The Impact and Mechanism of the Development of Digital Inclusive Finance on the Urban-Rural Income Gap

-- From the Perspective of Common Prosperity

Xiao Chen[1, *], Yufeng Zhu[1], Dianjuan Zhang[1], Zhanzhan Fan[1], Deyu Li[2]

[1] School of Finance, Anhui University of Finance and Economics, Bengbu, Anhui, China

[2] School of Economics, Anhui University of Finance and Economics, Bengbu, Anhui, China

[*]Corresponding author: 3093669937@qq.com

Abstract

The essential feature of socialism is common prosperity, narrowing the gap between the rich and the poor is an inevitable requirement for the stable, coordinated and sustainable development of the national economy. The development of digital inclusive finance plays an important role in narrowing the urban-rural income gap and achieving common prosperity. To study the impact and mechanism of the development of digital inclusive finance on the urban-rural income gap, firstly, analyze how the development of digital inclusive finance conducts and affects the urban-rural income gap from three aspects: industrial structure, enterprise financing costs, and human capital level; Secondly, construct a regression model to empirically analyze the relationship between the development of digital inclusive finance and the urban-rural income gap. The research results indicate that the impact of digital inclusive finance on the urban-rural income gap is negative. Finally, policy recommendations were proposed to establish and improve legal norms and financial infrastructure related to digital inclusive finance, accelerate innovation and service upgrading in the digital inclusive finance industry.

Keywords

Inclusive Finance; Urban-Rural Income Gap; Impact Mechanism.

1. Introduction

The report of the 20th National Congress of the Communist Party of China pointed out that achieving common prosperity for all people is the essential requirement of Chinese path to modernization. At present, the income gap between urban and rural areas in China is narrowing, but the imbalance of regional development is still prominent, and there is a large gap in per capita disposable income between different provinces. At the end of 2020, China had completed the arduous task of eliminating absolute poverty. Currently, China has entered a new stage of addressing relative poverty, with the main task of narrowing the income gap between urban and rural residents. As the core industry in modern economic development, the financial industry plays an important role in narrowing the income gap between urban and rural areas and achieving common prosperity. In recent years, with the development of big data and communication technology, digital inclusive finance has become a new direction of financial development and has been widely recognized. Digital inclusive finance generally refers to all actions that promote inclusive finance through the use of digital financial services, including the use of digital technology to provide a series of formal financial services for groups who are unable to access or lack financial services, which helps to solve the financing difficulties and high financing costs faced by vulnerable groups in traditional financial environments, Provide sustainable financial services for vulnerable groups such as small and medium-sized

enterprises and rural residents in China. Therefore, developing digital inclusive finance can not only narrow the income gap between urban and rural areas, but also promote the development of small and medium-sized enterprises, providing guarantees for high-quality economic development.

The size of the urban-rural income gap has an important impact on the stable development of China's economic society and the realization of the goal of common prosperity. There are many studies on the influencing factors of urban-rural income gap. Lu Ming and Chen Zhao [2] (2004), based on provincial panel data from 1987 to 2001, found that urbanization has a significant role in reducing the statistical urban-rural income gap, while the regional population registered residence conversion, economic openness, privatization and government participation in economic activities are all factors that open up the urban-rural income gap. The research results show that, The continuous widening income gap between urban and rural areas in China is related to the economic policies implemented by local governments with an urban orientation. Chen Binkai and Lin Yifu [3] (2013), from the perspective of the government's development strategy, used China's provincial panel data from 1978 to 2008 to study the reasons for China's lagging urbanization and the widening income gap between urban and rural areas. They found that the government's strategy aimed at encouraging capital intensive sectors to give priority to the development of urban sectors resulted in a relative decline in employment demand in urban sectors, thus delaying the process of urbanization, and rural residents could not effectively transfer to cities. The income gap between urban and rural areas has widened. Cheng Mingwang and Zhang Jiaping [4] (2019) theoretically analyzed the nonlinear impact of Internet popularization on the income gap between urban and rural residents, and tested it with provincial panel data from 2003 to 2016. The impact of Internet popularization on the income gap between urban and rural areas showed an "inverted U-shaped" trend of first increasing and then decreasing. They concluded that accelerating China's rural informatization process is of great significance for narrowing the income gap between urban and rural areas.

Different scholars have provided different perspectives on whether digital inclusive finance can affect the income gap between urban and rural residents and the extent of its impact. Song Xiaoling [5] (2017) measured the income gap between urban and rural residents in China's provinces by using the Theil index and constructed a balanced panel data model. The research shows that the development of digital inclusive finance can significantly reduce the income gap between urban and rural residents; In the control variables, factors such as urbanization level, degree of openness to the outside world, and fiscal expenditure also have a significant impact on the urban-rural income gap. Zhang He and Bai Qinxian [6] (2018) proposed the convergence mechanism of digital inclusive finance on urban-rural income. By constructing panel linear regression and nonlinear threshold regression models, empirical observations based on provincial-level data in China have confirmed that digital inclusive finance can narrow the urban-rural income gap. Li Muchen and Feng Sixian [7] (2020), based on provincial panel data from 2011 to 2017, focused on the impact of digital inclusive finance on China's urban-rural income gap from the perspective of financial exclusion theory and financial function. Not only from an overall analysis, but also from structural analysis of the coverage, depth of use, degree of digitization, and different business types of digital inclusive finance. The development of digital inclusive finance in China has generally narrowed the urban-rural income gap, but it is mainly reflected in the impact of coverage and depth of use.

Some scholars have conducted research on how digital inclusive finance can narrow the urban-rural income gap. Sun Jiguo and Zhao Junmei [8] (2019) empirically compared the impact of traditional inclusive finance and digital inclusive finance on the urban-rural income gap using panel regression and threshold regression methods, and found that digital inclusive finance can more significantly reduce the urban-rural income gap. Hu Zhongli and Wang Shuhua (2021) believe that the improvement of China's digital inclusive finance level can effectively alleviate

the urban-rural income gap, and digital inclusive finance can alleviate the urban-rural income gap by reducing the incidence of poverty in rural areas. Yang Yi and Tao Wenqing [10] (2022) included digital inclusive finance, rural human capital, and agricultural green total factor productivity into the gap analysis analysis framework of urban and rural residents' income, and found that the development of digital inclusive finance significantly promoted the narrowing of urban and rural residents' income gap.

Possible marginal contributions of this article: Firstly, explore the impact of digital inclusive finance on urban-rural development from a theoretical perspective; Secondly, empirical research is conducted on the relationship between digital inclusive finance and urban-rural income gap by constructing an econometric model; Third, different from a large number of literature studies on common prosperity, this paper includes economic development, income gap, etc. into the scope of common prosperity, expanding the scope of common prosperity research.

2. The Impact Mechanism of Digital Inclusive Finance on Urban-Rural Income Gap

This article elaborates on the impact mechanism of digital inclusive finance on the urban-rural income gap from the following three aspects.

2.1. Digital Inclusive Finance Can Promote the Upgrading of Industrial Structure

The specific path is as follows: The essence of digital inclusive finance is to popularize financial services to various social groups at a lower cost. In the current context of national security encouraging public entrepreneurship, a major problem faced by many people is the difficulty of starting funds. The emergence of inclusive finance can precisely solve this problem, and many people have access to entrepreneurial opportunities, which to some extent increases the number of social enterprises, adhering to the principle of survival of the fittest, The formation of benign competition among enterprises has a certain promoting effect on the optimization of industrial structure; In addition, digital inclusive finance is the combination of digital technology and inclusive finance. While using digital inclusive finance, enterprises are also continuously improving their digital industrialization, promoting the development of the digital economy, and optimizing industrial structure; Finally, digital inclusive finance has improved the availability of personal credit, and on the other hand, it has increased the level of personal consumption, driven the supply-demand balance of social production capacity, and optimized the industrial structure of the market.

2.2. Digital Inclusive Finance Can Reduce Corporate Financing Costs

Financing difficulties have always limited the development of small and medium-sized enterprises, and high financing costs are one of the reasons for financing difficulties. Digital inclusive finance mainly relies on digital technology, and the application of digital inclusive finance by small and medium-sized enterprises can to some extent fill this gap. On the one hand, using digital technology to establish a cloud service platform and provide online financial services reduces the demand for financial service outlets and staff compared to traditional financial services; On the other hand, digital technology makes financial services more specialized and standardized, which can improve the efficiency of financial services.

2.3. Digital Inclusive Finance Can Improve Human Capital Levels

The impact of digital inclusive finance on human capital levels can be divided into two mechanisms: learning mechanisms and sharing mechanisms. The learning mechanism refers to the cultivation of human capital quality. The development of digital inclusive finance has raised

the employment threshold for related industries, and digital technology requires technical talents to match. Therefore, employment personnel improve their learning ability and knowledge reserves, thereby promoting the improvement of industrial human capital quality. The sharing mechanism refers to the digital economy breaking the limitations of time and space, gathering a large amount of human capital together, achieving the sharing of infrastructure and services, which is conducive to the accumulation of human capital and knowledge sharing.

3. Empirical Analysis of the Impact of Digital Inclusive Finance on Urban-Rural Income Gap

3.1. Variable Selection

(1) Explained variable: urban-rural income gap (gap). The income gap between urban and rural areas is an important reason that affects the realization of common prosperity in China. In order to study the impact of urbanization on the national urban-rural income gap, this article selects the urban-rural income ratio to measure the urban-rural income gap. The calculation method is the ratio of per capita disposable income of urban residents to per capita disposable income of rural residents.

(2) Core explanatory variable. Development of digital inclusive finance. This article takes the Digital Inclusive Finance Index (ifi) released by the Digital Finance Research Center of Peking University in 2021 as the core explanatory variable. The processing method is to take the average of the digital inclusive finance index of each province from 2011 to 2020 and obtain the national development index of digital inclusive finance from 2011 to 2020.

(3) Control variables. In order to solve the endogeneity problem caused by missing variables, this article selects the following control variables: Economic Development Level (GDP). According to data released by the National Bureau of Statistics, in the past decade, with the continuous improvement of economic development level and the emphasis on infrastructure construction in rural areas, the income gap between urban and rural areas in China has been continuously narrowing. This indicator is measured by the growth rate of per capita GDP. Industrial structure (is). The rapid development of the Chinese economy has been achieved and achieved with the support of enormous resources. Optimizing industrial structure can achieve the role of narrowing the urban-rural income gap and promoting sustainable economic development. Therefore, the proportion of added value of an industry to GDP is selected as the control variable. Urbanization rate (ur). The current issue of urbanization is a strategic issue commonly faced by governments at all levels, and it is the source of economic development and full employment. If rapid urbanization cannot be properly planned and managed, it will inevitably lead to increased inequality, an increase in slums, and climate change, further widening the income gap between urban and rural areas. It is represented by the ratio of the number of urban permanent residents in China to the number of permanent residents in China.

3.2. Model Construction

As the multiple linear regression analysis must meet that there is no multicollinearity between explanatory variables, the model does not have heteroscedasticity and autocorrelation. Therefore, this article first performs logarithmic processing on the variables to eliminate the impact of heteroscedasticity on the model results as much as possible. The model is constructed as follows:

$$\ln \text{gap} = \beta_0 + \beta_1 \ln ifi + \beta_2 \ln \text{gdp} + \beta_3 \ln \text{is} + \beta_4 \ln \text{ur} + \varepsilon$$

Table 1. Least Squares Regression Results

Variable	Coefficient	Std.Error	t-Statistic	Prob
lnifi	-0.0002	0.0082	-0.0268	0.9797
lngdp	0.0071	0.0194	0.3682	0.7278
lnis	-0.1602	0.1917	-0.8355	0.4415
lnur	-0.1602	0.3265	-2.0622	0.0942
cons	0.2550	0.6989	0.3649	0.7301
R^2	0.9830			

According to the estimation results, although the Goodness of fit of the model is high, at the significance level of 1%, the impact of the explanatory variable digital inclusive financial index, economic development level and urbanization rate on the urban-rural income gap is not significant. Therefore, the model was tested for multicollinearity, and the variance expansion factor VIF>10 was found, indicating that there was a serious multicollinearity between explanatory variables, which might affect the reliability of the t-test, and it was difficult to analyze the individual impact of each variable. By increasing or decreasing the number of explanatory variables in the model and the representation of the model, only the core explanatory variables, namely the inclusive financial index (ifi) and the level of economic development (GDP), were retained. After reducing the explanatory variables, the Goodness of fit of the model is low or there is heteroscedasticity. Therefore, the weighted least squares method is used to make w=1/x2, and the results of the modified model are shown in Table 2.

Table 2. Weighted Least Squares Regression Results

Variable	Coefficient	Std.Error	t-Statistic	Prob
lnifi	-0.0481	0.0104	-4.6272	0.0024
lngdp	0.0346	0.0065	5.3536	0.0011
cons	1.3483	0.0453	29.7678	0.0000
R^2	0.9653			

The multicollinearity test, heteroscedasticity test and autocorrelation test were performed again for the modified model:

The variance expansion factor VIF<10 indicates that the serious multicollinearity between explanatory variables has been eliminated. At a significance level of 5%, the p-value corresponding to nR^2 is 0.1327, indicating that the model has eliminated heteroscedasticity. The partial correlation coefficient test was conducted on the revised model, and it can be seen from the table that there is no autocorrelation in the revised model.

Table 3. Multicollinearity Test and White Test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
cons	0.002052	305.0960	NA
Inifi	0.000108	508.8259	2.239609
Ingdp	4.17E-05	64.94557	2.239609
Heteroskedasticity Test:White			
F-ststistic	26.38570	Prob.F(6, 3)	0.0108
Obs*R-squared	9.814028	Prob.Chi-Square(6)	0.1327
Scaled explained SS	5.804263	Prob.Chi-Square(6)	0.4455

Corrected Determinable Coefficient $\overline{R^2} = 0.9554$ indicates that the explanatory power of the urbanization rate and per capita consumption expenditure on the urban-rural income gap is 95.54%. Given a significance level of 5%, F=97.3459, corresponding to p=0.0000, indicating that the combination of two explanatory variables has a statistically significant impact on the urban-rural income gap. The t-test p-values of each explanatory variable were 0.0024 and 0.0011, respectively. At a significance level of 5%, the t-test for all explanatory variables was p<0.05, indicating that the significance test for the regression parameters of each explanatory variable passed.

According to the concept of elasticity coefficient, the regression coefficient of the equation reflects the elastic relationship between the explanatory variable and the dependent variable. The coefficient -0.0481 represents the elastic impact of the digital inclusive finance index on the urban-rural income gap. For every 1% increase in the digital inclusive finance index, the urban-rural income gap will decrease by 4.81%. On the premise that other influencing factors remain unchanged, the coefficient 0.0346 represents the elastic impact of economic development level on the urban-rural income gap, which means that as the economic development level increases by 1%, the urban-rural income gap will expand by 3.46%.

4. Conclusion and Suggestions

To study the impact of the development of digital inclusive finance on the urban-rural income gap, we first analyze theoretically that digital inclusive finance can affect the urban-rural income gap by promoting industrial structure upgrading, reducing enterprise financing costs, and improving human capital levels. Secondly, select time series data from 2011 to 2020 to study the relationship between the development of digital inclusive finance and the urban-rural income gap. The empirical analysis results show that the regression coefficient of the development of digital inclusive finance on the urban-rural income gap is negative, which means that with the continuous improvement of the development level of digital inclusive finance, the urban-rural income gap can be reduced. Based on this, the following relevant suggestions are proposed:

(1) Establish and improve legal norms and financial infrastructure construction related to digital inclusive finance. As an emerging financial development method, the rights and obligations of the beneficiaries and financial institutions of digital inclusive finance are still not clear enough. Promoting the establishment of sound relevant legal norms and accelerating the construction of financial infrastructure will help further lower the threshold for financial services, improve the accessibility of digital inclusive financial services, help more low-income groups access financial services within a clear legal scope, and fully leverage the role of digital inclusive finance in narrowing the gap between urban and rural residents.

(2) Accelerate the innovation and service upgrading of the digital inclusive financial industry. Digital inclusive finance, relying on the popularity of the Internet and the advantages of big data, can break through the limitations of traditional finance such as limited coverage, low efficiency, and information asymmetry, truly achieving the popularization of finance. However, there are still many low-income groups who struggle to access professional financial services. Financial institutions should accelerate the innovation of financial products, improve the efficiency of loan issuance, promote in rural areas, establish business outlets and staff in economically underdeveloped areas, and ensure that the population in rural areas can also access professional financial services.

Acknowledgments

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