Disccusion of "Exploring the conjunction between the structures of deposit and credit markets in the digital economy under information asymmetry"

NES and Bank of Russia Workshop

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Summary

- Question: how does big players' information advantage affect outcomes the lending market?
- Very timely and policy relevant research
  - Closely related to current heated discussion on privacy issues
  - Provide insights to data sharing regulations
  - Related to the recent Ant Finance issues
- Paper would benefit from more analytic results and explanation

A Simple Model

- There are two banks: bank 1 and bank 2
- Bank j has A^j depositors and $A^1 + A^2 = 1$
  - Bank 1 is big because $A^1 > 1/2$
- Depositors each want to borrow 1 from the banks
  - α fraction are good who always pay back
  - $1 - \alpha$ bad who default with probability p_d
- Banks know everything about their own depositors but nothing about the rest

A Simple Model

- Bank $j = 1, 2$ three rates to three type of depositors
  - i_g^j to known good depositors
  - i_b^j to known bad depositors
  - i_u^j to unknown depositors (from the other bank)
- Depositors decide where to go based on the rates

$$L_g^j = \alpha A^j \left[\frac{1}{2} - \left(i_g^j - i_u^{-j} \right) \beta \right], \; L_b^j = \alpha A^j \left[\frac{1}{2} - \left(i_b^j - i_u^{-j} \right) \beta \right]$$

$$L_{u,g}^j = A^{-j} \alpha \left[\frac{1}{2} - \left(i_u^j - i_g^{-j} \right) \beta \right],$$

$$L_{u,b}^j = A^{-j} (1 - \alpha) \left[\frac{1}{2} - \left(i_u^j - i_b^{-j} \right) \beta \right].$$

A Simple Model

- Bank j choose i_g^j,i_b^j, i_u^j to maximize expected profit
- Assuming interior solution, the FOCs for $j = 1,2$

$$i_g^j = \frac{1/2 + \beta\, i_u^{-j}}{2\beta},$$

$$i_b^j = \frac{(1-p_d)\left(1/2 + \beta\, i_u^{-j}\right) + p_d\beta}{2\beta\,(1-p_d)},$$

$$i_u^j = \frac{\alpha\left(1/2 + \beta\, i_g^{-j}\right) + (1-\alpha)(1-p_d)\left(1/2 + \beta\, i_b^{-j}\right) + (1-\alpha)\,p_d\beta}{2\alpha\beta + 2(1-\alpha)(1-p_d)\,\beta}$$

Comment 1: How Does Asymmetry Affect Equilibrium?

- FOCs defines 6 equation for 6 variables that solves simultaneously move game
- Equations do not depend on A^j at all!
- This is not exactly the model in the paper but close
- Some intuition on how A matters in the model is useful

Comment 2: Comparative Statics

- Paper shows some comparative statics but some others are interesting
  - How rates depend on A
  - How average borrowing cost per depositor depends on A
  - How the total profit of banks per depositor depends on A
- Why the profit of banks seems to be non-monotone with the number of good depositors?
  - How does it affect the average borrowing cost per depositor?
- How about total welfare?

Comment 3: Counterfactuals

- Regulations forcing banks to share information
  - Is this welfare improving?
  - Who loses and who wins?
- Information market where banks can sell information
  - Is such a market welfare improving?

Other Random Thoughts

- How do depositors choose banks for deposits? What makes a bank big?
  - Better services?
  - Does this affect the results?

Conclusion

- An interesting research on an important question
- Better explanation needed
- More counterfactuals and policy analysis can be done
- Look forward to future iterations