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Analysis of the Distribution of Phase 1 of the Federal Paycheck Protection Programⁱ

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ⁱ This is a working draft with preliminary findings based on the data released by the U.S. Small Business Administration as of 4/16/20. Our goal is not to provide the most robust possible statistical analysis but rather to contribute salient findings to a quickly evolving policy debate.

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Executive Summary

The U.S. Small Business Administration (SBA) approved \$349 billion in Paycheck Protection Program (PPP) loans to small businesses between March 27 and April 16, 2020. Loans went to 1.6 million businesses, or approximately 27% of small businesses nationwide. The average PPP loan was for \$206,000. But the distribution of PPP loans varied significantly by geography, business size, and industry, heavily favoring some states and some businesses over others. Our analysis found that:

(1) Among the 50 States and the District of Columbia, those States in the Northeast and Midwest, and those States with a higher density of community banks, benefitted the most.

- The two strongest predictors we identified for a state receiving a higher proportional share of PPP loans are having a higher density of community banks and being in the Midwest or Northeast.
- After controlling for other factors, racial demographics, density of COVID cases, state political party control, and the presence of large SBA lenders did not predict loan distribution. Distributions correlated with racial demographics and political party control but neither variable was statistically significant after accounting for community bank density.

(2) Across the United States, larger small businesses (over 20 employees) performed dramatically better than smaller small businesses (under 20 employees)

- For purposes of analysis, we broke small businesses into three categories: small (under 20 employees), medium (20-99 employees) and large (100 to 499 employees).
- Loans went disproportionately to medium and large small businesses. Although the smallest businesses (under 20 employees) employ 35% of all small-business workers, they received only 23% of loans by dollar volume. Conversely, large small businesses employ 30% of the small-business workforce but got 36% of the loan volume.
- In practice, this means the average worker at a small business with over 99 employees was almost twice as likely to benefit from PPP funds as a worker at one with under 20 employees.
- These disparities also hold when the data is analyzed in terms of small business payroll (as opposed to small business employee count) although the relationship is weaker.

(3) Loans went disproportionately to construction, manufacturing, and professional, scientific & technical services companies.

- However, our data suggests these industries only outperformed *within* their respective states. Industry presence in a state did not affect loan distribution *across* states.
- As a result, industry, size and location had a compounding influence on the probability of a business receiving a PPP loan. An employee in a large, manufacturing small business in a state like North Dakota was as much as four or five times more likely to benefit from a PPP loan than an employee of a small, food-services business in a state like Nevada.

Our findings suggest that these disparities are a result of the structure and delivery mechanisms of the PPP program and may not have been intentional. As noted, there is no evidence of

political bias towards Republican or Democratic states, and indeed some of the worst performing states are staunchly Republican. Rather, as a first come, first serve program, the PPP program naturally benefitted more sophisticated small businesses that were poised to apply. Banks likely favored existing and larger, more important customers, hurting smaller small businesses without large accounts or without any ties to financial institutions in the first place. While it is not clear why community banks lent more aggressively or quickly, it is clear that access to a community bank was a vital factor in securing a loan, and that these institutions are not evenly distributed around the U.S., again creating unintentional regional disparities in access.

On April 23, Congress restarted the PPP program by authorizing another \$310 billion for loans. The new legislation contains measures attempting to address perceived disparities in the PPP program; for example, it sets aside \$60 billion for loans made by community banks and small lenders.

However, based on our findings, the funds for community banks and small lenders may actually *aggravate* regional disparities rather than improving them. Moreover, this carveout may do little to nothing for the smallest small businesses in states with relatively few community banks, or for those small businesses not already connected to a bank or financial institution.

Congressional policymakers should consider alternative measures designed specifically to address these disparities. For example, Congress might consider using U.S. census data to allocate funds by small business sector, by state on a per-small-business-employee basis, or by small business size. Congress might also consider lowering the maximum covered salary (currently sent at \$100,000 annually) to benefit more lower-wage workers. Finally, Congressional or State policymakers might consider standardizing across the U.S. or within their respective States the documentation requirements that banks can impose on borrowers, creating in essence a "common application" that creates predictability for applicants and levels the playing field for small businesses of different sizes. Such a common application might also encourage large banks to loan to new or smaller customers by creating more regulatory certainty around standards and the requirements of due diligence i.e. reducing bank concern over liability for fraud.

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Section 1: PPP Lending by stateⁱⁱⁱ

The Small Business Administration (SBA) approved \$349 billion in Paycheck Protection Program (PPP) loans to small business (<500 employees) between March 27 and April 16. Loans went to 1.6 million businesses, or approximately 27%^{iv} of small businesses nationwide. The average PPP loan was for \$206,000. States on average received \$5,926 in PPP loans per smallbusiness employee and \$18,607 in PPP loans per million dollars of gross output.^v

Because PPP loans were meant primarily to finance short-term payroll costs, if loans were distributed evenly by region, we would expect each state's borrowed funds to track closely its total number of small business employees. In reality, there was considerable variance, with small businesses in the top performing state, North Dakota, receiving almost twice as much per eligible employee as Nevada, the worst performing state. We examined 6 main factors to explain the state-by-state distribution:

- (1) COVID-19 case density,
- (2) community banks per capita,
- (3) racial demographics,
- (4) state partisanship,
- (5) presence of the largest SBA lending institutions, and
- (6) geography.

Community banks alone explain 36% of the distributional variance. After controlling for other factors, banks remain the most significant statistical factor, though geography also plays a powerful role.^{vi} Northeastern and Midwest states, especially upper Midwest states, generally outperformed Southern and Western states.

Factor 1: COVID-19 Cases

Active and inactive COVID-19 cases as of April 19 had no meaningful correlation to loan approvals, as indicated below.

ⁱⁱⁱSBA released <u>limited data</u> on the distribution of the first tranche of PPP loans, namely data on total loan volume by state, loan size by range, industry, and total loan volume from the highest 15 anonymized lenders. Our analysis is therefore limited to using that data combined with existing public sources.

^{iv} The SBA frequently cites the U.S. as having about 30 million small businesses. However, this is because SBA data <u>includes</u> "nonemployer businesses," which cover businesses operations that generate income but have no employees. U.S. census data indicates 5.95 million small businesses with actual employees and 7.75 million small establishments with actual employees. SBA data excluding nonemployers is consistent with the census data.

^v We chose *number of small-business employees per state* as the most direct way to analyze distribution because this metric reflects well each state's underlying need for PPP funds. PPP funds were meant primarily to finance small businesses' short-term payroll costs, so that those businesses could keep their workers employed.

^{v_1} See Appendix 5 for regression output.



Figure 1: Loan Approvals by State COVID-19 Cases

Factor 2: Demographics

States with higher non-white populations tended to receive less money per small-business employee than other states. The chart below shows this relationship, with a trend line that excludes Hawaii and Washington, D.C. Both Hawaii and D.C. are outliers on the chart, as their minority populations exceed any other state's by over 20 percentage points; for the other 49 states, demographics alone explain 21% percent of the distribution.





However, after controlling for community-bank presence, geography, state industry composition, state partisanship, and top SBA lender presence in all states excluding D.C. and Hawaii, minority population is no longer a statistically significant predictor of state loan distribution.^{vii} This means that states with high minority populations may not have gotten fewer loans *because* of their minority populations.

However, the data is far from conclusive. Based on known structural disadvantages and historic experience, minority-owned businesses may well have failed to get a fair share of PPP loans, relative to non-minority-owned businesses in their states. This question will be difficult to examine unless either banks themselves or the SBA publishes more data on PPP loan recipients.

Factor 3: State Partisanship

State-government partisanship could plausibly impact loan distribution in one of two ways. On the one hand, the Republican Trump administration might favor distribution towards Republican states; on the other, Democratic Governors tended to react more strongly to the COVID crisis and may have helped mobilize their business community. As the table below shows, red states received slightly higher loans per small-business employee than blue states—by seven percent on average.

Figure 3: Loan Approvals by State Partisanship

	Party Control of	Party Control of
	Governorship	State Legislature ^{vm}
Republican	\$6,126	\$6,034
Democrat	\$5,718	\$5,677

As with demographics, however, the relationship between loans and state partisanship becomes statistically insignificant after controlling for other factors.^{ix}

Factor 4: In-State Presence of SBA Top Lenders

Because businesses must apply for PPP loans through banks, and some banks had pre-existing lending relationships with the SBA, we investigated whether states with more of the banks that tended to make the most SBA loans prior to the outbreak of COVID received more PPP funding. We found no strong evidence that this affected loan distribution. The table below shows distributions were nearly identical between states that house the headquarters of a top 10 SBA lender bank by loan value, versus states that do not.

^{vii} P-value = 0.64

viii The state legislature calculations exclude Minnesota and Alaska, where control of the legislature is split.

^{ix} Governorship p-value = 0.19, legislature p-value = 0.95. See Appendix 5 for full regression output.

Figure 4: Loan Approvals by Presence of SBA Top 10 Lenders in State

1+ Top 10 Lender	0 Top 10 Lenders
Headquartered in State	Headquartered in State
\$5,928	\$5,926

It is possible that a more detailed analysis of the Top 100 SBA lenders would indicate a stronger relationship. We did not run this analysis.

Factor 5: Community Banks Per Capita^x

Businesses had to submit PPP applications through financial institutions approved by the SBA, which were typically banks. While neither density of COVID cases, demographics, state partisanship, nor the presence of SBA's top lenders had an independent impact on PPP loan distribution, the data clearly indicates that states with more community banks per capita received more loans. This trend benefitted Midwestern states, which generally have high numbers of chartered community banks per capita. There are multiple potential reasons that community banks mattered: Smaller, independent banks may have responded more nimbly to the PPP program, had stronger ties to local businesses, been more likely to accept applications based on existing relationships and trust, or had less bureaucracy and review. It is also possible that community banks were more open to customers who did not have a pre-existing relationship, as anecdotal data from public reporting suggests (see for example articles on Harford Bank in Maryland and Republic Bank in Philadelphia). Regardless, community banks were a big help—as the chart below demonstrates.^{xi}

^x Community banks refer here to any bank or thrift institution with under \$10 billion in total assets. Each state's number of community banks refers to the number of community banks chartered in that state.

^{xi} The relationship between community banks per capita and loan approvals remains statistically significant after controlling for state population and other factors. (See regression output in Appendix 5.)



It is possible that the presence of large banks—rather than community banks themselves explains part of this correlation, insofar as number of community banks in a state may track that state's total banking activity. But our analysis suggests this is not the case. The lack of a relationship detected between SBA top 10 lenders and loans indicates that the relationship between community banks and loan approvals does not also hold for the presence of large banks.

Factor 6: Geography

Geography appeared to have played a role in loan distribution independent of the above factors. The below tables illustrate the overall regional disparity. As shown, of the top 10 state recipients of PPP funds per employee, 8 are in the Midwest or Northeast; 9 of then 10 lowest recipients are in the West or South.^{xii} All else equal, controlling for all other factors, changing a state's location from the South or West to the Midwest or Northeast increases its loans by \$683 *per eligible employee*. We find only a 2% probability that this relationship between geography and loan approvals is due entirely to chance.^{xiii}

More research is required to understand why there was such a significant regional disparity even after taking into account community-bank density. Other possible factors that we did not assess include differences in how PPP loans were advertised across states, the role of non-SBA-approved financial institutions that assisted processing loan applications (like some fintech

xii See Appendix 1 for all states and Washington, D.C.

xiii P-value = 0.018; see Appendix 3 for full regression output.

companies),^{xiv} the historic development of states' financial institutions and networks, and statelevel policies that may have impacted the approval process.

Rank	Loan Value per Eligible Employee	State	Census Region
1	\$7,782	North Dakota	Midwest
2	\$7,439	Hawaii	West
3	\$7,249	Nebraska	Midwest
4	\$7,183	Minnesota	Midwest
5	\$7,098	Kansas	Midwest
6	\$6,952	Massachusetts	Northeast
7	\$6,782	New Hampshire	Northeast
8	\$6,724	Maine	Northeast
9	\$6,623	Iowa	Midwest
10	\$6,617	Colorado	West

Figure 6: Top 10 State PPP Loan Recipients per Small-Business Employee

Figure 7: Bottom 10 State PPP Loan Recipients per Small-Business Employee

Rank	Loan Value per Eligible Employee	State	Census Region
42	\$5,040	Washington, D.C.	South
43	\$4,955	New York	Northeast
44	\$4,911	West Virginia	South
45	\$4,791	South Carolina	South
46	\$4,788	North Carolina	South
47	\$4,687	California	West
48	\$4,664	Arizona	West
49	\$4,462	Oregon	West
50	\$4,253	New Mexico	West
51	\$4,132	Nevada	West

^{xiv} See Brit Morse, Can't Get a PPP Loan? Try a Fintech Company, *Inc.* (April 27, 2020), <u>https://www.inc.com/brit-morse/fintechs-small-business-ppp-loan-applications.html</u>.

Section 2: PPP Lending by Business Size

The SBA has not released loan approvals by recipient business size, but there is evidence that loan distribution was biased towards larger businesses. The average small business in the United States has roughly 13 employees, and the U.S. median monthly wage is \$3,318.^{xv} This suggests that, if all small U.S. businesses had an equal probability of receiving PPP funds, the average loan size would have been about **\$118,000**. However, the reported average size was **\$206,000**— nearly 75% higher—suggesting large firms received a disproportionate share of loans.

We can also examine this data is by looking at SBA's distribution of loan sizes:

Loan Size	Approved Loans	Approved Dollars	% of Count	% of Amount
\$150k and Under	1,229,893	\$58,321,791,761	74.03%	17.04%
>\$150k - \$350k	224,061	\$50,926,354,675	13.49%	14.88%
>\$350k - \$1M	140,197	\$80,628,410,796	8.44%	23.56%
>\$1M - \$2M	41,238	\$57,187,983,464	2.48%	16.71%
>\$2M - \$5M	21,566	\$64,315,474,825	1.30%	18.79%
>\$5M	4,412	\$30,897,983,583	0.27%	9.03%

Figure 8: Loan Approvals by Size of Loan^{xvi}

We can use this loan-size data to estimate roughly how loans were distributed across differently sized businesses by making a few assumptions. Specifically, we assume three things:

- All PPP recipients applied for the maximum loan amount (2.5x their monthly payroll)
- Small businesses' employees earn U.S. median monthly wages (\$3,318)
- Within each loan-size category above, the number of approved loans was spread evenly across the different sizes of businesses which that loan-size category can support. (For example, loans in the <\$150,000 category are enough to support up to about 19 employees at median wages, so we assume the 1,229,893 loans in this category were evenly spread across firms with between 1 and 19 employees)

Based on small-business employment data from the <u>U.S. census</u>, we find that under these assumptions, medium and larger small businesses (20 employees and up) were dramatically more likely to benefit from this program.

^{xv} We use the median U.S. wage for this analysis, rather than mean wages for the U.S. or for small businesses, because the presence of a small number of exceptionally high earners can skew mean calculations disproportionately upwards. Median wages are especially appropriate for analyzing PPP distributions because companies' payroll costs eligible for PPP coverage were <u>capped</u> at \$100,000 per employee. We were not able to obtain median wages for U.S. small businesses, specifically, from census data.

xvi https://www.sba.gov/sites/default/files/2020-04/PPP%20Deck%20copy.pdf

Figure 9:	Estimated A	Loan Approval	s by Size	of Business ^{xvii}
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Business Categories by Number of Employees	Number of Businesses in Each Category	Total Employees in Each Category	Percentage of Total Small Business Employment	Number of PPP Loans	Volume of PPP Loans (\$bln)	Percentage of Loan Volume Received	Total Loan Volume per Employee	Share of Businesses Receiving Loans	Share of Employees Covered by Loans
Small (0-20)	5,305,960	21,037,941	35%	1,248,565	\$68.8	23%	\$3,271	24%	39%
Medium (20-99)	538,283	21,093,550	35%	334,337	\$124.9	41%	\$5,921	62%	71%
Large (100-499)	90,742	17,783,726	30%	56,846	\$110.3	36%	\$6,200	63%	75%

Figure 10: Estimated Loan Approvals Nationwide by Size of Business

Percentage of Total Small-Business Employment



Percentage of Employees in this Category Covered by Loans

^{xvii} Because of the assumptions required to analyze the SBA data—specifically, the use of the median wage to estimate the number of employees covered per loans—some number of loans appeared to be for more than 500 employees. We excluded these loans from our calculations, although it is likely that the majority of these super-sized loans went to larger small businesses.

<u>State-by-state Differences</u>: In some states, larger small businesses performed proportionally even better than the national average. For example, had every small business in New York State had an equal chance of getting a loan, the average loan would have been \$135,000; however, New York State's average PPP loan size was \$251,000, almost twice as great. In North Dakota, by contrast, the average loan was \$141,000, which was slightly *less* than the average for North Dakota would have been if all small businesses had an equal shot. Put differently, in New York State, larger small businesses did disproportionately better, while in North Dakota, smaller small business outperformed.

The data further suggests that some of the states receiving the most funds per capita had their approvals driven by lots of relatively small businesses applying for loans—again perhaps due to a greater presence of community banks. More research is required to understand the drivers of state-by-state differences in loan bias towards larger small businesses.

We turn next to a discussion of *why* smaller small businesses may have performed poorly relative to larger small businesses. Based on anecdotal data, there are at least two likely causes: smaller businesses have less access to traditional financial institutions and banks prioritized larger loans.

Factor 1: Access to Traditional Financial Institutions

Many small firms were doubly disadvantaged in PPP applications: applying often required *both* preexisting relationships to banks *and* a high level of sophistication to move through the application process quickly.

First, the PPP application process was time-intensive and complex,^{xviii} which may have advantaged companies that have larger human resources to draw from. Second, as the Wall Street Journal has reported, "most" banks gave priority to existing customers in filing PPP applications.^{xix} Banks that prioritized customers with existing lines of credit include JPMorgan Chase,^{xx} Bank of America,^{xxi} and at least 27 of the top 100 SBA lending institutions. Many smaller businesses, therefore, were shut out from applications, because smaller businesses are less likely than larger ones to have open credit lines from traditional banks. As of 2018, 32 percent of small businesses' total loan applications were to nonbank online lenders (*i.e.* fintech

^{xviii} Janet Nguyen, Here's What We Know About the Government's Small Business Loan Program (So Far), *Marketplace* (April 3, 2020), <u>https://www.marketplace.org/2020/04/03/heres-what-we-know-about-the-governments-small-business-loan-program-so-far/</u>.

^{xix} Ruth Simon and Peter Rudegeair, In Race for Small-Business Loans, Winning Hinged on Where Firms Bank, *Wall Street Journal* (April 20, 2020), <u>https://www.wsj.com/articles/in-race-for-small-business-loans-winning-hinged-on-where-firms-bank-11587410421</u>.

^{xx} Caroline Hwang, PPP Loans: Lender List and Requirements, *Yahoo! Finance* (April 6, 2020), <u>https://finance.yahoo.com/news/ppp-loans-lender-list-requirements-173706601.html</u>.

^{xxi} Hugh Son and Dawn Giel, Bank of America Says 85,000 Small Businesses Have Asked for \$22.2 Billion in Loans Since 9 A.M., *CNBC* (April 3, 2020), <u>https://www.cnbc.com/2020/04/03/bank-of-americas-small-business-loan-portal-is-up-making-it-the-first-bank-to-accept-applications.html</u>.

companies)—up from 19 percent in 2016.^{xxii} Minority business owners, in particular, frequently seek lending from informal sources, such as immigrant-group networks.^{xxiii}

Factor 2: Bank Preference for Larger Loans

There is anecdotal evidence that banks may have approved loans from larger firms disproportionately. Some have <u>alleged</u> in a lawsuit that large banks, like JPMorgan and Wells Fargo, favored large requests over small ones because doing so was more profitable for the banks. Even if the loans were not more profitable, banks may have determined that it was in their best interest to serve their largest customers first.

Section 3: PPP Lending by Industry

PPP loans to different industries closely tracked the total number of small-business employees within each sector. Nationwide, the number of employees explained 75% of the variation across industries. However, three significantly outperformed the trend: construction; manufacturing; and professional, scientific, & technical services. One industry significantly underperformed: accommodations and food services. The chart below illustrates.



Figure 11: Loan Distribution by National Industry Employment^{xxiv}

^{xxii} Mels De Zeeuw and Brett Barkley, Mind the Gap: Minority-Owned Small Businesses' Financing Experiences in 2018, *Board of Governors of the Federal Reserve* (December 18, 2019),

 $[\]underline{https://www.federalreserve.gov/publications/2019-november-consumer-community-context.htm}.$

^{xxiii} Maude Toussaint-Comeau, *Do Ethnic Enclaves and Networks Promote Immigrant Self-Employment*?, 32 Economic Perspectives 30, 31 (2008).

^{xxiv} This chart excludes PPP loans to government entities, a negligible percentage of the total.

We can also view industries' performances by considering loan approvals per eligible employee. This metric tells a similar story. Construction, manufacturing, and professional, scientific & technical services each received over \$8,000 per small-business employee, compared to the median industry value of \$5,655. Only agriculture, utilities, and mining, which each accounted for fewer than 1% of total PPP funds, on average, received more per employee.

Rank	Industry	Loan Value per Eligible Employee	Share of Total PPP Funds
1	Agriculture, Forestry, Fishing and Hunting	\$32,504	1.3%
2	Mining, Quarrying, and Oil and Gas Extraction	\$15,952	1.1%
3	Utilities	\$9,251	0.3%
4	Construction	\$8,642	13.1%
5	Professional, Scientific, and Technical Services	\$8,355	12.7%
6	Manufacturing	\$8,011	12.0%
7	Real Estate and Rental and Leasing	\$7,489	3.1%
8	Information	\$7,361	2.0%
9	Transportation and Warehousing	\$6,358	3.1%
10	Wholesale Trade	\$5,655	5.7%
11	Retail Trade	\$5,273	8.6%
12	Educational Services	\$4,945	2.4%
13	Health Care and Social Assistance	\$4,519	11.7%
14	Finance and Insurance	\$4,259	2.4%
15	Administrative and Support and Waste Management and Remediation Services	\$4,142	4.5%
16	Other Services	\$3,776	5.2%
17	Accommodation and Food Services	\$3,670	8.9%
18	Arts, Entertainment, and Recreation	\$3,500	1.4%
19	Management of Companies and Enterprises	\$2,917	0.3%

Figure 12: Loan Approvals per Industry Small-Business Employees^{xxv}

^{xxv} This chart excludes PPP loans to government entities, a negligible percentage of the total.

<u>State Differences:</u> Industry variance, however, appears to have had little impact on the distribution of loans *across* states. States with a greater presence of manufacturing, and construction, and professional services only received slightly more PPP funding per eligible employee than other states. These industries, therefore, appear to have had an advantage in loan distribution mainly *within* states. In other words, a manufacturing small business in New York State was more likely to receive a loan than a food service small business in New York State, but a manufacturing small business in North Dakota was still more likely than a manufacturing small business in New York State to receive a loan. The chart below illustrates this weak correlation:



Figure 13: Loan Approvals by State Industry Employment

We discuss two potential explanations for the trend among industries below.

Factor 1: Average Business Size of Industries

As discussed above, larger businesses performed better in the PPP approval process, in large part due to their greater likelihood of having existing relationships with banks. Industries with a larger average workforce, therefore, were likely better positioned to receive loans. This may explain the disproportionate funds approved for small manufacturing businesses, which have 21 employees on average, compared to the small-business average of 12 employees.^{xxvi} However, this would not explain higher lending to construction and professional services, which have on average 7.5 and 6.5 employees, respectively.

^{xxvi} Average small-business workforce is calculated as the unweighted average of the respective NAICS sectors for which the SBA reported PPP lending data, excluding the government sector.

Factor 2: Industry Wages

Because PPP loans mainly finance payroll costs, loans may have been higher to industries with higher average wages, even after normalizing for workforce size. This may help explain higher lending towards professional services and construction. The average annual salary for all U.S. small businesses is \$43,669, but for professional-services small businesses it is \$72,545—higher than any sector with over 2 million small-business employees—and it is \$55,529 for small construction businesses. Average salary may also explain why accommodations & food services received disproportionately little lending. This sector's average annual small-business salary is \$17,977, the lowest of any sector.

Conclusion

Our analysis suggests that the first round of the PPP approval process had significant inequities, manifesting both across states and within states. Although this did not appear to be Congress's intention, states in the Midwest and Northeast received disproportionate funds, in large part due to the role community banks played. And larger small businesses, as well as businesses in construction, manufacturing, and professional, scientific, & technical services, broadly outperformed.

We believe these findings carry important lessons for policymakers. For instance, the evidence on community banks, which nimbly adapted to a complex loan-approval protocol and appeared to have been more open to a range of loan applicants, suggests that the PPP process was *not* dominated by large banks and their biggest clients. Community banks likely helped obtain loans for some smaller small businesses that, in their absence, would not have received funding. At the same time, their outsized role in the process likely directed money away from states with low community-bank density.

To address this disparity, Congressional policymakers might consider alternative measures, like using U.S. census data to allocate funds by small business sector, by state on a per-smallbusiness-employee basis, or by small business size rather than on a first-come, first-serve basis. Congress would not have to change the basic delivery mechanism; rather, SBA would stop making loans in particular categories once the allocation to that category had been filled.

Alternatively, to push resources towards small businesses with lower-wage workers, Congress might lower the salary limit, which is currently set at \$100,000 annually, or mandate that a portion of the funds be set aside for businesses with lower average salaries.

Finally, Congressional or State policymakers might consider creating a "common application" for PPP loans nationally or within their States, with standardized documentation requirements. This would achieve two important objectives. First, it would create transparency around the application process, helping smaller and less sophisticated small businesses to apply and giving them more certainty about the probability of their success; second, it would encourage banks to make loans to customers with whom they did not have prior relationships because it would create a measure of regulatory certainty about what constitutes adequate loan due diligence.

Appendix 1: Value of PPP Loans per Small-Business Employee by State

	Loan Value per		
Rank	Eligible	State	Census Region
	Employee		
1	\$7,782	North Dakota	Midwest
2	\$7,439	Hawaii	West
3	\$7,249	Nebraska	Midwest
4	\$7,183	Minnesota	Midwest
5	\$7,098	Kansas	Midwest
6	\$6,952	Massachusetts	Northeast
7	\$6,782	New Hampshire	Northeast
8	\$6,724	Maine	Northeast
9	\$6,623	Iowa	Midwest
10	\$6,617	Colorado	West
11	\$6,607	Wisconsin	Midwest
12	\$6,532	Arkansas	Midwest
13	\$6,505	South Dakota	Midwest
14	\$6,477	Oklahoma	South
15	\$6,458	Missouri	Midwest
16	\$6,450	Utah	West
17	\$6,434	Ohio	Midwest
18	\$6,425	Illinois	Midwest
19	\$6,365	Wyoming	West
20	\$6,285	Pennsylvania	Northeast
21	\$6,209	Vermont	Northeast
22	\$6,160	Alabama	South
23	\$6,129	Indiana	Midwest
24	\$6,052	Texas	South
25	\$5,991	Montana	West
26	\$5,968	Tennessee	South
27	\$5,910	Kentucky	South
28	\$5,859	Idaho	West
29	\$5,814	Delaware	South
30	\$5,808	Rhode Island	Northeast
31	\$5,778	Georgia	South
32	\$5,719	Maryland	South
33	\$5,681	Virginia	South
34	\$5,650	Louisiana	South
35	\$5,634	Mississippi	South
36	\$5,555	Michigan	Midwest
37	\$5,551	Arkansas	South

38	\$5,533	Connecticut	Northeast
39	\$5,264	New Jersey	Northeast
40	\$5,257	Florida	South
41	\$5,045	Washington	West
42	\$5,040	Washington, D.C.	South
43	\$4,955	New York	Northeast
44	\$4,911	West Virginia	South
45	\$4,791	South Carolina	South
46	\$4,788	North Carolina	South
47	\$4,687	California	West
48	\$4,664	Arizona	West
49	\$4,462	Oregon	West
50	\$4,253	New Mexico	West
51	\$4,132	Nevada	West

Appendix 2: Value of PPP Loans per State Population

Rank	Loan Value per 1,000 People	State	Census Region
1	\$2,032	North Dakota	Midwest
2	\$1,767	Washington, D.C.	South
3	\$1,603	Vermont	Northeast
4	\$1,598	Minnesota	Midwest
5	\$1,548	South Dakota	Midwest
6	\$1,545	Nebraska	Midwest
7	\$1,491	Massachusetts	Northeast
8	\$1,476	New Hampshire	Northeast
9	\$1,472	Kansas	Midwest
10	\$1,447	Maine	Northeast
11	\$1,446	Wyoming	West
12	\$1,445	Hawaii	West
13	\$1,429	Wisconsin	Midwest
14	\$1,376	Montana	West
15	\$1,368	Iowa	Midwest
16	\$1,284	Colorado	West
17	\$1,261	Rhode Island	Northeast
18	\$1,260	Illinois	Midwest
19	\$1,260	Alaska	West
20	\$1,230	Missouri	Midwest
21	\$1,226	Pennsylvania	Northeast
22	\$1,207	Ohio	Midwest
23	\$1,166	Oklahoma	South
24	\$1,165	Connecticut	Northeast
25	\$1,153	Utah	West
26	\$1,120	Delaware	South
27	\$1,113	Indiana	Midwest
28	\$1,097	Louisiana	South
29	\$1,081	Maryland	South
30	\$1,073	New Jersey	Northeast
31	\$1,046	New York	Northeast
32	\$1,039	Michigan	Midwest
33	\$1,035	Idaho	West
34	\$1,022	Virginia	South
35	\$992	Alabama	South
36	\$982	Texas	South

37	\$957	Tennessee	South
38	\$929	Kentucky	South
39	\$914	Washington	West
40	\$902	Oregon	West
41	\$902	Arkansas	South
42	\$891	Georgia	South
43	\$846	California	West
44	\$834	Mississippi	South
45	\$832	Florida	South
46	\$763	North Carolina	South
47	\$754	West Virginia	South
48	\$740	South Carolina	South
49	\$679	New Mexico	West
50	\$666	Arizona	West
51	\$654	Nevada	West

Appendix 3: Value of PPP Loans per State Economic Output

Rank	Loan Value per Million Dollars of Output	State Census Region	
1	\$28,410	Maine	Northeast
2	\$28,356	Vermont	Northeast
3	\$27,769	Montana	West
4	\$26,975	North Dakota	Midwest
5	\$25,337	South Dakota	Midwest
6	\$24,409	Kansas	Midwest
7	\$23,635	Wisconsin	Midwest
8	\$23,358	Minnesota	Midwest
9	\$23,152	Nebraska	Midwest
10	\$22,489	Idaho	West
11	\$22,409	Missouri	Midwest
12	\$22,339	New Hampshire	Northeast
13	\$22,257	Oklahoma	South
14	\$21,888	Iowa	Midwest
15	\$21,034	Wyoming	West
16	\$20,776	Alabama	South
17	\$20,769	Hawaii	West
18	\$20,729	Rhode Island	Northeast
19	\$20,601	Mississippi	South
20	\$20,135	Arkansas	South
21	\$19,963	Ohio	Midwest
22	\$19,625	Indiana	Midwest
23	\$19,246	Utah	West
24	\$19,099	Louisiana	South
25	\$19,072	Kentucky	South
26	\$19,037	Pennsylvania	Northeast
27	\$18,924	Michigan	Midwest
28	\$18,652	Colorado	West
29	\$17,573	Illinois	Midwest
30	\$17,212	West Virginia	South
31	\$17,148	Massachusetts	Northeast
32	\$16,960	Tennessee	South
33	\$16,534	Alaska	West
34	\$16,073	Florida	South

35	\$15,522	Virginia	South
36	\$15,233	South Carolina	South
37	\$15,135	Georgia	South
38	\$15,053	Maryland	South
39	\$14,901	Oregon	West
40	\$14,850	Texas	South
41	\$14,604	New Jersey	Northeast
42	\$14,367	Connecticut	Northeast
43	\$14,271	Delaware	South
44	\$13,532	New Mexico	West
45	\$13,424	North Carolina	South
46	\$13,011	Arizona	West
47	\$11,615	New York	Northeast
48	\$11,400	Washington	West
49	\$11,163	Nevada	West
50	\$10,497	California	West
51	\$8,414	Washington, D.C.	South

Enterprise				
Employment	Number	Number of		
Size	of Firms	Establishments	Employment	Annual Payroll
01: Total	5,954,684	7,757,807	126,752,238	\$6,435,142,055
02: 0-4	3,665,182	3,671,901	5,923,452	\$268,039,737
03: 5-9	1,013,878	1,025,690	6,681,968	\$248,985,263
04: 10-19	626,900	657,781	8,432,521	\$329,388,425
05: <20	5,305,960	5,355,372	21,037,941	\$846,413,425
06: 20-99	538,283	705,460	21,093,550	\$899,265,224
07: 100-499	90,742	367,446	17,783,726	\$870,788,396
08: <500	5,934,985	6,428,278	59,915,217	\$2,616,467,045
09: 500+	19,699	1,329,529	66,837,021	\$3,818,675,010

Appendix 4: US Census Data on Enterprise Employment Size^{xxvii}

^{xxvii} The most recent data is from 2016 and is available here: https://www.census.gov/data/tables/2016/econ/susb/2016-susb-annual.html

Appendix 5: Regression Output for all 50 States Plus D.C.

Below, states' approved loans per small-business employee are regressed by community banks per capita, region (Midwest and Northeast versus South and West), non-white share of the population, party control of state governorship and legislature, and SBA top-10 lender presence. The regression also includes, as control variables, state population, the share of small-businesses employment at firms with over 100 employees, and share of small-business employment in construction, manufacturing, and professional, scientific, & technical services.

Of these, only community banks per capita and geographic region are statistically significant predictors of loans. The independent variables together explain 49% of the variation in loans.

	Coefficient	P-value
	1(02** (5 27)	0.004
	10.03*** (5.37)	0.004
	692 20* (277 22)	0.019
t status)	085.59" (277.22)	0.018
	1100 10 (1006 70)	0 277
	1198.49 (1080.78)	0.277
	215 62 (221 02)	0 167
	515.02 (221.05)	0.107
ntrol	-41 89 (302 85)	0 891
	-41.07 (302.03)	0.071
	-0.81 (290.51)	0 998
tate)	-0.01 (200.01)	0.770
	-0.02 (0.02)	0 322
	0.02 (0.02)	0.522
h >100 employees	-2405 00 (4749 29)	0.616
usiness employees)	2105.00 (1715.25)	0.010
Sacturing, & Professional Services	663 94 (3308 37)	0.842
usiness employees	005.51 (5500.57)	0.012
	5541.78*** (1311.34)	0.000
51	Notos	
51	Notes	
0.485	* we have < 0.05	
0.372	rp-value < 0.05	
671 445 (df = 41)	** $n_{value} < 0.01$	
4 297 (df = 9.41)	$p^{-value} < 0.01$	
	tate) h >100 employees usiness employees) 2acturing, & Professional Services usiness employees 51 0.485 0.372 671.445 (df = 41) 4 297 (df = 9: 41)	Coefficient $16.03^{**} (5.37)$ $683.39^{*} (277.22)$ $1198.49 (1086.78)$ $315.62 (221.03)$ $1198.49 (1086.78)$ $315.62 (221.03)$ $-41.89 (302.85)$ $-0.81 (290.51)$ $-0.02 (0.02)$ $h > 100$ employeesusiness employees)Cacturing, & Professional Services $acturing, & Professional Services$ $asiness employees$ $asiness $

Dependent Variable: Loans per state small-business employee