

Rural Financial of Rural Revitalization Support on Farmers' Income: An Empirical Study from Anhui Province, China

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Abstract. Under the background of rural revitalization, rural finance is the driving force to promote rural economic development and the pillar to achieve the strategic goal of rural revitalization. The VAR model of the relationship between farmers' income growth rate and rural financial support, rural financial support and industrial structure was constructed, taking the rural financial data of Anhui Province from 1999 to 2017 as samples. And the impulse response function and variance decomposition analysis were conducted. The empirical results show that the growth rate of farmers' income is greatly affected by rural financial support policies.

Keywords: Rural Revitalization; Rural Finance; Farmer Income; Financial Support; VAR Model.

1. Introduction

The income level of farmers can reflect the economic development of the region, generally measured by the per capita household income in rural areas [1]. Despite the continuous innovation of rural financial products and the promotion of rural financial reform in Anhui Province, the growth rate of rural income from 1999 to 2017 was significantly lower than that of urban residents. In fact, the urban-rural income gap has been growing. Since October 2017, the 19th National Congress proposed rural revitalization. Anhui province has entered the crucial period of agricultural supply-side reform, so it needs to better play the role of financial support in improving farmers' income [2].

The research of this paper is based on constructing VAR models between the growth rate of farmers' income and rural financial support, rural financial support and industrial structure in Anhui Province. Empirical analysis of the relationship between rural financial support and farmers' income in Anhui province, under the background of rural revitalization, put forward to adapt to the Anhui province's rural financial reform policy recommendations.

2. Literature Reviews

In the field of academic research, the research on rural financial development and regional economic development is controversial. Rural financial services can improve the efficiency of financial use and stimulate the economy of rural areas [3]. The reform of the rural financial market, however, if you don't push, will restrict the rural economy growth [4]. The achievement of the research in view of the different provinces in China is different. The empirical analysis of Inner Mongolia from 2010 to 2019 shows that the development of inclusive finance in Inner Mongolia has a positive impact on rural revitalization, while rural revitalization has a negative impact on inclusive finance [5]. However, from 1994 to 2015 in Jiangsu Province, rural financial scale and economic development showed a positive correlation, while financial development efficiency showed a negative correlation [6].

In summary, regarding the relationship between rural financial support and farmers' income, a consistent view has not been formed due to the different model methods, variables and sample data used. China has a vast geographical area, and the development levels of regional economies and rural finance in different provinces are different, so it is more realistic to choose provinces as the research scope. As a large agricultural province and an underdeveloped central province, the

development of rural economy in Anhui cannot do without financial support. Therefore, the empirical analysis has certain theoretical value and practical significance for Anhui Province and the central and western provinces to continuously improve the rural financial system and increase farmers' income.

3. Data Source and Index Selection

3.1 Index Selection

3.1.1 Farmer 's income growth rate yr_t

$$yr_t = \frac{y_t - y_{t-1}}{y_{t-1}}$$

Among them, yr_t represents the growth rate of disposable income of rural residents in the t year, and y_t represents the disposable income of rural residents in the t year.

3.1.2 Rural financial support NJZ

It is measured by the ratio of agricultural loan balance and rural economic development level. The level of rural economic development is measured by the added value of the primary industry.

3.1.3 Rural fiscal support NCZ

It is expressed by dividing Anhui Province's financial support for agriculture by Anhui Province's total financial expenditure over the years. The expenditure of financial support to agriculture is measured by the expenditure on agriculture, forestry and water affairs in the statistical yearbook of Anhui Province.

3.1.4 Industrial structure CYJ

The optimization of industrial structure also helps to raise the income level of farmers. The industrial structure is measured by the ratio of the total GDP of the secondary and tertiary industries to the GDP of Anhui Province. The growth rate of farmers' income was taken as the explained variable, the rural financial support as the explanatory variable, and the rural financial support and industrial structure as the control variable.

3.2 Data Source

Since the statistical yearbook of Anhui Province was published in 1999, due to the change of statistical caliber, the index of agricultural loan was only released for 2017. In order to ensure the continuity of data, the annual data on the above indicators in Anhui Province from 1999 to 2017 were selected as the sample interval, and the data were sorted through the Anhui Statistical Yearbook, Anhui Financial Statistical Yearbook and the website of Hefei Central Branch of the People's Bank of China.

Table 1. Descriptive statistics of the data

	YR	NJZ	NCZ	CYJ
Average value	0.108527	0.371334	0.085772	0.837189
Median value	0.091193	0.376515	0.083223	0.840201
Maximum value	0.224573	0.470651	0.12102	0.904424
Minimum value	0.00468	0.232187	0.046071	0.745189
Standard deviation	0.067789	0.068371	0.026561	0.04772
Observed value	19	19	19	19

4. An Empirical Study on the Impact of Rural Financial Support on Farmers' Income

4.1 The ADF Stationarity Test of Data

In order to avoid the pseudo regression problem in the modeling process caused by the non-stationarity of the data, this paper first performs ADF stationarity test on all the research data. Below the significance level of 5%, the results of the stationary test show that only the growth rate of farmers' income YR is a stationary series in the original series, and other data are non-stationary series. And then, it takes the first difference of all the data, and all the data passes the stationary test at the 5% significance level.

Table 2. ADF stationarity test results of indexes

Variable	t Value	P Value	Conclusion
YR	-3.070822	0.0472	Stable
NJZ	-2.248480	0.1976	Unstable
NCZ	-2.291580	0.4170	Unstable
CYJ	-2.589231	0.2884	Unstable
D (YR)	-4.611793	0.0122	Stable
D (NJZ)	-3.364851	0.0277	Stable
D (NCZ)	-4.516679	0.0120	Stable
D (CYJ)	-3.996269	0.0320	Stable

4.2 Cointegration Test among Variables

In order to verify whether there is a long-term equilibrium relationship between the above data, the co-integration test among variables is conducted by using the Johansen test method commonly used in literature [7]. The empirical results show that there are at least three cointegrating relationships between the variables at the 5% significance level, so there is a long-run equilibrium relationship between the variables.

Table 3. Results of cointegration test among data

Hypothesized		Trace	0.05	
No. Of CE(s)	Eigenvalue	Statistic	Critical Value	Probe.**
None	0.620116	42.17285	47.85613	0.1539
At most 1	0.496053	25.71874	29.79707	0.1373
At most 2	0.430047	14.0689	15.49471	0.0811
At most 3 *	0.233086	4.511476	3.841466	0.0337

4.3 Selection of the Optimal Lag Order

The impact of rural financial support on the growth of farmers' disposable income is lagged [8], and the optimal lag order of the model is determined based on the LLC rule.

Table 4. Selection of the optimal lag order

Lag	LogL	LR	FPE	AIC	SC	HQ
0	131.8172	NA	3.47E-12	-15.03731	-14.84126	-15.01783
1	198.4526	94.07357*	9.63e-15*	-20.99443*	-20.01417*	-20.89699*
2	209.4763	10.37522	2.60E-14	-20.40897	-18.64452	-20.23358

According to the empirical results of the LLC rule, the optimal lag order is 1. Therefore, in order to verify the stability of the model, the VAR (1) model is established to test the unit root of the model. The modulus of the inverse unit root of the VAR model with lag order 1 are all located in the unit circle, indicating that the VAR (1) model is stable.

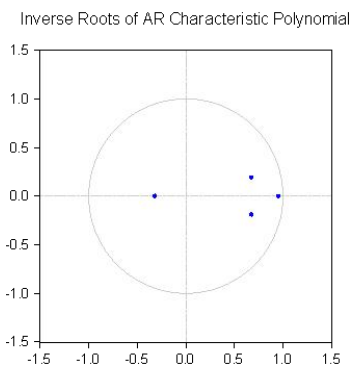


Fig. 1 Unit root plot for VAR (1)

4.4 Impulse Response Function Analysis

After giving a positive shock to rural financial support NJZ, the growth rate of farmer income YR is positively shocked. The effect was the largest in the 1-2 stages, reaching 0.034, and gradually slowed down after the third stage. It can be seen that the rural financial support in Anhui province is conducive to improving farmers' income. After giving a positive shock to the rural financial support NCZ, the growth rate of farmers' income YR is positively shocked. The influence reached 0.009 in the first and second stages, and gradually decreased after the third stage. It can be seen that rural fiscal support in Anhui province has a positive effect on improving farmers' income. After a positive impact on the industrial structure CYJ, the growth rate of farmers' income YR was positively impacted in the first and second periods. Its maximum impact in 0.010, in 3-4 period, however, influence is negative, then influence gradually flattens out. It can be seen that the optimization of industrial structure is helpful to improve the income level of farmers.

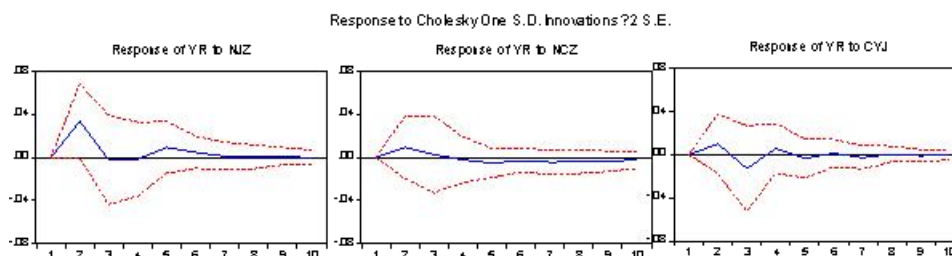


Fig. 2 Impulse Response Function

4.5 Variance Decomposition Analysis

In order to clarify the contribution rate of each explanatory variable to YR of farmers' income growth in Anhui Province, variance decomposition of YR was carried out. It can be seen that the growth of farmers' income in Anhui Province is mainly explained by their own changes. Among the explanatory variables, the COVID-19 epidemic has the greatest impact, with a contribution of about 22.6%. Specifically, the rural financial support in Anhui Province has the highest degree of explaining farmers' income growth in the second period, which is 24%. From the third phase, the influence gradually stabilized at about 22%.

5. Summary

Under the background of rural revitalization, Anhui province should improve the rural financial system and create a good ecology. To build a sustainable development of rural financial ecology by carrying out designated assistance. The active rural financial environment needs the support of standardized trading behavior. Only with the participation of rural financial market transactions of every main body can in good faith, fair trade to ensure financial activities smoothly. Therefore, in order to solve the problem of the safety of rural financial institutions and the difficulty of loans for

rural production subjects, it is necessary to establish a rural social credit system, standardize the transaction behavior of each subject, and finally realize the goal of increasing farmers' income.

In order to reach the increase income of farmers, rural enterprises demand, development and innovation of rural financial products, to be able to adapt to the diversification of the rural market.

The "small and lively" financial products should be innovating around the needs of farmers. Since the loan needs of farmers are mostly small, which are used to meet the needs of farmers such as housing, entrepreneurship and education, the products with flexible loan amount, loan time limit and loan interest rate should be selected for farmers. According to the needs of rural enterprises, "big and beautiful" financial products need to be developed.

Rural enterprises, especially leading enterprises, have a greater demand for funds. Therefore, it is necessary for rural enterprises to innovate financial products and develop new businesses such as agricultural order loans. In view of the adjustment and innovation of rural industrial structure, distinctive financial products are in demand. There are many characteristic agricultural resources in Anhui, and the increase of farmers' income also needs to carry out the supply-side reform in the rural industrial structure. For example, in Xuancheng, Huangshan and other places, the emergence of new forms of business such as leisure agriculture, sightseeing agriculture and leisure fishery has brought about the development of the secondary and tertiary industries in rural areas. Rural financial support should increase credit support for characteristic agricultural enterprises, and help Anhui agricultural upgrading.

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