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Across the Universe: Policy Support for Employment and Revenue in the Pandemic Recession†

By Ryan A. Decker, Robert J. Kurtzman, Byron F. Lutz, and Christopher J. Nekarda*

The pandemic recession of 2020 has been unprecedented in its speed and severity. To mitigate the impact of the shock on the economy and maintain financial stability, the US government and Federal Reserve took the unprecedented action of provisioning direct assistance to firms and government entities across nearly the entire universe of economic activity, including categories of businesses that are not typically the focus of direct-lending programs.

To assess the scale of the policy response, we present estimates of economic activity in the United States that we partition by sector, legal form of organization, and firm size. We then assess how four government direct-lending programs—the Paycheck Protection Program (PPP), Main Street Lending Program (Main Street), Corporate Credit Facilities (CCF), and Municipal Liquidity Facility (Muni LF)—relate to our activity estimates.

While tabulating the universe of economic activity may seem a trivial task, it is not. Indeed, this kind of descriptive exercise is rarely done. In particular, no single product of US statistical agencies is able to answer the question of how much economic activity falls within the scope of each direct-lending program initiated during 2020.

Using data from 14 government sources, we develop such estimates and draw on them to illustrate the vast scale and scope of the economic policy response to the pandemic recession. The four direct-lending programs we study notionally cover the entirety of private sector jobs as well as nearly all government employment; that is, the classes targeted include most economic activity, ignoring entity-specific financial criteria that reduce effective program coverage. This response is substantially broader than that mounted in response to the Great Recession.

We first present our universe estimates, then show how they map to the four direct-lending programs of interest. We then discuss Great Recession direct-lending programs in this context and conclude. Interested readers should see Decker et al. (2020) for more detailed discussion; in that paper, we provide more background on data sources and our methodology for estimating size cutoffs, and we report comparisons of our estimates to other official and unofficial business data sources.

I. Overview of US Economic Activity

We construct measures of the number of entities, their employment, annual payroll, and gross receipts by sector, legal form of organization, and firm size for the US economy in 2019, with a focus on the criteria that are relevant for the four lending programs we consider. Our accounting captures virtually all economic activity, with the only exceptions being informal activity, private households, certain financial entities without employees, and businesses owned by tribal governments. While Census Bureau products comprise the main sources for our estimates, all told, we use data from 14 separate sources. Most of our sources date from 2017, so we use timelier BLS data to adjust older values to 2019 estimates.

*Decker: Board of Governors of the Federal Reserve System (email: ryan.a.decker@frb.gov); Kurtzman: Board of Governors of the Federal Reserve System (email: robert.j.kurtzman@frb.gov); Lutz: Board of Governors of the Federal Reserve System (email: byron.f.lutz@frb.gov); Nekarda: Board of Governors of the Federal Reserve System (email: christopher.j.nekarda@frb.gov). The analysis and conclusions set forth are those of the authors and do not indicate concurrence by other members of the research staff or the Board of Governors of the Federal Reserve System. We thank Andreas Lehnert for invaluable discussions and continued support of this project, and we thank Elizabeth Handwerker and Javier Miranda for helpful comments. We are also grateful to US Census Bureau staff who graciously provided several special data tabulations and fielded many questions from us.

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Table 1 presents our estimates of the universe of economic activity. Within the private sector, businesses are divided into categories by a combination of number of employees and annual revenue.

- **Small firms** are defined as those with fewer than 500 employees, regardless of revenue.
- **Medium firms** are defined as those with at least 500 employees but fewer than 15,000 employees, or less than $5 billion in annual gross receipts.
- **Large firms** are defined as those with at least 15,000 employees and $5 billion or more in annual receipts.

We separate out private activity by size class at for-profit and nonprofit private businesses. Although farms are typically for-profit businesses, we provide their activity statistics separately since many readers may be accustomed to seeing the nonfarm economy in isolation. We also include information on nonemployers, where we count each nonemployer as a job and estimate payroll as outlined in Decker et al. (2020). Last, we separate out government activity across federal, state, and local governments.

In the Census Bureau data used in developing our estimates, a private sector firm is defined based on operational control or ownership; both our firm counts and size classes reflect this definition. However, we emphasize that, in some cases, other firm definitions may be used to determine lending program eligibility, such as definitions based on tax identifiers that may allow multiple subsidiaries of a firm to access programs independently. In this respect, our tabulations of firm counts may understate the number of entities qualifying for programs, even within the private sector.

For-profit private businesses represent most nongovernment economic activity, as compared with nonprofits, farms, and nonemployers. There are 160 million employees at private businesses, 115 million of which are at for-profit businesses. Although entity counts and—to a lesser extent—employment are skewed toward small firms, annual payroll and receipts are more evenly distributed across size classes.

Nonprofit businesses account for less than 10 percent of employment in most sectors, but they have a substantial presence in a few sectors. Among employer firms, nonprofits account for 78 percent of employment in educational services, 48 percent in other services (which includes religious organizations), 42 percent in health care and social assistance, and 28 percent in arts, entertainment, and recreation (which includes museums).

The United States has about 2 million farms (including ranches) employing 2.3 million hired workers (farms are classified in NAICS 111 and 112).[1] Farms with less than $1 million in revenue are eligible for Small Business Administration (SBA) programs such as the PPP, so we include them in the small size class, with the remaining farms included in the medium size class.

Farms are not directly comparable to *firms*; some farms may be owned by larger firms that own other farms (such that farm counts overstate farming firms) or that also have activity in other sectors. These possibilities would not necessarily result in misclassification of employment, payroll, or receipts, since these measures are categorized at the farm or establishment level, but farming activity may be misclassified in terms of our size categories if, for example, a large number of small farms are owned by a firm with revenue above $1 million. In short, measurement of farms is based upon different concepts from measurement of the rest of the business universe, which suggests caution should be exercised when inferring farm eligibility for lending programs.

Nonemployers are businesses that produce goods or services but do not have formal employees. This includes self-employed individuals who do not employ others as well as other businesses with no employees, such as owners of rental properties. The vast majority of businesses—26 million—are nonemployer businesses; however, these businesses account for only $1.4 trillion in annual receipts, which is equivalent to about 4 percent of for-profit employer revenue. Nevertheless, self-employment is an important source of income for millions of Americans.

The government activity figures include nearly all government activity, including the Postal Service, the armed forces, and government-owned

[1] In addition to formal hired workers, farms also rely heavily on unpaid labor (e.g., family) and contract workers, which we do not include; farms report roughly 2 million unpaid workers and 8 million contract workers (some of the latter may appear in nonemployer data).

Table 1—Activity Measures at US Businesses and Governments, 2019

Class or program	Firms or entities	Employment (millions)	Annual payroll (billions)	Annual receipts (billions)
Panel A. By class				
1. Private	33,895,438	159.6	7,714	42,656
2. For-profit	5,654,255	114.7	6,517	38,468
3. Small	5,636,791	55.2	2,729	13,765
4. Medium	17,020	35.5	2,220	13,306
5. Large	444	23.9	1,568	11,397
6. Nonprofit	438,789	16.9	828	2,447
7. Small	435,976	7.3	267	887
8. Medium	2,753	6.9	386	1,048
9. Large	60	2.6	175	513
10. Farms	2,023,619	2.3	33	377
11. Small	1,947,453	1.3	10	118
12. Medium	76,166	1.0	23	259
13. Nonemployers	25,778,775	25.8	336	1,364
14. Government	90,127	24.5	2,120	6,378
15. Federal	1	4.8	466	3,464
16. Civilian		2.8	302	
17. Armed forces		2.0	163	
18. State	51	5.5	479	1,515
19. Local	90,075	14.3	1,176	1,399
Panel B. By program				
20. PPP	33,801,424	94.4	3,433	16,456
21. Main Street	93,532	39.7	2,561	14,367
22. CCFs	454	25.6	1,720	11,834
23. Muni LF	90,126	19.8	1,655	2,914

Notes: Blue shading indicates covered primarily by the PPP. Orange shading indicates covered primarily by Main Street. Green shading indicates covered primarily by the CCFs. Yellow shading indicates covered by the Muni LF. For state and local governments, receipts refers to own-source general and utility revenue. Totals by program will not match the sum of shaded rows by class because nearly all medium and large for-profit firms in the accommodation and food services sector (NAICS 72) are eligible for the PPP.

Sources: See Decker et al. (2021) for source details, and see Decker et al. (2020) for detail on data construction.

businesses in many industries. State and local governments employ nearly 20 million workers, far more than the federal government. In addition to the 50 state governments; Washington, DC; and the federal government, there are more than 90,000 local government entities, including special purpose entities such as transit authorities and public hospitals.

II. Direct-Lending Programs during the Pandemic Recession

Table 1, panel B, reports tabulations of the activity targeted by each program, and the color shading of these lines can be used to identify specific classes in panel A that are targeted by a specific program. Our categorization of program targets is based only on our size and legal form classifications, abstracting from eligibility rules within classes—for example, although some medium businesses are ineligible for Main Street due to the program's leverage requirements, they are nonetheless categorized here as being targeted by Main Street.

We assign all small firm activity to the PPP since small firms are generally eligible. For example, all blue-shaded rows in panel A correspond to the PPP. Importantly, firms of any size in the accommodation and food services sector that have an establishment with fewer than 500 employees are also eligible for the PPP; we count them as such on line 20.[2]

[2] We interpret the PPP eligibility criteria to imply that all firms with fewer than 500 employees are eligible, though some additional firms meeting standard industry-specific SBA "small business" definitions are eligible as well, and certain exclusions apply. In addition, we include the eligible

We include activity of medium for-profit firms and farms as the target population for the Main Street program (line 21), with the exception of PPP-eligible activity in accommodation and food services. Although smaller firms are also eligible for Main Street, we do not include them on line 21 for simplicity; to obtain an extreme upper bound on Main Street eligibility, simply combine lines 20 and 21.

Similarly, there is no minimum size criterion for the CCFs, but we have identified the target population as only the large for-profit firms. We assign all state and local government entities to the Muni LF, even though some of these organizations—for example, public hospitals—may also be eligible for the nonprofit Main Street facilities.

Most of the activity in Table 1, panel A, is covered by one of the programs listed in panel B. Small organizations of any kind—for-profit and nonprofit—are included in the PPP. Medium for-profit and nonprofit businesses (as well as many small ones) are targeted by Main Street. Large businesses and nonprofits, which typically have access to the corporate bond or syndicated loan markets, are covered by the CCFs.

State and local governments, as well as their enterprises, are able to access the Muni LF, albeit with a potential intermediate step.[3]

Given its focus on small firms, the PPP's portion of the business universe includes the vast majority of firms. However, in terms of economic activity, the other lending programs—taken together—are similarly important to the PPP. Main Street is targeted at less than 1 percent of the number of firms as the PPP, but these firms have 40 percent of the employment and almost 90 percent of the receipts of PPP firms (also recall that the majority of the Main Street firm count is from medium *farms*). The 450 large firms we assign to the CCFs collectively have receipts over two-thirds as large as the millions of small firms covered by the PPP.

Thus, Table 1 reveals the striking comprehensiveness of the pandemic lending facility policy response. Nearly all firms or entities fall into business categories targeted by policy, accounting for 97 percent of employment, 95 percent of payroll, and 93 percent of receipts. Policy coverage includes the *entire* private sector and a large portion of government entities, notionally omitting only the federal government itself. This implies that most limitations on program coverage exist *within* firm or entity categories; for example, many firms that meet size and legal form criteria for Main Street programs may be ineligible due to leverage requirements.

III. Direct-Lending Programs during the Great Recession

The economic policy response to the recent pandemic by Congress, the administration, and the Federal Reserve has been unprecedented in its nature and scope. As in the pandemic recession, in response to the Great Recession of 2007–2009, the Federal Open Market Committee lowered the federal funds rate to its effective lower bound and pursued additional policies such as forward guidance and large-scale asset purchases of US treasuries and agency mortgage-backed securities. These responses were considered extraordinary at the time (Mishkin and White 2016). Among other policy responses to improve financial stability, the Federal Reserve also established facilities to improve market functioning, in particular in short-term funding markets, as it has in response to the pandemic recession. However, the Federal Reserve did not purchase longer-term corporate bonds of, or make longer-term loans directly to, any nonfinancial firms or state and local governments as it has through the CCFs, Main Street, and the Muni LF. Moreover, most federal government lending was targeted at the financial system and toward households, though emergency loans were granted to a few firms in the auto industry experiencing financial distress (see Blinder and Zandi 2015; Goolsbee

portions of medium and large firm activity in NAICS 72 in the PPP line on Table 1. We estimate that the vast majority of NAICS 72 is eligible for the PPP: the SBA published the full list of criteria making firms ineligible in the interim final rule (Rules and Regulations 2020).

[3] State and local government entities *directly* eligible for the Muni LF include all US states; Washington, DC; counties with a population of at least 500,000 residents; cities with a population of at least 250,000 residents; certain multistate entities; and revenue bond issuers and cities and counties designated by their state governors. Government entities not directly eligible for the Muni LF are, in principal, *indirectly* eligible for the facility, as any directly eligible participant may use the proceeds from Muni LF loans to "purchase similar notes issued by, or otherwise to assist, political subdivisions and other governmental entities of the relevant State, City, or County."

and Krueger 2015).[4] Digler (2020) describes some of the programs intended to increase lending to small businesses through the SBA during and in the aftermath of the Great Recession. The appropriated sum of these small business lending programs is an order of magnitude lower than the nearly $1 trillion in mostly forgivable loans appropriated through the multiple rounds of the PPP.

IV. Conclusion

Our estimates of the US economic universe are nearly exhaustive, omitting only a small handful of business types. Assigning this economic activity to pandemic-related policies reveals a striking fact about the pandemic response: almost every job is associated with firms or entities meeting notional eligibility criteria for a direct-lending program. This implies that the dominant limitations on program coverage exist *within* entity categories defined by legal form and business size; for example, large businesses meet basic qualifications for the CCFs but may nevertheless lack the ability to issue bonds, and medium businesses meet basic Main Street qualifications but may be ineligible due to leverage criteria. Nonetheless, the direct-lending policy response to the pandemic recession was substantially broader than that during the Great Recession, when such lending was largely limited to the financial sector and automakers.

In this paper, we have focused on official statistics to estimate the universe of activity. A number of alternative data sources on business activity, such as those compiled by private companies, have gained prominence during the pandemic recession because they provide timely insights that are not available from official data sources. However, unlike official statistics, alternative data generally come with concerns about coverage and representativeness. In Decker et al. (2020), we provide critical context for users of several alternative data sources—in particular ADP, Compustat, Homebase, and the National Establishment Time-Series (or Dun & Bradstreet)—by comparing their estimates of economic activity with our universe estimates. We show that their timeliness comes at a cost of coverage; the alternative data cover substantially smaller portions of the economy than either official BLS data or our universe estimates.

[4] Importantly, even in the pandemic recession, Congress and the administration created programs to assist specific industries, such as airlines, which we have omitted from our broader discussion.

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