

APPENDIX: SMALL BUSINESS LENDING AND THE PAYCHECK PROTECTION PROGRAM

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I. ONLINE APPENDIX

The table in this Appendix reports regression results used in "Small Business Lending and the Paycheck Protection Program," by Jack Mueller and Mark M. Spiegel, *FRBSF Economic Letter* 2023-10. <https://www.frbsf.org/economic-research/publications/economic-letter/2023/april/small-business-lending-and-paycheck-protection-program/>

We estimate the regression using instrumental variables. The dependent variable is the change in non-PPP small business and farm lending between 2022:Q4 and 2020:Q2, divided by the total assets in 2020:Q2. *PPP* is the PPP ratio in 2020:Q2, and *PPPLF* is the PPPLF ratio in 2020:Q2. *INDMIX* is $Sum(Z_j * s_{ij})$ in 2019. *LIQUIDITY* is the total liquidity in 2019:Q4. *DEPOSITS* represents the total deposits in 2019:Q4. *COMMITMENT* represents the unused commitments in 2019:Q4; $\Delta DEPOSITS$ represents the change in deposits between 2019:Q4 and 2020:Q2. *CAPRAT* represents total capital ratios. *SMALL* and *MED* are dummy variables for small and medium-sized banks, respectively. Standard errors are clustered by bank size.

Instruments used include (1) the number of documents on file at the Federal Reserve and (2) the share of Small Business Administration lending in 2019. See "Small Business Lending under the PPP and PPPLF Programs," by Jose A. Lopez and Mark M. Spiegel (2023), *Journal of Financial Intermediation* 53(101017), for more details about the instrumental variables approach and instruments used in specifications. <https://www.sciencedirect.com/science/article/pii/S1042957322000705>

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Table 1. Full Results

	PPP	PPPLF
PPP	-0.221*** (0.00767)	
PPPLF		-0.149*** (0.0154)
INDMIX	-0.0386** (0.0118)	-0.145** (0.0515)
LIQUIDITY	0.0170* (0.00795)	-0.0619*** (0.0103)
DEPOSITS	-0.0390*** (0.0105)	-0.0742*** (0.00981)
CAPRAT	-0.167*** (0.00935)	-0.127*** (0.0162)
COMMITMENT	0.365*** (0.0314)	-0.112** (0.0421)
Δ DEPOSITS	0.0424 (0.0355)	-0.0853 (0.0469)
SMALL	-0.0499*** (0.00528)	-0.00800 (0.00526)
MED	-0.0193*** (0.00255)	-0.0126*** (0.00303)
Constant	0.132*** (0.00905)	0.0884*** (0.00797)
Observations	4202	3841