

Government Banks and Interventions in Credit Markets¹

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12th Workshop on Banking and Financial Institutions

August 2026

¹The views expressed herein do not necessarily reflect those of the Bank of England or its committees. The views expressed herein do not necessarily reflect those of the Central Bank of Brazil.

Motivation

- ▶ Credit markets are prone to government intervention to address market failures
- ▶ Government can use state-owned banks to lend directly to firms and households
 - ▶ **Upside:** Address credit downturns (Jimenez et al., (2020)), expand branch coverage (Fonseca and Matray 2025)
 - ▶ **Downside:** Political capture and misallocation (La Porta et al. (2002), Carvalho, (2014))
- ▶ Effects of an increase in lending by public banks to address lack of competition unclear
 - ▶ Response of private banks relevant for the total effect in credit
 - ▶ Intervention can alleviate financial constraints, but can also increase leverage (credit risk)
 - ▶ Changes in credit conditions can lead to increase in output/employment

This Paper

This Paper:

- ▶ Can state-owned banks expand SME credit access by competing with private banks?

What we do:

- ▶ Study an intervention in Brazil in 2012 - Public banks ↑ lending at low interest rates

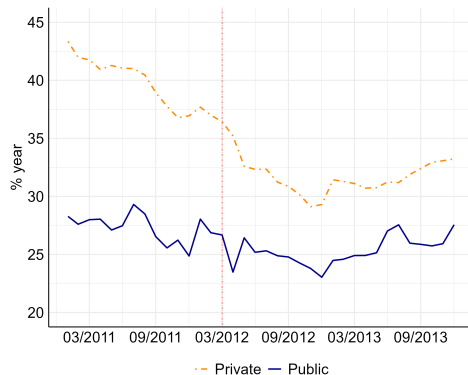
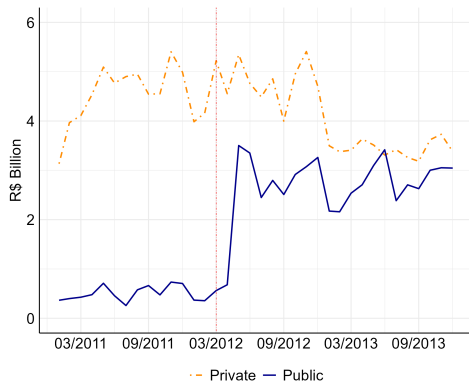
Results:

- ▶ Private banks cut SME loan rates by $\sim 3\text{--}6$ percentage points, especially for smaller firms
- ▶ Firms exposed to public banks increase leverage $\Rightarrow$ higher default for public banks
- ▶ Local public credit expansion increases employment and firm creation
- ▶ Estimated short-run cost per job of $\sim \text{R\$}2,370$, $\sim 4\times$ of Brazil's monthly minimum wage

Context and Data

- ▶ Concentrated banking sector w/ high interest rates (two public banks $\sim$ 30% total assets)
- ▶ Concerns about a slowdown in economic activity in 2011 trigger many policies
- ▶ Before the policy, government argues high lending rates reflect insufficient competition
- ▶ In March 2012, government banks announce an increase in lending at low interest rates
- ▶ By mid-2013 macro conditions had changed, with a tightening of financial conditions
- ▶ **Data:** Credit registry (SCR) matched to employer–employee records (RAIS)

Government banks more than tripled SME lending

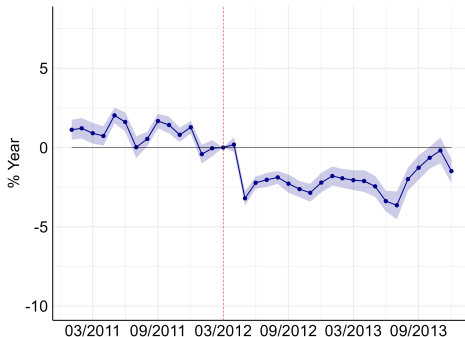


- ▶ Public SME lending ↑ from roughly R\$520m/month to R\$2.8bn/month after the policy
- ▶ The private public interest-rate spread falls sharply, but remains positive

Private banks cut rates immediately after the intervention

At the loan-level: $\text{rate}_l = \alpha_{\text{tmsf}(\text{size})} + \alpha_{\text{fb}} + \sum_{\tau \neq -1} \delta_{\tau} \text{Private}_b + \varepsilon_l$

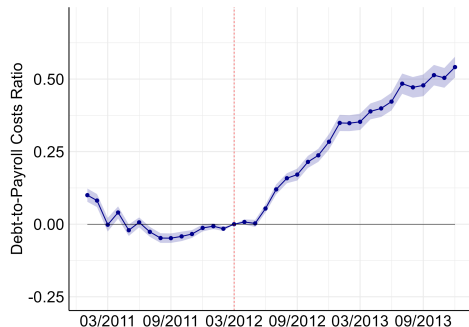
- ▶ Average decline in private public spread: around 3–6 percentage points
- ▶ Robust to firm-time FEs (within firm-time variation)
- ▶ Smallest firms experience the largest reduction in private bank interest rates



Public bank borrowers sharply increase leverage

- Use debt over payroll costs to assess policy impact on firm leverage:

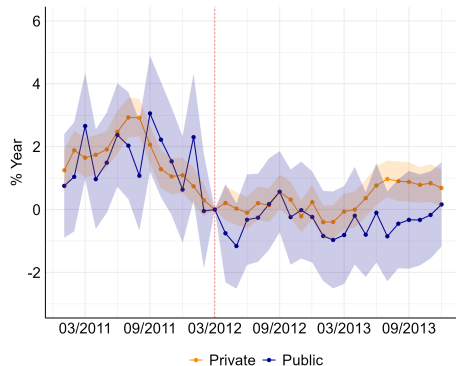
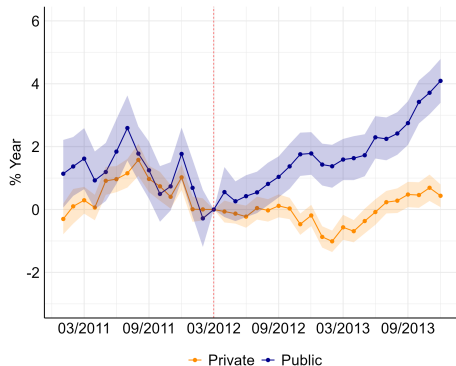
$$\frac{\text{Debt}_{tf}}{\text{Payroll}_{2011,f}} = \alpha_{tmsf(size)} + \alpha_f + \sum_{\tau \neq 201203} \gamma_{\tau} \cdot \text{Public}_f^{\tau} + \varepsilon_{tf}$$



- Most additional public credit accrues to existing, already-levered borrowers
- By end-2013, leverage growth among firms with prior public bank relationships is more than twice as large as for firms with prior private bank relationships

Higher leverage drives higher default

$$D_{tmbfs} = \alpha_{msf(size)} + \alpha_b + \sum_{\tau \neq 201203} \gamma_{\tau} + \varepsilon_{tmbfs}, \quad (1)$$



- Public bank borrowers become about 1 pp more likely to default after the policy

From borrower effects to regional effects

Goal: measure whether public credit expansion affects local credit and real outcomes

Challenge: public credit growth may be endogenous to local credit demand or other policies

Instrumented DiD design:

$$Post_t \times PublicBankShare_{m,2010} \longrightarrow PublicCreditGrowth_{mt}$$

- ▶ Exposure: public banks' share of firm credit in municipality m in 2010
- ▶ Intuition: public banks have more operational capacity where they have a larger footprint
- ▶ Outcomes: private rates, leverage, employment, firm creation, output

Regional exposure predicts credit growth and local credit conditions

$$y_{tm} = \alpha_{tr} + \alpha_{tb(m)} + \alpha_m + \beta \widehat{Credit}_{tm}^{Orig, Pub} + \Gamma Post_t \times X_m + \varepsilon_{tm} \quad (2)$$

	<i>Interest Rates</i> <i>tm</i> ^{Pr} (1)	<i>Interest Rates</i> <i>tm</i> ^{Pr} (2)	<i>Debt Over Payroll</i> _{tm} (3)	<i>Debt Over Payroll</i> _{tm} (4)
<i>Credit</i> _{tm} ^{Orig, Pub}	-23.45*** (6.964)	-19.77*** (6.789)	1.584*** (0.4655)	1.025** (0.4771)
Controls		✓		✓
Region-Time FE	✓	✓	✓	✓
Branch Composition-Time FE	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓
Observations	26,306	26,306	29,821	29,821
R ²	0.708	0.711	0.866	0.872
Effective F-Statistic	29.03	47.36	36.47	53.00

- More exposure to public banks is associated with ↓ private rates and ↑ leverage

Public credit expansion increases employment and firm creation

$$y_{tm} = \alpha_{tr} + \alpha_{tb(m)} + \alpha_m + \beta \widehat{Credit}_{tm}^{Orig, Pub} + \Gamma Post_t \times X_m + \varepsilon_{tm} \quad (3)$$

	$\Delta \text{Log}(GDP)_{mt}$		$\Delta \text{Log}(Emp)_{mt}$		$\Delta \text{Log}(N \text{ Firms})_{mt}$		$\text{Output per Firm}_{mt}$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$Credit_{mt}^{Orig, Pub}$	-0.0154 (0.0691)	0.0422 (0.0799)	0.1310*** (0.0499)	0.1253** (0.0528)	0.1082*** (0.0357)	0.1190*** (0.0290)	135.1 (253.3)	30.18 (215.9)
Controls		✓		✓		✓		✓
Region-Time FE	✓	✓	✓	✓	✓	✓	✓	✓
Branch Type-Time FE	✓	✓	✓	✓	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	7,458	7,458	7,458	7,458	7,458	7,458	7,458	7,458
R ²	0.500	0.500	0.373	0.375	0.426	0.434	0.987	0.987
Effective F-Statistic	36.54	51.95	36.54	51.95	36.54	51.95	36.54	51.95

- ▶ Employment effects are unlikely to be driven by local demand shocks:
 - ▶ Employment growth concentrates on manufacturing and tradable sectors
 - ▶ Small/insignificant effects in non-manufacturing, non-tradable and non-durable sectors

Cost per job calculation

- ▶ To assess the cost-benefit of the policy, we estimate the cost per job created:
 - ▶ Inspired by loan guarantee lit. (Bonfim, Custodio and Raposo (2023), Barrot et al. (2024))
 - ▶ Costs are measured using loan losses from the increase in public bank defaults
 - ▶ Jobs created obtained using local employment effects
- ▶ Delivers a cost per job of $\sim$ R\$2,370 (roughly 4x minimum wage)
- ▶ Compares favorably against loan guarantee programs
- ▶ Caveat: short-run cost per job does not capture misallocation, leverage or fiscal costs

Conclusion

- ▶ Study a credit market intervention implemented in Brazil using state-owned banks
- ▶ Large and unexpected $\uparrow$ in credit supply to firms w/ lower interest rates; unique setting
- ▶ Policy successful in reduction of interest rates, w/ limited crowding-out of private credit
- ▶ $\uparrow$ in leverage leads to an increase in delinquency - intensive rather than extensive margin
- ▶ $\uparrow$ Employment and firm creation in the short-run at somewhat low cost per job

APPENDIX

Regression table: private bank interest-rate response

	(1)	(2)	(3)	(4)	(5)
$Private_b$	7.629*** (0.383)			7.135*** (0.472)	
$Private_b \times Post_t$	-6.102*** (0.201)	-5.521*** (0.171)	-3.131*** (0.185)	-5.688*** (0.246)	-5.470*** (0.197)
Time $\times$ Mun $\times$ Industry $\times$ Size FE	✓	✓	✓	✓	✓
Bank FE		✓			✓
Bank $\times$ Firm FE			✓		
R ²	0.455	0.482	0.844	0.454	0.487
Observations	2193712	2193712	1683213	1683213	1683213

Regression table: default risk

	(1)	(2)	(3)
$Public_b$	-0.00305 (0.00189)		
$Public_b \times Post_t$	0.0109*** (0.00174)	0.0104*** (0.00181)	-0.00878** (0.00268)
$Debt_{tf}$			0.0226*** (0.00165)
$Post_t \times Debt_{tf}$			-0.00429** (0.00152)
$Public_b \times Debt_{tf}$			0.00354 (0.00308)
$Post_t \times Public_b \times Debt_{tf}$			0.0179*** (0.00321)
Time $\times$ Mun $\times$ Industry $\times$ Size FE	✓	✓	✓
Bank FE		✓	✓
R ²	0.175	0.176	0.177
Observations	1812219	1812219	1812219

Political allocation of public credit

Election Year	$\Delta Credit_{mt}^{Pub}$							
	2008 Elections				2012 Elections			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Same Party_m</i>	-0.0552 (0.0425)		-0.0513 (0.0466)		0.0076 (0.0350)		0.0106 (0.0402)	
<i>HHI_m</i>	0.0407* (0.0223)	0.0407* (0.0224)	0.0402* (0.0222)	0.0398* (0.0223)	0.0403* (0.0224)	0.0402* (0.0224)	0.0408* (0.0223)	0.0402* (0.0223)
<i>Coalition_m</i>		0.0057 (0.0288)		-0.0100 (0.0341)		0.0197 (0.0288)		0.0316 (0.0321)
<i>Contest_m</i>			0.0362 (0.0340)	0.0099 (0.0367)			-0.0259 (0.0341)	-0.0080 (0.0341)
<i>Same Party_m × Contest_m</i>			-0.0129 (0.0751)				-0.0209 (0.0847)	
<i>Coalition_m × Contest_m</i>				0.0609 (0.0699)				-0.0642 (0.0667)
Observations	2,459	2,459	2,459	2,459	2,460	2,460	2,460	2,460
R ²	0.21429	0.21284	0.21498	0.21409	0.21283	0.21307	0.21332	0.21398
Controls	✓	✓	✓	✓	✓	✓	✓	✓
Region fixed effects	✓	✓	✓	✓	✓	✓	✓	✓