



DISCUSSION OF 'DOES IT HELP? INFORMATION TECHNOLOGY IN BANKING AND ENTREPRENEURSHIP'

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TIAGO PINHEIRO



BANCO DE
PORTUGAL
EUROSISTEMA



The views expressed herein are solely those of the author and do not represent the views of Banco de Portugal or the Eurosystem.



SUMMARY OF THE PAPER

Key results:

1. IT adoption in banking spurs entrepreneurship.
2. The increase in entrepreneurship associated with bank IT adoption is larger when firms' collateral value rises.

These results arise from:

1. A theoretical model with young and old firms, in which the quality of the firms' projects is the firms' private information, and in which banks differ in the costs of their screening technologies.
 - Banks that adopt IT have a comparative advantage in using loan collateral to screen borrowers.
 - Collateral is particularly relevant for screening young firms. Other screening technologies are relatively more expensive in the screening of young firms.
2. An empirical analysis of the relation between:
 - Banks' personal computers (PC) per employee and the share of employment by young firms.
 - Banks' PC per employee and the growth of small business lending.
 - The empirical analysis includes a number of robustness tests and the use of an instrument variable for banks' PC per employee.



COMMENTS

1. Well-written paper, polished, finished.
2. The paper's strength is in the empirical analysis not in the model.
3. Banks and startups don't match randomly. Startups location is not random.
4. The effect of bank IT adoption on startup employment seems small.
 - A one standard deviation increase in bank IT adoption increases the share of employment in startups by 0.37pp or 7% of mean share of employment by startups.
5. Startup employment and bank IT adoption may be driven by the availability of technical skills.
 - This concern is partly alleviated by the use of county fixed effects in some regressions. But, the baseline analysis uses only county controls and county controls don't include a measure of the skills in the county's population.
6. Startup demand for credit, and in particular the demand for using collateral in loans, may drive the adoption of IT by banks. This concern is partly addressed by:
 - Bank IT adoption being measured prior to the sample period.
 - Use of an instrument variable for bank IT adoption.



THE STRENGTH OF THE PAPER IS IN THE EMPIRICAL ANALYSIS

- Some of the model's assumptions are unrealistic:
 - High-IT banks have a comparative advantage in using collateral to screen borrowers. Why wouldn't high-IT adoption also significantly lower the cost screening borrowers through information acquisition?
 - Startups and banks match randomly.
 - Banks can't offer menus of contracts with different interest rates, equity and collateral levels to screen borrowers.
 - Counties are islands. Firms can't move to another county where banks may offer better terms or they can't be financed by banks from different counties.
- The model doesn't do much for the paper:
 - It isn't used in a structural estimation.
 - It's doesn't contribute to the theoretical literature.
- I suggest scrapping the model. Develop hypotheses intuitively using some of the model's disciplined logic.



BANKS AND STARTUPS DON'T MATCH RANDOMLY STARTUP LOCATION IS NOT RANDOM

- If high-IT banks have lower costs and offer to young firms better credit-terms than low-IT banks then:
 - Wouldn't startups want to obtain credit from high-IT banks?
 - Wouldn't they want to move to counties with high-IT banks?
 - Wouldn't high-IT banks want to be present in counties with a high number of startups?
- Two of the model's main predictions are no longer valid if banks and startups match in order to maximize joint surplus and if there is enough capacity in high-IT banks to process startups' loan requests.
- More importantly, the interpretation of the empirical findings changes.
 - The difference in startup employment between counties with high and low bank-IT adoption is in part driven by startups moving into counties with high-IT banks.
 - The effect of increasing IT adoption across all banks is likely smaller than the one being currently measured.



MISCELLANEOUS COMMENTS

- The interpretation of results could be reversed:
 - Bank-IT adoption limits the growth of established firms.
- The introduction takes up eight pages. It's too long!
- The model's main prediction is about the number of startups, not the share of employment. Do you have any evidence on the number of startups?
- The model's prediction that IT adoption doesn't change the average quality of firms' receiving loans is weak and so is the empirical analysis supporting it.
 - The theoretical result crucially depends on the assumption that old and new firms have the same probability of having good projects. This assumption is debatable. Young firms are known to have a much higher likelihood of default than established firms.
 - The evidence supporting this prediction is based on the growth rate of employment in startups, rather than on the default probability of the entire distribution of firms.
 - Consider removing both the prediction and empirical analysis?



MISCELLANEOUS COMMENTS

- The result that bank IT adoption increases the share of employment in startups but does nothing to their growth rate of employment after their first year operation casts doubt on the paper's main result.
 - Won't new projects that enable startup growth need collateral? Won't bank IT help? Does bank IT only help in the first year?
 - Can it be that high-IT banks are those that can provide large loans to large startups?
- The authors find that for high-IT banks, lending is more responsive to local investment opportunities the longer the distance to the banks' headquarters (specification 4, table 7).
 - This result is odd. Any explanation?



THANK YOU