

HAVE BANKS CAUGHT CORONA? EFFECTS OF COVID-19 ON LENDING IN THE US

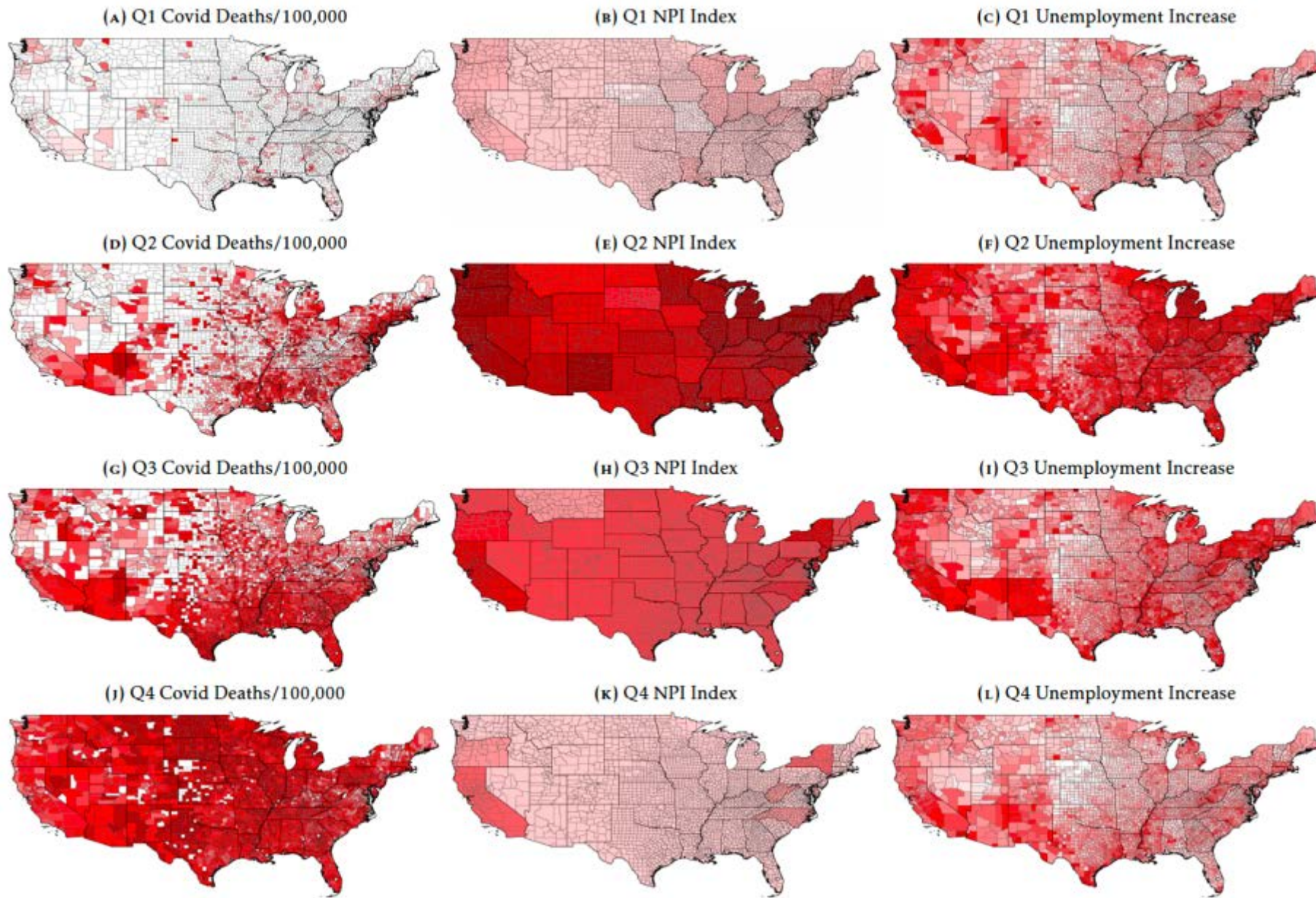
THORSTEN BECK AND JAN KEIL

MOTIVATION

- What has been the effect of pandemic and lockdowns on bank health and lending?
- Theory and previous crises provide contrasting hypotheses and evidence on the effect of economic shocks on bank lending
 - Lending retrenchment due to dropping collateral values and increasing agency conflicts (Gertler and Bernanke, 1989) or bank losses and inability of banks to raise new capital
 - During early months of GFC: increase in C&I loans on banks' balance sheet, due to drawdown of credit lines
 - Clearer theory and evidence on loan conditionality: tightening)
- Already vast literature on Covid-19 and banking; **this paper**: how does exposure to pandemic and lock-downs affect banks' behaviour
- Role of government support programmes; specifically, PPP

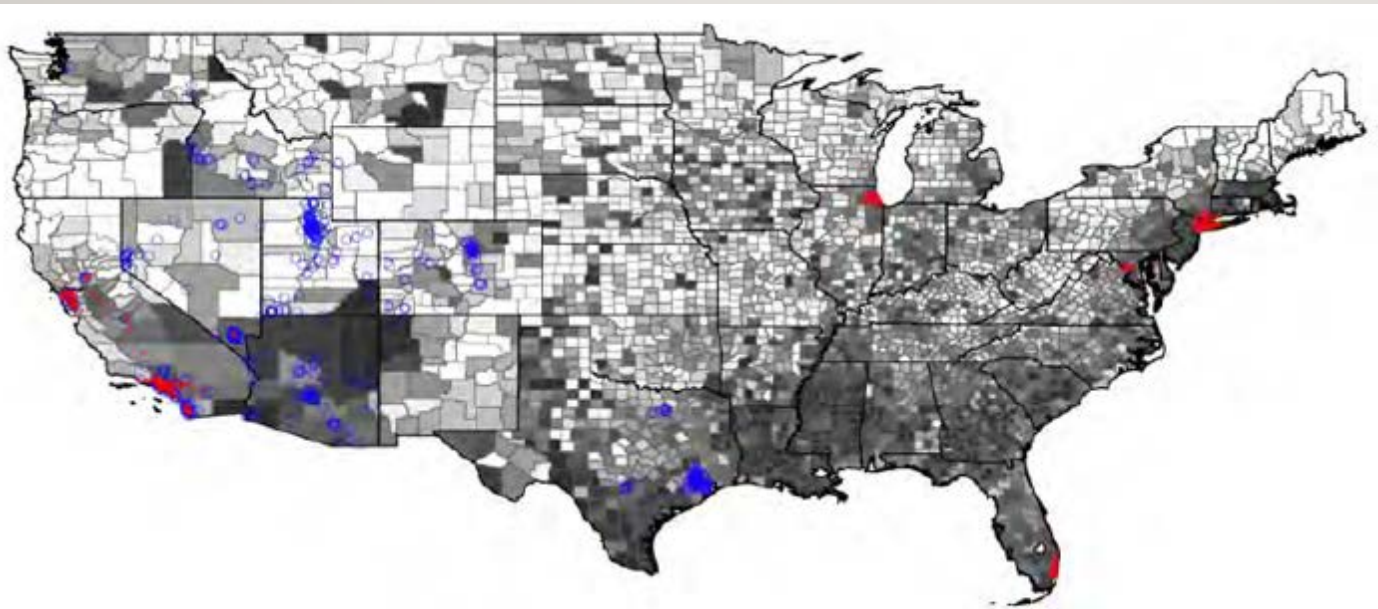
REGIONAL VARIATION IN COVID-19 AND LOCKDOWN POLICIES

FIGURE 2: GEOGRAPHIC VARIATION IN EXPOSURE TO COVID-19, NPIS AND UNEMPLOYMENT



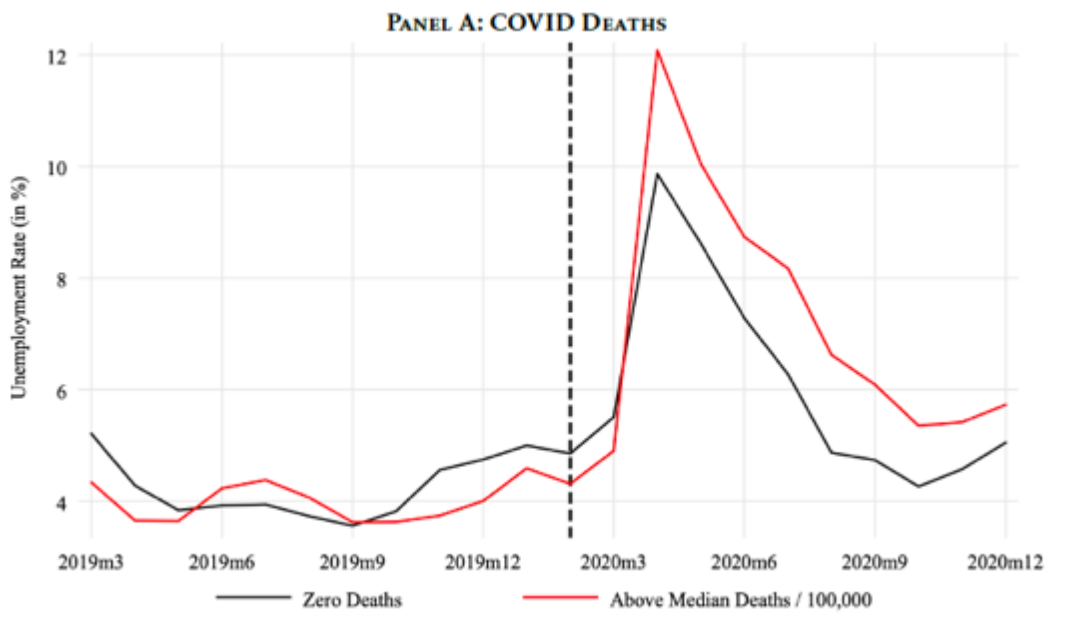
BANKS HAVE BEEN EXPOSED DIFFERENTLY TO THE CRISIS

- Measure of bank exposure to COVID-19 and lockdown policies: use 2019 branch deposit shares in total deposits as weights for each county

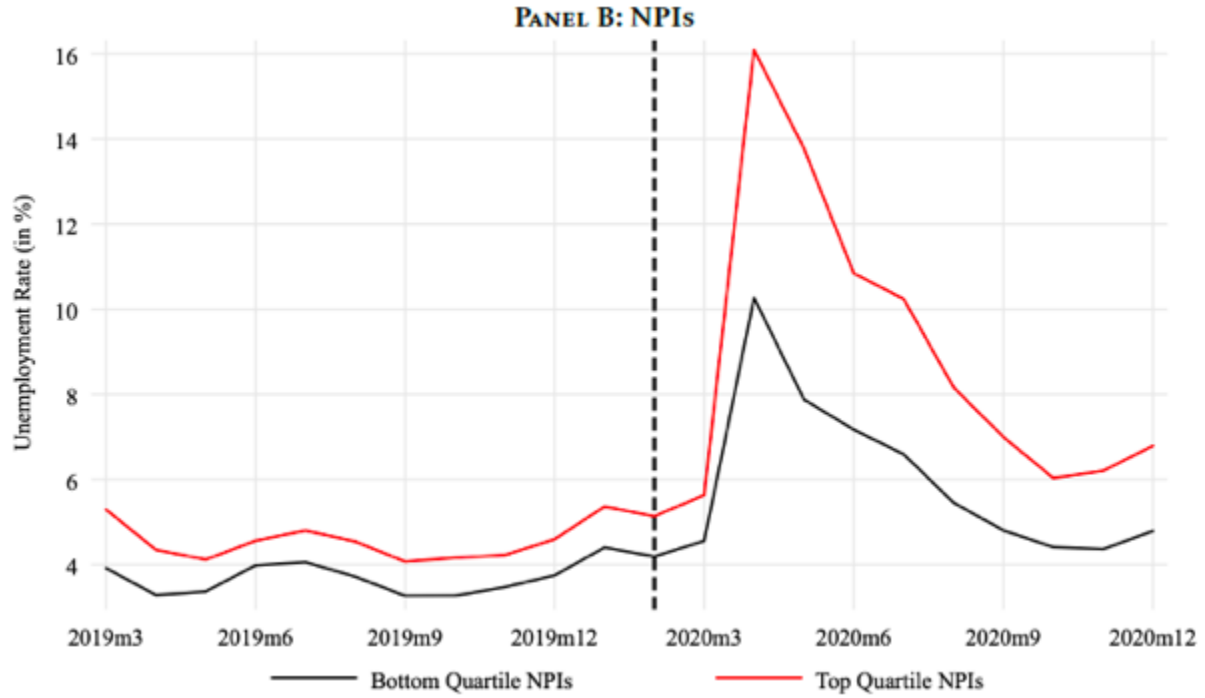


Red dots (blue circles) represent June 2019 Citibank (Zions Bancorp) branches. Citibank (Zions) is an example for a commercial bank with a relatively high (low) geographical exposure to COVID deaths. Coloring of contiguous U.S. counties follows a heat map scheme, corresponding to the number of cumulative Q3 2020 COVID-19 related deaths per 100,000 inhabitants. The darker the gray, the higher the death rate.

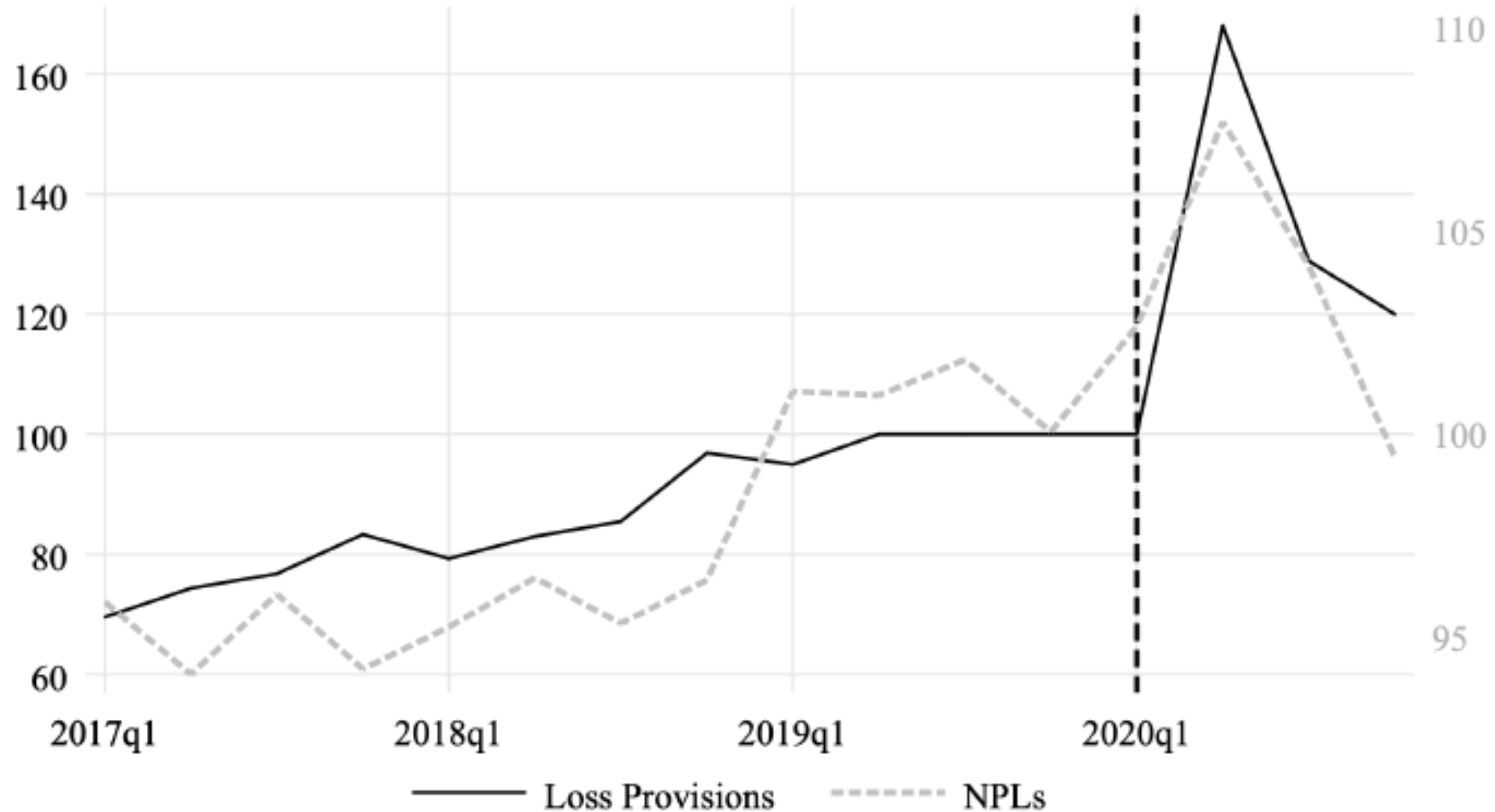
COVID-19, LOCKDOWNS AND UNEMPLOYMENT



Both spread of COVID-19 and lockdown policies explain variation in unemployment



COVID-19, LOCKDOWNS AND BANK HEALTH

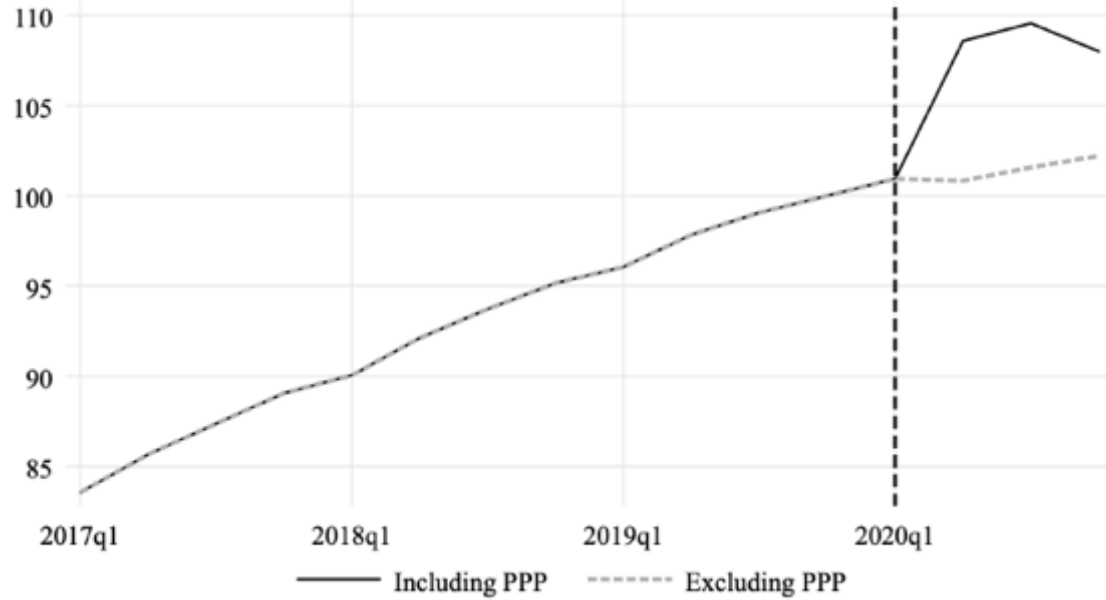


BANK HEALTH AND THE COVID SHOCK

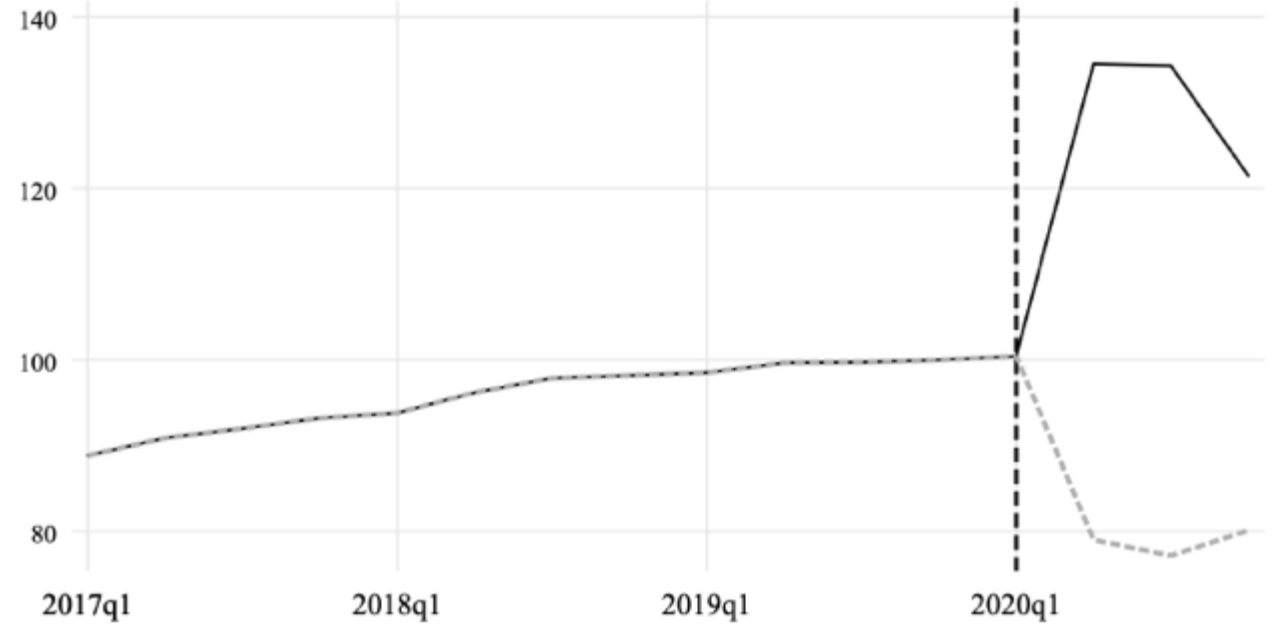
	Loss Provisions				Non-Performing Loans			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Q1 2020 FE	39.957*** (0.000)	38.927*** (0.000)	31.383*** (0.000)	31.119*** (0.000)	3.246** (0.017)	3.115** (0.025)	-2.178 (0.213)	-2.161 (0.217)
Q2 2020 FE	66.470*** (0.000)	58.036*** (0.000)	-1.266 (0.922)	-3.561 (0.783)	3.341* (0.052)	2.259 (0.366)	-39.200*** (0.000)	-39.045*** (0.000)
Q3 2020 FE	39.380*** (0.000)	29.685*** (0.000)	3.008 (0.687)	-1.925 (0.802)	-4.055** (0.041)	-5.308* (0.063)	-26.836*** (0.000)	-26.465*** (0.000)
Q4 2020 FE	25.954*** (0.000)	11.747* (0.060)	14.202*** (0.002)	4.677 (0.458)	-7.589*** (0.001)	-9.464** (0.011)	-14.897*** (0.000)	-14.148*** (0.000)
Covid Deaths		3.572*** (0.002)		2.558** (0.034)		0.469 (0.524)		-0.200 (0.789)
NPIs			20.654*** (0.000)	19.512*** (0.000)			13.011*** (0.000)	13.105*** (0.000)
Adj. R ²	0.03	0.03	0.03	0.03	0.05	0.05	0.05	0.05
Observations	61,606	61,606	61,606	61,606	73,103	73,103	73,103	73,103
Banks	4,613	4,613	4,613	4,613	4,787	4,787	4,787	4,787

COVID-19, LOCKDOWNS AND BANK LENDING

PANEL A: TOTAL LOANS & LEASES



PANEL B: SMALL BUSINESS LOANS



BANK LENDING AND THE COVID SHOCK (3)

	C&I Loans				Household Loans			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Q1 2020 FE	-0.032 (0.838)	-0.035 (0.830)	0.045 (0.866)	0.044 (0.870)	0.011 (0.931)	0.020 (0.879)	0.074 (0.716)	0.076 (0.708)
Q2 2020 FE	15.548*** (0.000)	15.525*** (0.000)	16.156*** (0.000)	16.140*** (0.000)	-0.679*** (0.001)	-0.606** (0.041)	-0.185 (0.884)	-0.166 (0.895)
Q3 2020 FE	15.474*** (0.000)	15.448*** (0.000)	15.801*** (0.000)	15.764*** (0.000)	-0.807*** (0.002)	-0.724** (0.044)	-0.542 (0.443)	-0.498 (0.487)
Q4 2020 FE	9.642*** (0.000)	9.603*** (0.000)	9.747*** (0.000)	9.673*** (0.000)	-1.022*** (0.001)	-0.897* (0.064)	-0.937*** (0.009)	-0.847* (0.091)
Covid Deaths		0.010 (0.945)		0.020 (0.892)		-0.031 (0.754)		-0.024 (0.812)
NPIs			-0.186 (0.723)	-0.196 (0.716)			-0.151 (0.692)	-0.140 (0.719)
Adj. R ²	0.40	0.40	0.40	0.40	0.37	0.37	0.37	0.37
Observations	77,279	77,279	77,279	77,279	77,565	77,565	77,565	77,565
Banks	4,835	4,835	4,835	4,835	4,848	4,848	4,848	4,848

PPP LOANS - DEMAND VS. SUPPLY

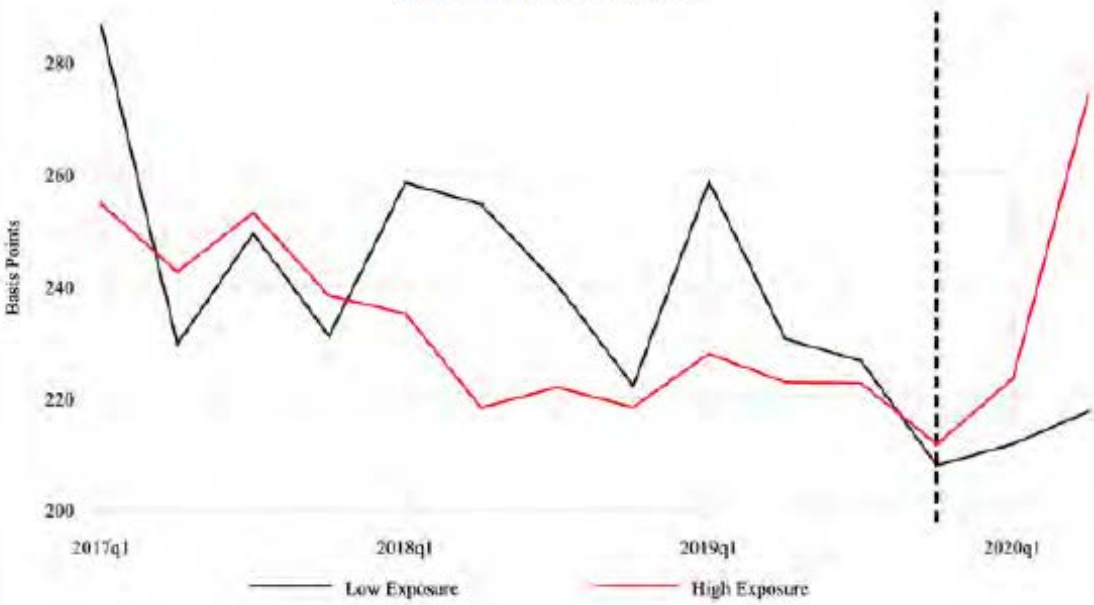
	(1)	(2)	(3)	(4)	(5)	(6)
County Covid Deaths	-0.024 (0.221)		-0.021 (0.244)		-0.019 (0.328)	
Bank Covid Deaths	-0.003 (0.975)	0.039 (0.661)			-0.014 (0.865)	0.025 (0.773)
County NPIs	0.340*** (0.000)		0.201*** (0.000)		0.200*** (0.000)	
Bank NPIs			0.432** (0.011)	0.392** (0.029)	0.433** (0.011)	0.390** (0.029)
County FE		Yes		Yes		Yes
County Controls	Yes	-	Yes	-	Yes	-
Bank Controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank-County Controls	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R ²	0.16	0.22	0.17	0.22	0.17	0.22
Observations	30,387	33,997	30,387	33,997	30,387	33,997
Banks	483	483	483	483	483	483

SYNDICATED LOANS

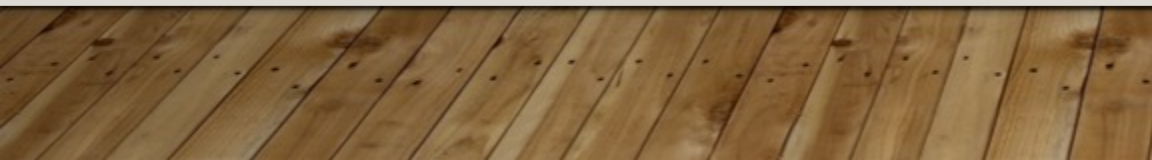
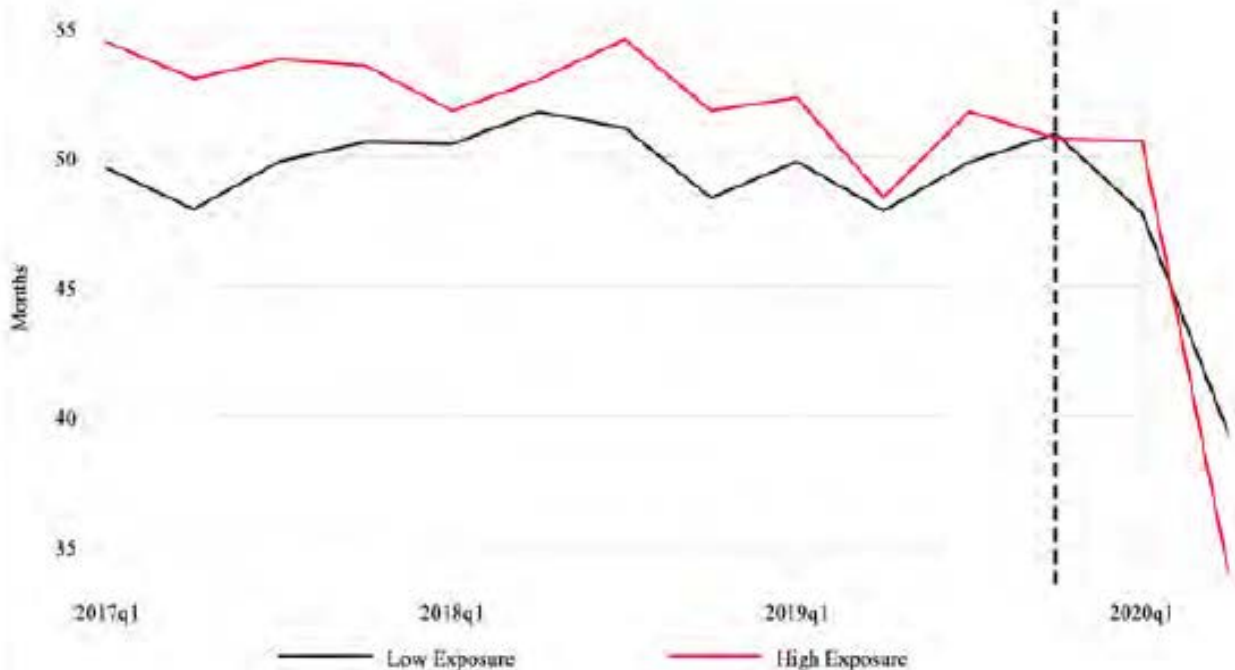
	Number of Loans				Average Loan Volume			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Covid Deaths		-0.060*** (0.009)		-0.176* (0.093)		-0.050* (0.076)		0.117 (0.132)
NPIs			-0.050* (0.062)	0.124 (0.281)			-0.074** (0.019)	-0.185** (0.032)
Q1 2020 FE	-0.165 (0.285)				-0.042 (0.699)			
Q2 2020 FE	-0.216** (0.016)				-0.291** (0.017)			
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R ²	0.94	0.94	0.94	0.94	0.68	0.68	0.68	0.68
Observations	713	713	713	713	1,284	1,284	1,284	1,284
Banks	51	51	51	51	162	162	162	162

COVID-19, LOCKDOWNS AND LOAN CONDITIONALITY

PANEL A: LOAN SPREADS



PANEL B: MATURITIES



INTEREST RATES AND COVID SHOCK

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Year-Quarter FE	Yes	Yes	-	-	-	-	-	-
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Type FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry * State FE	Yes	-	Yes	-	Yes	-	Yes	-
Industry * Quarter FE			Yes	-	Yes	-	Yes	-
Borrower FE		Yes		-		-		-
Borrower * Quarter FE				Yes		Yes		Yes
Loan Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Q1 2020 FE	-1.344 (0.864)	3.004 (0.688)						
Q2 2020 FE	43.685*** (0.000)	65.066*** (0.000)						
Covid Deaths			29.451** (0.037)	176.334 (0.296)			30.443** (0.031)	199.874 (0.194)
NPIs					-0.471 (0.979)	166.812 (0.120)	-9.325 (0.571)	224.939** (0.020)
Adj. R ²	0.45	0.74	0.47	0.77	0.47	0.77	0.47	0.77
Observations	10,941	9,452	10,819	6,544	10,819	6,544	10,819	6,544
Borrowers	4,711	2,953	4,663	2,164	4,663	2,164	4,663	2,164
Banks	32	30	32	29	32	29	32	29

This table contains syndicated loan level regressions from Q1 2017 to Q2 2020. The dependent variable is the interest spread over

MATURITIES AND COVID-SHOCK

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Year-Quarter FE	Yes	Yes	-	-	-	-	-	-
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Type FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry * State FE	Yes	-	Yes	-	Yes	-	Yes	-
Industry * Quarter FE			Yes	-	Yes	-	Yes	-
Borrower FE		Yes		-		-		-
Borrower * Quarter FE				Yes		Yes		Yes
Loan Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Q1 2020 FE	-0.101** (0.020)	-0.130 (0.108)						
Q2 2020 FE	-0.570*** (0.000)	-0.527*** (0.000)						
Covid Deaths			0.096 (0.248)	0.354 (0.513)			0.080 (0.378)	0.265 (0.583)
NPIs					0.170 (0.222)	-1.292 (0.116)	0.146 (0.284)	-1.203* (0.085)
Adj. R ²	0.28	0.58	0.30	0.66	0.30	0.66	0.30	0.66
Observations	10,800	9,273	10,678	6,387	10,678	6,387	10,678	6,387
Borrowers	4,674	2,910	4,625	2,121	4,625	2,121	4,625	2,121
Banks	31	29	31	28	31	28	31	28

This table contains syndicated loan level regressions from Q1 2017 to Q2 2020. The dependent variable is the logarithm of

SUMMARY

Banks geographically more exposed to the pandemic and lockdown policies show

- an increase in loan loss provisions and non-performing loans
- an increase in lending to small businesses, but not in other lending categories,
- an increase in interest spreads and decrease in loan maturities

Government-guaranteed loans replaced regular loans for small businesses

More exposed banks more likely to substitute PPP loans for regular loans

Important: results for US, but might provide insight for other advanced countries

THANK YOU

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