Can FinTech Reduce Disparities in Access to Finance? Evidence from the Paycheck Protection Program

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COVID-19 Crisis and the PPP

- 1/3 of small businesses shut down (State of Small Business Report)
- Paycheck Protection Program (PPP) created to support small businesses
  - First two phases: 5.1 million loans ($525 billion), passed through 5,460 financial institutions;
  - Forgiveable loans, no credit risk; supported 51 million jobs!
- SBA made last-minute decision to include FinTechs as eligible lenders
  - Traditional banks known to be sometimes inefficient and inequitable in financial services supply (Philippon, 2015); PPP is no exception (Granja et al, 2020)
  - FinTech’s role increasing in credit markets, but remains controversial

Do FinTechs Act Differently Than Banks?

Our key questions:

- Do FinTechs lend more in areas where there is more economic need?
- Do FinTechs serve under-banked small businesses?
  - Is there evidence of substitution between traditional banks and FinTechs?

Why?

- *Important implications for policy:* Should FinTech lenders participate in other government loan programs?
- *Context of PPP:* Not a standard credit provision as the lenders do not take credit risk, but isolates a component of inclusion

How We Answer These Questions

- FinTechs lend more where it is needed.
  - FinTechs lend more where the crisis is more severe, as measured by unemployment claims and COVID cases.

- FinTechs serve under-banked borrowers.
  - FinTech share of lending is higher in ZIP codes with less access to finance (within county): ***with fewer bank branches, lower incomes, and larger share of the minority population***.
    - Study differences in financial access by ZIP code. Measure FinTech *share* of lending by region to control for overall PPP demand.
  - FinTech share of lending is also higher for borrowers with poor bank ties.

- FinTechs substitute for banks, but not much.
  - A Bartik-type instrument for bank lending shows some substitution.

Literature Summary

- Paycheck Protection Program (PPP):
  - Autor et al. (2020), Bartik et al. (2020), Cororaton and Rosen (2020), Granja et al. (2020), Faulkender et al. (2020), Li and Strahan (2020), Balyuk et al. (2021), Lynch (2021), Chernenko and Sharfstein (2021), …
- Financial Inclusion for small businesses
  - Beglet et al. (2020), Blanchflower et al. (2003), Chatterji and Seamans (2012), …
- Role of FinTech/Nonbanks in Credit Provision:
  - Buchak et al. (2018), Di Maggio and Yao (2018), Chernenko et al. (2019), Vallee and Zeng (2019), Gopal and Schnabl (2020), …
- Growth in FinTechs: Mills (2018), Stulz (2019); Why?
  - Insufficient access to bank credit: Butler et al. (2016), Cole et al. (2019);
  - Convenience and speed of service: Buchak et al. (2018), Fuster et al. (2019);
  - Loan terms: Carlin et al. (2020); Higher rates on deposits by Online Banks: Abrams (2019);

  Limitations: Balyuk et al. (2020), …

Main Data: SBA Release of PPP Loans

- Loan-level Information:
  - *ZIP Code, Date, Borrower Industry (6-digit NAICS), Lender names,…*

- Hand-classify lenders as FinTechs.

FinTech Lenders

- **Unregulated Nonbanks** (6%)
  - Non-depository financial institutions (e.g., Kabbage with more than 150,000 direct loans)
- **Regulated Online Banks** (9%)
  - Deposit-taking banks but with one administrative branch only; rely on FinTech for both their lending and deposit taking.
    - E.g., Cross River Bank and Celtic Bank partnered heavily with FinTech firms and extended almost 350,000 PPP loans in total.
- Various alternative/robustness checks to classifications

15% of PPP loans are by FinTechs!

	Mean	Std. Dev	Median	Count
FinTech Indicator	.15	.36	0	5,114,448
Non-bank Indicator	.063	.24	0	5,114,448
Online Bk Indicator	.089	.28	0	5,114,448
Single Person	.33	.47	0	5,114,448
Jobs (All)	12	33	4	5,114,379
Jobs (Traditional)	13	35	4	4,339,037
Jobs (FinTech)	5	16	1	775,342
Amount (All)	102,697	353,776	23,125	5,114,379
Amount (Traditional)	113,803	376,543	27,331	4,339,037
Amount (FinTech)	40,545	166,000	15,835	775,342

FinTechs More Responsive in Phase 1; More Numerous in Phase 2:

Measured as association between crisis severity and total lending

	(1)	(2)	(3)	(4)
	Log PPP FinTech Phase 1	Log PPP Trad. Bk Phase 1	Log PPP FinTech Phase 2	Log PPP Trad. Bk Phase 2
Avg Case Rate	0.016	-4.06***	4.72***	0.48***
	(0.26)	(0.23)	(0.19)	(0.080)
Unemp. Chg	0.057***	-0.070***	0.13***	0.028***
	(0.0072)	(0.0056)	(0.0084)	(0.0023)
Log Establishments	1.04***	0.89***	1.08***	0.96***
	(0.015)	(0.0066)	(0.0087)	(0.0033)
Observations	6269	14668	10658	15539
R^2	0.558	0.747	0.723	0.917

Higher FinTech Share in ZIPs With Fewer Branches

	(1) FinTech PPP Fraction	(2) FinTech PPP Fraction (Alt Defn)	(3) FinTech PPP Fraction	(4) FinTech PPP Fraction (Alt Defn)
Log Branches	-0.017***	-0.016***	-0.020***	-0.019***
	(0.00094)	(0.00090)	(0.0012)	(0.0011)
Log Med. Inc			-0.017***	-0.018***
			(0.0032)	(0.0031)
Frac Commute 45+m			0.14***	0.14***
			(0.013)	(0.012)
Frac White			-0.17***	-0.15***
			(0.0082)	(0.0079)
Log Population			0.026***	0.026***
			(0.0011)	(0.0010)
Establishments Per Cap.			-0.00022	-0.00046
			(0.0036)	(0.0033)
Frac Estabs <10 Emp			0.17***	0.16***
			(0.010)	(0.0098)
Frac Estabs <500 Emp			-0.16***	-0.16***
			(0.0099)	(0.0093)
Observations	35543	35543	28577	28577
R^2	0.695	0.663	0.806	0.786
County FEs	X	X	X	X

Economically-significant results: Halving the number of bank branches in a ZIP code is associated with an increase in the FinTech share of about 13.3% of the median.

Robust to using loan-level regressions with NAICS FEs (see the Appendix Table A3).

FinTech Lending and Banking Relationships

Table 6: FinTech Lending and Firm Relationships

	(1)	(2)	(3)	(4)	(5)
	FinTech PPP Loan	FinTech PPP Loan	FinTech PPP Loan	FinTech PPP Loan	FinTech PPP Loan
Log(PPP/SBA 7a)	0.030***				
	(0.011)				
Industry Emp. Growth		-0.33***			
		(0.084)			
One-Pers. Firm			0.11***		
			(0.0076)		
Log Jobs Supported				-0.048***	
				(0.0025)	
Log Approved Amt					-0.036***
					(0.0018)
Observations	4768973	3954530	4979333	4979117	4979316
R^2	0.124	0.133	0.201	0.205	0.199
Zip FEs	X	X	X	X	X
NAICS2 FEs	X	X			
NAICS6 FEs			X	X	X

FinTech…

- … provided more PPP loans to areas with a worse economic shock while traditional banks failed to do in Phase 1.
- … is disproportionately used in ZIP codes with fewer bank branches, lower incomes and a larger minority share of the population.
- … provided more loans to borrowers with weak financial system access.

Is There Bank-FinTech Substitution?

- FinTechs serve an entirely new market or substitute for traditional banks?

- Strategy: Predict which regions get little bank lending
  - Some banks more likely to make PPP loans than others (better IT systems, less regulated, etc)

How We Predict Bank Lending by ZIP

(akin to a shift-share ("Bartik") design)

1. For each bank, calculate PPP loans per branch nationally: This is the measure of a ***bank's responsiveness*** to the PPP.

2. In each ZIP, calculate the average responsiveness of banks located there, assuming local branches act like their parent company -i.e., each branch's *predicted* loans equal its parent's loans-per-branch.

Get ***predicted traditional bank lending*** in the ZIP code, an instrument for the supply of PPP loans by ZIP code, independent of COVID-19 related demand

Substitution happens, but…

- It is rather small economically: The number of FinTech loans that are made as a result of this substitution is **about 27%** of the decrease in traditional bank lending.
  - Evidence that substitution happens **from Phase 1 to Phase 2**

- Evidence that FinTech and traditional banking markets are segmented…

Conclusion:
FinTechs Serve Underserved Markets

- An unprecedented demand shock to financial services → **PPP**
  - Find that Traditional Banks allocate poorly, FinTechs do better.

- FinTechs serve:
  - Areas with fewer branches, more minority and lower income borrowers
  - Businesses with weaker ties to the banking system

In banking markets, FinTechs substitute for banks much less than one-for-one.

Additional Tables

Predicted Bank Lending and Overall Lending

Table 10: Effects of Predicted Bank Lending

	A. Effect of Predicted Lending on Traditional and FinTech Lending, by Date					
	(1)	(2)	(3)	(4)	(5)	(6)
	Traditional PPP	Traditional PPP Before May 4	Traditional PPP After May 5	FinTech PPP	FinTech PPP Before May 4	FinTech PPP After May 5
Predicted PPP	0.028***	0.029***	0.014	-0.042**	-0.011	-0.049**
	(0.0069)	(0.0077)	(0.011)	(0.017)	(0.015)	(0.021)
Log Establishments	0.97***	1.01***	0.83***	0.81***	0.95***	0.73***
	(0.0032)	(0.0035)	(0.0051)	(0.0089)	(0.0071)	(0.011)
Observations	12101	12092	11804	12166	11494	11656
R^2	0.932	0.925	0.796	0.917	0.919	0.885
County FEs	X	X	X	X	X	X

Relationships, Technology Use and FinTech Lending

Table 7: Local Technology Use and PPP Lending

	(1) FinTech PPP Fraction	(2) FinTech PPP Fraction	(3) FinTech PPP Fraction	(4) FinTech PPP Fraction
FinTech 7(a) Share	0.010	0.012**		
	(0.0067)	(0.0050)		
Fraction w Desktop			-0.22***	0.080***
			(0.013)	(0.018)
Log Med. Inc		-0.018***		-0.033***
		(0.0036)		(0.0040)
Frac Commute 45+m		0.15***		0.15***
		(0.015)		(0.013)
Frac White		-0.17***		-0.18***
		(0.0090)		(0.0087)
Log Branches		-0.020***		-0.020***
		(0.0013)		(0.0012)
Log Population		0.028***		0.026***
		(0.0014)		(0.0011)
Establishments Per Cap.		0.0011		-0.0015
		(0.0037)		(0.0040)
Frac Estabs <10 Emp		0.19***		0.17***
		(0.013)		(0.010)
Frac Estabs <500 Emp		-0.17***		-0.16***
		(0.027)		(0.010)
Observations	15361	14938	30976	28573
R^2	0.679	0.811	0.707	0.807
County FEs	X	X	X	X

Alternative Government Programs

Table 8: Demand for Assistance Programs and FinTech PPP Fraction

	(1) Frac Applying for PPP	(2) FinTech PPP Frac	(3) FinTech PPP Frac	(4) FinTech PPP Frac	(5) FinTech PPP Frac	(6) FinTech PPP Frac	(7) FinTech PPP Frac
Success During COVID	-0.18***	-0.096**					
	(0.034)	(0.040)					
Pct Denied PPP			0.16***				
			(0.044)				
EIDL				0.085			
				(0.14)			
SBA Forgiveness					0.11		
					(0.20)		
Federal Assistance						-0.29	
						(0.22)	
State/Local Assistance							0.15
							(0.32)
Observations	863	863	860	863	863	863	863
R^2	0.361	0.833	0.851	0.847	0.847	0.847	0.847
Week FEs	X	X	X	X	X	X	X
Shock Ctrls			X	X	X	X	X