

An Empirical Study on the Impact of China's Financial Development on the Income Gap between Urban and Rural Residents: Based on Provincial Panel Data

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Abstract: The issue of income distribution is the focus of international attention. In the process of the sustainable development of China's economy, finance plays an important role in promoting the growth of residents' income. But the problem of the widening income gap between urban and rural residents needs to be solved urgently. This paper carries out an empirical analysis based on provincial panel data from 2008 to 2017. Through the constructing of models, the paper analyzes the impact of China's financial development on the income gap between urban and rural residents. The results show that in the short term, financial development will widen the income gap between urban and rural residents. Based on the conclusion, some countermeasures and suggestions are put forward from the perspectives of improving the inclusive financial service system, increasing the efficiency of financial institutions in serving rural areas, promoting the development of digital finance in rural areas, and balancing the distribution of financial resources between urban and rural areas.

1. Introduction

In recent years, China's economy enters the state of new normal. Our country has become a middle-income country; the income level of urban and rural residents has been greatly improved. But the gap between urban and rural residents' per capita income is gradually expanding. How to give full play to the role of finance in coordinating urban and rural development, and effectively implement preferential financial policies on agriculture to narrow the income gap between urban and rural residents, are major issues related to the coordinated development of urban and rural areas in China.

The "creation" and "destruction" brought about by economic growth can change the economic and social structures and affect the income distribution pattern of urban and rural residents. Kim D H and co-workers believed that there was an "inverted U-shaped relationship" between financial development and the income gap between urban and rural residents. Law S H and colleagues argued that there was a threshold effect of institutional quality between financial development and income inequality. Xin-hua Hui also believed that there was a significant "inverted U" relationship between financial development and income inequality in the United States. At the same time, the model verified that education, trade union density, trade dependence and the labor participation rate of females also affected income inequality.

Above researches analyze the situation of developed countries. The relatively backward developing countries have their particularity. Batuo analyzed the financial data of 48 African countries from 1996 to 2014 and found the negative effect of increasing financial deposits on the Gini coefficient of a country. Yong-qiang Sun believed that under the condition of the urban-rural dual structures in economy and finance, the increasing external financing for rural areas was conducive to promoting the income level of rural residents.

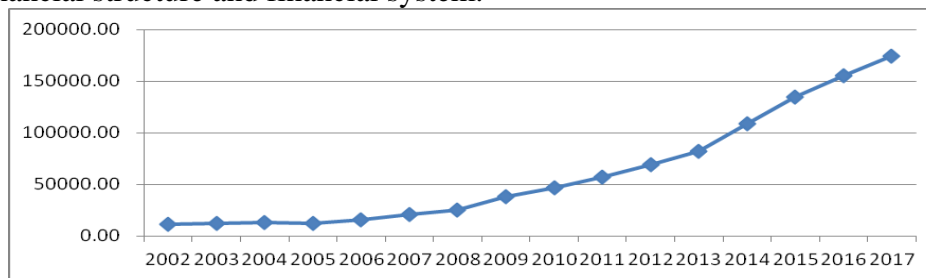
In summary, the financial development of a country has a certain impact on the income gap between urban and rural residents. But due to the different social backgrounds of diversified

countries and regions, that impact varies in different stages of development. Since the reform and opening up, great changes have taken place in China's economy and society. The income of urban and rural residents presents different stage characteristics. This paper uses the provincial panel data of China from 2002 to 2017 to explore the critical period for China to become a middle-income country, and constructs a model to analyze the impacts of financial development on the income gap between urban and rural residents.

2. Current Situations on China's Financial Development and the Income Gap between Urban and Rural Residents

2.1 Current situation on China's financial development

Since the reform and opening-up in 1978, China has deepened the financial reform; the level of financial development has continued to improve. In terms of the added value of the financial industry, from 2002 to 2017, the added value of China's financial industry has increased 13.1 times (Figure 1). It can be seen that the scale of the financial industry has continued to grow rapidly since 2002. The financial market in China has shown the features of the growing financial industry scale, the increasing number of financial institutions, the strengthening financial deepening, as well as the improving financial structure and financial system.

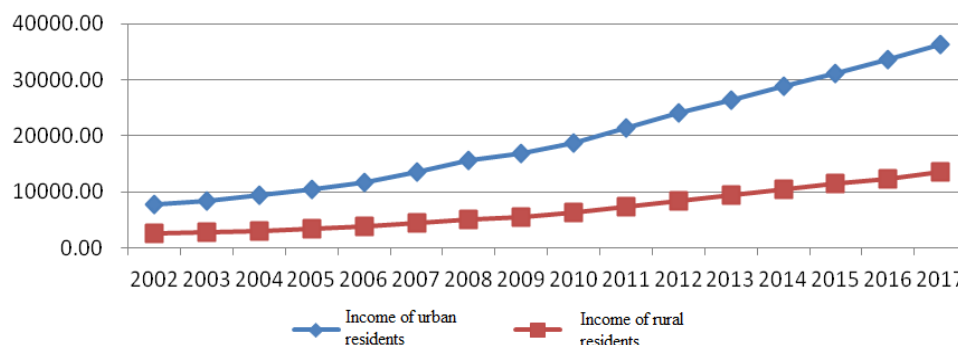


Data Source: China Statistical Yearbook

Figure 1. Value-added of China's Financial Industry (unit: 100 million yuan)

2.2 Current situation on the income gap between urban and rural residents

Since the reform and opening-up in 1978, China's economy has grown rapidly. China's economic development mode has changed; human capital investment, fixed assets, increased energy consumption and deepening finance have promoted the growth of urban and rural residents' income. The income level of residents has increased significantly. Among them, the growth rate of urban residents' income is significantly higher than that of rural residents' income.

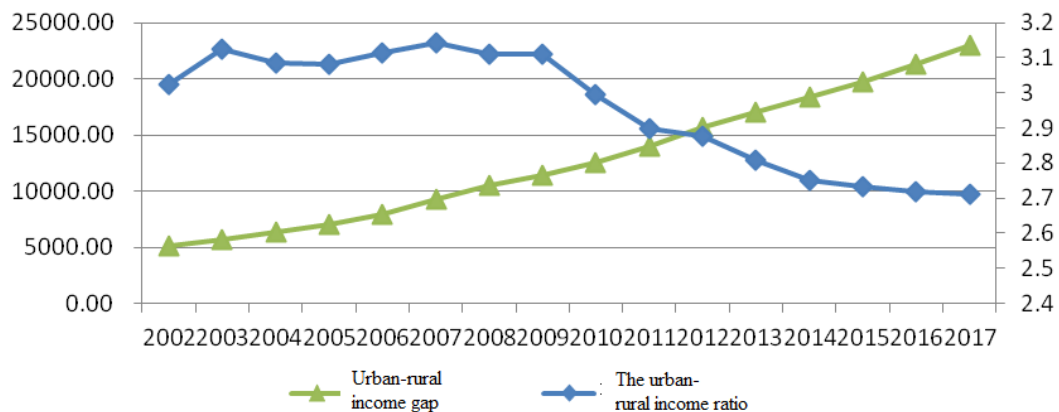


Data Source: China Statistical Yearbook

Figure 2. Income Levels of Urban and Rural Residents in China (unit: 100 million yuan)

At present, the per capita income of urban and rural residents in China has maintained the trend of rapid growth. From Figure 2, it can be seen that the income gap between urban and rural areas increased from 2002 to 2017. In 2002, the average disposable income of urban residents is three times the average net income of rural residents. After 2010, the trend of expanding urban-rural

income gap slowed down, but the ratio of urban-rural per capita income gap showed the trend of increasing firstly and then decreasing.



Data Source: China Statistical Yearbook

Figure 3. Income Gap between Urban and Rural Residents in China (unit: 100 million yuan; %)

3. The Empirical Research

3.1 Index selection

The urban-rural income gap (GAP) is the difference between the per capita disposable income of urban residents and the per capita net income of rural residents. The level of financial development (FIN) is expressed by the added value of the financial industry. The industrial structure (INST) is expressed by the proportion of the added value of the secondary industry plus the added value of the tertiary industry in the gross domestic product of the area. The rationalization of industrial structure is used to measure the aggregation quality of various industries in economic activities, which shows the production efficiency of the region. Fiscal support for agriculture (FIAG) is the proportion of fiscal expenditure on agriculture and forestry to the total national financial expenditure. It investigates the impact of fiscal support for agriculture on urban-rural income gap. In the process of urbanization, the urbanization of migrant workers can produce cumulative cyclical effects, which can accelerate the development of urbanization and narrow the income gap between urban and rural areas. Therefore, the urbanization rate (UR) is selected as the control variable in this paper. In the short run, economic growth will widen the income gap between urban and rural areas to a certain extent; the expansion of income gap can not stimulate economic growth. In the long run, there is a stable bidirectional causality relationship between urban and rural income gap and economic growth. Therefore, this paper uses the annual economic growth rate (GDPR) of each region as the control variable. The definitions of indicators are shown in Table 1.

Table 1. Variable Interpretation

Item	Variable	English abbreviation	Definition
explained variable	income gap between urban and rural residents	GAP	The difference between the per capita disposable income of urban residents and the per capita net income of rural residents
explaining variable	level of financial development	FIN	Financial industry added value
control variable	Industrial structure	INST	(Added value of secondary industry + added value of tertiary industry) / GDP
	proportion of fiscal support for agriculture	FIAG	The proportion of local fiscal expenditure on agriculture, forestry and water projects accounted for the national fiscal expenditure in the year
	Urbanization level	UR	Urban population / total population
	Economic growth rate	GDPR	(Current year GDP- last year GDP) / last year GDP

3.2 Model setting

The specific settings of the model are as follows.

$$\ln GAP_{it} = \alpha_0 + \alpha_1 \ln FIN_{it} + \alpha_2 \ln GDPR_{it} + \alpha_3 \ln INST_{it} + \alpha_4 \ln UR_{it} + \alpha_5 \ln FIAG_{it} + \mu_t + \varepsilon_{it} \quad (1)$$

Among them, subscripts *i* and *t* represent the *i*th province and the *t*th year respectively; μ_t represents time-fixed effects; ε_{it} represents random error terms.

3.3 Empirical analysis

This paper uses the provincial panel data from 2008 to 2017 to make the empirical analysis. The regression results are shown in Table 2. Among them, F test rejects mixed regression, preferential fixed effect; Housmann test rejects the random effect model. Therefore, the fixed effect is chosen as the regression result.

Table 2. Regression Result

VARIABLES	LNGAP (Mixed regression results)	LNGAP (Fixed effect regression results)	LNGAP (Random effect regression results)
LNFIN	0.269*** (0.0391)	0.133*** (0.0411)	0.353*** (0.0293)
LNGDPR	-0.211*** (0.0352)	-0.192*** (0.0322)	-0.255*** (0.0418)
LNINST	1.010** (0.421)	0.908* (0.505)	0.757*** (0.245)
LNUR	0.882*** (0.0992)	1.683*** (0.126)	0.205*** (0.0603)
LNFIAG	0.389*** (0.0579)	0.326*** (0.0614)	0.143*** (0.0485)
Constant	12.41*** (0.130)	12.34*** (0.124)	11.74*** (0.138)
Observations	309	309	309
R-squared	0.834	0.855	0.688
Number of province	31	31	31

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

The coefficient of determination is 0.855, which indicates that 85.5% of the change of urban-rural income gap can be explained by the model. The model has good degree of fitting; the coefficients all pass the significance test. The final model is expressed as follows.

$$\ln GAP_{it} = 12.34 + 0.133 \ln FIN_{it} - 0.192 \ln GDPR_{it} + 0.908 \ln INST_{it} + 1.683 \ln UR_{it} + 0.326 \ln FIAG_{it} + \mu_t + \varepsilon_{it} \quad (2)$$

From the perspective of explanatory variables, from 2008 to 2017, the impact of financial development on China’s urban-rural income gap is positive. Although the level of financial development gradually improves, the financial development in urban and rural areas is not balanced. The rural financial development lags behind that of urban areas. The financial development can better promote the development of urban areas than that of rural areas, and widen the income gap between urban and rural residents. It shows that in China, the inclusive finance is not fully developed. Small and medium-sized enterprises and residents in rural areas have little access to financial services. Financial services cannot effectively promote rural development, which further widens the income gap between urban and rural residents.

From the perspective of control variables, in the sample range, economic growth has a negative effect on the income gap between urban and rural residents. Therefore, economic growth is a factor to narrow the income gap between urban and rural residents. Due to the resources agglomeration and transfer effect between various government departments, financial support for agriculture has a positive effect on the income gap between urban and rural residents. The adjustment of secondary

and tertiary industrial structure and the growth of urbanization rate also have positive effects on the income gap between urban and rural residents.

4. Policy Recommendations

4.1 Lower the financial threshold and improve the inclusive financial service system

First, it is needed to reduce the barrier of entering rural financial markets. We should lower the threshold for some financial institutions suitable to the development of rural areas, and promote a large amount of fund to enter rural areas and participate in rural construction. Second, it is needed to improve the development of the inclusive financial industry. According to the demand of farmers on financial services in employment, production and consumption, we should divide customer groups, expand the scope of financial services, provide services of wealth management, futures and payment, implement differentiated financial services, and expand the boundary and coverage of financial services. Third, we need to improve the rural financial system. The rural insurance system should be improved; the policy-based agricultural insurance should be promoted vigorously. Through these measures we can improve the coverage range and security level of agricultural insurance, and transfer the risks of rural residents in agricultural production and rural life. The business of rural trust institutions should be developed to increase farmers' financial income; private finance should be promoted; through providing the relaxed social environment, policies and systems, we can promote the rapid and regular development of private financial institutions in rural areas.

4.2 Focus on meeting the loan demand in rural areas and improving the efficiency of financial institutions

First, it is needed to promote the development of loan business in rural areas. We should innovate financial businesses and products suitable to the development of rural areas, and provide more convenient rural loans. Second, we need to further improve the efficiency of rural financial development. We should prevent the outflow of rural capital, promote capitals to invest in rural industrial development and rural construction, and help funds to play a role in rural industrial development. Thirdly, we should strengthen financial policy to support agriculture. Specific measures include implementing the policy of discount for agricultural related loans, formulate relevant fiscal preferential policies, prevent the outflow of rural funds by attracting rural savings funds, and promote the utilization rate of rural funds. The aim is to improve the overall income level of farmers.

4.3 Promote the development digital finance in countryside and increase the financial supply for rural areas appropriately

First, we need to popularize digital and smart financial tools. Rural residents should be guided to use smart terminals such as computers, smart phones and other electronic products. Relevant training on the use of financial smart devices should be provided. Secondly, the government should encourage the development of rural digital finance. They can provide preferential policies and resources to rural areas, and promote the comprehensive development of digital finance in countryside, so as to further promote the high quality development of digital finance in rural areas. Third, it is needed to strengthen the supervision of digital finance. The government should strengthen the supervision of digital finance, forbid digital financial products that are harmful to rural development, and regulate the development of digital finance in rural areas.

4.4 Support the innovative development of rural financial institutions and balance the distribution of financial resources between urban and rural areas

First, it is needed to innovate and develop new rural financial institutions. Financial fund can buy the shares of rural financial organizations such as township banks, rural microfinance companies and rural credit cooperatives. Financial institutions should innovate the mode of development; inclusive financial institutions should be increased in rural areas. Financial products and services

matching rural residents' needs should be provided. Secondly, we should actively develop township banks. The government should encourage and support the establishment of financial institutions that are suitable for the development of rural areas, promote financial institutions to penetrate into remote villages, and provide preferential and convenient lending policies.

5. Conclusion

Based on provincial panel data from 2008 to 2017, this paper carries out an empirical study to analyze the impact of China's financial development on the income gap between urban and rural residents. Through constructing the regression model, factors that can affect the income gap between urban and rural residents are found. Countermeasures and suggestions are put forward based on the results, hoping to promote the coordinated development of urban and rural areas in China.

References

- [1] Kim D H, Lin S C. Nonlinearity in the financial development–Kim D H, Lin S C. nexus [J]. *Journal of Comparative Economics*. 2011 (3): 310-325.
- [2] Law S H , Tan H B , Azman-Saini W N W . Financial Development and Income Inequality at Different Levels of Institutional Quality [J]. *Emerging Markets Finance and Trade*. 2014 (s1): 21-33.
- [3] Hui X H. Test of the Relationship between Financial Development and Income Inequality based on the Macro Time Series Data of the United States [J]. *Journal of Hebei University of Economics and Trade*. 2017 (04): 41-50.
- [4] Tchamyou V S. Education, Lifelong learning, Inequality and Financial access: Evidence from African countries [J]. *Research Africa Network Working Papers*, 2018.
- [5] Sun Y Q. Research on Financial Development, Urbanization and Income Gap between Urban and Rural Residents [J]. *Journal of Financial Research*. 2012 (04): 98-109.
- [6] Wang X, Zhang Y. Empirical Test of the Impact of Fiscal Expenditure on Agriculture and Social security on Income Gap between Urban and Rural Residents [J]. *Statistics and Decision*. 2019 (06): 127-130.
- [7] Zhang F, Zhao K. An Empirical Analysis of the Relationship between Urban-rural Income Gap and Economic Growth in Shaanxi Province [J]. *Journal of northwest Agricultural and Forestry University (Social Science Edition)*. 2011 (01): 59-63.
- [8] Tian M M, Li W M. Reform of Rural Financial Institutions and the Development of Small Loan Business [J]. *Modern Enterprises*. 2012-03-15.
- [9] Guo B B. Research on the Agricultural Industry Management Model with Chinese Characteristics [J]. *Jiangxi Agriculture*, 2016-01-08.
- [10] Tong J. Study on the Benign Interaction between Financial Economy and Real Economy [J]. *China Circulation Economy*, 2018-12-18.
- [11] Xue B M. Study on the Income Gap between Urban and Rural Residents in Hebei [J]. *Fortune Today*, 2018-12-25.
- [12] Zhang J H, Gao J. Will the Development of Agricultural Productive Services Narrow the Income Gap between Urban and Rural Residents? Empirical Test Based on Spatial Spillover and Threshold Characteristics [J]. *West Forum*, 2019-01-05.
- [13] Wang Q, Tai D J, Chen D Z. Empirical Analysis on the Impact of Financial Development on the Income Gap between Urban and Rural Residents [J]. *Statistics and Decision*. 2019 (06): 165-167.
- [14] Wen X, Pan H. A Study on the Impact of Urbanization on Urban-Rural Income Gap in Western Ethnic Minority Areas [J]. *Journal of Guangxi University of Finance and Economics*, 2019-08-19.