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An Evaluation of the Paycheck Protection Program Using Administrative Payroll Microdata

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The onset of the COVID-19 pandemic caused a dramatic plunge in U.S. economic activity, leading many small businesses to shut their doors and leaving many more in precarious financial conditions. Anticipating further widespread hardship, Congress introduced the Paycheck Protection Program (PPP) to provide forgivable loans to small businesses. Although the PPP had multiple goals, its primary aim was to support recipient firms to maintain employment at pre-pandemic levels, hence Congress's use of the word "paycheck" in the program name and its requirement that recipient firms spend most PPP funds on wages to qualify for loan forgiveness. The program was economically large relative to the targeted sector: in its first year of operation, it issued forgivable loans totaling $525 billion, roughly equal to the entire 10-week payroll of effectively all small businesses in the United States.

Our research provides an assessment of the PPP's effectiveness in achieving its primary goal of sustaining small business employment. To examine the PPP's effects in detail, we analyze administrative data from Automatic Data Processing Inc.—one of the world's largest providers of personnel management services, covering more than 25 million workers in the United States. This resource allows us to observe firm-level employment data at weekly intervals throughout the pandemic and to identify a set of firms that were eligible to receive PPP loans and a set that were not.

Our statistical analysis finds that the PPP boosted employment at eligible firms but that these effects faded between the PPP's implementation in the spring of 2020 and the end of the calendar year. Following the disbursement of the first tranche of PPP loans, employment at eligible firms began to rise relative to employment at ineligible firms. The peak

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effect on employment at eligible firms ranged between 2 and 5 percent around mid-May and waned gradually thereafter. By the end of our sample in the beginning of December 2020, the employment effect ranged from about 0 percent to about 3 percent. None of these December estimates is precise enough to rule out that the PPP had no remaining effect on employment at that time.

Additional steps are required to determine the aggregate employment effect of the PPP. First, we estimate the take-up rate of the PPP. Using data from the Small Business Administration on PPP loans by firm size, as well as publicly available data on the distribution of employment across firm sizes from the Census Bureau, we estimate that take-up for firms with between 300 to 499 workers was substantial—around 81 percent. We also find that there was considerable take-up for firms above the 500-worker threshold—approximately 27 percent (as some firms were eligible based on criteria other than size). Our estimates imply that the PPP boosted aggregate U.S. employment by 3.6 million jobs at its peak around the middle of May 2020 and by 1.4 million at the beginning of December 2020.

We estimate the PPP's cost per worker under two scenarios. In both scenarios, we extrapolate the decline in the estimated PPP effect on employment to the point where it reaches zero in mid-June 2021. The first scenario relies on our baseline aggregate employment effect estimate. We estimate that the PPP expended approximately $258,000 per full-year job retained, which is almost five times the median full-time, full-year U.S. salary in 2020.

Most PPP loans were issued to smaller firms, however, and it is possible that the PPP boosted employment at these firms—which are more likely to be short on cash—by more than it did at large firms. Our statistical method may understate this effect, so we consider a hypothetical where the effect of the PPP on employment for very small firms is double the effect we estimate here. In this more generous case, the estimated cost per job saved by the PPP is $169,000, or 3.4 times the median salary.

These high costs per job retained likely reflect the reality that the PPP program was designed to prioritize rapid aid disbursement over precise targeting. PPP was effectively available to all small businesses and hence by nature did not target the firms most in need. One consequence was that a large share of PPP dollars appears to have gone to firms that would have maintained employment in the absence of the PPP.

Drawing on the strengths of our data, our analysis focuses exclusively on the PPP's effects on employment. We acknowledge however that a complete evaluation would include a broader set of outcomes, including business survival, loan delinquency, and effects on the broader macroeconomy.

NOTE

This research brief is based on David Autor et al., "An Evaluation of the Paycheck Protection Program Using Administrative Payroll Microdata," *Journal of Public Economics* 211 (2022).