

The Impact of Digital Inclusive Finance on the Urban-Rural Income Gap in Jiangsu Province

Mengting Zhang^{1,a,*}, Min Liu^{1,b}

¹School of Business, Wuxi Taihu University, Wuxi, China

^azhangmt@wxu.edu.cn, ^b2675141350@qq.com

*Corresponding author

Abstract: *The urban-rural income gap is a key issue constraining the realization of common prosperity. Taking Jiangsu Province as the research object, this study uses panel data from 13 prefecture-level cities in the province from 2014 to 2023 to examine the impact of digital financial inclusion on the urban-rural income gap and its regional heterogeneity. The findings show that digital financial inclusion significantly narrows the urban-rural income gap in Jiangsu Province, a conclusion that remains robust after endogeneity and robustness tests. In terms of regional heterogeneity, the gap-narrowing effect of digital financial inclusion exhibits significant spatial differentiation: Southern Jiangsu benefits the most, due to its well-developed digital infrastructure and high level of financial penetration; Northern Jiangsu also shows a steady narrowing effect, indicating that digital finance can benefit economically weaker areas by lowering service thresholds; notably, in Central Jiangsu, digital financial inclusion widens the urban-rural income gap, reflecting a “siphon effect” where digital financial resources over-concentrate in urban superior industries, resulting in insufficient inclusive coverage of rural areas. Based on these findings, this paper proposes three policy recommendations: first, strengthen digital financial infrastructure in rural areas of Central and Northern Jiangsu to improve service accessibility; second, innovate differentiated financial products and implement precise policies tailored to the three major regions; third, improve collaborative development mechanisms, optimize the business environment, and establish regional coordination mechanisms to promote the flow of digital financial resources to rural and less-developed areas. This study provides empirical evidence and policy references for Jiangsu Province and similar developed provinces to formulate differentiated digital financial inclusion policies, narrow the urban-rural income gap, and promote common prosperity.*

Keywords: *Digital Inclusive Finance; Urban-Rural Income Gap; Jiangsu Province; Common Prosperity*

1. Introduction

How to effectively narrow the urban-rural income gap has long been a core proposition in development economics and remains a pressing practical challenge in the process of promoting common prosperity in China. Liu et al. (2026) argue that the urban-rural income gap is a long-standing issue in China. Despite sustained national economic development, the urban-rural income gap remains significant, which not only affects social equity but also constrains sustainable economic growth^[1]. Zhang (2025) points out that the urban-rural gap in Jiangsu Province exhibits structural differentiation characteristics, with unbalanced regional development within the province. The pattern of “strong South and weak North” persists, which has become a key bottleneck constraining the realization of the common prosperity goal in Jiangsu Province^[2]. Studies by Song (2017) and Gu (2025) find that the continued advancement of digital inclusive finance has alleviated the imbalanced urban-rural development situation in China to some extent^{[3][4]}. However, existing research largely focuses on analyses at the national macro level, while studies specifically targeting Jiangsu Province—an economically developed province—and examining whether regional differences in its effects exist, remain relatively scarce. In view of this, this paper takes Jiangsu Province as the research object and systematically analyzes the impact of digital inclusive finance on the urban-rural income gap and the influence of regional differences, aiming to provide empirical evidence for the formulation of differentiated digital inclusive finance policies in Jiangsu Province and the promotion of common prosperity.

2. Theoretical Analysis and Research Hypotheses

Digital inclusive finance suppresses the urban-rural income gap in Jiangsu Province mainly through two paths: lowering access thresholds and alleviating financial exclusion. Traditional finance relies on offline branch layouts and sets high entry barriers such as asset collateral and transaction costs, making it difficult for rural residents and small and micro enterprises to access financial services. In contrast, digital inclusive finance provides financial services to rural areas, low-income regions and populations by leveraging its geographical penetration, usage effectiveness and product fundamentality, thereby reducing the threshold effect and alleviating the financial exclusion effect in rural areas, and consequently narrowing the urban-rural income gap^[5]. Relying on big data to build a credit evaluation system, digital inclusive finance can provide microcredit without traditional collateral, and launch low-threshold wealth management and insurance products, which significantly lowers the access standards for financial services^[6]. In addition, online service channels break through geographical limitations, making up for the shortage of offline branches in remote rural areas of Jiangsu. Combined with the popularization of financial knowledge, this effectively alleviates financial exclusion in rural areas, enabling rural residents to equally use financial tools to increase their income and narrow the urban-rural income gap^[7].

Based on the above analysis, this paper proposes Hypothesis 1: Digital inclusive finance can narrow the urban-rural income gap in Jiangsu Province.

Significant gradient differences exist among the Sunan, Subei, and Suzhong regions of Jiangsu Province in terms of economic foundations, digital infrastructure, and financial development levels. Specifically, the Sunan region boasts a developed economy, well-established digital infrastructure, and a high concentration of financial resources. The Suzhong region is at a moderate level of development, where digital finance has achieved initial penetration but still suffers from supply-side deficiencies. In contrast, the Subei region has a relatively weak economic base, insufficient digital infrastructure coverage, and a scarcity of traditional financial resources. These structural disparities arising from regional endowment differences lead to differentiated patterns in service accessibility, resource allocation efficiency, and income-enhancing effects of digital inclusive finance across regions. In Sunan, digital inclusive finance achieves high accessibility and strong resource allocation efficiency, effectively empowering income growth for residents. In Suzhong and Subei, however, hindered by lagging infrastructure development and lower levels of financial literacy, the service penetration and poverty-alleviating effects of digital inclusive finance remain relatively limited, thereby further amplifying the unbalanced pattern of regional financial development.

Accordingly, this paper proposes Hypothesis 2: The impact of digital inclusive finance on the urban-rural income gap in Jiangsu Province exhibits regional heterogeneity.

3. Data Sources, Model Construction and Variable Definitions

3.1 Data Sources

This paper selects relevant data of 13 prefecture-level cities in Jiangsu Province from 2014 to 2023 to construct a panel data model for empirical research. The explanatory variable, the development level of digital inclusive finance, is derived from the Peking University Digital Inclusive Finance Index (PKU-DFIIC) 2011_2023. Data for the explained variable and control variables are mainly obtained from official statistical data of 13 prefecture-level cities in the annual statistical yearbooks of Jiangsu Province.

3.2 Model Construction

According to the research hypotheses, the following model is constructed:

$$Theil_{i,t} = \beta_0 + \beta_1 \ln dif_{i,t} + \beta_2 Controls_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where $Theil_{i,t}$ is the Theil index, representing the urban-rural income gap of 13 prefecture-level cities in Jiangsu Province in different years; $dif_{i,t}$ is the digital inclusive finance index of 13 prefecture-level cities in Jiangsu Province in different years; $Controls_{i,t}$ represents control variables; $\varepsilon_{i,t}$ is the random error term; the subscript i represents different regions and t represents different years. If β_1 is significantly negative, it indicates that digital inclusive finance can narrow the urban-rural income gap in Jiangsu Province.

3.3 Variable Definitions

Explained variable: Theil Index (Theil). Considering the actual characteristics of the urban-rural population structure in Jiangsu Province and the unique advantage of the Theil index in accurately reflecting income changes of high-income and low-income groups at both ends of the income distribution, this paper selects the Theil index as the main explained variable. A higher Theil index indicates a larger urban-rural income gap.

Explanatory variable: Digital Inclusive Finance (Indif). This paper adopts the most authoritative and representative total digital inclusive finance index and converts it into logarithmic form for measurement.

Control variables: Based on the collation of existing literature, this paper selects variables that affect the urban-rural income gap, including: Economic development level (lnGDP): Measured by the logarithm of per capita GDP of each prefecture-level city in Jiangsu Province. Fiscal expenditure (Gov): Measured by the proportion of public fiscal expenditure to regional GDP of each prefecture-level city in Jiangsu Province. Degree of opening-up (Open): Measured by the proportion of total import and export volume to regional GDP of each prefecture-level city in Jiangsu Province. Industrial structure level (IS): Measured by the proportion of the output value of the secondary and tertiary industries to regional GDP of each prefecture-level city in Jiangsu Province. Urbanization rate (UR): Measured by the ratio of the number of labor force in the secondary and tertiary industries to the total local labor force of each prefecture-level city in Jiangsu Province.

4. Empirical Results

4.1 Benchmark Regression

This paper conducts benchmark regression by constructing a pooled OLS model, and the results are shown in Table 1.

Table 1 Benchmark Regression Results.

	(1)	(2)
	Theil	Theil
Indif	-0.0278*** (-8.82)	-0.0309*** (-5.22)
lnGDP		0.0208** (2.53)
Gov		-0.116** (-2.32)
Open		-0.000739 (-0.20)
IS		-0.0206 (-0.33)
UR		-0.139*** (-5.90)
_cons	0.189*** (10.83)	0.116* (1.83)
Control	No	Yes
N	130	130
F	77.840***	38.080***
p	0.000	0.000
r2	0.378	0.650
r2_a	0.373	0.633

t statistics in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01

As shown in Table 1, Model (1) is a univariate regression, and the regression coefficient of the explanatory variable *Indif* is significantly negative, preliminarily confirming that digital inclusive finance has a negative impact on the urban-rural income gap in Jiangsu Province. After introducing various control variables in Model (2), the regression coefficient of *Indif* remains significantly negative, indicating that Hypothesis 1 still holds after controlling for factors such as economic development level and fiscal expenditure. Among the control variables, the coefficient of *lnGDP* is significantly positive, reflecting a certain tendency of uneven urban-rural distribution in Jiangsu's economic growth; the coefficient of *Gov* is significantly negative, indicating that public fiscal expenditure helps narrow the urban-rural gap; the coefficient of *UR* is significantly negative, suggesting that the urbanization process has effectively promoted the balance of urban-rural income in Jiangsu Province; while the impacts of the degree of opening-up and industrial structure level are not significant.

4.2 Endogeneity Test

To alleviate the endogeneity bias caused by reverse causality, this paper lags the explanatory variable (the development level of digital inclusive finance) by one period and re-conducts the regression analysis.

Table 2 Endogeneity Test Results.

	(1)	(2)
	Theil	Theil
<i>Indif</i>	-0.0309*** (-5.22)	
L. <i>Indif</i>		-0.0345*** (-6.52)
<i>lnGDP</i>	0.0208** (2.53)	0.0285*** (3.72)
<i>Gov</i>	-0.116** (-2.32)	-0.148*** (-3.09)
<i>Open</i>	-0.000739 (-0.20)	0.00332 (0.96)
<i>IS</i>	-0.0206 (-0.33)	-0.0552 (-0.90)
<i>UR</i>	-0.139*** (-5.90)	-0.165*** (-7.20)
<i>_cons</i>	0.116* (1.83)	0.100 (1.64)
<i>N</i>	130	117
<i>F</i>	38.080***	43.183***
<i>p</i>	0.000	0.000
<i>r2</i>	0.650	0.702
<i>r2_a</i>	0.633	0.686

t statistics in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01

As shown in Table 2, Model (1) is the benchmark regression result, and Model (2) is the endogeneity

test regression with the explanatory variable lagged by one period. In Model (2), the regression coefficient of the lagged explanatory variable L.Indif is significantly negative, and its absolute value is slightly higher than that of Indif in the benchmark regression. This indicates that after alleviating potential two-way causality and endogeneity bias, the inhibitory effect of digital inclusive finance on the urban-rural income gap in Jiangsu Province remains robust and more significant, further verifying the reliability of the core conclusion of this paper. In terms of control variables, the coefficient directions of lnGDP, Gov and UR are consistent with the benchmark regression, and their significance has improved, indicating that economic development, public fiscal expenditure and urbanization process have stable impacts on the urban-rural income gap in Jiangsu Province, further consolidating the reliability of the empirical conclusions.

4.3 Robustness Check

To further verify the reliability of the conclusions drawn earlier, this chapter replaces the explained variable (Theil) with the urban-rural income ratio (Gap) and re-conducts the regression analysis.

Table 3 Results of Robustness Check.

	(1)	(2)
	Gap	Gap
Indif	-0.154**	-0.322**
	(-2.43)	(-2.46)
lnGDP		0.373**
		(2.06)
Gov		3.268***
		(2.96)
Open		-0.208**
		(-2.56)
IS		5.810***
		(4.19)
UR		-2.150***
		(-4.14)
_cons	2.783***	-4.637***
	(7.90)	(-3.33)
Control	No	Yes
N	130	130
F	5.896**	11.258***
p	0.017	0.000
r2	0.044	0.355
r2_a	0.037	0.323

t statistics in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01

As shown in Table 3, the regression coefficient of Indif is significantly negative in the univariate regression Model (1). After including all control variables in Model (2), the regression coefficient of Indif is -0.322, which is also statistically significant at the 5% level. This result is consistent with the

conclusion from the preceding baseline regression that digital inclusive finance narrows the urban-rural income gap in Jiangsu Province. It demonstrates that the measurement approach of the dependent variable does not alter the empirical findings, confirming that the conclusion is robust and reliable.

4.4 Heterogeneity Analysis

Although Jiangsu Province has experienced sustained economic growth as a whole, the problem of unbalanced regional development remains prominent, and the pattern of “strong South and weak North” has not yet been fundamentally changed. To further investigate whether the narrowing effect of digital inclusive finance on the urban-rural income gap is influenced by regional factors, this paper, following the official geographical division standards of Jiangsu Province, divides the provincial sample into three sub-samples: Sunan (Changzhou, Suzhou, Zhenjiang, Nanjing, Wuxi), Suzhong (Yangzhou, Taizhou, Nantong), and Subei (Lianyungang, Yancheng, Xuzhou, Huai'an, Suqian). Separate regression estimations are conducted for each sub-sample to determine whether there are regional differences in the income redistribution effect of digital inclusive finance.

Table 4 Heterogeneity Test Results.

	(1) Southern Jiangsu	(2) Central Jiangsu	(3) Northern Jiangsu
ln dif	-0.0279*** (-4.13)	0.0172* (2.05)	-0.0205* (-1.92)
ln GDP	0.00963 (1.02)	-0.0457*** (-4.18)	0.0296** (2.05)
Gov	0.0859** (2.31)	0.0968 (1.26)	-0.161 (-1.58)
Open	0.00193 (1.06)	-0.00428 (-0.88)	-0.0409* (-1.83)
IS	0.0113 (0.12)	0.449*** (3.59)	-0.395** (-2.22)
UR	-0.131*** (-4.59)	-0.0758** (-2.62)	-0.123** (-2.60)
_cons	0.171** (2.44)	0.107 (0.87)	0.291* (1.75)
N	50	30	50
F	64***	89***	6***
r ²	0.899	0.959	0.435

t statistics in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01

As shown in Table 4, the coefficient of the explanatory variable for Southern Jiangsu in Model (1) is significantly negative, indicating that digital inclusive finance has the strongest gap-narrowing effect in this region. Specifically, as the most economically developed area in Jiangsu Province, Southern Jiangsu boasts high penetration of digital finance and well-developed digital infrastructure. It can effectively break down the service barriers of traditional finance and precisely empower rural residents' entrepreneurship and employment, thereby significantly narrowing the urban-rural income divide. In contrast, the coefficient for Central Jiangsu in Model (2) is positive and only statistically significant at the 10% level, indicating weak statistical significance. This result suggests that the continuous development of digital inclusive finance in Central Jiangsu has widened the local urban-rural income gap to a certain extent. This phenomenon may be attributed to the “siphon effect” in the early stage of development: digital financial resources in Central Jiangsu tend to flow disproportionately to urban areas or advantaged industries, while inclusive coverage for low-income rural groups remains insufficient, leading to uneven distribution of urban-rural income gains. In Model (3), the coefficient for Northern Jiangsu is negative and also statistically significant at the 10% level. Although the absolute value of its coefficient is slightly smaller than that of Southern Jiangsu, it remains negative in sign. This finding

indicates that in the economically less developed Northern Jiangsu, digital inclusive finance can still boost farmers' income by lowering financial access thresholds and expanding rural financing channels.

Therefore, the impact of digital inclusive finance on the urban-rural income gap in Jiangsu Province exhibits significant regional heterogeneity, characterized by the most pronounced benefits in Southern Jiangsu, robust and effective impacts in Northern Jiangsu, and structural deviations in Central Jiangsu. This conclusion provides important empirical evidence for Jiangsu Province to formulate differentiated supportive policies for digital inclusive finance: it is necessary to prioritize optimizing the resource allocation orientation of digital finance in Central Jiangsu and continuously strengthen the downward penetration of services in rural areas of Northern Jiangsu.

5. Conclusions and Policy Recommendations

5.1 Conclusions

Using panel data from 13 prefecture-level cities in Jiangsu Province spanning 2014 to 2023 as the research sample, this paper selects the Peking University Digital Inclusive Finance Index as the core explanatory variable and adopts the Theil index to measure the urban-rural income gap as the dependent variable. Meanwhile, five control variables are introduced, namely fiscal expenditure, economic development level, degree of opening-up, industrial structure level, and urbanization rate. A panel regression model is constructed to systematically investigate the overall impact and regional heterogeneous characteristics of digital inclusive finance on the urban-rural income gap in Jiangsu Province, drawing the following conclusions.

From the overall regression results, the development level of digital inclusive finance exhibits a significant negative correlation with the urban-rural income gap in Jiangsu Province, with the coefficient being statistically significant at the 1% level. This indicates that digital inclusive finance can effectively narrow the internal urban-rural income gap in Jiangsu Province. The results of the endogeneity tests and robustness checks in this paper fully confirm that this gap-narrowing effect has strong stability and reliability. The underlying reason is that digital inclusive finance facilitates income growth for rural residents through dual channels: directly lowering the threshold for financial services and indirectly promoting rural industrial upgrading and optimizing the allocation of urban-rural factor resources.

From the results of the regional heterogeneity test, the gap-narrowing effect within Jiangsu Province presents obvious regional differentiation characteristics, forming a pattern of the strongest effect in Southern Jiangsu, a robust and effective effect in Northern Jiangsu, and structural deviations in Central Jiangsu. Specifically, the most prominent gap-narrowing effect in Southern Jiangsu benefits from its well-developed digital infrastructure, high penetration of digital finance, and mature rural industrial foundation. The gap-narrowing effect in Northern Jiangsu remains robust: although its regional economic foundation and digital construction level lag behind those of Southern Jiangsu, it is still continuously narrowing the urban-rural income gap. In contrast, the urban-rural income gap in Central Jiangsu has widened slightly, mainly due to the financial siphon effect during the regional development process. Digital financial resources are excessively concentrated in urban advantageous industries and groups, while financial coverage in rural areas is insufficient and product adaptability is weak, leading to structural deviations in the development of digital inclusive finance. This also implies that Jiangsu Province cannot implement a one-size-fits-all digital inclusive finance development policy. Instead, it must tailor policies to local conditions, improve the digital inclusive finance supply system, and give full play to its positive empowering role in narrowing the urban-rural income gap.

5.2 Policy Recommendations

5.2.1 Strengthening the Construction of Digital Financial Infrastructure

Digital financial infrastructure is the prerequisite for the functioning of digital inclusive finance. It is necessary to advance infrastructure construction from a province-wide integrated perspective to reach the last mile of digital financial services in rural areas. First, accelerate the deployment of new digital infrastructure such as 5G, the Internet of Things, and big data centers in rural areas of Northern and Central Jiangsu, promote full coverage of digital financial service terminals in towns and administrative villages, improve the accessibility of digital financial services in rural areas, and narrow the urban-rural gap in digital financial infrastructure. Second, promote in-depth cooperation between traditional financial institutions and internet finance platforms, encourage commercial banks and village banks to set up

digital financial service stations in rural areas, integrate online and offline service resources, and provide rural residents with one-stop digital financial services such as account opening, credit application, and wealth management consultation, thereby reducing the usage costs of digital finance for rural residents.

5.2.2 Innovating Differentiated Financial Products

In southern Jiangsu, the government should focus on the demand for high-end rural industries, develop specialized credit products tailored to rural cultural tourism, rural e-commerce and smart agriculture, support the digital transformation of rural industries, and further optimize the income distribution structure. For central Jiangsu, the government should prioritize alleviating the siphon effect of digital financial resources, strengthen policy guidance and regulatory oversight, and channel digital financial resources toward rural areas. On the one hand, a special fund for rural digital finance development in central Jiangsu should be established to provide policy support including interest subsidies and risk compensation for digital credit services targeting rural residents, so as to encourage financial institutions to expand rural credit allocation. On the other hand, financial institutions shall be guided to refine the design of rural digital financial products and launch inclusive financial products aligned with the characteristics of rural industries in central Jiangsu, such as agricultural production credit and financial services for family farms. These measures will improve the inclusive coverage of digital finance for low-income rural groups and reverse the structural bias where digital finance development widens the urban-rural income gap. In northern Jiangsu, based on data such as rural residents' production and operation records and consumption behavior, the government should build a diversified credit assessment system, lower credit access thresholds, and focus on supporting rural households in scaling up production and operation as well as the development of rural cooperatives. Meanwhile, it should accelerate market-oriented reforms at the county level, break urban-rural market segmentation, and facilitate the flow of production factors including capital and technology into rural areas. Furthermore, across the entire province, financial institutions should be encouraged to collaborate with e-commerce platforms and agricultural technology enterprises to integrate data resources, so as to enhance the precision and applicability of digital financial products.

5.2.3 Improving the Coordinated Development Mechanism

Digital inclusive finance needs to work in synergy with a series of policies to coordinate urban and rural development. First, establish and improve a government-backed financing guarantee system and risk compensation mechanism, reduce the risk premium of rural digital inclusive finance businesses, and enhance the enthusiasm of financial institutions to serve agriculture, rural areas, and farmers. Second, optimize the rural business environment: in conjunction with the development of digital inclusive finance, further improve the business environment in rural areas, attract urban capital and talent to return to rural areas, empower rural industrial upgrading through digital technology, create more high-quality rural jobs, and fundamentally raise farmers' income levels. Finally, while promoting the development of digital inclusive finance, strengthen supervision over the rural digital financial market, guard against the risks of excessive indebtedness and financial fraud, ensure the healthy and sustainable development of digital inclusive finance, and truly benefit the vast majority of rural residents. At the same time, the government shall establish a regional coordination mechanism, encourage digital financial institutions and technical resources in Southern Jiangsu to transfer to Central and Northern Jiangsu, and improve the digital finance development level of Central and Northern Jiangsu through paired assistance and technology transfer. This will narrow the inter-regional gap in digital finance development, promote the continuous narrowing of the province-wide urban-rural income gap, and contribute to the realization of the common prosperity goal.

Acknowledgements

This work is supported by the Jiangsu Provincial General Project of Philosophy and Social Sciences Research for Universities and Colleges [Grant No. 2023SJYB0944].

References

- [1] Liu Y, Liao W M, Jiang L W. *Rural Economic Transformation and Urban-Rural Income Gap: Internal Mechanism and Empirical Evidence*[J]. *Statistics & Decision*, 2026, 42(4): 81-86.
- [2] Zhang M T. *Research on Countermeasures for Optimizing Income Distribution Structure to Promote Common Prosperity in Jiangsu Province*[J]. *Business Observation*, 2025, 11(32): 117-120.
- [3] Song X L. *An Empirical Test of Digital Inclusive Finance Narrowing the Urban-Rural Income Gap*[J].

Finance & Economics, 2017(6): 14-25.

[4] Gu, M. *Research on the Impact of Digital Inclusive Finance on the Urban-Rural Income Gap—Panel Analysis Based on Province-Level Data in China*. *Asia Pacific Economic and Management Review*, 2025,2(5): 1-10.

[5] Zhou L, Feng D W, Yi X J. *Digital Inclusive Finance and Urban-Rural Income Gap: “Digital Dividend” or “Digital Divide”?*[J]. *Economist*, 2020(5): 99-108.

[6] Sun B K. *Research on the Path of Digital Inclusive Finance Empowering High-Quality Development of Rural Collective Economy*[J]. *China Collective Economy*, 2026(13): 13-16.

[7] Zhang D F, Yuan W P, Qiu J L. *Research on the Impact of Digital Inclusive Finance on High-Quality Agricultural Development in Jiangsu Province*[J]. *Modern Business*, 2026(1): 98-101.