Credit Shock Propagation in Firm Networks: Evidence from Government Bank Credit Expansions (Discussion)

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Summary
How bank credit shocks propagate through supplier-customer firm networks?

- The authors studied the **direct effects** of government credit, by using a Difference-in-Difference estimation (DID) to estimate the effect of Lehman’s Bankruptcy.

- Compare the changes in bank credit in Brazil over 2005 to 2012 between firms with access to government credit (the intervention group or “treated”) and firms borrowing from private banks (the control group).

- They find that government banks extended up to 39.8% more credit to firms than private banks, firms borrowing from government have significantly higher employment (5.1%) and wage bills (6.6%) than the control group.

- To tackle unobserved heterogeneity at the industry, municipality and time level, they include a fixed effects analysis and double-cluster standard error at the firm and year levels.
How bank credit shocks propagate through supplier-customer firm networks?

- Then, they studied the **indirect effects** of bank credit shocks, by a network level analysis focusing on a firm-to-firm payments from the supplier and customer perspective.

- A downstream (customer heterogeneity) and upstream (supplier heterogeneity) treatment applying a DID estimation.

- On the one hand, a supplier interacts with “treated” customers, and the results are that supplier receives significantly more payments from customers with access to government bank credit before the crisis.

- On the other hand, a customer interacts with “treated” suppliers, and the DID coefficient showed that a customer purchases significantly more from suppliers that have access to government bank credit before the crisis.
How bank credit shocks propagate through supplier-customer firm networks?

Moreover, using a triple-difference model (DIDID), they studied amplification mechanisms or spill over effects of governmental stimulus on firms, in other words, whether characteristics of suppliers or customers can amplify direct and indirect effects, to improve a virtuous economic cycle.

The authors considered the input innovation and tangibility index, as characteristics that may increase the transmissions of credit shocks through the production network.

The results showed that private credit dependent firms (those with no access to government credit before the crisis) with relatively less tangible assets decreased their purchases rather than those with a higher tangibility index.

On the other hand, the input produced by a firm without access to government credit after Lehman is highly innovative.
How bank credit shocks propagate through supplier-customer firm networks?

- Finally, they examined a firm survival analysis, specifically the multiplier effect of government credit expansions. In other words, whether access to government credit for the firm matter for its survival.

- They found that firms increased their survival probability by 0.008 percentage point if they had access to government credit before Lehman.

- Additionally, if all customers have government credit, the survival probability for the firm increased by 0.017 percentage point, and the total effect is 0.025.

- However, it is important to consider the presence of a persistent concentration of market share of firms that received government credit vs the ones that did not received that benefit.
Comments
The paper is very well written, methodologically speaking has been carefully designed and the results are interesting and important.

There is the question on how informative the payment systems data is.

- The authors aggregate the payments on a yearly basis
- Are you testing for the stability of relations on the firm-firm network? Do you have a null model for this?
- Are you testing the stability of the bank-firm network?
- Is there information on the same-bank transactions? This is important as some relevant relationships or their strength might be ignored.
- If not, could there be other types of settlement platforms which can be used?
- What about surveys?
Suggestions
Suggestions

- Given the rich high frequency data set the authors could determine the important relationships (links) resorting to a temporal back-boning methodology. Payment networks could be really dynamic. Kobayashi et al. 2019

- To perform a systemic risk analysis for the firms which borrowed from private banks, you can analyze the network and identify the firms which are more central and then investigate if centrality plays a role on survival, employment and payments.

- Also the authors mention that they will not take on interbank and other financial intermediaries, why not?