

# COVID-19 and SME Failures

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- COVID-19 is unprecedented in its complexity, unevenness and severity.
- Small businesses are especially at risk for failure given the shock to their income.
- Governments implemented policies to support firms, together with economy wide fiscal and monetary stimulus

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1. COVID-19 and SME failures, NBER WP 27877, May 2020

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### ..with a few results from:

1. COVID-19 and SMEs: A 2021 Time Bomb, **American Economic Review, P&P**, May 2021
2. Fiscal Policy in the age of COVID: Does it get into all of the cracks?, **Jackson Hole Symposium** August 2021

## Questions

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## In this research agenda, we ask:

1. What is the impact of COVID-19 on firm failures in a wide range of countries?
2. What is the cost/effectiveness of government interventions aimed at saving firms?
3. Does COVID-19 SME support policies create a “time bomb” of failures in 2021?
4. What is the role of price adjustment and I-O networks?

# Methodology

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# Outline of Approach

- **Challenge:** To identify a liquidity shortage, need firm cashflow under COVID-19.

$$\text{cash} + CF_{\text{COVID}} < \text{financial expenses}$$

- **Approach:** Combine data with model to estimate  $CF_{\text{COVID}}$ 
  - Representative firm-level financial data (ORBIS) from 17 countries.
  - Firm cost-minimizes over labor and materials given supply and demand shocks calibrated at sectoral level (4-digit).

$$CF_{\text{COVID}} = PY_{2018} \widehat{PY}_{\text{COVID}} - COGS_{2018} \widehat{COGS}_{\text{COVID}} - \text{Fixed Costs} - \text{Taxes}$$

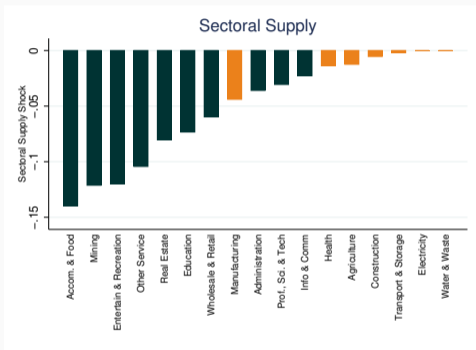


## Methodology – Shocks

Consider a firm producing in a given sector with some productivity, using labor and materials. The firm optimizes under a series of shocks:

- **Sectoral Labor Supply shock:** Labor utilization constraint/work place restrictions  
**Data:** Evaluate feasibility of remote work (Dingel and Neiman 2020) + Lockdowns.
- **Sectoral Productivity shock:** Due to remote work  
**Data:** Adjust productivity of remote workers down by 20% (ACS).
- **Sectoral Demand shock:**  
**Data:** Evaluate reliance on face-to-face interaction (O\*NET) + Google mobility
- **Aggregate Demand shock:**  
**Data:** GDP growth actual and forecasts (IMF, WEO).

# Sectoral Supply & Demand Shocks



- Demand (right) in customer-oriented sectors falls relative to essential sectors (orange).

# Limitations

## 1. **Liquidity, not insolvency, criterion:**

- SME access to credit markets is limited even in normal times (e.g. Gopinath, Kalemli-Ozcan, Karabarbounis, Villegas-Sanchez, 2017).
- Insolvency defined as negative equity; difficult to establish for SMEs/private firms.

## 2. **Assume perfectly rigid prices:** output is demand driven.

## 3. **Static, partial equilibrium exercise:** no state variable; estimate first-round effect.

## 4. **No input-output network**

## 5. **Calibration of shocks:** may not be independent of each other.

**August 2021 Jackson Hole paper:** flexible prices, I-O network, Google mobility + lockdown stringency data

## Baseline Failure Rates

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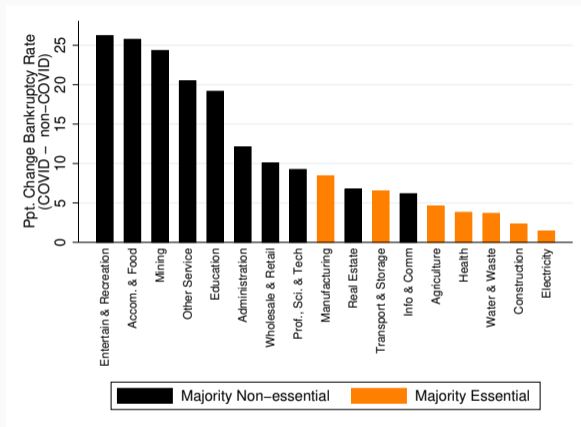
## Aggregate SME Failure Rate (%)

	(1)	(2)	(3)
	Non-COVID	COVID	$\Delta$
High coverage	9.61	18.66	9.06
All	9.43	18.41	8.98

**Baseline scenario:** Single 8 week lockdown—17 countries

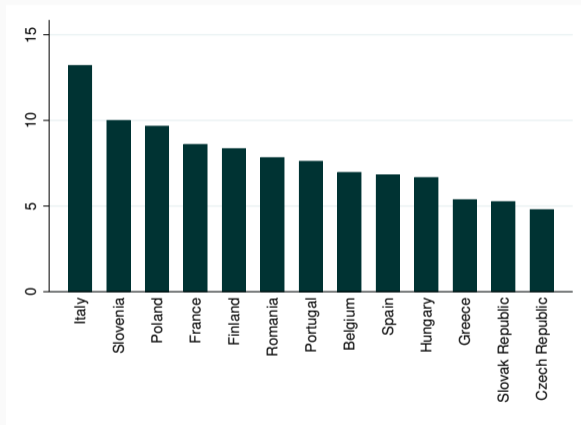
- No government intervention.
- The table reports the cumulative failure rate at the end of 2020.
- Aggregate failure rates mask heterogeneity across sectors and countries.

## Sectoral Heterogeneity in Failure Rates (COVID - non-COVID)



- COVID impact ranges from 2 pct. pt. (Electricity) to 25 pct. pt. (Accommodation & Food Service) difference in failure rates.

## Country Heterogeneity in Failure Rates (COVID - non-COVID)



- COVID impact ranges from 4.8 pct. pt. (Czech Republic) to 13.2 pct pt. (Italy) difference in failure rates.

## **I-O Linkages, Flexible Prices, Reallocation of Firm Demand**

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## Aggregate SME Failure Rate (%)

	(1) Non-COVID	(2) COVID	(3) $\Delta$ (pp)
All	9.80	18.80	9.00
Advanced	7.88	13.53	5.65
Emerging	11.82	24.35	12.53

**Baseline scenario:** Real life lockdowns—27 countries

- 18 AE, 9 EM.
- No government intervention.
- The table reports the cumulative failure rate at the end of 2020.
- Aggregate failure rates mask heterogeneity across sectors and countries.
- Extensive margin *reduces* failure rates;
- I-O structure accounts for AEs-EMs difference in failure rate (sourcing concentration).

## **Policy Support: Pandemic Loans, Grants, Waivers**

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## Policy Support was Effective...

	No Policy Support		With Policy Support	
	(1)	(2)	(3)	(4)
	$\Delta$	Hypothetical Costs	$\Delta$	Actual Funds Disbursed
	(pp)	(%, GDP)	(pp)	(%, GDP)
All	9.00	0.80	4.30	4.05
Advanced	5.65	0.13	-0.43	6.08
Emerging	12.53	1.50	9.28	1.91

- Targeted Bailouts are cheap: 0.8% of GDP

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- Targeted Bailouts are cheap: 0.8% of GDP
- Full offset in AEs, due to size of fiscal support

## Poorly targeted... but no 'Zombification'

### Policy Targeting (excl. China)

	Funds (%, GDP)	Firms Saved (% of at risk)	Jobs Saved (% of at risk)
All Firms	5.10	36.0	46.8
Survive without Policy	4.53	0.00	0.00
Survive because of Policy	0.29	36.0	46.8
Of which, zombie firms	0.10	13.0	15.4

- Zombies account for 2% of the funds and 13% of firms at risk (i.e. fail in 2020 without support)

## A Time Bomb?

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## What About 2021?— Most saved firms are viable, no future zombification

### Policy Targeting (excl. China)

	All	Advanced	Emerging
Survive until end 2021	70.2	73.1	60.5
of which, zombie firms	22.6	22.9	21.6
Fail 2021	29.8	26.9	39.5
of which, zombie firms	13.3	13.5	12.7

- In 2021: failure rate increases only by 2.6pp (relative to normal) even if firms have to repay pandemic loans.
- 70.2% of firms that survived to the end of 2020 because of policy support also survive until 2021
- Of all the firms that survive 2020 because of policy support, 22.6% are zombies that also survive to the end of 2021 and 13.3% are zombies that fail by the end of 2021

# Main Lessons

- COVID-19 posed significant risk for SMEs in the absence of policy support.
- Generous policies reduced failures tremendously but are inefficient; warrants claw back of funds disbursed to “Strong Firms”.
- Policy support did not lead to ‘zombification’.
- I-O networks can have an important role in SME failures, especially for EMs.
- **In 2021-2022, key risk to manage: financial market panic.**
  - U.S. Regulatory Y-14 data: During COVID-19, large firms can access credit markets and draw from credit lines, SMEs cannot  
⇒ (e.g Chodorow-Reich, Darmouni, Luck, Plosser; Darst, Caglio, Kalemli-Ozcan, 2021)
  - Policy ‘filled-in’ for credit markets for SMEs



# Appendix

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# Country-level COVID Risk to the Banking Sector

	CET1 ratio (risk-weighted)	$\Delta$ CET1R
Average	14.14%	-2.12 pct. pts.

- Data availability limits analysis to Belgium, Finland, France, Germany, Greece, Spain.
- **Little systemic risk from SME failures under COVID:**
  - CET1 ratio declines 2.12 pct. pts. from initial level of 14.1%
  - Initial level in 2018 more than double what it was in 2009.
  - EBA's 2018 adverse scenario stress test generated a 4 pct. pt. decline in CET1 ratio.