

An Empirical Study on the Impact of Digital Inclusive Finance on Rural Revitalization

—An Analysis Based on Chinese Various Regions' Data

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ABSTRACT

This paper analyzes the theoretical connotations and mechanisms related to the study of the impact of digital inclusive finance on rural revitalization in China, and empirically investigates the relationship between digital inclusive finance and rural revitalization by combining data at the prefecture-level city level in China. The results of the study show that digital inclusive finance can effectively promote the development of rural revitalization, and finally put forward relevant suggestions.

Keywords: *theoretical mechanism; digital inclusive finance; rural revitalization*

1. INTRODUCTION

The implementation of the rural revitalization strategy is an important grasp of China's "Three Rural Issues" in the new era, and the Opinions of the State Council of the Central Committee of the Communist Party of China on the Implementation of the Rural Revitalization Strategy released in early 2018 has put forward specific requirements for promoting the development of rural revitalization in China. With the rapid development of digital inclusive finance in China, the supply capacity of rural finance in China has been continuously improved, which has become an important aspect of financial assistance for rural revitalization. Therefore, what is the specific mechanism of the role of digital inclusive finance on the development of rural revitalization? What kind of impact will it have? The systematic study of these questions, from the theoretical level, on the one hand, helps to enrich the theoretical connotation of the study of the impact of digital inclusive finance on rural revitalization in China and deepen the relevant theoretical research results, and on the other hand, we hope to provide some new ideas for China's digital inclusive finance to help rural revitalization by studying the specific connotation of digital inclusive finance in rural revitalization. From the empirical level, on the one hand, it helps to solve or cope with the relevant problems and challenges that arise in the process of digital inclusive finance in helping rural revitalization,

and on the other hand, it helps to promote the realization of the goal of rural revitalization strategy.

2. LITERATURE REVIEW

Research on the impact of digital inclusive finance and rural development has the following two main types of viewpoints.

The first group of views believes that the development of inclusive finance can effectively improve rural development and help rural revitalization. Due to the profit-seeking nature of finance itself, it is difficult for rural areas to obtain sufficient financial services, and improving the availability of financial services through financial supply-side reform can drive consumption, improve risk resilience, promote the local economic level, and promote inclusive development.[1] Ozili argues that digital finance has a positive impact on financial inclusion and achieving inclusive growth.[2] However, it also has risks and challenges such as data security and agency issues that, if addressed, can make digital finance better for individuals, businesses and governments. Xingjian Yi and Zhou Li argue that digital inclusive finance promotes residential consumption and is more pronounced in rural areas as well as in low- and middle-income households.[3] Xun Zhang et al. point out that digital inclusive finance can effectively promote inclusive economic growth in rural areas, and the benefits are more obvious for rural low-income groups.[4] Lin Yang suggests that the synergistic effect of the "inclusive

finance, green finance, and technology finance” model can effectively contribute to rural revitalization.[5]

The second viewpoint is that there is no significant linear relationship between the development of digital inclusive finance and rural revitalization. This is mainly because rural areas have low human capital, serious hollowing-out phenomenon, and the majority of the communities are middle-aged and elderly groups, so the development of digital inclusive finance needs to go through a learning and acceptance process, and it cannot significantly contribute to rural development in the short term. The positive effect of financial services on rural development can be manifested only after the initial threshold is passed.[6] Malady claims that urban households with higher incomes and wealth are more likely to use banking services and banking digital platforms, while poor, low-income, and illiterate rural populations need a continuous process of acceptance of digital finance, which may, to some extent, slow down the development of rural economies.[7] Heping Ge, and Huewen Zhu found a U-shaped relationship between economic development and digital financial inclusion development.[8] Zhichao Yin et al. found that inclusive finance has a significant heterogeneous impact on household income and is more likely to increase the income level of low-income households.[9]

In summary, although scholars at home and abroad have made a lot of analysis on the impact of inclusive finance on rural economy and the financial demand as well as the supply in the process of rural modernization, most of them only study it from their own single perspective, and fewer of them study it from the perspective of digital inclusive finance development, and even fewer of them integrate economic growth, social welfare, and quality of life to comprehensively consider the mechanism and evaluation of the impact of digital inclusive financial services on rural revitalization.

3. THEORETICAL MECHANISM ANALYSIS OF DIGITAL INCLUSIVE FINANCE'S ROLE IN RURAL REVITALIZATION

3.1. Digital inclusive finance and industrial prosperity

Digital inclusive finance helps create a new pattern of industrial prosperity. On the one hand, digital inclusive finance effectively reduces the threshold of traditional financial services, slows down the effect of agricultural financial exclusion, improves the shortcomings of traditional finance in terms of service cost and service scope, and provides more financial support for industrial development. On the other hand, digital inclusive finance effectively promotes the integration and interaction

among rural industries and provides more opportunities for industrial value chain upgrading.

3.2. Digital inclusive finance and ecological livability

Digital inclusive finance conduces to create a new environment of “eco-livability”. On the one hand, under digital inclusive finance, the concept of green finance can be implemented more effectively, increasing financial support for green agricultural development, and realizing the low-carbon transformation of agriculture. On the other hand, with digital inclusive finance, the concept of circular economy can be more precisely guided and implemented, and the financial sources of rural resource utilization can be broadened.

3.3. Digital inclusive finance and rural civilization

Digital inclusive finance helps establish a new style of rural civilization. On the one hand, under digital inclusive finance, the construction of traditional financial credit system can be supported by more digital technology to make up for the shortage of rural development in credit information collection and sharing, credit platform construction and other aspects. On the other hand, under digital inclusive finance, rural financial knowledge and awareness can be continuously enriched and improved, and rural financial culture education can be widely popularized.

3.4. Digital inclusive finance and effective governance

Digital inclusive finance can help build a new mechanism for effective governance. On the one hand, digital inclusive finance can provide a good governance platform for the internal and external participants of rural governance, and promote the diversified development of rural governance subjects. On the other hand, under digital inclusive finance, the credit environment of rural governance can be greatly improved based on digital governance means.

3.5. Digital inclusive finance and affluence of life

Digital inclusive finance can help create a new atmosphere of affluence and prosperity. On the one hand, under digital inclusive finance, the wealth management needs of farmers can be better optimized and the accessibility barriers of traditional finance in farmers' wealth management can be overcome. On the other hand, under digital inclusive finance, digital technology can more accurately and effectively meet the needs of farmers for more personalized financial services and strengthen the foundation of rural affluence.

4. AN EMPIRICAL ANALYSIS OF DIGITAL INCLUSIVE FINANCE FOR RURAL REVITALIZATION

4.1. Model Setting

To test the influence of digital inclusive finance on the development of rural revitalization in China, the following model is constructed in this paper. The explanatory variable *RURAL* represents the development level of rural revitalization, the explanatory variable *DIFI* represents the development level of digital inclusive finance, *CONTROL_i* is the control variable, and ε_i is the random disturbance term.

From a practical point of view, some data are missing for specific years. Considering data availability, this paper uses cross-sectional data.

$$RURAL_i = \alpha_0 + \beta_1 DIFI_i + \sum \beta_k CONTROL_i + \varepsilon_i \quad (1)$$

4.2. Variable Setting and Data Description

4.2.1. Rural Revitalization Development Index (*RURAL*)

This paper draws on the China Rural Revitalization Development Index released by Southwest University of Finance and Economics, which selects a total of 36 refined indicators from five aspects: prosperous industry, ecological livability, rural civilization, effective governance and affluent living to construct the rural revitalization development index system at the provincial level, with reasonable indicator settings that can better reflect the overall level of rural revitalization development in each region.[10]

4.2.2. Digital Inclusive Finance Development Index (*DIFI*)

This paper draws on the Digital Inclusive Finance Index published by the Digital Finance Research Center of Peking University, which contains three aspects: breadth of coverage, depth of use, and service support, measuring the level of digital inclusive finance development in every region of China. It is currently widely used by many scholars to study the development of digital inclusive finance and its economic effects in China.

4.2.3. Control variables (*CONTROL*)

(1) Regional economic development level (*GDP*)

The macroeconomic environment of each region has a greater impact on rural revitalization, so this paper uses the natural logarithm of GDP level per capita of each

region as a measure to represent the economic development level of each region.

(2) Fiscal expenditure level (*GOV*)

According to the State Development Research Center, the financial support to rural areas helps the effective implementation of rural revitalization strategy, so this paper uses the proportion of government financial expenditure to GDP as a measurement index to represent the level of financial expenditure in each region.

(3) Social investment in the whole society (*FAI*)

The expansion of investment helps to guide social capital to invest in digital inclusive finance and rural revitalization, stimulate economic investment vitality, and drive the development of digital inclusive finance and rural revitalization. Therefore, this paper uses the amount of fixed asset investment to reflect the investment situation of the whole society, abbreviated as *FAI*.

(4) Information Technology Level (*INF*)

The development of digital inclusive finance needs the penetration support of modern information technology, which means information interaction, and the level of information technology can reflect the level of information technology popularization and application. The improvement of information technology level can expand the coverage of digital inclusive finance and have a positive effect on digital inclusive finance. Therefore, this paper adopts the digital application index released by the China Information Society Measurement Report and uses the level of informationization as a measurement indicator. By expanding the depth, breadth of financial coverage and information coverage, advanced technologies can better integrate digital finance and inclusive finance. In this paper, I adopt Stata to analyze data.

(5) Infrastructure Construction Status (*IC*)

Good infrastructure construction helps enhance the convenience of economic development and provides an important impetus for the development of digital inclusive finance and rural revitalization. Therefore, this paper uses the infrastructure construction status as a measurement indicator and adopts the number of road miles per capita to express it.

(6) Human capital level (*HR*)

Both the development of digital inclusive finance and rural revitalization cannot be achieved without a high level of innovation, while the level of human capital determines the height of innovation. Therefore, this paper uses the level of human capital as an indicator and adopts the *HR* index (the proportion of the number of graduates from general high schools and higher education schools to the total population of the region) to demonstrate it. The paper uses the ratio of the number of high school

graduates, including above, and the total number of districts as the district human resource index

(7) Public Literacy Level (*CUL*)

The public literacy level can reflect the stock of knowledge and the acceptance of various things in a region. Therefore, in this paper, the number of public libraries is used as a measure of public literacy.

(8) Degree of social security coverage (*SEC*)

Social security can reflect the reciprocal characteristics of economic development and drive the development of digital inclusive finance and rural revitalization. Therefore, this paper uses the degree of social security coverage as a measurement indicator and adopts the number of medical beds for representation.

(9) Dummy variables (*REG*)

The regional dummy variable is added, and the value is assigned to 1 if the city is in the central and western regions, otherwise it is 0.

Regarding the selection of the sample, considering the availability of data, this paper selects 261 cities' sample data for examination. The year 2015 was used as the observation point to obtain relevant data about each regional variable. Regarding the data sources of the samples, except for the rural revitalization development index from the China Rural Revitalization Development Index released by the Southwest University of Finance and Economics, the digital inclusive finance development index from the Digital Inclusive Finance Index released by the Digital Finance Research Center of Peking University, and the informationization level from the Digital Application Index released by the China Information Society Measurement Report, all other indicators examined were obtained from the China Regional Economic Statistical Yearbook and Wind. The descriptions of the above variables are shown in the table below.

Table 1. Descriptive statistics of each variable

Variable	Sample size	Mean	Standard Deviation	Minimum	Maximum
RURAL	261	0.284	0.0802	0.168	0.571
DIFI	261	0.139	0.134	0	1
GDP	261	0.478	0.179	0	1
GOV	261	0.202	0.133	0.056	1.368
INF	261	0.403	0.174	0	1
FAI	261	0.134	0.142	0	1
IC	261	0.452	0.139	0	1
HR	261	0.187	0.177	0	1
CUL	261	0.199	0.122	0	1
SEC	261	0.131	0.120	0	1
REG	261	0.532	0.4999	0	1

4.3. Analysis and testing of empirical results

The model regression results are shown in Table 2. Model (1) examines the sole impact of digital inclusive finance on rural revitalization development, model (2) examines the impact of digital inclusive finance on rural revitalization development after incorporating economic factors (regional economic development level, fiscal expenditure level, and social investment situation as a whole) into the unified analysis framework, model (3) examines the impact of technological factors (informationization level) on the basis of model (2) into the unified analysis framework later to examine the impact of digital inclusive finance on rural revitalization development, model (4) incorporates social factors (infrastructure construction status, human capital level, public culture level, social security coverage level) into the unified analysis framework later to examine the impact of digital inclusive finance on rural revitalization development based on model (3), and model (5) further incorporates the previous dummy variables.

From the empirical results, the coefficients of Digital Inclusive Financial Development Index (*DIFI*) in each model are significantly positive and pass the 1% significance level, indicating that digital inclusive finance can effectively promote the development of rural revitalization. Model (6) is processed into outliers and adjusted with a 5% level of tailing, and the results still show that the coefficient of digital inclusive finance development index (*DIFI*) is significantly positive and passes the 1% significance level, which further confirms the fact that digital inclusive finance can help rural revitalization development.

From the regression results of the control variables, they are basically consistent with the actual experience. The regression coefficient of regional economic development level (*GDP*) is significantly positive, indicating that a good economic development environment can effectively promote rural revitalization. The regression coefficient of social investment (*FAI*) is significantly negative, which indicates that investment is not conducive to promoting rural revitalization. The reason for this is that in the process of increasing social

investment in China, we have not paid better attention to urban-rural integration and concentrated too much investment in urban construction, thus widening the gap between urban and rural areas. The regression coefficient of regional dummy variable (*REG*) is significantly

negative, indicating that the endogenous motivation of rural revitalization development in the central and western cities with poorer economic foundation is insufficient.

Table 2. Regression results and tests

	(1)	(2)	(3)	(4)	(5)	(6)
DIFI	0.283*** (0.033)	0.149*** (0.041)	0.206*** (0.051)	0.229*** (0.052)	0.224*** (0.0453)	0.396*** (0.0558)
GDP		0.083** (0.021)	0.133*** (0.045)	0.200*** (0.049)	0.218*** (0.0431)	0.166*** (0.0488)
GOV		-0.075* (0.038)	-0.068* (0.038)	0.003 (0.044)	0.0505 (0.0387)	-0.0492 (0.0626)
FAI		0.076** (0.036)	0.074** (0.036)	0.027 (0.075)	0.0135 (0.0653)	-0.201*** (0.0446)
INF			-0.093* (0.050)	-0.069 (0.047)	-0.210*** (0.0440)	0.0103 (0.0810)
IC				-0.064 (0.040)	-0.0511 (0.0345)	0.0243 (0.0387)
HR				-0.172*** (0.028)	-0.110*** (0.0254)	-0.196*** (0.0339)
CUL				-0.074 (0.054)	-0.0798* (0.0472)	-0.0851* (0.0464)
SEC				0.145* (0.078)	0.169** (0.0676)	0.208** (0.0931)
REG					-0.0759*** (0.00839)	-0.0637*** (0.00774)
Constant					0.299*** (0.0219)	0.289*** (0.0275)
Observations	261	261	261	261	261	261
R-squared	0.225	0.306	0.315	0.417	0.560	0.603

Note: ***, **, * denote passing the test at the 1%, 5% and 10% levels, respectively, and the standard error values in parentheses are the same below.

5. CONCLUSIONS

This paper empirically investigates the relationship between digital inclusive finance and rural revitalization development, and the study finds that digital inclusive finance is conducive to promoting the effective implementation of rural revitalization strategy. Through the control variables such as regional economic development level, social-wide investment situation and regional dummy variables, it can be found that rural revitalization development needs the support of good economic development environment in each region, and at the same time, it needs to pay attention to the coordination of urban-rural investment structure and rural development in areas with poor economic foundation.

Based on the above research, this paper proposes the following countermeasures: First, improve the institutional mechanism of digital inclusive finance to further activate the endogenous power of rural development. We should strengthen and improve the laws, regulations and rules at all levels in the regulation of digital inclusive finance, promote the development of digital inclusive finance in all regions, and give full play to the “fast”, “universal” and “beneficial” functions of digital inclusive finance. The function of “fast”,

“universal” and “beneficial” digital inclusive finance can better serve the revitalization of rural areas. Second, increase the infrastructure investment and construction in rural areas. At present, the important areas of China's infrastructure investment are mainly focused on the construction of new-generation information infrastructure. In the process of increasing new infrastructure investment, more attention should be paid to balancing urban and rural development and narrowing the urban-rural gap in new infrastructure investment. Third, strengthen the deep change and model innovation of digital inclusive finance in various fields of rural revitalization development, such as industrial prosperity, ecological livability, rural style civilization, effective governance and affluent living, so as to comprehensively assist rural revitalization.

REFERENCES

- [1] Honohan. Financial Development, Growth and Poverty: How Close Are the Links? Palgrave MacmillanUK.2004.
- [2] Ozili P. K. Impact of Digital Finance On Financial Inclusion and Stability, *Borsa Istanbul Review*, 2018, 18(4):329-340.

- [3] Xingjian Yi, Li Zhou, Does the development of digital inclusive finance significantly affect residential consumption-micro evidence from Chinese households, *Finance Research*, Vol. 11, 2018.
- [4] Xun Zhang et al: Digital Economy, Inclusive Finance and Inclusive Growth, *Economic Research*, Vol. 8, 2019.
- [5] Lin Yang, Jiang Zou, The inner mechanism and logical framework of green finance to boost rural revitalization, *Southwest Finance*, 2019, No. 5.
- [6] Beck T, Brown M. Use of Banking Services in Emerging Markets-Household-Level Evidence. *Cepr Discussion Papers*, 2011.
- [7] Malady. Consumer Protection Issues for Digital Financial Services in Emerging Markets SSRN Electronic Journal, 2016.31(2):389-401.
- [8] Heping Ge, Huewen Zhu, Research on provincial differences and influencing factors of digital inclusive finance in China, *New Finance*, No. 2, 2018.
- [9] Yin, C.C., Peng, S.Y., and Lyon, Angela: The development and impact of household inclusive finance in China, *Management World*, Vol. 2, 2019.
- [10] Jin Jia et al: Blue Book on China's Rural Revitalization Development Index, Southwest University of Finance and Economics Press, 2018.