

# The Research of Internet Finance Supporting Targeted Poverty Alleviation Innovation Model

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**Abstract:** *The "targeted poverty alleviation" is the important strategy of poverty alleviation in our country on present stage. Internet financial is emerging in the financial strength, and it has great potential to support the "targeted poverty alleviation". Reference related theory research, this paper analyzes on the advantages of the Internet financial supporting targeted poverty alleviation. Connecting with the Internet financial impact on rural finance, the paper use EViews9.0 software to build VAR model and impulse response function analysis of rural financial poverty relief effect. Results show that Internet financial by expanding farmers loan scale and improve financial efficiency has a positive effect on poverty alleviation work, but the existing Internet financial poverty alleviation have limitations hindered its effect on precision of poverty alleviation. To overcome the limitations, and give full play to its advantages, this paper suggests a model of Internet financial support precision for innovation, make it as accurate provide strong financial support for poverty alleviation.*

**Keywords:** Internet finance, Targeted poverty alleviation, VAR model, Impulse response function, Innovation mode

## 1. Introduction

Since China's reform and opening up, China's poverty alleviation work made great progress, but poverty is still serious in our country. The "flood irrigation" approach to poverty alleviation has not adapted to the conditions of our country. In November 2013, Jinping Xi, general secretary of the practice and experiences according to China's poverty alleviation proposed the "precise poverty alleviation" important thought. Since then, our country took to the "precision poverty alleviation" road which accords with the situation of China, including financial in precise played an important role in the process of poverty alleviation.

As an emerging force in the financial industry, Internet finance has great potential for the support of targeted poverty alleviation. First of all, it can make accurate identification, accurate help and accurate management of poor households more effectively. Second, the Internet financial platform can absorb more social funds to work in poverty alleviation; In addition, by combining with the rural e-commerce, it can expand the sales of agricultural products, thus promote the improvement of farmers' income, improve the poverty problem in China, and achieve targeted poverty alleviation.

Many scholars abroad on Internet financial and poverty alleviation and other related problems are studied, J Weiss, Montgomery, H E Kurmanalieva (2003) pointed out that microfinance is an effective means of income transfers to poor, has a positive effect on poverty alleviation [1]. MAJ Qamar, S Masood, M Nasir (2017) microfinance financial companies by providing financial services and social services to eliminate poverty, the government should formulate relevant policies to encourage the development of such companies [2]; Jianguo Xu (2017) believes that the

emergence of internet finance can make up for the deficiency of traditional financial services and the development of information technology play an important role on internet finance[3]. In addition, some scholars in China have studied the targeted poverty alleviation of Internet finance. Xiangdong Wang and Xintian Wang (2015) thought we should attach great importance to the information age the importance of e-commerce in China's rural poverty alleviation [4]. Zhou qiang (2015) argues that the current implementation of anti-poverty goals, larger obstacle is the financing difficulty, under the background of the era of "Internet +", improve the network of P2P microfinance is the realization of everyone involved in the concept of a new kind of financial model for poverty alleviation [5]. Foreign financial support of the Internet, however, precise poverty alleviation of related research is less, study is not perfect in our country, and most scholars research on the Internet accurate financial support to poverty alleviation is more theoretical research, lack of empirical analysis.

This paper uses the empirical analysis on the existing research to supplement, through data analysis to identify the Internet financial impact on the precision of poverty alleviation work, provide basic empirical support for the research of innovation model. However, the existing Internet financial poverty alleviation mode exists some limitations hindered its play a positive role for accurate poverty alleviation, therefore, in order to overcome the limitations of existing pattern, give full play to the advantages of the Internet financial, this paper suggests a model of Internet financial support precision for innovation, make it as accurate to provide stronger financial support for poverty alleviation.

## **2. The Advantage of Internet Finance Supporting Targeted Poverty Alleviation**

Chinese academy of social sciences published "the "SAN nong" Internet financial report (2016)", "China's Internet financial report (2016)" show that in recent years, our country agriculture loan balance and the proportion of the added value of agriculture, the rural financial support. Since 2014, the financial gap of China's agriculture, rural areas and farmers has exceeded 3 trillion yuan. The Internet, however, the financial support of "agriculture, rural areas and farmers" is increasing, to 2015, our country "three agriculture" the Internet financial scale up to 12.5 billion yuan, and is expected to reach 320 billion yuan by 2020, in the "three rural" financial proportion to 4% - 5%.

According to the China rural financial development report (2015), only 27 percent of farmers can get loans from formal channels, and more than 40 percent of rural households with financial needs cannot get loans. With the support of traditional finance, we cannot meet the financial needs of agriculture, rural areas and farmers, nor can we meet the financial needs of poverty alleviation. Internet financial compared with traditional financial possess many advantages, The advantages of Internet financial support for targeted poverty alleviation are as follows:

### **2.1 Low financing cost and high efficiency**

Compared with traditional finance, the financing cost of the poor households in the Internet financial platform is lower and more efficient. With the big data and cloud computing technology, the Internet financial financing is more on poor financial platform via the Internet, reduce the cost of the node and personnel expenditure, and can be at a lower cost of poor risk pricing and get a dynamic probability of default, the lower the cost of financing. In addition, the Internet financial system flexible, innovative credit products, financing time is short, high efficiency, meet the poor loan time is short, amount is small, high frequency and financial demand for loans.

### **2.2 Wide coverage**

Traditional financial institutions are restricted by region and cost, and the focus of service is difficult to move down. Rural credit cooperatives and other financial institutions such as rural credit cooperatives have covered bottlenecks, and many poverty-stricken areas cannot reach them. Financial relying on Internet technology, however, the Internet can beyond geographical space, through the bank on the net, mobile payment platform to break the traditional branches of financial institutions such as limit, cover more poor areas, the scale effect and externality can be financial services to more social groups.

### **2.3 Advantages of risk control**

Internet financial advantage because of its large data, source widely, species diversity, through the combination of "line" and "offline", can obtain more useful information, solve the

problem of asymmetric information, establish a credit reporting system, using cloud computing technology to establish intelligent risk assessment system, carry on objective appraisal to the poor credit, poor credit databases, reducing the financing risk.

### **2.4 "hematopoiesis" advantage**

Internet finance has the characteristics of highly marketable. Financial platform via the Internet propaganda, make more and more investors pay close attention to poor, poor get continuous financial support, in addition, some Internet financial platform to provide production training value-added services, such as poor financing for its "capacity building", to improve their ability to repay, make money a virtuous cycle between the supply and demand both sides, not only can make financial poverty alleviation "hematopoiesis" ability, also can reduce the financing risks of Internet financial platform. In addition, the Internet financial platform can also make farmers in poor areas become investors and use financial instruments to gain more benefits by lowering the investment financial threshold.

### **2.5 Targeted poverty alleviation**

Internet financial with large data and information technology can be integrated a variety of factors on the poor precision recognition, document tent card, providing them with small loans, and carries on the dynamic management, using network data measure to achieve out of poverty and Chinese reentry; In addition, the Internet can make poverty alleviation fund management more open and transparent, so as to promote the fair and efficient implementation of poverty alleviation work, which is conducive to the realization of accurate management. Financial institutions through the Internet to provide loan services such as consulting, financing for poor, make financial poverty alleviation more information, also can broaden the channels for poverty alleviation, integrate social resources, make more people to participate in the poverty alleviation work, achieve precise support.

## **3. An Empirical Analysis of Internet Financial Supporting Targeted Poverty Alleviation**

One of the great advantages of Internet finance is to make poverty alleviation more accurate. It realizes precise identification, accurate management and accurate help through big data and cloud computing technology. This paper USES empirical research on the Internet accurate financial support to poverty alleviation effect is analyzed, due to the continuous data can't collect the Internet financial poverty alleviation; this paper USES the indirect method of Internet financial poverty alleviation effect is proved. In recent years, the Internet financial has become an important part of rural finance, the rural financial support, continually expand the scale of peasant household loans, attract social capital investment in rural areas, improve the efficiency of rural finance. According to the "blue book" statistics, in 2015, the national "three agriculture" the scale of the development of the Internet financial business for 12 billion ~ 13 billion yuan, the median is 12.5 billion yuan, including P2P lending of 12.4

billion yuan, the raising of 100 million yuan. Therefore, by studying the relationship between rural finance and poverty, it can indirectly analyze the impact of Internet finance on poverty alleviation. In this paper, on the basis of the related research results, using EViews9.0 software build VAR model and impulse response function of rural financial poverty alleviation effect is analyzed, further from the perspective of empirical Internet financial support for poverty alleviation.

### 3.1 Index selection

Usually used to measure the indexes of poverty in the poverty rate, poverty population, the number of poverty-stricken counties, townships and rural poor per capita disposable income and household consumption expenditure, etc., used to judge the effect of the rural financial poverty alleviation index of agricultural loans, agricultural loans, loans, etc. Related research results, this paper, from the quantitative and data availability, choose rural poverty in the rural poverty rate,

remember to PS, peasant household loans measured by peasant household loans outstanding, notes for the FS, efficiency of rural financial situation expressed in the ratio of the peasant household loans and deposits, remember to FE.

In order to ensure the continuity and availability of data, this article selects data in the range of 2004-2016, main source data is "China's rural financial service report (2014)", "China poverty monitoring reports (2005-2016)", "China statistical yearbook (2005-2016), CNKI database, and database of Wind.

### 3.2 Data Processing

Before establishing the VAR model and co-integration analysis, this paper first conducted ADF unit root test for each variable to verify whether it was a stationary sequence or the same order, and the test results were shown in table 1:

**Table 1: Root test results of ADF unit**

variable	ADF test value	Inspection form (c, n, k)	5% level	10% level	P	conclusion
PR	-0.6733	(c, n, 0)	-3.8753	-3.3883	0.9492	Not smooth
D (PR)	-3.0219	(c, 0, 0)	-3.1754	-2.7290	0.0636	smooth*
FS	12.8139	(0, 0, 0)	-1.9740	-1.6029	0.9999	Not smooth
D (FS)	-4.1655	(c, n, 0)	-3.9334	-3.4200	0.0364	smooth**
FE	0.0428	(0, 0, 0)	-1.9740	-1.6029	0.6771	Not smooth
D (FE)	-5.6040	(0, 0, 0)	-1.9777	-1.6021	0.0001	smooth***

Note: D represents the first difference; The test form (c, n, k) respectively represents the intercept term, trend term, lag order number, and the lag order number is determined based on AIC criterion. The "\*\*\*" stands at 10%, 5% and 1% respectively.

Can be seen from table 1 all indicators under the significance level of 10% of the original sequence is smooth, in the original sequence of each index is stable after first order difference, various sequences are first-order single integer sequences, shows that China's rural poverty and farmers loans, may be there is a cointegration relationship between rural financial efficiency. Therefore, after the first order difference of each original sequence, the co-integration relationship between the three variables is tested with the Johansen co-integration test, and the results are shown in table 2:

**Table 2: Johansen co-integration test results**

Null hypothesis	The eigenvalue	The trace statistic	5% level	P values**
no one	0.8519	32.2102	29.7971	0.0259
up to one	0.5808	11.2020	15.4947	0.1994
up to two	0.1385	1.6398	3.8415	0.2004

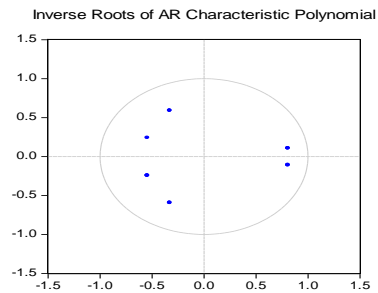
Can be seen from the table in the original hypothesis of "no one collaborators integral equation" case, the trace statistic value is greater than the critical value under the 5% significant level, at this point, the P value is less than 0.05, so you can reject the null hypothesis, that there is a cointegration relationship between the three variables;

In the original hypothesis for "most exist one collaborators integral equation" cases, P value is greater than 0.05, to accept the null hypothesis, that there is a cointegration relationship between the three variables and there is a most collaborators the whole equation.

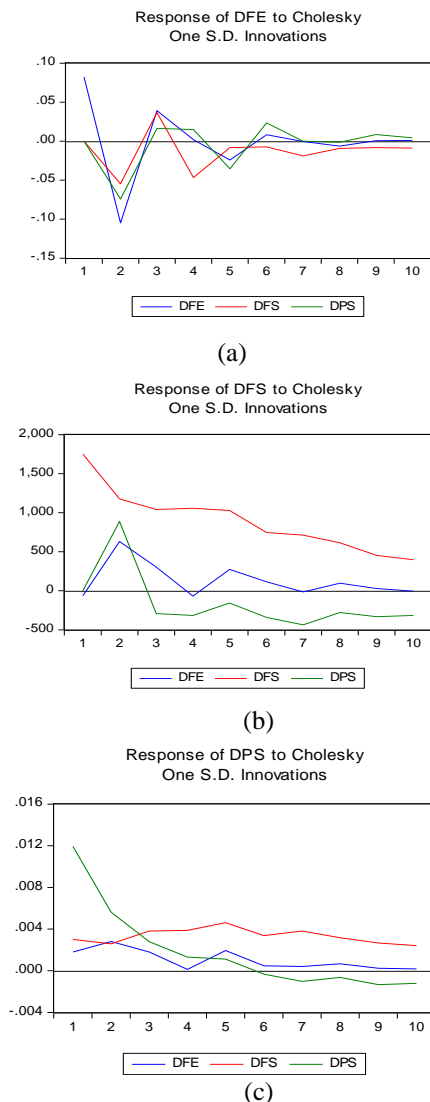
On the basis of the previous test, the VAR model is established, and its matrix form is as follows:

$$\begin{bmatrix} DPS \\ DFE \\ DFS \end{bmatrix} = \begin{bmatrix} -0.0216 \\ -0.0894 \\ 1188.37 \end{bmatrix} + \begin{bmatrix} 0.4712 & 0.0243 & 6.64e-07 \\ -6.215 & -1.1551 & -2.05e-05 \\ 74315.8 & 6466.51 & 0.5445 \end{bmatrix} \begin{bmatrix} DPS_{t-1} \\ DFE_{t-1} \\ DFS_{t-1} \end{bmatrix} + \begin{bmatrix} 0.1138 & 0.0305 & 1.6e-06 \\ -1.3578 & -0.5913 & 1.01e-05 \\ -59823.6 & 6860.38 & 0.424 \end{bmatrix} \begin{bmatrix} DPS_{t-2} \\ DFE_{t-2} \\ DFS_{t-2} \end{bmatrix} \quad (1)$$

To test the model's stability, this paper with AR chart test model on the test, unit root distribution as shown in figure 1, you can see from the picture all the root module and the reciprocal of the VAR model is less than 1, i.e. all unit root within the unit, so the model is stable, that has a long-term and stable relationship between the three variables, impulse response function of standard error effectively, can continue to impulse response function analysis. Therefore, three variables are analyzed based on the impulse response function based on the progressive analytic method, and the composite diagram is shown in figure 2.



**Figure 1:** Unit root distribution diagram



**Figure 2:** Synthesis of impulse response function

### 3.3 Result analysis

As can be seen from figure 2, the scale of farmer loan has different impacts on poverty rate at different stages. In the early stage, farmers' loans were small, and farmers had less money to spend on agricultural production and living. They could not increase income and raise living standards, and the rural poverty rate was higher. To late, with the support of national policy and financial support of rural finance, the Internet makes farmers loan scale, especially the small credit loans increased, meet the capital requirements of more and more farmers and poor, make its funding for agricultural production, increase their income and get rid of poverty, a negative impact on rural poverty, the late leveled off.

The increase of rural financial efficiency also has negative impact on the rural poverty rate and tends to be stable. In recent years, the support of Internet finance to rural areas is conducive to the improvement of rural financial efficiency. Traditionally, traditional finance has absorbed loans from the countryside in the way of absorbing and storing, so that the rural financial resources cannot be optimized and allocated, and it is difficult for farmers to increase the difficulty of poverty alleviation. Through publicity, Internet financial platforms attract more social capital to invest in rural areas, improve rural financial efficiency and continuously improve rural poverty.

It can be seen from figure 4 that the rural poverty rate has a positive impact on the loan scale of farmers and the rural financial efficiency, and tends to be stable in the later stage. Countries pay more and more attention to "three rural" construction in recent years, the precision and to put forward the strategic thought of poverty alleviation, in order to make more poor access to capital, reduce poverty, expand the scale of farmers loans encourage rural financial institutions especially microfinance proportion, to a certain extent, improve the efficiency of rural finance.

Therefore, through the above analysis, the Internet financial by expanding loans for farmers and improve the efficiency of rural finance, poor access to capital for the production and consumption, increase the incomes of the poor, improve the quality of the poor, promote the precision of poverty alleviation work in China, more people out of poverty to get rich.

## 4. The Limitations of the Existing Internet Financial Poverty Alleviation Model

Based on the empirical analysis found that Internet financial through enlarging the scale of peasant household loans and improve the efficiency of rural finance is beneficial to promote the progress of the precise poverty alleviation work in China, however, the existing Internet financial poverty alleviation model has some limitations, make Internet financial cannot give full play to its positive role.

### 4.1 Lack of a clear supervision system

The financial industry, the Internet has the characteristics of low threshold, the top, the lack of a clear regulatory system, the imperfection of the relevant laws and regulations, so there are a lot of not regulate the behavior of financial transactions, part of the Internet financial product wandering in the edge of "illegal fund-raising". In addition, most poor households have insufficient knowledge of Internet financial products, unclear trading rules, lack of risk identification ability, and their property security is vulnerable to threats.

### 4.2 The scope of lending households is still limited

Although Internet financial largely fills the traditional financial services in rural areas, but because of the poor credit mechanism is not perfect in China, most of the Internet financial platform to prevent opportunism behaviors of the

poor, to control the risk of default probability, its capital investment focus is still on agricultural leading enterprises, farmers in the electricity business ecosystem, and part of the cooperation with enterprises with farmers.

#### **4.3 The Internet financial platform bears great risks**

One of the main reasons for poverty alleviation is that it is low in education and weak in production and management. Internet financial platform to the poor financing, but some poor don't have the ability to use funds profit business, both increased debt burden for the poor, make its poorer, also make the Internet great risks to financial platform. Second, the poor are mostly engaged in agricultural activities, highly vulnerable to climate change, natural disasters and other unexpected factors, further increase the risk of a poor and Internet financial platform.

### **5. Internet Finance Supports the Innovative Model of Targeted Poverty Alleviation**

Based on the above research, the Internet financial precision compared with traditional financial support poverty alleviation has more advantages, and The empirical analysis also proves this point. However, the existing Internet financial poverty alleviation model has some limitations hindered its play a positive role for accurate poverty alleviation, therefore, the Internet financial support is of great importance to innovation, accurate model for poverty alleviation in order to overcome its limitation, better advantage, provide a stronger financial support for the accurate poverty alleviation.

#### **5.1 The PPP model**

PPP mode refers to the mode of government guidance, discount support, government and social capital cooperation. It through the guidance of the government will finance and traditional Internet financial phase coupling, will join the government capital and social capital, is advantageous to the maximum of expanding the range of financial services in the poor areas and peasant household loans, improve the efficiency of rural finance, make more poor can get financial support. Government to actively guide the social capital investment in the Internet financial platform in poor areas, broaden the sources of funding for poverty alleviation, developing characteristic agriculture in poor areas, promote the development of its economy, to strengthen the supervision of the Internet financial platform at the same time, to clear funds, to avoid the phenomenon of illegal fund-raising.

#### **5.2 Internet crowdfunding + entrepreneurial mode**

The crowdfunding model of the Internet financial platform is mainly to publicize the special agricultural products in poor areas on the platform and help the poor households raise production funds in the form of group purchase or pre-purchase.

But due to the poor level of education is low, the production and business operation ability is weak, difficult to use efficient capital profit, therefore, the government can guide

and encourage college students work in poor areas, and, in collaboration with Internet financial platform to realize the combination of the Internet the raise and entrepreneurship. Entrepreneurs can be gained by hiring some poor make its labor income, business income according to certain proportion funding will also be other poor agricultural production, and the acquisition of agricultural products, make the poor income increase access to quality of raw materials at the same time, achieve mutual benefit and win-win results. In addition, the Internet finance platform can build 3D farms, simulate the situation of reducing farms, and facilitate real-time monitoring by investors, so as to attract more social group financing to poor areas.

#### **5.3 E-commerce platform financing + agribusiness + insurance model**

Based on the empirical analysis, the e-commerce platform will further expand the scale of household loans through order financing for the poor households, which will facilitate the progress of targeted poverty alleviation work. However, due to the limited land resources of poor households and limited production of agricultural products, the scale effect cannot be realized. Therefore, agricultural enterprises can help the poor households as middlemen. Electric business platform lending to agribusiness to buy agricultural materials, agribusiness freely to poor use of the acquisition of agricultural products, and unifying all retail of agricultural products are collected in electric business platform for sales, the sales income return loan. In addition, the electric business platform and agribusiness can provide production training for poor value-added services, such as capacity building, improve the production capacity level of poor, so can make electric business platform and agribusiness in access to quality farm produce at the same time, reducing the financing risk, also fundamentally spur poor out of poverty to get rich. Agricultural products, however, is strongly influenced by the natural factors such as climate change, electric business platform, agribusiness and poor are under huge risk, so the electric business platform should actively cooperate with online insurance company, the development of agricultural product price target, the weather index risks such as agricultural insurance, in order to improve the agricultural risk disperse mechanism, reduce the loss of the poor, as well as electric business platform and agribusiness fund safety guarantee.

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