Uncertainty, Liquidity Constraint, and Entrepreneurship

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Summary

This paper

- ▶ Provides a novel mechanism of entrepreneur dynamics for uncertainty's impact.

Empirically using a micro-level data with entry information to document

- ▶ Startups in uncertain industries are smaller and grow persistently slowly.
- ▶ Particularly with tighter credit policy and weaker banking system.

Quantitatively building a dynamic GE model

- ▶ Features entrepreneurial choices and financial frictions.
- ▶ A transitory uncertainty shock can generate a persistent recession.

Interesting empirical findings and important aggregate implications!

Novel Mechanism

Examples of existing mechanisms

- *real option*: Bloom et al. (2018); Leduc and Liu (2016); Schaal (2017)...
- *finance*: Arellano, Bai and Kehoe (2019); Gilchrist, Sim and Zakrajšek (2014)...

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This paper adopts a novel model ingredient ⇒ productivity selection mechanism

- ► *assumption:* Entrepreneur's innate talent determines the firm's growth rate.
  ⇒ deviate from the typical AR(1) productivity set-up
- ► *mechanism:* High uncertainty interacts with collateral constraints
  ⇒ encouraging low-ability entrepreneurs to enter, who grow slowly afterward
  ⇒ slow recovery

Lots of potential to generate sizable quantitative impact and explain the data!

Fulfill the Paper's Potential

1. Empirics can leverage the micro data to support the model assumption.

2. Model can allow more flexible borrowing constraints.

3. Calibration of shocks can also leverage the micro data.

Interesting and Important Empirical Findings

Find firms start small and grow slowly when uncertainty increases in the industry.

- ▶ *Interesting* counter-intuitive selection in recessions (Lee and Mukoyama, 2015).
- ▶ *Important* because want to justify the assumption on productivity upgrading.

$$e_{t+1}^{\tau+1} = \begin{cases} e(n) & \text{w. prob } p(x) \\ e(n+1) & \text{w. prob } 1 - p(x) \end{cases}, \quad \text{where } p(x) = \frac{\exp(vx)}{\chi + \exp(vx)}$$

- ▶ x is the entrepreneur's innate ability

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Looking forward to more direct empirical evidence to support the assumption

- ▶ Clementi and Palazzo (2016) support that entrants' future growth is the key.
- ▶ The present paper has the suitable micro-level data to argue this point., e.g.,
    - ▶ *justify productivity upgrading:* Project post-entry growth rates on entry size.
    - ▶ *test the mechanism:* Project (entry) misallocation on uncertainty.
    - ▶ ...

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    - ▶ ...
- ▶ It'd be great to *identify* innovations in uncertainty and map to firm dynamics: Ghosal and Loungani (2000), Alfaro, Bloom and Lin (2021), Caldara et al (2020).

Key Ingredient of Financial Frictions

Assumed borrowing constraints are independent of idiosyncratic productivity

$$\text{worker: } b_{t+1}^w \geq -b_{\max}^w$$
$$\text{entrepreneur: } b_{t+1} \geq -\theta k_{t+1}$$

$\Rightarrow$ Slack for low-productivity entrepreneurs but bind for the high-productivity.
$\Rightarrow$ Volatility encourages low-productivity entrants (Oi-Hartman-Abel effect).
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Who are financially constrained in data? High- or low-productivity entrepreneurs?

- *Suggest* to calibrate more flexible borrowing constraints (Gopinath et al., 2017).

$$b_{t+1} \geq \Phi(k_{t+1}, \text{productivity})$$

Generating Persistent Recessions

How to calibrate uncertainty shocks in this paper?

- ▶ The uncertainty shock is borrowed from Bloom's estimation.
- ▶ Bloom only models AR(1). This paper has additional "permanent" productivity.
- ▶ *Suggest* to calibrate the uncertainty shocks using the Orbis data.

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Will the model generate more persistent uncertainty than the data?

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- ▶ *Persistent Productivity Process* + *Selection* may lead to persistent divergence.
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Look forward to more quantitative results in the future.

- ▶ *Curious* about policy implications of subsidizing entrepreneurs/small business.

Conclusion

- Empirical findings are interesting and motivating.

- Mechanism is novel and clear.

- Quantitative effect is sizable and important.

Appendix

Simple Steps to Try Alfaro, Bloom and Lin (2021) Bartik-Type 2SLS

Main Idea

- ▶ Endogeneity: Typical measure of uncertainty can be potentially endogenous.
- ▶ Solution: Use industry-exposure to construct Bartik-type instruments for it.

Steps

1. Obtain the industry-year uncertainty IVs from Alfaro, Bloom and Lin (2021).
2. Merge to this paper's Orbis dataset by SIC-year.
3. Run 2SLS by letting this paper's uncertainty shock instrumented.
4. Can also follow them to construct firm-level financial constraint indicators.

Caveat

- ▶ The instruments are for U.S. public firms, but can compute for European public firms using their stock prices and extrapolate to Orbis firms since IVs are industry-wide.

return