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The financial support effect of china rural public goods

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ABSTRACT

By applying the concept of location quotient and introducing the strength of financial support for rural public product (RFI) index, the financial support for public goods in rural areas was studied in three aspects of financial support, investment support and fiscal agriculture expenditure. In general, the three are constantly strengthening their support to China rural public goods. The analysis on welfare effects of the above financial support shows that the financial support, such as rural fixed assets investment and rural public expenditure, has a significant promoting effect on rural economic development. And more, the fiscal expenditure has a greater impact on agriculture than any other. But the agricultural loans from financial institutions has no significant affect on improving rural economic growth and reducing rural poverty, so the commercial support for rural public product is limited. It is suggested that the effective means of improving the main supply of public goods in rural areas are as follows: to establish a public products supply system in which power and responsibility are well defined; to adjust the function orientation of rural financial institutions; to let government funding give full play to its basic role; to establish the financing mechanism of rural public products market.

KEYWORDS

Rural public goods; financial support; Effect analysis.

INTRODUCTION

Based on the practical contradictions and problems of today's China, the first priority is to provide basic and guaranteed public goods for rural areas for the sake of urban and rural development and the construction of socialistic "new countryside", so as to improve the supply efficiency on rural public product. This task is of great significance to the development of rural economy. At present, the domestic research on the supply system of rural public products is mainly on the decision-making mechanism, supply model, efficiency are studied. In the asp. In the aspect of supply decision-making mechanism, Han Pengyun, Liu Zuyun[1]believes that our rural public goods supply mechanism is mainly the top-down decision-making mechanism, the implementation of "thing" of the demand expressing mechanism. In the mode of supply, Wu Shijian[2]believes that with the development of our market economy, the government supply mode of single subject of rural public products in our country has been unable to meet the supply of rural public goods demand, should carry out the diversification of rural public goods supply mode, can create a market mechanism. On the supply efficiency, Zhang Weiran, Feng Shiwei[3]through the analysis of organization and the influencing factors of rural public goods supply, and points out that the rural public goods supply in our country is mainly the production of monopoly by inefficient state-owned enterprises, resulting in the inefficient supply situation. Zhang Shiyun, Jiang jiyu[4]believes in rural tax reform, due to a series of reform measures are not timely follow-up, state transfer payments to the local government funds to make up the shortfall of county and township fiscal funds through fiscal, seriously affected the supply of rural public goods. Liu Guizhi[10]by since reform and opening up of the rural public product supply financial support for reasons of insufficient capacity analysis, that there is no established system of financial support commensurate with the supply of public goods in rural areas is the root cause of the supply efficiency on rural public products is not high. Chen Yawen[5]believes the government is far below the city investment in rural public goods, even by the farmers themselves part of rural public goods. Inadequate public financial input to rural public product long-term supply, which leads to the sustainable development of compulsory education, public health and other rural areas in urgent need of the product also has the supply shortage. The study found that the domestic study on the supply of public goods in rural areas is the lack of specific research and empirical analysis of financial support problem based on quantitative research of financial support, rarely on the rural public goods supply, which provides valuable theoretical guidance is not on the supply of rural public goods financing practice.

A C-D production function was applied as the basic model for quantitative research on the relationship between China's rural public product supply and rural economic development, so as to provide a quantitative basis for the China's rural public products supply in the process of urban-rural integration.

THE FINANCIAL SUPPORT COMPARATIVE ANALYSIS OF RURAL PUBLIC GOODS SUPPLY

In order to quantify the reasonable degree of agricultural public goods investment and financing scale, we use location quotient (location quotient) and financial support strength in rural public products (RFI)[6]. Rural public goods finance support strength refers to various rural public investment and financing scale accounts for fiscal revenue (or expense) share and the first industry GDP accounts for the national total GDP share ratio.

In the above formula, the denominator is the primary industry GDP share of the country's total GDP, which means how much contribution of rural economic made to the national economy; the numerator is the share of rural public financing of national public financing, which means that how deep strength of financial support for rural public product. If the RFI index value is more than 1, then it can be considered that the effectiveness of rural public goods supply has been protected and supported by financial support. The greater the RFI index value, indicating that this level of higher support and protection; Conversely, if the index value is less than 1, we can think of rural finance and rural public goods supply is not strong enough to support economic development.

The intensity of fiscal support for agriculture

Fiscal support agriculture intensity (PFI) refers to the share ratio of fiscal agricultural expenditure accounts for expenditure and the first industry GDP accounts for the national total GDP, reflecting public fiscal support strength of rural public products.

We can see from Figure 1, China fiscal expenditure of public finance expenditure has been at a low level and relatively stable state, basically maintained at around 0.08 and 0.1 level in the 1990's for 4 years. The share of primary industry GDP accounts for GDP is declining. The Chinese public fiscal support strength for agriculture PFI is growing, remained in the 0.27-0.61 level before the 1990s. After entering 2000, various state preferential agricultural policies were introduced, as well as the government gradually increase the intensity of investment in rural public goods and the intensity of public finance support for rural public goods, PFI index remained at the level of 0.52-92. But the overall level of the index is still less than 1, it shows that comparing with the contribution of the rural economy in the national economy, Chinese fiscal funds for rural public product support intensity is slightly insufficient.
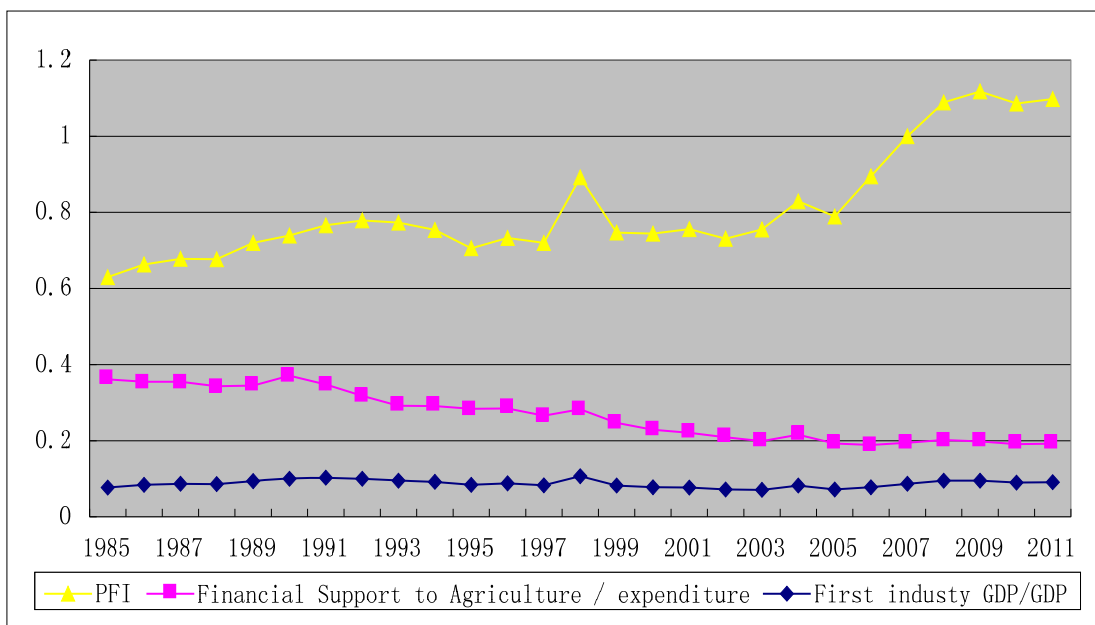
Figure 1 : The fiscal support of rural public goods supply in1985-2011

The intensity of investment support for agriculture

Investment supports agriculture intensity (RTI) refers to the rural fixed assets investment scale of the total social fixed assets investment share and the first industry GDP accounts for the national total GDP share ratio, reflecting different investment subjects' (the state budget funds, domestic loans, self financing, the use of foreign capital gold and other sources of funding to support) support strength on the rural public products.

Figure 2 shows, the share of China investment in rural fixed assets in the total social fixed assets investment is at a low level, and continues to go in a downward trend. This tells us that investors' stable investment mechanism for rural public product has not yet formed. China's fixed asset investment funds for agricultural support strength RTI shows a growing trend, in most years maintained at the level of 1.0-1.3, indicating that compared with the rural economy's contribution to the national economy, fixed asset funds continue to strengthen its support for rural public products.
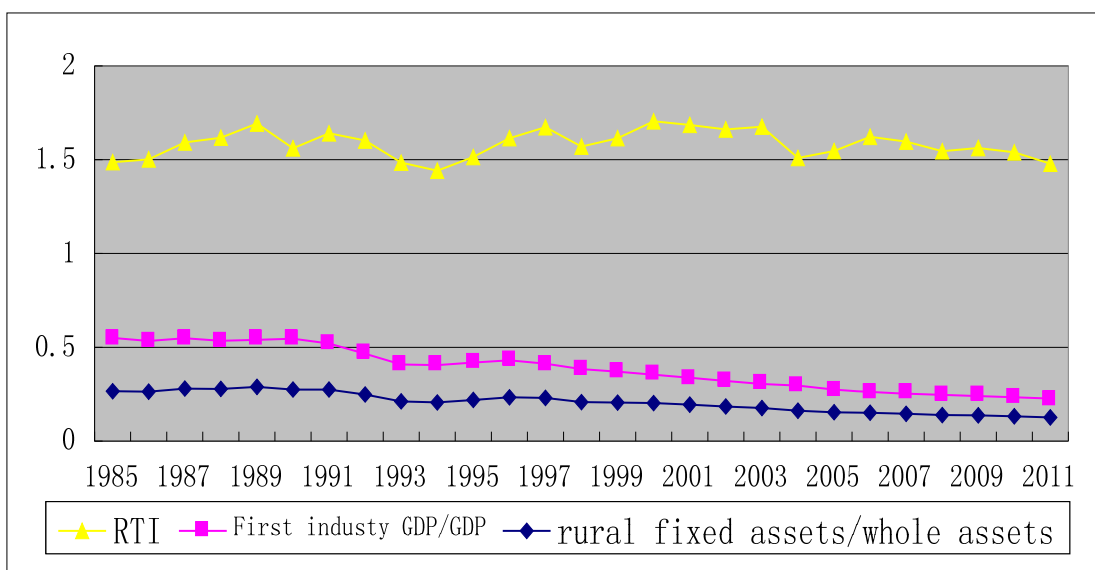

Figure 2 : Rural public goods investment support intensity of fixed assets in 1985-2011

Financial support agriculture intensity

This paper uses financial related rate (Financial Interrelations Ratio, FIR) to measure the match strength between financial activity and economic growth by FIR. Zhang Jie (1995) pointed out, the complete expression of FIR is (M2+L+S) /GNP, which M2 is the broad money supply, L is all types of loans into securities and S is the securities. Based on the above expressions, formula definition of rural financial interrelation ratio is RFIR = (L+S) /GDP, namely, the ratio between

agricultural business scale deposits and loans to total agricultural production in financial institutions. The indicator reflects the funds' sources of financial institutions and the support strength of rural public goods[7].

We can see from Figure 3 that the rural financial interrelation ratio increased first and then decreased sharply, finally kept rising. In 1985-1993, it remains at the level of 0.24-0.32, in 1994-1996 three years down to a lower level of 0.14, then it was rising. This shows that financial institutions' stable investment and financing mechanism for rural public product is shifting from a low and unstable level to a positive and more stable level. In general, the deposits and loans business scale of financial institutions in China 's rural public goods supply support is continuing to strengthen.
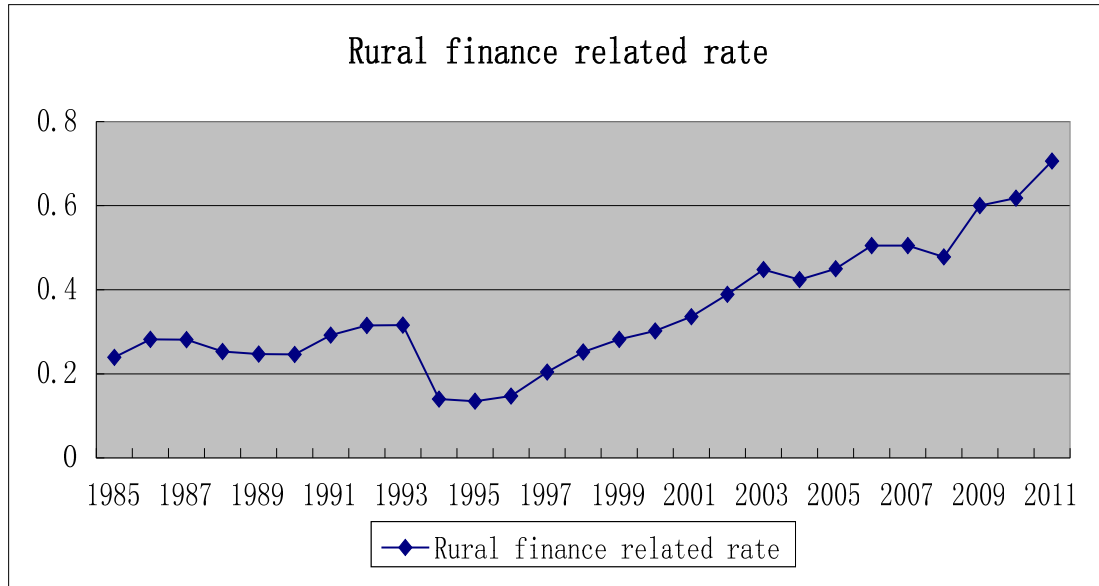

Figure 3 : Rural finance related rate in 1985-2011

FINANCIAL SUPPORT WELFARE EFFECTS OF RURAL PUBLIC GOODS SUPPLY

Considering the public attribute of rural public goods, this part will analysis the supply of rural public goods financing effect of financial support.

Set a production function model

Since American mathematician Cobb (C.W.Cobb) and economists Douglas (PaulH.Douglas) made his famous C-D production function in 1928, there have been many valuable model forms, such as linear production function, input-output production function, CES production function, VES production function and beyond logarithmic (Trans to log) production function, in which Cobb - Douglas production function in research and application of mathematical economics and econometrics both plays an important role. They think that the technical conditions remain unchanged, Cobb - Douglas production function is generally in the form below:

$Y = AK^{\alpha}L^{\beta}$, Where: Y is the output quantity, A is a technical level, K is the amount of capital investment, L is the amount of labor input, K and L of the output elasticity.

According to Barro model, we will take rural public goods supply funds (including financial support for agriculture, financial support for agriculture, etc.) into the production function, structure Cobb - Douglas production function model is as follows : $Y = AK^{\alpha}L^{\beta}G^{\gamma}$, where : G is the agriculture funds for the G output elasticity. The above function model for natural logarithm on both sides to obtain the following formula:

$$\ln Y = \ln A + \alpha \ln K + \beta \ln L + \gamma \ln G$$

(1)

We will use (1) to make regression analysis of financial support intensity which impact the supply of rural public goods.

Variable Description and Data Processing

This paper makes empirical analysis on (1), using annual data 1985-2010, the raw data from previous years, "China Statistical Yearbook", "China Financial Yearbook", "China Financial Yearbook", "China Rural Statistics Yearbook "and" New China 60 years statistics, "according to the theory and data availability, variables are as follows (TABLE 1):

1 explanatory variables selected rural per capita output levels PGDP, said the welfare effects of rural public goods supply brings, which is calculated as: agriculture, forestry, animal husbandry and fishery / rural population count, which is the generalized agricultural output value of agricultural output, including agriculture, forestry, animal husbandry, and fishery.

2 explanatory variables for rural fixed asset investment (RK), Fiscal Expenditure (FG), financial institutions, financial support for agriculture (FIR).

TABLE 1. variable selection and data processing

variable	Description	data
Explanatory variables: rural poverty population average output level (PGDP)	the welfare effect of the supply of rural public goods brought by the. Unit: yuan / person	Formula: the total output value of Agriculture / rural poor population, molecular data from the calendar year "Chinese Statistical Yearbook", the denominator data from the "white paper" on the situation of human resources China
Rural fixed assets investment (RK)	investment impact on rural economic development. Unit: million yuan.	From the calendar year "Chinese Statistical Yearbook" and "Chinese Rural Statistical Yearbook"
Fiscal expenditure (FG)	In the "fiscal expenditure for supporting rural production and the operating expenses of agriculture", said the effect of fiscal expenditure on rural public product supply. Unit: million yuan.	From the calendar year "China fiscal Yearbook"
Financial institutions support (FIR)	Influence of financial institutions said the funds for rural public product supply. Unit: million yuan.	From the calendar year "Chinese financial Yearbook"

The process and results of the empirical analysis

First, create the following model:

$$LnPGDP = +b_1 lnRK + b_2 lnFG + b_3 lnFIR + \varepsilon \qquad (2)$$

In the formula (2), PGDP as the explained variable, RK, FG, FIR as explanatory variables constant, b1, b2, b3 is the elastic coefficient of the residual term.

Unit root test

Unit root test is a stationary test method according to whether there is a statistics data, including ADF test, PP test, NP test etc.. Here we use the ADF first-order differential method and calculated by the Eviews6.0 software, the results as shown in table 2. From the test results can be seen, the variables lnRK, lnFG, lnRT, lnFIR are non-stationary at the 10% confidence level, that the variables are integrated of order one sequence; and test the variable after the first order difference of the results showed that: in the 5% confidence level and 10% level LnFPAY, lnRK, lnFG, lnRT lnFIR, are stable, so it can be further examination of the relationship between the above variables.

TABLE 2 : ADF unit root test results

Variable	ADF test	Test type	Critical value	conclusion
LnPGDP	-2.424606	(c,t,0)	-4.374307***	unstable
lnRK	-3.571479	(c,t,0)	-4.374307***	unstable
lnFG	-1.486251	(c,t,0)	-4.356068***	unstable
lnFIR	-1.611090	(c,t,0)	-4.356068***	unstable
△LnPGDP	-5.745628	(c,t,1)	-4.394309***	stable
△lnRK	-3.762058	(c,t,1)	-3.612199**	stable
△lnFG	-6.699993	(c,t,1)	-4.374307***	stable
△lnFIR	-4.177018	(c,t,1)	-3.603202**	stable

(Note: c, t represent the constant and trend, *, * * and * * * respectively are 10%, 5%and 1% confidence level.)

Co-integration test

Co-integration test is the main tool for analysis of non quantitative relationship between the stable economic variables, its purpose is whether causality regression equations with non stationary time series variables described is spurious

regression, in order to analyze the rural per capita output level (PGDP),fixed assets investment in rural areas (RK), fiscal expenditure (FG), funds rural financial institutions (FIR) between the existence of co- integration relationship, we first make the regression variables, and to test the stationary of regression residuals. In this paper, using OLS regression method to estimate the regression model, the results shown in the table below:

TABLE 3 : The co-integration test results

Variable	Coefficient	Std.Error	t-Statistic	Prob.
LNRK	0.464737	0.083258	5.581927	0.0000
LNFIR	-0.265274	0.051463	-55.154695	0.0000
LNFG	0.345809	0.089691	3.855554	0.0008
C	0.275626	0.060274	4.574914	0.0001

The results of regression analysis to the regression model:

$$LnPGDP = 0.275626 + 0.464767 LNRK - 0.265274 LNFIR + 0.345809 LNFG \tag{3}$$

It can be concluded that: (1) overall, the R square value is 0.996750, the modified R square value is 0.996326. The financial support of the selected variables can explain the rural public goods supply good, equation is credible. The F value is 2351.312, the corresponding P value is 0, the equation passed the significant test. The D-W value is 1.057025 and the explanatory is that the variables have correlations. (2) LNRK and LNFG T values are greater than 2 and P values are less than 0.05,there is a positive relationship between the rural fixed assets investment and fiscal expenditure on rural per capita output level, while the LNFIR T value of less than 2, and the correlation coefficient is negative, we can draw conclusion that the financial support for agriculture and rural the level of output per have direct negative relationship between financial machine.

We used Eviews6.0 regression equation residuals of the unit root test, the results are shown in table 4.

TABLE 4 : Standardized co-integrating parameter vector

	t-Statistic	Prob.
P-P test statistic	-4.243002	0.0002
1% level	-2.660720	-
5% level	-1.955020	-
10% level	-1.609070	-

TABLE 3, TABLE 4 shows that: at 5% significance level, the t test statistic value is -4.249194, higher than the corresponding critical value, and thus refused, shows that the residual series are not stationary unit root, is the residual series are not unit root, namely the residual sequence is stationary, that is to say, the regression equation is not spurious regression, the variables LnPGDP, lnRK, lnFG, co-integration relationship between lnFIR.

The regression equation (3) shows, investment in fixed assets in rural areas, rural public finance expenditure and the supply of public goods in rural areas has significant positive effect on the rural poor population average output level. On the other hand, from the elastic coefficient of view, although the investment in fixed assets in rural areas, rural public fiscal expenditure on rural poverty population average output level had a significant positive effect, but the impact of investment in fixed assets in rural areas are more. The foregoing analysis shows that increasing financial support for rural public goods has a significant role in promoting rural economic development and reducing poverty farmer, especially investment in rural fixed assets, agricultural public expenditure and investment in public goods. etc have different effect on promoting rural economic development. But it is worth noting that agriculture deposits and loans of financial institutions for rural economic growth and reducing poor farmers has no significant effect, which shows such a fact: commercial finance supports to the rural public goods supply is limited, Public Finance and Policy supporting investment and financing of rural public goods supply are the main channel[8]. In the future we need to strengthen the development of market-oriented financing system, commercial financial system of rural social security and roads, power, telecommunications and other facilities.

CONCLUSIONS AND SUGGESTIONS

By applying the C-D production function, the relationship between the financial support for Chinese rural public products supply and rural economic development was studied in a quantitative way. The research shows that rural public products supply, such as fixed asset investment and rural public finance expenditure, has a positive effect on the average output level of rural poor. And, fiscal agriculture expenditure have a greater impact than any other. To enhance financial

support for rural public products has significant influence on promoting the rural economy development and reducing rural poor. Especially the rural fixed assets investment and agricultural public expenditure can promote the development of rural economy. Agricultural loans from financial institutions have no obvious driving effect on the rural economic growth and the reduction of rural poor, and it also proves that the support from commercial finance is so limited.

1. Establish a public products supply system in which power and responsibility are well defined. The first priority is to improve laws and regulations, build a supply system in which power and responsibility are well defined amongst all levels of governments, ensure the leading role of government, and introduce market mechanism into the practice of it. And more, we should establish a democratic supply system which runs from the top down, so as to ensure the sustainability of the basic input of rural public goods.

2. Adjust the function orientation of rural financial institutions. In support of the investment system of rural public goods, fiscal input is the basis and finance is an effective complement to the supply of rural public goods. At present, Chinese rural financial system is not perfect, function orientation of policy financial institutions is still relatively vague, and did not play its role as the main force to support the development of agricultural economy. On the other hand, commercial banks did not get into the construction of the rural public goods, because of some restrictions and interest orientation, so it cannot support the first industry in a effective way[9]. Therefore, we must continue to deepen the reform of the financial system, further clarify the rural financial organizations from the national policy perspective. Furthermore, we should build a market-oriented rural financial organization system featured by rational division of work, perfect function and highly effective service, so let finance give full play to its role in promoting rural economic and social development.

3. Let government funding give full play to its role. Nowadays, China has entered a period marked by the industry nurturing agriculture and town-driving-country, the focus of financial investment funds has shifted to the construction and promotion of rural public products. By taking integration of urban and rural and new rural construction as opportunities, we should effectively integrate central and local finance, financial resources, and let government funding give full play to the basic and guiding role, increase the investment on infrastructure projects which represent the rural living and production, and break the bottleneck of the rural economic and social development. For those rural public goods which have no return, government should fully use public finance to totally bear and support it. The central government should take the limited local resources into consideration, put emphasis on the projects about the important agricultural production and farmers' life, reduce the proportion of local financial funds, improve the efficiency of fiscal funds [10]. For rural quasi public products, local government should encourage bold innovation, and make use of the leveraging the role of financial funds, so as to lead commercial financial institutions into rural public construction, realize a win-win strategy.

4. Establish the financing mechanism of rural public products market. To speed up the supply of public goods in rural areas, we must build a diversified funding mechanism for financing construction by fiscal, financial means and social forces, according to the strict distinction between pure public goods and quasi public products[11]. The government should design the rural financial policy framework from the top of the financial system, and play the leverage role of financial funds, so as to apply the effective tools of monetary policy, and lead social capital and finance into the supply of public goods in rural areas.

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