

# The Impact of Digital Inclusive Finance on the High-quality Development of Regional Economy

## -- Taking Anhui Province in China as an Example

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### Abstract

**In recent years, with the rapid development of science and technology, the level of digital inclusive finance in China has been continuously improved, and the economy has also changed from high-speed development to high-quality development. The popularization of digital inclusive finance has promoted the full coverage of financial services and high-quality economic development in China, further enhanced the availability and stability of social groups, improved the utilization efficiency of inclusive finance and realized the sustainable development of financial service industry. The impact of China's digital inclusive finance on economic development is significant, but the economic development of different regions shows some differences. Based on the panel data of 16 cities in Anhui Province from 2011 to 2020, this paper constructs a comprehensive index to measure the quality of economic development, and combined with the digital inclusive finance index to explore the impact mechanism of digital inclusive finance on regional economy and high-quality development. The results show that digital inclusive finance has a significant positive effect on the high-quality economic development of Anhui Province, that is, digital inclusive finance can promote the high-quality economic development of Anhui Province.**

### Keywords

**Digital Inclusive Finance; High Quality Economic Development; Regression Analysis.**

## 1. Introduction

As an important tool and constituent element of economic development, finance is an indispensable plate to promote high-quality economic development. Under the impact of the rapidly developing economy and digital information technology, the traditional financial industry has gradually broken through the shackles of the old system and developed a new form - digital inclusive finance. Compared with the traditional financial model, digital inclusive finance developed from modern digital communication technology can give full play to the role of traditional inclusive finance. The diversification of financial service outlets and the coverage rate of financial services can also be reduced by expanding the scope of financial services and the coverage rate of financial services. Because digital inclusive finance has the above advantages different from the traditional financial model, it can stimulate savings when the economic development speed slows down, reduce the cost and difficulty of capital circulation, and drive the sustained economic growth. On the contrary, when the economic development is overheated, give full play to the advantages of digital inclusiveness, and comprehensively

release the benefits and dividends of economic development in terms of investment, consumption and digital targeted poverty alleviation. On the whole, optimize the efficiency of national financial resource allocation, improve the efficiency of economic development and drive the stable development of economy. Digital inclusive finance has become a powerful driving force for economic development.

Since the reform and opening up, the supporting role of regional economy for the overall economic development of the country has become more and more obvious. However, due to the differences in environment, resources, technology and other aspects among regions, the differentiation of regional economic development is becoming more and more prominent, which has a negative impact on the overall economic development and is not conducive to the sustainable development of economy. At present, the general view on this issue is that digital inclusive finance has achieved remarkable results in solving the imbalance of regional economic development.

Song Hanguang and Zhou Hao (2014) took the realistic dimension of economic development imbalance as the research starting point and used the inclusive finance index of G20 countries in the past seven years since 2002 to point out that inclusive finance plays a very obvious role in promoting and supporting economic growth in regions with high or low economic development. Further research shows that the growth of inclusive finance plays a stronger role in promoting the level of economic development in areas with weak economic foundation. [1] Tan Yanzhi and Peng Qianrui (2018) pointed out that the improvement of inclusive finance can not only drive local economic development, but also alleviate poverty in adjacent areas. Inclusive finance has a spatial spillover effect in promoting economic growth, reducing regional economic development differences and improving poverty [2]. With the rise of information technology, the participation of big data in the field of inclusive financial services has become higher and higher, which has changed the service mode of traditional inclusive financial services and overturned people's inherent cognition of inclusive financial services. Luo Weilin, Liu Songtao and others (2018) pointed out that inclusive finance has non negligible value in improving the efficiency of green economy. It does not rely on a single way to realize its value. In recent years, under the background of China's rapid economic development, environmental pollution has also become an important problem to be solved in today's society. The government should take positive measures to build and improve the inclusive financial system, reduce the development differences of regional inclusive finance, and then provide a strong guarantee for improving the efficiency of green economy [3]. Yi Jian and Zhou Li (2018) found through research that the diversification of financial products has been fully reflected in the context of the Internet, and customers can choose their own financial products according to their personalized needs. This is unthinkable in the traditional financial services industry. This efficient financial service operation mode based on the long tail theory makes the process of customers purchasing financial products more convenient, faster and more humanized, meets more consumer demand and promotes economic growth [4]. He Hongqing (2019) based on the results of empirical research shows that in order to achieve high-quality economic development, it is inseparable from the empowerment of high-quality financial resources. As a new business form in the financial field, the development level of digital finance in China needs to be improved, which limits the high-quality development of China's economy to some extent [5]. Jiang Changliu and Jiang Chengtao (2020) conducted research and analysis through sampling demonstration and found that stimulating urban technological innovation and enterprise R&D innovation, as a new driver of high-quality economic development, has indispensable economic value [6]. Yang Yanfang, Zhan Junyan and Hu Yanjun (2021) used empirical analysis to study the impact of digital inclusive finance on high-quality economic development. The results show that digital inclusive finance can promote high-quality economic development in China, but there are regional differences [7].

To sum up, although domestic scholars have done a lot of research on the relationship between digital inclusive finance and economic growth, most of them are from a national perspective and lack of research from a provincial perspective. Based on this, this paper takes Anhui Province as an example, studies the impact of digital inclusive finance on the high-quality development of regional economy by constructing an economic index evaluation system in line with Anhui Province, and puts forward relevant suggestions according to the empirical conclusions.

## 2. Model Setting and Variable Selection

### 2.1. Model Design

This paper uses panel regression model to quantitatively explore the impact of digital inclusive finance on high-quality growth of regional economy. In order to deeply analyze the impact of digital inclusive finance on regional economic growth, the coverage, use depth and digitization degree of digital inclusive finance, the core indicators in the digital inclusive finance index, are taken as the core explanatory variables for further empirical analysis. The regression model is as follows:

$$\ln PGDP_{it} = \alpha_0 + \beta_1 \ln DIFI_{it} + \beta_2 \ln COV_{it} + \beta_3 \ln USED_{it} + \beta_4 \ln DIIG_{it} + \beta_5 \ln TEC_{it} + \beta_6 \ln LA_{it} + \beta_7 \ln FI_{it} + \varepsilon_{it}$$

### 2.2. Variable Selection

(1) Explained variable. Per capita GDP (PGDP): the per capita GDP of each city, which is the best comprehensive index reflecting the production level and income level of a city.

(2) Explanatory variables. Digital inclusive finance index (DIFI): as the core explanatory variable of the model, it comprehensively reflects the development level of digital inclusive finance in a city. The index is composed of three sub indicators: coverage of financial services (COV), depth of use (USED) and digitization (DIG). COV reflects the coverage of digital inclusive finance in the region. Used reflects the use of digital inclusive financial products and services in a city, and can reflect the exclusion of digital inclusive financial products and services to a certain extent. Dig reflects the convenience of urban digital inclusive financial services and the cost of digital inclusive financial services.

(3) Control variables. The level of education expenditure per capita will affect one aspect of the level of education. Per capita financial expenditure on science and Technology (TEC): the level of science and technology expenditure will directly affect the technical level of a city. Total employment in three industries (LA): the total employment in three industries reflects the human resources of a city. Per capita fixed asset investment (FI): per capita fixed asset investment reflects the level of urban investment.

## 3. Empirical Analysis

### 3.1. Data Sources and Descriptive Statistics

This paper uses the panel data of 16 cities in Anhui Province from 2011 to 2020 to empirically analyze the relationship between digital inclusive finance and high-quality economic development. The data comes from the third digital inclusive finance index [8] issued by the digital finance center of Peking University, China Statistical Yearbook and Anhui statistical yearbook over the years. The descriptive statistical analysis of each variable is shown in Table 1.

**Table 1.** Descriptive statistics of variables

Variables	Number of samples	Mean value	Standard deviation	Minimum value	Maximum value
PGDP	160	44,083	22,830	11,202	115,623
DIFI	160	176.5	68.78	27.08	299.2
COV	160	160.7	65.10	14.29	298.5
USED	160	185.9	70.30	41.40	316.1
DIG	160	211.5	87.53	19.93	437.9
EDU	160	5,036	3,291	808.0	19,754
TEC	160	1,176	2,164	83.15	16,333
LA	160	2,645	1,576	456	6,949
FI	160	156,131	137,072	21,471	804,646

### 3.2. Variable Descriptive Analysis

By analyzing the regional differences of the main variables in Table 2, we can find that there is a strong correlation between the digital inclusive finance and the level of economic development. The per capita GDP in southern Anhui is about 60417 yuan, which is higher than 44728 yuan in central Anhui and 32047 yuan in Northern Anhui. The digital inclusive finance index level in southern Anhui is higher than that in central Anhui and Northern Anhui. Therefore, at a certain level, the higher the development level of digital inclusive finance is, the higher the level of economic development is.

**Table 2.** Regional differences of main variables

Variables	Total sample	Northern Anhui	Central Anhui	Southern Anhui
PGDP	44,083	32,047	44,728	60,417
DIFI	176.5	169.4	179.8	183.7
COV	160.7	151.7	165.2	169.6
USED	185.9	177.7	189.6	194.3
DIG	211.5	212.7	210.2	211.1

### 3.3. Full Sample Regression

Table 3 shows the regression results of all cities in Anhui Province. In order to investigate the differences of the impact of the progress of digital inclusive finance on economic development, model (1) and model (2) are analyzed under different conditions of mixed OLS and fixed effect model to study the impact of the development of digital inclusive finance on the high-quality economic development of Anhui Province. From the regression results, whether using mixed OLS or fixed effect model, digital inclusive finance has a significant role in promoting the high-quality economic development of Anhui Province. On the whole, the development of digital inclusive finance has a significant effect on the growth of per capita GDP. Digital inclusive finance increased by 1% and per capita GDP increased by 0.044%. The regression coefficient of the control variable is consistent with the explanation of economic theory. The increase of per capita financial expenditure on education promotes the increase of per capita GDP. The increase of per capita financial expenditure on science and technology is conducive to high-quality economic development. The expansion of employment in the three major industries has a significant effect on per capita GDP. Cities with higher per capita fixed asset investment have better economic performance.

**Table 3.** Results of full sample regression

Variables	(1)	(2)
	PGDP	PGDP
LNDIFI	0.096** (2.2795)	0.044*** (0.3101)
LNEDU	0.146** (2.2851)	0.108** (0.5033)
LNTEC	0.194*** (5.2891)	0.164** (2.7272)
LNLA	0.617*** (8.3954)	0.617*** (8.3954)
LNFI	0.495*** (1.4640)	0.247** (1.5437)
Constant	8.834*** (5.2840)	9.452*** (9.5433)
Observations	160	160
R-squared	0.938	0.890
Individual fixation effect	No	Yes

Note: \*\*\*, \*\* and \* indicate significant at the confidence level of 1%, 5% and 10% respectively.

### 3.4. Robustness Check

**Table 4.** Results of robustness test

Variables	(1)	(2)	(3)
	LNPGDP	LNPGDP	LNPGDP
LNCOV	0.095*** (3.8138)		
LNUSE		0.124*** (3.5938)	
LNDIG			0.104*** (4.6137)
LNEDU	0.128** (2.0220)	0.159** (2.4628)	0.142** (2.2231)
LNTEC	0.130*** (6.3632)	0.131*** (6.6002)	0.112*** (5.5755)
LNLA	0.728*** (4.3482)	0.741*** (4.2233)	0.729*** (4.5842)
LNFI	0.488*** (10.5852)	0.473*** (11.4037)	0.507*** (11.7713)
Constant	9.030*** (6.3680)	9.212*** (7.8107)	8.897*** (5.2119)
Observations	160	160	160
R-squared	0.936	0.938	0.942

Note: \*\*\*, \*\* and \* indicate significant at the confidence level of 1%, 5% and 10% respectively.

In this paper, the key explanatory variable (DIFI) is replaced by the three dimensions of coverage breadth (COV), depth of use (used) and digitization degree (DIG) of digital financial services, and the models (1), (2) and (3) are constructed with subdivision indicators to obtain the regression results, as shown in Table 6. The regression coefficients of the three sub

indicators passed the significance test at the level of 1%, so the improvement of the three indicators can promote high-quality economic development. From the perspective of the impact path of digital inclusive finance, the in-depth application of digital inclusive finance, the coverage of digital inclusive finance, and the digital level of development of digital inclusive finance are of great significance to promote the high-quality development of regional economy. Among them, the depth of the use of digital inclusive finance has the most obvious effect on the high-quality development of regional economy. The robustness of the model can be proved by testing the digital inclusive financial subdivision index.

## 4. Conclusions and Suggestions

### 4.1. Conclusion

Taking Anhui Province as an example, this paper studies the impact of digital inclusive finance on the high-quality development of regional economy. Digital inclusive financial services play an important role in high-quality and rapid economic development. On the whole, digital inclusive finance has a significant role in promoting high-quality economic development, but from a regional perspective, there are regional differences. The development degree of digital inclusive finance in southern Anhui is high, and the corresponding economic development level is also higher than that in northern and central Anhui. Therefore, the level of digital inclusive finance in northern and central Anhui needs to be further improved. The development of digital inclusive finance can reduce the difference of regional economic development level and promote the balanced development of regional economy. Through the fine differentiation of the digital inclusive finance index, the in-depth research shows that whether it is the comprehensive index of digital finance, the coverage of digital inclusive finance, the depth of use of digital inclusive finance and the development level of digital inclusive finance, all play an important role in the high-quality and rapid development of regional economy. This basic conclusion is still valid after a series of tests.

### 4.2. Suggestions

Combined with the conclusions of empirical analysis, in order to give better play to the efficient role of digital inclusive finance and promote the high-quality development of regional economy, this paper puts forward the following policy suggestions:

First, speed up the construction of digital inclusive financial infrastructure and the training of relevant talents in Anhui Province. Digital inclusive finance is a new business form of the financial industry. The relevant infrastructure has not been updated and is not perfect, which is not conducive to shaping a harmonious development environment of digital inclusive finance. The government should increase investment, strengthen the publicity of financial services, promote the coverage of network communication facilities, improve the availability of digital financial services by reducing the threshold of digital finance, and pay attention to the training and introduction of corresponding talents, so as to promote the development level of digital inclusive finance.

Second, increase financial investment in digital inclusive financial services. Digital inclusive finance can significantly promote the high-quality development of regional economy. The government gives a relatively loose policy environment to provide a platform and support for the rapid and convenient development of digital inclusive finance, and promote the market to enrich digital inclusive financial products. Although there are many innovative financial products in the current market, for backward areas, rural residents have relatively few financial products to choose. Therefore, the digital inclusive financial service system should design targeted financial products to expand consumption and stimulate investment, so as to enable high-quality economic development.

Third, strengthen the supervision of digital inclusive finance. Using digital technologies such as big data and cloud computing to improve the identification mechanism system can timely monitor and deal with various risks in digital inclusive financial services, prevent and resolve the potential risks of digital inclusive finance to a great extent, improve the level of risk management and promote the development level of digital inclusive finance.

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