Credit Guarantees, Firm Response and Macroeconomics

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October 08th 2024

Monetary Research Meeting

Motivation, why is it important?

- Credit guarantees widely used policy tool, aimed at risky borrowers that lack collateral to obtain new loans.

  - As early as April 2020: Germany, France, and Italy committed €1.9 billion for Credit Guaranteed Schemes (CGSs)

  - During the COVID-19 pandemic: 7.8% of GDP destined to CGS in average across EU countries.

Motivation, why is it important?

- Credit guarantees widely used policy tool, aimed at risky borrowers that lack collateral to obtain new loans.

- In this arrangement banks are insured against firm default $\implies$ new loans are partially or fully guaranteed by a third party (e.g., government).

  - Expand financial access $\implies$ additional funding at more favorable pricing terms
  - Stressed borrowers with no collateral likely afflicted elevated borrowing costs

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- Existing literature $\implies$ perspective of credit guarantees as instruments expanding the absolute supply of credit

  - Could lead to credit rationing and misallocation of resources

  - Policy debate about design and implementation has focus on this evidence

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- Existing literature $\implies$ perspective of credit guarantees as instruments expanding the absolute supply of credit

- The impact of favorable pricing conditions with credit guarantees largely unexplored

  Main difficulty $\implies$ Separate effect of lower interest from impact of credit expansion

What we do?

- This paper study impact effect of favorable pricing conditions on guaranteed loans on stressed firms

- **Empirical approach**

  – Exploit policy-induced variation in the pricing conditions for firms participating during 2020 Belgian CGS

  – Interest rate on guaranteed loans reduced by 25 basis points (bp.) for firms with less than 50 employees

  – Use balance sheet-data for firms participating in 2020

  – Estimate the effect on firm's economic performance using Regression Discontinuity Design (RDD)

  – Provide evidence on the channel by which price conditions of credit guarantees affect firms economic performance

What we find?

1. Favorable pricing conditions on guaranteed loans improve economic performance of firms

   - ↑ Investment, Employment, and Revenues

2. Better price conditions on credit guarantees mitigate price-related financial frictions

   - Guaranteed debt issuance similar across treatment and control groups

   - ↑ Substitution of non-guaranteed debt

   - ↓ Average interest costs

1. **INSTITUTIONAL DETAILS**

2. **EMPIRICAL STRATEGY**

3. **MAIN FINDINGS: FIRM ECONOMIC PERFORMANCE**

4. **EXPLORING THE MECHANISM**

5. **CONCLUSIONS**

Institutional Details

The Belgian Credit Guarantees Scheme (CGSs)

CGSs Eligibility Conditions

- Implemented on April 1, 2020 $\implies$ mitigate the effects of the COVID-19 Pandemic

- Envelope amount €50 billion disburse to Belgian banks based on their market share

  - 11.8% nominal GDP in 2020

  - More than 90% of fiscal budget to respond to the pandemic

- Firms need to show liquidity problems linked to the pandemic to participate

  - Less than 30 days delinquency by 02/2020 but no delinquency before that.

  - No restructuring or insolvency procedures starter before 12/2019

About Guaranteed Loans

- Under the first CGSs (01/2020-12/2020) eligible firms receive a guaranteed loan

  - All new loans except to refinance existing credits (i.e. issued before 2020)

  - Maturity $\leq$ 12 months

  - Loan amount $\leq$ max $\{$ liquidity needs for 12 (18) months, $2\times$ wage bill, 25% turnover $\}$

  - Interest rate $\leq 1.25 +$ guarantee fee

  $$\text{guarantee fee} = \begin{cases} 25 \text{ bp. if firm is SMEs} \\ 50 \text{ bp. if firm is Large} \end{cases}$$

- For firms participating in the CGSs interest rate reduce by a 25 bp. if classified as SMEs

  - Exogenous source of variation in loan pricing conditions

  - Change discontinuously with firm size category

Empirical Strategy

Regression Discontinuity Design

Defining our RD-Setup

- Interest rate on guaranteed loans reduced deterministically by 25 bp. based on firm's size category

- First, we focus to firms participating on the 2020 CGS
  - Discontinuity in the interest rate is only relevant for guaranteed loans

- Second, we focus on single dimension to define the size category
  - Reduce the dimensions of discontinuity to simplify analysis
  - No loss of generality or sample representativeness

Defining our RD-Setup

- Interest rate on guaranteed loans reduced deterministically by 25 bp. based on firm's size category

- Identify firms participating on the 2020 CGSs

  - Use statements for amounts payable for 2020

  - detail report of guaranteed debt portfolio

- We define firms participating in the CGSs if they report positive balance on debts guaranteed by Belgian public authorities at the end of 2020

Defining our RD-Setup

- Interest rate on guaranteed loans reduced deterministically by 25 bp. based on firm's size category

- Size category defined by comparing statements during past two years with thresholds

  (i) 50 employees, (ii) €9 mill. turnover, (iii) €4.5 mill. assets

  - SMEs if firm surpassing $\leq$ one threshold
  - Large if firm above $\geq$ two thresholds

- Most cases size defined by employment being above or below cutoff (98% for 2018-2019)

- We focus on firms that in 2018 are either:

  - SMEs $\leq$ 50 employees
  - Large corporations $>$ 50 employees

- Discontinuity is characterized by single dimension $\implies$ pre-determined employment

Data

- *Bel-first*: Firm-level balance sheet

    - Statements of amounts payable for 2020

    - Assets, income, and social balance statement from 2017-2023

- Based on our selection criteria: sample contains 2,904 firms

    - Treatment: 2,564 firms with $\leq$ 50 employees (SMEs)

    - Control: 344 firms with $>$ 50 employees (Large)
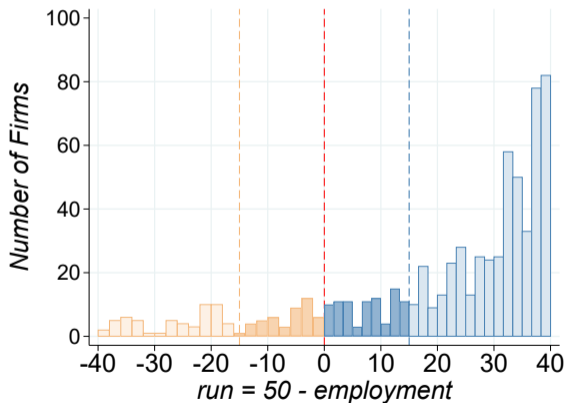
Identification

- Let fte_i the number of employees in 2018 of firm i participating in CGS

  running variable $\implies \text{FTE}_i = 50 - fte_i$
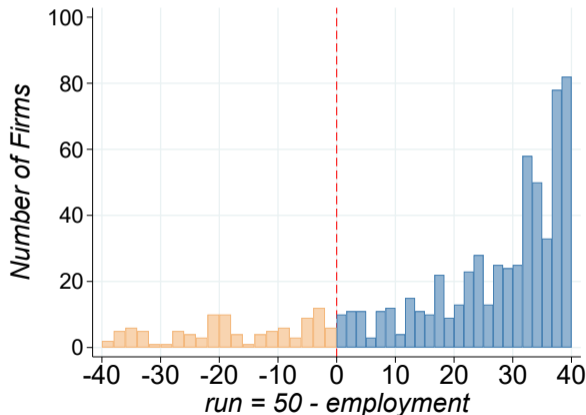
Identification

- Compare firms barely eligible (treated) and non-eligible (control) for interest rate discount
  $\implies$ Non-parametric Local Polynomials (**Calonico, Cattaneo, and Titiunik, 2014**)

Identification

- Compare firms barely eligible (treated) and non-eligible (control) for interest rate discount
- **IDENTIFICATION**: Firms are identical within bandwidth

  $\implies$ Treated ($\text{run}_i \geq 0$) have lower interest rate compared to Control ($\text{run}_i < 0$)
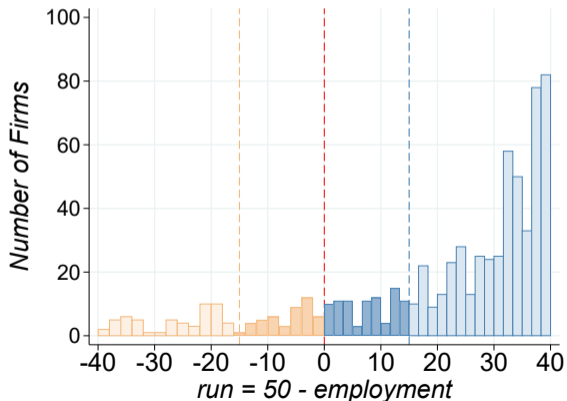
Main Results

Firm Economic Performance

Variables of Interest

- Firm performance measured by:

  (1) **Investment rate**
  $$\text{Inv.rate} = \frac{\text{Acquisitions of Tangible Fixed Assets}_{i,t}}{\text{Total Fixed Assets}_{i,t-1}}$$

  (2) **Employment Growth**
  $$\Delta\text{Emp.} = \frac{\text{Employment}_{i,t} - \text{Employment}_{i,t-1}}{\frac{\text{Employment}_{i,t}+\text{Employment}_{i,t-1}}{2}}$$

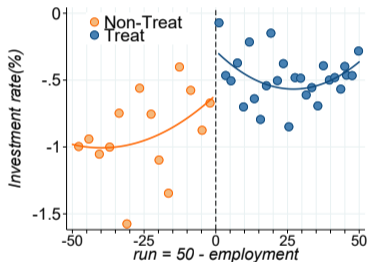 $\implies$ Employment = number of full-time equivalent employees in the staff register

  (3) **Revenues Growth**
  $$\Delta\text{Rev.} = \frac{\text{Revenues}_{i,t} - \text{Revenues}_{i,t-1}}{\frac{\text{Revenues}_{i,t}+\text{Revenues}_{i,t-1}}{2}}$$
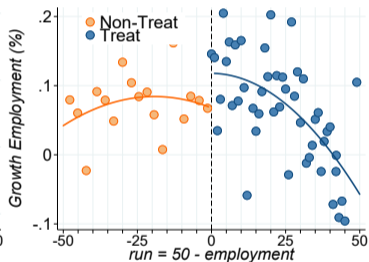
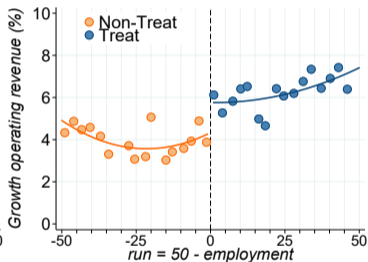 $\implies$ Revenues = gross added value

Main Findings: Economic Performance

- Upward jump when moving along the eligibility cutoff in 2020

(a) Investment: 2020   **(b)** Employment: 2020   **(c)** Revenues: 2020

Main Findings: Economic Performance

- RD-estimates consistent with graphical evidence

|	Inv. Rate (1)	Δ Emp. (2)	Δ Rev. (3)
Sharp-RD	0.20**	0.28***	0.34***
	(0.1)	(0.0)	(0.0)
Observations	2,773	1,743	2,897
BW (in # emp.)	10.5	7.3	4.7

Main Findings: Economic Performance

- Firms receiving a 25 bp. lower interest on each €1 of guaranteed loan
    - ↑ **investment rate** by 0.20 pp.
    - ↑ **employment growth** by 0.28 pp.
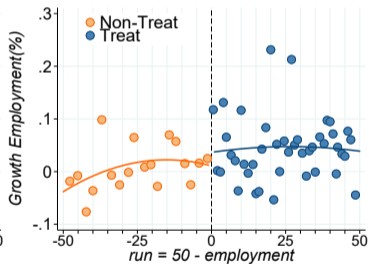   - ↑ **revenues growth** by 0.34 pp.

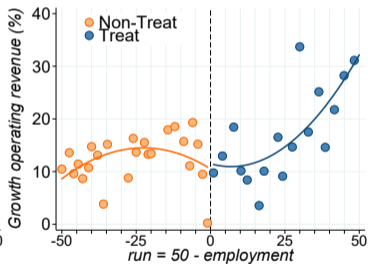|	Inv. Rate (1)	Δ Emp. (2)	Δ Rev. (3)
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Main Findings: Economic Performance

- Our results not explain by pre-existent trends in economic performance

- Upward jump disappears on year prior policy was implemented.
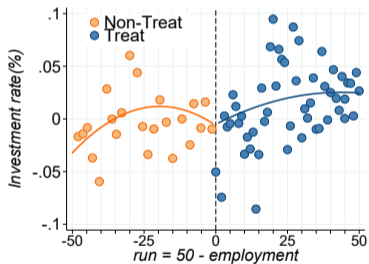
(a) Investment: 2019   **(b)** Employment: 2019   **(c)** Revenues: 2019

Main Results

Exploring the Mechanism

Price vs Quantity Frictions

- Following **Banerjee and Duflo, 2014** we test if firms receiving more favorable loan pricing conditions

  1. Quantity-frictions $\implies$ increase increase debt until new borrowing sources are exhausted

  2. Price-frictions $\implies$ reduce issuance of costly debt which lower financial debt burden

Price vs Quantity Frictions

- We focus on three measures

  (1) **Debt issuance**

$$\text{Guaranteed debt Accumulation} = \frac{\text{Guaranteed debt}_{i,t} + \text{Guaranteed debt}_{i,t-1}}{\text{Total Liabilities}_{i,t}}$$

  (2) **Changes in Non-Guaranteed Debt**

$$\text{Debt Substitution} = \frac{\text{Non-Guaranteed Debt}_{i,t} - \text{Non-Guaranteed Debt}_{i,t-1}}{\text{Total Liabilities}_{i,t}}$$

  (3) **Financial burden**

$$\text{Average Interest} = \frac{\text{Interest costs}_{i,t}}{\text{Total Liabilities}_{i,t}}$$

  $\implies$ Interest costs = Financial charges on total liabilities

Findings about the Mechanism

- Evidence is consistent with treatment alleviating price-related credit constraints

	Guarantee Debt Accumulation (1)	Debt Substitution (2)	Average Interest (3)
Sharp-RD	-0.003	-0.181**	-0.015***
	(0.0)	(0.1)	(0.0)
Observations	1,437	1,518	2,264
BW (in # emp.)	12.0	10.0	8.5

Findings about the Mechanism

- Firms receiving a 25 bp. lower interest on each €1 of guaranteed loan
  - Do not increase their holdings of guaranteed debt
  - Substitute by 0.18 pp more $\implies$ ↓ non-guaranteed debt by €0.13
  - Reduce financial burden by 0.015 pp

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- Exploit policy-induced variation in the pricing conditions for firms participating during 2020 Belgian CGS
  - Interest rate on guaranteed loans reduced by 25 basis points (bp.) for firms with less than 50 employees

- Favorable pricing conditions on guaranteed loans improve economic performance of firms

- Better price conditions on credit guarantees mitigate price-related financial frictions

THANK YOU!!!