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Digital Financial Inclusion, Capital Mismatch and High-Quality Development of the Real Economy

Journal of Electrical Systems

Abstract: - Based on the analysis of the mechanism of digital inclusive finance affecting the high-quality development of the real economy, this study empirically examines the direct effect and spatial spillover effect of digital inclusive finance on the quality of real economic development using the spatial Durbin model with the provincial data from 2011-2022 and examines the mediating effect of capital mismatch. The study finds that: digital inclusive finance has a positive driving effect on the quality of real economic development, with positive total and direct effects, but negative spatial spillover effects; capital mismatch is an important mechanism for digital inclusive finance to promote the high-quality development of the real economy. Therefore, it is recommended that the government create a digital inclusive financial ecosystem, deepen financial market reform, and promote the high-quality development of the regional real economy.

Keywords: Digital Financial Inclusion, Capital Mismatch, Real Economy, Spatial Dublin Model.

I. INTRODUCTION

Since the beginning of the 21st century, China's economy has experienced rapid development, characterized by a high level of monetization indicated by M2 and ample market liquidity. However, this prosperity has also brought hidden risks, with a substantial inflow of funds into the financial and real estate sectors, creating an illusion of prosperity. Consequently, real enterprises face challenges in accessing affordable financing, hindering the development of the real economy and necessitating the search for new growth drivers. The widespread adoption of Internet and mobile communication technologies has revolutionized financial services, transcending the constraints of traditional physical outlets and enabling spatial expansion. This technological convergence has led to the emergence of digital financial inclusion, extending financial services to a broader user base, including disadvantaged groups, through the fusion of Internet technology and financial inclusion principles. Compared to traditional finance, digital inclusive finance offers distinct advantages, such as extensive coverage, low entry barriers, user-friendly interfaces, and comprehensiveness. However, despite its potential benefits, the efficacy of digital inclusive finance as a catalyst for real economic growth remains uncertain, raising questions about its ability to significantly impact the quality of real economic development. Can digital inclusive finance emerge as a novel catalyst for real economic growth? Does the advanced development of digital inclusive finance enhance the quality of real economic development? What mechanisms underlie the influence between these two phenomena?

Scholars have discussed the positive impact of digital inclusive finance on real economic development (Cheng et al., 2020). They suggest that technological innovation and financial restructuring are effective strategies for enhancing digital inclusive finance's efficiency in serving the real economy (Lu et al., 2022). Additionally, digital inclusive finance can facilitate investment industrialization by reducing financial costs, thereby preventing real enterprises from transitioning from 'realization to virtualization,' which is beneficial for real economic development (Sheng et al., 2022). The high-quality development of China's economy is closely linked to the continuous advancement of digital inclusive finance. He and Zhang (2020) established an indicator system for assessing the quality of economic development in the new era, revealing that digital inclusive finance contributes to enhancing economic development quality. Moreover, digital inclusive finance achieves high-quality development through innovation, technological spillover, and industrial structure enhancement (Chang et al., 2021). It also fosters high-quality economic development by expediting financial supply-side structural reforms and aligning digital inclusive finance development with regional government financial expenditure (Zhang and Yang, 2022). Furthermore, digital inclusive finance promotes high-quality economic development through mechanisms such as financial resource allocation, technological innovation, consumption growth, poverty alleviation, and income generation (Zhang et al., 2023). Empirical evidence from Mohd Daud et al. (2024) suggests that, driven by digital technology advancements, digital inclusive finance can indeed promote economic development.

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The studies underscore the positive impact of digital inclusive finance on real economic development, yet they often overlook the crucial role of capital mismatch in their impact mechanisms. Digital inclusive finance effectively alleviates capital mismatch and indirectly addresses labor mismatch by enhancing green total factor productivity (Zhu et al., 2022). However, some scholars suggest a significant inverted U-shaped relationship between digital inclusive finance and inter-regional capital mismatch, indicating that its ability to reduce inter-regional income disparities is limited by its effect on capital mismatch (Hu et al., 2022). Reducing capital mismatch is inherently vital for the high-quality growth of the Chinese economy. Improving resource allocation efficiency is crucial to unlocking the potential of China's manufacturing sector and transitioning to a stage of high-quality development (Wen et al., 2019). Additionally, financial resource mismatch and escalating house prices pose significant obstacles to China's economic development (Zhou et al., 2022). Financial mismatch undermines the capital allocation efficiency of the real economy, impeding its development (Zhang et al., 2019).

In the contemporary era, the focus of real economic development has shifted from mere scale expansion to the pursuit of higher-quality growth. Against this backdrop, this paper investigates the role of digital inclusive finance in bolstering real economic development by analyzing its theoretical mechanisms for fostering high-quality development. The aim is to provide empirical evidence supporting the financial facilitation of real economic advancement. Initially, drawing from existing literature, the paper scrutinizes the role, mechanisms, and pathways through which digital inclusive finance promotes real economic development. Subsequently, real economic development indicators are formulated across six dimensions, and the entropy-weighted TOPSIS method is employed to gauge the level of high-quality development in China's inter-provincial real economy. Lastly, the impact of digital inclusive finance on fostering high-quality real economic development is examined through the construction of a spatial econometric model.

This paper makes several marginal contributions: (1) Existing research on economic development quality predominantly focuses on the entire economic system or specific industries, with limited exploration into the subdivided real economy. Hence, drawing from previous literature and new development concepts, this study devises indicators for high-quality development in the real economy, thereby enhancing and complementing existing research in this domain. (2) While prior studies have investigated the relationship between digital inclusive finance, capital mismatch, and real economic development quality, few have examined the quality of the real economy through the lens of capital mismatch to address issues related to digital inclusive finance. Given the scarcity of research in this area, this paper integrates the perspective of capital mismatch into the framework of real economic development quality research, aiming to elucidate the impact of digital inclusive finance on real economic development quality and its underlying mechanisms. (3) This paper transcends the spatial constraints of traditional panel models by adopting a spatial measurement perspective to examine the influence of digital inclusive financial development on the quality of China's real economic development. By doing so, it offers insights into real economic development quality in China from a spatial context.

II. MECHANISM ANALYSIS AND RESEARCH HYPOTHESES

A. Digital Inclusive Finance and High-Quality Development of the Real Economy

On one hand, the development of digital inclusive finance has enabled financial institutions to expand their service coverage without the need for additional physical outlets, fostering financial innovation, diversifying product services, and reducing the threshold for financial access. This has effectively met the economic participation needs of disadvantaged groups in remote areas (Yin et al., 2020), facilitating quicker, more convenient, and cost-effective financial support for numerous micro- and small-sized enterprises and entrepreneurs, thereby fostering the coordinated, stable, and efficient development of the real economy. On the other hand, the evolution of digital inclusive finance has introduced new financing channels for innovative enterprises, alleviating financing obstacles, significantly enhancing the likelihood of successful financing, providing essential financial support for innovative activities, and fostering a conducive environment for innovation and entrepreneurship (Tang, 2020). Moreover, digital inclusive finance serves as an environmentally friendly financial service model, integrating financial services with carbon emissions and green trading. This facilitates the redirection of green financial resources towards high-tech and low-carbon industries, thereby fostering the green development of the real economy (Lv et al., 2021), ultimately leading to regional green inclusive growth (Li et al., 2024).

While digital financial inclusion can indeed expand the scope of financial products and services, its impact is inevitably shaped by various regional geographic and economic conditions during the promotion process.

According to Qi et al. (2023), digital inclusive finance often emerges in resource-rich regions and subsequently extends to surrounding areas by facilitating the swift movement of financial resources across regions. This phenomenon not only meets the needs of its originating region but also generates a 'trickle-down effect' in the neighborhood. Consequently, it mitigates the financing challenges faced by impoverished populations and small to medium-sized micro-enterprises in surrounding areas, and creates additional employment opportunities, thereby fostering stability in the real economy of these neighboring regions. However, as noted by Cheng et al. (2022), the more developed regions in terms of digital inclusive finance may attract the human and material resources from underdeveloped neighboring areas, leading to a 'siphon effect'.

Hypothesis 1a : digital financial inclusion in the region contributes to the quality of real economic development in neighboring regions, exhibiting a "spillover effect".

Hypothesis 1b : digital financial inclusion in the region dampens the quality of real economic development in neighboring regions, manifesting a "siphoning effect".

B. Digital Financial Inclusion, Capital Mismatch and the Quality of Development of the Real Economy

The imbalance between supply and demand in China's financial structure is pronounced, with large and medium-sized enterprises and wealthier groups having easy access to high-quality financial resources and services, while small and micro-enterprises struggle to obtain adequate financial services, and low-income groups face severe financial exclusion. Digital inclusive finance addresses the adverse effects of missing or imperfect credit markets, leveraging digital information technology to reduce information asymmetry (Yan and He, 2022). Utilizing Internet and data technology, banks and financial service providers can establish comprehensive enterprise credit evaluation systems, mitigating resource mismatch by accurately assessing financing needs, lowering financing costs, and optimizing resource allocation among enterprises. This facilitates access to financial services for enterprises of varying sizes and types, as well as individuals with diverse economic circumstances (Feng and Hu, 2024), thereby channeling financial resources to small and medium-sized micro-enterprises, rural areas, and innovation and entrepreneurship. Digital finance not only complements traditional finance by enhancing account penetration, facilitating micro-payments, and extending financial coverage, but also fosters financial inclusion by breaking the psychological barriers of self-sufficiency and isolation through its social network, which disseminates financial knowledge and shares resources. Moreover, this social network promotes microfinance development and encourages greater participation of micro market players in digital finance. Consequently, digital inclusive finance mitigates factor mismatch by reducing enterprise financing costs, fostering individual entrepreneurship, and promoting high-quality labor employment (Shen, 2022).

Hypothesis 2: Capital mismatch plays a mediating role in the impact of digital inclusive finance on the development quality of the real economy. In other words, the development of digital inclusive finance can alleviate capital mismatch, thereby promoting the high-quality growth of the real economy.

III. RESEARCH DESIGN

A. Variable Selection

(1) Explained Variable: the development quality of the real economy (reco)

Following Luo et al.'s study (2022), the measure (re) of each region's GDP minus the total output value of the financial and real estate industries is employed to gauge the level of real economic development.

(2) Core Explanatory Variable: Digital Financial Inclusion (dfi)

The total digital financial inclusion index (dfi) and the three sub-dimension indices -- breadth of coverage (cb), depth of use (ud), and degree of digitization (dl) -- are adopted from the Digital Financial Evaluation System developed by the Digital Finance Research Center of Peking University (Guo et al., 2020). To standardize the scale and facilitate comparison with other variables, the total index and sub-dimension indices are logarithmically transformed.

(3) Mediating Variable: Capital Mismatch (mis)

Drawing on the studies of Chen and Hu (2011) and Bai et al. (2018), this paper uses the degree of capital mismatch to consider the degree of regional capital mismatch. The capital mismatch degree of region i period t is constructed as:

$$Mis_{Ki} = \frac{1}{\hat{Y}_{Ki}} - 1 \quad (1)$$

Of these, γ_{Ki} is the coefficient of absolute distortion of factor prices for capital K in region i, i.e., the measure when resources are ideally undistorted. Therefore, it needs to be replaced by the relative distortion coefficient in the actual measurement:

$$\hat{\gamma}_{Ki} = \frac{K_i/K}{S_i\beta_{Ki}/\beta_K} \tag{2}$$

Ki /K is the actual proportion of region i's capital use to total capital; and$Si\beta_{Ki}/\beta_K$ is the theoretical proportion of region i's capital use to total capital when capital is efficiently allocated. Where $S_i = y_i/Y$ is the share of region i's output in total output, andβ_{Ki} denotes the output elasticity of capital.

(3) Control Variables

Drawing on the related studies of Gao and Gao (2023), this paper chooses the degree of aging (old), the level of human capital (edu), the level of infrastructure development (infra), and the level of government intervention (gov) as control variables.

B. Model Design

The inverse geographic distance matrix reflects that closer regions have greater spatial relevance, resulting in a higher impact of one region on surrounding regions, i.e., greater weight. The calculation formula is:

$$w_{ij} = \begin{cases} \frac{1}{d_{ij}}, & i \neq j \\ 0, & i = j \end{cases} \tag{3}$$

Following the Hausman test, LR likelihood ratio test, and Wald test, the spatial Durbin model was selected to examine the effect of digital financial inclusion on the quality of real economic development. The specific model settings are outlined below:

$$reco_{it} = \rho_1 W_{ij} reco_{it} + \beta_1 dfi_{it} + \lambda_1 W_{ij} dfi_{it} + \beta_i \sum Control_{it} + \lambda_i \sum W_{ij} Control_{it} + \alpha_i + \varphi_i + u_{it} \tag{4}$$

$$u_{it} = \delta W_{ij} u_{ij} + \varepsilon_{ij}, \ \varepsilon_{ij} \sim N(0, \sigma^2 I_n) \tag{5}$$

Among them, the explanatory variable $reco_{it}$ is the level of quality of regional real economy development, and the core explanatory variable dfi_{it} is the level of digital inclusive financial development, and $Control_{it}$ is the control variable. W_{ij} is the spatial weight matrix that α_i denotes time fixed effects, φ_i denotes the region fixed effects, and u_{ij} is the random error term.

Only one step, to test digital financial inclusion through the mitigation of capital mismatch and thus promote the high-quality development of the real economy this mechanism of action to construct the following mediation effect model for testing:

$$mis_{it} = \theta_1 W_{ij} mis_{it} + \beta_2 dfi_{it} + \lambda_2 W_{ij} dfi_{it} + \beta_i \sum Control_{it} + \lambda_i \sum W_{ij} Control_{it} + \alpha_i + \varphi_i + u_{it} \tag{6}$$

$$reco_{it} = \rho_2 W_{ij} reco_{it} + \pi_1 mis_{it} + \theta_2 W_{ij} mis_{it} + \beta_3 dfi_{it} + \lambda_3 W_{ij} dfi_{it} + \beta_i \sum Control_{it} + + \lambda_i \sum W_{ij} Control_{it} + \alpha_i + \varphi_i + u_{it} \tag{7}$$

Where mis_{it} is the mediating variable degree of capital mismatch.

C. Data Source

This paper utilizes panel data from 30 provinces in China spanning from 2011 to 2022 as the research sample. Data used to measure indicators related to the quality of real economic development are sourced from the China Statistical Yearbook, China Environmental Statistics Yearbook, and the financial operation reports of each region. The digital financial inclusion index is obtained from the Digital Financial Inclusion Index of Peking University (2011-2022) published by the Digital Finance Research Center of Peking University, while data for other variables are sourced from the official website of the National Bureau of Statistics.

IV. EMPIRICAL ANALYSIS

A. Spatial Autocorrelation Analysis

The spatial autocorrelation test is carried out using the real economy development quality index of each province in China from 2011 to 2022, and the test results are shown in Table 1.

In Table 1, the Moran's I from 2011-2022 all passed the 1% significance test and was greater than 0, indicating that there is a very significant positive spatial correlation between the quality of the real economy in each region. However, the Moran's I index shows a fluctuating downward trend from 2011-2022, indicating that the spatial

dependence between regions is gradually weakening, which may be since with the development of digital technology, economic development is becoming less and less restricted by geography.

Table 1 Spatial autocorrelation test on the quality of China's real economy development

YEAR	Moran's I	z-value	p-value
2011	0.595	5.545	0.000
2012	0.620	5.859	0.000
2013	0.612	6.054	0.000
2014	0.568	5.553	0.000
2015	0.589	5.952	0.000
2016	0.461	4.535	0.000
2017	0.467	5.155	0.000
2018	0.448	4.953	0.000
2019	0.619	6.050	0.000
2020	0.605	6.288	0.000
2021	0.586	5.960	0.000
2022	0.611	5.905	0.000

Note: ***, **, * represent regression coefficients that are significant at the 1%, 5%, and 10% levels, respectively

B. Baseline Regression Analysis

As can be seen in column (1) of Table 2, the spatial autocorrelation coefficient rho is 0.602 and significant at the 1% level, indicating that there is a significant spatial spillover effect in the development of the real economy with high quality, and the impact coefficient of the core explanatory variable Digital Financial Inclusion (dfi) is 0.079 and passes the significance test of 1%, which indicates that Digital Financial Inclusion has a significant role in promoting the growth of the quality of the real economy. However, the coefficient of the spatial lag term of digital financial inclusion is significantly negative, indicating that there is a spatial effect in the development of digital financial inclusion, and the specific impact needs to depend on the results of the decomposition of the spatial effect. Columns (2), (3), and (4) of Table 2 report the impact effects of the three sub-dimensions of digital financial inclusion, respectively. In terms of the three dimensions, the breadth of coverage (cb), depth of use (ud), and degree of digitization (dl) show a positive contribution to the quality of the real economy's development and are all significant at the 1% level, but they negatively affect the development of the real economy of the neighboring regions.

Table 2 Baseline regression results

	(1) Aggregate index reco	(2) Breadth of coverage reco	(3) Depth of use reco	(4) Level of digitization reco
dfi	0.079***			
	(4.741)			
cb		0.025***		
		(3.738)		
ud			0.043***	
			(3.250)	
dl				0.014***
				(3.216)
W*dfi	-0.084***			
	(-4.495)			
W*cb		-0.028***		
		(-2.993)		
W*ud			-0.044***	
			(-2.690)	
W*dl				-0.511**
				(-2.234)
rho	0.602***	0.601***	0.575***	0.601***
	(7.194)	(7.179)	(6.484)	(7.309)
sigma2_e	0.001***	0.001***	0.001***	0.001***
	(13.291)	(13.292)	(13.301)	(13.296)
R-squared	0.366	0.332	0.322	0.315

Note: ***, **, * represent regression coefficients that are significant at the 1%, 5%, and 10% levels, respectively

C. Mediation Effect Test

Column (1) of Table 3 indicates a significantly positive impact of the digital financial inclusion index, suggesting a positive correlation between digital financial inclusion and the real economy development quality index. In

Column (2), the coefficient of digital financial inclusion is significantly negative, indicating its effectiveness in reducing regional capital mismatch. In Column (3) of Table 3, after incorporating the intermediary variable capital mismatch, the impact of digital inclusive finance remains significantly positive, with the coefficient decreasing from 0.145 to 0.131. Additionally, the impact of capital mismatch is significantly negative, indicating its partial intermediary role. This suggests that capital mismatch is one of the crucial transmission paths in promoting high-quality growth of the real economy through digital inclusive finance. Digital inclusive finance alleviates the slowdown in real economic development resulting from regional capital factor mismatch, facilitates the flow of capital factors to remote areas and disadvantaged populations, improves factor allocation structure, achieves a reasonable distribution of factors, and thereby fosters balanced high-quality growth in the real economy.

Table 3 Mediation effect test results

	(1)	(2)	(3)
	reco	mis	reco
dfi	0.079***		0.061***
	(4.741)		(3.719)
mis		-0.086*	-0.125***
		(-1.896)	(-6.460)
W*dfi	-0.0840***	0.0859*	-0.0657***
	(-4.4950)	(1.7018)	(-3.5881)
W*mis			-0.4044***
			(-2.9514)
rho	0.6015***	-1.2458***	0.5853***
	(7.1944)	(-4.9430)	(7.0184)
sigma2_e	0.0008***	0.0056***	0.0007***
	(13.2914)	(12.9611)	(13.3060)
Observations	360	360	360
R-squared	0.366	0.332	0.322

Note: ***, **, * represent regression coefficients that are significant at the 1%, 5%, and 10% levels, respectively

D. Robustness Test

(1) Replacement of Samples

Considering the substantial difference in the level of economic development between municipalities and autonomous regions, the sample data from municipalities are excluded, and the remaining samples are used for regression analysis. The results, presented in column (1) of Table 4, demonstrate that the positive impact of digital inclusive finance on the enhancement of real economic quality remains significant, consistent with the benchmark regression results.

(2) Replacement of the Spatial Weighting Matrix

Given the sensitivity of spatial econometric analysis to changes in the weight matrix, this paper replaces the inverse geographic weight matrix with the 0-1 adjacency matrix based on provincial adjacency to introduce the spatial Durbin model for robustness testing. The test results are presented in column (2) of Table 4. Following the introduction of the geographic neighborhood matrix, the direct effect of digital financial inclusion is significantly positive at the 1% significance level, indicating that the development of digital financial inclusion in the region can help promote the quality of local real economic development. However, the indirect effect is significantly negative, demonstrating a ‘siphoning effect’, consistent with the benchmark regression results.

(3) Replacement of Measurement Models

Considering the continuity of economic development, this paper employs the systematic generalized method of moments estimation (GMM) method to conduct robustness tests. The results are presented in column (3) of Table 4. After employing the GMM method, the impact of digital financial inclusion remains significantly positive, consistent with the benchmark regression results. Thus, the regression findings of this paper are robust.

Table 4 Robustness test results

	(1) Replacement of Samples	(2) Replacement of the Spatial Weighting Matrix	(3) GMM
	reco	reco	reco
l.reco			0.442***
			(4.127)
dfi	0.016**	0.088***	0.017*
	(2.268)	(5.732)	(1.709)
W*dfi	-0.128	-0.062***	

	(-0.337)	(-3.817)	
rho	15.196***	0.424***	
	(3.425)	(3.801)	
sigma2_e	0.001***	0.001***	
	(12.427)	(13.374)	
Sargan			0.000
AR(1)			0.005
AR(2)			0.794
Observations	312	360	360
R-squared	0.000	0.385	0.589
Number of ID	26	30	30

Note: ***, **, * represent regression coefficients that are significant at the 1%, 5%, and 10% levels, respectively

V. CONCLUSION AND RECOMMENDATIONS

This empirical study examines how the development of digital financial inclusion affects the quality development of the real economy in the region from 2011 to 2022. Based on the above research, the following conclusions have been drawn: Firstly, the development of digital inclusive finance in the region significantly impacts the quality of real economic development within the region, while exerting a 'siphoning effect' on neighboring regions. Secondly, the development of digital inclusive finance influences capital mismatch and consequently affects the quality of real economic development. Particularly, digital inclusive finance significantly mitigates financial capital mismatch. Strategies to enhance the quality of real economic development need to fully consider spatial correlations. Firstly, sustained and enhanced investment in financial technology and the optimization of digital infrastructure, such as communication networks and mobile payment systems, are necessary to facilitate the development of digitally inclusive finance and bolster support for the real economy. Secondly, efforts should focus on fostering a virtuous circle within digital inclusive financial ecosystems, encouraging financial institutions to deliver efficient and high-quality financial services to micro and small enterprises, agriculture, rural areas, and individuals' livelihoods through digital channels.

REFERENCES

[1] X. Z. Cheng, Q. Y. Gong. How digital inclusive finance affects the development of real economy-Analysis based on system GMM model and mediation effect test[J]. Journal of Hunan University (Social Science Edition),2020,34(03):59-67.

[2] F. Z. Lu, Q. Y. Wang. Digital inclusive finance and the efficiency improvement of financial service real economy[J]. Nankai Journal (Philosophy and Social Science Edition),2022,(03):34-47.

[3] M. Q. Sheng, C. Y. Xiang, Xie Rui. Whether digital financial inclusion can inhibit the "de-realization to virtualization" of real enterprises[J]. Journal of Capital University of Economics and Business,2022,24(01):96-112.

[4] J. He, H. M. Zhang. Research on the impact of regional differences in digital inclusive finance on the high-quality development of the economy - based on the test of system GMM and threshold effect[J]. Financial Theory and Practice,2020,(07):26-32.

[5] J. X. Chang, L. C. Fan, L. Gao. Can digital inclusive finance promote high-quality economic development? [J]. Financial Development Research,2021(12):69-76.

[6] Z. H. Zhang, Z. H. Yang. Research on the Impact of Digital Inclusive Finance on High-Quality Economic Growth--Based on the Perspective of Government Participation[J]. East China Economic Management,2022,36(04):71-78.

[7] L. Zhang, J. Z. Dong, W. W. Zhang. Research on the influence mechanism of digital inclusive finance on the high-quality development of economy[J]. Journal of Harbin University of Commerce (Social Science Edition),2023,(06):20-30.

[8] S. N. Mohd Daud, A. H. Ahmad. Financial inclusion, economic growth and the role of digital technology,[J] Finance Research Letters. 2023, 53: 103602.

[9] J. T. Zhu, R. Q. Jiao, W. L. Xie. How digital financial inclusion affects green total factor productivity-theoretical analysis and empirical evidence[J]. Financial Regulation Research,2022,(03):54-70.

[10] S.C.Hu, Y. Y. Zhang, Y. M. Zhang. Digital financial inclusion, financial mismatch and inter-regional income gap[J]. Financial Science,2022,(05):1-14.

[11] D. W. Wen. Resource mismatch, total factor productivity and the growth potential of China's manufacturing industry[J]. Economics (Quarterly),2019,18(02):617-638.

[12] J. J. Zhou, P. Long. Financial resource mismatch, house price and economic high-quality development - analysis based on spatial econometric modeling[J]. Finance and Economics Theory and Practice,2022,43(02):99-105.

[13] Q. Zhang, F. Yan, K. Li, H. Ai. Impact of market mismatchs on green TFP: evidence from countries along the Belt and Road[J]. Environmental Science and Pollution Research. 2019; 26(34):534-548.

[14] H. Yin, H. L. Jiang, C. J. Zhang. How does digital financial inclusion respond to the urban-rural income gap? --An empirical test based on spatial spillover perspective[J]. Financial Regulation Research,2020,(09):33-49.

[15] S. Tang, X. C. Wu, J. Zhu. Digital finance and corporate technological innovation - structural characteristics, mechanism identification and effect differences under financial regulation[J]. Management World,2020,36(05):52-66+9.

[16] Z. X. Lv, B. Quan, L. M. Ren. Can digital finance promote green transformation and development of industrial economy? --Based on the empirical analysis of above-scale industrial enterprises data[J]. Science and Technology Management Research,2021,41(24):184-194.
[17] Y. C. Li, G. Y. Jin, Z. H. Cui, B. S.L v, Z. J. Xu. Does digital inclusive finance promote regional green inclusive growth? [J] Finance Research Letters, 2024, 62:105163.
[18] M. D. Qi, J. K. Wu. The real economic development effect of digital inclusive finance: heterogeneity and mechanism of action[J]. Finance and accounting newsletter,2023(13):84-90.
[19] G. B. Cheng, C. Zhao, Y. Li. Digital financial inclusion, spatial spillovers and economic growth[J]. Statistics and Decision Making,2022,38(16):132-136.
[20] S. Yan, H. He. Can the development of digital inclusive finance improve resource mismatch? [J]. Financial Economy,2022,(06):65-76.
[21] Y. Q. Feng, Y. Hu. Does digital finance optimize the financing structure of real enterprises? [J/OL]. Research in Financial Economics,1-18[2024-04-20].http://kns.cnki.net/kcms/detail/44.1696.F.20240326.1612.006.html.
[22] Y. Shen, X. Y. Guo, X. W. Zhang. Digital inclusive finance, factor mismatch and industrial smart manufacturing [J]. Industrial Technology and Economics, 2022, 41 (07): 13-20.
[23] F. Guo, J. Y. Wang, F. Wang, T. Kong, X. Zhang, Z. Y. Cheng. Measuring the development of digital inclusive finance in China: indexing and spatial characterization[J]. Economics(Quarterly),2020,19(04):1401-1418.
[24] Y. W. Chen, W. M. Hu. Price distortion, factor mismatch and efficiency loss:theory and applications[J]. Economics(Quarterly),2011,10(04):1401-1422.
[25] J. H. Bai, Y. C. Bian . Factor market distortions and the efficiency loss of innovation production in China[J]. China Industrial Economy,2016,(11):39-55.
[26] W. Gao, J. J. Gao. Research on the efficiency measurement and influencing factors of digital inclusive financial services for the real economy[J]. Statistics and Decision Making,2023,39(15):125-130.
[27] X. Luo, J. Wang, J. Zhu. Research on the impact of digital economy development on real economy[J]. Contemporary Economic Management,2022,44(07):72-80.