

Covid-19 Government-backed Loans and MSMEs Liquidity and Earnings: Gender results from two RCTs

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Motivation: COVID-19 impacts and MSMEs relief programs

- The **COVID-19 pandemic had a significant impact on businesses worldwide**, with heterogenous effects (e.g. Apedo-Amah et al. 2020).
- **LAC region was the most affected** among emerging and developing regions in 2020 in terms on GDP growth (OECD, 2020), with **smaller firms being disproportionately affected** (e.g. Cerda et al. 2023, Bontan et al. 2021).
- Several LAC governments enacted **MSME relief programs, including government-backed commercial loans** which allowed private banks to lend to firms that may have not access credit otherwise, including women-led/owned MSMEs.

Motivation: WSMEs limited access to finance

- **Gender inequalities in credit access** have been widely documented.
- In developing economies, **women are 6% less likely to have a bank account** than men, but large heterogeneities across countries (WBG 2021 Global Findex Report). For LAC, 7% gap.
- Unequal access to credit could be due to **demand factors** (women ask for less credit) or **supply factors** (banks discriminate against women).
- Multiple steps being taken to increase access to finance to women-led/owned firms, but **still limited evidence on the impacts of credit access on WSMEs**.

What this research is about

- Leverage on COVID relief programs to better understand what the **impacts of access to credit of MSMEs and gender differences**.
- Run **two RCTs** in collaboration with two large private banks in **Chile and Colombia** executing large government-backed guaranteed loan programs.
- Focus on two key firm outcomes: **(i) liquidity and (ii) earnings**.
- Focus mainly of **short-term effects**. (6-12 months after RCT concluded observed)

Related literature

- Most gender evidence **concentrated on microcredit** with **mixed results**:
 - Positive effects on business growth for women (e.g. Arraiz, 2023; Khaleque 2018)
 - Null or negative effects for women (e.g. Karlan and Zinman, 2011; Bandiera et al. 2013, Buvinic et al. 2015, Cai et al. 2021).
 - Other effects such as improved risk coping, strengthened community ties, increase access to informal credit (Karlan and Zinman, 2011).
- For average borrower, if credit is **targeted/design appropriately** it could have **positive effects** (e.g. Banerjee et al. 2019, Battaglia et al. 2021)
- Evidence on women-led/owned SMEs is **growing but still scarce** (Siegrist, 2022)

Preview of results

- Loan offers significantly **increased firm liquidity, but with gender differences in commercial debt**. Intent-to-treat (ITT) effect for MSMEs led by men is 31% versus 13% for women.
- Loan offers have no impact on deposits, but **increase earnings** (17% increase in Chile). Despite unequal access to commercial liquidity, **no heterogenous effects for WSMEs** on earnings.
- Largest impacts and gaps on **smaller firms** and those located **outside the capital**.

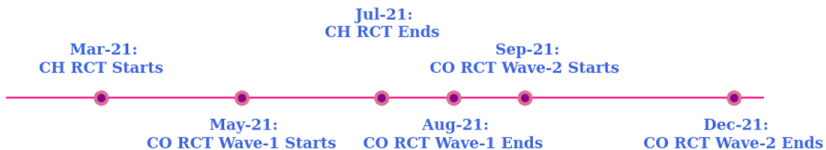
Government backed guaranteed loans

Description	Chile	Colombia
- Program	FOGAPE	Unidos por Colombia
- First Wave Date	April 2020	April 2020
- Second Wave Date	January 2021	July 2021
- Target	MSMEs	MSMEs
- Government Guarantee	Up to 80%	50-90%
- Disbursed Amount (in 2020)	US\$ 6.6B	US\$ 2.4B
- % of the GDP	2.6	0.9

Experimental design

- **Random promotion of loan access** by two banks **focused on MSMEs**.
 - Banks offered loans via targeted emails.
- **Experimental sample** obtained from a first screening performed by the banks. For Colombia, followed by a second screening by researchers based on number of financial transactions firms recently conducted.
- **Sample stratification**
 - Chile: Credit score, sales, type (received/accepted COVID loan offer prior to experiment) (27).
 - Colombia: Type and number of months making deposits (36).
- **Loan offered was unconditional**, once in treated sample. BUT banks could decide on the loan size based on further financial assessment.

RCTs Timeline of Implementation



Experimental design

Description	Chile	Colombia	Joint
- Financial Partner	Private Bank	Private Bank	
- Number of MSMEs:	10,072	3,379	13,451
- Randomization Split (%)	50-50	70-30	55-45
- Treatment Group	5,069	2,375	7,444
- Control Group	5,003	1,004	6,007
- MSMEs outside capital (%)	50	50	50

Sample distribution by gender, take-up rates and compliance

Variable	MSMEs				Compliance			
	Treat	Control	Total	% Total	Treat	Control	Total	% Total
Total	7,444	6,007	13,451		2,077	107	2,184	
Women	2,123	1,833	3,956	29.4	587	35	622	28.5
Men	5,198	4,028	9,226	68.6	1,477	71	1,548	70.9
Missing	123	146	269	2.0	13	1	14	0.6

No gender differences in take-up rates (28%).

Data and definitions

- **Liquidity:**
 - Debt administrative data information from January 2019 to July-August 2022. Monthly data provided by banks but obtained from regulators or credit bureau.
 - Focus on commercial and total debt. Commercial is more than 80% of total debt.
- **Earnings:**
 - Administrative data on total amount of deposits provided by partner banks from September 2019 to May 2022. Daily or weekly data.
 - Monthly sales registered by IRS from January 2019 to June 2022 (Chile).
- **Women-owned/led MSME definition:**
 - Chile: Gender of the main shareholder.
 - Colombia: 50% or more of shares are owned by women.
 - For sole proprietors based in client's name.

Estimation strategy

Reduced form regressions (ITT):

$$Y_i = \alpha + \beta_T \text{Treat}_i + \beta_W \text{WomenLead}_i + \beta_{T-W} \text{Treat}_i \times \text{WomenLead}_i \\ + \beta_4 \text{Miss}_i + \sum_{k=1}^K \gamma_k \text{stratum}_{k,i} + \delta y_{i,pre} + \varepsilon_i$$

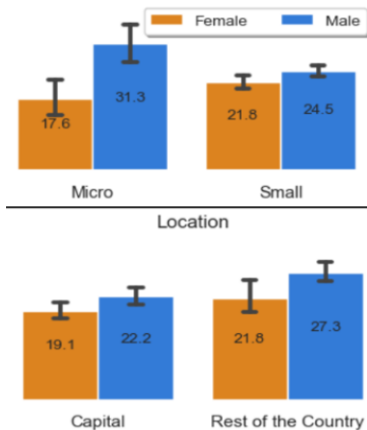
Where:

- Y_i outcome variable in logs and upper winsorized at top 5%.
- Miss_i dummy if firm i is missing the gender information.
- $\text{stratum}_{k,i}$ strata FE.
- $y_{i,pre}$ lag of outcome of interest (average per month).
- ε_i heteroskedastic-robust standard errors.

Balance checks

Variable	N	Control	Mean	
	Firms	Mean	Difference	
Deposits per month	13,451	2.021	-0.051**	-0.004
		(0.026)	(0.022)	(0.021)
Liquidity per month	13,451	4.025	0.033	0.030
		(0.037)	(0.030)	(0.028)
Firm Age	12,944	13.797	0.117	-0.098
		(0.166)	(0.133)	(0.131)
Legal Entity	13,448	0.348	-0.014	0.005
		(0.009)	(0.008)	(0.008)
Capital Location	13,385	0.227	-0.007	0.003
		(0.010)	(0.008)	(0.009)
Gender Owner	9,390	0.255	-0.012	-0.013
		(0.010)	(0.008)	(0.008)
Country FE			Yes	No
Strata FE			No	Yes

Gender gaps in loans offers by firm size and location

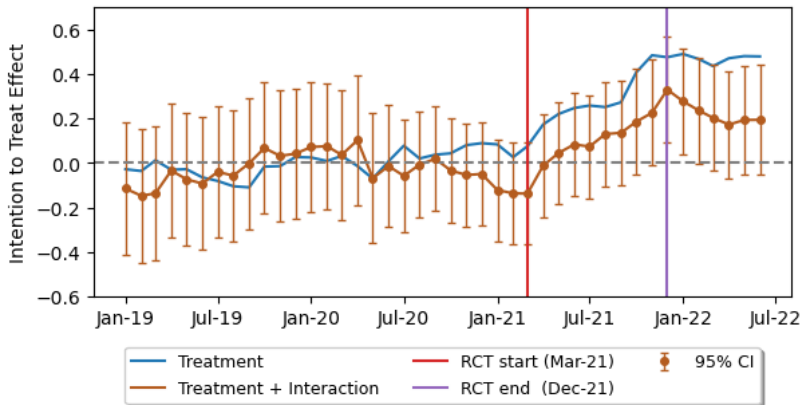


Liquidity effects

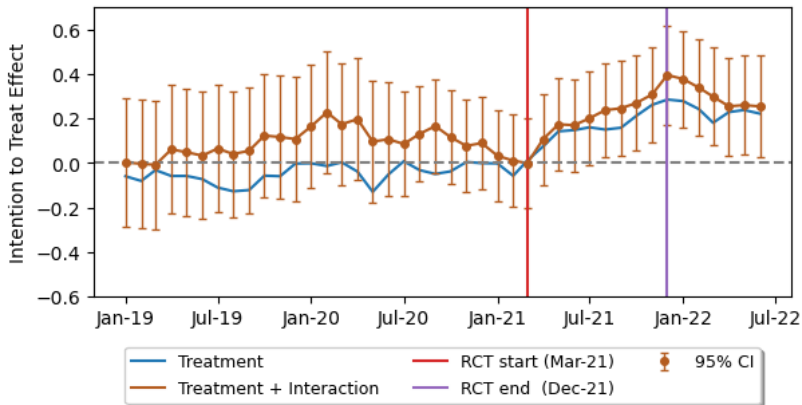
	<u>Comm</u>	<u>Total</u>	<u>Comm</u>	<u>Total</u>
Treat	0.264***	0.157***	0.311***	0.161***
	(0.042)	(0.036)	(0.048)	(0.04)
Woman Lead			0.046	0.016
			(0.058)	(0.05)
Treat x Woman Lead			-0.184**	-0.033
			(0.085)	(0.068)
N	13,451	13,451	13,451	13,451
Strata FE	Yes	Yes	Yes	Yes
Lagged debt	Yes	Yes	Yes	Yes

Robust standard errors in parenthesis. *Sign at 10%. **5%. ***1% Lagged debt of 1 year pre-RCT period.

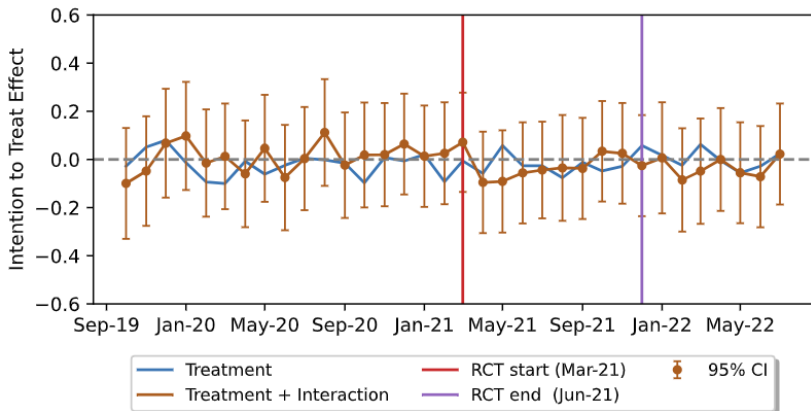
Monthly effects on commercial liquidity



Monthly effects on total liquidity



Effects on earnings (proxied by deposits)



But, deposits may **not be the best proxy for earnings** (low use during COVID or other banks).

Effects on sales - Chile sample

	$y_i = \text{Log}(\text{Average Sales Amount} + 1)$		
Treat	0.175** (0.078)	0.155** (0.066)	0.176*** (0.063)
Woman Lead	-0.015 (0.099)	0.151* (0.084)	0.091 (0.079)
Treat x Woman Lead	-0.025 (0.137)	-0.040 (0.115)	-0.064 (0.110)
N	10,072	10072	10,072
Lag Sales	No	Yes	Yes
Strata FE	No	No	Yes

Robust standard errors in parenthesis. *Sign at 10%. **5%. ***1% Lagged sales of 1 year pre-RCT period.

Other analyses and robustness checks

No effects of treatment on delinquency rates (Colombia).
Rates at around 20%.

Results are maintained under different specifications:

- Using 3 alternative scenarios as the **launching and ending periods of the RCT**.
- With and without stratum FE and **varying the definition lagged outcome variables** (1 year versus full pre-RCT period).
- Given imperfect compliance, using **IV estimation strategy**.

Some study limitations

- **Data on women-led/owned businesses is relatively small.** Almost 4K observations (30% of total sample). We may not have the power to detect some small effects.
- **Data not fully comparable/available for both countries in some interesting outcomes.** Earnings data from IRS only for Chile. Delinquency rates only available for Colombia.

Conclusions and policy implications

- **Wide-open public financial policies may help** to reduce gender gaps in credit access and contribute to firm growth.
- Despite providing wider availability of credit, **we still observed gender gaps** with women showing lower improvements in commercial liquidity compared to men.
- **Targeted policies may be needed.** Gender gaps more pronounced on smaller firms and outside capital.
- **Role of guaranteed loans in adverse external conditions**, which could be supported by public sector but also by DFIs.