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The Impact of Digital Inclusive Finance on High-Quality Economic Development: A Research Study

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Abstract

As China's economy transitions from high-speed growth to high-quality development, digital inclusive finance emerges as a dynamic and pivotal sector within the country's financial system. This domain plays a crucial role in addressing the shortcomings of traditional financial services, enhancing the efficiency of financial services, promoting consumption, and driving economic growth. As the turmoil caused by the COVID-19 epidemic gradually stabilizes, the impact of the epidemic on the economic development of various countries is gradually reduced, and the development of the global economy gradually returns to normal, China's economic development is facing new opportunities and challenge. Given the current challenges in China's economic environment, China has made new adjustments and begun to promote high-quality economic development on the premise of significantly improving quality and efficiency. Therefore, in the current stage of China's economic development, it is imperative to investigate whether digital inclusive finance can indeed foster high-quality economic development. This paper begins by reviewing literature relevant to digital inclusive finance and high-quality economic development. Subsequently, utilizing panel data from 2011 to 2020 across 30 provinces, a bidirectional fixed-effects model is employed to validate the positive impact of digital inclusive finance on high-quality economic development. The study further explores whether digital inclusive finance exhibits positive effects on high-quality economic development in different regions. Finally, based on the research findings, the paper concludes with several policy recommendations for optimizing the role of digital finance in promoting regional economic growth.

Keywords

Digital Inclusive Finance, High-Quality Economic Development, Bidirectional Fixed-Effects Model

1. Introduction

In this introduction, the term "Inclusive Finance" originates from a United Nations initiative. It refers to the provision of adequate and efficient financial services at a lower cost to social groups in need of such services. Digital finance is the

creation of new financial services by integrating the internet and information technology with traditional financial services. Digital Inclusive Finance applies internet technology and computer technologies in information and data processing to the realm of Inclusive Finance. It is one of the most active areas in the development of finance in China. Leveraging internet and big data technology, it can further expand the scope of financial services and improve efficiency, thereby ameliorating some traditional shortcomings and deficiencies of Inclusive Finance. With the rapid development of global information technology, Digital Inclusive Finance, as a product combining finance with the characteristics of the new era, is undoubtedly a focal point of attention for countries around the world.

The world is currently experiencing a major transformation not seen in a century. As the turbulence caused by the COVID-19 pandemic gradually stabilizes and its impact on the economic development of countries diminishes, global economic growth is returning to normal, facing new opportunities and challenges. In the face of the current severe economic situation, China must make new adjustments. The Fifth Plenary Session of the 19th Central Committee of China proposed to deepen scientific and technological revolution, advance industrial transformation, improve economic structure, and promote high-quality development with a significant improvement in quality and efficiency.

Therefore, in the current stage of China's economic development, can Digital Inclusive Finance promote high-quality economic development? Is this promotional effect sustainable? This is worth in-depth study. Hence, this paper attempts to investigate whether Digital Inclusive Finance impacts the high-quality development of the economy. Existing literature generally focuses on whether there is a relationship between the development of Digital Inclusive Finance and economic growth, with few delving into whether the development of Digital Inclusive Finance impacts the high-quality development of the economy. The possible contributions of this paper are: firstly, it uses the "Peking University Digital Inclusive Finance Index" to measure the development level of Digital Inclusive Finance in various provinces. This index serves as the core explanatory variable, and the level of high-quality economic development measured by the high-quality economic development indicator system is the dependent variable. Using econometrics, the paper quantitatively analyzes whether the development of Digital Inclusive Finance impacts high-quality economic development. Secondly, considering the issue of uneven economic development across regions in China, this paper examines whether the promotional effect of Digital Inclusive Finance on high-quality economic development varies across different economic regions. This not only supplements existing research but also provides a theoretical basis for policy-making. Ultimately, through this study, the paper provides feasible solutions for further enhancing the level of high-quality economic development in China, offering significant reference value.

2. Literature Review

This section of the paper reviews relevant literature in three parts: the development of Digital Inclusive Finance, the definition of high-quality economic development, and the impact of Digital Inclusive Finance on high-quality economic development.

2.1. Research on Digital Inclusive Finance

In 2006, the concept of "Inclusive Finance" was introduced in China, since then it has attracted widespread attention and research from the government and various sectors. From 2006 to 2011, central and government departments began advocating the development of Inclusive Finance. Hu Bin believes that the advancement of mathematical technology and the integration of technology and finance have laid a solid foundation for the realization of Inclusive Finance [6]. Liang Bang and Zhang Jianhua view Digital Inclusive Finance as a product of the integration of Inclusive Finance and computer technology, a mode of financial innovation that can effectively improve the quality, coverage, and satisfaction of Inclusive Finance services [7]. Wan Jiayu and Zhou Qin et al. argue that Digital Inclusive Finance is essentially a financial innovation that leverages the advantages of current information technology to compensate for the deficiencies of traditional Inclusive Finance [20]. Maria & Antonio et al. regard Inclusive Finance as one of the cornerstones of social development, offering affordable, appropriate, and extensive financial products and services [25]. It can facilitate poverty reduction, narrow income gaps, and lead to more prudent financial decisions, thereby increasing savings, boosting productive investments, and promoting gender equality.

Thanks to the government's emphasis on the development of science and technology, China's Inclusive Finance development ranks among the top globally, especially noted for its rapid progress. The development of Digital Inclusive Finance in China can be roughly divided into three stages:

The first stage saw traditional financial services gradually transitioning online. Financial institutions used internet science and information technology to offer services such as mobile banking to clients, reducing the costs of operating offline branches. The use of online platforms significantly shortened the processing time for payments, transfers, and other services, enhancing service efficiency.

In the second stage, Digital Inclusive Finance entered the public eye, with a significant increase in user numbers and rapid development. Continuous advancements in internet technology allowed for precise customer segmentation and the design of more diverse and personalized online financial products using big data, blockchain, and other information technologies, meeting customer needs and enhancing the capability of financial services.

The third stage is characterized by the continuous and stable growth of China's Digital Inclusive Finance, which has become part of the national economic development strategy. The G20 summit held in 2016 marked the formal arrival of the Digital Inclusive Finance era by integrating digital technology into Inclusive Finance. The "G20 Digital Inclusive Finance High-Level Principles" outlined the specific content of "Digital Inclusive Finance," covering various financial products and services transacted through digital or electronic technology. The "China Financial Technology and Digital Inclusive Finance Development Report" in 2018 explicitly stated for the first time that digital inclusive industrial finance should be developed to promote rural economic revitalization, precise industrial poverty alleviation, and financing for small and micro-individual enterprises. It is evident that the development of Digital Inclusive Finance has received sufficient attention and will hold an important position in future societal development.

2.2. Research on High-Quality Economic Development

Currently, China's economic development has shifted from focusing on the speed and quantity of growth to pursuing improvements in quality. The report of the 19th National Congress of China specifically stated that "China's economy has shifted from a phase of rapid growth to a stage of high-quality development." Since the concept of "high-quality economic development" was proposed and came into the public eye, it has received great attention from all sectors of society. The term "high-quality economic development" appeared multiple times in the Government Work Report of 2019, highlighting the government's strong focus on advancing economic development of high quality. How to promote economic development towards high quality is the main issue in China's current economic development and a key component in perfecting the economic system. How is high-quality economic development defined? What factors affect the level of high-quality economic development? How can we accurately assess the level of high-quality economic development in China? These questions are worthy of in-depth discussion.

From a content perspective, compared to ordinary economic growth, high-quality economic development should also encompass other dimensions such as urban-rural coordination, people's livelihoods, institutional environments, and social welfare, in addition to economic factors. Pang Jinju and Lin Gang et al. pointed out that "high-quality economic development" is a new term different from past "economic development," with the key to high-quality economic development lying in enhancing the vitality of the economy, increasing the level of economic innovation, and thereby improving the efficiency of economic development, i.e., achieving efficient growth [12]. Ren Baoping proposed that "high-quality economic development" should not be limited to quantitative growth but should also focus on qualitative

optimization [13]. Based on the trend of economic growth and changes in primary contradictions, "high-quality development" should consider both quantity and quality. "High-quality economic development" is the optimal state of a country's economic development. Ma Ru and Luo Hui et al. believe that the transformation of economic development to high quality is not only a new development trend but also a significant choice made by China under the current severe circumstances [10]. In summary, there is a relatively unified definition of high-quality economic development, which emphasizes not merely the increase in quantity but the quality and efficiency of development.

Regarding how to measure the level of high-quality economic development, most current research builds an indicator system on a certain theoretical basis to assess the "level of high-quality development." Some are based on the new development concepts of "innovation, coordination, green, openness, and sharing," while others further refine the system to include more content. For example, Ren Baoxian measured the high-quality economic development level of provinces, with an indicator system constructed around production, distribution, circulation, consumption, and their externalities [14]. Wei Min and Li Shuhao included optimizing economic structure and improving infrastructure in their measurement system [22]. Wang Tongsan argued that it is not comprehensive to examine the level of high-quality economic development, which has integrated attributes, from a single perspective, and it should be examined from micro-level, macro-level, and social welfare aspects [21]. Guoqiang Wang preliminarily constructed a model structure with high-quality economic development as the top layer and economic structure and green development as the middle layer using the Analytic Hierarchy Process (AHP) to evaluate the quality of economic development [26]. According to the literature, high-quality development has certain complexity and comprehensiveness, and using a single indicator to measure the level of high-quality economic development is difficult and has significant limitations. Therefore, this paper constructs an indicator system based on the new development concept as the theoretical foundation to measure the quality of China's economic development.

The common conclusion drawn from the above studies is that China should take measures to further enhance the quality of economic development and solve the problem of unbalanced economic development levels between different regions. In research on the factors influencing the level of high-quality economic development, the level of technological innovation, the development level of public services, the degree of openness to the outside world, and the level of urbanization are all important forces driving high-quality economic development. Additionally, industrial structure, economic structure, and financial efficiency can also affect the level of high-quality economic development to a certain extent.

2.3. Research on the Impact of Digital Inclusive Finance on High-Quality Economic Development

Research on the impact of digital inclusive finance on high-quality economic development is in its initial stages. He Hongqing concluded that digital finance meets the requirements of high-quality economic development at the innovation level and is a vital force in promoting high-quality economic development [3]. He Jing, Li Qinghai, and Nie Xiuhua et al. have proven that, compared to traditional inclusive finance, digital inclusive finance, aided by digital technologies like big data and blockchain, has advantages of low cost, wide coverage, and high efficiency [16, 26]. It positively influences individual entrepreneurship, enterprise technological innovation, and even the enthusiasm, efficiency, and level of innovation in regional entrepreneurship, thus becoming a major driver in stimulating high-quality economic development. Jiang Changliu and Jiang Chengtao used cities across the country as samples and found that digital inclusive finance can promote high-quality economic development by encouraging small and medium-sized enterprises to innovate technologically and improve productivity [8]. He Jian and Zhang Hongmei used the threshold effect model and system GMM model for empirical analysis, demonstrating that digital inclusive finance has a singular threshold-promoting effect on China's high-quality economic development [5]. Teng Lei and Ma Degong, using a fixed-effects model, also believe that digital finance significantly promotes high-quality economic development [19]. Zhang Qingjun and Huang Ling showed that digital inclusive finance has a driving effect on high-quality economic development, with industrial structure as a transmission intermediary [23]. Daud & Ahmad proved that inclusive finance and digital technology have a positive and significant impact on national economic growth [28]. Uche & Robinson et al. studying 29 sub-Saharan African countries, concluded that digital inclusive finance has a positive and significant impact on economic growth [29]. In summary, current research universally affirms the significant positive role of digital inclusive finance in high-quality economic development.

In terms of regional differences, the development level of digital inclusive finance varies across regions, impacting high-quality economic development differently. Given China's vast territory and uneven development, there are significant differences in infrastructure development level, financial resources, degree of digitization, application extent, and coverage of digital inclusive finance across regions. Ge Heping and Zhu Huiwen constructed an indicator system to measure the development level of digital inclusive finance in various regions in China, with results showing imbalances between the east and west [1]. He Wenxiu, using the coefficient of variation method, concluded that the overall development of China's digital inclusive finance is on the rise, but regional differences are significant [4]. Overall, current research on regional differences in the development level of digital inclusive finance in China agrees that the eastern region's development level is higher than the west's, with significant overall domestic disparities. This is highly consistent with the specific situation of China's unbalanced economic development levels. When studying the impact of digital inclusive finance on the quality of economic development, regional differences are generally involved because the inclusiveness of digital inclusive finance can help coordinate the high-quality development of regional economies. Guo Feng and Wang Jingyi et al. believe that digital inclusive finance could benefit regions previously unreachable by traditional financial services, due to its low cost and wide coverage [2]. Therefore, this paper will also conduct grouped empirical research on the regional differential impact of digital inclusive finance on high-quality economic development in the eastern, central, western, and northeastern regions.

Based on the above analysis, this paper uses panel data from 30 provinces in China from 2011 to 2020 to construct a two-way fixed-effects model to empirically test whether the development level of digital inclusive finance affects high-quality economic development. The hypothesis proposed in this paper is that digital inclusive finance has a positive promotional effect on high-quality economic development.

3. Model Construction and Variable Description

3.1. Variable Selection and Data Source

3.1.1. Dependent Variable

Given the concept of high-quality economic development, a single indicator such as the Gross Domestic Product (GDP) can no longer fully reflect the true state of economic development. Referring to related literature, this paper, based on the new development philosophy of "Innovation, Coordination, Green, Openness, and Sharing" proposed by General Secretary at the 18th CPC Central Committee's 5th Plenary Session, constructs an index system for high-quality economic development. This new development philosophy, aligning with the characteristics of high-quality economic development, forms an index system that comprehensively measures the level of high-quality economic development in China.

For data availability and operability, this paper, referencing Sun Hao's "Measurement and Evaluation of High-Quality Economic Development in Chinese Provinces," builds a high-quality economic development index system [15]. It includes five dimensions: innovation development, coordinated development, green development, open development, and shared development, encompassing a total of 15 sub-indicators. The specific indicators and definitions are shown in Table 1.

Table 1*. Construction of High-Quality Economic Development Index.*

Primary Index	Secondary Index	Tertiary Index	Indicator Explanation
High-Quality Economic Development	Innovation Development Ramp	R&D Investment Intensity	Internal expenditure on R&D experiments / Regional Gross Domestic Product (GDP)
		Innovation Output Level	Patent authorizations of three types / Total population
		Technological Transaction Activity	Technological transaction turnover / Regional GDP
	Coordinated Development	Urban-Rural Structure	Urban population / Total population
		Urban-Rural Gap	Urban per capita income / Rural per capita income
		Demand Structure	Retail sales of consumer goods / Regional GDP
	Green Development	Unit GDP Energy Consumption	Standard coal / Regional GDP
		Unit GDP Pollution Emission	Total emissions of wastewater, waste gas, and solid waste / Regional GDP
		Energy Consumption Elasticity Coefficient	Energy consumption growth rate / Regional GDP growth rate
	Open Development	Foreign Trade Openness	Import and export total / Regional GDP
		Foreign Direct Investment	Total investment by foreign-funded enterprises / Regional GDP
		Outward Direct Investment	Non-financial outward direct investment flow / Regional GDP
	Shared Development	Per Capita Education Funding	Education funding / Total population
		Per Capita Medical Services	Number of hospital beds / Total population
		Capita Cultural Affairs Funding	Cultural affairs funding expenditure / Total population

For the measurement of primary indicators, considering the pros and cons of various methods and the specific situations of related data, the Entropy Method is used to assign weights to each level of indicators, avoiding subjective interference and ultimately deriving an index capable of measuring the high-quality economic development level in China.

3.1.2. Core Explanatory Variable

The core explanatory variable of this paper is the level of development of digital inclusive finance (Index). The Financial Research Center of Peking University constructed a digital inclusive finance index system from three dimensions: coverage breadth, usage depth, and digitalization level, calculating the digital inclusive finance development index from 2011-2020. This index effectively measures the level of digital financial development and forms the basis of most current research on digital inclusive finance. Therefore, this index is selected as the measurement indicator for digital inclusive finance.

3.1.3. Control Variables

Referencing related literature, the following indicators are selected as control variables:

(1) Economic Level (Pgdp). Per capita GDP is one of the important macroeconomic indicators measuring the level of economic development and reflecting the standard of living. Although per capita GDP, due to its overly singular composition, is not suitable for measuring the degree of high-quality economic development. However, as the standard of living improves, the development and inclusiveness of digital ordinary finance also increase. Thus, per capita GDP is included as a control variable. Meanwhile, to eliminate the effect of heteroscedasticity, the data were treated accordingly.

(2) Consumption Level (lncon). The consumption level refers to the extent to which residents meet normal survival, development, and enjoyment needs when purchasing products and services in daily life. In order to eliminate the effect of heteroskedasticity, the logarithmic value of per capita consumption expenditure (Con) is chosen to signify the level of resident consumption.

(3) Government Scale (Gov). The scale of the government reflects the control of provincial governments over economic development. The ratio of general public budget expenditure to regional GDP is chosen to measure this. Also, to eliminate the effect of heteroscedasticity, the data were treated accordingly.

(4) Industrial Structure (Ins). In regions with a higher level

of development in the tertiary industry, more comprehensive, and improved hardware facilities and software services can be provided, benefiting the quality of financial services and further promoting economic development. The ratio of the value of the tertiary industry to the secondary industry is chosen for measurement. At the same time, to eliminate the effect of heteroscedasticity, the data were treated accordingly.

3.1.4. Data Source

Considering the availability of data, the data for this paper comes from various indicators of 30 provinces (municipalities directly under the central government) from 2011 to 2020, excluding Tibet, Hong Kong, Macau, and Taiwan. The core explanatory variable of the model, the digital inclusive finance index, is based on data from the "Peking University Digital Inclusive Finance Index" released by the Digital Finance Research Center of Peking University. The sources of the dependent variable and control variable indicators are provincial statistical yearbooks, and the CEIC database. Missing data for some indicators were filled using the linear interpolation method.

Table 2. Variable Settings and Descriptions.

Variable Type	Symbol	Meaning
Dependent Variable	Dev	Quality of Economic Development
Core Explanatory Variable	Index	Digital Inclusive Finance Index
	Pgdp	Per Capita GDP
	lncon	Log of Per Capita Consumption Expenditure
Control Variables	Gov	General Public Budget Expenditure / Regional GDP
	Ins	Value of Tertiary Industry / Value of Secondary Industry

3.2. Model Construction

A two-way fixed effects model is used to test the impact of digital finance on economic growth, with the model setting as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 C_{it} + \mu_i + \psi_t + \varepsilon_{it}$$

Where subscript i and t represent the province (city) and year, respectively. Y_{it} is the dependent variable, measured by a set of indicators for high-quality economic development in the region. X_{it} is the explanatory variable, with the core explanatory variable being the Digital Inclusive Finance Index. C_{it} are control variables that may affect economic growth, representing economic level, consumption level, government size, and industrial structure, respectively. μ_i represents the fixed effects for provinces; ψ_t represents the fixed effects for years; ε_{it} denotes clustered robust standard errors.

4. Empirical Results and Analysis

4.1. Descriptive Statistical Analysis

Firstly, a descriptive statistical analysis of each variable was conducted (see Table 3 for detailed results).

Table 3. Descriptive Statistical Analysis of Variables.

Variable	N	Mean	Std. Dev.	Min	Max
Dev	300	16.010	6.901	8.073	51.440
Index	300	217.246	96.968	18.330	431.930
Pgdp	300	50.848	24.075	16.024	164.889
Con	300	16757.46	7134.593	1002	45605

Variable	N	Mean	Std. Dev.	Min	Max
Gov	300	27.816	20.544	11.881	241.679
Ins	300	13.194	7.319	5.271	52.968
Lncon	300	9.645	0.410	6.910	10.728

The statistics show that outliers among the variables are not significant. The maximum value of Dev is 0.514 and the minimum value is 0.081, indicating a large disparity in the level of high-quality economic development across different regions and years. The maximum value of Index is 431.93 and the minimum value is 18.33, indicating a significant disparity in the degree of digital inclusive finance across different regions and years, which also demonstrates that the level of digital inclusive finance has gradually deepened with the

continuous development of the country.

4.2. Correlation Analysis

Secondly, before proceeding with regression analysis, it's necessary to analyze the correlation among variables to preliminarily judge whether the hypotheses are reasonable.

The results of the correlation analysis are shown in Table 4.

Table 4. Results of Correlation Analysis.

	Dev	**Index**	**Pgdp**	**lncon**	**Gov**	**Ins**
Dev	1.0000					
Index	0.5176***	1.0000				
Pgdp	0.5544***	0.6421***	1.0000			
lncon	0.6284***	0.7102***	0.7013***	1.0000		
Gov	-0.0714	-0.0429	-0.2364***	-0.1415	1.0000	
Ins	0.5481***	0.3833***	0.5126***	0.5346***	0.0249	1.0000

The above test results prove that there is a correlation between digital inclusive finance and high-quality economic development.

Next, to ensure variables meet classical assumptions, a VIF test was conducted. The VIF test results are shown in Table 5.

Table 5. VIF Test Results.

Variable	VIF	1/VIF
Index	2.91	0.343280
Pgdp	2.28	0.437927
Con	2.12	0.472418
Gov	1.53	0.654629
Ins	1.11	0.899896
Mean VIF	1.99	

Since all variables have VIF values less than 10, there is no severe multicollinearity, satisfying the classical model assumptions, allowing for regression analysis.

4.3. Baseline Regression Analysis

Before conducting panel regression, it's necessary to test the core explanatory variable, Digital Inclusive Finance Index, using mixed OLS model, fixed effect model, and random effect model. F-test results indicate the superiority of fixed effects over mixed models. After testing for endogeneity, the traditional Hausman test was invalidated, and the modified Hausman test indicated the selection of fixed effects model. The test results are as follows.

Table 6. Model Test Results.

Variable	OLS	FE	RE
Index	0.0085^{*}	0.0018	0.0110^{**}
	(0.0044)	(0.0087)	(0.0047)
Pgdp	0.0374^{**}	0.2314^{***}	0.0731^{***}
	(0.0183)	(0.0505)	(0.0241)
lncon	5.1799^{***}	-1.9738	2.1853
	(1.2132)	(1.8330)	(1.4232)
Gov	0.0005	-0.0103	-0.0059
	(0.150)	(0.0166)	(0.0157)
Ins	0.2557^{***}	0.3071^{*}	0.2739^{***}
	(0.049)	(0.1863)	(0.0682)
_cons	-41.0775^{***}	19.1262	-14.6253
	(10.7611)	(16.8896)	(12.6719)
N	300.000	300.000	300.000
R^2	0.4757	0.3559	0.4619
F test		$F_{(29, 265)}=3.80^{***}$	
Hausman test		$chi2(4)=39.18^{***}$	

Note: Parentheses contain standard errors,* indicates $p < 0.1$,** indicates $p < 0.05$,*** indicates $p < 0.01$.

4.4. Baseline Regression

After deciding to use the fixed effects model, to control for factors that do not change over time in different provinces and for time trends, both regional fixed effects and year fixed effects were included. To examine the impact of digital inclusive finance on high-quality economic development, regression was conducted. The regression results are shown in Table 7.

Table 7. Baseline Regression Results.

Variable	Coef.	Std. Err.	P
Index	0.0654	0.0161	0.000
Pgdp	0.0758	0.0214	0.000
lncon	-0.3568	0.6818	0.601
Gov	0.0033	0.0059	0.571
Ins	0.1198	0.0693	0.085
_cons	19.1977	7.1214	0.007

The regression results show that at the 1% significance level, the development of digital inclusive finance (Index) positively affects the quality of economic development (Dev), which basically verifies the hypothesis proposed earlier in this article. The economic level (Pgdp) and industrial structure (Ins) have a significant impact on the quality of economic development, while the effects of consumption level (lncon) and government size (Gov) are not significant.

4.5. Robustness Checks

To verify the reliability of the conclusion that the digital financial index promotes economic growth, robustness checks were performed using the following two strategies:

4.5.1. Lagging Method

The robustness test was conducted using one-period and two-period lags of the quality of economic development index. The results are shown in the Table 8.

Table 8. Lagged Regression Test Results.

	Baseline Regression	L1.Index	L2.Index
Index	0.0654***		
	(0.0161)		
Pgdp	0.0758***	0.0772***	0.0961***
	(0.0214)	(0.0203)	(0.0228)
Lncon	-0.3568	-0.2503	0.0210
	(0.6818)	(0.6122)	(0.6533)
Gov	0.0033	0.0025	0.0027
	(0.0059)	(0.0053)	(0.0056)
Ins	0.1198**	0.2039***	0.3200***
	(0.0693)	(0.0712)	(0.0873)
L.Index		0.0745***	
		(0.0163)	
L2.Index			0.0794***
			(0.0206)
_cons	19.1977**	15.2525**	9.3795
	(7.1214)	(6.4990)	(7.1075)
N	300	270	240
R^2	0.9564	0.9679	0.9683

Note: Parentheses contain standard errors,* indicates $p < 0.1$,** indicates $p < 0.05$,*** indicates $p < 0.01$.

It was found that when lagged by one period, digital inclusive finance (Index) is significant at the 5% level, proving that digital inclusive finance development can effectively promote the high-quality development of the economy in the next period, and the coefficient of the lagged variable is positive, i.e., the last year's level of digital inclusive finance is positively correlated with the current level of high-quality economic development. Similarly, with a two-period lag, the digital inclusive finance index remains significant at the 5% level, proving its positively sustained impact on high-quality economic development. The results show that the effect of digital inclusive finance development on high-quality economic development is a continuous, dynamic, and positive process.

4.5.2. Changing Sampling Data

The data selected in this study are annual data from 30 provinces nationwide. However, Beijing, Tianjin, Shanghai, and Chongqing, as municipalities directly under the central government of China, have a unique political status which makes their economic landscape and policies significantly different from other provinces. These differences could possibly affect the regression results. Thus, we excluded these

four municipalities from the 30 provinces and cities sample and re-ran the regression. Table 9 shows that the coefficient of the digital inclusive finance index remains significant at the 1% level, which further verifies the robustness of the previously mentioned regression results.

Table 9. Robustness Check Results.

Variable	Baseline Regression	Changing Sampling Data
Index	0.0654***	0.0675***
	(0.0161)	(0.0200)
Pgdp	0.0758***	0.0670**
	(0.0214)	(0.0324)
Lncon	-0.3568	-0.2373
	(0.6818)	(0.6624)
Gov	0.0033	0.0039
	(0.0059)	(0.0057)
Ins	0.1198**	0.0692
	(0.0693)	(0.0882)
_cons	19.1977**	8.0414
	(7.1214)	(6.1091)
N	300	260.000
R^2	0.9564	0.9396

Note: Parentheses contain standard errors,* indicates $p < 0.1$,** indicates $p < 0.05$,*** indicates $p < 0.01$.

4.6. Regional Heterogeneity Analysis

Given China's vast territory, imbalances in development levels across different regions are a distinct characteristic of the country. Therefore, influenced by geographical factors and policies, there are substantial disparities in economic development conditions and the level of digital inclusive finance development across regions.

Existing literature indicates that the impact of digital inclusive finance development on the quality of economic development varies significantly across regions. Referencing the common regional division method, China's economic regions are divided into the Eastern, Central, Western, and Northeastern regions. A two-way fixed effects model was used for empirical testing in each area. The test results are presented in Table 10. The results show that in the Eastern region, digital inclusive finance significantly promotes economic development. A 1% increase in the level of digital inclusive finance can promote the trade structure upgrade in central regions by 0.07%. However, for the Central, Western, and Northeast regions, digital inclusive finance does not significantly pro-

mote economic development. The possible reason for this result could be due to the continuous advancement of financial development in different regions, pursuing high returns, financial resources are likely to lean towards regions with policy advantages and geographical advantages, hence, financial resources are mainly concentrated in developed cities in the Eastern region, such as Beijing, Shanghai and their respective radiating areas around these cities.

Table 10. Results of Regional Heterogeneity Test for Digital Finance.

Variable	Eastern	Central	Western	Northeastern
Index	0.0785**	-0.0327	0.0250	0.2739
	(0.0338)	(0.0440)	(0.0342)	(0.1775)
Pgdp	0.0690**	0.0112	0.1330**	-0.3569
	(0.0287)	(0.0878)	(0.0586)	(0.7152)
Lncon	-9.6980	-0.1708	0.7332	10.5362
	(6.5707)	(0.5510)	(3.6680)	(17.2191)
Gov	0.5744***	-0.2102	-0.0003	-0.1448
	(0.1366)	(0.2184)	(0.0049)	(0.1738)
Ins	-0.0070	0.0208	0.0925	0.2391
	(0.1094)	(0.3310)	(0.1183)	(0.3500)
_cons	103.6729	17.0107	-1.6903	-75.9814
	(67.8286)	(8.5591)	(32,4074)	(171.8514)
N	100.000	60.000	110.000	30.000
R^2	0.9738	0.9713	0.9493	0.9723

Note: Parentheses contain standard errors,* indicates p < 0.1, ** indicates p < 0.05, *** indicates p < 0.01.

5. Conclusion and Policy Suggestions

5.1. Research Conclusion

Based on relevant literature and theories, this paper deeply analyzes the panel data of 30 provinces in China from 2011-2020, using a two-fixed-effect model and arrives at the following conclusions:

The development of digital inclusive finance in China has a significant and positive promotional effect on high-quality economic development.

Different regions have heterogeneous impacts of digital inclusive finance on high-quality economic development. The effect of digital inclusive finance in the eastern region in promoting high-quality economic development is more apparent than in the western and northeastern regions. Surprisingly, in central regions, the impact of digital inclusive finance on high-quality economic development is inversely proportional.

In summary, digital inclusive finance is one of the important drivers for promoting high-quality economic development in China, and studying its impact on high-quality economic development is of great significance.

5.2. Policy Suggestions

Based on the above research conclusions, the following policy suggestions are proposed:

First, strengthen government support and improve the financial environment. The development of digital inclusive finance should exploit the guidance of government policies effectively and build a good financial ecosystem. Enhancing top-level design, analyzing the current problems in the development, supply industries and external environment of digital inclusive finance, and formulating digital inclusive financial development plans based on the actual conditions of each province will guarantee stable and sustainable growth.

Second, allocate resources reasonably and implement a differential development strategy. Different provinces in China have different development levels of digital inclusive finance, necessitating a regional differential development strategy. For regions with relatively good foundational development levels, fuse their economic advantages with innovative digital inclusive finance tools and aim at building a more diversified and multi-tiered modern digital inclusive finance system. For those with

weaker base-level development, appropriate policy inclinations should be adopted to encourage local financial institutions to launch digital inclusive finance services. Guide resources such as funds and digital technology to these regions, thus fostering a positive material environment for the development of digital inclusive finance. Furthermore, cooperation and communication between regions with differing development levels should be strengthened, to minimize development disparities and achieve balanced growth.

Third, promote further innovation of digital financial products, extending the inclusive domain. Encourage more financial institutions to develop new digital inclusive finance products, and build diversified, advanced digital inclusive finance products to meet the complex and diverse demands of the inclusive finance demand group. Extend the service range of digital inclusive finance products by relying on advanced scientific and technological capabilities for product innovation.

Fourth, strengthen nationwide training in digital technology and financial literacy. Improving the level of digital inclusive finance can benefit more impoverished regions and poverty-stricken populations, but it necessitates consumers possessing certain financial knowledge and skills, capable of using digital inclusive finance products correctly. Misunderstanding and fear, even unequal opportunities, may arise from a "technology gap." Thus, it's crucial to boost the propagation of digital financial knowledge and technological training, specifically targeting vulnerable groups such as remote rural areas and the elderly. Enhance the financial knowledge and digital technology skills of inclusive finance demanders and allow more demanders to participate actively in the financial service system, enjoying the convenience brought by the development of digital inclusive finance.

Abbreviations

GDP: Gross Domestic Product
DEV: Quality of Economic Development
Index: Digital Inclusive Finance Index
PGDP: Per Capita Gross Domestic Product
CON: Per Capita Consumption Expenditure
LNCON: Log of Per Capita Consumption Expenditure
GOV: General Public Budget Expenditure / Regional Gross Domestic Product
INS: Value of Tertiary Industry / Value of Secondary Industry

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Conflicts of Interest

The authors declare no conflicts of interest.

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