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Research on the Impact of Internet Finance on Rural Economic Growth

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Abstract: ***Finance is an important lifeline of economic development, and rural finance has always been a difficult problem. The problems of unbalanced resource allocation, product shortage and lack of service have not been effectively solved. Advances in Internet technology will boost the rapid development of rural finance. This paper uses the indicators related to the development level of rural Internet finance and rural economic growth in China from 2011 to 2017, and builds a multivariate linear regression model to increase the value of rural Internet finance development and the value added of the primary industry, the per capita disposable income of rural residents, and rural food. The empirical analysis of output shows that the development of rural Internet finance can promote rural economic growth. The government should actively support the development of rural Internet finance and guide the innovation of rural Internet financial models.***

Keywords: rural finance, rural internet finance, rural economic growth, linear regression equation.

1. Introduction

With the development of the rural economy and the increase in farmers' incomes, the demand for rural residents has increased and the demand for loans has also increased. However, China's rural areas have been facing the problems of lack of financial services institutions, limited financial services coverage, single financing model, small scale, weak financial infrastructure, and incomplete functions, especially in remote areas. According to the data of the China Rural Financial Services Report released by the People's Bank of China (Figure 1), in recent years, the support for China's agriculture-related funds has been increasing, and the balance of "three rural" loans has been rising, but the growth rate is weak, and the overall contraction state, The transformation of agricultural development mode and the cultivation of agricultural business entities are not suitable.

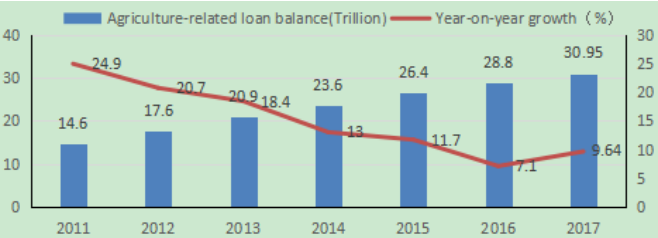

Figure 1: Balance of agriculture-related loans of all financial institutions in China from 2011 to 2017

With the popularity of the Internet, Internet finance has risen rapidly. Its unique business model and value creation method have greatly affected traditional financial services, and effectively solved the problem of "difficult supply and demand", "high cost" and "information" in rural finance. Symmetrical, "risk" and other problems. The development of internet finance plays an important role in rural economic growth. Considering the development of various forms of innovation in Internet finance and the principle of availability of data, this paper mainly studies the development of Internet finance represented by P2P network lending, and then proves by studying the relevant indicators of rural Internet financial development level and rural economic growth in China. The development of rural Internet finance can promote rural economic growth.

2. Literature Review

Rural finance is an important part of the entire financial system, and it has a close relationship with rural economic growth. Chen Wenjun (2011) proved that the scale of rural financial development has a greater influence on rural economic growth by establishing a VAR model [1]. Gu Lingyun, Yu Jinjin (2004) believes that the development of rural economy, helping farmers to get rid of poverty, requires financial support, while microfinance is an innovative model of rural financial services [2]. With the development of the Internet, market demand has determined the rapid rise of Internet finance represented by the P2P network lending platform. Yu Ruizhang, Zhang Xiaoxia (2010) believe that the emergence and development of P2P network lending is due to the broad development space of the microfinance market [3]. Xie Ping and Zou Chuanwei (2012) first publicly proposed the concept of "Internet Finance" in China, and believed that the Internet financial model can promote economic growth by improving resource allocation efficiency and reducing transaction costs [4]. Peng Hong (2016) elaborated on the emergence of the Internet to provide a new way for rural lending, and analyzed the role of Internet finance in the development of rural economy [5]. Yang Yi, Gao Wei (2017) analyzed the impact of Internet finance on the development of rural inclusive finance. Internet finance provides a new way for the development of rural inclusive finance with its unique advantages [6].

3. The relationship between Internet finance and China's rural economic growth

3.1 Definition of rural internet finance

Rural Internet finance is to apply Internet finance to rural financial markets, provide financial services for rural

markets, promote better development of agriculture, meet the needs of farmers, and promote rural economic growth. At present, from the main participants of rural Internet finance, there are mainly “three rural” service providers represented by village music, Dabei farmers and new hopes, and “three rural” e-commerce represented by Ali, Jingdong and Yun Farm. The platform is a “three rural” P2P platform represented by Yilong Loan, Yixin, Kaixin Loan, etc. Among them, the largest scale of development is P2P network lending. P2P network lending is a kind of private small loan model that gathers small funds to lend to people who need funds. It is a kind of Internet financial products. Figure 2 briefly depicts the operating mode of the P2P network lending platform.

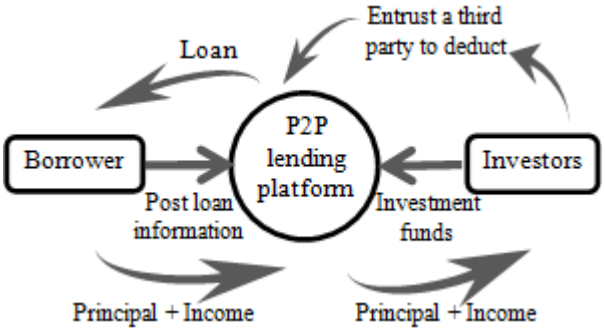

Figure 2: P2P network lending platform operation mode

3.2 The Relationship between Internet Finance and China's Rural Economic Growth

As a kind of financial innovation, Internet finance has effectively improved rural financial services, changed rural financial transaction models, and broadened rural financing channels. The Internet makes information transparent, which can effectively alleviate information asymmetry, reduce transaction costs, reduce rural credit rationing, and improve the performance of rural financial institutions. In addition, Internet finance also provides rural residents with more convenient information channels and trading platforms, which is conducive to farmers' investment behavior. Internet finance can also provide rural consumers with diversified consumer credit products, prompting farmers to pay attention to new consumption hotspots, improve their consumption levels and consumption quality, and thus promote the rapid growth of the rural economy.

3.3 An Empirical Analysis of Internet Finance Development and China's Rural Economic Growth

3.3.1 Indicator selection and data source description

In this paper, Eviews9 is used as measurement software, and the time series data from 2011 to 2017 is used for empirical analysis. The original data is collected as follows:

(a)The development level of rural Internet finance: This paper mainly studies the impact of Internet finance in rural areas represented by P2P online loans on rural economy. The P2P online loan platform represented by P2P online loan platform is selected to measure the development level of rural Internet finance. Among them, the data of 2011 is caused by the imperfect statistics of rural data. Missing, so this paper according to the P2P platform over the years, the balance of agriculture-related loans accounted for the proportion of P2P online loans to the national total loan balance. The P2P agriculture-related loan balance in 2011 accounted for 0.118% of the total P2P loan balance, the data source "China Rural Internet Finance Development Report".

(b)The level of rural economic development: the value added of the primary industry (YC) to reflect the level of agricultural output, the per capita disposable income of rural residents (NS) to reflect the level of economic income of farmers, and the output of food (LC) to reflect the output of agricultural land. Level, the number of employees in the primary industry (JY) to reflect the level of agricultural production, the incidence of poverty (PK) to reflect rural poverty. The data comes from the China Statistical Yearbook.

3.3.2 Empirical process analysis

(a) Stationarity test

In the study of time series models, in order to avoid the phenomenon of "pseudo-regression", the unit root test is usually performed first. This paper mainly uses the ADF unit root test method. The test results are shown in Table 1:

Table 1: Unit root test results

Variable	ADF test statistic	Prob.*	Test results
ND	-2.731*	0.1296	Non-stable
YC	-2.673*	0.1295	Non-stable
NS	-0.174*	0.8913	Non-stable
LC	-2.245*	0.2136	Non-stable
JY	-1.677*	0.3941	Non-stable
PK	-2.132*	0.2766	Non-stable
D(ND, 2)	-2.365*	0.0388	Stable
D(YC, 2)	-5.657*	0.0022	Stable
D(NS, 2)	-3.182*	0.0145	Stable
D(LC, 2)	-3.463*	0.0080	Stable
D(JY, 2)	-1.879*	0.0705	Stable
D(PK, 2)	-8.148*	0.0004	Stable

From the results of the unit root test, the P values of the six variable sequences of ND, YC, NS, LC, JY, and PK were 0.1296, 0.1295, 0.8913, 0.2136, 0.3941, and 0.2766, all of which were greater than the 10% significance level. Sequences are all non-stationary sequences. The second-order difference is performed on each variable sequence, and the test P values of each variable sequence after the second-order difference are less than the significance level of 10%, indicating that the variable sequence after the second-order difference is stable, that is, each variable sequence is considered to be Second order single. Therefore, the selected data is more stable, and other tests can be performed on this basis.

(b) Cointegration test

Using the sequence after the difference, a cointegration test is needed to determine whether there is a long-term stable relationship between the variables. From the unit root test results, each variable is second-order and single-round, which meets the requirements of the same-order single-completion in the cointegration test. In this paper, the EG two-step method is used for cointegration test. Firstly, the least square method is used to use ND as the explanatory

variable, and YC, NS, LC, JY and PK are used as the explanatory variables for regression. The regression results are shown in Table 2:

Table 2: Regression estimation results

	C	YC	NS	LC	JY	PK
ND	-74773.72*	0.307*	1.144*	0.325*	0.795*	-0.314*
	0.0634	0.0634	0.0543	0.0815	0.0563	0.0655

The regression models established are:
ND=-74773.72* + 0.307*YC + 1.144*NS + 0.325*LC + 0.795*JY- 0.314*PK

It can be seen that the elastic coefficients of ND are 0.0634, 0.0634, 0.0543, 0.0815, 0.0563 and 0.0655, respectively, which pass the 10% and 5% significance levels, indicating that the agriculture-related loans can promote the growth of the rural economy. Among them, for every 1% increase in agriculture-related loans, the added value of the primary industry will increase by 0.307%, the per capita disposable income of rural residents will increase by 1.144%, the grain output will increase by 0.126%, and the employment of the primary industry will increase by 0.795%. The incidence of poverty is reduced by 0.314%. After obtaining the residual sequence from each regression estimation result, the unit root test is performed on the residual sequence by using EViews9. The test results are shown in Table 3:

Table 3: Residual unit root test results

	ADF test statistic	Prob.*	Test results
ND and YC, NS, LC, JY, PK regression	-25.31986	0.0001	Stable

From the unit root test results of regression residuals, it can be seen that the residual of this model has passed the 1% significance level, rejecting the null hypothesis of "the existence of unit roots", indicating that the residual sequence is a stationary sequence, which can be considered as ND and YC, There is a long-term stable equilibrium relationship between NS, LC, JY and PK.

(c) Granger causality test

In order to verify whether there is a statistical causal relationship between the above variables, a Granger causality test is performed between the variables. The test results are shown in Table 4:

Table 4: Granger causality test results

Null Hypothesis:	F-Statistic	Prob.
YC does not Granger Cause ND	16.6878	0.0008
ND does not Granger Cause YC	39.0741	4.E-05
NS does not Granger Cause ND	18.3139	0.0006
ND does not Granger Cause NS	28.6007	0.0001
LC does not Granger Cause ND	18.7782	0.0006
ND does not Granger Cause LC	26.0338	0.0002
JY does not Granger Cause ND	0.23965	0.6580
ND does not Granger Cause JY	9.46531	0.0543
PK does not Granger Cause ND	44.2729	0.0069
ND does not Granger Cause PK	7.89604	0.0673

The test results show that there is a two-way Granger causal relationship between YC and ND, that is, the added value of the primary industry can promote the increase of the balance of P2P agriculture-related loans, and the balance of P2P agriculture-related loans can also promote the increase of the added value of the primary industry. In the same way, NS, LC, PK also have two-way Granger causality relationship with ND, that is, the per capita disposable income of rural residents can promote the increase of P2P agriculture-related loan balance, and the balance of P2P agriculture-related loans can also promote the per capita disposable income of rural residents. Increase; grain production can promote the increase of P2P agriculture-related loan balance, P2P agriculture-related loan balance can also promote the increase of grain output; the incidence of poverty can inhibit the increase of P2P agriculture-related loan balance, and the increase of P2P agriculture-related loan balance will also reduce poverty. rate. JY is not the Granger cause of ND, and ND is the reason for JJ's Granger, that is, the change in the employment of the primary industry has little effect on the balance of P2P agriculture-related loans, and the increase in the balance of P2P agriculture-related loans will affect the primary industry. The increase in the number of employed people.

3.3.3 Conclusion

According to the above empirical analysis, it can be seen that increasing the balance of P2P online loan-related agricultural loans can increase the added value of the primary industry, the per capita disposable income of rural residents, food production, and employment in the primary industry, which can reduce the incidence of poverty, namely Internet finance. It can improve the level of agricultural output, the level of farmers' economic income, the level of agricultural land output, the level of agricultural production, and also reduce rural poverty. Therefore, Internet finance can promote rural economic growth. The state should increase the intensity of rural Internet finance innovation and policy support, and promote the all-round development of the rural economy through the development of rural finance.

4. Policy recommendations

4.1 Encourage innovation in rural Internet financial products and develop diversified financial services

Internet finance has a short development time in rural areas, and its products are too singular and have a huge development space. The government should actively respond to the innovative model of Internet finance, develop diversified financial services, and adopt corresponding policies to complement Internet finance and traditional finance to jointly help the development of rural economy.

4.2 Accelerate the establishment of rural credit information system and improve the efficiency of Internet finance enterprises

Residents in rural areas are scattered, information collection is difficult, and credit system construction is backward. There is serious information asymmetry. It is a crucial step to improve the rural credit information system and strengthen the construction of rural credit infrastructure as soon as

possible. The Internet has the advantage of acquiring data, analyzing data and accumulating data. Therefore, the state needs to increase policy support to improve the efficiency of financial enterprises in rural areas.

4.3 Accelerate the innovation of rural land system and establish a sound rural property rights system

The agricultural land and construction land in rural China are all collectively owned land. Farmers have no right to use the right to use, and they cannot be used as effective assets for mortgage financing. Accelerating the pace of rural land system innovation and establishing a more perfect rural property rights system will provide good conditions for the development of rural Internet finance.

4.4 Improve the level of information technology and accelerate the construction of network infrastructure

To achieve comprehensive coverage of rural broadband, upgrade broadband, reduce broadband rates, and provide a good foundation for Internet finance. Increase supervision, ensure information security, improve the living environment of Internet finance, and protect the rights of Internet financial consumers.

4.5 Provide relevant preferential policies and increase government subsidies

The government should introduce some preferential policies related to Internet finance, subsidize loans in the “three rural” areas, and also introduce some targeted support policies based on the characteristics of Internet finance, such as encouraging Internet financial institutions to develop by means of government purchase. Credit risk assessment model based on “three rural” big data.

4.6 Increase publicity and investment in education

Increase the propaganda of Internet finance, popularize Internet finance knowledge among rural residents, and raise farmers' awareness of Internet finance. Intensify investment in education and personnel training, encourage, guide, and nurture rural youth, returning migrant workers, agricultural technology extension workers, rural college graduates, and retired military personnel who are committed to modern agricultural construction, so that "Internet + Agriculture "Better integration, thus promoting rural economic growth.

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Author Profile

Xiaoqing Sun received a master’s degree in Xidian University in 2016. Her specialization area is Finance.