

BORN IN HARD TIMES: STARTUP SELECTION AND
INTANGIBLE CAPITAL DURING THE FINANCIAL CRISIS

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EVIDENCE FROM A NATURAL EXPERIMENT

2007-08 INTERBANK CREDIT MARKET FREEZE

- ▶ Combine balance-sheet and matched bank-firm data for the census of Italian limited liability companies for 1999-2017.
- ▶ Firms born during the financial crisis feature a higher share of intangible assets than incumbents.
 - * Difference persists over time & is driven by selection at entry.
 - * Intangible-intensive firms are more productive & less leveraged.
 - * Leverage of tangible-intensive firms declined during the crisis.
- ▶ Empirical strategy: exploit variation in pre-crisis exposure to interbank market at the local level.
- ▶ Results show
 1. Interbank exposure reduced credit access during the crisis.
 2. Interbank shock leads to less but more intangible-intensive and productive entry.

FIRM DYNAMICS & INTANGIBLE CAPITAL

MODEL & SIMULATIONS

- ▶ Firm dynamics model with capital accumulation and aggregate fluctuations (Clementi and Palazzo, 2016) **plus**
 - * Tangible and intangible capital.
 - * Two efficiency levels in the use of intangible capital.
 - * Tangible capital partial irreversibility.
 - * External financing costs: increasing in amount borrowed, decreasing in tangible capital.
- ▶ Model validation: (i) declining path of intangible share & capital-labor ratio by age, (ii) more exit among intangible-intensive firms.
- ▶ Simulate the model with an increase in financing costs that matches fall in leverage of start-ups.
 - * 8% increase in share of intangible-intensive firms.
 - * Composition effect: less net entry of tangible-intensive firms

SOME REMARKS

Great paper: important question, rich micro data with neat identification strategy & interesting model to match novel facts.

Summary of my comments

1. Current framing is misleading
 - ▶ This is not a paper about technology adoption.
2. Simulation exercise can (and should) be improved.
 - ▶ Proper quantification, aggregate effects and normative implications.
3. Other minor suggestions and concerns.

CURRENT FRAMING IS MISLEADING

- ▶ Take-away according to intro: Does credit access shape technology adoption by new firms? Yes!
 - * A technology's rate of adoption depends on its ability to generate internal funds.
 - * Intangible, capital-saving technology spreads faster in a financial crisis.
 - * Especially among credit rationed firms \Rightarrow entrants.
- ▶ But, no clear link between capital-saving technology and investment in intangibles.
- ▶ Moreover, model (and data) captures a composition effect driven by tangible-intensive firms.
- ▶ **Suggestion: incorporate endogenous innovation and quantify how much it explains (vs composition effect).**

SIMULATION EXERCISE CAN (AND SHOULD) BE IMPROVED

- ▶ This is a very interesting part of the paper, but requires more work to be fully convincing.
- ▶ It is unclear what the goal of the exercise is.
- ▶ Most of the results are qualitative, what about quantifying effects?
- ▶ There are many aggregate questions that can be answered using this framework:
 - * What is the effect of the intangible investment channel in overall aggregate productivity?
 - * Given the life-cycle of firms, how does the composition effect shape the recovery?
- ▶ What are the normative implications?

OTHER MINOR SUGGESTIONS AND CONCERNS

- ▶ Elaborate further on data description
 - * Coverage and representativeness of CERVED.
 - * How is entry and exit measured in the data?
 - * Current draft is silent about matched bank-firm data.
 - * How do you deal with multi-establishment firms?

- ▶ How does interbank exposure affect credit and interest rate to young *relative to older firms*? Is that the right comparison?

- ▶ Model equilibrium needs to be defined explicitly.

- ▶ In the model average TFP by age of incumbents is upward-sloping and concave by assumption. How is this consistent with Figure 10?

SUMMING UP

- ▶ Intangible investment works as a buffer against financial shocks \Rightarrow more intangible-intensive entrants.
- ▶ I really enjoyed reading this paper. Watch out for the next version!