Reconstructing China's Rural financial System Research

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Abstract.   How to build an effective rural financial system is a challenge that each developing country has to face. As for China, which is a country where its population dominates many aspects of society, the rural financial problem is therefore more important. Deepening the rural financial system reform and perfecting rural financial service system are the important countermeasures to strengthen the position of agriculture as the foundation, increase farmers' income and promote the comprehensive development of economy, and it is the important link of the reform of the financial system in the new period as well.

Determination of the model variables and selection of the data

1.1 Model variable selection and assumptions

In order to measure the impact of the existing rural financial system on the rural economy, we select the per capita loan balance of the Rural Credit Cooperatives and the Agricultural Development Bank, together with the quantity related to less formal finance (the investment of township enterprises on fixed assets which is from other sources of funding), as the explanatory variables. For the convenience of comparison, we increase the per capita agricultural financial expenditure of the central government as an extra explanatory variable. For the related variables of rural economy, we choose the per capita net income of farmers as explanatory variables.

1.2 Selection and description of the model data

(1) Farmers per capita net income

Table 1 per capita net income of rural households (1996 to 2010)

year	Absolute number(Unit: RMB / person)	index	year	Absolute number(Unit: RMB / person)	index
1978	133.6	100	2003	2622.2	588
1996	1926.1	418.1	2004	2936.4	624.5
1997	2090.1	456.1	2005	3254.9	670.7
1998	2162	473.5	2006	3587	734.4
1999	2210.3	483.4	2007	4140.4	793.2
2000	2253.4	503.7	2008	4760.6	793.2
2001	2366.4	527.9	2009	5153.2	860.6
2002	2475.6	550.6	2010	5919	954.4

(2) The loan balance of the Rural Credit Cooperatives

Table 2 the loan balance and the per capita loan specified amount of Rural Credit Cooperatives (1996-2010)

year	Loan balance (one hundred million yuan)	Per capita loan specified amount (yuan/person ）	year	Loan balance (one hundred million yuan)	Per capita loan specified amount (yuan/person ）
1996	6289.8	739.2	2004	19237.8	2541.2
1997	7273.2	864	2005	18680.8	2506
1998	8340.2	1003	2006	20681.9	2826.9
1999	9225.6	1124.6	2007	24121.6	3373.8
2000	10489.3	1297.6	2008	27449	3899.1
2001	11971.2	1504.6	2009	32156.3	4664.5
2002	13937.7	1781.4	2010	33972.9	5062
2003	16978.7	2209.3			

(3) Loan balance of the Agricultural Development Bank

Table 3　loan balance and the per capita loan specified amount of the Agricultural Development Bank (1996-2010)

year	Loan balance (one hundred million yuan)	Per capita loan specified amount (yuan/person)	year	Loan balance (one hundred million yuan)	Per capita loan specified amount (yuan/person)
1996	6251	734.7	2004	7189.8	949.7
1997	8637	1026.1	2005	7870.7	1055.8
1998	7094.7	853.2	2006	8843.9	1208.8
1999	7274.8	886.8	2007	10224.4	1430.1
2000	7400.9	915.5	2008	12192.8	1732
2001	7432.4	934.2	2009	14512.6	2105.2
2002	7366.3	941.5	2010	16709.9	2489.8
2003	6901.9	898.1			

(4)Agricultural expenditure of state and per capita amount of the fiscal expenditure

Table 4　national agricultural financial expenditure and the fiscal expenditure per capita amount

year	National financial agricultural Expenditure (one hundred million yuan)	per capita financial Expenditure (yuan／person)	year	National financial agricultural Expenditure (one hundred million yuan)	per capita financial Expenditure (yuan／person)
1996	700.4	82.3	2004	2357.9	311.5
1997	766.4	91	2005	2450.3	328.7
1998	1154.8	138.9	2006	3172.9	433.7
1999	1085.8	132.4	2007	3404.7	47602
2000	1231.5	152.3	2008	4544	645.5
2001	1456.7	183.1	2009	6720.4	974.8
2002	1580.8	202	2010	8129.6	1211.3
2003	1754.5	228.3			

(5) The informal financial variables

Table 5 other capital sources in the investment of fixed assets of township enterprises

year	other capital sources in the investment of fixed assets of township enterprises (ten thousand yuan)	index	year	other capital sources in the investment of fixed assets of township enterprises (ten thousand yuan)	index
1992	1484303	100	2003	13781218	928.5
1996	4853645	327	2004	11352776	764.9
1997	4185999	282	2005	14328340	965.3
1998	3283320	221.2	2006	16943750	1141.5
1999	2971707	200.2	2007	23152853	1559.8
2000	2562390	172.6	2008	28099099	1893.1
2001	2381021	160.4	2009	34920643	2352.7
2002	5137455	346.1			

Model Test and Conclusion

2.1 Model test

(1) Each variable and per capita net income of farmers are respectively analyzed using with the method of ordinary least squared regression analysis.

① undertake regression analysis of the per capita net income of farmers Y and per capita loan balance X1 of the Rural Credit Cooperatives

$Y=0.947X_1+836.478$

（8.4122）　　（6.0124）$R^2=0.8448$　　　F=70.7649

The fitting effect of equation is good. R and F test can pass the test, so the relationship between per capita Rural Credit Cooperatives loan balance and per capita net income of farmers is significant.

② Undertake the regression analysis of the per capita net income of farmers Y and the Agricultural Development Bank loan balance X2.

$Y=2.139X_2+397.924$

（4.7859）　　（1.0519）$R^2=0.7179$　　　F=22.9052

The fitting effect of equation is rather common and the only constant can't pass the test, which indicates that the constant plays a relatively unimportant role in the model.

③ Undertake the regression analysis of the per capita net income of farmers Y and the per capita amount X3 of the governmental fiscal agriculture expenditure.

$Y=8.340X_3+781.782$

(7.4100)　(4.7969)　$R^2=0.8086$　　F=54.9082

The fitting effect of equation is very good and the coefficient of the per capita amount of the governmental fiscal agriculture expenditure is larger than the coefficients of per capita Rural Credit Cooperatives loan balance and the per capita Agricultural Development Bank loan balance.

④ Undertake the regression analysis of the index **Y*** of the per capita net income of farmers and the index X4 of other sources of funding in the fixed investment by township enterprise.

$$Y^*=0.050X_4+116.340$$
$$(1.8752) \quad (12.1840) \quad R^2=0.2602 \quad F=3.5164$$

The fitting effect of Equation is very poor; each of the test items passes narrowly. That indicates that the influence of informal finance on farmers' income is uncertain.

(2) Introducing two variables in turn, undertake linear regression analysis of per capita net income of farmers and them.

① Undertake the regression analysis of the per capita net income of farmers Y and per capita Rural Credit Cooperatives loan balance X1 and the Agricultural Development Bank loan balance X2.

$$Y=0.459X_1+1.135X_2+637.415$$
$$(8.7749) \quad (6.1361) \quad (5.0555) \quad R^2=0.9735 \quad F=146.6627 \quad DW=2.3360$$

The whole linear fitting effect of Equation is very good and all the test items can pass.

②Undertake the regression analysis of the per capita net income of farmers Y and per capita Rural Credit Cooperatives loan balance X1 and the per capita amount of the governmental fiscal agriculture expenditure X3.

$$Y=1.412X_1-4.232X_3+879.992$$
$$(1.8016) \quad (-0.5999) \quad (5.4978) \quad R^2=0.8493 \quad F=33.8201 \quad DW=0.3165$$

The fitting effect of equation is better but test value t is poor and the DW value is close to 0, which shows that there is an obvious autocorrelation between the variables in the model above. The model effect is therefore poor.

③Undertake the regression analysis of the per capita net income of farmers Y and the Agricultural Development Bank loan balance X2 and the per capita amount of the governmental fiscal agriculture expenditure X3.

$$Y=1.158X_2+3.945X_3+616.738$$
$$(6.6934) \quad (9.3277) \quad (5.1927) \quad R^2=0.9762 \quad F=164.4002 \quad DW=2.0939$$

The fitting effect of equation is very good and each test index can pass.

④ Undertake the regression analysis of the per capita net income of farmers Y and per capita Rural Credit Cooperatives loan balance X1as well as the per capita Agricultural Development Bank loan balance X2 and the per capita amount of the governmental fiscal agriculture expenditure X3.

$$Y=0.181X_1+1.138X_2+2.433X_3+627.455$$
$$(0.7819) \quad (6.3424) \quad (1.2278) \quad (5.1206) \quad R^2=0.9782 \quad F=104.4792 \quad DW=2.1429$$

The fitting effect of the model is good but t test cannot pass, which indicates there is collinearity between the explanatory variables, that is to say, there exist consistency and alternative relations between the Rural Credit Cooperatives loans, the Agricultural Development Bank loans and the amount of the governmental fiscal agriculture expenditure.

2.2 The conclusion of empirical test

(1) As the dominant factor of the rural financial system, the formal finance still plays a more significant role in the economic development of rural areas, especially in the farmers' income increase. The Rural Credit Cooperatives loans, the Agricultural Development Bank loans and the governmental fiscal agriculture expenditure all play a positive role in the farmers' income growth.

(2) The influence of informal finance on farmers' income increase is not sure, so the role of informal financial in the rural economy couldn't be r over-exaggerate. Although the informal finance provides part of the funds for the township enterprises and farmers, its high interest burden plays a negative role in farmers' income growth.

(3) The government can not simply rely on administrative means to supervise rural finance, especially rely on administrative means to intervene informal finance, and it needs to use economic means to solve the problems of the rural financial supply. Only if the availability of rural credit

dominant factors improves can the burden on farmers and the influence of informal finance be really reduced.

References

[1] Guangwen He, Xingyuan Feng, The defects of rural financial system and the choice to make up,2004.2

[2]Ping Xie, The debate of China's Rural Credit Cooperatives reform,2001.1

[3]Jun He, The great opportunity of the private financial,2002,9

[4]Xingqing Ye, China's rural financial repression and financial deepening,1998.3

[5]Guangwen He, China's rural financial restructuring and diversification of rural institutions,2004