Study on the Status and Impact of Financial Support to County Economic Development

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Abstract: We used a spatial panel model to set indicators and measure the impact of financial support factors on the county economies of 31 Chinese provinces over the five-year period from 2017 to 2021. The results show that the overall development of rural China shows a significant improvement, with significant differences in the level of development in different regions and a more pronounced impact of financial support.

Keywords: Financial Support, County Economy Development, Spatial Measurement

1. Introduction

Finance is the "bloodline" of a country or region's economic development, and the scale, efficiency and structure of capital financing directly affect the level of urbanization in a region. Due to the profit-seeking nature of finance, the supply of funds to the countryside is insufficient, and funds are also "pumped" from the countryside to the cities, resulting in the lack of financial expenditure on infrastructure construction, public service supply and rural labor training in the countryside, which seriously restricts the county economy in China. Therefore, it is of theoretical and practical significance to study financial support for county economy.

2. County economic development process measurement

The rural revitalization strategy is one of the key strategies of China's work in recent years, and is a key task that China needs to struggle for a long time, requiring the Party, the government and the people to make efforts for it. County economy is the main battlefield for the implementation of rural revitalization strategy, and the key to the development of county economy lies in the countryside. To promote the integrated development of urban and rural areas and high-quality development of county economy, we can better promote the modernization of agriculture and rural areas. In order to better study the issue of financial support to county economy, we need to measure the progress of county economy.

2.1. Construction of the Level Index

Seven indicators were selected from 31 provinces in China for the 5 years from 2017 to 2021 according to the needs of the test, and the data selected were standardized to ensure the smooth conduct of the test for the basic principles of the empirical test and the availability and authenticity of the selected data.

2.2. Construction of the Level Evaluation System

In the construction of the horizontal evaluation system, the seven selected indicators were subjected to factor analysis, and the KMO values of the seven selected indicators exceeded 0.7 through the KMO test, which means that they have a reasonable correlation with each other and can be extracted as common factors. After that, the corresponding total variance interpretation process was completed by principal component analysis using SPSS 19.0 software, showed that the contribution of the variance of each indicator was significant, the cumulative variance contribution of the first two indicators is 86%, and the analysis matrix also meets the relevant criteria for principal component extraction.

Table 1 Matrix of indicator components

Indicators	Ingredients						
	1	2	3	4	5	6	7
PUPPY	0.227	-0.366	-0.178	-0.067	0.039	-0.423	-0.502
UER	0.472	0.161	-0.203	-0.066	-0.107	0.498	-0.231
PTIG	0.152	-0.108	0.287	-0.453	0.558	0.195	0.043
PNAW	0.279	-0.133	0.117	0.620	0.209	0.124	0.146
NAIAG	0.431	0.102	-0.208	-0.172	-0.073	-0.391	0.552
RIOUP	0.177	0.642	0.318	0.117	0.042	-0.301	-0.166
NPM	0.123	-0.197	0.542	-0.141	-0.553	0.052	0.088

Principal Component Analysis (PCA) allows for a more objective evaluation of the indicators to be analyzed, by means of orthogonal transformations, so that the indicators are analyzed as a linearly uncorrelated set of variables for subsequent research. Assuming that Y_1, Y_2… Y_p are the principal components to be obtained and its features are λ_1, λ_2…λ_p, then it is normalized to obtain:

$$w_i = \frac{\lambda_i}{\sum_{i=1}^{p} \lambda_i}, i = 1,2,...,p \quad (1)$$

which is denoted as $W=(w_1,w_2...w_p)'$, and from $Y=T'X$, construct the composite evaluation function as

$$Z = w_1Y_1 + w_2Y_2 + \ldots + w_pY_p = W'Y = W'T'X = (TW)'X \quad (2)$$

Let $TW=W^*_{p\times1}$, then substituting into equation (2)

$Z=(W^*)'X$ (3)

By constructing a system of indicators, different area rates are obtained, matched with the financial indicators described later, and completed in the corresponding analysis.

2.3 Spatial Correlation Test of Indicators

Based on the proximity of 31 selected provinces and cities, the study was carried out by constructing the corresponding spatial weighting matrix and assigning the values of the elements corresponding to the neighboring areas to 1 and the elements corresponding to the non-adjacent areas to 0, on the basis of which the subsequent analysis is carried out. The spatial heterogeneity and correlation are determined based on the matrix, and the corresponding spatial patterns are also determined, that is, $y_i=f(y_j),i,j=1,2,...,n,i\neq j$.

Usually, when analyzing spatial correlations, two statistics, Moran's or Geary's C statistic, are used to measure the spatial correlations, and the former is chosen to perform this corresponding test.

$$\begin{cases} E(I)=\dfrac{-1}{n-1} \\ Var(I)=\dfrac{n^2S1-nS_2+3S_0}{(n-1)(n+1)S_0^2}-E(I)^2 \end{cases} \quad (4)$$

Where n denotes the number of study areas, $S_0=\sum_{i=1}^n\sum_{j=1}^n w_{ij}$; $S_1=\frac{1}{2}\sum_{i=1}^n\sum_{j=1,j\neq i}^n(w_{ij}+w_{ji})^2$; $S_2=\sum_{i=1}^n(w_{ig}+w_{gi})^2$; $w_{ig}=\sum_{j=1}^n w_{ij}, w_{gi}=\sum_{i=1}^n w_{ij}$.

At this point, the following form of the Z-score test is obtained:

$$Z=\frac{I-E(I)}{\sqrt{\mathrm{var}(I)}} \quad (5)$$

Usually, the subsequent study is developed from the obtained average distribution test values. In this case , it is considered that the original hypothesis is not valid, it has spatial autocorrelation when the probability is 95%. The panel data available for 31 provinces in China over the ten years from 2012 to 2021 are processed through the spatial autocorrelation test (see Table 3).

Table 2 Autocorrelation test for each indicator of the national system from 2012 to 2021

Year	Moran'I	Z-value	p-value	Year	Moran'I	Z-value	p-value
2012	0.163	2.102	0.022	2017	0.197	2.582	0.011
2013	0.175	2.197	0.018	2018	0.205	2.650	0.009
2014	0.185	2.176	0.015	2019	0.207	2.674	0.009
2015	0.191	2.528	0.013	2020	0.210	2.697	0.008
2016	0.197	2.576	0.011	2021	0.205	2.663	0.009

According to the data shown in Table 3, it can be found that the values of Moran I indexes during this period meet the significance test at the 5% level, which means that each index has a positive spatial correlation. The provinces with more significant differences in County Economy Development levels are relatively close to each other spatially. At the same time provinces with slight differences in County Economy Development levels are closer to each other spatially.

3. The Impact Analysis of Financial Support

3.1. Financial Support Model Construction

In the study of financial support for County Economy Development, China generally starts to give measures from two aspects: on the one hand, increase the national financial expenditure; on the other hand, improve the government management mechanism. In this paper, the critical factor of the influence of financial support on the realization of County Economy Development is the entire play of financial factors.

3.2 Variable Selection

The level of regional development is used as the explained variable in this study. A total of four financial indicators from 31 provinces in China selected based on research needs are used as research variables.

Table 3 Financial support for urbanization construction index system

Indicators		Representative Variables
Financial Scale	LIR	The proportion of domestic loans in urban fixed-asset investment
Financial Efficiency	LSVLN	Share of financial intermediaries converting savings into loans
	NFIFE	Share of non-financial institution financing conversion and loans
Financial Structure	DFE	Direct financing rate

3.3. Spatial Measurement Results of Urbanization Level and Financial Development in Each Province of China

Table 4 presents the Descriptive statistics of the variables.

Table 4 Descriptive statistics of study variables

Variables	Obs.	Mean	Median	Max	Min	Std.

CITY	311	0.487	0.467	0.748	0.376	0.072
LIR	311	0.167	0.1532	0.617	0.010	0.082
LSVLN	311	0.699	0.688	2.509	0.027	0.225
NFIFE	311	0.212	0.175	2.228	0.022	0.175
DFE	311	0.038	0.027	0.671	0.000	0.062

Table 5 Spatial measurement results of the level of County Economy Development and financial development by the province in China from 2017 to 2021

Variables	OLS	Panel SAR model				Panel SEM model			
		Mixed	Space-fixed	Time-fixed	Double fixed	Mixed	Space-fixed	Time-fixed	Double fixed
LIR	0.013*	0.044	0.025	0.043	0.117***	0.103*	0.058**	0.112**	0.106***
LSVLN	-0.022*	-0.019	-0.015***	-0.017	-0.015***	-0.002	-0.017***	0.000	-0.016***
NFIFE	0.113**	0.085***	0.028***	0.085***	0.002	0.100***	0.004	0.084***	0.001
DFE	0.222***	0.184***	0.076***	0.179***	0.066***	0.227***	0.065***	0.220***	0.056***
*W*dep.var*		0.315***	0.554***	0.308***	0.382***				
spat.aut						0.401***	0.618***	0.385***	0.406***
Constant	0.367***	0.162***				0.442***			
R^2	0.569	0.277	0.859	0.278	0.862	0.258	0.821	0.271	0.857
logL	549.5	344.3	754.5	434.5	779.5	437.9	748.5	339.3	879.3

Note: *, **, and *** indicate that the statistics are significant at the 10%, 5%, and 1% significance levels, respectively.

According to Table 5, it is reasonable to use the SAR spatial bi-fixed model setting in this paper. The regression results show that financial factors have a significant impact on the economic development of counties in China. The results of the control variables indicate that financial institutions play an important role in promoting the economic development of counties. However, their role decreases as other financial factors change. Rural financial institutions tend to use their deposits in urban areas and do not support financial development in rural areas, which is detrimental to the urbanization and modernization process in rural areas. In addition, the role of non-financial institutions in the construction of county economic development in China is not significant, and the sources of funding for the development of China's county economies are still mainly through three channels: government financial allocations, policy bank loans and commercial bank loans.

4. Policy Implications

Financial support should not only achieve the promotion of the overall level of economic construction in China's counties, but also improve the uneven status quo of construction in the east, middle and west of China. The results of the empirical study in this paper can bring the following insights:

First, expand the scale of finance, priority to meet the "three rural" development factors allocation. The flow of factors market is an important factor to break the barriers between urban and rural areas, the county economy needs to invest a lot of money in infrastructure construction, the central government, policy banks, commercial banks to solve the problem of difficult financing for the county economy.

Second, improve financial efficiency, to protect the "three rural" capital investment. Subsequent to the promotion of county economy, commercial banks need to further increase the intensity of support for the development of agricultural industrialization, especially for agricultural industrial parks, township areas leading enterprises to further enhance the intensity of support, for the operation of agricultural products, agricultural logistics system construction, agricultural science and technology credit products integration, into special medium and long-term loans.

Third, improve and optimize the financial structure and prioritize rural public services. Traditional finance mainly focuses on long-term credit products, while coordinated urban-rural development and sustainable development are the two substantive elements to realize county economy, which needs to create or improve rural diversified industries and realize their sustainable development, including rural ecological industries, working in cities for employment, boosting rural enterprises, improving medical insurance, education of rural children and many other issues.

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