AN ANALYSIS OF LARGE BANKS' ESTABLISHMENT OF INCLUSIVE FINANCE DEPARTMENTS ON RURAL FINANCIAL INSTITUTIONS' LENDING BEHAVIOR IN RURAL CHINA

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ABSTRACT

This paper uses the establishment of inclusive finance departments by large banks as a quasi-natural experiment. Based on annual data from 654 rural financial institutions in China, it applies a continuous DID model to examine the impact of the establishment of inclusive finance departments by large banks on the lending behavior of rural financial institutions. The findings indicate that competition from large banks significantly reduces the loan amounts of rural financial institutions, crowding out their lending capacity. However, this initiative fails to promote a retail-oriented transformation in their credit business. Further analysis shows that competition from large banks has led rural financial institutions to improve the affordability of their inclusive finance services, but it has not enhanced their usage or accessibility.

BIOGRAPHICAL SKETCH

Xipeng Zhao is a graduate student with a strong academic background in agriculture economics and development economics. His research primarily focuses on the dynamics of financial markets and their role in socio-economic development, with particular attention to bank competition and rural development. His interest in these areas is deeply influenced by his previous field research in rural China, where he investigated banks' lending behavior and its implications for financial access in underserved areas.

Xipeng's academic work seeks to bridge the gap between theoretical economic models and practical applications, aiming to provide actionable insights that can improve the living conditions of communities, particularly in rural regions. His research explores how competitive banking environments can affect financial inclusion and rural economic growth, with a strong emphasis on policy recommendations to foster more inclusive and equitable access to capital.

Xipeng is currently seeking a position in commercial banking, where he believes his research and practical experiences can be applied to real-world challenges. He is eager to contribute to the development of innovative financial solutions that can enhance access to financial services in rural and underserved areas, helping to advance economic opportunities for all.

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1 Introduction

1.1 The Development of Rural Credit Cooperatives

For a long time, the insufficient competition in China's rural financial markets has resulted in the inefficient allocation of rural financial resources. After the founding of the People's Republic of China, Rural Credit Cooperatives (RCCs) became the leading intermediaries to serve credit demand of farmers in the rural financial market and were found to have increased the agricultural output (Nan, Gao and Zhou 2019) and promoted rural urbanization (LI 2014). After Reform and Opening in 1970s, RCCs underwent commercialization reforms while the Agricultural Bank of China was separated from the People's Bank of China, becoming a state-owned commercial bank specialized in serving agriculture, rural areas, and farmers and created a competitive relationship with the RCCs (He and H. Ong 2014).

After Southeast Asian financial crisis in 1997, state-owned commercial banks in China faced higher non-performing loan to total assets ratio, which is a sign of higher risk and is negatively associated with bank profits (Figueira, Catarina, Andrikopoulos, Panagiotis and Yan 2010). During the crisis, RCCs were less affected as their funds mainly come from local deposits, making it less affected by international market fluctuations (Zhu 2018). In 1998, the Chinese government initiated reforms of state-owned commercial banks, starting with the replenishment of their capital and the divestiture of their non-performing assets. As a result, state-owned commercial banks extensively closed their rural branches and RCCs gradually achieved a monopolistic position in the formal financial market of rural areas (Wang, Zhong and Zheng 2014). However, despite having positively influenced the rural development for over decades, RCCs have long been criticized for its rigid management, high non-performing loan ratio and lack of profitability (Yeung, Zhang 2017). RCCs then fell into operational difficulties and couldn't provide sufficient financial support to the rural sector.

In 2003, China's State Council issued the "Pilot Plan for Deepening RCC Reform," which included guidelines such as "reforming the organizational structure, enhancing the ability for autonomous operation, strengthening risk control, and advancing the construction of a corporate governance structure." The purpose of the reform was to transform RCCs into modern financial entities with shareholder-based ownership and market-based operations (Wang et al., 2022). The reform successfully clarified property rights and reduced the historical burden of RCCs (Ma et al., 2020). However, the operational and management performance of RCCs varies significantly across regions (Zhu & Wu, 2023), and deviations in their focus—such as prioritizing large accounts while shifting away from agriculture—have also been observed (Zhou & Peng, 2017).

1.2 Financial Inclusion in Rural China

Financial inclusion is defined as the process of ensuring access to appropriate financial products and services—such as credit, savings, insurance, and payment systems—at an affordable cost for all individuals, particularly those from disadvantaged and low-income backgrounds. In the context of rural China, financial inclusion plays a pivotal role in enhancing agricultural productivity, improving household incomes, and fostering sustainable economic development. It serves not only as a mechanism for poverty alleviation but also as a catalyst for broader rural transformation, enabling farmers to invest in modern technologies, improve their production capabilities, and ultimately contribute to the national economy.

Despite China's remarkable economic growth over the past few decades, rural areas continue to face significant challenges in accessing formal financial services. Many rural residents are hindered by limited financial literacy, inadequate collateral, and the absence of financial products tailored to the unique needs of agricultural activities. Consequently, a large portion of the rural population depends on informal lending sources, which often result in unfavorable borrowing terms and contribute to the per-

petuation of poverty. These barriers underscore the necessity of a robust financial inclusion framework that addresses the specific needs of rural communities.

The Chinese government has recognized financial inclusion as a cornerstone of its economic policy, particularly in rural areas. A variety of initiatives have been launched to improve access to financial services and overcome the challenges faced by rural populations. One of the key strategies has been the establishment of rural credit cooperatives, village banks, and microfinance institutions. These institutions are specifically designed to meet the financial needs of farmers and rural enterprises, offering products such as microloans, insurance, and savings accounts that align with the cash flow patterns of agricultural activities. Alongside these institutional developments, the government has also implemented regulatory reforms to strengthen oversight and encourage the creation of financial products that are better suited to rural contexts.

Furthermore, the government has launched various programs to improve financial literacy among rural populations, ensuring that individuals are equipped with the knowledge and skills necessary to navigate the financial landscape effectively. By addressing credit constraints and promoting access to financial services, these efforts aim to create a more equitable financial environment that empowers rural communities and supports the overarching goals of poverty alleviation and economic development.

1.3 The Establishment of Inclusive Finance Departments by Commercial Banks

Starting 2006, China Banking Regulatory Commission (CBRC) allowed the establishment of new types of rural financial institutions, intending to form competition on rural credit institutions (Ma et al.,2021), but still did not threat the leading position of RCCs (Wang & Jin, 2023). To address insufficient competition in rural financial mar-

ket and to reduce costs of financing for small and micro enterprises, the Government Work Reports of 2017 encouraged large and medium-sized commercial banks to establish inclusive finance departments, with state-owned large banks taking the lead. The goal of the policy was to "improve the professional service system of inclusive finance, enhance the capacity of inclusive financial services, increase the sense of access to financial services by market players and the people, alleviate the problems of financing difficulties and high financing prices in the fields of small and micro enterprises, entrepreneurship and innovation, and poverty alleviation, and improve the coverage, accessibility and satisfaction of financial services, and promote employment expansion, economic upgrading and improvement of people's livelihood with inclusive and convenient financial services."

The Government Work Reports from 2019 to 2022 mandated that state-owned large commercial banks increase loans to small and micro enterprises by more than 30%, 40%, and 30%, respectively, whose aim was to drive other financial institutions to increase credit investment in small and micro enterprises, thereby lowering the comprehensive financing costs for these enterprises. We call this practice "downward expansion of large banks", as they are extending their services into smaller, underserved markets.

From the supply side of rural financial markets, due to saturated market demand in first- and second-tier cities, Most commercial banks have started expanding into rural areas to capture new growth opportunities. From the demand side, the influx of credits into the rural financial market provides customers with more choices, intensifies competition among peers, and make differentiated operations imperative. Driven by external policies and internal development needs, large banks have been establishing their inclusive finance departments in rural areas, aiming to expand rural funding supply, improve rural financial services, and reduce financing costs for small and micro enterprises.

As of the end of 2023, the national balance of inclusive small and micro enterprise

loans has reached 29.06 trillion yuan, with a year-on-year increase of 23.86%, among which, the loans issued by large commercial banks was 11.58 trillion yuan, with a year-on-year increase of 34.09%, accounting for approximately 39.85% of the total loan volume. It is clear that the establishment of inclusive finance departments by large banks has yielded significant results and the success is partly due to top-down policy initiatives and also benefits from their competitive advantages in brand, cost, and technology relative to rural financial institutions.

Large commercial banks often have well-established brand recognition, which can instill trust and attract customers, particularly in rural areas, where there is a strong preference for large, state-controlled brands. Additionally, due to their size and scale, large commercial banks typically benefit from economies of scale, allowing them to access cheaper capital and spread overhead costs across a broader base. This cost efficiency can be passed on to customers in the form of lower loan interest rates and reduced fees, making their financial products more attractive to small and micro enterprises. In terms of technological advantage, large commercial banks usually have more resources to invest in technology, enabling them to streamline operations, enhance risk assessment capabilities, and deliver financial services more effectively. In rural areas, where financial literacy and access to traditional banking may be limited, the ability to offer digital and mobile banking solutions can significantly increase the reach and impact of inclusive finance initiatives.

Facing fierce competition from large banks, rural financial institutions need to adjust their operation philosophies, focus on resolving the pain point of high funding costs, delve deeper into the market, and pursue unique development paths. Whether the establishment of inclusive finance departments by large banks has squeezed the business of rural financial institutions will be the focus of this study.

2 Literature Review

2.1 Introduction to Bank Competition

Competition in banking refers to the rivalry between financial institutions in providing financial services, particularly loans and deposits, to the public. A competitive banking environment is believed to encourage efficiency by lowering costs, improving the quality of services, and stimulating innovation (Claessens and Laeven, 2004). However, the effects of competition on the banks' behavior, particularly in terms of lending, remain a subject of considerable debate.

Traditionally, economists have employed different market structures to understand competition in banking. For instance, perfect competition is characterized by many banks with similar products and services, leading to the optimal allocation of resources in theory (Merton & Bodie, 1995). On the opposite, imperfect competition results in higher prices and restricted access to services (Beck, Demirgüç-Kunt and Levine, 2004). Studies have shown that in highly competitive markets, banks are more likely to lower their interest rates and reduce lending standards to attract customers, which may result in a higher volume of loans and a more inclusive financial environment (Cohen & Kohn, 2011).

A key insight from early theoretical work is that while competition tends to lower prices, it may also increase the risk-taking behavior of banks. As competition intensifies, banks may loosen their lending criteria or increase their exposure to higher-risk borrowers to maintain or grow market share, particularly when facing aggressive competitors (Jokipii & Monnin, 2013). This behavior, while increasing access to credit, can also lead to instability in the financial system, as seen during the global financial crisis of 2007-2008 (Gorton, 2010). Also, as argued by Aghion, Angeletos, Banerjee, and Manova (2007), in emerging markets, increased competition can result in the entry of foreign banks that may not always prioritize local financial inclusion, potentially

limiting the benefits of competition for underserved populations.

The impacts of competition on banks of different sizes are also heterogeneous, as small and medium-sized banks could react less promptly to the changing market structure than bigger banks with stable market shares (Vujanović, Nina and Nikola Fabris 2021). To better compete with large banks, some scholars believe that the best strategy for small and medium-sized banks is to expand relationship-based lending (Gissler et al., 2020) and reduce internal lending (Girotti & Salvade 2022).

2.2 Bank Competition and Lending Behavior

In competitive markets, banks are incentivized to offer better terms—such as lower interest rates and more favorable repayment conditions—in order to attract customers. This phenomenon is particularly evident in markets with numerous financial institutions, where the entry of new competitors can put downward pressure on interest rates and improve access to credit for a broader segment of the population (Claessens & Laeven, 2004).

One of the primary arguments in favor of increased competition is its potential to enhance the efficiency of financial markets. Studies have shown that greater competition typically leads to a reduction in lending costs and an expansion in the availability of credit (Carletti, 2008). In a competitive environment, banks may engage in "price competition," which results in lower lending rates for consumers. This increased availability of credit can, in theory, stimulate economic growth and encourage investment in both the corporate and household sectors (Beck et al., 2004).

However, while competition often leads to lower interest rates, it can also influence the risk-taking behavior of banks. As competition intensifies, banks may become more aggressive in their pursuit of high-risk borrowers, particularly in the absence of stringent regulatory oversight (Jokipii & Monnin, 2013). This increase in risk-taking

behavior may benefit borrowers in the short term by making credit more accessible, but it can also increase the likelihood of defaults and financial instability in the long run, as evidenced by the subprime mortgage crisis of 2007-2008 (Gorton, 2010).

The relationship between competition and lending behavior also depends on the level of market concentration. In concentrated markets, the market power of the dominant banks may limit the extent of competitive pressure, leading to higher interest rates and tighter lending conditions for consumers (Stiglitz & Weiss, 1981). Conversely, in fragmented markets, smaller banks may engage in more aggressive lending to differentiate themselves, resulting in lower interest rates and more accessible credit (Hossen & Islam, 2016).

The overall impact of competition on lending behavior is not universally agreed upon. Some studies suggest that in the presence of intense competition, banks may focus more on short-term profits, leading to excessive risk-taking and a deterioration in the quality of loans. On the other hand, others argue that competition fosters a more dynamic and inclusive financial system by encouraging innovation, lowering costs, and improving service delivery (Carletti & Hartmann, 2003).

2.3 Bank Competition and Inclusive Finance

One key benefit of increased bank competition is the potential to expand access to financial services. In competitive markets, banks are incentivized to cater to a wider range of customers in order to maintain or increase market share. This can be particularly important in underserved regions, where traditional banks may be reluctant to extend credit due to perceived risks. Empirical studies have shown that increased competition can lead to greater access to credit, especially for lower-income households and small businesses (Cull and Peria, 2013). In a competitive market, banks may offer more flexible lending terms or create specialized products, such as microloans or agricultural credit, to attract customers from these underserved segments (Aghion et

al., 2007).

Additionally, competition can incentivize financial institutions to innovate in order to serve previously excluded populations. For example, the rise of digital banking and mobile payments has been largely driven by competition, with fintech companies offering new, low-cost alternatives to traditional banking services. This innovation has been particularly important for rural populations who might not have access to physical bank outlets.

However, while competition may encourage greater access to credit, its impact on inclusive finance is not always straightforward. One concern is that increased competition can lead to "creaming," where banks focus on lending to the most creditworthy individuals and businesses, leaving behind the riskier or lower-income segments of the population. This may happen because highly competitive markets often drive banks to seek higher returns by lending to customers with lower default risk, rather than investing in financial products that cater to the underserved (Stiglitz & Weiss, 1981). As a result, despite the increase in lending volume, competition could exacerbate financial exclusion for those who need it most.

The regulatory environment plays a crucial role in shaping how competition affects financial inclusion. In countries with weak regulations, competition can encourage excessive risk-taking, leading to over-indebtedness and financial instability (Jokipii & Monnin, 2013; Demirgüç-Kunt et al., 2018). Thus, competition must be carefully managed to ensure sustainable and inclusive financial services.

From the literature mentioned above, it is evident that the studies exploring the impact of banking competition on small and medium-sized banks mainly focus on its effect on single indicators such as loan amount, lacking a multi-dimensional discussion on the comprehensive effects triggered by banking competition, including both loan amount and loan portfolio. The marginal contribution of this paper is that it investigates the impact of banking competition on banks' internal credit behavior, utiliz-

ing loan amount and loan portfolio to depict banks' credit behavior. This is beneficial for examining how banking competition influences the credit behavior of small and medium-sized banks. Also, this study seeks to reveal the pathways through which the downward expansion of large banks influences the lending behavior of rural financial institutions, and examines whether and how the competition improves the rural finance development. The findings aim to guide the optimization of inclusive financial services and promote differentiated operations among rural financial institutions.

3 Background

To effectively alleviate the difficulties of financing for small and micro enterprises and the "agriculture, rural areas, and farmers" sector, the 2017 Government Work Report encouraged large and medium-sized commercial banks to establish inclusive finance divisions. In May 2017, the China Banking Regulatory Commission issued the "Implementation Plan for the Establishment of Inclusive Finance Divisions by Large and Medium-sized Commercial Banks," proposing to promote the establishment and improvement of inclusive finance departments in large and medium-sized commercial banks, which aims to enhance the capability of inclusive financial services, increase the coverage, accessibility, and satisfaction of financial services, and provide effective support to the real economy.

At the specific measures level, banks are not only supposed to establish inclusive finance departments at the corporate structure level but would also develop financial products and services suitable for small and micro enterprises and farmers, such as micro-credit, unsecured loans, and micro-insurance, using technological means to improve service efficiency. Additionally, the government would provide support to banks through fiscal subsidies, risk sharing, tax incentives, and other measures, reducing the cost and risk for banks to offer inclusive financial services.

At the organizational structure level, state-owned large banks consist of five tiers from top to bottom: the head office, provincial branches, city branches, sub-branches, and outlets. To implement the inclusive finance strategy, not only have the head offices established inclusive finance departments, but branch institutions are also required to set up front-office business departments, and credit approval authority is delegated step by step based on the differentiation of business types. It is because this policy has changed not only the organizational structure of banks but also their business philosophy, that this paper focuses on comparing the credit behavior of rural financial institutions before and after the implementation of this policy as a key research point.

In May 2017, the State Council's executive meeting proposed that large commercial banks should complete the establishment of inclusive finance divisions within the year 2017. From 2019 to 2021, the Government Work Report for three consecutive years made specific requirements on the growth rate of loans to small and micro enterprises by state-owned large commercial banks. During this period, Inclusive small and micro loans from the six major banks rose from 3.26 trillion yuan in 2019 to 11.58 trillion yuan by the end of 2023, a nearly fourfold increase. The proportion of these loans in the total amount of inclusive small and micro loans from banking financial institutions increased from 27.92% to 39.85%.

Correspondingly, the loan proportion of rural financial institutions decreased from 37.03% to 28.08%, suggesting that large banks, relying on their brand, cost, and technological advantages, may have squeezed the living space of small and medium-sized banks. Recent government policies differentiate the operational spaces of large and small banks to prevent excessive competition. In 2021, the China Banking and Insurance Regulatory Commission (CBIRC) issued a notice titled "On Further Promoting the High-Quality Development of Financial Services for Small and Micro Enterprises in 2021," which required large banks to include the proportion of "first-time loan customers" among small and micro enterprises as part of their internal performance assessment indicators. The notices in 2022 and 2023 further stated that large banks should deepen their service focus, expanding their outreach to first-time loan customers.

Table 1: Micro and Small Loans from Banking Financial Institutions

Type	2019		2020		2021		2022		2023	
	Amount (Billion)	Percent (%)	Amount (Billion)	Percent (%)	Amount (Billion)	Percent (%)	Amount (Billion)	Percent (%)	Amount (Billion)	Percent (%)
Large Commercial Banks	3257	27.92	4833	31.65	6556	34.37	8603	36.50	11578	39.85
Joint-stock Commercial Banks	2161	18.52	2766	18.12	3372	17.68	4051	17.19	4664	16.05
City Commercial Banks	1742	14.93	2218	14.52	2667	13.98	3307	14.03	3952	13.60
Rural Financial Institutions	4321	37.03	5178	33.92	6055	31.74	7028	29.82	8159	28.08
Total	11667	100	15267	100	19075	100	23571	100	29056	100

4 Theoretical Analysis

This paper divides credit providers in rural areas into large banks engaged in inclusive finance and rural financial institutions represented by rural credit cooperatives, rural commercial banks, and township and village banks. Compared to rural financial institutions, large banks have stronger credit guarantees and cost advantages in funding, making it easier to attract deposits and borrowers. Additionally, due to their technological advantages, large banks have more flexibility in selecting loan recipients, giving them a competitive edge over rural financial institutions.

The funding cost advantage and technological advantage of large banks will reduce the loan amount of rural financial institutions. When large banks are driven by policies to focus on the rural market, they can attract high-quality customers from rural financial institutions with the advantage of lower interest rates. If rural financial institutions do not reduce their prices, they will lose customers; if they engage in a price war, it will lead to a decrease in profitability, insufficient capital adequacy ratio, and an increase in operational risk. Theoretically, large banks are not willing to lend to small and medium-sized enterprises with opaque information, but in practice, the digital inclusive finance business of large banks allows them to provide loans to these enterprises using transactional loan technology. By applying advanced digital technologies, large banks can improve efficiency in customer screening, rating, credit granting, and risk management. At the same time, large banks can offer online services, thereby expanding their business scope at a lower cost and providing more customized services. Therefore, the inclusive finance departments of large banks can effectively replace rural financial institutions and occupy their market share. As a result, we may well assume the penetration of large banks into the rural market will lead to a decrease in the overall loan competitiveness of rural financial institutions and squeeze their living space.

H1: The establishment of inclusive finance departments by large banks squeezed

the market share of rural financial institutions and decreased their loan amount.

The government's requirement for large banks to engage in inclusive finance is motivated by two main hopes: on the one hand, it aims for competitive business practices to lead to lower interest rates and reduce financing costs; on the other hand, it also hopes that large banks and rural financial institutions can engage in differentiated competition, thereby increasing the coverage of financial services and achieving broader financial inclusiveness. A differentiated competition would mean that different types of loans issued by rural financial institutions would be influenced differently, as these institutions respond to competitive pressures and market demands in ways that align with their unique operational strengths and customer base. Loans issued by rural financial institutions can be categorized by recipient type into business loans and retail loans. Additionally, based on the presence of collateral, loans can be divided into secured loans—including mortgage, pledge, and guarantee loans—and unsecured loans. We use the term loan portfolio to describe the variety and composition of loan types offered by a financial institution.

Theoretically, rural financial institutions, mainly rural credit cooperatives, have a community base and have established closer network relationships with credit demanders over the long term. Thus, although they may lose large enterprises clients due to interest rate differences, their disadvantage is not significant when serving small and medium-sized enterprises. Furthermore, rural financial institutions have the advantages of flexible operating mechanisms, short decision-making chains, and high approval efficiency. They can innovate credit products and optimize service models promptly according to market changes, meeting the diverse financing needs of retail customers. This indicates that faced with the external competitive pressure brought by the penetration of large banks, rural financial institutions can proactively reach down to retail customers, adjust their products, marketing, services, and risk control models, give full play to their advantages of relationship-based lending, and engage in differentiated competition with large banks to increase retail loans.

H2: The establishment of inclusive finance departments by large banks decrease the amount of business loan of rural financial institutions, while their amount of retail loans would increase.

Inclusive finance is a multidimensional concept that encompasses more than just providing access to financial services. It involves improving accessibility, affordability, and quality of financial services, alongside promoting financial literacy, social inclusion, consumer protection, and equity. These dimensions ensure that financial systems serve not only the financially well-off but also the most vulnerable, contributing to sustainable development, poverty reduction, and economic empowerment for all members of society. Based on the previous researches conducted, bank competition plays a crucial role in enhancing multiple dimensions of inclusive finance, particularly in improving accessibility and affordability.

Accessibility of inclusive finance refers to the ease with which individuals and businesses can obtain financial services. It does not only include enhancing the physical presence of services through opening new branches or setting up agent banking networks in underserved regions, but also include minimizing the requirements that may prevent people from accessing credit. Bank competition can improve accessibility by encouraging banks to adopt alternative credit assessment models that don't solely rely on traditional collateral. Additionally, banks may introduce unsecured loans or microloans, which do not require collateral, to meet the needs of individuals and small businesses that lack physical assets. As competition intensifies, banks are more likely to innovate and offer more flexible loan terms and products that broaden access to credit, ensuring that financial services are available to people who are traditionally excluded due to lack of collateral.

Affordability, on the other hand, focuses on ensuring that the cost of financial services is within reach for low-income individuals and small businesses. This dimension of inclusive finance directly impacts the ability of people to not only access financial products but to use them effectively. In a competitive banking environment, banks

are motivated to lower interest rates, reduce transaction fees, and develop low-cost financial products to attract price-sensitive customers. Lower interest rates can make borrowing more affordable, while reduced fees can lower the overall cost of maintaining bank accounts or using other services. For example, in response to competition, banks may introduce microloans with flexible repayment terms, or basic savings accounts with minimal fees, designed specifically for underserved populations. This reduces the financial barrier to accessing essential services, making it more affordable for individuals with limited financial means to engage with the formal financial system. Competition can thus push banks to offer products that meet the affordability needs of a broader customer base, enhancing inclusive finance by reducing the cost of financial services.

H3: The establishment of inclusive finance departments by large banks improved the accessibility and affordability of inclusive finance service provided by rural financial institutions.

In the following two sections, we will first test Hypothesis 1 using a continuous Difference-in-Differences (DID) method and test the robustness of the conclusion. Subsequently, in the mechanism test, we will investigate Hypothesis 2, exploring whether and how the portfolio of loan changes. In further analysis, we will explore the influence of large banks' downward expansion on enhancing inclusive finance services.

5 Model Setting and Variable Description

5.1 Dependent Variables

The dependent variables is the loan amount of rural financial institutions. Drawing on the approach of Saidi and Streitz (2021), this paper uses the ratio of total loan amount to total assets to measure loan amount. This approach provides a more accurate reflection of lending behavior by adjusting for changes in asset size.

5.2 Independent Variable

The core explanatory variable of this paper is the establishment of inclusive finance departments by large banks. To meet the model's requirements, this paper uses the interaction term between the proportion of rural financial institutions' outlets to the total number of banking financial institutions' outlets in the same area in 2017 and a dummy variable for the timing of the establishment of inclusive finance departments. The theory behind this setting would be explained in Model Settings section. As government policy required banks to establish their inclusive finance departments within 2017, this paper assigns a value of 1 to the dummy variable for years after 2017 and a value of 0 for other years.

5.3 Control Variables

The control variables chosen in this paper are the return on net assets, debt-to-asset ratio, return on equity, the size of rural financial institutions, the regional economic growth rate, proportion of primary and secondary industry, and number of non-rural financial institution outlets in a county.

5.4 Data Sources

This paper uses data from 654 rural financial institutions in China from 2012 to 2022, including 552 rural commercial banks, 53 township and village banks, and 49 rural credit cooperatives. Data on the total loan amount, loan proportion, return on net assets, return on equity, debt-to-asset ratio, and size of rural financial institutions, as well as the loan scale of the inclusive finance departments of large banks, are sourced from the BankFocus and Wind Database. Data on the regional economic growth rate, proportion of primary and secondary industry and number of non-rural financial institution branches are sourced from the "China County Statistical Yearbook" and Wind Database.

Table 2: Descriptive Statistics of Main Variables

Variable Category	Variable Name	Variable Definition	Mean	Std. Dev.
Dependent Variables	Loan Amount	Total loan amount / Total Assets	0.560	0.099
Independent Variable	RurFin × Period	The interaction term between the degree of concentration of county-level rural financial institutions and the time dummy variable for the establishment of Inclusive Finance Departments by large banks	0.183	0.220
Control Variables	Return on Net Asset	Net profit / Net Assets	0.114	0.055
	Debt-to-Asset Ratio	Total liabilities / Total Assets	0.913	0.035
	Return on Equity	Net income / Equity	0.087	0.035
	Size of the Institution	Total Assets (billion RMB)	35.385	94.736
	Level of Economic Development	County-Level GDP per Capita (in 10,000 RMB)	6.775	2.573
	Proportion of Primary Industry	County-Level Primary Industry GDP to Total County GDP Ratio	0.077	0.035
	Proportion of Secondary Industry	County-Level Secondary Industry GDP to Total County GDP Ratio	0.435	0.056
	Number of Non-rural Financial Institutions	Number of Non-Rural Financial Institution Branches in a County	83.946	83.019

5.5 Model Settings

Based on the previous analysis, this paper treats the establishment of inclusive finance departments as an independent variable. Although rural financial institutions across counties in China are generally affected by the downward expansion of large banks, the extent of this impact varies by county. Specifically, in counties where rural financial institutions have a higher degree of concentration, interbank competition is relatively weak, and the influence of large bank expansion on the lending behavior of rural financial institutions is stronger. Conversely, in counties with lower concentration among rural financial institutions, where competition is more intense, the effect of large banks' expansion on these institutions' lending behavior is limited (Ma et al. 2021).

To capture this variation, this study follows the approach of Chen et al. (2020), using the ratio of rural financial institution outlets to total financial institutions' outlets within each county as an indicator of the concentration degree of rural financial institutions in that county. By interacting this measure (branch share) with the time dummy variable for large bank expansion, we construct an interaction term that identifies the impact of large banks' expansion on rural financial institutions' loan amount. To avoid reverse causality, this paper does not initially use time-varying indicators to measure the degree of concentration, while in robustness testing, these time-varying indicators are used as independent variables.

To this end, the paper constructs the following double difference model:

$$Y_{it} = \alpha + \beta RurFin_i \times Period_t + \delta Control_{it} + \lambda_i + \nu_t + \varepsilon_{it} \tag{1}$$

In the formula: Y_{it} represents the total loan amount of rural financial institutions; $RurFin_i$ stands for "Rural Financial Institutions", which represents the proportion of rural financial institution outlets in each county; $Period_t$ represents the dummy variable for the time when large banks established their inclusive finance departments;

$Control_{it}$ stands for control variables; λ_i represents individual fixed effects, which are used to eliminate estimation bias caused by time-invariant heterogeneity specific to each bank; ν represents time fixed effects; ε_{it} is the random error term; α is the constant term; β and δ are parameters to be estimated and, specifically, β measures the treatment effect and is the key parameter of interest.

6 Results

6.1 Parallel Trends Test

The Parallel Trends Test is a prerequisite for using the Difference-in-Differences (DID) method because the core assumption of the DID approach is that, in the absence of the treatment or intervention, the counties with different degrees of concentration would have followed similar trends over time. This assumption ensures that the observed differences in outcomes between the two groups after the intervention can be attributed to the treatment, rather than pre-existing differences or unrelated factors. This paper constructs the following model to examine the dynamic effects of policy implementation across different years:

$$Y_{it} = \alpha + \beta_j \sum_{j=2012}^{2022} RurFin_i \times Period_t^j + \delta Control_{it} + \lambda_i + Period_t^j + \varepsilon_i \tag{2}$$

In equation (2), $Period_t^j$ is a dummy variable for the year, which takes a value of 1 if it is the observed year, and 0 otherwise. Because $RurFin_i$ does not vary over time, β_j captures a differential impact of the degree of concentration on the outcome in each year for different counties with varying concentration degrees. The coefficient of the interaction term, β_j, shows whether counties with higher concentration see different trends in the outcome variable compared to counties with lower concentration. If β_j are not significantly different from 0 before the policy intervention, we may assume counties with different degrees of concentration follow the same time trend and would satisfy the parallel trends test. As the policy was implemented in 2017, we choose the year before it, 2016, as the baseline group.

Figure 1 illustrates the result of parallel trends test. From Figure 1, it can be seen that before the expansion of large banks (2012-2015), the estimated coefficients of the effect of bank expansion on the loan amount fluctuates around zero (with the 95%

confidence interval including zero).

This suggests that there were no significant differences between the treatment and control groups prior to the expansion of large banks, satisfying the parallel trends assumption. After the expansion, the estimated coefficient of the expansion on loan amount became negative and at one year after the expansion, the impact became significant. We may conclude the establishment of inclusive finance departments by large banks reduces the loan amount of rural financial institutions.

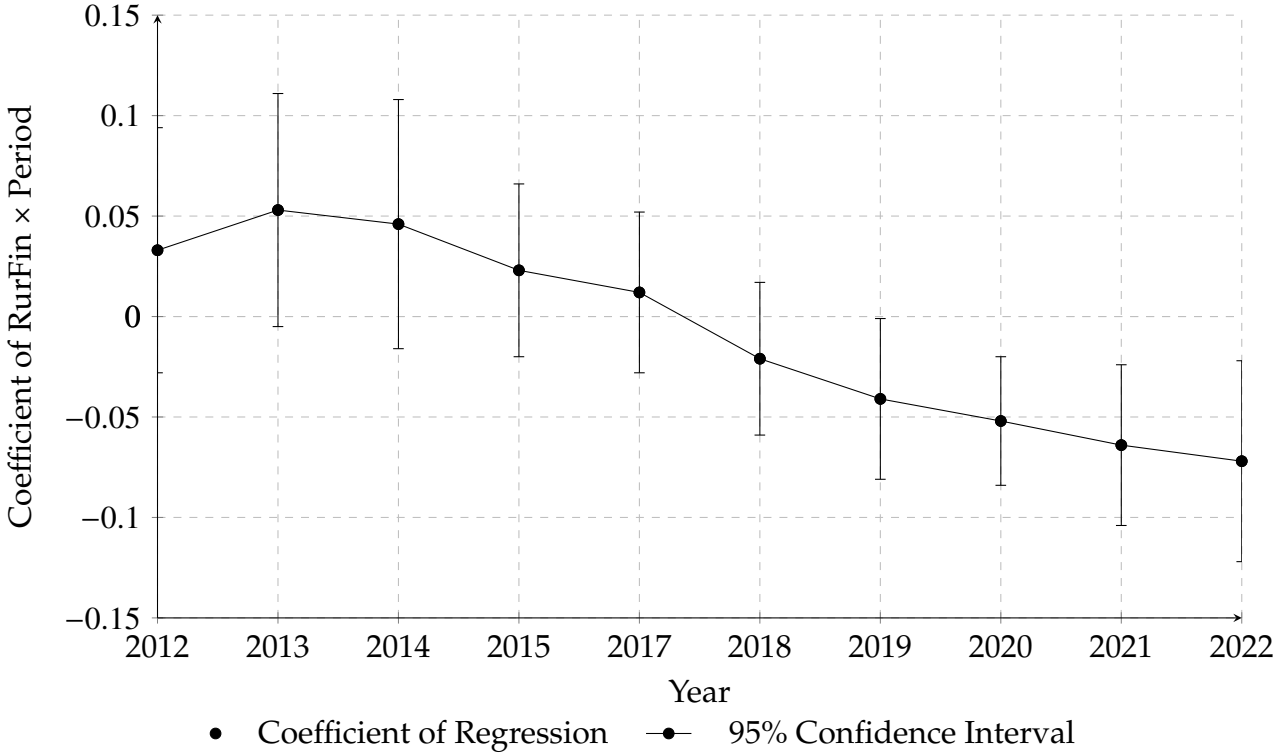

Figure 1: The Parallel Trend Test Result of the Impact on Loan Amount

6.2 Regression Results and Analysis

Table 3 reports the regression results of the establishment of inclusive finance departments by large banks on the loan amount of rural financial institutions. In Regressions 1, only individual fixed effect and time fixed effect were included, while in Regressions 2 control variables were included. The results from Regressions 1 and 2 both show that

the core explanatory variable is significant at the 1% level with a negative coefficient. This indicates that we could not reject Hypothesis 1 and the the establishment of inclusive finance departments by large banks have successfully squeezed the lending capacity of rural financial institutions and significantly reduced their loan amount.

Table 3: Regression Results

Variable	Model 1 Loan Amount	Model 2 Loan Amount
RurFin × Period	-0.101**	-0.098**
	(0.022)	(0.021)
Return on Net Asset		0.078**
		(0.037)
Debt-to-Asset Ratio		-0.410**
		(0.199)
Return on Equity		0.021
		(0.137)
Size of the Institution		-0.061***
		(0.017)
Level of Economic Development		0.093
		(0.064)
Proportion of Primary Industry		0.602
		(0.480)
Proportion of Secondary Industry		0.025
		(0.439)
Num. of Non-agr Financial Institutions		0.003
		(0.007)
Constant Term	2.065***	1.155
	(0.432)	(0.793)
Individual Fixed Effects	Yes	Yes
Time Fixed Effects	Yes	Yes
Observations	4128	4081
R^2	0.835	0.841

6.3 Robustness Test

To ensure the reliability of the baseline regression results, robustness tests were conducted mainly by changing measurement method of the independent variable. Two types of measurement were adopted:

The first measurement is using the proportion of rural financial institution outlets in each county that varies over time to measure the level of concentration of rural financial institutions in that county;

The second measurement is replacing the proportion of rural financial institutions in each county with a dummy variable representing the establishment of inclusive departments of large banks. This dummy variable is set to 1 for rural credit cooperatives, rural commercial banks, and village banks that have a long-standing presence in county and rural credit markets, and 0 for large banks, joint-stock banks, and city commercial banks, which traditionally focus on urban credit markets.

Table 4: Robustness Test Results

Variable	Model 3	Model 4
	Loan Amount	Loan Amount
RurFin1 × Period	-0.111**	
	(0.022)	
RurFin2 × Period		-0.089**
		(0.048)
Control Variables	Yes	Yes
Individual Fixed Effects	Yes	Yes
Time Fixed Effects	Yes	Yes
Observations	3992	4155
R^2	0.782	0.769

Table 4 presents the estimated results of the establishment of inclusive finance de-

partments by large banks on the loan amount of rural financial institutions after changing the measurement method of the core explanatory variable.

The explanatory variables are both significant and have negative coefficients in Model 3 and Model 4, meaning that the establishment of inclusive finance departments by large banks still reduces the loan amount of rural financial institutions. The regression results suggest that the results of the baseline regression are robust.

This paper also conducts robustness testing by replacing the dependent variables, selecting total loan amount as proxy for loan amount and performing regression analysis on equation (1). After these adjustments, the downward expansion of large banks still reduces the loan amount of rural financial institutions, indicating that the baseline regression results remain robust.

7 Mechanism Test

Previous research indicates that the downward expansion of large banks significantly reduces the loan amount of rural financial institutions. But what is the mechanism behind this effect? As we have investigated before, theoretical analysis suggests that large banks' establishment of inclusive finance department might reduce rural financial institutions' loan amount by "poaching" their business loans. In the following section, this paper will explore this potential mechanism.

Business loans refer to a type of lending where enterprises borrow funds at specified interest rates and terms to meet operational needs. These loans are primarily used for large, long-term projects such as fixed asset investment. Compared with retail (or personal) loans, business loans are generally considered high-quality loans for commercial banks. With the advantage of lower funding costs, large banks often use low-interest loans to attract high-quality business clients from rural financial institutions. To verify whether large banks "poaches" business loans from rural financial institutions, this paper examines the impact of large banks' expansion on the business loans of rural financial institutions. Furthermore, large banks might also leverage their fintech advantages to develop standardized credit products, thereby attracting high-quality retail loans. For this reason, the paper also examines the impact of large banks' downward expansion on retail loans of rural financial institutions. Table 5 presents the regression results of the transmission mechanism analysis.

The results of Model 5 in Table 5 indicate that the downward expansion of large banks is significant at the 5% level, with a negative coefficient, while in Model 6, the downward expansion of large banks is not significant. This suggests that the expansion of large banks significantly reduces business loans in rural financial institutions but has no significant impact on retail loans. This implies that the downward expansion of large banks has "poached" the large clients of rural financial institutions and lowered the amount of loans. However, it does not affect the retail loans of rural fi-

nancial institutions.

On one hand, rural financial institutions have long maintained a focus on supporting agriculture, small businesses, and micro-enterprises. They have cultivated a strong local network advantage, particularly in serving the 'three rural' sectors (agriculture, rural areas, and farmers) and micro-enterprises, making their retail loans less susceptible to being crowded out by large banks. Conversely, smaller micro-enterprises, which often lack collateral, face challenges in securing loans from large banks. These findings indicate that retail clients remain the primary customer base for rural financial institutions.

However, although the retail loans by rural financial institutions didn't significantly decrease under the competition, neither did it increase. This suggests that, under pressure from competition, these institutions have not successfully expanded their reach or achieved differentiation. As a result, we can conclude that Hypothesis 2 are partially rejected.

Table 5: Mechanism Testing

Variable	Model 5 Business Loans	Model 6 Retail Loans
RurFin × Period	-0.075***	-0.025
	(0.022)	(0.021)
Control Variables	Yes	Yes
Individual Fixed Effects	Yes	Yes
Time Fixed Effects	Yes	Yes
Observations	1998	2225
R^2	0.816	0.823

8 Further Analysis

As we know, the policy for large banks to establish inclusive finance departments to was not intended to merely stipulate competition in rural areas, but to drive rural financial institutions to realign their operations and sink their services, thus better providing inclusive financial services in rural areas. Previous research has shown that the competition has significantly reduced the loan amount of business loan of rural financial institutions but didn't reduce or promote them to successfully increase retail loans. This suggests that rural financial institutions have failed to expand the usage of their inclusive finance services. However, as the measurement of inclusive finance is multi-dimensional, we conduct researchs of the establishment of inclusive finance departments by large banks on the unsecured loans amount and loan interest rate to measure if the accessibility and affordability of inclusive finance have been improved throughout the process.

Increasing the proportion of unsecured loans can be seen as a positive step towards improving financial inclusion. Unsecured loans typically require fewer collateral requirements, which makes them more accessible to a broader range of customers, particularly those who may not have valuable assets to pledge. This helps individuals and businesses in rural areas who might otherwise be excluded from obtaining credit due to lack of collateral. Even though the total loan amount hasn't significantly increased, the shift towards unsecured loans means that the bank is providing more financial products to customers who may have been previously underserved or excluded. This represents a shift towards better access to credit for rural customers, which is a key component of financial inclusion.

Furthermore, the reduction in interest rates directly improves the affordability of loans for rural customers. Lower interest rates reduce the cost of borrowing, making it more affordable for individuals and businesses in rural areas to access credit. This is crucial in promoting financial inclusion, as high interest rates can be a major barrier

to accessing financial products, particularly for lower-income or rural populations.

By analyzing whether unsecured loan amount increases and whether interest of loans decreases, we could have a better understanding of how rural financial institutions adjust their strategy to deal with the competition and whether their new strategy has improved financial inclusiveness.

In the regression, unsecured loan is measured by total unsecured loan amount as a percentage of total assets, while loan interest rates is measured by total interest income as a percentage of total assets. Table 6 presents regression results analyzing the impacts of large banks' expansion on unsecured loan amount and loan interest rates.

Table 6: Further Analysis

Variable	Model 7	Model 8
	Unsecured Loan	Loan Interest Rate
RurFin × Period	0.033	-0.009***
	(0.022)	(0.002)
Control Variables	Yes	Yes
Individual Fixed Effects	Yes	Yes
Time Fixed Effects	Yes	Yes
Observations	3498	3295
R^2	0.806	0.743

From Table 6, it can be seen that the coefficient of the explanatory variable in Model 7 is not significant, indicating that the establishment of inclusive finance departments by large banks has failed to promote the transformation of the loan portfolio of rural financial institutions from secured loans to unsecured loans. According to the McKinnon-Shaw model, banks allocate credit not primarily based on the expected productivity of investment projects but rather on transaction costs and perceived risks of default (Fry, 1978). This suggests that rural financial institutions, facing higher transaction costs and perceived risks associated with unsecured loans, have adopted a more

conservative risk management strategy, making them reluctant to increase their unsecured loan portfolios.

Furthermore, in Model 8, the coefficient of the explanatory variable is significantly negative, indicating that the establishment of inclusive finance departments by large banks has significantly reduced the lending rates of rural financial institutions. This suggests that large banks' competitive pricing has exerted pressure on rural financial institutions, compelling them to lower interest rates to retain borrowers. To this end, we may partially reject Hypothesis 3.

In the face of fierce competition from large banks, rural financial institutions might have continued to prioritize risk prevention as their operational cornerstone. This cautious approach has constrained their willingness to embrace structural transformation in their lending practices, limited their expansion of unsecured loans, which are critical for enhancing accessibility of inclusive finance.

9 Conclusion and Comments

In the face of the downward expansion of large banks into the rural credit market, the competitive environment for rural financial institutions has become increasingly fierce. This study use "large banks' downward expansion" as a quasi-natural experiment, based on the annual data of 654 rural financial institutions in China, and use the continuous DID model to investigate the impact of large bank sinking on the total loan amount of rural financial institutions. The results of the study show that the establishment of inclusive finance departments of large banks significantly reduces the loan amount of rural financial institutions, squeezes their lending space by "poaching" their business loans. However, the sinking of large banks has failed to promote a shift in the loan portfolio of rural financial institutions towards retail lending. The likely reason for this is that these rural financial institutions are more risk oriented and do not have the ability or willingness to sink their operations further in the face of competition from larger banks. These less risk-resistant rural financial institutions prefer to avoid the accumulation of credit risk than to maintain a high rate of gross loan growth. This hypothesis deserves further research. Also, as the goal of the policy was to ignite competition to promote inclusive finance, we conducted further analysis on it and found that the competition only improved the affordability of inclusive finance but not the accessibility.

The findings of this study offer the following policy implications. First, the government should continue to promote the downward expansion of large banks to extend their service focus, while also addressing potential issues of excessive downward expansion by these banks. It is recommended that the government implement differentiated regulatory policies for various types of banks to prevent unfair competition arising from capability differences among different types of banks. Besides, there is an urgent need to establish a multi-level, broad-coverage, and differentiated banking system to promote complementary and healthy competition among various financial institutions. The government should guide different types of financial institutions to

align their development with their specific roles and strengths, following the principles of differentiated development, fair competition, efficient regulation, and orderly collaboration. Institutions should be encouraged to formulate specialized and distinctive development strategies, focusing more on their core responsibilities and leveraging their unique advantages to avoid excessive competition.

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