Research on the Impact of Digital Inclusive Financial Development on Rural Economy of Anhui Province under the Perspective of Rural Revitalization

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Abstract

Inclusive finance refers to providing affordable financial services to various groups in society to reduce financial exclusion and poverty. Effective inclusive finance policies are an important means of promoting economic development and reducing inequality. With the rapid development of information technology, digital inclusive finance has become an important driving force for alleviating relative rural poverty and promoting rural revitalization. Anhui Province vigorously develops digital inclusive finance to promote income growth for rural residents, but further improvement of digital inclusive finance policies still faces many difficulties. On the basis of theoretical analysis of the current development status of digital inclusive finance in Anhui Province, this article delves into the inherent connection between digital inclusive finance and rural economic development. Based on empirical research, it proposes policy recommendations to improve the development of digital inclusive finance in Anhui Province.

Keywords

Digital inclusive finance; Rural economy; Rural revitalization.

1. Introduction

1.1. Research background

The No. 1 central document of the Central Committee of the CPC in 2021 pointed out that in order to revive the nation, the countryside must be revitalized. In particular, it proposed to develop rural digital inclusive finance, which put forward new requirements for accelerating the construction of rural digital inclusive financial system that meets the needs of agricultural and rural development. Digital inclusive finance is the key to solving the problem of rural finance in China, and it is also an important means to comprehensively achieve rural revitalization and promote rural economic development. The 13th Five Year Plan clearly requires to promote the "Internet plus" action during 2016-2020, and further promote key projects such as inclusive finance. During the 13th Five Year Plan period, the average annual growth rate of farmers' income was 6%, which was 1.24 percentage points higher than the growth rate of urban residents' income. The income gap between urban and rural residents narrowed from 2.99:1 in 2010 to 2.56:1 in 2020, with inclusive finance playing an important role. However, we must recognize that the income gap between urban and rural residents in China is still widening, and there are huge difficulties in continuously improving the effectiveness of rural economic development. The National Informatization Plan for the 14th Five Year Plan (hereinafter referred to as the "Informatization Plan") proposes priority actions for "digital inclusive finance" and clarifies the key directions for comprehensively promoting the construction and development of digital inclusive finance. Therefore, in the context of promoting rural economic development and achieving rural revitalization, it is necessary to analyze the specific challenges of digital inclusive finance in promoting rural economic

development according to the requirements of the Information Technology Plan, and propose high-quality development suggestions.

1.2. Literature Review

The development of inclusive finance faces global challenges such as high costs, low efficiency, and imbalanced services. In 2016, the concept of digital inclusive finance was officially proposed, and the development of digital inclusive finance has become a consensus at home and abroad, with an increasing number of related theoretical research. Zhang Kai (2018) pointed out that unlike traditional models, digital inclusive finance emphasizes the combination of digital technology and inclusive finance. Digital technology has significant advantages in many aspects, and its development can help financial institutions balance profitability and social responsibility. Evaluating the development level of digital inclusive finance and analyzing its influencing factors is of great significance for the development of inclusive finance in various provinces. Du Jiaqian (2020) takes digital inclusive finance as the research object, conducts quantitative analysis and research on the development of digital inclusive finance in China, and explores the future development direction of digital inclusive finance in China through multidimensional evaluation and empirical analysis of influencing factors. In August 2016, the "Practice and Exploration of Digital Inclusive Finance" released by the China Institute of Inclusive Finance at Renmin University of China pointed out that digital inclusive finance first lowered the threshold for financial services and further weakened the poverty effect. However, Wu Jinwang and Gu Zhouyi (2018) believe that there is currently very little discussion on the poverty reduction effect of digital inclusive finance in China. Most of them still focus on inclusive finance and conduct poverty reduction research on it, using Gini coefficient or wealth gap ratio to quantify the poverty reduction effect. For example, Han Xiaoyu (2017) established a PVAR model to empirically study the dynamic relationship between inclusive finance and poverty reduction effect; Ma Yufei and Du Chaoyun (2017) used the level of household consumption to quantify the actual situation of poverty alleviation, and concluded that inclusive finance is beneficial for poverty alleviation; Lu Panpan and Zhang Changquan (2017) used poverty incidence rate to measure poverty and empirically analyzed the poverty reduction effect of inclusive finance in China using GMM estimation method [6]. Song Xiaoling (2017) believes that digital inclusive finance, through the coupling effect of digital technology, user group, and risk control, has solved the long-standing contradiction between "cost" and "benefit". By reducing threshold effects, alleviating exclusion effects, and poverty reduction effects, it can narrow the urban-rural income gap. This article is based on previous research and combined with the actual situation of the development of digital inclusive finance in Anhui Province. Through empirical analysis, it explores the role of digital inclusive finance policies in rural economic development and proposes relevant public policy recommendations for its further development.

2. The Current Situation and Challenges of the Development of Digital Inclusive Finance in Anhui Province

In the process of implementing the rural revitalization strategy, Anhui actively constructs a digital inclusive financial service system, uses modern information technology to break through the constraints of rural financial services, and enables rural residents to truly enjoy the convenience brought by digital inclusive finance. In the past decade, the level of digital inclusive finance in Anhui Province has been continuously improving. The Anhui Province Digital Inclusive Finance Index from 2011 to 2021 is shown in Table 1.

Table 1. Anhui Province 2011-2020 Digital Inclusive Finance Index

Region	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Hefei	71.58	114.66	155.02	172.25	201.48	222.57	256.24	272.52	288.08	299.16
Wuhu	57.03	104.45	140.36	159.18	186.64	206.82	241.64	254.90	273.16	290.16
Bengbu	55.02	93.41	132.85	145.63	174.68	194.19	221.71	237.29	250.6	259.87
Huainan	50.92	99.57	132.51	149.01	176.98	187.72	221.89	232.23	244.35	255.56
Ma'anshan	57.10	108.43	140.99	166.44	187.29	207.94	234.34	249.31	262.61	274.73
Huaibei	47.48	85.54	120.57	146.55	168.80	224.44	220.85	227.74	241.68	253.84
Tongling	63.69	113.18	142.16	170.17	191.15	195.18	219.11	237.18	252.91	264.99
Anqing	42.34	85.25	125.14	145.56	167.70	193.09	217.40	231.25	243.65	257.72
Huangshan	59.15	103.88	141.73	154.09	177.93	197.97	227.25	240.61	253.96	267.52
Chuzhou	45.43	85.67	125.84	152.03	171.48	196.14	222.28	236.42	249.86	264.88
Fuyang	36.94	81.69	116.76	127.19	156.31	183.15	211.66	223.66	237.09	250.71
Suzhou	35.41	77.93	111.93	135.80	154.23	181.82	206.39	216.57	229.73	242.51
Lu'an	35.28	78.86	117.39	134.70	161.42	190.73	217.60	232.20	243.38	267.25
Bozhou	27.08	69.89	104.04	124.95	153.13	180.11	206.71	218.95	231.61	246.73
Chizhou	51.82	91.46	127.68	142.00	172.78	198.56	221.90	234.76	247.05	258.29
Xuancheng	56.03	92.70	136.96	155.21	175.35	192.92	223.42	238.48	251.22	263.5

According to Table 1, it can be seen that the development of digital inclusive finance in Anhui Province in the past decade has regional differences. Hefei City and Wuhu City are in the top two places in Anhui Province, with good development prospects. The gap with other prefecture level cities is increasing, while Bozhou City and Suzhou City have poor development and are at the bottom.

Since 2011, the overall development trend of digital inclusive finance in Anhui Province has been good. Although the growth rate has fluctuated, the overall level has been improving year by year, as shown in Figure 1. The overall development index of digital inclusive finance in Anhui Province from 2011 to 2020 was 33.07, 96.63, 150.83, 180.59, 211.28, 228.78, 271.60, 303.83, 330.29, and 350.16, respectively.
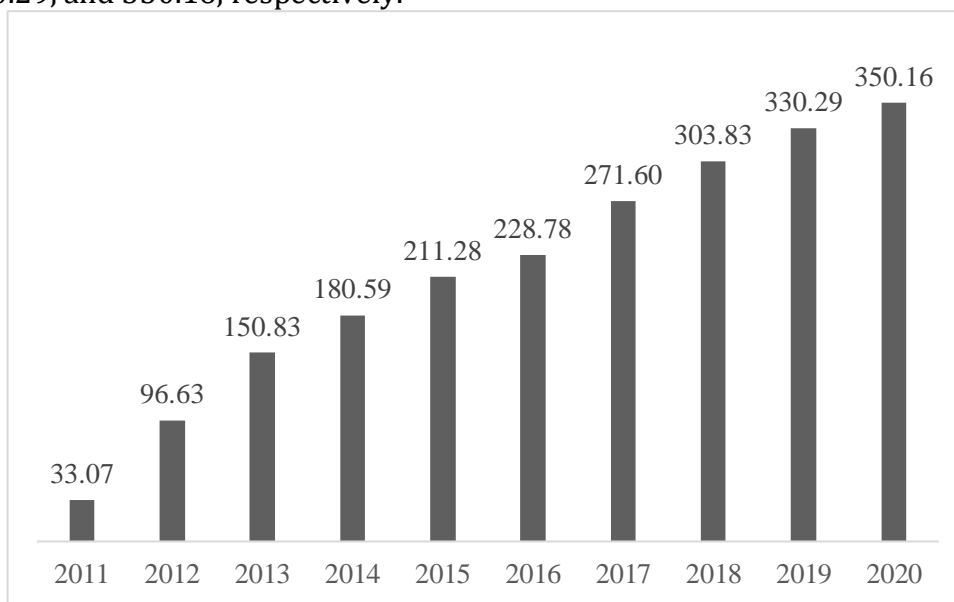

Figure 1. Anhui Province 2011-2020 Digital Inclusive Finance Index

Through the analysis of the development of digital inclusive finance in Anhui Province, it can be seen that the construction of the digital inclusive finance system in Anhui Province has become increasingly perfect. However, compared with the current development status of digital inclusive finance in the country, there are still some problems in the development of digital inclusive finance in Anhui Province.

One is that the construction of digital infrastructure in Anhui Province is not perfect enough. The construction and improvement of digital infrastructure is the foundation for the

development of digital inclusive finance. In recent years, some rural commercial banks have actively launched digital financial services, but due to weak local infrastructure, their development has been slow. The second is talent loss and a lack of digital talents. Although Anhui Province is a major province in the college entrance examination, its higher education resources are uneven, and there is a significant gap in the level of education among universities. Many outstanding students within the province are admitted to universities outside the province. This has led to a shortage of talent in financial institutions in Anhui Province, especially in rural areas where the average education level of employees is generally low. The lack of digital talent has become a major obstacle to the development of digital financial services. Thirdly, there is an imbalance in the development of digital inclusive finance between urban and rural areas in Anhui Province. In rural areas, the development of digital inclusive finance started relatively late, and compared to urban areas, the system is not perfect, facing greater difficulties and management difficulties. Specifically, financial industry practitioners lack the willingness and ability, invest less in the digital financial service system, and local governments have inadequate understanding and recognition, insufficient emphasis, and imperfect policy systems, making it difficult to monitor digital inclusive finance in rural areas.

3. Empirical Analysis of Digital Inclusive Finance Assisting Rural Economic Development

3.1. Data selection

3.1.1. Data sources

Given the availability of data, this article selects relevant statistical data from Anhui Province from 2011 to 2020. The data comes from the Digital Inclusive Finance Development Index published by the Digital Finance Research Center of Peking University in 2021, the Anhui Provincial Statistical Bulletin, and statistical data from the National Bureau of Statistics.

3.1.2. Variable selection

The dependent variable is income level (Y). This article selects per capita disposable income of rural residents as an indicator to measure the development of rural economy. The higher the value is, the higher the level of rural economic development is.

Explanatory variable: Digital Inclusive Finance Index (X). The Internet Research Center of Peking University and Ant Financial Group have jointly produced a set of digital inclusive financial indexes, which are used as explanatory variables in this paper.

3.2. Empirical analysis

3.2.1. Model Setting

According to the research object, the actual per capita disposable income of rural residents in Anhui Province (Y_t) is selected as the dependent variable, the Anhui Province Digital Inclusive Finance Index (X_t) is set as the explanatory variable, and other factors are set as random perturbation terms μ. Based on the above analysis at time t, a preliminary multiple regression model is established:

$$Y_t = c + \beta X_t + \mu_t \tag{1}$$

Input the data into Eviews for parameter estimation and model validation.

3.2.2. Statistical Empirical Analysis

Import the processed data into the regression model established above, and perform OLS regression estimation on the data using ordinary least squares method. The results are shown in Table 2.

<div align="center">Table 2. Parameter estimation results</div>

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4275.021	420.8215	10.15875	0
X1	32.82622	1.777414	18.46853	0
R-squared	0.977083	Mean dependent var		11355.83
Adjusted R-squared	0.974218	S.D. dependent var		3416.649
S.E. of regression	548.599	Akaike info criterion		15.62947
Sum squared resid	2407687	Schwarz criterion		15.68999
Log likelihood	-76.14735	Hannan-Quinn criter.		15.56308
F-statistic	341.0865	Durbin-Watson stat		1.000861
Prob(F-statistic)	0			

Based on the data in Table 2, the linear regression equation between digital inclusive finance in Anhui Province and the income level of rural residents is preliminarily obtained:

$$Y_t = 4275.021 + 32.8262X_t$$

$t=$（10.1588）（18.4685）

$R^2 = 0.9771$，$\overline{R^2} = 0.9742$

3.2.3. Model validation

(1) Economic significance test. According to the estimation results of the regression equation, it can be seen that the development of digital inclusive finance is positively correlated with the income level of rural residents in Anhui Province, indicating that the development of digital inclusive finance will promote the development of rural economy, which is in line with economic significance.

(2) Statistical testing. Using the measurement model R^2 to measure the overall fit of the sample, it can be seen from Table 2 that $R^2 = 0.9771$ and the modified coefficient of determination $\overline{R^2} = 0.9742$. It indicates the overall fit of the model to the sample is good, and the explanatory power of the model exceeds 95%.

The t-test can be used to test the significance of each explanatory variable separately, at the level of significance $\alpha = 0.05$, by observing the corresponding probabilities of the coefficients of each explanatory variable in Table 2, it can be concluded that the development of digital inclusive finance in Anhui Province has a significant impact on the improvement of rural economic development level.

3.2.4. Conclusion

The model results indicate that for every unit increase in the Digital Inclusive Finance Index, the average disposable income of rural residents in Anhui Province increases by 32.8262 units. The development of digital inclusive finance helps to improve the income level of farmers in rural areas of Anhui Province, and has a positive promoting effect on rural economic development. However, there are still practical problems such as insufficient development and insufficient policy support in the development process. It is necessary to propose optimization suggestions for the development of digital inclusive finance in rural areas of Anhui Province.

4. Suggestions for Improving the Digital Inclusive Finance Policy in Rural Areas of Anhui Province

4.1. Strengthen the construction of digital infrastructure hardware

To continuously promote the development of digital inclusive finance in rural areas, it is necessary to strengthen infrastructure construction. One is to do a good job in rural broadband access, continue to increase funding investment, and vigorously develop rural communication networks. The second is to accelerate the construction of rural informatization. Actively promote the updating of access equipment, line renovation, and business updates in rural areas, and strive to improve the access capacity and transmission speed of rural fixed networks; The third is to improve the quality of financial services, accelerate the development of digital inclusive finance, build a rural digital financial service platform, integrate financial services into the daily production and operation activities of rural residents, encourage rural enterprises to use digital, information, and intelligent technologies, and achieve digital rural transformation and upgrading.

4.2. Improve the financial literacy of rural residents

To vigorously develop digital inclusive finance in rural areas, it is necessary to focus on improving the financial literacy of farmers. At present, rural residents have insufficient awareness and understanding of digital inclusive finance, mainly due to their lack of popularization of financial knowledge. Therefore, it is necessary to actively carry out publicity and guide the public to understand and learn the basic knowledge of digital finance; At the same time, relevant departments need to establish unified digital finance regulatory rules in rural areas, create a good financial environment, improve the effectiveness of financial regulation, protect the legitimate rights and interests of consumers, and promote the sustainable and healthy development of rural digital inclusive finance.

4.3. Establish a rural credit system

Rural areas often face the dilemma of credit deficiency due to information asymmetry. Therefore, the government should strengthen the construction of rural credit system, establish a credit record system with individuals and enterprises as the main body, provide convenient credit and financing conditions for rural residents, and improve the accessibility of financial services.

4.4. Strengthen the introduction and cultivation of digital talents

The development of digital inclusive finance urgently needs to address the shortage of digital talents in rural financial institutions. Firstly, we need to vigorously introduce and cultivate talents. Cooperate with universities and financial enterprises to strengthen the cultivation of digital talents, and at the same time, strengthen the management of digital talents by improving salary incentive mechanisms. The second is to strengthen the reserve of digital talents and team building. Rural financial institutions should actively assess and screen professional personnel, and select technical backbone to learn and train in well-known enterprises in the industry, continuously improving the level of financial technology and independent and controllable core technologies.

Acknowledgments

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