

Lighthouse in the Dark: Search in Marketplace Lending

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Abstract

This paper sheds light on search frictions in an online personal loan market. These frictions hinder borrowers from proposing optimal interest rates aligned with the concave demand curve revealed in the data. I further investigate the effects of public information services on market outcomes.

To guide empirical analysis, I introduce a directed search model, where potential lenders are directed to loan requests by borrowers' posted interest rates. The dataset comprises Peer-to-Peer (P2P) loan data from a leading Chinese marketplace lending platform from 2010 to 2015. I exploit the staggered introduction of private lending service centers (PLcenters) in Chinese cities as a natural experiment. Results show such public information services (i.e., PLcenters) effectively boost marketplace lending and reduce interest rate dispersion, consistent with model predictions. Less sophisticated borrowers mainly drive the results.

Introduction

Motivation: The technology empowers a growing number of inexperienced individuals to directly engage in financing markets and transactions. Search frictions become more pronounced in the digital era. This paper focuses on the two-sided online lending market

Research Question:

- Q1.** What impact would search frictions have on price patterns in the online personal market?
Q2. How would a public information service influence market outcomes?

Methodology:

- Conceptual framework with directed search
- Empirical analysis: Staggered Difference-in-Differences (Staggered DID), using PLcenters introduction in China as a natural experiment

Data and Facts

Data: October 2010 - June 2015, 437,534 P2P loan request listings from a leading Chinese marketplace lending platform, of which 118,694 successful. Detailed loan and borrower characteristics included

Average Loan: \$9,050, 18-month, annual 13.56%

Average Borrower: 35 yrs old, no bachelor, low credit score, monthly income \$880

How the Platform Works: Individual borrowers post online requests with proposed interest rates and details to attract potential lenders (see Figure 1)

Facts: Borrowers face a concave demand curve (see Figure 2)

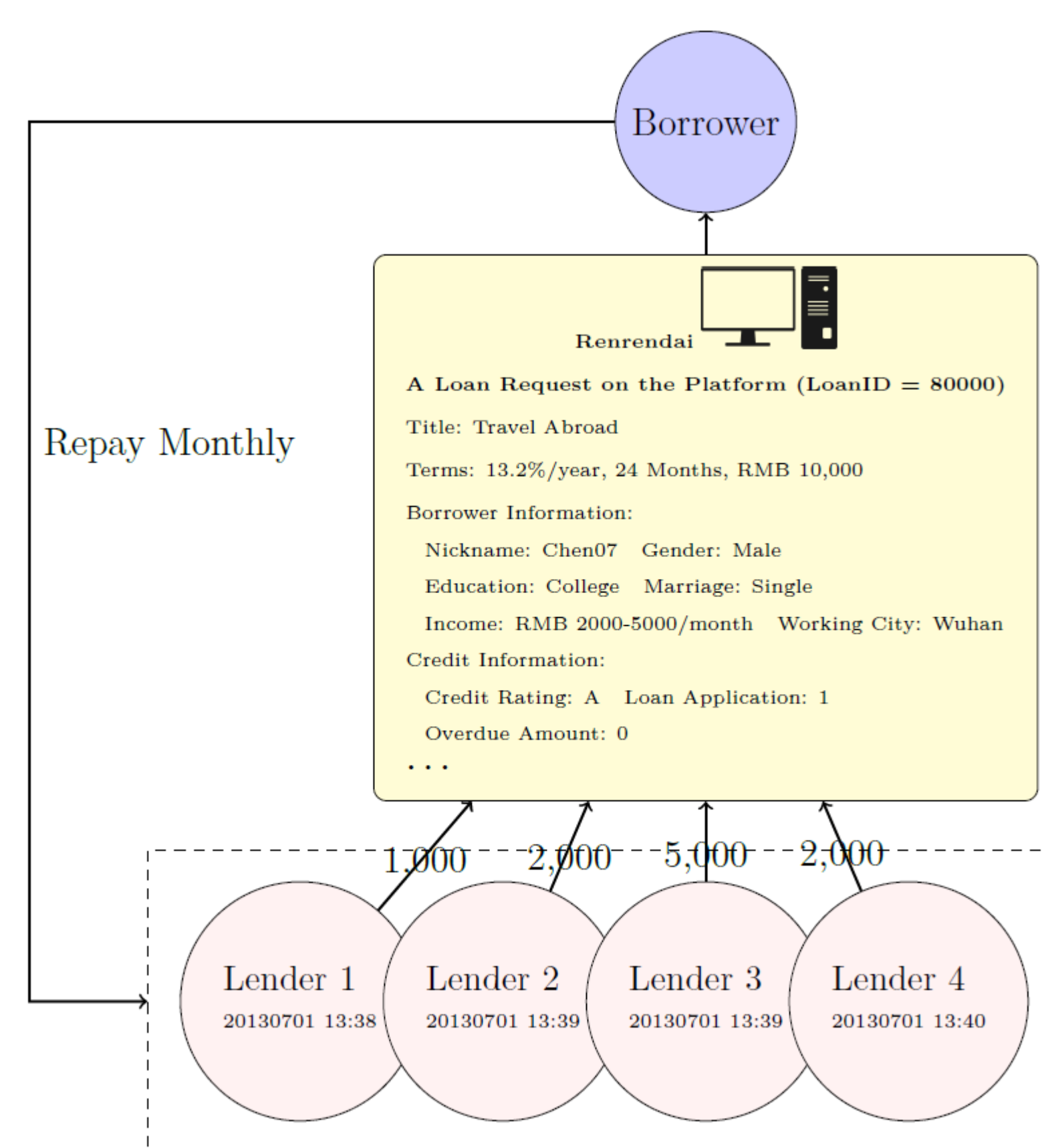


Figure 1. The Online Lending Platform.

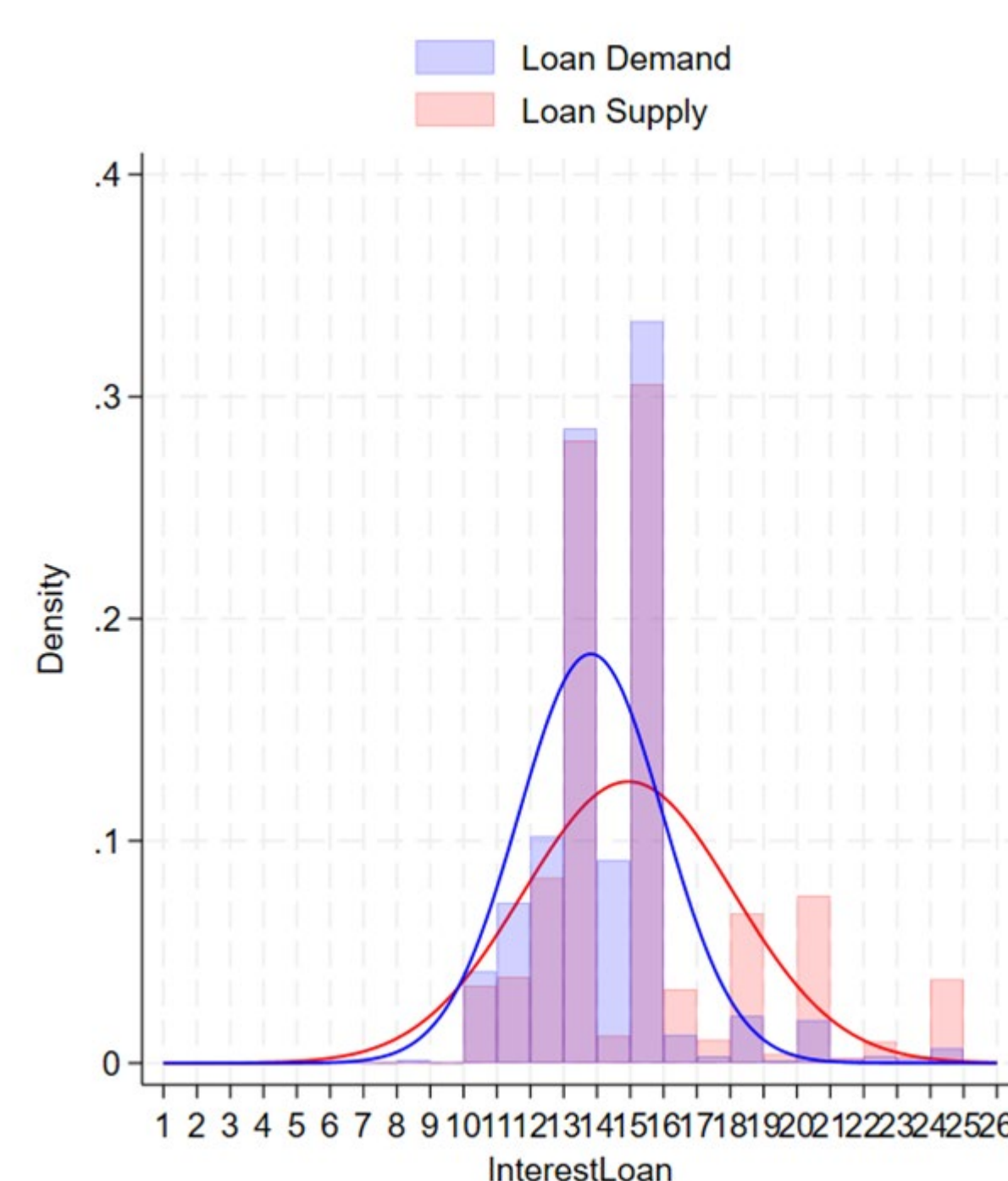


Figure 2. Concave Demand Curve.

Directed Search Framework

- Each borrower i solves the maximization problem to set an interest rate, $\max_{r_i} d(r_i) \cdot [u(r_i) - r_i - c_i]$ where $d(\cdot)$ is concave
- Posted interest rates guide potential investors' search
- Potential lenders consider loans with interest rates close to the reference as reasonably priced and search in submarket *Good*; otherwise, in submarket *Bad*
- Borrowers and lenders have imperfect information regarding c_i and the reference
- Public information services reduce information frictions



Figure 3a. Private Lending Service Center.

Wenzhou Private Lending Composite Rate: 20.96 2013-02-16 (annual rate, %)			
	By Entity	By Maturity	
Private Lending Service Centers	15.74	1-month	25.46
Micro-credit companies	20.40	3-month	20.52
Private capital management companies	18.00	6-month	18.65
Direct lending	16.48	1-year	15.78
Other entities	28.54	>1-year	14.40

Figure 3b. Wenzhou Private Lending Index.

Empirical Analysis

Public Information Services: Empirical Evidence from China

- Since 2012 April, Private Lending Service Centers (PLcenters) have gradually been introduced to more than 50 Chinese cities by local governments
- Provide public information services to monitor and guide the private lending market (publish local market interest rates, disseminate financial knowledge)

Staggered DID

$$Y_{ct} = \beta_0 + \beta_1 Post_{ct} \times Treat_{ct} + \beta_2 Post_{ct} + \beta_3 Treat_{ct} + Controls + \epsilon_{ct}$$

- $Treat_{ct}$ equals 1 if the borrower's working city c has PLcenters
- $Post_{ct}$ equals 1 if year-month t is after the PLcenter introduction time in city c
- $Controls$ include loan, borrower, city characteristics, time and city fixed effects
- Y_{ct} are city c 's average marketplace lending outcomes (success rate, number of applications, lending amount, interest rate, dispersion of interest rates, etc) at t

Instrumental Variable (IV): city new mayor's career motivation (*the city has a new mayor* \times *the province excluding the city has high attention on private lending*)

Findings

- Individual participants' search frictions contribute to interest rate dispersion in the online lending market
- Public Information Services
 - boost marketplace lending: Transaction Volume \uparrow , Number of Borrowers \uparrow
 - help borrowers get better outcomes: Interest Rate \downarrow , Success Rate \uparrow
 - reduce dispersion of interest rates, and also lead to fewer proposals with extremely low rates

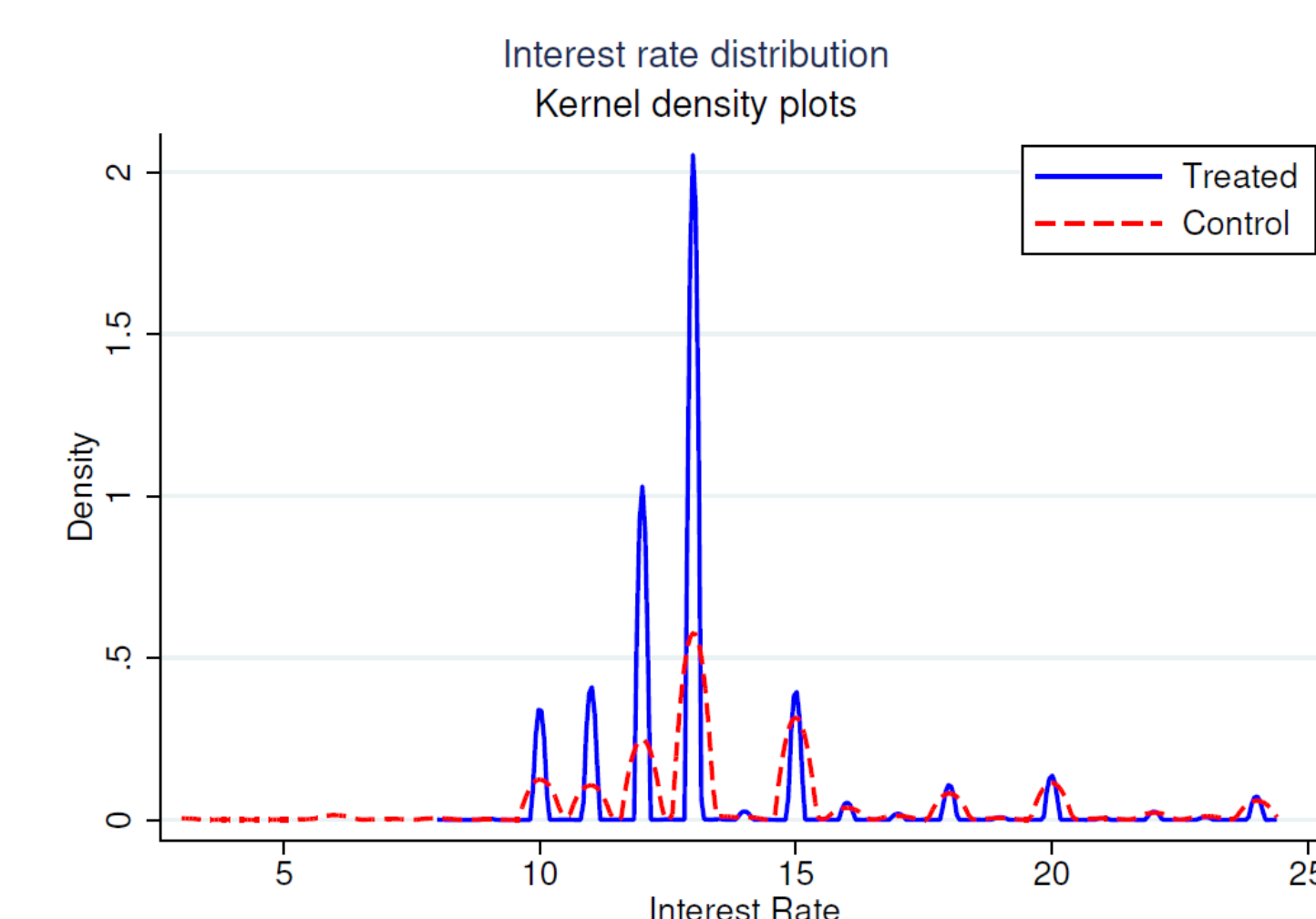


Figure 4a. Distribution of Interest Rate: Treated vs Control.

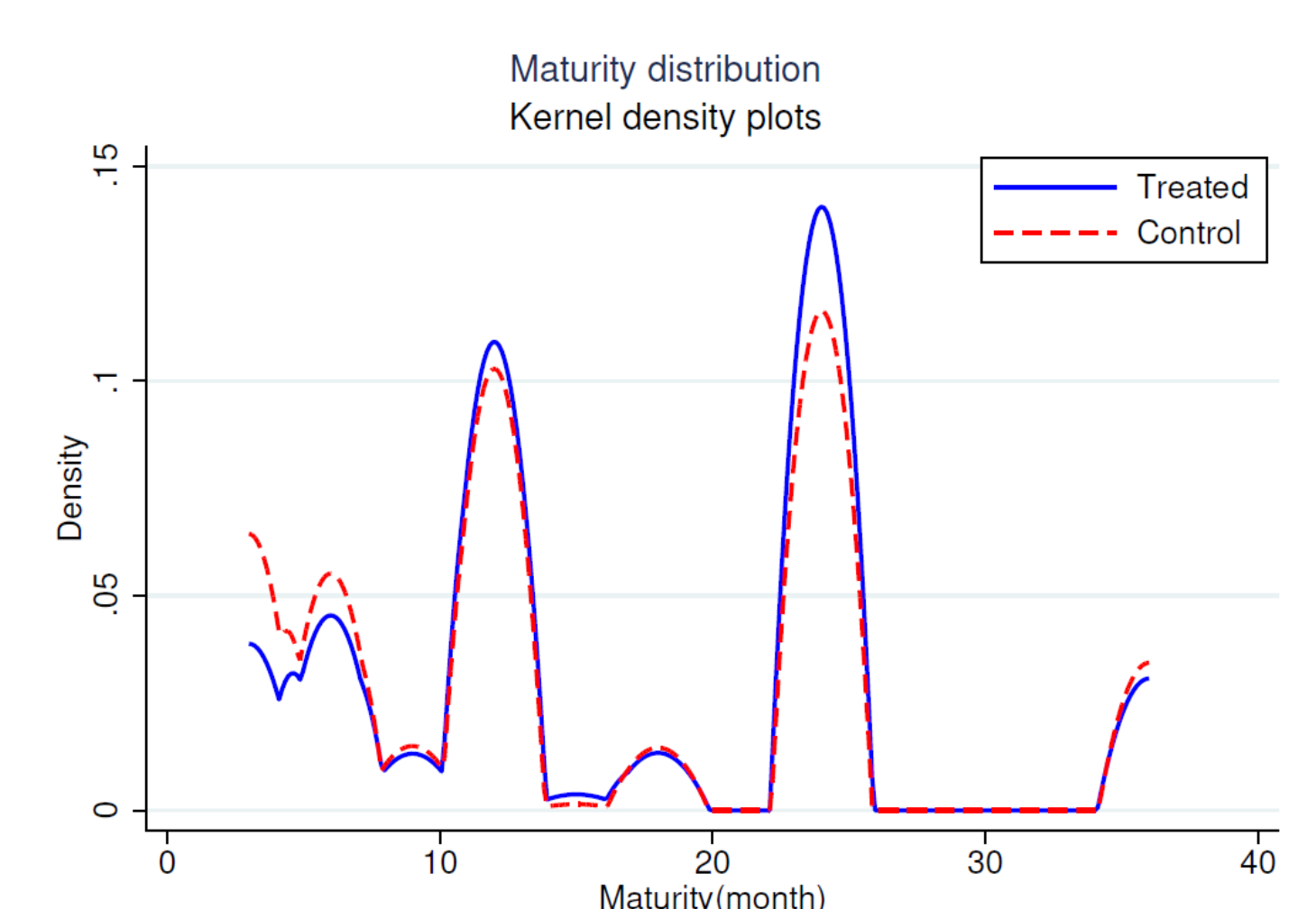


Figure 4b. Distribution of Maturity: Treated vs Control.

Concluding Remarks

This paper highlights the existence of search frictions in the online lending market when individuals propose contract terms.

Implications: Empirical evidence from China demonstrates that public information services can effectively alleviate these frictions, improving market outcomes.

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References

- Albrecht, J., Gautier, P. A., & Vroman, S. (2016). Directed search in the housing market. *Review of Economic Dynamics*, 19, 218-231.
- Argyle, B., Nadauld, T., & Palmer, C. (2023). Real effects of search frictions in consumer credit markets. *The Review of Financial Studies*, 36(7), 2685-2720.
- Braggion, F., Manconi, A., & Zhu, H. (2022). Household credit and regulatory arbitrage: Evidence from online marketplace lending. *Management Science*.
- Duffie, D., Dworczak, P., & Zhu, H. (2017). Benchmarks in search markets. *The Journal of Finance*, 72(5), 1983-2044.
- Guren, A. M. (2018). House price momentum and strategic complementarity. *Journal of Political Economy*, 126(3), 1172-1218.
- Xiang, J., & Zhang, X. (2015). Innovative public goods production and organizational form selection: a case study of the Wenzhou Private Lending Service Center. *The Journal of Chinese Sociology*, 2, 1-23.