	(17.155)	(23.020)
Covid Deaths, 4w				17.535*	15.862**	15.627**
				(8.178)	(5.349)	(5.318)
WFH Index				-0.044	-0.016	-0.048
				(0.027)	(0.044)	(0.033)
Industry Index					0.094*	
					(0.040)	
March Small-Firm Rev.						-0.012***
						(0.003)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,365	2,365	2,338	2,336	2,336	1,491
Wald F-Stat	35.2	1.9	4.7	7.7	17.1	12.4
K-P F-Stat	72.8	55.6	8.2	11.1	13.4	13.0
A-R 95% Conf. Set	[-0.101, -0.047]	[-0.123, -0.071]	[-0.105, 0.243]	[-0.079, 0.093]	[-0.054, 0.110]	[-0.060, 0.088]
A-R p-value	0.001	0.001	0.866	0.809	0.792	0.861

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-07-11.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.40

Continuing Claims, Firms Size 0-99 (Week Ending 2020-07-18)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.070***	-0.084***	0.009	-0.004	0.008	0.007
	(0.011)	(0.009)	(0.050)	(0.028)	(0.027)	(0.026)
February IUR			0.149**	0.149**	0.131**	0.138**
			(0.054)	(0.046)	(0.048)	(0.049)
Log(Med. Income)			0.009	0.009	0.008	0.010
			(0.007)	(0.006)	(0.007)	(0.006)
Poverty Rate			0.001*	0.001*	0.000	0.001*
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.003*	0.003**	0.004*	0.004*
			(0.002)	(0.001)	(0.001)	(0.001)
Covid Cases, 1w				0.632	0.724	0.951
				(0.537)	(0.477)	(0.541)
Covid Cases, 4w				-0.036	-0.180	-0.204
				(0.354)	(0.310)	(0.320)
Covid Deaths, 1w				-0.155	12.577	17.112
				(17.148)	(17.688)	(24.685)
Covid Deaths, 4w				16.298*	14.956**	13.039*
				(7.792)	(5.617)	(5.877)
WFH Index				-0.037	-0.014	-0.043
				(0.026)	(0.041)	(0.032)
Industry Index					0.080*	
					(0.037)	
March Small-Firm Rev.						-0.011***
						(0.003)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,365	2,365	2,338	2,336	2,336	1,493
Wald F-Stat	39.8	2.0	6.2	14.0	24.3	19.1
K-P F-Stat	72.8	55.6	8.2	11.0	13.1	12.6
A-R 95% Conf. Set	[-0.094, -0.045]	[-0.113, -0.066]	[-0.099, 0.240]	[-0.074, 0.096]	[-0.051, 0.110]	[-0.056, 0.094]
A-R p-value	0.001	0.001	0.859	0.884	0.761	0.778

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-07-18.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.41

Continuing Claims, Firms Size 0-99 (Week Ending 2020-07-25)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.065***	-0.079***	0.012	-0.004	0.007	0.005
	(0.010)	(0.009)	(0.049)	(0.025)	(0.024)	(0.023)
February IUR			0.157*	0.149**	0.134*	0.142*
			(0.062)	(0.057)	(0.057)	(0.060)
Log(Med. Income)			0.009	0.008	0.007	0.008
			(0.007)	(0.005)	(0.006)	(0.005)
Poverty Rate			0.001*	0.000*	0.000	0.000*
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.003*	0.003**	0.003**	0.003*
			(0.002)	(0.001)	(0.001)	(0.001)
Covid Cases, 1w				0.208	0.429	0.420
				(0.630)	(0.615)	(0.657)
Covid Cases, 4w				0.035	-0.101	-0.042
				(0.260)	(0.225)	(0.244)
Covid Deaths, 1w				-23.545*	-15.568*	-19.361*
				(9.236)	(6.378)	(7.901)
Covid Deaths, 4w				23.667**	22.076**	21.862***
				(9.173)	(6.918)	(6.524)
WFH Index				-0.035	-0.013	-0.039
				(0.024)	(0.038)	(0.028)
Industry Index					0.073*	
					(0.037)	
March Small-Firm Rev.						-0.010***
						(0.003)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,364	2,364	2,337	2,335	2,335	1,493
Wald F-Stat	41.1	1.9	4.9	8.9	11.9	10.5
K-P F-Stat	72.8	55.6	8.2	11.9	14.1	13.7
A-R 95% Conf. Set	[-0.087, -0.043]	[-0.106, -0.061]	[-0.093, 0.240]	[-0.063, 0.083]	[-0.044, 0.094]	[-0.048, 0.080]
A-R p-value	0.001	0.001	0.808	0.879	0.759	0.819

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-07-25.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.42

Continuing Claims, Firms Size 0-99 (Week Ending 2020-08-01)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.060***	-0.072***	0.006	0.002	0.010	0.009
	(0.009)	(0.008)	(0.049)	(0.036)	(0.033)	(0.032)
February IUR			0.179*	0.174*	0.161	0.176
			(0.089)	(0.085)	(0.084)	(0.091)
Log(Med. Income)			0.006	0.008	0.007	0.008
			(0.009)	(0.009)	(0.009)	(0.009)
Poverty Rate			0.001	0.001	0.000	0.001
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.003	0.003*	0.003*	0.003*
			(0.002)	(0.002)	(0.002)	(0.002)
Covid Cases, 1w				-0.448	-0.262	-0.568
				(0.626)	(0.566)	(0.773)
Covid Cases, 4w				0.096	-0.027	0.075
				(0.436)	(0.395)	(0.419)
Covid Deaths, 1w				-4.468	-4.267	-0.118
				(5.787)	(5.382)	(6.175)
Covid Deaths, 4w				12.836	15.420	13.384
				(12.026)	(10.011)	(11.338)
WFH Index				-0.033	-0.015	-0.038
				(0.028)	(0.039)	(0.032)
Industry Index					0.061*	
					(0.030)	
March Small-Firm Rev.						-0.007**
						(0.002)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,364	2,364	2,337	2,335	2,335	1,491
Wald F-Stat	45.8	1.9	3.3	4.2	4.0	4.1
K-P F-Stat	72.8	55.6	8.2	12.7	14.8	14.4
A-R 95% Conf. Set	[-0.078, -0.039]	[-0.097, -0.056]	[-0.109, 0.215]	[-0.104, 0.099]	[-0.083, 0.100]	[-0.095, 0.086]
A-R p-value	0.001	0.001	0.898	0.964	0.752	0.792

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-08-01.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.43

Continuing Claims, Firms Size 0-99 (Week Ending 2020-08-08)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.054***	-0.064***	0.005	-0.001	0.007	0.005
	(0.008)	(0.007)	(0.044)	(0.033)	(0.030)	(0.030)
February IUR			0.166	0.160	0.149	0.162
			(0.085)	(0.083)	(0.082)	(0.089)
Log(Med. Income)			0.005	0.006	0.006	0.007
			(0.008)	(0.009)	(0.009)	(0.008)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.003	0.003*	0.003*	0.003
			(0.001)	(0.001)	(0.001)	(0.002)
Covid Cases, 1w				-0.302	-0.049	-0.185
				(0.627)	(0.551)	(0.732)
Covid Cases, 4w				0.066	-0.035	0.010
				(0.373)	(0.357)	(0.409)
Covid Deaths, 1w				-2.606	-6.990	-7.913
				(11.288)	(10.508)	(14.397)
Covid Deaths, 4w				9.628	12.285	12.889
				(9.274)	(8.097)	(11.061)
WFH Index				-0.025	-0.011	-0.030
				(0.025)	(0.035)	(0.029)
Industry Index					0.050	
					(0.028)	
March Small-Firm Rev.						-0.006**
						(0.002)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,364	2,364	2,337	2,335	2,335	1,491
Wald F-Stat	49.3	1.8	2.2	34.4	36.1	47.4
K-P F-Stat	72.8	55.6	8.2	11.6	13.8	13.7
A-R 95% Conf. Set	[-0.070, -0.037]	[-0.087, -0.049]	[-0.100, 0.187]	[-0.094, 0.094]	[-0.076, 0.094]	[-0.090, 0.080]
A-R p-value	0.000	0.001	0.914	0.979	0.818	0.856

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-08-08.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.44

Continuing Claims, Firms Size 0-99 (Week Ending 2020-08-15)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.049***	-0.056***	0.004	-0.002	0.004	0.003
	(0.007)	(0.007)	(0.039)	(0.028)	(0.026)	(0.026)
February IUR			0.152	0.147	0.138	0.148
			(0.083)	(0.082)	(0.080)	(0.088)
Log(Med. Income)			0.005	0.005	0.005	0.006
			(0.008)	(0.008)	(0.009)	(0.008)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.002	0.002*	0.003*	0.003*
			(0.001)	(0.001)	(0.001)	(0.001)
Covid Cases, 1w				0.303	0.396	0.506
				(0.672)	(0.620)	(0.711)
Covid Cases, 4w				-0.059	-0.085	-0.103
				(0.255)	(0.248)	(0.249)
Covid Deaths, 1w				-1.802	1.065	4.038
				(7.018)	(7.178)	(9.848)
Covid Deaths, 4w				7.409***	7.077***	7.074***
				(1.808)	(1.549)	(1.601)
WFH Index				-0.019	-0.007	-0.022
				(0.021)	(0.030)	(0.025)
Industry Index					0.040	
					(0.025)	
March Small-Firm Rev.						-0.004*
						(0.002)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,364	2,364	2,337	2,335	2,335	1,492
Wald F-Stat	53.0	1.7	1.0	11.9	11.1	12.5
K-P F-Stat	72.8	55.6	8.2	11.5	14.1	13.0
A-R 95% Conf. Set	[-0.063, -0.034]	[-0.077, -0.043]	[-0.092, 0.165]	[-0.087, 0.080]	[-0.070, 0.078]	[-0.083, 0.071]
A-R p-value	0.000	0.001	0.919	0.942	0.883	0.917

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-08-15.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.45

Continuing Claims, Firms Size 0-99 (Week Ending 2020-08-22)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.039***	-0.051***	0.021	0.016	0.019	0.022
	(0.008)	(0.007)	(0.037)	(0.027)	(0.025)	(0.023)
February IUR			0.100*	0.095	0.090	0.092
			(0.051)	(0.050)	(0.049)	(0.051)
Log(Med. Income)			0.009	0.009	0.009	0.010
			(0.005)	(0.006)	(0.006)	(0.006)
Poverty Rate			0.001**	0.001**	0.001*	0.001**
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.003*	0.003*	0.003*	0.003*
			(0.001)	(0.001)	(0.001)	(0.001)
Covid Cases, 1w				-0.627	-0.587	-0.724
				(0.465)	(0.431)	(0.439)
Covid Cases, 4w				0.057	0.053	0.095
				(0.169)	(0.171)	(0.174)
Covid Deaths, 1w				-8.316	-7.017	-5.769
				(7.727)	(6.838)	(11.407)
Covid Deaths, 4w				7.994***	7.860***	8.167***
				(1.493)	(1.525)	(1.566)
WFH Index				-0.016	-0.011	-0.019
				(0.024)	(0.031)	(0.027)
Industry Index					0.018	
					(0.025)	
March Small-Firm Rev.						-0.005*
						(0.002)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,364	2,364	2,337	2,335	2,335	1,493
Wald F-Stat	26.0	1.2	0.8	2.8	3.0	4.7
K-P F-Stat	72.8	55.6	8.2	11.4	14.1	13.5
A-R 95% Conf. Set	[-0.054, -0.020]	[-0.072, -0.036]	[-0.053, 0.209]	[-0.044, 0.119]	[-0.037, 0.107]	[-0.033, 0.103]
A-R p-value	0.003	0.002	0.538	0.530	0.433	0.338

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-08-22.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.46

Continuing Claims, Firms Size 0-99 (Week Ending 2020-08-29)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.035***	-0.053***	0.012	0.008	0.012	0.013
	(0.009)	(0.007)	(0.031)	(0.024)	(0.022)	(0.021)
February IUR			0.044	0.038	0.031	0.028
			(0.032)	(0.032)	(0.031)	(0.033)
Log(Med. Income)			0.009*	0.010	0.009	0.010*
			(0.004)	(0.005)	(0.005)	(0.005)
Poverty Rate			0.001***	0.001***	0.001***	0.001***
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.002*	0.002*	0.002*	0.002*
			(0.001)	(0.001)	(0.001)	(0.001)
Covid Cases, 1w				-0.795**	-0.841**	-0.992**
				(0.283)	(0.296)	(0.345)
Covid Cases, 4w				0.093	0.116	0.150
				(0.108)	(0.104)	(0.126)
Covid Deaths, 1w				-7.772	-6.243	-5.325
				(6.550)	(6.712)	(9.689)
Covid Deaths, 4w				6.972*	6.627*	7.039*
				(2.727)	(3.052)	(3.591)
WFH Index				-0.006	0.002	-0.009
				(0.023)	(0.030)	(0.026)
Industry Index					0.028	
					(0.023)	
March Small-Firm Rev.						-0.005**
						(0.002)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,364	2,364	2,337	2,335	2,335	1,482
Wald F-Stat	16.2	1.4	0.8	1.5	1.8	3.0
K-P F-Stat	72.8	55.6	8.2	10.2	12.7	12.0
A-R 95% Conf. Set	[-0.051, -0.013]	[-0.077, -0.041]	[-0.057, 0.148]	[-0.050, 0.101]	[-0.040, 0.094]	[-0.040, 0.084]
A-R p-value	0.009	0.001	0.692	0.738	0.580	0.524

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-08-29.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.47

Continuing Claims, Firms Size 0-99 (Week Ending 2020-09-05)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.028**	-0.049***	0.016	0.013	0.016	0.016
	(0.011)	(0.007)	(0.028)	(0.022)	(0.021)	(0.018)
February IUR			0.028	0.022	0.017	0.012
			(0.035)	(0.034)	(0.034)	(0.036)
Log(Med. Income)			0.010*	0.010*	0.010*	0.011**
			(0.004)	(0.005)	(0.005)	(0.004)
Poverty Rate			0.001***	0.001***	0.001***	0.001***
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.002*	0.002*	0.002*	0.002*
			(0.001)	(0.001)	(0.001)	(0.001)
Covid Cases, 1w				-0.759	-0.820*	-1.474**
				(0.392)	(0.393)	(0.571)
Covid Cases, 4w				0.058	0.074	0.206
				(0.138)	(0.126)	(0.208)
Covid Deaths, 1w				-3.889	-4.552	-6.602
				(4.187)	(4.242)	(4.724)
Covid Deaths, 4w				4.698	5.142	6.068
				(3.649)	(3.412)	(3.960)
WFH Index				-0.010	-0.004	-0.013
				(0.020)	(0.025)	(0.022)
Industry Index					0.021	
					(0.018)	
March Small-Firm Rev.						-0.005**
						(0.002)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,364	2,364	2,337	2,335	2,335	1,490
Wald F-Stat	6.5	1.3	0.7	1.0	1.0	1.5
K-P F-Stat	72.8	55.6	8.2	10.5	12.8	12.9
A-R 95% Conf. Set	[-0.049, -0.001]	[-0.071, -0.037]	[-0.043, 0.150]	[-0.041, 0.098]	[-0.035, 0.092]	[-0.033, 0.076]
A-R p-value	0.048	0.001	0.547	0.564	0.455	0.393

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-09-05.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.48

Continuing Claims, Firms Size 0-99 (Week Ending 2020-09-12)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.019	-0.045***	0.015	0.010	0.013	0.014
	(0.014)	(0.007)	(0.026)	(0.020)	(0.020)	(0.017)
February IUR			0.008	0.001	-0.004	-0.009
			(0.041)	(0.039)	(0.040)	(0.043)
Log(Med. Income)			0.008*	0.009*	0.009*	0.010**
			(0.003)	(0.004)	(0.004)	(0.003)
Poverty Rate			0.001***	0.001***	0.001***	0.001***
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.002*	0.002*	0.002*	0.002*
			(0.001)	(0.001)	(0.001)	(0.001)
Covid Cases, 1w				-0.756	-0.878	-0.725
				(0.490)	(0.521)	(0.540)
Covid Cases, 4w				-0.149	-0.138	-0.199
				(0.084)	(0.078)	(0.132)
Covid Deaths, 1w				7.574	8.730	9.896
				(4.648)	(4.710)	(7.314)
Covid Deaths, 4w				3.586	3.854	5.088
				(3.211)	(3.119)	(3.274)
WFH Index				-0.012	-0.006	-0.014
				(0.016)	(0.020)	(0.017)
Industry Index					0.021	
					(0.017)	
March Small-Firm Rev.						-0.004*
						(0.002)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,376	2,376	2,337	2,335	2,335	1,459
Wald F-Stat	1.9	1.0	0.7	1.9	1.9	1.7
K-P F-Stat	77.3	56.0	8.2	10.7	12.6	13.0
A-R 95% Conf. Set	[-0.045, 0.016]	[-0.068, -0.033]	[-0.042, 0.134]	[-0.040, 0.084]	[-0.034, 0.083]	[-0.032, 0.067]
A-R p-value	0.225	0.001	0.551	0.601	0.493	0.422

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-09-12.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.49

Continuing Claims, Firms Size 0-99 (Week Ending 2020-09-19)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.016	-0.040***	0.013	0.009	0.011	0.012
	(0.013)	(0.006)	(0.023)	(0.017)	(0.017)	(0.015)
February IUR			0.010	0.004	0.000	-0.005
			(0.037)	(0.036)	(0.036)	(0.039)
Log(Med. Income)			0.007*	0.009*	0.008*	0.009**
			(0.003)	(0.004)	(0.004)	(0.003)
Poverty Rate			0.001***	0.001***	0.001***	0.001***
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.002*	0.002*	0.002*	0.002*
			(0.001)	(0.001)	(0.001)	(0.001)
Covid Cases, 1w				0.235	0.251	0.379
				(0.201)	(0.201)	(0.240)
Covid Cases, 4w				-0.338***	-0.355***	-0.426***
				(0.085)	(0.092)	(0.093)
Covid Deaths, 1w				-1.523	-1.401	-2.231
				(3.617)	(3.716)	(4.314)
Covid Deaths, 4w				5.533	5.927	7.558*
				(3.389)	(3.192)	(3.728)
WFH Index				-0.011	-0.006	-0.013
				(0.014)	(0.018)	(0.016)
Industry Index					0.015	
					(0.015)	
March Small-Firm Rev.						-0.003*
						(0.001)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,375	2,375	2,337	2,335	2,335	1,491
Wald F-Stat	1.6	1.1	0.6	1.3	1.2	1.5
K-P F-Stat	77.3	55.9	8.2	10.2	12.1	12.2
A-R 95% Conf. Set	[-0.040, 0.016]	[-0.060, -0.029]	[-0.038, 0.118]	[-0.035, 0.076]	[-0.030, 0.072]	[-0.029, 0.061]
A-R p-value	0.255	0.001	0.568	0.612	0.514	0.446

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-09-19.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.50

Continuing Claims, Firms Size 0-99 (Week Ending 2020-09-26)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.014	-0.035***	0.013	0.010	0.011	0.012
	(0.012)	(0.005)	(0.022)	(0.017)	(0.016)	(0.014)
February IUR			0.012	0.007	0.004	-0.001
			(0.035)	(0.033)	(0.033)	(0.036)
Log(Med. Income)			0.007*	0.008*	0.008*	0.008*
			(0.003)	(0.004)	(0.004)	(0.003)
Poverty Rate			0.000***	0.001***	0.001***	0.001***
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.002*	0.002*	0.002*	0.002*
			(0.001)	(0.001)	(0.001)	(0.001)
Covid Cases, 1w				0.599***	0.625***	0.736***
				(0.162)	(0.158)	(0.161)
Covid Cases, 4w				-0.370***	-0.385***	-0.444***
				(0.098)	(0.101)	(0.100)
Covid Deaths, 1w				-3.034	-3.308	-5.480
				(3.680)	(3.744)	(4.840)
Covid Deaths, 4w				4.383	4.739*	6.045*
				(2.389)	(2.094)	(2.754)
WFH Index				-0.009	-0.006	-0.011
				(0.014)	(0.017)	(0.015)
Industry Index					0.011	
					(0.014)	
March Small-Firm Rev.						-0.003*
						(0.001)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,375	2,375	2,337	2,335	2,335	1,491
Wald F-Stat	1.3	1.0	0.6	1.7	1.5	2.1
K-P F-Stat	77.3	55.9	8.2	10.4	12.4	12.3
A-R 95% Conf. Set	[-0.036, 0.017]	[-0.052, -0.025]	[-0.034, 0.113]	[-0.031, 0.074]	[-0.028, 0.068]	[-0.027, 0.059]
A-R p-value	0.303	0.001	0.534	0.555	0.479	0.418

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-09-26.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.51

Continuing Claims, Firms Size 0-99 (Week Ending 2020-10-03)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.010	-0.029***	0.006	0.005	0.006	0.007
	(0.011)	(0.004)	(0.015)	(0.012)	(0.012)	(0.011)
February IUR			0.017	0.015	0.013	0.009
			(0.029)	(0.028)	(0.029)	(0.031)
Log(Med. Income)			0.005*	0.005*	0.005	0.005*
			(0.002)	(0.003)	(0.003)	(0.002)
Poverty Rate			0.000***	0.000***	0.000***	0.000***
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.001*	0.001*	0.001*	0.001*
			(0.001)	(0.001)	(0.001)	(0.001)
Covid Cases, 1w				0.063	0.056	0.037
				(0.246)	(0.257)	(0.287)
Covid Cases, 4w				-0.129	-0.132	-0.131
				(0.090)	(0.098)	(0.108)
Covid Deaths, 1w				3.536	3.329	3.872
				(4.826)	(4.679)	(6.660)
Covid Deaths, 4w				1.813	2.040	2.629
				(2.534)	(2.263)	(3.243)
WFH Index				-0.004	-0.001	-0.005
				(0.010)	(0.013)	(0.011)
Industry Index					0.007	
					(0.011)	
March Small-Firm Rev.						-0.002*
						(0.001)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,375	2,375	2,337	2,335	2,335	1,491
Wald F-Stat	0.8	1.0	0.6	1.4	1.5	1.7
K-P F-Stat	77.3	55.9	8.2	11.4	13.9	13.4
A-R 95% Conf. Set	[-0.031, 0.018]	[-0.043, -0.020]	[-0.028, 0.073]	[-0.026, 0.045]	[-0.023, 0.041]	[-0.023, 0.037]
A-R p-value	0.401	0.001	0.671	0.703	0.622	0.535

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-10-03.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.52

Continuing Claims, Firms Size 0-99 (Week Ending 2020-10-10)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.006	-0.023***	-0.000	0.000	0.001	0.002
	(0.010)	(0.004)	(0.009)	(0.009)	(0.008)	(0.008)
February IUR			0.023	0.021	0.020	0.015
			(0.025)	(0.024)	(0.024)	(0.027)
Log(Med. Income)			0.003*	0.003	0.003	0.003*
			(0.001)	(0.002)	(0.002)	(0.002)
Poverty Rate			0.000***	0.000***	0.000***	0.000***
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.001**	0.001*	0.001*	0.001*
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				-0.048	-0.053	-0.102
				(0.131)	(0.131)	(0.161)
Covid Cases, 4w				-0.046	-0.048	-0.043
				(0.035)	(0.038)	(0.043)
Covid Deaths, 1w				1.405	1.410	1.927
				(2.769)	(2.763)	(4.473)
Covid Deaths, 4w				1.306	1.387	2.043
				(1.570)	(1.441)	(1.911)
WFH Index				0.001	0.002	0.000
				(0.008)	(0.010)	(0.009)
Industry Index					0.004	
					(0.009)	
March Small-Firm Rev.						-0.001
						(0.001)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,375	2,375	2,337	2,335	2,335	1,486
Wald F-Stat	0.4	0.9	0.8	1.9	2.0	1.5
K-P F-Stat	77.3	55.9	8.2	10.6	13.1	12.0
A-R 95% Conf. Set	[-0.027, 0.019]	[-0.035, -0.016]	[-0.023, 0.037]	[-0.021, 0.029]	[-0.019, 0.026]	[-0.020, 0.025]
A-R p-value	0.552	0.001	0.989	0.967	0.903	0.799

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-10-10.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.53

Continuing Claims, Firms Size 0-99 (Week Ending 2020-10-17)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.001	-0.017***	-0.009	-0.008	-0.007	-0.006
	(0.010)	(0.003)	(0.005)	(0.005)	(0.005)	(0.005)
February IUR			0.031	0.030	0.030	0.024
			(0.022)	(0.020)	(0.021)	(0.023)
Log(Med. Income)			0.001	0.001	0.001	0.001
			(0.001)	(0.001)	(0.001)	(0.001)
Poverty Rate			0.000***	0.000**	0.000**	0.000**
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000**	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.131	0.125	0.097
				(0.139)	(0.132)	(0.182)
Covid Cases, 4w				-0.025	-0.026	-0.024
				(0.041)	(0.043)	(0.052)
Covid Deaths, 1w				-4.133	-4.032	-6.584
				(2.704)	(2.694)	(5.203)
Covid Deaths, 4w				1.455	1.501	2.226
				(1.086)	(1.039)	(1.393)
WFH Index				0.007	0.009	0.008
				(0.006)	(0.008)	(0.007)
Industry Index					0.004	
					(0.007)	
March Small-Firm Rev.						-0.001
						(0.001)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,440	2,440	2,337	2,335	2,335	1,490
Wald F-Stat	0.0	0.6	3.4	5.3	5.4	5.7
K-P F-Stat	80.6	56.2	8.2	10.6	13.1	12.5
A-R 95% Conf. Set	[-0.022, 0.023]	[-0.028, -0.011]	[-0.032, 0.004]	[-0.024, 0.005]	[-0.020, 0.005]	[-0.021, 0.007]
A-R p-value	0.891	0.001	0.126	0.159	0.167	0.268

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-10-17.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.54

Continuing Claims, Firms Size 0-99 (Week Ending 2020-10-24)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.001	-0.015***	-0.007	-0.007	-0.006	-0.005
	(0.010)	(0.003)	(0.005)	(0.005)	(0.004)	(0.005)
February IUR			0.036	0.036*	0.035	0.035*
			(0.019)	(0.018)	(0.018)	(0.018)
Log(Med. Income)			0.001	0.001	0.001	0.001
			(0.001)	(0.001)	(0.001)	(0.001)
Poverty Rate			0.000***	0.000***	0.000***	0.000***
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000**	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.399**	0.406**	0.500**
				(0.148)	(0.148)	(0.173)
Covid Cases, 4w				-0.103*	-0.108*	-0.144*
				(0.052)	(0.052)	(0.066)
Covid Deaths, 1w				1.103	1.148	0.771
				(1.478)	(1.511)	(2.372)
Covid Deaths, 4w				0.375	0.455	0.912
				(0.882)	(0.788)	(1.314)
WFH Index				0.007	0.008	0.008
				(0.006)	(0.007)	(0.006)
Industry Index					0.004	
					(0.006)	
March Small-Firm Rev.						-0.001
						(0.001)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,437	2,437	2,334	2,332	2,332	1,490
Wald F-Stat	0.0	0.6	4.1	2.8	2.8	3.3
K-P F-Stat	80.6	56.4	8.3	10.6	13.1	12.4
A-R 95% Conf. Set	[-0.021, 0.023]	[-0.025, -0.009]	[-0.028, 0.004]	[-0.022, 0.005]	[-0.019, 0.005]	[-0.020, 0.007]
A-R p-value	0.957	0.002	0.153	0.186	0.204	0.308

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-10-24.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.55

Continuing Claims, Firms Size 0-99 (Week Ending 2020-10-31)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.001	-0.013***	-0.007	-0.007	-0.006	-0.005
	(0.010)	(0.003)	(0.005)	(0.005)	(0.004)	(0.005)
February IUR			0.042*	0.042**	0.041**	0.039*
			(0.016)	(0.015)	(0.015)	(0.016)
Log(Med. Income)			0.001	0.001	0.000	0.001
			(0.001)	(0.001)	(0.001)	(0.001)
Poverty Rate			0.000***	0.000**	0.000**	0.000**
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000**	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.125	0.127	0.160
				(0.087)	(0.087)	(0.111)
Covid Cases, 4w				0.002	-0.000	-0.017
				(0.040)	(0.040)	(0.049)
Covid Deaths, 1w				-0.677	-0.692	0.809
				(1.224)	(1.226)	(2.500)
Covid Deaths, 4w				-0.053	0.014	-0.191
				(0.754)	(0.687)	(1.338)
WFH Index				0.006	0.007	0.007
				(0.005)	(0.006)	(0.006)
Industry Index					0.003	
					(0.006)	
March Small-Firm Rev.						-0.001
						(0.001)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,437	2,437	2,334	2,332	2,332	1,484
Wald F-Stat	0.0	0.6	5.5	3.3	3.3	3.4
K-P F-Stat	80.6	56.4	8.3	10.5	12.9	11.9
A-R 95% Conf. Set	[-0.019, 0.024]	[-0.021, -0.008]	[-0.026, 0.004]	[-0.022, 0.005]	[-0.019, 0.005]	[-0.021, 0.006]
A-R p-value	0.955	0.002	0.164	0.180	0.192	0.282

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-10-31.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.56

Continuing Claims, Firms Size 0-99 (Week Ending 2020-11-07)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.002	-0.011***	-0.007	-0.007	-0.006	-0.005
	(0.010)	(0.002)	(0.004)	(0.004)	(0.004)	(0.004)
February IUR			0.049***	0.049***	0.048***	0.045**
			(0.014)	(0.013)	(0.013)	(0.014)
Log(Med. Income)			0.001	0.000	0.000	0.000
			(0.001)	(0.001)	(0.001)	(0.001)
Poverty Rate			0.000***	0.000**	0.000**	0.000**
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000*	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				-0.054	-0.055	-0.026
				(0.042)	(0.041)	(0.059)
Covid Cases, 4w				0.067**	0.066**	0.054
				(0.026)	(0.025)	(0.030)
Covid Deaths, 1w				-0.399	-0.448	-0.848
				(1.582)	(1.555)	(2.846)
Covid Deaths, 4w				-0.640	-0.591	-0.489
				(0.765)	(0.719)	(1.200)
WFH Index				0.007	0.007	0.007
				(0.005)	(0.006)	(0.005)
Industry Index					0.002	
					(0.005)	
March Small-Firm Rev.						-0.001
						(0.001)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,437	2,437	2,334	2,332	2,332	1,491
Wald F-Stat	0.0	0.5	6.3	3.5	3.6	4.6
K-P F-Stat	80.6	56.4	8.3	10.3	12.7	11.8
A-R 95% Conf. Set	[-0.018, 0.025]	[-0.018, -0.006]	[-0.026, 0.002]	[-0.021, 0.003]	[-0.018, 0.003]	[-0.020, 0.005]
A-R p-value	0.851	0.003	0.108	0.129	0.137	0.232

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI continuing claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-11-07.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Appendix H: Online Appendix Continued: Initial Claims Tables

TABLE A.57

Initial Claims, Firms Size 0-99 (Pooled Regression of Pre-Covid Weeks)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.001	0.001	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
February IUR			0.863***	0.856***	0.855***	0.867***
			(0.030)	(0.029)	(0.029)	(0.029)
Log(Med. Income)			0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				3.303**	3.483**	3.651**
				(1.243)	(1.307)	(1.173)
Covid Cases, 4w				-0.745	-0.840	-1.038
				(1.263)	(1.338)	(1.137)
Covid Deaths, 1w				-387.876***	-385.651***	-388.391***
				(21.797)	(22.482)	(22.425)
Covid Deaths, 4w				373.671***	372.124***	373.322***
				(14.330)	(14.727)	(14.445)
WFH Index				0.000	0.000	0.000
				(0.000)	(0.000)	(0.000)
Industry Index					-0.001	
					(0.001)	
March Small-Firm Rev.						0.000
						(0.000)
State-by-Week FE	No	Yes	Yes	Yes	Yes	Yes
N	10,352	10,352	10,352	10,344	10,344	6,338
Wald F-Stat	0.9	0.0	157.4	1441.5	1417.3	1433.3
K-P F-Stat	86.5	51.2	9.8	13.0	17.8	17.3
A-R 95% Conf. Set	[-0.001, 0.002]	[-0.000, 0.002]	[-0.002, 0.001]	[-0.001, 0.001]	[-0.001, 0.001]	[-0.001, 0.001]
A-R p-value	0.363	0.197	0.751	0.772	0.485	0.580

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state, week, and state-by-week fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. In this regression, the weeks ending 2020-02-22 through 2020-03-14 are pooled, with the remaining weeks excluded from the data.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.58

Initial Claims, Firms Size 0-99 (Pooled Regression of Covid-Onset Weeks)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.012	-0.076***	-0.098*	-0.094**	-0.045**	-0.066**
	(0.018)	(0.016)	(0.039)	(0.034)	(0.016)	(0.021)
February IUR			3.813**	3.902**	4.331***	4.200***
			(1.307)	(1.207)	(0.668)	(1.064)
Log(Med. Income)			-0.018*	-0.015	-0.016**	-0.014*
			(0.008)	(0.009)	(0.005)	(0.007)
Poverty Rate			-0.001**	-0.001*	-0.001***	-0.001**
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	0.000	0.001	-0.000
			(0.001)	(0.002)	(0.001)	(0.001)
Covid Cases, 1w				-0.637	-1.669**	-0.763
				(0.722)	(0.617)	(0.429)
Covid Cases, 4w				0.221	0.921*	0.311
				(0.627)	(0.414)	(0.352)
Covid Deaths, 1w				-53.846	-36.921	-46.067
				(38.001)	(39.663)	(39.604)
Covid Deaths, 4w				36.702	13.799	28.312
				(27.105)	(28.747)	(29.114)
WFH Index				-0.008	0.072**	-0.000
				(0.044)	(0.024)	(0.032)
Industry Index					0.274***	
					(0.036)	
March Small-Firm Rev.						-0.024***
						(0.005)
State-by-Week FE	No	Yes	Yes	Yes	Yes	Yes
N	7,764	7,764	7,764	7,758	7,758	4,743
Wald F-Stat	0.4	0.2	41.1	12.3	156.0	17.8
K-P F-Stat	86.5	51.2	9.8	12.3	17.6	16.0
A-R 95% Conf. Set	[-0.054, 0.022]	[-0.132, -0.046]	[-0.285, -0.034]	[-0.242, -0.038]	[-0.090, -0.007]	[-0.144, -0.027]
A-R p-value	0.497	0.001	0.007	0.004	0.030	0.006

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state, week, and state-by-week fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. In this regression, the weeks ending 2020-03-21 through 2020-04-04 are pooled, with the remaining weeks excluded from the data.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.59

Initial Claims, Firms Size 0-99 (Pooled Regression of First Tranche Weeks)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.014	-0.037***	-0.048*	-0.041*	-0.023**	-0.025**
	(0.013)	(0.011)	(0.022)	(0.017)	(0.008)	(0.010)
February IUR			1.563***	1.667***	1.837***	1.715***
			(0.428)	(0.330)	(0.206)	(0.274)
Log(Med. Income)			-0.007*	-0.005	-0.005*	-0.004
			(0.004)	(0.004)	(0.002)	(0.003)
Poverty Rate			-0.000*	-0.000	-0.000**	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	0.000	0.000	-0.000
			(0.001)	(0.001)	(0.000)	(0.001)
Covid Cases, 1w				-0.625	-0.461	-0.543
				(0.405)	(0.283)	(0.379)
Covid Cases, 4w				0.143	0.178	0.170
				(0.178)	(0.138)	(0.159)
Covid Deaths, 1w				0.509	-1.029	0.080
				(0.888)	(0.787)	(0.887)
Covid Deaths, 4w				-0.993	-1.656*	-1.326
				(1.014)	(0.752)	(0.892)
WFH Index				0.006	0.031	0.009
				(0.021)	(0.021)	(0.017)
Industry Index					0.088**	
					(0.030)	
March Small-Firm Rev.						-0.007**
						(0.003)
State-by-Week FE	No	Yes	Yes	Yes	Yes	Yes
N	7,764	7,764	7,764	7,758	7,758	4,740
Wald F-Stat	1.2	0.1	17.9	127.4	143.0	174.2
K-P F-Stat	86.5	51.2	9.8	11.6	17.6	15.2
A-R 95% Conf. Set	[-0.043, 0.011]	[-0.069, -0.013]	[-0.138, -0.005]	[-0.105, -0.007]	[-0.045, -0.001]	[-0.053, -0.003]
A-R p-value	0.258	0.012	0.035	0.025	0.043	0.035

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state, week, and state-by-week fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. In this regression, the weeks ending 2020-04-11 through 2020-04-25 are pooled, with the remaining weeks excluded from the data.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.60

Initial Claims, Firms Size 0-99 (Pooled Regression of Second Tranche Weeks)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.003	-0.017**	-0.022	-0.019*	-0.013*	-0.015*
	(0.006)	(0.007)	(0.012)	(0.009)	(0.005)	(0.006)
February IUR			0.325	0.380*	0.432***	0.365*
			(0.199)	(0.151)	(0.117)	(0.154)
Log(Med. Income)			-0.002	-0.002	-0.002	-0.002
			(0.002)	(0.002)	(0.002)	(0.002)
Poverty Rate			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.026	0.030	0.011
				(0.089)	(0.080)	(0.124)
Covid Cases, 4w				-0.056	-0.038	-0.037
				(0.045)	(0.031)	(0.043)
Covid Deaths, 1w				2.476	3.602*	1.805
				(1.532)	(1.589)	(1.427)
Covid Deaths, 4w				-0.567	-1.004*	-0.582
				(0.440)	(0.401)	(0.376)
WFH Index				0.007	0.016	0.010
				(0.010)	(0.012)	(0.010)
Industry Index					0.030*	
					(0.015)	
March Small-Firm Rev.						-0.002*
						(0.001)
State-by-Week FE	No	Yes	Yes	Yes	Yes	Yes
N	12,940	12,940	12,940	12,930	12,930	7,900
Wald F-Stat	0.3	0.0	11.0	8.6	9.2	12.1
K-P F-Stat	86.5	51.2	9.8	11.8	16.8	15.0
A-R 95% Conf. Set	[-0.017, 0.010]	[-0.038, -0.004]	[-0.074, -0.000]	[-0.056, -0.002]	[-0.032, -0.003]	[-0.040, -0.003]
A-R p-value	0.604	0.021	0.047	0.032	0.024	0.018

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state, week, and state-by-week fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. In this regression, the weeks ending 2020-05-02 through 2020-05-30 are pooled, with the remaining weeks excluded from the data.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.61

Initial Claims, Firms Size 0-99 (Pooled Regression of Post-PPP Rollout Weeks)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.001	-0.002*	-0.002	-0.002	-0.002	-0.001
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
February IUR			0.167***	0.174***	0.176***	0.171***
			(0.039)	(0.038)	(0.039)	(0.042)
Log(Med. Income)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.036***	0.036***	0.037***
				(0.009)	(0.009)	(0.007)
Covid Cases, 4w				0.008	0.007	0.007
				(0.006)	(0.005)	(0.004)
Covid Deaths, 1w				0.113	0.133	0.192
				(0.155)	(0.149)	(0.186)
Covid Deaths, 4w				-0.048	-0.034	-0.038
				(0.149)	(0.171)	(0.169)
WFH Index				0.002	0.003	0.003
				(0.002)	(0.002)	(0.002)
Industry Index					0.002	
					(0.002)	
March Small-Firm Rev.						-0.000
						(0.000)
State-by-Week FE	No	Yes	Yes	Yes	Yes	Yes
N	59,524	59,524	59,524	59,478	59,478	36,325
Wald F-Stat	0.9	0.0	11.7	23.9	25.8	21.1
K-P F-Stat	86.5	51.2	9.8	13.1	17.7	17.2
A-R 95% Conf. Set	[-0.001, 0.003]	[-0.005, -0.000]	[-0.009, 0.001]	[-0.006, 0.000]	[-0.004, 0.000]	[-0.004, 0.000]
A-R p-value	0.343	0.028	0.137	0.088	0.086	0.099

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state, week, and state-by-week fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. In this regression, the weeks ending 2020-06-06 through 2020-11-07 are pooled, with the remaining weeks excluded from the data.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.62

Initial Claims, Firms Size 0-99 (Week Ending 2020-02-22)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.001	0.001	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)
February IUR			1.206***	1.206***	1.205***	1.242***
			(0.143)	(0.144)	(0.144)	(0.183)
Log(Med. Income)			0.000	-0.000	-0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				55.526	51.904	44.892
				(65.374)	(64.012)	(67.894)
Covid Cases, 4w				-62.107	-58.166	-54.066
				(64.723)	(63.365)	(66.796)
Covid Deaths, 1w				0.000	0.000	0.000
				(.)	(.)	(.)
Covid Deaths, 4w				0.000	0.000	0.000
				(.)	(.)	(.)
WFH Index				0.000	0.000	0.000
				(0.001)	(0.001)	(0.001)
Industry Index					-0.001	
					(0.001)	
March Small-Firm Rev.						0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,585
Wald F-Stat	2.6	0.1	226.2	97.4	263.1	283.3
K-P F-Stat	86.5	51.2	9.8	12.8	17.1	16.4
A-R 95% Conf. Set	[-0.001, 0.003]	[-0.000, 0.003]	[-0.002, 0.001]	[-0.002, 0.001]	[-0.002, 0.001]	[-0.002, 0.001]
A-R p-value	0.145	0.071	0.678	0.568	0.457	0.454

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-02-22.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.63

Initial Claims, Firms Size 0-99 (Week Ending 2020-02-29)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.001	0.001*	0.001*	0.001	0.001*	0.001
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
February IUR			0.949***	0.944***	0.943***	0.935***
			(0.060)	(0.059)	(0.058)	(0.068)
Log(Med. Income)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000*	0.000*	0.000*	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				-53.178***	-51.430**	-49.904**
				(15.819)	(15.646)	(17.108)
Covid Cases, 4w				15.279***	15.400***	16.767***
				(3.709)	(3.885)	(3.986)
Covid Deaths, 1w				228.347*	228.077*	185.276*
				(90.227)	(89.273)	(88.612)
Covid Deaths, 4w				0.000	0.000	0.000
				(.)	(.)	(.)
WFH Index				-0.001	-0.001	-0.001
				(0.000)	(0.001)	(0.001)
Industry Index					-0.001	
					(0.001)	
March Small-Firm Rev.						0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,585
Wald F-Stat	2.3	0.1	349.8	147.7	206.9	142.8
K-P F-Stat	86.5	51.2	9.8	13.8	19.1	18.4
A-R 95% Conf. Set	[-0.001, 0.002]	[0.000, 0.003]	[0.000, 0.003]	[0.000, 0.003]	[0.000, 0.002]	[-0.000, 0.002]
A-R p-value	0.165	0.011	0.051	0.046	0.044	0.138

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-02-29.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.64

Initial Claims, Firms Size 0-99 (Week Ending 2020-03-07)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.001	0.001	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
February IUR			0.646***	0.649***	0.649***	0.655***
			(0.071)	(0.071)	(0.071)	(0.086)
Log(Med. Income)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				-5.477	-5.363	-2.963
				(4.129)	(3.936)	(4.208)
Covid Cases, 4w				6.222	6.117	3.621
				(4.024)	(3.858)	(4.192)
Covid Deaths, 1w				-2.197	-2.243	-4.344
				(4.301)	(4.333)	(4.239)
Covid Deaths, 4w				0.000	0.000	0.000
				(.)	(.)	(.)
WFH Index				0.001	0.001	0.001
				(0.000)	(0.000)	(0.000)
Industry Index					0.000	
					(0.001)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,584
Wald F-Stat	0.8	0.1	227.8	156.0	157.0	118.7
K-P F-Stat	86.5	51.2	9.8	13.4	18.3	17.7
A-R 95% Conf. Set	[-0.001, 0.002]	[-0.000, 0.002]	[-0.003, 0.000]	[-0.003, 0.001]	[-0.002, 0.000]	[-0.003, 0.000]
A-R p-value	0.392	0.091	0.157	0.208	0.190	0.136

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-03-07.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.65

Initial Claims, Firms Size 0-99 (Week Ending 2020-03-14)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.000	-0.001	-0.001	-0.000	-0.001	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
February IUR			0.652***	0.625***	0.623***	0.634***
			(0.072)	(0.064)	(0.062)	(0.071)
Log(Med. Income)			0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				2.989	3.770*	3.174*
				(1.657)	(1.713)	(1.606)
Covid Cases, 4w				-0.675	-1.184	-0.798
				(1.488)	(1.519)	(1.420)
Covid Deaths, 1w				-367.557***	-359.981***	-369.173***
				(25.261)	(25.438)	(25.028)
Covid Deaths, 4w				363.417***	358.601***	363.931***
				(15.721)	(15.663)	(15.614)
WFH Index				0.001	-0.000	0.001
				(0.001)	(0.001)	(0.001)
Industry Index					-0.002	
					(0.001)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,584
Wald F-Stat	0.0	0.0	53.3	1041.3	1143.8	1073.6
K-P F-Stat	86.5	51.2	9.8	12.4	17.3	16.2
A-R 95% Conf. Set	[-0.002, 0.002]	[-0.003, 0.001]	[-0.006, 0.002]	[-0.004, 0.002]	[-0.004, 0.001]	[-0.003, 0.002]
A-R p-value	0.942	0.431	0.690	0.649	0.384	0.710

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-03-14.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.66

Initial Claims, Firms Size 0-99 (Week Ending 2020-03-21)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.005	-0.079***	-0.105*	-0.103**	-0.044**	-0.086**
	(0.016)	(0.019)	(0.044)	(0.039)	(0.017)	(0.029)
February IUR			3.366*	3.431*	4.026***	3.671*
			(1.627)	(1.559)	(0.940)	(1.572)
Log(Med. Income)			-0.019*	-0.019	-0.016**	-0.019*
			(0.009)	(0.010)	(0.006)	(0.008)
Poverty Rate			-0.001*	-0.001*	-0.001**	-0.001**
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	0.000	0.001	-0.001
			(0.001)	(0.002)	(0.001)	(0.001)
Covid Cases, 1w				-47.049	-46.439	-37.961
				(32.431)	(24.271)	(27.573)
Covid Cases, 4w				39.550	36.156	29.540
				(29.004)	(21.136)	(23.960)
Covid Deaths, 1w				571.098	499.412	606.625
				(633.069)	(524.802)	(623.377)
Covid Deaths, 4w				-197.636	-232.353	-221.566
				(404.064)	(325.509)	(390.597)
WFH Index				-0.005	0.083***	0.005
				(0.046)	(0.023)	(0.036)
Industry Index					0.305***	
					(0.040)	
March Small-Firm Rev.						-0.026***
						(0.006)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,584
Wald F-Stat	0.1	0.4	47.0	13.6	399.2	90.3
K-P F-Stat	86.5	51.2	9.8	12.2	18.3	15.6
A-R 95% Conf. Set	[-0.044, 0.027]	[-0.152, -0.049]	[-0.336, -0.039]	[-0.289, -0.045]	[-0.102, -0.013]	[-0.210, -0.040]
A-R p-value	0.749	0.000	0.003	0.001	0.011	0.001

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-03-21.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.67

Initial Claims, Firms Size 0-99 (Week Ending 2020-03-28)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.014	-0.077***	-0.100*	-0.100**	-0.034*	-0.061**
	(0.021)	(0.018)	(0.040)	(0.038)	(0.016)	(0.022)
February IUR			4.774***	4.831***	5.461***	5.407***
			(1.421)	(1.339)	(0.670)	(1.094)
Log(Med. Income)			-0.020*	-0.017	-0.014*	-0.013
			(0.009)	(0.010)	(0.006)	(0.008)
Poverty Rate			-0.001**	-0.001*	-0.001***	-0.001*
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	0.000	0.001	-0.000
			(0.001)	(0.002)	(0.001)	(0.001)
Covid Cases, 1w				-20.822	-7.695	-12.911
				(11.447)	(9.356)	(9.307)
Covid Cases, 4w				16.295	5.819	9.906
				(9.554)	(7.744)	(7.736)
Covid Deaths, 1w				71.329	25.649	58.904
				(207.879)	(174.597)	(199.701)
Covid Deaths, 4w				-71.499	-60.996	-67.503
				(194.274)	(163.202)	(185.991)
WFH Index				-0.019	0.072*	-0.013
				(0.050)	(0.030)	(0.035)
Industry Index					0.322***	
					(0.047)	
March Small-Firm Rev.						-0.028***
						(0.006)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,579
Wald F-Stat	0.4	0.4	15.8	33.1	80.3	52.9
K-P F-Stat	86.5	51.2	9.8	11.6	18.1	15.2
A-R 95% Conf. Set	[-0.066, 0.025]	[-0.136, -0.040]	[-0.278, -0.028]	[-0.262, -0.036]	[-0.071, 0.011]	[-0.133, -0.016]
A-R p-value	0.486	0.004	0.014	0.006	0.098	0.017

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-03-28.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.68

Initial Claims, Firms Size 0-99 (Week Ending 2020-04-04)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.016	-0.072***	-0.091*	-0.080*	-0.040*	-0.047*
	(0.024)	(0.021)	(0.045)	(0.037)	(0.020)	(0.022)
February IUR			3.299***	3.474***	3.886***	3.736***
			(0.982)	(0.828)	(0.545)	(0.727)
Log(Med. Income)			-0.016*	-0.012	-0.011*	-0.008
			(0.007)	(0.007)	(0.004)	(0.005)
Poverty Rate			-0.001***	-0.001**	-0.001***	-0.001***
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	0.000	0.001	-0.000
			(0.001)	(0.001)	(0.001)	(0.001)
Covid Cases, 1w				-0.135	1.321*	0.719*
				(0.664)	(0.575)	(0.328)
Covid Cases, 4w				0.115	-0.627	-0.275
				(0.473)	(0.375)	(0.274)
Covid Deaths, 1w				-88.114*	-30.166	-66.327
				(42.440)	(23.939)	(35.937)
Covid Deaths, 4w				58.179	10.413	39.998
				(31.646)	(16.650)	(25.735)
WFH Index				-0.001	0.058	0.006
				(0.039)	(0.037)	(0.028)
Industry Index					0.202**	
					(0.064)	
March Small-Firm Rev.						-0.017**
						(0.006)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,580
Wald F-Stat	0.4	0.3	39.5	105.1	216.7	234.2
K-P F-Stat	86.5	51.2	9.8	11.8	17.8	15.0
A-R 95% Conf. Set	[-0.072, 0.032]	[-0.130, -0.025]	[-0.271, -0.002]	[-0.220, -0.007]	[-0.090, 0.010]	[-0.115, 0.005]
A-R p-value	0.504	0.013	0.046	0.037	0.090	0.066

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-04-04.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.69

Initial Claims, Firms Size 0-99 (Week Ending 2020-04-11)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.018	-0.042**	-0.054*	-0.045*	-0.024*	-0.026*
	(0.016)	(0.013)	(0.026)	(0.020)	(0.011)	(0.012)
February IUR			2.172***	2.228***	2.458***	2.417***
			(0.555)	(0.417)	(0.232)	(0.360)
Log(Med. Income)			-0.009*	-0.007	-0.007**	-0.005
			(0.004)	(0.004)	(0.003)	(0.003)
Poverty Rate			-0.000**	-0.000*	-0.000***	-0.000*
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	0.000	0.001	0.000
			(0.001)	(0.001)	(0.000)	(0.001)
Covid Cases, 1w				-2.997*	-1.962	-2.109
				(1.499)	(1.238)	(1.347)
Covid Cases, 4w				0.960	0.706	0.724
				(0.555)	(0.460)	(0.502)
Covid Deaths, 1w				-38.338***	-29.601**	-33.401**
				(11.205)	(10.173)	(10.217)
Covid Deaths, 4w				23.973**	16.328*	19.859**
				(7.723)	(6.510)	(6.569)
WFH Index				0.005	0.035	0.009
				(0.023)	(0.025)	(0.019)
Industry Index					0.104**	
					(0.036)	
March Small-Firm Rev.						-0.009**
						(0.003)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,578
Wald F-Stat	1.2	0.2	33.7	244.6	270.4	377.2
K-P F-Stat	86.5	51.2	9.8	11.4	17.5	14.9
A-R 95% Conf. Set	[-0.056, 0.014]	[-0.078, -0.012]	[-0.154, 0.001]	[-0.117, -0.003]	[-0.050, 0.007]	[-0.058, 0.007]
A-R p-value	0.267	0.019	0.055	0.040	0.090	0.092

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-04-11.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.70

Initial Claims, Firms Size 0-99 (Week Ending 2020-04-18)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.014	-0.040***	-0.053*	-0.045**	-0.026**	-0.030***
	(0.012)	(0.010)	(0.022)	(0.017)	(0.008)	(0.009)
February IUR			1.523***	1.599***	1.812***	1.654***
			(0.443)	(0.351)	(0.278)	(0.302)
Log(Med. Income)			-0.008	-0.006	-0.006*	-0.005
			(0.004)	(0.004)	(0.002)	(0.003)
Poverty Rate			-0.000*	-0.000	-0.000**	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	0.000	0.000	-0.000
			(0.001)	(0.001)	(0.000)	(0.001)
Covid Cases, 1w				-1.120	-0.774	-1.016
				(0.572)	(0.427)	(0.520)
Covid Cases, 4w				0.204	0.204	0.217
				(0.202)	(0.160)	(0.176)
Covid Deaths, 1w				1.812	7.965	10.916
				(7.319)	(6.650)	(6.851)
Covid Deaths, 4w				-0.613	-3.883	-3.779
				(2.478)	(2.316)	(2.069)
WFH Index				0.007	0.033	0.010
				(0.022)	(0.021)	(0.018)
Industry Index					0.094**	
					(0.029)	
March Small-Firm Rev.						-0.008**
						(0.003)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,579
Wald F-Stat	1.3	0.3	14.3	162.2	186.2	228.6
K-P F-Stat	86.5	51.2	9.8	11.2	17.1	14.6
A-R 95% Conf. Set	[-0.042, 0.011]	[-0.071, -0.018]	[-0.143, -0.012]	[-0.111, -0.014]	[-0.046, -0.005]	[-0.057, -0.010]
A-R p-value	0.249	0.008	0.021	0.013	0.029	0.014

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-04-18.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.71

Initial Claims, Firms Size 0-99 (Week Ending 2020-04-25)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.010	-0.029**	-0.038*	-0.032*	-0.020**	-0.021*
	(0.010)	(0.010)	(0.019)	(0.015)	(0.008)	(0.009)
February IUR			0.995**	1.079***	1.198***	1.050***
			(0.337)	(0.260)	(0.194)	(0.232)
Log(Med. Income)			-0.005	-0.003	-0.003	-0.002
			(0.003)	(0.003)	(0.002)	(0.002)
Poverty Rate			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	0.000	0.000	-0.000
			(0.000)	(0.001)	(0.000)	(0.000)
Covid Cases, 1w				-0.181	-0.134	-0.109
				(0.169)	(0.140)	(0.176)
Covid Cases, 4w				0.060	0.091	0.083
				(0.085)	(0.083)	(0.079)
Covid Deaths, 1w				-14.972*	-11.027*	-14.458**
				(6.189)	(4.314)	(4.934)
Covid Deaths, 4w				2.690	1.173	2.273*
				(1.562)	(0.881)	(1.102)
WFH Index				0.006	0.022	0.008
				(0.017)	(0.019)	(0.015)
Industry Index					0.058*	
					(0.024)	
March Small-Firm Rev.						-0.005**
						(0.002)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,583
Wald F-Stat	1.1	0.2	4.9	457.9	424.9	408.0
K-P F-Stat	86.5	51.2	9.8	11.4	17.3	14.8
A-R 95% Conf. Set	[-0.034, 0.009]	[-0.058, -0.009]	[-0.118, -0.002]	[-0.092, -0.004]	[-0.044, -0.003]	[-0.051, -0.003]
A-R p-value	0.285	0.013	0.040	0.029	0.027	0.029

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-04-25.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.72

Initial Claims, Firms Size 0-99 (Week Ending 2020-05-02)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.006	-0.030**	-0.038*	-0.033*	-0.022**	-0.027*
	(0.009)	(0.011)	(0.019)	(0.015)	(0.008)	(0.011)
February IUR			0.481	0.560*	0.681***	0.539*
			(0.347)	(0.258)	(0.164)	(0.266)
Log(Med. Income)			-0.005	-0.004	-0.003	-0.004
			(0.004)	(0.003)	(0.003)	(0.003)
Poverty Rate			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	0.000	0.000	-0.000
			(0.001)	(0.001)	(0.000)	(0.000)
Covid Cases, 1w				0.074	0.026	0.101
				(0.115)	(0.089)	(0.217)
Covid Cases, 4w				-0.090	-0.036	-0.036
				(0.054)	(0.044)	(0.045)
Covid Deaths, 1w				-5.955	-0.968	-9.485
				(5.213)	(4.879)	(6.816)
Covid Deaths, 4w				0.521	-0.684	0.567
				(0.714)	(0.618)	(0.748)
WFH Index				0.006	0.021	0.010
				(0.016)	(0.016)	(0.015)
Industry Index					0.055**	
					(0.021)	
March Small-Firm Rev.						-0.004**
						(0.002)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,584
Wald F-Stat	0.4	0.2	18.3	24.8	31.2	46.1
K-P F-Stat	86.5	51.2	9.8	11.1	16.9	14.2
A-R 95% Conf. Set	[-0.026, 0.013]	[-0.064, -0.009]	[-0.123, -0.006]	[-0.097, -0.008]	[-0.048, -0.007]	[-0.070, -0.008]
A-R p-value	0.532	0.014	0.026	0.015	0.013	0.010

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-05-02.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.73

Initial Claims, Firms Size 0-99 (Week Ending 2020-05-09)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.008	-0.022*	-0.030	-0.024	-0.016*	-0.018*
	(0.008)	(0.009)	(0.016)	(0.012)	(0.007)	(0.008)
February IUR			0.326	0.422*	0.495**	0.402*
			(0.255)	(0.187)	(0.157)	(0.176)
Log(Med. Income)			-0.003	-0.002	-0.002	-0.002
			(0.003)	(0.002)	(0.002)	(0.002)
Poverty Rate			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.108	0.039	0.081
				(0.242)	(0.209)	(0.281)
Covid Cases, 4w				-0.081	-0.034	-0.065
				(0.074)	(0.051)	(0.077)
Covid Deaths, 1w				0.882	1.778	1.832
				(2.062)	(1.629)	(1.597)
Covid Deaths, 4w				-0.438	-1.078**	-0.610
				(0.460)	(0.366)	(0.390)
WFH Index				0.011	0.022	0.014
				(0.013)	(0.016)	(0.012)
Industry Index					0.040	
					(0.022)	
March Small-Firm Rev.						-0.003
						(0.002)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,583
Wald F-Stat	1.0	0.1	18.9	21.2	22.9	29.3
K-P F-Stat	86.5	51.2	9.8	12.0	17.7	14.9
A-R 95% Conf. Set	[-0.027, 0.008]	[-0.048, -0.003]	[-0.099, 0.002]	[-0.071, -0.000]	[-0.039, -0.002]	[-0.048, -0.003]
A-R p-value	0.301	0.030	0.060	0.048	0.035	0.023

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-05-09.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.74

Initial Claims, Firms Size 0-99 (Week Ending 2020-05-16)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.004	-0.015**	-0.019	-0.015*	-0.010*	-0.012*
	(0.006)	(0.006)	(0.010)	(0.007)	(0.004)	(0.005)
February IUR			0.335*	0.405***	0.452***	0.433***
			(0.164)	(0.120)	(0.113)	(0.129)
Log(Med. Income)			-0.001	-0.000	-0.000	-0.000
			(0.002)	(0.002)	(0.001)	(0.001)
Poverty Rate			-0.000	-0.000	-0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.089	0.031	0.093
				(0.184)	(0.121)	(0.216)
Covid Cases, 4w				-0.034	-0.010	-0.024
				(0.037)	(0.026)	(0.045)
Covid Deaths, 1w				2.511	3.915	1.777
				(2.477)	(2.111)	(2.572)
Covid Deaths, 4w				-0.966*	-1.422**	-0.976*
				(0.463)	(0.478)	(0.419)
WFH Index				0.006	0.014	0.008
				(0.009)	(0.012)	(0.009)
Industry Index					0.026	
					(0.015)	
March Small-Firm Rev.						-0.002*
						(0.001)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,584
Wald F-Stat	0.5	0.2	33.9	12.3	12.6	19.2
K-P F-Stat	86.5	51.2	9.8	11.7	17.2	14.8
A-R 95% Conf. Set	[-0.017, 0.008]	[-0.032, -0.003]	[-0.062, 0.001]	[-0.043, -0.000]	[-0.022, -0.001]	[-0.029, -0.002]
A-R p-value	0.468	0.024	0.063	0.046	0.038	0.022

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-05-16.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.75

Initial Claims, Firms Size 0-99 (Week Ending 2020-05-23)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.000	-0.012*	-0.015	-0.013	-0.009*	-0.010*
	(0.006)	(0.006)	(0.009)	(0.007)	(0.004)	(0.005)
February IUR			0.198	0.236	0.273*	0.209
			(0.169)	(0.133)	(0.109)	(0.135)
Log(Med. Income)			-0.001	-0.001	-0.001	-0.001
			(0.002)	(0.001)	(0.001)	(0.001)
Poverty Rate			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				-0.383	-0.267	-0.431
				(0.364)	(0.284)	(0.376)
Covid Cases, 4w				0.020	0.014	0.058
				(0.038)	(0.031)	(0.051)
Covid Deaths, 1w				8.629	8.454	7.656
				(5.953)	(5.687)	(5.546)
Covid Deaths, 4w				-2.174	-2.401	-2.352
				(1.351)	(1.401)	(1.383)
WFH Index				0.009	0.015	0.010
				(0.009)	(0.012)	(0.009)
Industry Index					0.021	
					(0.013)	
March Small-Firm Rev.						-0.002
						(0.001)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,583
Wald F-Stat	0.0	0.1	10.9	21.4	25.1	34.1
K-P F-Stat	86.5	51.2	9.8	11.8	16.8	15.4
A-R 95% Conf. Set	[-0.012, 0.012]	[-0.030, -0.000]	[-0.055, 0.002]	[-0.040, 0.000]	[-0.023, -0.001]	[-0.027, -0.001]
A-R p-value	0.959	0.049	0.079	0.054	0.033	0.032

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-05-23.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.76

Initial Claims, Firms Size 0-99 (Week Ending 2020-05-30)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.002	-0.008*	-0.009	-0.008	-0.006*	-0.006
	(0.003)	(0.003)	(0.006)	(0.004)	(0.003)	(0.003)
February IUR			0.282**	0.309***	0.324***	0.306**
			(0.107)	(0.092)	(0.093)	(0.100)
Log(Med. Income)			-0.001	-0.001	-0.001	-0.001
			(0.001)	(0.001)	(0.001)	(0.001)
Poverty Rate			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.066	0.091	0.043
				(0.073)	(0.072)	(0.073)
Covid Cases, 4w				-0.039	-0.037	-0.022
				(0.038)	(0.032)	(0.038)
Covid Deaths, 1w				5.167*	5.269*	5.164
				(2.631)	(2.578)	(2.699)
Covid Deaths, 4w				-1.339*	-1.503*	-1.393*
				(0.555)	(0.595)	(0.603)
WFH Index				0.004	0.007	0.005
				(0.005)	(0.006)	(0.004)
Industry Index					0.009	
					(0.007)	
March Small-Firm Rev.						-0.001
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,566
Wald F-Stat	0.3	0.1	27.4	3.3	49.0	4.9
K-P F-Stat	86.5	51.2	9.8	12.5	17.2	16.1
A-R 95% Conf. Set	[-0.006, 0.009]	[-0.018, -0.001]	[-0.034, 0.001]	[-0.026, 0.000]	[-0.017, -0.001]	[-0.018, -0.000]
A-R p-value	0.599	0.028	0.072	0.055	0.033	0.050

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-05-30.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.77

Initial Claims, Firms Size 0-99 (Week Ending 2020-06-06)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.002	-0.007	-0.007	-0.006	-0.005	-0.005
	(0.004)	(0.004)	(0.006)	(0.005)	(0.003)	(0.004)
February IUR			0.270*	0.289*	0.299**	0.299*
			(0.126)	(0.116)	(0.115)	(0.150)
Log(Med. Income)			-0.001	-0.001	-0.001	-0.001
			(0.001)	(0.001)	(0.001)	(0.001)
Poverty Rate			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.254	0.238	0.089
				(0.195)	(0.184)	(0.127)
Covid Cases, 4w				-0.104	-0.095	-0.048
				(0.085)	(0.077)	(0.057)
Covid Deaths, 1w				3.830	4.088	4.669
				(2.278)	(2.306)	(2.948)
Covid Deaths, 4w				-0.832	-1.000	-1.225
				(0.526)	(0.713)	(0.776)
WFH Index				0.006	0.008	0.007
				(0.005)	(0.007)	(0.005)
Industry Index					0.007	
					(0.007)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,583
Wald F-Stat	0.2	0.1	42.5	58.4	61.4	84.5
K-P F-Stat	86.5	51.2	9.8	12.9	17.8	16.5
A-R 95% Conf. Set	[-0.007, 0.010]	[-0.020, 0.000]	[-0.032, 0.004]	[-0.024, 0.003]	[-0.017, 0.002]	[-0.018, 0.003]
A-R p-value	0.652	0.057	0.179	0.149	0.125	0.198

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-06-06.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.78

Initial Claims, Firms Size 0-99 (Week Ending 2020-06-13)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.002	-0.008	-0.007	-0.006	-0.005	-0.006
	(0.004)	(0.004)	(0.005)	(0.004)	(0.003)	(0.004)
February IUR			0.293**	0.302**	0.314**	0.270*
			(0.107)	(0.098)	(0.096)	(0.111)
Log(Med. Income)			-0.001	-0.001	-0.001	-0.001
			(0.001)	(0.001)	(0.001)	(0.001)
Poverty Rate			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	0.000	0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.221	0.200	0.308
				(0.232)	(0.219)	(0.328)
Covid Cases, 4w				-0.078	-0.066	-0.107
				(0.075)	(0.067)	(0.094)
Covid Deaths, 1w				0.479	0.611	0.008
				(1.533)	(1.438)	(2.479)
Covid Deaths, 4w				-0.249	-0.427	0.035
				(0.488)	(0.651)	(0.660)
WFH Index				0.006	0.008	0.008
				(0.005)	(0.007)	(0.006)
Industry Index					0.007	
					(0.007)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,582
Wald F-Stat	0.3	0.1	34.2	44.0	47.1	51.6
K-P F-Stat	86.5	51.2	9.8	12.2	16.5	15.6
A-R 95% Conf. Set	[-0.007, 0.011]	[-0.021, 0.000]	[-0.031, 0.002]	[-0.025, 0.001]	[-0.017, 0.001]	[-0.022, 0.001]
A-R p-value	0.575	0.059	0.120	0.084	0.080	0.089

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-06-13.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.79

Initial Claims, Firms Size 0-99 (Week Ending 2020-06-20)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.002	-0.005	-0.005	-0.005	-0.004	-0.005
	(0.002)	(0.003)	(0.004)	(0.004)	(0.003)	(0.003)
February IUR			0.204*	0.216*	0.223**	0.207*
			(0.091)	(0.085)	(0.082)	(0.101)
Log(Med. Income)			-0.000	-0.001	-0.001	-0.001
			(0.001)	(0.001)	(0.001)	(0.001)
Poverty Rate			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	-0.000	0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.287	0.261	0.269
				(0.175)	(0.156)	(0.165)
Covid Cases, 4w				-0.040	-0.033	-0.039
				(0.034)	(0.029)	(0.035)
Covid Deaths, 1w				-2.170	-1.973	-3.728
				(1.918)	(1.733)	(2.570)
Covid Deaths, 4w				-0.157	-0.260	0.118
				(0.447)	(0.510)	(0.533)
WFH Index				0.003	0.004	0.004
				(0.003)	(0.004)	(0.003)
Industry Index					0.005	
					(0.005)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,584
Wald F-Stat	0.4	0.1	17.3	23.5	28.0	26.1
K-P F-Stat	86.5	51.2	9.8	12.3	16.4	16.2
A-R 95% Conf. Set	[-0.004, 0.007]	[-0.014, 0.000]	[-0.024, 0.002]	[-0.021, 0.001]	[-0.015, 0.001]	[-0.019, 0.001]
A-R p-value	0.533	0.053	0.122	0.100	0.094	0.108

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-06-20.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.80

Initial Claims, Firms Size 0-99 (Week Ending 2020-06-27)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.001	-0.004*	-0.006	-0.005	-0.004*	-0.005
	(0.002)	(0.002)	(0.004)	(0.003)	(0.002)	(0.003)
February IUR			0.216***	0.216***	0.223***	0.209**
			(0.064)	(0.059)	(0.059)	(0.068)
Log(Med. Income)			-0.000	-0.000	-0.000	-0.000
			(0.001)	(0.001)	(0.001)	(0.001)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.360**	0.338***	0.387**
				(0.116)	(0.101)	(0.119)
Covid Cases, 4w				-0.073	-0.069*	-0.091*
				(0.038)	(0.033)	(0.045)
Covid Deaths, 1w				-1.655	-1.126	-1.752
				(1.396)	(1.127)	(1.571)
Covid Deaths, 4w				-0.066	-0.167	0.199
				(0.400)	(0.480)	(0.491)
WFH Index				0.003	0.005	0.004
				(0.003)	(0.004)	(0.003)
Industry Index					0.005	
					(0.004)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,585
Wald F-Stat	0.2	0.1	0.5	34.3	33.7	43.4
K-P F-Stat	86.5	51.2	9.8	13.2	17.1	17.3
A-R 95% Conf. Set	[-0.003, 0.006]	[-0.009, -0.000]	[-0.021, 0.001]	[-0.016, 0.001]	[-0.012, 0.000]	[-0.014, 0.001]
A-R p-value	0.639	0.038	0.084	0.069	0.067	0.088

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-06-27.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.81

Initial Claims, Firms Size 0-99 (Week Ending 2020-07-04)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.000	-0.003**	-0.004	-0.002	-0.002	-0.002
	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)
February IUR			0.211**	0.237***	0.240***	0.253**
			(0.066)	(0.064)	(0.066)	(0.083)
Log(Med. Income)			0.000	0.000	0.000	0.000
			(0.001)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.264*	0.252**	0.257*
				(0.113)	(0.097)	(0.118)
Covid Cases, 4w				-0.032	-0.030	-0.033
				(0.031)	(0.029)	(0.036)
Covid Deaths, 1w				-1.730**	-2.012*	-2.376**
				(0.653)	(0.804)	(0.808)
Covid Deaths, 4w				-0.191	-0.100	0.056
				(0.564)	(0.527)	(0.637)
WFH Index				0.001	0.002	0.002
				(0.002)	(0.003)	(0.002)
Industry Index					0.002	
					(0.003)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,556
Wald F-Stat	0.0	0.2	4.5	24.4	24.4	35.2
K-P F-Stat	86.5	51.2	9.8	12.7	17.5	16.3
A-R 95% Conf. Set	[-0.003, 0.004]	[-0.006, -0.001]	[-0.010, 0.004]	[-0.005, 0.004]	[-0.004, 0.004]	[-0.004, 0.005]
A-R p-value	0.911	0.029	0.201	0.261	0.272	0.430

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-07-04.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.82

Initial Claims, Firms Size 0-99 (Week Ending 2020-07-11)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.001	-0.003*	-0.003	-0.001	-0.001	-0.000
	(0.002)	(0.001)	(0.003)	(0.001)	(0.001)	(0.001)
February IUR			0.285***	0.311***	0.313***	0.308**
			(0.078)	(0.084)	(0.086)	(0.094)
Log(Med. Income)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				-0.054	-0.056	-0.089
				(0.078)	(0.080)	(0.098)
Covid Cases, 4w				0.074	0.072	0.081
				(0.046)	(0.044)	(0.051)
Covid Deaths, 1w				1.925	2.135	1.846
				(2.385)	(2.248)	(3.243)
Covid Deaths, 4w				-1.406*	-1.426*	-1.461*
				(0.662)	(0.726)	(0.721)
WFH Index				0.003	0.004	0.004
				(0.003)	(0.004)	(0.003)
Industry Index					0.002	
					(0.003)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,583
Wald F-Stat	0.2	0.1	57.1	125.4	120.2	2.3
K-P F-Stat	86.5	51.2	9.8	14.7	19.9	19.1
A-R 95% Conf. Set	[-0.004, 0.005]	[-0.007, -0.000]	[-0.012, 0.003]	[-0.005, 0.002]	[-0.004, 0.002]	[-0.003, 0.003]
A-R p-value	0.623	0.044	0.296	0.349	0.346	0.757

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-07-11.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.83

Initial Claims, Firms Size 0-99 (Week Ending 2020-07-18)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.001	-0.002*	-0.003	-0.002	-0.002	-0.001
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
February IUR			0.281***	0.301***	0.302***	0.322***
			(0.060)	(0.058)	(0.059)	(0.066)
Log(Med. Income)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.071	0.072	0.071
				(0.046)	(0.045)	(0.055)
Covid Cases, 4w				0.025	0.024	0.023
				(0.030)	(0.027)	(0.031)
Covid Deaths, 1w				3.487*	3.574*	3.981*
				(1.509)	(1.644)	(1.988)
Covid Deaths, 4w				-1.243*	-1.249*	-1.290*
				(0.561)	(0.588)	(0.650)
WFH Index				0.002	0.002	0.003
				(0.002)	(0.003)	(0.002)
Industry Index					0.001	
					(0.002)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,585
Wald F-Stat	0.2	0.1	3.2	10.1	9.4	10.8
K-P F-Stat	86.5	51.2	9.8	14.9	19.7	18.7
A-R 95% Conf. Set	[-0.003, 0.004]	[-0.006, -0.000]	[-0.011, 0.002]	[-0.005, 0.002]	[-0.004, 0.001]	[-0.004, 0.002]
A-R p-value	0.645	0.049	0.189	0.229	0.178	0.252

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-07-18.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.84

Initial Claims, Firms Size 0-99 (Week Ending 2020-07-25)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.000	-0.001	-0.002	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
February IUR			0.200***	0.213***	0.214***	0.231***
			(0.046)	(0.048)	(0.050)	(0.060)
Log(Med. Income)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.128***	0.131***	0.136**
				(0.034)	(0.038)	(0.046)
Covid Cases, 4w				-0.001	-0.004	-0.002
				(0.017)	(0.014)	(0.016)
Covid Deaths, 1w				0.869	1.000	1.227
				(0.730)	(0.648)	(0.887)
Covid Deaths, 4w				-0.613	-0.638	-0.763
				(0.423)	(0.481)	(0.429)
WFH Index				0.001	0.002	0.002
				(0.001)	(0.002)	(0.001)
Industry Index					0.001	
					(0.002)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,585
Wald F-Stat	0.2	0.1	200.9	517.5	708.3	953.0
K-P F-Stat	86.5	51.2	9.8	16.3	21.8	20.9
A-R 95% Conf. Set	[-0.002, 0.003]	[-0.003, 0.001]	[-0.007, 0.002]	[-0.004, 0.002]	[-0.003, 0.001]	[-0.002, 0.002]
A-R p-value	0.658	0.136	0.255	0.316	0.265	0.482

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-07-25.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.85

Initial Claims, Firms Size 0-99 (Week Ending 2020-08-01)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.000	-0.001	-0.001	-0.001	-0.001	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
February IUR			0.155***	0.160***	0.160***	0.164**
			(0.045)	(0.046)	(0.047)	(0.051)
Log(Med. Income)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.035	0.036	0.058
				(0.024)	(0.024)	(0.036)
Covid Cases, 4w				0.019	0.018	0.013
				(0.014)	(0.012)	(0.014)
Covid Deaths, 1w				0.257	0.257	0.357
				(0.395)	(0.397)	(0.506)
Covid Deaths, 4w				-0.050	-0.035	-0.063
				(0.508)	(0.463)	(0.565)
WFH Index				0.002	0.002	0.002
				(0.001)	(0.002)	(0.002)
Industry Index					0.000	
					(0.001)	
March Small-Firm Rev.						0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,583
Wald F-Stat	0.0	0.1	41.2	103.6	107.1	192.2
K-P F-Stat	86.5	51.2	9.8	17.1	22.1	22.3
A-R 95% Conf. Set	[-0.002, 0.002]	[-0.003, 0.000]	[-0.005, 0.001]	[-0.003, 0.001]	[-0.002, 0.001]	[-0.002, 0.001]
A-R p-value	0.911	0.111	0.290	0.400	0.356	0.628

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-08-01.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.86

Initial Claims, Firms Size 0-99 (Week Ending 2020-08-08)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	-0.000	-0.001*	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
February IUR			0.125**	0.129***	0.130***	0.123**
			(0.038)	(0.036)	(0.036)	(0.038)
Log(Med. Income)			0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				-0.037	-0.034	-0.046
				(0.027)	(0.023)	(0.027)
Covid Cases, 4w				0.023*	0.021**	0.026*
				(0.010)	(0.008)	(0.010)
Covid Deaths, 1w				-0.562*	-0.620**	-0.581*
				(0.266)	(0.235)	(0.290)
Covid Deaths, 4w				0.281	0.316	0.265
				(0.229)	(0.178)	(0.244)
WFH Index				0.002	0.002	0.002
				(0.001)	(0.001)	(0.001)
Industry Index					0.001	
					(0.002)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,583
Wald F-Stat	0.0	0.1	15.4	31.8	30.1	37.5
K-P F-Stat	86.5	51.2	9.8	15.2	20.2	20.4
A-R 95% Conf. Set	[-0.002, 0.001]	[-0.003, -0.000]	[-0.005, 0.001]	[-0.003, 0.001]	[-0.002, 0.001]	[-0.002, 0.001]
A-R p-value	0.857	0.037	0.151	0.238	0.192	0.297

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-08-08.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.87

Initial Claims, Firms Size 0-99 (Week Ending 2020-08-15)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.000	-0.001	-0.001	-0.000	-0.000	0.000
	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)
February IUR			0.165***	0.164***	0.163***	0.168***
			(0.038)	(0.039)	(0.040)	(0.045)
Log(Med. Income)			0.000	-0.000	-0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				-0.093	-0.093	-0.103
				(0.066)	(0.063)	(0.069)
Covid Cases, 4w				0.047	0.048	0.052
				(0.026)	(0.025)	(0.027)
Covid Deaths, 1w				0.847*	0.842	0.897
				(0.390)	(0.437)	(0.558)
Covid Deaths, 4w				-0.290	-0.289	-0.297
				(0.285)	(0.294)	(0.310)
WFH Index				0.001	0.001	0.001
				(0.001)	(0.002)	(0.001)
Industry Index					-0.000	
					(0.001)	
March Small-Firm Rev.						0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,584
Wald F-Stat	0.0	0.1	1.3	4.4	6.0	4.1
K-P F-Stat	86.5	51.2	9.8	14.9	20.2	18.8
A-R 95% Conf. Set	[-0.002, 0.001]	[-0.002, 0.000]	[-0.004, 0.001]	[-0.001, 0.001]	[-0.001, 0.001]	[-0.001, 0.002]
A-R p-value	0.988	0.106	0.413	0.708	0.657	0.877

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-08-15.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.88

Initial Claims, Firms Size 0-99 (Week Ending 2020-08-22)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.000	-0.001	-0.000	-0.000	-0.000	0.000
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
February IUR			0.173**	0.173**	0.173**	0.171**
			(0.054)	(0.053)	(0.053)	(0.062)
Log(Med. Income)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				-0.055*	-0.054*	-0.071**
				(0.025)	(0.023)	(0.023)
Covid Cases, 4w				0.027***	0.027***	0.031***
				(0.007)	(0.006)	(0.007)
Covid Deaths, 1w				-0.228	-0.194	-0.316
				(0.406)	(0.330)	(0.439)
Covid Deaths, 4w				-0.076	-0.080	-0.049
				(0.117)	(0.129)	(0.132)
WFH Index				0.001	0.001	0.001
				(0.001)	(0.001)	(0.001)
Industry Index					0.000	
					(0.001)	
March Small-Firm Rev.						0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,585
Wald F-Stat	0.2	0.0	53.3	103.9	102.8	114.1
K-P F-Stat	86.5	51.2	9.8	14.3	19.8	19.0
A-R 95% Conf. Set	[-0.001, 0.001]	[-0.002, 0.000]	[-0.004, 0.002]	[-0.002, 0.002]	[-0.002, 0.002]	[-0.002, 0.002]
A-R p-value	0.642	0.145	0.623	0.750	0.799	0.953

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-08-22.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.89

Initial Claims, Firms Size 0-99 (Week Ending 2020-08-29)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.000	-0.000	-0.000	0.000	-0.000	0.000
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
February IUR			0.145***	0.143***	0.142***	0.147***
			(0.040)	(0.040)	(0.040)	(0.041)
Log(Med. Income)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				-0.034	-0.033	-0.047*
				(0.020)	(0.021)	(0.024)
Covid Cases, 4w				0.010	0.010	0.012
				(0.006)	(0.006)	(0.008)
Covid Deaths, 1w				-0.128	-0.149	0.004
				(0.427)	(0.411)	(0.348)
Covid Deaths, 4w				0.033	0.038	0.029
				(0.158)	(0.152)	(0.190)
WFH Index				0.000	0.000	0.001
				(0.001)	(0.001)	(0.001)
Industry Index					-0.000	
					(0.001)	
March Small-Firm Rev.						0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,574
Wald F-Stat	0.4	0.1	93.0	137.1	138.8	28.0
K-P F-Stat	86.5	51.2	9.8	12.5	17.4	16.6
A-R 95% Conf. Set	[-0.001, 0.002]	[-0.001, 0.000]	[-0.002, 0.002]	[-0.001, 0.002]	[-0.001, 0.002]	[-0.001, 0.002]
A-R p-value	0.534	0.178	0.970	0.907	0.994	0.737

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-08-29.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.90

Initial Claims, Firms Size 0-99 (Week Ending 2020-09-05)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.000	-0.001	-0.000	-0.000	-0.000	0.000
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
February IUR			0.113**	0.113**	0.114**	0.107*
			(0.037)	(0.037)	(0.038)	(0.042)
Log(Med. Income)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.003	-0.001	-0.015
				(0.016)	(0.016)	(0.019)
Covid Cases, 4w				-0.010	-0.009	-0.012
				(0.015)	(0.015)	(0.017)
Covid Deaths, 1w				0.224	0.190	0.507
				(0.377)	(0.354)	(0.370)
Covid Deaths, 4w				0.312	0.335	0.401
				(0.423)	(0.432)	(0.585)
WFH Index				0.001	0.001	0.001
				(0.001)	(0.001)	(0.001)
Industry Index					0.001	
					(0.001)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,582
Wald F-Stat	0.2	0.1	5.2	6.2	6.5	7.1
K-P F-Stat	86.5	51.2	9.8	12.9	17.2	17.5
A-R 95% Conf. Set	[-0.001, 0.002]	[-0.002, 0.000]	[-0.003, 0.002]	[-0.003, 0.001]	[-0.002, 0.001]	[-0.001, 0.002]
A-R p-value	0.630	0.171	0.682	0.622	0.796	0.850

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-09-05.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.91

Initial Claims, Firms Size 0-99 (Week Ending 2020-09-12)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.001	-0.001*	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
February IUR			0.153***	0.157***	0.159***	0.166***
			(0.034)	(0.032)	(0.032)	(0.036)
Log(Med. Income)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	-0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.041	0.031	0.051
				(0.025)	(0.022)	(0.028)
Covid Cases, 4w				-0.010**	-0.010**	-0.018**
				(0.004)	(0.004)	(0.007)
Covid Deaths, 1w				-0.755	-0.637	-1.348
				(0.590)	(0.587)	(0.959)
Covid Deaths, 4w				0.253	0.274	0.420
				(0.285)	(0.288)	(0.394)
WFH Index				0.002	0.002*	0.002*
				(0.001)	(0.001)	(0.001)
Industry Index					0.002*	
					(0.001)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,547
Wald F-Stat	0.9	0.1	8.3	9.4	9.4	16.9
K-P F-Stat	86.5	51.2	9.8	12.4	16.1	16.9
A-R 95% Conf. Set	[-0.001, 0.002]	[-0.002, -0.000]	[-0.006, 0.000]	[-0.005, 0.000]	[-0.004, 0.000]	[-0.003, 0.000]
A-R p-value	0.339	0.024	0.102	0.083	0.120	0.154

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-09-12.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.92

Initial Claims, Firms Size 0-99 (Week Ending 2020-09-19)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
February IUR			0.147***	0.152***	0.153***	0.150**
			(0.038)	(0.037)	(0.037)	(0.046)
Log(Med. Income)			0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				-0.008	-0.006	0.005
				(0.015)	(0.016)	(0.016)
Covid Cases, 4w				-0.005	-0.007	-0.013
				(0.008)	(0.008)	(0.010)
Covid Deaths, 1w				0.139	0.158	0.666
				(0.389)	(0.376)	(0.584)
Covid Deaths, 4w				-0.005	0.026	-0.105
				(0.180)	(0.182)	(0.229)
WFH Index				0.002	0.002	0.002
				(0.001)	(0.001)	(0.001)
Industry Index					0.001	
					(0.001)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,583
Wald F-Stat	0.9	0.1	7.7	9.7	66.1	13.2
K-P F-Stat	86.5	51.2	9.8	12.2	15.9	16.0
A-R 95% Conf. Set	[-0.001, 0.002]	[-0.002, 0.000]	[-0.006, 0.000]	[-0.004, 0.000]	[-0.003, 0.000]	[-0.003, 0.000]
A-R p-value	0.341	0.081	0.121	0.106	0.145	0.200

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-09-19.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.93

Initial Claims, Firms Size 0-99 (Week Ending 2020-09-26)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.001	-0.001	-0.001	-0.001	-0.000	-0.000
	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)
February IUR			0.079**	0.083**	0.084**	0.063*
			(0.030)	(0.029)	(0.030)	(0.026)
Log(Med. Income)			0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.005	0.009	0.013
				(0.008)	(0.008)	(0.008)
Covid Cases, 4w				-0.003	-0.005	-0.008
				(0.005)	(0.005)	(0.006)
Covid Deaths, 1w				-0.301	-0.333	-0.572
				(0.419)	(0.423)	(0.462)
Covid Deaths, 4w				0.175	0.223	0.300*
				(0.110)	(0.117)	(0.130)
WFH Index				0.002	0.002	0.002
				(0.001)	(0.001)	(0.001)
Industry Index					0.002*	
					(0.001)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,582
Wald F-Stat	1.1	0.1	36.1	32.6	31.6	51.3
K-P F-Stat	86.5	51.2	9.8	12.4	16.3	16.3
A-R 95% Conf. Set	[-0.001, 0.002]	[-0.002, 0.000]	[-0.005, 0.001]	[-0.003, 0.000]	[-0.002, 0.001]	[-0.002, 0.001]
A-R p-value	0.304	0.098	0.286	0.283	0.472	0.497

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-09-26.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.94

Initial Claims, Firms Size 0-99 (Week Ending 2020-10-03)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)
February IUR			0.080**	0.084**	0.085***	0.068**
			(0.027)	(0.026)	(0.026)	(0.021)
Log(Med. Income)			0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.022*	0.022	0.022
				(0.011)	(0.011)	(0.013)
Covid Cases, 4w				-0.003	-0.003	-0.005
				(0.004)	(0.004)	(0.004)
Covid Deaths, 1w				-0.337	-0.372	-0.259
				(0.353)	(0.347)	(0.504)
Covid Deaths, 4w				0.056	0.087	0.117
				(0.134)	(0.129)	(0.184)
WFH Index				0.001	0.002	0.002
				(0.001)	(0.001)	(0.001)
Industry Index					0.001	
					(0.001)	
March Small-Firm Rev.						0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,582
Wald F-Stat	1.6	0.1	116.6	76.5	77.2	160.3
K-P F-Stat	86.5	51.2	9.8	13.3	18.0	17.4
A-R 95% Conf. Set	[-0.001, 0.002]	[-0.002, 0.000]	[-0.005, 0.000]	[-0.003, 0.000]	[-0.002, 0.000]	[-0.003, 0.000]
A-R p-value	0.206	0.067	0.070	0.051	0.053	0.125

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-10-03.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.95

Initial Claims, Firms Size 0-99 (Week Ending 2020-10-10)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.002	-0.001*	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
February IUR			0.150***	0.156***	0.158***	0.142***
			(0.042)	(0.040)	(0.040)	(0.040)
Log(Med. Income)			0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.002	0.000	-0.002
				(0.016)	(0.016)	(0.021)
Covid Cases, 4w				0.006	0.005	0.005
				(0.004)	(0.003)	(0.004)
Covid Deaths, 1w				-0.019	-0.015	-0.047
				(0.350)	(0.347)	(0.516)
Covid Deaths, 4w				-0.044	-0.015	0.026
				(0.088)	(0.086)	(0.108)
WFH Index				0.002	0.003*	0.003*
				(0.001)	(0.001)	(0.001)
Industry Index					0.002*	
					(0.001)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,578
Wald F-Stat	2.3	0.1	67.9	100.1	25.8	151.4
K-P F-Stat	86.5	51.2	9.8	12.8	17.6	16.5
A-R 95% Conf. Set	[-0.001, 0.004]	[-0.003, -0.000]	[-0.007, 0.001]	[-0.005, 0.000]	[-0.003, 0.001]	[-0.003, 0.001]
A-R p-value	0.132	0.046	0.201	0.180	0.291	0.379

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-10-10.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.96

Initial Claims, Firms Size 0-99 (Week Ending 2020-10-17)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.001	-0.001	-0.001	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
February IUR			0.119***	0.126***	0.127***	0.116***
			(0.035)	(0.032)	(0.032)	(0.032)
Log(Med. Income)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.036	0.034	0.051
				(0.020)	(0.020)	(0.026)
Covid Cases, 4w				-0.002	-0.002	-0.005
				(0.006)	(0.006)	(0.007)
Covid Deaths, 1w				-0.370	-0.339	-0.281
				(0.359)	(0.347)	(0.520)
Covid Deaths, 4w				-0.092	-0.084	-0.191
				(0.126)	(0.124)	(0.140)
WFH Index				0.002	0.002	0.002
				(0.001)	(0.001)	(0.001)
Industry Index					0.001	
					(0.001)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,582
Wald F-Stat	2.2	0.0	94.2	100.8	201.9	202.3
K-P F-Stat	86.5	51.2	9.8	12.7	17.4	16.8
A-R 95% Conf. Set	[-0.000, 0.003]	[-0.003, 0.000]	[-0.006, 0.001]	[-0.003, 0.001]	[-0.003, 0.001]	[-0.003, 0.001]
A-R p-value	0.138	0.186	0.551	0.592	0.692	0.750

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-10-17.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.97

Initial Claims, Firms Size 0-99 (Week Ending 2020-10-24)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.002	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.002)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
February IUR			0.053	0.056	0.056	0.040
			(0.032)	(0.029)	(0.029)	(0.032)
Log(Med. Income)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.032**	0.033**	0.039**
				(0.012)	(0.012)	(0.014)
Covid Cases, 4w				0.004	0.003	0.001
				(0.005)	(0.005)	(0.005)
Covid Deaths, 1w				0.528	0.528	0.684
				(0.347)	(0.348)	(0.542)
Covid Deaths, 4w				-0.287*	-0.278*	-0.176
				(0.126)	(0.121)	(0.184)
WFH Index				0.001	0.001	0.001
				(0.001)	(0.001)	(0.001)
Industry Index					0.000	
					(0.001)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,582
Wald F-Stat	2.1	0.0	6.4	10.6	19.5	11.3
K-P F-Stat	86.5	51.2	9.8	12.8	17.5	16.7
A-R 95% Conf. Set	[-0.001, 0.006]	[-0.002, 0.001]	[-0.004, 0.001]	[-0.003, 0.001]	[-0.003, 0.001]	[-0.003, 0.002]
A-R p-value	0.143	0.375	0.673	0.605	0.671	0.880

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-10-24.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.98

Initial Claims, Firms Size 0-99 (Week Ending 2020-10-31)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.002	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
February IUR			0.099	0.102	0.102	0.096
			(0.055)	(0.054)	(0.054)	(0.066)
Log(Med. Income)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.020	0.020	0.030
				(0.017)	(0.017)	(0.024)
Covid Cases, 4w				0.008	0.008	0.005
				(0.004)	(0.004)	(0.006)
Covid Deaths, 1w				0.172	0.172	0.159
				(0.184)	(0.184)	(0.369)
Covid Deaths, 4w				-0.259**	-0.260**	-0.134
				(0.098)	(0.099)	(0.163)
WFH Index				0.001	0.001	0.001
				(0.001)	(0.001)	(0.001)
Industry Index					-0.000	
					(0.001)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,574
Wald F-Stat	2.6	0.0	58.5	49.3	61.6	62.3
K-P F-Stat	86.5	51.2	9.8	13.0	17.8	16.4
A-R 95% Conf. Set	[-0.000, 0.005]	[-0.001, 0.001]	[-0.003, 0.002]	[-0.002, 0.002]	[-0.002, 0.002]	[-0.003, 0.002]
A-R p-value	0.105	0.747	0.823	0.683	0.667	0.749

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-10-31.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE A.99

Initial Claims, Firms Size 0-99 (Week Ending 2020-11-07)

	(1)	(2)	(3)	(4)	(5)	(6)
Early PPP Coverage	0.002	-0.000	-0.000	-0.001	-0.000	-0.000
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
February IUR			0.131***	0.132***	0.134***	0.140***
			(0.032)	(0.031)	(0.030)	(0.036)
Log(Med. Income)			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Poverty Rate			0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Pop. Density)			-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Covid Cases, 1w				0.023**	0.022**	0.035**
				(0.008)	(0.008)	(0.012)
Covid Cases, 4w				0.007	0.007	0.005
				(0.006)	(0.006)	(0.005)
Covid Deaths, 1w				-0.059	-0.073	0.202
				(0.164)	(0.172)	(0.249)
Covid Deaths, 4w				-0.166	-0.140	-0.324
				(0.116)	(0.114)	(0.183)
WFH Index				0.001	0.001	0.001
				(0.001)	(0.001)	(0.001)
Industry Index					0.001	
					(0.001)	
March Small-Firm Rev.						-0.000
						(0.000)
State FE	No	Yes	Yes	Yes	Yes	Yes
N	2,588	2,588	2,588	2,586	2,586	1,581
Wald F-Stat	2.8	0.0	11.4	14.0	24.4	22.2
K-P F-Stat	86.5	51.2	9.8	13.1	17.8	16.8
A-R 95% Conf. Set	[-0.000, 0.005]	[-0.001, 0.001]	[-0.003, 0.001]	[-0.003, 0.001]	[-0.002, 0.001]	[-0.002, 0.001]
A-R p-value	0.095	0.687	0.486	0.212	0.395	0.484

Standard errors in parentheses, clustered at the state-level. Anderson-Rubin 95% confidence sets, listed at the bottom of the table, corresponds to the estimated coefficient for Early PPP Coverage. The Anderson-Rubin p-value also corresponds to the estimated coefficient for Early PPP Coverage. K-P F-Stat stands for Kleibergen-Papp F-Statistic.

Table presents coefficients estimated from $y_{cjt} = \beta_{0,s(c)jt} + \beta_{PPP,jt} PPP_{cjt'} + X'_{cjt}\beta_{1,jt} + \epsilon_{cjt}$. The dependent variable is the fraction of the covered workforce with an approved UI initial claim for the given week (only workers from firms sized 0-99). The primary varaible of interest (Early PPP Coverage) is the fraction of jobs at firms sized 0 - 99 which are covered by PPP loans as of April 11, 2020. This variable is instrumented by the county-level share of deposit funds in community banks. Details on measurements are covered in the Data section in the main paper. Principal covariates: state-level fixed effects, February 2020 IUR (IUR in terms of initial claims in this case) for workers from firms sized 0-99 (i.e. the dependent variable as measured immediately pre-pandemic), county-level measures of log(median income), the poverty rate, and log(population density), from Census data. Also included are Covid cases and deaths (separately) over the prior week, and cumulatively over the prior four weeks, as collected by the New York Times, via Opportunity Insights. The WFH Index for small firms stands for a 'Work From Home' index. This is calculated as the inner product of (a) the Dingel & Neiman (2020) measure of the share of industry-level jobs that can be done from home and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. Industry Index is calculated as the inner product of (a) fraction of jobs lost in industry j from February 2020 - April 2020, as measured by BLS' Current Establishment Survey and (b) the employment-share of industry j in county c (for firms size 0 - 99), at the 2-digit NAICS level. March Small-Firm Revenue comes from Womply, via Opportunity Insights. Regressions weighted by the pre-pandemic county-level employment at firms sized 0-99. Each week is estimated and presented seperately, with this table presenting the week ending 2020-11-07.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$