Research on the Impact of Inclusive Finance on Urban-rural Income Inequality in the Context of Rural Revitalization

-- Based on Williamson's Concept of Economic Management

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Abstract: Inclusive finance has the inherent advantage of fostering rural regeneration. As a result, the role of financial institutions in promoting regional revitalization, which is a national strategy, will be fully clarified, and the income disparity between urban and rural areas can be further reduced. Based mainly on Williamson's concept of economic management, this project analyzes the interaction between the development of inclusive finance and rural regeneration in our country, especially the income gap between urban and rural areas. Conduct comprehensive diagnostic research on the current state of financial inclusion by focusing on analyzing the development status and challenges of inclusive finance in rural areas and clarifying the importance of further development of inclusive finance. Second, taking into account the lessons learned from foreign indicators of comprehensive financial development, the indicators of comprehensive financial development should be considered, taking into account indicators such as financial geographic penetration, financing through product contact, and user friendliness. Establishing a system for measuring the degree, building indicators of rural comprehensive finance based on six perspectives, and based on the data analysis of the above indicators, the development of comprehensive finance will affect the income growth rate between urban and rural residents. We will continue to study the effects on inequality and try to prove that: The development of inclusive finance can effectively reduce the income gap between urban and rural residents. Villagers conclude that inclusive finance plays a positive role in facilitating the expected completion of rural regeneration. Finally, it proposes rationalizations for inclusive finance to play a greater role in reducing the income gap between urban and rural areas.

Keywords: Williamson Economic Management System; Digital Financial Inclusion in Rural Areas; Digital Financial Inclusion Index.

1. Introduction

In the "14th Five-Year Plan", the Party emphasized that in the new stage of development, it is necessary to prioritize the development of agriculture and rural areas, and promote the reconstruction of villages by all means. We will solve "three local problems" as the highest priority in the Party's work, embarking on the path of socialist revitalization of rural areas with Chinese characteristics. Comprehensively implement the rural revitalization strategy, strengthen the use of industry in addition to agriculture, use the city to guide the rural areas, promote each other between the urban and rural areas, and create a new complementary urban and rural area. Promote the formation of type industry-agricultural relations. Coordinate regional development, prosper together, and accelerate the modernization of agriculture and rural areas. We will accelerate the elimination of disparities in agriculture, rural areas, livelihood security and other fields, and support the coordinated development of urban and rural areas. The central government will strengthen and expand the results of poverty reduction, implement rural revitalization strategies, comprehensively promote the use of various types of service institutions to support rural development, and develop comprehensive rural finance, clearly emphasizes the need to continue Development can benefit more people. The report of the 20th Congress of the Communist Party of China further pointed out that in order to comprehensively promote rural revitalization, it is necessary to adhere to the priority development of agriculture and rural areas, and to adhere to the comprehensive development of urban and rural areas. Optimize area, flow. Integrate urban and rural elements and vigorously promote rural industrial revitalization. The goal of the central government to actively develop inclusive finance in rural areas is to effectively solve the "three rural problems". On the other hand, with the rapid development of our country's economy, the level of financial development is also constantly improving, and urban residents now have access to vouchers. At the same time, we need to consider how more rural people can benefit from better financial services. On the other hand, inclusive financial development is also a necessity for poverty reduction in my country. Financial services help develop local economies and raise income levels for low-income earners.

2. Literature Review

2.1. Williamson's Economic Management System

Williamson believes that the findings of political sociology mainly include four aspects: infrastructure, management systems, environmental protection, management systems, and constitutive effects. Among them, social foundations include
the limits of informal social institutions such as customs, traditions, customs, morals and beliefs. Environmental governance systems include the constraints of formal social systems such as intellectual property rights, ministries, judicial and local governments. A management system is a social system formed by various economic operations under the environment of a society's second-class market economic system. Governance structures (national economic and non-economic organizations, financial markets, public institutions, mixed organizational structures, etc.). Allocation of resources (including employment) should be aimed at optimizing marginal effects. It can be seen that the socioeconomic base, institutional environment, and management system directly affect the effectiveness of resource allocation, and resources are micro units that directly determine the effectiveness of socioeconomic activities.

2.2. Related Research on the Impact of Inclusive Digital Finance on Income Inequality between Urban and Rural Areas

The widening income disparity between urban and rural areas has a negative impact on the country's economic development and social stability, and finance, as an important part of the economy, plays an essential role in the development of urban and rural economies. American economist Kuznets was the first to suggest that income distribution would change with economic development (Moran, 2005). Based on this hypothesis, Greenwood and Yovanovitch constructed a dynamic model that ascertains the relationship between financial development and urban-rural income distribution, has an 'inverted U' shape (Greenwood J et al., 1990). Kim conducted an empirical study using data from several countries and found that financial development did not significantly reduce urban-rural inequality in low-income countries compared to high-income countries (Kim JH, 2016). With regard to countries, urban residents can benefit more from financial development than rural residents due to the large difference in rates of financial development between urban and rural areas, does not significantly reduce the income gap between urban and rural areas. And it could even widen the income gap between urban and rural areas (Sun Yongqiang, 2012).

Comprehensive digital finance is based on this requirement. Based on "inclusive finance", it incorporates digital technology and combines the advantages of both. This is seen as an important means of narrowing the income gap between urban and rural areas. Early researchers often used the entropy method to measure various measures of financial services related to comprehensive digital finance, and conducted empirical studies, but with mixed conclusions. Some researchers argue that the availability of digital financial services has a negative impact on urban-rural income inequality, as there are clear regional differences in digital financial inclusion, making it difficult for those regions to benefit from it (Ge Heping, 2018). This has had a significant impact on reducing income inequality between urban and rural areas in my country (Guo Feng et al., 2020). However, this method of digital financial inclusion does not fully consider the impact of Internet information technology on the financial sector. Therefore, the Peking University Digital Finance Research Center was founded on the requirements of completeness, balance, comparability, continuity and feasibility. Establish a research system that can scientifically and comprehensively summarize the development and balance of digital financial inclusion at the current stage (Lv Yanqin et al., 2019), and publish a report on the Peking University Digital Financial Inclusion Index in 2017.

3. Econometric Model Definition, Variables and Data Selection

3.1. Development of Basic Measurement Model

This article uses panel data of 266 prefectures and cities in Japan from 2011 to 2017 for empirical analysis. Since different regions observe different individual effects, a model with a fixed effect is chosen for analysis and the following model is built according to Hypothesis 1.

\[ \text{Gap}_i = \alpha_0 + \alpha_1 \text{dif}_{i,t} + \alpha_2 \text{gdp}_{i,t} + \alpha_3 \text{isi}_{i,t} + \alpha_4 \text{fe}_{i,t} + \alpha_5 \text{fd}_{i,t} + \alpha_6 \text{open}_{i,t} + \epsilon_i \]

Where, indices i and t represent city and year, respectively. The dependent variable is the income difference between urban and rural areas. The independent variable \(\text{dif}_{i,t}\) is the development level of comprehensive digital finance. The remaining independent variables are control variables, where GDP is economic development and industrial structure, \(\text{fd}_{i,t}\) is budget expenditure, \(\text{fd}_{i,t}\) is the level of traditional financial development, and open is openness. \(\epsilon\) is the random error component.

3.2. Selection and Explanation of Variables

The dependent variable is the income difference between urban and rural areas. Many publications use three indicators to measure urban-rural income inequality: the Gini coefficient, the Theil index, and the ratio of urban to rural per capita disposable income. Among them, the Gini coefficient, which measures overall inequality, is more sensitive to changes in the middle class. However, most of the income inequality between urban and rural areas is shared by both ends, and the Gini coefficient cannot fully capture the income inequality between urban and rural areas. The Theil index is more sensitive to changes in the incomes of the high- and low-income groups at the extremes of the variance, but it requires sample data on urban and rural populations and statistics for my country to calculate. Therefore, in this article, we choose the urban-rural per capita disposable income ratio to measure the urban-rural income gap.

The main explanatory variable is the level of development of the accessibility of digital financial services. This article selects the difi Digital Financial Inclusion Index released in April 2019 by Peking University Digital Finance Research Center. The index is built on the principles of completeness, balance, comparability, continuity and feasibility. It better reflects the dual characteristics of digital and comprehensive financial services, and can accurately measure the development level of comprehensive digital finance in China. The comprehensive index is divided into a coverage index, a utilization index, and a digitalization level index. The reach index is measured by the number of electronic invoices and reflects the ability of comprehensive digital finance to reach customers. The usage depth index is estimated based on actual usage, and the metrics measured include total actual usage (users per 10,000 users), usage activity (transactions per person), and usage intensity (transactions per person). The Digitization Index reflects the degree of barriers to entry and ease of access to digital financial services.
3.3. Data Selection and Description

This article uses panel data for 225 counties and cities in China from 2014 to 2021. Due to the large size of Beijing, Tianjin, Shanghai, and Chongqing, the four cities under the direct control of the central government are not included, and Tibet is not included due to lack of data. Table 2 is a statistical description of each variable. Table 2 shows that the ranges of all indicators are relatively wide and there are big differences in the development of cities in our country. With this in mind, the regressions deal with the numerical comprehensive financial indicators of the system, GDP per capita, share of budget expenditure, share of financial institution loans outstanding, and share of import and export volume.

### Table 1. Variable names and calculation methods

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<td>Control variable</td>
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<td>Industrial Structure (East)</td>
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<td>Budget expenditure (Fe)</td>
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<td>Traditional Financial Development (FD)</td>
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### Table 2. Statistical Explanation

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### Table 3. Correlation analysis

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4. Empirical Analysis Process and Empirical Results

4.1. Impact of Digital Financial Inclusion on Urban-Rural Income Inequality

First, a regression analysis is performed. Considering the effects of multicollinearity, we performed a Variance Inflation Factor (VIF) test on the regression results and found that the resulting VIF was less than 10, indicating no significant multicollinearity. To account for the effects of heteroscedasticity, all empirical regressions presented in this article use robust clustering standard errors.

### 4.2. Reference Regression

To test the research hypothesis that the availability of digital financial services influences the overall performance of industrial green factors, this article chose to create a two-sided fixed-effects reference model after the Hausman test. The regression results are shown in Table 4. In column (1) of Table 4, the digital financial inclusion regression coefficient (dif) has positive significance at the 1% level without adding the control variable. By adding control variables such as the level of economic development, degree of openness, and level of industrial structure to Table 4 (2), the quality of the fit of the regression model continues to improve, indicating that the importance and proportion of digital technologies. It keeps...
getting better. Inclusions remain essentially unchanged. Control variables, city fixed effects, and time fixed effects have been added to Table 4 (4). The regression results are still robust and validate the main hypotheses of this paper. We find that accessibility to digital financial services has played a key role in narrowing the urban-rural income gap, and the results are impressive.

(2), (3), and (4) in Table 5 (2), (3), and (4) show the extent of coverage, depth of use, and digitalization of income disparities between urban and rural areas. Among them, the regression coefficients of breadth and depth of use are significantly negative, indicating that the breadth and depth of digital financial inclusion can help reduce the income gap between urban and rural areas. The regression coefficient for degree of digitization is negative but not significant. Given
However, it has not yet reached the stage of bringing benefits. It can be seen that it depends only on diffusion. Increasing the degree of digitization has the opposite effect. The breadth and depth of use reflect “universality” and the degree of digitization reflects “benefit.” It can be seen that it depends only on diffusion. On the other hand, increasing digitization can exacerbate the complexity of digital financial services, discourage rural populations and deepen self-exclusion. The degree of digitization also reflects low cost and ease of use, and is closely related to frequency of use. Urban and rural residents are likely to use the same digital financial services, but rural residents use them much less frequently than urban residents. For example, significant differences in scan code payment penetration between urban and rural areas have marginalized the effects of convergence. The breadth and depth of use reflect “universality” and the degree of digitization reflects “benefit.”

5. Conclusion and Suggestions

The main findings of this paper are: (1) the development of digital financial inclusion has generally significantly reduced income inequality between urban and rural areas. (2) the breadth and depth of digital financial inclusion will help reduce the income gap between urban and rural areas. Increasing the degree of digitization has the opposite effect. Based on the above findings, this article proposes the following suggestions:

First, we should continue and vigorously promote the development of digital inclusive finance. At present, the rapid development of digital technology and the digital economy continues to heat up. In the environment of more perfect support from digital technology, the development of digital inclusive finance has become an irreversible trend in the development of inclusive finance and even finance. In the future development of digital technology will surely make new breakthroughs. According to the new development of digital technology, the convergence point of digital technology and inclusive finance should be explored, digital technology should be more integrated into the development of inclusive finance, improve the vitality and efficiency of Internet technology, and truly realize the "universal" and "beneficial" of digital inclusive finance. The current China’s digital financial development momentum is good, the Pratt & Whitney nature get give full play, especially the mobile payment business, are relatively leading around the world, but the combination of digital technology and Pratt & Whitney financial has just started, there are still many problems waiting for research, combined with China’s financial development than western developed countries still have many gap, also for the development of digital Pratt & Whitney financial has brought huge challenges, digital Pratt & Whitney financial development road a long way to go.

Second, the development of digital inclusive finance should be both "registered" and "activated". The goal of digital financial inclusion is not only to enable the vulnerable groups under financial exclusion to obtain financial support, but also to provide them with affordable financial services at a lower price. Current digital Pratt & Whitney financial convergence of the income gap between urban and rural areas rely on expanding coverage, make rural residents can contact digital financial services, and the use of digital services is beginning to emerge, when the digital financial account per capita tend to be saturated, increase the impact of the account ownership on the urban and rural income gap will tend to disappear, but increase the use of digital financial business can continue to improve financial exclusion in rural areas. The use of electronic account generally exist "registration" and "activation" two steps, the development of digital Pratt & Whitney financial not only focus on "registration", more should pay attention to "activation", in urban and rural residents can be equally and widely access to digital financial, on the basis of the penetration of digital technology, design lower cost, higher efficiency, easy operation, risk control Pratt & Whitney financial products, really close to the financial needs of vulnerable groups, increase the use of digital financial products. The development of digital inclusive finance can be mobile payment as the entry point, first "point to point", promote rural residents to adapt to digital inclusive financial services, broaden the coverage of all kinds of businesses, and then "point to the point", deepen the service functions of various products, increase the depth of the use of rural residents of digital inclusive finance.

Third, the development of digital inclusive finance should be both "universal” and “beneficial”. Many digital financial products on the market, including consumer credit and small micro enterprise loans and a series of basic financial services, is also provided to rural residents, but due to the agricultural loan itself risk is higher, combined with the digital financial enterprise monopoly, make the lending rate compared with Banks, is still relatively high, performance for digital Pratt & Whitney financial is "general" not "hui", in the face of lack of funds of rural residents, difficult to make it get preferential, even lead to capital flow to urban areas, the urban and rural income gap. In addition, the improvement of the digitalization degree of digital financial products, on the one hand, is more convenient; on the other hand, it is more dependent on digital technology, and the vulnerable groups themselves are relatively lack of Internet knowledge, cannot immediately master the complex digital financial products, making it isolated from the convenience of digital inclusive finance. Development of digital Pratt & Whitney financial to rely on the advantages of digital information further compression cost, thus reduce the price of digital financial products, more simplify the operation process of digital financial products, reduce the use threshold, at the same time to break the monopoly of digital financial supply, improve the ability of commercial Banks develop digital Pratt & Whitney financial, strengthen digital financial market competition, further reduce the loan interest rates, makes the digital Pratt & Whitney financial services price to the real "affordable", truly "hui" and the people.

Fourth, pay attention to the infrastructure construction of digital technologies such as the Internet. Digital inclusive finance relies on digital technology, while digital technology
relies on the infrastructure construction of digital technologies such as the Internet. The differences in Internet infrastructure construction between different regions and between urban and rural areas determine that the development of digital inclusive finance will also be different. At present, China's urban areas have achieved full coverage of the Internet, most rural areas have been integrated into the network society, but there are still some remote areas, due to economic backwardness, harsh terrain and other reasons, free from the Internet world. Digital inclusive finance, which focuses on the goal of financial equality, may be restricted by digital inequality and cannot reach the deepest part of financial inclusion. Future society is destined to be the era of digital economy, in the development of digital Pratt & Whitney financial at the same time, more should pay attention to the popularity of the Internet use hardware, should strengthen the rural areas especially in remote areas of the Internet infrastructure construction, and reduce the cost of low-income groups, give corresponding preferential policies, realize network coverage, a complete coverage of the Internet.

Fifth, attach importance to the basic knowledge education of digital technology such as the Internet. The popularization of financial knowledge has always been an important measure for the development of traditional finance, and digital inclusive finance relying on digital technology requires users to master certain financial knowledge, but also to have certain Internet use skills. When filling the digital divide of digital inclusive finance, we should not only pay attention to the improvement of hardware, but also improve the software. By improving the Internet access ability, the impact on the urban and rural income gap is relatively limited, but the key is to improve the ability of rural residents to use the Internet. In the development of digital Pratt & Whitney financial at the same time, should pay more attention to the education support of poor areas, especially to strengthen the financial knowledge education of vulnerable groups and education of Internet knowledge, enhance its ability to access and use the Internet information, so as to improve the use of digital Pratt & Whitney financial services, realize digital Pratt & Whitney financial fall to the ground.

References


