

Impact of Inclusive Finance on Inclusive Economic Growth in the Eastern Coastal Areas

--Empirical analysis based on the data of Lianyungang City

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Abstract: Due to the urban-rural dual structure and the imbalance of financial resource allocation, promoting the development of inclusive finance is of great significance to improve social welfare, alleviate income inequality and achieve inclusive growth. This paper takes Lianyungang, a city in the eastern coast of China, as an example. With “weight coefficient method”, inclusive financial development index and inclusive economic growth index for the period of 2007-2017 in this city are calculated. Then the correlation between inclusive financial development and inclusive economic growth is verified through empirical analysis. The study indicates that the eastern coastal areas have a relatively higher urbanization rate and a better financial foundation. The inclusive financial development in these regions has a significant impact on inclusive economic growth, that is to say, the improvement of inclusive finance in the eastern coastal areas can considerably promote inclusive economic growth and be helpful in coordinated development of all regions.

1. Introduction

1.1 Research background

In 2015, Chinese President Xi Jinping said in his speech that “development must be inclusive and adhere to social laws.” China will further implement policies on inclusive growth and develop its economy. The state will also deliver the benefits of economic development to all people, continuously improve their living standards and build a harmonious and well-off society. However, while China's economy is developing rapidly, social challenges caused by imbalanced economic development such as the gap between the rich and the poor and uncoordinated regional development are increasing. At the same time, due to the urban-rural dual economic structure, the current financial resource allocation in China is seriously imbalanced. Some rural areas are in extremely shortage of financial resources, and the population in poverty-stricken areas have little access to financial services. And the exclusion and threshold effect of financial services prevents residents lacking credit history and collateral from getting low-cost loans and convenient financial services. As a result, these citizens cannot benefit from financial services. In order to alleviate the imbalance of financial resources allocation in China and promote inclusive economic growth, the Chinese government is attaching importance to inclusive finance, and at the 19th National Congress of the Communist Party of China, General Secretary Xi Jinping stressed the significance of developing inclusive finance and accelerating the construction of an inclusive financial system with Chinese characteristics.

1.2 Research contents

Inclusive growth is the idea put forward by the Asian Development Bank and the World Bank on the basis of “pro-poor growth”, which emphasizes that the poor should not be excluded from economic growth and they are entitled to the fruits of socio-economic development as well. Inclusive growth requires equal opportunities for all individual stakes in economic activities. The goals of economic growth are “social inclusiveness” and “sustainable economic development”.

Inclusive growth, which takes into account the disadvantaged groups in the society, will ultimately help share the economic fruits throughout the whole society.

According to the World Bank in 2008, inclusive finance is a financial system that provides reasonable, convenient and secure financial services to all social strata. With inclusive finance, users have extensive access to financial services and will not encounter price or non-price barriers. As the “source of flowing water” of economic development, finance is one of the most important cores in modern economic development. Inclusive finance overcomes the shortcoming in the traditional financial system of excluding the poor, small and micro businesses and other vulnerable groups. It emphasizes equality for all and extends the coverage of financial services to the weak and poor areas that are excluded by traditional services. Inclusive finance ensures that low-income people can also earn profits from financial services.

Inclusive growth and inclusive finance are consistent in their objectives, both of which stress inclusive local development and aim at achieving coordinated local economic growth. Inclusive economic growth is the long-term goal of China's economic and political development. Inclusive development through reasonable and optimized allocation of financial resources is also the pursuit of China's economy in the new era. Inclusive finance facilitates sustainable economic development by benefiting all groups of the society and providing equal financial opportunities for participants in economic activities. Therefore, it is of theoretical significance to study the influence mechanism of inclusive financial on inclusive economic growth.

Because the regional characteristics of the eastern coastal areas are different from those of relatively poor areas in the western China, the eastern coastal areas have a relatively advanced economy and a better economic foundation. However, there is still an imbalance in interregional development. Therefore, it is necessary to take into consideration the characteristics of urban and rural development in the eastern regions when studying the influence of inclusive financial development on inclusive economic growth. This paper takes Lianyungang City as an example and makes an empirical analysis based on the data of the city. Lianyungang is active in promoting inclusive finance to invigorate rural areas and to coordinate urban and rural development. The Postal Savings Bank, Agricultural Bank of China, Agricultural Development Bank of China and other banking institutions in Lianyungang, in response to the central call, are keenly introducing policies that favor the development of inclusive finance. However, different regions in Lianyungang vary greatly in terms of economic development, so it is necessary to adopt empirical methods to test the specific impact of inclusive finance on inclusive economic growth.

1.3 Index selection and data processing

Table 1 Index Selection

Variables	First grade indexes	second grade indexes	Third grade indexes
Explained variables	Inclusive economic growth	Economic growth	GDP per capita(10,000 yuan)
		Economic structure	Proportion of the secondary industry output (%) Proportion of the tertiary industry (%)
		Sustainable economic development	R&D expenditure as a share of GDP (%) Inflation rate (%)
		Social equity	Housing area per capita (sq.m.) Unemployment rate (%)
		Achievement sharing	Urban-rural income ratio (%)
Explanatory variables	Inclusive Finance	Geographical permeability	Number of financial institutions per 100 square kilometers (individual) Number of financial professionals per 100 square kilometers (persons)
		Service availability	Number of financial institutions per 10,000 populations (persons) Number of financial professionals per 10,000 populations (persons)
		Actual use	Per-capita deposit balance as a share of GDP per capita (%) Per-capita loan balance as a share of GDP per capita (%) Deposit-to-loan ratio (%)
		Control variables	

Based on the theoretical analysis in the above paragraph, this paper will further determine the variables, select indexes, collect data and process the obtained data through weight coefficient method.

1.4 Explained Variables

Inclusive economic growth (y1) is selected as the explained variable. Considering the definition of sustainable inclusive growth, local data availability and the requirement of social inclusiveness and sustainable economic development, economic growth, economic structure, sustainable economic development, social equity and achievement sharing are chosen as the second grade indexes to measure the inclusive growth of local economy. GDP per capita is selected to denote the economic growth. The proportion of the secondary industry output and the proportion of the tertiary industry reflect the economic structure. R&D expenditure as a share of GDP and inflation rate are indicators of sustainable economic development. The unemployment rate and housing area per capita are used to represent social equity, and the urban-rural income ratio explains achievement sharing.

1.5 Explanatory Variables

Considering the definition of the dimensions of inclusive finance indexes by domestic and foreign scholars, the actual circumstance of the eastern coastal areas and the availability of financial data in Lianyungang, the inclusive finance development is evaluated comprehensively from seven indexes in three dimensions, namely the geographical permeability, service availability and actual use.

Geographical permeability dimension. Geographic penetration, which measures development of inclusive finance from the perspective of supply, mainly reflects the supply conditions and supply capacity of financial institutions. The ability of financial institutions to provide financial services is measured by two indicators, namely the distributions of financial institutions and the financial professionals in the region.

Service availability dimension. The availability of services is also a measurement of the development of inclusive finance from the perspective of supply, which mainly reflects the financial service availability to the population. This paper evaluates the availability of financial services by two indicators: the number of financial institutions per 10,000 populations and the number of financial professionals per 10,000 populations.

Actual use dimension. The concept of inclusive financial is to provide financial services to all social groups effectively. The actual use dimension, which represents the real effect of financial services, is a measurement from the perspective of demand. Per-capita deposit balance as a share of GDP per capita, per-capita loan balance as a share of GDP per capita and deposit-to-loan ratio are used to measure actual use of financial services.

1.6 Control Variables

Social security and employment expenditure as a share of fiscal expenditure and urbanization rate are selected as control variables in order to study the impact of other factors on inclusive economic growth and to control the influence of other factor.

Urbanization rate: urbanization rate is an important indicator of a region's development. Due to the urban-rural dual structure, urbanization in different stages will have a significant impact on social equity and economic growth. As an eastern coastal city, Lianyungang's urbanization rate has been much higher than the national average since 2010

Social security and employment expenditure as a share of fiscal expenditure: fiscal expenditure policy plays an important role in inclusive economic growth. On the one hand, fiscal expenditure policy influences economic growth rate. On the other hand, it also has an impact on inclusive economic growth by affecting social equity. In this paper, Social security and employment expenditure as a share of fiscal expenditure is selected as an index that represents social equity and coordinated economic growth in Lianyungang

1.7 Data Processing

1.7.1 Measurement of Inclusive Growth Index

As a comprehensive index, inclusive economic growth cannot be directly analyzed. Therefore, this paper adopts the “weight coefficient method” to integrate all sub-indexes, and then obtains the inclusive economic growth index.

Dimensionless method:

In order to ensure the comparability and integration of the data, dimensionless method was used on the observed values of the indicator j of each dimension i . The formula is:

$$D_{ij} = \frac{A_{ij} - m_{ij}}{M_{ij} - m_{ij}} \quad (1)$$

Where A_{ij} represents the observed values of each dimension index, m_{ij} is the minimum value of each dimension index, M_{ij} stands for the maximum value of each dimension index, and D_{ij} represents the dimensionless data of each dimension index.

Coefficient of variation:

The dimensionless mean value x_i and standard deviation σ_i of each dimension index are calculated, and then the coefficient of variation of each index is determined according to the mean value and standard deviation

$$C_i = \frac{\sigma_i}{x_i} \quad (2)$$

Weight calculation:

Then, different coefficients of variation are given different weights. The larger the coefficient of variation is, the more weight is given; the smaller the coefficient of variation is, the less weight is given. With the coefficient of variation, the weight of each index can be calculated as follows:

$$W_i = \frac{C_i}{\sum C_i} \quad (3)$$

Weighted index:

According to “weight coefficient method”, the formula is determined as:

$$Y = \sum D_i \cdot W_i \quad (4)$$

1.7.2 Calculation of Inclusive Finance Index

The inclusive finance index is calculated on the basis of human development index compiled by the United Nations Development Programme. First, dimensionless method of formula (1) produces the data D_{ij} in a total of i dimensions. Then the variation coefficient method is used to determine the weights W_i , and the differences between W_i and the actual value of each dimension are used to measure the level of inclusive finance. All these differences are integrated into one index, namely the inclusive finance index (IFI). The formula is:

$$IFI = 1 - \sqrt{\frac{(W_1 - D_{1j})^2 + (W_2 - D_{2j})^2 + \dots + (W_n - D_{nj})^2}{W_1^2 + W_2^2 + \dots + W_n^2}}$$

1.7.3 Variable Control and Data Processing

In order to maintain the same dimension, the variation coefficient method is adopted when calculating the IFI. The above formulas (1), (2) and (3) are used to process the data of the control variables and adjust the range of the control variables to between 0 and 1.

1.8 Data Calculation Results

The Lianyungang Statistical Almanac from 2007 to 2017 is a source of data, where the social security and employment expenditure are taken from the table of financial expenditure. Then,

through dividing the obtained data by the financial expenditure in the current year, this paper calculates the social security and employment expenditure as a share of fiscal expenditure. The number of financial institutions and the number of financial professionals are obtained from the table of basic information of banking institutions in Lianyungang city in the almanac. The urbanization rate and inclusive growth are also from the statistical almanac. Each index is in the table below.

Table 2 Data Results

year	Inclusive economic growth(y1)	Inclusive finance index(ifi)	Urbanization rate(urb)	Social Security and employment expenditure as a share of fiscal expenditure (fin)
2007	0.2182	0.5835	0.0000	0.0000
2008	0.4413	0.6423	0.0207	0.0995
2009	0.3887	0.7684	0.0413	0.0551
2010	0.4850	0.8201	0.1556	0.1029
2011	0.4520	0.7951	0.1748	0.1108
2012	0.4288	0.8156	0.1914	0.1695
2013	0.4604	0.8323	0.2093	0.1673
2014	0.4987	0.9047	0.2285	0.2095
2015	0.5299	0.9321	0.2506	0.1949
2016	0.5654	0.9673	0.2712	0.2131
2017	0.6334	0.9798	0.2919	0.1314

The closer the inclusive growth index and the inclusive finance index are to 1, the higher the degree of development will be, and vice versa.

4empirical test

1.9 Model Setting

From 2007 to 2017, the dimensional indexes of Lianyungang city constitute a time series, and let the model be set as

$$y1 = \alpha_0 + \alpha_1 ifi_t + \alpha_2 urb_t + \alpha_3 fin_t + \mu$$

t is for year. α_0 represents constant, and μ stands for random error.

According to relevant data, stata15.0 was used for empirical test:

The inclusive growth index and inclusive finance index in this paper both contain multiple indicators. Firstly, the multicollinearity of each variable is tested. The variance inflation factor (VIF) value of each variable is less than 10, so there is no serious multicollinearity. Heteroscedasticity is tested through white test, and no heteroscedasticity is found. Then, ADF test demonstrates that the data is stable on the second order and there is no spurious regression. Thirdly, the logical relationship among explanatory variables, explained variables and control variables is verified. Through the Granger causality test, it is found that changes in inclusive finance, urbanization rate and the total exports as share in GDP are the reasons for changes in inclusive economic growth. The results are calculated as follows:

$$y1 = -0.1327 + 0.7184 ifi_t + 0.007 urb_t + 0.0443 fin_t$$

The coefficients of the main variables are all significant at the confidence interval of 5%. The modified fitting coefficient is 0.79, and the F test is also significant. These indicate that the model fits well.

The analysis of the model reveals that the elasticity coefficient of inclusive finance is 0.7184, which means that for one unit increase in the inclusive finance index, there is 0.784 unit return of inclusive economic growth. This figure indicates that the development of inclusive finance has a great impact on the inclusive economic growth of Lianyungang. That is to say, the development of inclusive finance has a substantial impact on the inclusive growth of economy in coastal and other developed areas with good financial foundation.

Compared with two control variables, namely the urbanization rate (urb) and social security and

employment expenditure as a share of fiscal expenditure (fin), inclusive financial (ifi) has less impact on the development of the eastern region, and the urbanization rate also has a weak influence. However, social security and employment expenditure as a share of fiscal expenditure has a greater effect on inclusive growth. For every one unit increase in social security and employment expenditure as a share of fiscal expenditure, inclusive economic growth will increase by 0.0443 unit. This suggests that the eastern coastal areas should first consider to enhance their inclusive finance, and then increase the social security and employment expenditure as a share of fiscal expenditure.

Because of the higher urbanization rate and better financial foundation in the eastern coastal areas, these areas have an advantage in developing inclusive finance. Therefore, inclusive finance better contributes to their inclusive economic growth.

2. Countermeasures and Suggestions

2.1 Expand Inclusive Finance to the Disadvantaged Groups

The government of the eastern coastal areas should analyze the fundamental economic challenges and opportunities in the areas to further improve the permeability of inclusive finance and solve the problem of financial service availability. By developing real economy in relatively poor areas, the government can drive economic growth, achieve urban-rural integration, and extend financial service coverage. Credit constraints should be eased and the “wealth threshold” for financing should be lowered so as to eliminate financial exclusion from disadvantaged regions and to extend inclusive financial services to backward areas.

2.2 Expand Financial Depth and Improve Service Quality

Eastern coastal areas need to build on their good financial foundations and further speed up the financial product innovation. Combined with digital economy, inclusive financial products can be further diversified while maintain high availability. With the help of online digital inclusive finance that takes advantage of big data, cloud computing, and other technologies, financial institutions are able to improve their efficiency of audit, which is beneficial both in reducing non-performing loans and in shortening the time of getting a loan. These methods can improve the inclusiveness of the financial system.

2.3 Support the Real Economy and Promote Rural Revitalization

While supporting the development of the real economy in the rural areas, the eastern coastal areas need to introduce science and technology talents in agriculture, strengthen the integration of the three industries and increase the added value of industries, and by doing so, they can fundamentally realize urban-rural integrated development and promote inclusive economic growth. At the same time, through financial preferential policies, local governments can cultivate characteristic industries which are capable of effectively stimulating the economic growth in weak regions, enhancing the diversification of local economic activities and promoting the industrial integration. Ultimately, the goal of inclusive growth can be realized in the eastern coastal areas.

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