Whether the Financial Development Is Helpful to the Government Governance in Underdeveloped Regions——Empirical Evidence from 193 Counties in Five Provinces of Northwest China

Xinshu Gong and Liyu Zhao *

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Article

Whether the Financial Development Is Helpful to the Government Governance in Underdeveloped Regions—Empirical Evidence from 193 Counties in Five Provinces of Northwest China

Xinshu Gong and Liyu Zhao *

Shihezi University; gxsh-xb@163.com

* Correspondence: zhaoliyu201409@163.com

Abstract: Inclusive and sustainable development has become an important part of China's sustainable development agenda, the self-recovery and stability of China's economy cannot be achieved without the macro-governance of the government. Figuring out the internal logic of digital finance and economic resilience is an important part of effective government governance. Based on the panel data of 193 counties in five provinces in northwest China from 2014 to 2021, the paper tested digital finance and county-level economic resilience by using two-way fixed-effect model, intermediary-effect model and threshold-effect model, to test whether financial development promotes government governance in underdeveloped regions. The results prove that digital inclusive finance significantly enhances the resilience of county economies by improving capital allocation efficiency, stimulating entrepreneurship and employment, and reducing pollution emissions. In addition, there are dual threshold effects between capital allocation efficiency and employment vitality, in which capital allocation efficiency has a gradually increasing threshold effect, and entrepreneurship and employment vitality have a fluctuating increasing threshold effect. Therefore, "Digital inclusive finance" in underdeveloped regions is an indispensable part of financial globalization； promoting the healthy development of digital finance is the basis and premise for providing a good financial environment for government management; deepening the reform in the financial field and promoting the green and sustainable development of finance are the future trend and direction of efforts.

Keywords: digital finance; government governance; economic resilience; the capital allocation efficiency; entrepreneurship and employment vitality; pollution emissions

1. Introduction

"China's 2030 Agenda for Sustainable Development" aims to promote justice and equality in order to achieve inclusive and sustainable development, after the covid-19 pandemic, the global economy is in ruins, international trade protectionism is on the rise, the global industrial and value chains are facing restructuring, and China is also facing the endogenous impact of a deep transformation of old and new momentum, in the face of domestic and foreign shocks, strengthening government governance has become a stable focus to promote high-quality Chinese economy and sustainable Chinese econ-omy. From the perspective of development economics, government governance takes the government as the leaders and supervisor to manage various activities, including the economy, with the aim of adjusting internal and external contradictions and risks and promoting the sound and healthy development of the economy. In recent years, the connotation of the government's governing ability has been continuously enriched and expanded, among which Ruiling Liu's viewpoint from a broad perspective is the main-stream, which puts forward that government governance capacity is the embodiment of the government's performance of governance functions in diversified fields, which mainly covers five dimensions of governance capacity, such as politics, economy, culture, ecology and society [1], especially after the concept of "resilience" has entered the field of social science, the theory of economic resilience provides a theoretical choice for

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us to construct a more efficient and stable government governance system. The 14th five-year plan and the 2035 long-term goal outline clearly put forward the building of Livable, resilient and smart cities, it is obvious that building a safer and more resilient economy has become a new goal of government governance [2]. So what is economic resilience? The so-called economic resilience means that an economic system can maintain its basic economic attributes, resist external shocks, adjust itself, and recover itself after exper-iencing sudden disturbances and shocks, self-reinforcing and with sufficient redundancy to ensure their own development [3], is also a powerful reflection of the economic system's ability to defuse risks. Enhancing economic resilience is an inherent requ-irement to enter a new stage of development and a necessary means for China to achieve high-quality and sustainable economic development [4]. As an important component of China's urban system, county seat is the key support for high-quality economic development. According to National Bureau of Statistics of the People's Republic of China data, by the end of 2022, the population of county-level cities and urban areas accounted for 30% of the country's permanent urban population. This shows that strengthening the resilience of county-level economic development plays an important role in the overall urbanization process of our country, it is the inevitable requirement of the steady operation of the national economy and critical goal orientation of govern-ment administration.

Finance is one of the core of modern economy. With the gradual transformation and upgrading of economy, the development of financial system is becoming more and more important to the real economy of China. Digital finance is the transformation and upgrading of traditional financial business based on digitalization and Internet tech-nology, and a new financial form combining modern technology and traditional finance [5-6]. In the context of global digitalization, the functions of digital finance have been diversified, gradually expanding from Internet payment and mobile payment to online banking, financial service outsourcing, online loan, online insurance, online fund and other financial services, and achieving sound supplements in payment and settlement, deposit financing, loan financing and broadening profit channels [7], which provides great convenience for government governance, especially digital inclusive finance is closely related to people's lives. ”Inclusive finance” was first formally proposed by the United Nations in 2005, it refers to a financial system that can effectively and compre-hensively provide services to groups at all levels of society. Compared with traditional finance, digital inclusive finance is more inclusive, with wide coverage, strong sharing, high convenience and low interest rates. It relies on digital technologies such as big data and blockchain, to play an important role in breaking down the boundaries of financial services, promoting the diversification of financial services, lowering financial barriers and providing more convenient financial services, it addresses long-tail customer issues long neglected by financial institutions, improves the efficiency of the financial services real economy, and provides an integrated tool for government governance while safe-guarding financial services [8]. As a result, digital inclusive finance has become one of the ways to overcome the financial exclusion of the traditional financial system and provide sustainable financial services for the disadvantaged, broadening the thinking for China's economic development and national governance [9].

However, it is undeniable that such a fact of China's development: digital finance in the banking sector to promote efficiency, its potential risks are also worthy of attention. From 2013 to 2020, the non-performing loan ratio of China's banks rose from 1.54% to 1.56%, and the development level of digital finance and the non-performing loan ratio of banks showed the same trend, enterprise credit default risk increased, the potential risk of the financial system gradually increased [10]. Therefore, in China and even around the world, credit risk, market risk, liquidity risk, operational risk and other financial risks continue to escalate, and the spread of risks has accelerated significantly [11]. To sum up, this article intends to take the five northwest provinces as the research object, cuts in from the county area angle of view, constructs the five north-west Provinces Government Governance Evaluation Index system, from the perspective of digital finance, to explores its impact on the governance of county governments in underdeveloped areas such as the five provinces in the northwest and its impact mech-anism. This article focuses on the following issues: what are the characteristics of the current financial development and government governance in the five provinces in northwest China? What is the impact of the derivative of digital finance on the govern-ment

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governance at county level in the five provinces in northwest China? What are the specific impact mechanisms and characteristics? It is of great theoretical and practical significance to study the above-mentioned issues in-depth for giving full play to the role of digital finance and enhancing the capacity of government governance of the five provinces in northwest China, and other underdeveloped areas.

2. Theoretical Basis and Research Hypothesis

2.1. The Goal Orientation of Government Governance: Economic Resilience

With China country's economic development stepping into the "New normal", suffering from the dual challenges of insufficient internal motive force of domestic economic growth and uncertain external environment, building a robust and dynamic economy that can withstand external shocks is the new goal of government governance. According to National Bureau of Statistics of the People's Republic of China data, China's economic growth rate fell from 10.6% in 2010 to 6.0% in 2019, entering the "new normal" of medium-low growth, and growth will further slow down to 2.2% in 2020. The slowdown in economic growth is putting pressure on the overall governance, parti-cularly due to the impact of the current pandemic, the continued weakness of the international economy and domestic and foreign shocks. Therefore, strengthening the stability of economic development has become one of benchmark goals of the current government governance, and "enhancing the stability and anti-risk ability of the economy" is particularly paramount for the current economic growth situation. How to measure the governance of the Chinese government at the present stage, which requires a strong indicator that can objectively reflect both the governance process and the governance results[12]. With the introduction of the concept of "Resilience", it has been applied to the field of economics from the initial research fields of engineering mecha-nics and ecology. Martin had a more comprehensive definition of economic resilience, pointting out that economic resilience is the ability of economic system to resist shocks, to recover from shocks, to reconstruct the ability to respond to shocks actively, and to renew the ability to achieve new economic growth [13]. System theory defines economic resilience as the ability of government to reconfigure economic structure to maintain the existing development path or to realize system renewal by taking advantage of shocks. According to the theory of development economics, economic resilience is an important source for the government to maintain its competitive advantage in dealing with risks. Therefore, economic resilience is a process to test whether the government can maintain, recover, adapt or transform the economy through effective governance under the impact of risks [14], which is an effective measure of the goal and value orientation of government governance.

2.2. The Theoretical Logic of Economic Resilience Enabled by Digital Finance

(1) Whether digital finance promotes governance?

Early literature has gradually focused on the relationship between "Digital finance", and "Economic resilience". Existing studies has proved that digital finance can play the role of "Economic stabilizer" to a certain extent, direct empowerment of economic resilience, embodied in the incremental effect, the effect of structural adjustment and the effect of monetary policy transmission [15]. Firstly, digital finance has an "Incremental supplement" effect. Digital Finance makes up for the deficiency of traditional finance. With the penetration of digital power in the world, the combination of various digital technologies with financial industry promotes the development of digital finance, it plays an increasingly prominent role in increasing the amount of loanable funds avai-lable to enterprises and individuals, reducing financial costs, broadening the coverage of financial services, lowering the threshold of access to financial services, and widening the channels of capital supply for financial institutions [16]. The inclusive and sharing performance of digital finance can better realize the sinking and diversification of service objects, expand the financial availability of vulnerable groups and ease the li-quidity constraints, the long tail population will have greater economic effects [17]. On the other hand, it not only reduces the financial cost of transtemporal transactions between financial institutions, enterprises and individuals, but also breaks the boundary of traditional financial services and lowers the threshold of access to digital financial services, thus the possibility

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of obtaining financial resources has been raised, the phe-nomenon of financial exclusion has been alleviated, the quality of service has been improved obviously, and the degree of financial service convenience has been enhanced continuously. Secondly, digital finance has the effect of“Structural adjustment”[18]. The development of digital finance has eased the financing constraints of small and medium-sized enterprises and, to a certain extent, the structural imbalance of the financial system, making China's financial development gradually enter the financial stage in Inclusive [19]. Digital finance can also alleviate the financing constraint of industrial transforma-tion and upgrading through the effects of technological progress and economies of scale, and contribute to employment and entrepreneurship, and promote the continuous optimization and upgrading of industrial structure, to achieve the improvement of economic resilience [20]. The combination of digital technology and finance reduces the relevant costs of financial institutions, and the improvement of financial service reaching ability and the lowering of service threshold can greatly expand the range of customers of financial institutions, this has led to the optimization of the capital allocation structure and the improvement of the efficiency of capital allocation, thus improving the economic structure and thus enhancing the economic resilience [21]. Digital finance will accelerate the flow of information in capital markets to meet the needs of enterprises for access to capital, improve the efficiency of market resource allocation to allow more efficient flow of capital into innovation, and provide a convenient platform for information exchange, to stimulate diversified demand on both sides of the money supply and demand. Through these paths, financial agglomeration can provide effective financial support for the development of market economy, help to improve market structure, enhance eco-nomic strength, and thus enhance economic resilience [22]. Furthermore, digital finance has “Monetary policy transmission” effect. Some scholars discuss the influence of digital finance on economic fluctuation from the transmission effect of digital finance on monetary policy, and think that digital finance can affect monetary policy through interest rate channel and credit channel, and thereby stabilize the broader economy [23], greatly enhance the effectiveness of monetary policy and lay a solid foundation for the Macroeconomic regulation and control of counter-cyclical policies in China, which helps to reduce the scope of economic fluctuation, promote the smooth operation of the economy and enhance the economic resilience [24].

However, digital finance has brought serious challenges to China's financial gover-nance and supervision. Qualitative changes and innovations in the world of digital finance have brought unprecedented risks, as exemplified by the issuance of digital currencies such as ICOs. Based on blockchain technology and digital currency system [25]. ICO is an activity in which mainstream digital assets such as bitcoin and ether are raised by blockchain startups or ICO project leaders to raise funds by issuing initial cryptocurrencies (called tokens before large-scale circulation) and exchanging tokens with mainstream digital currencies such as bitcoin [26]. ICO model brought technical defects, capital security problems, the deterioration of market speculation, difficult to be effectively regulated and other huge risks, and even suspected of illegal absorption of public deposits and illegal business and other criminal activities, suspected of money laundering and other criminal activities to provide tools, which on the national economic security and stability has brought unexpected fierce impact [27]. Due to the huge risks and chaotic industry status quo, Chinese regulators had to intervene in ICO, and the People's Bank of China and seven other departments jointly issued the Announcement on Preventing the Risk of Token Issuance Financing on September 4, 2017 (hereinafter referred to as the "Announcement") [28]. It has temporarily suspended all ICO projects and defined ICO projects as unauthorized illegal financing activities, requiring that ICOs that have been conducted should make liquidation arrangements to protect investors' rights and interests, and banning trading platforms and financial institutions from engaging in related activities [29]. In conclusion, once the development of digital finance is out of control, it will also bring a heavy blow to national economic stability and government governance.

With the globalization of world finance and the wide application of financial tech-nology, China's current financial industry has formed a complete financial system, including banking, securities, insurance, funds and other fields, and the degree of marketization and openness of the financial industry has gradually deepened, but it shows very obvious regional differences: On the

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whole, the level of regional financial development in the country presents a ladder distribution of "east-middle-west", especially the western financial development is relatively lagging behind. In 2022, China's economy was stable on the whole. In terms of GDP, the eastern, central, western and northeastern regions accounted for 51.7%, 22.1%, 21.4% and 4.8% respectively, total social financing increased by 668.9 billion yuan over the previous year, and outstanding loans in local and foreign currencies increased by 10.4% at the end of the year. The proportion of the central and western economies increased over the previous year. The reason is closely related to the economic stabilization package and follow-up measures implemented by the state in various regions. As early as 2021, “the No. 1 Central docu-ment” for the first time explicitly proposed to "develop rural digital inclusive finance, support modern agricultural facilities and rural construction", provide state support for the development of digital inclusive finance, promote financial inclusion, assist financial institutions in risk management, strengthen the credit awareness of capital demanders, assist in financing selection through information integration analysis [30], fully achieve the positive effect of science and technology in the construction of the financial market and promote the "last mile" work of financial services, so as to help underdeveloped regions achieve common prosperity. By 2022, China's "Government Work Report" has also clearly put forward the policy directive of "new financial tasks" to play the role of development and policy finance, optimize financial services and products, and promote the development of innovation and venture capital in order to explore the overall safe development path of the national economy. Under the guidance of national policies, the current financial development of underdeveloped regions has achieved remarkable results, even though it is also subject to financial risks brought about by digital currency investment and credit.

In general, developed regions have strong basic advantages in financial develop-ment, while underdeveloped regions such as Northwest China lack financial basic advantages, due to geographical remoteness, lack of digital infrastructure construction, and low awareness of overall financial services. Moreover, different industrial bases, industrial structures, development models and policy guidance have different degrees of influence on the emergence of finance and the expansion of financial functions, which leads to structural and regional differences in the impact on the resilience of county economy and affects the stability and governance of the country. So, for China's less developed regions, does financial development promote or inhibit the country's economic stability and governance?

Therefore, this paper puts forward hypothesis 1: Compared with developed regions, the current digital finance in the five northwestern provinces of China has more advantages than disadvantages, will enhance the resilience of county economy, and the impact on the five northwestern provinces is heterogeneous.

(2) How can digital finance promote governance?

Digital finance can also make economies more resilient by increasing the efficiency with which capital is allocated, boosting the vitality of entrepreneurial employment and reducing emissions. Existing literature has demonstrated that digital finance can improve the efficiency of capital allocation and thus enhance economic resilience. With the development of digital finance, Huang Yiping and Huang Zhuo[31], Xie Xuanli et al.[32] can create various financial service platforms, diversified financial scenarios and diversified financial models, the information evaluation method based on big data can alleviate the information shortage of small and micro enterprises, and then help to alleviate the financing constraints of small and micro enterprises, improve the efficiency of capital allocation and enhance the survival and development ability of small and medium-sized enterprises. Cui Gengrui [33] believes that the development of digital finance can achieve the functions of financial intermediation, risk management and payment and settlement through innovations in technology, channels and methods, it is beneficial to alleviate the unbalanced distribution of financial resources and improve the efficiency of capital allocation. Feng Sixian and Xu Zhuo [34] argue that the development of information technologies such as data repositories, the Internet, and cloud computing has created good conditions for financial institutions to make full use of industry network resources search engines and platforms, it is beneficial to eliminate the incompleteness of the economic system caused by the information matching imbalance, so as to ease

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the capital mismatch and improve the efficiency of capital allocation. Sun Zhenhua and Yi Xiaoli [35] relying on the extensive application of digital technology and the in-depth mining of data elements, digital finance has effectively reduced Information asymmetry and eased financial frictions among banks, enterprises and households, it can not only reduce the financing constraints faced by enterprises, help the development of real economy, but also optimize household asset allocation and improve the efficiency of asset allocation. Moreover, the existing literature has demonstrated that digital finance can enhance economic resilience by boosting entrepreneurship and employment vitality. Zhang Haoran concluded that financial development can optimize the eco-chain of innovation, entrepreneurship and venture capital, thereby promoting the vitality of entrepreneurship and employment, and improving the applicability of urban economic system, thus contributing to the greatly enhanced resilience of urban economy [36]. Xiong Jian, Dong Xiaolin [37] , Li Shufen et al. [38] point out that digital finance can significantly increase the activity of innovation and entrepreneurship, and thus improve economic resilience. Zhang Zhihua believes that financial agglomeration can promote the construction of regional financial highlands for innovative industries, accelerate the optimization of financial ecology, mechanism innovation and resource agglomeration, and enhance the continuity of innovative and entrepreneurial activities, it helps the upgrading of industrial structure and the rapid accumulation of human capital to strengthen the risk resistance of urban economic system [39]. Gong qilin and Zhang Bingbing [40] selected 223 prefecture-level cities and above to empirically test the economic resilience of cities enabled by digital finance, and concluded that the vitality of entrepreneurial employment plays a positive regulatory role. Obviously, while digital finance brings diversified financing channels and financial instruments, it also expands the scale of enterprises, creates more employment opportunities and significantly raises the level of employment and entrepreneurship, thus effectively stabilizing social employment, it plays an important role in enhancing the vitality of job creation and promoting high-quality employment.

In addition, research on digital finance, environmental protection and pollution emission control is also emerging. Liu Shan and Ma Lili [41] combined the matching samples of China's industrial enterprise database and Industrial Enterprise Pollution Database from 2000 to 2013, and discussed the financial development and green transformation of manufacturing industry from the micro level, it is concluded that financial development can significantly reduce energy consumption intensity and pollution emission intensity of enterprises, and drive green transformation of manu-facturing enterprises. Mao Xiaomeng and Wani examined the impact of digital finance on the development of a green economy, based on data from 286 Chinese cities at the prefecture level and above from 2011 to 2020, the study found that digital finance significantly promotes the development of green economy [42]. As the proportion of our carbon emissions in global carbon emissions continues to rise, problems such as inefficient use of energy, extensive growth and environmental damage have become the focus [43]. Based on the environmental kuznets curve (EKC) , Liu Feng et al. used panel data from 282 Chinese cities from 2011 to 2019, empirically analyzes the impact of financial development on carbon emissions and the channels through which it works, it is concluded that financial development significantly suppresses carbon emissions, and effectively exerts the carbon emission reduction effect through optimizing the energy consumption structure and substantial green technology innovation [44]. Du Yan and ran Yuan selected 30 provinces' panel data to explore the spatial effect of financial development on carbon emissions from 2008 to 2021. The results indicate that financial development suppresses carbon emissions in the region, and has the “Local-neighborhood” spillover effect [45], to promote the low-carbon transition of the real economy is of great significance.

To sum up, this paper puts forward hypothesis 2: digital finance will enhance government governance by improving the efficiency of capital allocation, enhancing the vitality of entrepreneurship and employment, and reducing emissions, and the differences of capital allocation efficiency, the vitality of entrepreneurial employment and pollution emission will make the impact of digital finance different.

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3. Model Design

3.1. Selection of the Model

(1) Benchmark model

Based on the previous assumption of relationship, this paper construcs a fixed-effects benchmark model, which is as follows:

$$res_{it} = \alpha_0 + \alpha_1 Fin_{it} + \alpha_2 \sum control_{it} + u_i + \varepsilon_{it} \quad (1)$$

res_{it} denotes the economic resilience of county i in t-year, Fin_{it} denotes the digital financial level of county i in t-year, and μ_i denotes the fixed effect of county i, ε_{it} is an error term.

(2) The mediation effect model

$$eff_{it}（ent_{it}/pol_{it}） = \delta_0 + \delta_1 Fin_{it} + \mu_i + \varepsilon_{it} \quad (2)$$

$$res_{it} = \gamma_0 + \gamma_1 Fin_{it} + \gamma_2 eff_{it}（ent_{it}/pol_{it}） + \gamma_3 \sum control_{it} + \mu_i + \varepsilon_{it} \quad (3)$$

It shows the economic resilience of county i in t-year, the digital financial level of county i in t-year, eff_{it}、ent_{it} and pol_{it} indicates the efficiency of resource allocation, the vitality of entrepreneurial employment and the emission of pollution respectively, μ_i denotes the individual fixed effect of county i, μ_i denotes the fixed effect of county i, and ε_{it} is an error term.

(3) Threshold effect model

On the basis of exploring the mediating effects of capital allocation efficiency, the vitality of entrepreneurial employment and pollution emission, this paper further explores the threshold effects of capital allocation efficiency, the vitality of entrepreneurial employment and pollution emission.

$$\begin{aligned} res_{it} = \beta_0 + \beta_1 Fin_{it} * I(eff_{it} < q_0) + \gamma_2 * I（q_0 < eff_{it} \\ < q_1） + \ldots\ldots + \gamma_3 \sum control_{it} + \mu_i + \varepsilon_{it} \end{aligned} \quad (4)$$

Res_{it} indicates the economic resilience of county i in t-year, Fin_{it} indicates the digital financial level of county i in t-year, eff_{it} indicates the efficiency of capital allocation, q_0 is the first threshold, $q_1$is the second threshold, and so on, μ_i denotes the individual fixed effect of county i, which does not change with time, and ε_{it} is the error term. The formula with the vitality of entrepreneurial employment as the threshold variable is just like formula (4) .

3.2. Variable Selection

(1) The interpreted variable

The interpreted variable is the county economic resilience(res) of the five north-western provinces of Shanxi, Gansu, Qinghai, Ningxia and Xinjiang. There are many methods to measure economic toughness, including the sensitivity method adopted by Wei Feng [46] and others, spatial GMM estimation methods and index system methods based on Verdun's law. The existing literature mainly based on the index system method is scientific, systematic and data availability, drawing on Cui Gengrui [47] , Zhu Jinhe and Sun Hongxue [48] relevant literature on resilience measure-ment, this paper take economic resilience as a system is divided into four dimensions: recovery, applicability, organization and creativity, the specific indicators are shown in Table 1.

Table 1. County Economic Resilience Evaluation System.

Variable	Level One	Weight	Level Two	Weight	Level Three	Unit	Weight	Direction of action
Resilience	Recovery	28.19%	Risk aversion	13.15%	Unit employment rate at year-end	%	9.43%	+

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				Urban-rural income ratio	%	3.72%	+
		Risk Prevention	15.04%	Added value of secondary sector of the economy/GDP	%	5.49%	+
				Balance of savings deposits of urban and rural residents	$10,000	9.55%	+
		Residents	8.76%	Electricity consumption of the whole society	10,000 kilowatt-hours	6.01%	+
Applica-bility	30.46%			Total stock of public libraries	A thousand copies	2.75%	+
		Economic stability	21.70%	Per capita gross domestic product	yuan/person	11.80 %	+
				Per capita grain holdings	Tons/one thousand people	9.90%	+
		Resource allocation	15.29%	Social investment in fixed assets	$10,000	9.65%	+
				Investment in real estate development	Billion	5.64%	+
Organiza-tion	28.25%	Macroeconomic regulation and control	12.96%	The various taxes account for the proportion of the general budget revenue of local finance	%	5.19%	+
				The general budget expenditure of local finance accounts for GDP	%	7.77%	+
		Sustainability	8.87%	Each full-time teacher in the primary school is responsible for students	person	6.21%	+
Creativity	13.09%			Medical and health beds per capita	Bed/10,000 people	2.66%	+
		Innovation and development	4.22%	Added value of tertiary sector of the economy/GDP	%	2.66%	+
				Number of mobile phone subscribers	Number of	1.56%	+

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		househol ds

(2) The explanatory variable

The explanatory variable is digital finance (fin), this paper uses the Digital Inclusive Financial Index (compiled by the Digital Research Center of Peking University) to express the level of digital finance in the counties of Shanxi, Gansu, Qinghai, Ningxia and Xinjiang provinces in the northwest from 2014 to 2021, the Index includes coverage, depth of use, and level of digital support services.

(3) The mediating variables

The mediating variables are the efficiency of resource allocation (eff) , the vitality of entrepreneurial employment (ent) and the emission of pollution(pol) , which are based on the practices of Cui Gengrui [49] and Liang Chen [50]. The efficiency of resource allocation (eff) is expressed by the ability of financial services, and is measured by the loan balance of financial institutions at the end of the year. The vitality of entrepreneurial employment (ent) is expressed by entrepreneurial employment strength and is measured by the number of enterprises above the scale. The emission of pollution (pol) are expressed as the sum of the nitrogen oxide, soot, and sulphur dioxide emissions from industrial gases.

(4) Control variables

In order to alleviate the impact of missing variables on economic elasticity and the endogenous problem, the control variables selected are as follows: (1) Population status (pop), is expressed by population density. (2) Degree of economic openness (ope), is expressed by the actual utilization of foreign capital Index. (3) The level of social consumption (con) , is expressed by the per capita retail sales of consumer goods. (4) Mechanised agriculture level (Agr), is expressed in terms of total agricultural machinery power

3.3. Sources of Data

This paper focused on Five provinces in northwest China: Shanxi, Gansu, Qinghai, Ningxia. The sample consisted of 193 counties in the fivenorthwestern provinces from 2014 to 2021, the digital inclusive financial data comes from China's 2014-2021 Financial Index, published by the Research Group of the Center for Digital Finance of Peking University, and this index covers the coverage of digital finance breadth, depth of use and digital degree of three dimensions, and depth of use includes payment, financial insurance, money fund and credit, financial investment and financial credit; the county economic indicators come from China Statistical Yearbook, China Rural Statistical Yearbook, China Urban Statistical Yearbook, China County Statistical Yearbook, Shanxi Statistical Yearbook, Gansu Statistical Yearbook, Qinghai Statistical Yearbook, Ningxia Statistical Yearbook, Xinjiang Statistical Yearbook.

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4. The Development Characteristics of Digital Finance and Economic Resilience in the Fivenorthwestern Provinces

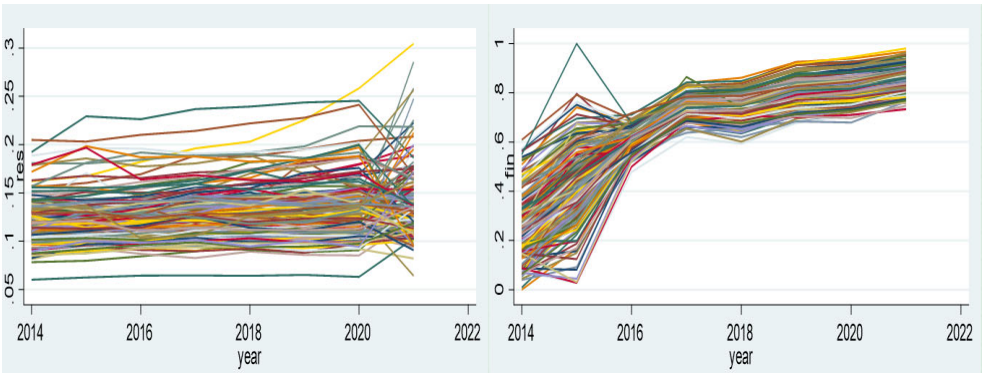

Figure 1. A chart showing the county economic resilience (left) and digital finance (right) of 193 counties in the five provinces.

Before preparing to explore the impact of digital finance on government gover-nance in the five northwest provinces, this paragraph describes in detail the develop-ment trend characteristics of digital finance and economic resilience in 193 counties in five provinces in Northwest China. Located in the remote northwest of China, five provinces is the main inclined area that the policy helps and supports, whose economic development level is in the backwardness. Reviewing 2014 to 2021, the county-level economic resilience of the five provinces in the northwest has always maintained a "Steady state", tending towards an overall trend of "Seeking progress while maintaining stability". The economic resilience of most counties was between 0.1 and 0.15 in 2014, while a few counties were above 0.15, and its peak was only around 0.2. Most counties' economic resilience was between 0.1 and 0.2 in 2021, and its peak was above 0.3, which is a marked improvement on the resilience of the economy compared with 2014. The above evidence clearly shows that the economic resilience of the five northwest provinces has achieved significant results, although the development rate is still relatively slow and remains at a relatively low level. From the perspective of the development of digital finance, digital inclusive finance in the five northwestern provinces has increased significantly since 2014. Digital inclusive finance in most counties was in the range of 0~0.4 in 2014. During 2014 to 2018, the finance expanded at an astonishing rate，the 193 counties in the fivenorthwestern provinces were all above 0.5 in 2018, after which the development of digital finance develop at a slower pace, the average level of digital finance in the counties of the five provinces in the northwest of China has reached an average of over 0.7, indicating that significant progress has been made in the development level of digital finance in the five provinces in the northwest of China in recent years.

5. Empirical Analysis

5.1. Benchmark Test

This paper uses Stata Software 17.0 to test the model relationship, Tables 2–12 are the results of empirical regression test.

(1) Benchmark test

Table 2. Benchmark Test of Digital Finance to Economic Resilience.

Variable	Res			
	(1)	(2)	(3)	(4)
Fin	0.028 ***	0.025***	0.012**	0.011*
	(15.69)	(11.99)	(1.97)	(1.83)
cons	0.109***	0.091***	0.115***	0.118***
	(89.52)	(25.19)	(56.54)	(12.79)

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Whether to add control variables	NO	YES	NO	YES
Fixed effect	YES	YES	YES	YES
Obs	1544	1544	1544	1544
F value	246.11	164.84	359.32	473.41
R-Squard	0.1542	0.3798	0.2047	0.3980

Note: The *** , ** , * indicates the regression coefficients is significant at the 0.01, 0.05, and 0.1 significance levels respectively, the T statistic is shown in parentheses. The same is shown in the following table.

Table 3. Test of potential financial risks to Economic Resilience.

Variable	**Res**				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Payment	0.037*** (13.46)				
Financial insurance		0.024*** (9.31)			
Money fund and credit			**-0.005 （-0.69）**		
Financial investment				0.034*** (16.10)	
Financial credit					0.030*** (17.66)
cons	0.105*** (60.94)	0.113*** (69.76)	0.128*** (30.22)	0.109*** (91.11)	0.109*** (100.62)
Fixed effect	YES	YES	YES	YES	YES
F value	181.13	86.59	0.48	259.18	311.84
R-Squard	0.1183	0.0603	0.0006	0.1611	0.1876

Table 4. Comparison with developed provinces.

Variable	**Res**	
	(1)	**(2)**
Money fund and credit	-0.021*** (-2.66)	-0.023*** (-2.84)
cons	0.191*** (46.44)	0.189*** (43.72)
Whether to add control variables	NO	YES
Fixed effect	YES	YES
F value	7.05	2.33
R-Squard	0.0296	0.0488

Table 5. The Test of Digital Finance to Sub-dimensions of Economic Resilience.

Variables	**Recovery**	**Applicability**	**Organization**	**Creativity**
fin	-0.001 (-0.78)	0.002* (1.85)	0.013*** (11.06)	0.011*** (17.06)
cons	0.041*** (15.03)	0.017*** (9.17)	0.018*** (8.83)	0.015*** (13.42)
Whether to add control variables	YES	YES	YES	YES
Fixed effect	YES	YES	YES	YES
obs	1544	1544	1544	1544
F value	69.18	7.55	57.07	166.03

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R-Squard	0.2044	0.0273	0.1749	0.3815

Table 6. Mechanism Test.

Variables	Capital Allocation Efficiency			Entrepreneurial Employment			Pollution Emission		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	res	eff	res	res	ent	res	res	pol	res
fin	0.025***（11.99）	0.047***（5.83）	0.021***（10.50）	0.025***（11.99）	0.039***（5.82）	0.022***（10.72）	0.025***（11.99）	-0.007*（-1.67）	0.025***（11.89）
eff/ent/pol			0.088***（13.37）			0.080***（9.77）			-0.028***（-2.19）
cons	0.091***（25.19）	-0.056***（-3.98）	0.096***（28.09）	0.091***（25.19）	0.026**（2.24）	0.089***（25.42）	0.091***（25.19）	1.009***（128.76）	0.119***（9.02）
Whether to add control variables	YES	YES	YES	YES	YES	YES	YES	YES	YES
Fixed effect	YES	YES	YES	YES	YES	YES	YES	YES	YES
obs	1544	1544	1544	1544	1544	1544	1544	1544	1544
F value	164.84	249.75	185.31	164.84	110.79	162.94	164.84	0.87	138.56
R-Squard	0.3798	0.4813	0.4525	0.3798	0.2916	0.4209	0.3798	0.0032	0.3820

Table 7. Tests in Different Provinces.

Variable	Res				
	Shanxi	Gansu	Qinghai	Ningxia	Xinjiang
fin	0.044***（10.50）	0.021***（6.42）	0.0001（0.02）	0.034***（4.71）	0.018***（4.30）
cons	0.093***（10.04）	0.089***（14.86）	0.137***（10.87）	0.086***（7.23）	0.104***（14.35）
Whether to add control variables	YES	YES	YES	YES	YES
Fixed effect	YES	YES	YES	YES	YES
Obs	400	472	80	104	488
F value	81.87	49.33	50.1	10.54	45.35
R-Squard	0.5426	0.3768	0.7940	0.3801	0.3495

Table 8. Tests of in Groups of Different Financial Levels.

Variables	Economic Resilience in Low Financial Level		Economic Resilience in High Financial Level	
	(1)	(2)	(3)	(4)
fin	0.008***（6.28）	0.006**（2.51）	0.082***（8.83）	0.053***（6.16）
cons	0.115***（197.86）	0.116***（22.17）	0.067***（9.12）	0.057***（5.64）
Whether to add control variables	NO	YES	NO	YES
Fixed effect	YES	YES	YES	YES

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obs	548	548	996	996
F value	39.39	9.33	77.99	82.34
R-Squard	0.1001	0.1177	0.0866	0.3403

Table 9. Robust Test.

Variables	t+1	t+2	t+3	Above 99% percentile	Quantiles of upper and lower 1%	Upper and lower quantiles of 5%
fin	0.027 (16.08)	0.050*** (15.79)	0.065*** (14.31)	0.024*** （12.53）	0.024*** (12.62)	0.023*** (13.16)
cons	0.085 (17.89)	0.088*** (21.72)	0.045*** (8.70)	0.094*** （27.30）	0.093*** (27.35)	0.095*** （29.60）
Whether to add control variables	YES	YES	YES	YES	YES	YES
Fixed effect	YES	YES	YES	YES	YES	YES
Obs	1544	1544	1544	1544	1544	1544
F value	97.67	100.68	64.78	172.62	174.96	140.77
R-Squard	0.2975	0.3440	0.2968	0.3907	0.3939	0.3434

Table 10. (Continued) Robust Test.

Variables	Change the core Interpretation Variable		
	(1)	(2)	(3)
Coverage	0.033*** （8.07）		
Depth of use		0.023*** (12.64)	
Level of digital support			0.038*** (9.02)
cons	0.095*** （21.34）	0.098*** (31.41)	0.105*** （32.80）
Whether to add control variables	YES	YES	YES
Fixed effect	YES	YES	YES
Obs	1544	1544	1544
F value	141.96	169.51	146.67
R-Squard	0.3453	0.3864	0.3527

Table 11. Threshold Test of Efficiency of Capital Allocation.

Threshold type	F value	P value	1%	5%	10%	Threshold
Single threshold	176.71	0.0000	25.5316	29.2354	34.1323	0.2142
Double threshold	32.09	0.0300	22.8033	28.4068	52.8868	0.3439
Triple threshold	27.85	0.2033	39.3722	51.5589	65.2028	0.1640

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Table 12. Threshold Test of the vitality of Entrepreneurial Employment.

Threshold type	F value	P value	1%	5%	10%	Threshold
Single threshold	82.72	0.0000	23.9285	27.8015	38.4823	0.2026
Double threshold	38.38	0.0000	20.4316	25.5239	34.0319	0.1552
Triple threshold	23.97	0.4167	39.5496	46.2244	58.1884	0.3405

According to the results of Hausman test, this research paper rejected the original hypothesis of random effects, and finally selected the individual fixed effects model for empirical regression. Table 2 shows the regression coefficients of digital finance are all positive in the model (1) (2) (3) (4). The regression coefficients of model (1) (2) were 0.028 and 0.025 respectively. The regression coefficients of model (3) were 0.012 and 0.05 respectively, the regression coefficient of model (4) was 0.011, which passed the significance test of 0.1 level. This illustrates that the development of digital finance to a certain extent is positively related to the strengthening of the resilience of the county economy in the five provinces of northwest China, speeding up the development of digital finance is an effective choice to enhance the economic resilience and improve the government's ability of governance in the five provinces of northwest China. Therefore, hypothesis 1 is verified.

(2)The test of to potential financial risks to economic resilience

The depth of digital inclusive finance covers payment, financial insurance, money fund and credit, financial investment and financial credit. Compared with the coverage breadth of digital finance and the degree of digital support, the former is likely to bring potential invisible risks to the resilience of county economy.This paper selects the stripping index from the depth of financial use to test whether it brings monetary risk to the resilience of county economy.

Table 3 displays tests of the financial risk posed by stripping variables. According to the test results, the impact coefficient of payment, financial insurance, financial investment and financial credit are respectively 0.037, 0.024, 0.034 and 0.030, and all are positive; while the impact coefficient of money fund and credit is -0.05, and is negative, indicating that money fund and credit does have a risk impact on economic resilience, but the impact is small to negligible. The hypothesis that the positive impact of financial development is greater in currently underdeveloped regions is confirmed. From the perspective of significance, the impact of money and credit on economic resilience is not significant, which indicates that the five provinces in Northwest China have expanded the degree of financial applicability through financial payment, financial insurance, financial investment and financial credit, thus helping to enhance economic resilience and macro government management. However, the negative financial risks brought by money funds and credit are still difficult to measure accurately. Therefore, strengthening risk control, implementing financial risk rating and realizing strong and effective financial supervision are still the key countermeasures to deal with financial risks.

In order to further compare the financial risks brought by money fund and credit, this paper selected the money fund and credit of 57 counties in Guangdong Province as the control group, and compared the test results with those of underdeveloped pro-vinces. (Note: Guangdong Province is a province with mature financial development and located in the first echelon of China).

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The tests result of the impact of money fund and credit on the resilience of county economy in Guangdong Province is suggested in Table 4. The results show that the influence coefficients of model (1) and model (2) are -0.021 and -0.023 respectively, are all negative, passing the significance test at the level of 0.01, indicating that the money fund and credit of developed provinces have a greater negative impact on the economic resilience of counties. The above analysis proves that money fund and credit risks in developed provinces continue to intensify with the development of finance, and it is necessary to strengthen the macro-supervision of the government to weaken the financial risks brought by money and credit. After comparison, the influence coefficient of money fund and credit in Table 3 is only -0.005, revealing that the financial risk of money fund and credit in developed regions is much higher than that in under-developed provinces.

(3) The test of digital finance to sub-dimensions of economic resilience

The recovery, applicability, organization and creativity of sub-dimensions of economic resilience are included in the test of model regression, table 5 displays the intrinsic influence of digital finance on sub-dimensions of economic resilience.

The empirical results pointed out that the regression coefficients of recovery were negative and did not pass the significance test, the regression coefficients of applicability, organization and creativity were significantly positive, passed the significance tests at the levels of 0.1, 0.01 and 0.01 respectively. Which indicates digital finance has a restraining effect on the recovery of county economy in the five provinces of northwest China, but it will greatly enhance the applicability, organization and creativity of the economic system. The reason for this phenomenon may be that after the impact of digital finance, the five northwest provinces, whose economic strength is backward as a whole, will bring unpredictable risks to the county economy, as well as whose ability to resist and guard against risks is fragile, will make it difficult to recover and adjust quickly, resulting in a negative impact of finance on the recovery of the economic system, the breakthrough of the new financial model has injected vitality into the five provinces of northwest China, which has greatly enhanced the economic system's applicability, organization and and creativity.

Furthermore, from the absolute value of the regression coefficient of the subdivision dimension, the subdivision dimensions are arranged in order from large to small as: organization > Creativity > applicability > recovery. This regression results confirm the following prediction: First, digital finance will obviously empower the organizational and creative capacity of the northwest county economic system whose overall economic conditions and ecological environment are relatively fragile, this is due to the fact that financial derivatives on the one hand provide new tools for the government to allocate resources rationally and regulate effective Macroeconomic regulation and control, and on the other hand provide an inexhaustible impetus for the innovative development of the economic system and the realization of sustainability. As well as digital finance has a certain degree of positive impact on the adaptability of the economic system, this is because the derivative of digital finance has broken the traditional mode of production and life, created benign advantages for improving residents' lives and maintaining social stability. However, the unpredictability of digital finance and the potential risks of diversification may reduce the resilience of the fivenorthwestern provinces, it is not conducive to the self-recovery of the economic system of the fivenorthwestern provinces.

5.2. Mechanism Testing

The regression results in table 6 illustrate the effects of capital allocation efficiency, the vitality of entrepreneurial employment and pollution emissions on economic resilience in digital finance.

Model (1) indicates that the impact coefficient of digital finance on economic resilience is 0.025, which is significantly positive, passing the significance test at the level of 0.01. Model (2) manifests that the impact coefficient of digital finance on capital allocation efficiency is 0.047. Model (3) shows that the regression coefficients of digital finance and capital allocation efficiency to economic resilience are 0.021 and 0.088, respectively, all pass the significance test of 0.01 level. Therefore, we can conclude that digital finance has a very significant positive effect on economic resilience, and the

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direct effect and part of the intermediary effect are significant, reducing the imbalance in the distribution of financial resources to enhance economic resilience.

Model (4) is consistent with the model (1) , showing that the influence coefficient of digital finance on economic resilience is 0.025, which is significantly positive, passing the significance test of 0.01 level. Model (5) manifests that the impact coefficient of digital finance on the vitality of entrepreneurial employment is 0.039, which is significantly positive, and also passes the significance test of 0.01 level. Model (6) illustrates that the regression coefficients of digital finance and the vitality of entrepreneurial employment to economic resilience are 0.022 and 0.080 respectively, both passing the significance test of 0.01 level. It can be seen that the employment vitality of entrepreneurship plays a significant part in mediating the impact of digital finance on economic resilience, more business opportunities and jobs were created, which led to the expansion of enterprises and the improvement of the level of employment and business start-up.

Model (7) is consistent with model (1) (4). Model (8) indicates that the influence coefficient of digital finance on emission is -0.007, which is significantly negative. Model (9) manifests that the regression coefficients of digital finance and pollution emission to economic resilience are 0.025 and -0.028 respectively, which all pass the significance test of 0.01 level. This proves that reducing pollution emissions has a significant role in mediating the impact of digital finance on economic resilience. To a certain extent, digital finance has reduced pollution emissions, innovative financial instruments are conducive to environmental sustainability and thus enhance economic resilience.

In summary, digital finance can enhance the resilience of county economy by improving the efficiency of capital allocation, enhancing the vitality of entrepreneurship and employment, and reducing the emission of pollutants. This hypothesis has been effectively confirmed. Furthermore, Table 4 shows that the absolute value of the impact coefficient of digital finance is smaller than that of the intermediary variable, indicating that the impact of the new financial model (digital finance) is smaller than that of the intermediary variable (capital allocation efficiency, enhancement of entrepreneurship and employment vitality, and reduction of pollutant emission), which may be related to the financial development level of the five provinces and counties in the northwest of the underdeveloped region. The development of county finance started late, the development level is relatively lagging, and the impact on economic resilience is not enough to match the intermediary variables.

5.3. Heterogeneity Analysis

(1) Based on the heterogeneity of different provinces

Table 7 illustrates the regression results of digital finance on county economic resilience of Shanxi, Gansu, Qinghai, Ningxia and Xinjiang. From the absolute value of the regression coefficient of digital finance, the Order of the influence of digital finance on economic resilience is: Shanxi > Ningxia > Gansu > Xinjiang > Qinghai. Among them, the regression coefficients of the four provinces of Shanxi, Gansu, Ningxia and Xinjiang passed the significance test at the level of 0.01, and were significantly positive, while the regression coefficients of the Qinghai digital finance were extremely small, and did not pass the significance test. This proves that the effect of digital finance in Shanxi, Ningxia, Gansu and Xinjiang provinces is more obvious, while in Qinghai, the effect of digital finance is extremely insignificant, which may be closely related to the difference of financial development level in different provinces. Specifically, Shaanxi, Gansu, Ningxia and Xinjiang have been given more favourable welfare policies in recent years and the improvement of the economic environment has provided a huge potential to attract investment, while Qinghai has a weak Base, there are few leading ICT Enterprises, and the credit environment is relatively poor, which is the possible reason for the regression results. In addition, it is an undeniable fact that the impact coefficient of digital finance on economic resilience is positive in different provinces, which fully shows the stimulating effect of digital finance on economic resilience.

(2) Based on the heterogeneity of different levels of digital finance

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Table 8 shows the results of heterogeneity regression based on different levels of digital finance. Taking the average value of county level digital finance in the five provinces of northwest China as the boundary, county samples are divided into two groups:counties with low level of digital finance and counties with high level of digital finance. On the whole, digital finance has a significant positive effect on economic resilience in both low-level and high-level regions, compared with the regions with low level of digital finance development, the regions with high level of digital finance development have more significant impact on economic resilience, the absolute value of the regression coefficient is larger in the high level region of digital finance. In conclusion, digital finance in the high level of financial development in the region more significant impact.

5.4. Robust Test

In order to test the robustness of the benchmark regression and mitigate the effects caused by endogenous problems and individual extremes, the robustness of the benchmark regression is discussed as follows. (1) Dynamic effect. Considering that there may be endogenous problems in the regression and that the current economic resilience may be influenced by the previous economic resilience, this paper introduces the lag period explained variable into the model and replaces it with the dynamic panel model, by replacing the original variables with the economic resilience lag one (t + 1) , the economic resilience lag two (t + 2) and the economic resilience lag three (t + 3) , the regression results showed positive values, and passed the significance test of 0.01 level, this suggests that the benchmark regression of digital finance to economic resilience is robust. (2) Data tail reduction. Considering the influence of the extreme data in the regression, the original data were shrunk by more than 99%, 1% and 5%, and the regression results are shown in Table 9. The enhancement effect of economic resilience of digital finance is still positive, and the significance test of 0.01 level shows that the regression is stable after excluding the influence of extreme value. (3) Change the core explanatory variables. By replacing the Digital Inclusive Index with a digital inclusive financial Subdivision dimension, digital inclusive financial coverage, depth of use, and degree of digital support, to further explore whether the impact of digital finance on economic resilience is stable, the results are as shown in Table 10. The impact coefficients of digital finance coverage, depth of use and degree of digital support on economic resilience are all positive, the significance test at 0.01 level proves that the impact of financial development on economic resilience is robust.

6. Further Exploration

Through the above-mentioned test of intermediary effect, it can be seen that the efficiency of capital allocation, the vitality of entrepreneurial employment and reduction of pollutant emissions play a pivotal part of the intermediary role respectively, therefore, we need to analyze whether the threshold effect is significant and measure different thresholds.

The threshold test the efficiency of capital allocation, the vitality of entrepreneurial employment and pollution emission can be manifested in Table 11, Table 12 and Table 13 respectively. According to the test results in Table 9, it is not difficult to see that the single-threshold F value of the efficiency of capital allocation is 76.71, P value is 0.0000, the double-threshold F value is 32.09, P value is 0.0300, and the triple-threshold F value is 27.85, P value is 0.2033, which indicates that the efficiency of capital allocation is significant at the level of 5% , the double threshold is significant, thresholds are 0.2142 and 0.3439. Table 10 manifests that the single-threshold F value of the vitality of entrepreneurial employment is 82.72, P value is 0.0000, the double-threshold F value is 38.38, P value is 0.0000, the triple-threshold F value is 23.97, P value is 0.4167, the results prove that the the vitality of entrepreneurial employment is significant at the level of 5% , and the triple threshold is not significant,and there are two thresholds, 0.2026 and 0.1552. Table 11 indicates that the single-threshold F value for pollutant emissions was 31.51, P value was 0.02, the double-threshold F value was 6.72, P value was 0.53, and the triple-threshold F value was 7.44, P value was 0.64, the results illustrate that the triple threshold and double threshold are not significant, but the emission of pollutants is significant only at the level of 5% , however, the subsequent threshold regression results

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with pollution emission as the threshold variable are contrary to the reality, so there is no threshold effect on pollution emission. Next, we further dive into the threshold effect of capital allocation efficiency, entrepreneurship and employment vitality, and the empirical regression results are shown in Table 14.

Table 13. Threshold Tests of Pollutant emissions.

Threshold Type	F value	P value	1%	5%	10%	Threshold
Single threshold	31.51	0.02	38.0081	24.0354	17.9565	1
Double threshold	6.72	0.53	68.1294	51.7328	38.208	1
Triple threshold	7.44	0.64	39.9198	18.4851	15.7736	1

Table 14. Threshold Test.

Threshold Test of the Capital Allocation Efficiency		Threshold test of the Entrepreneurship and Employment Vitality	
X<0.2142	0.023*** (11.97)	X<0.1552	0.033*** (13.45)
0.2142<X<0.3439	0.050*** (14.66)	0.1552<X<0.2026	0.020*** (9.75)
X>0.3439	0.071*** (17.07)	X>0.2026	0.051*** (14.29)
cons	0.098*** (28.95)	cons	0.095*** (27.49)
F value	158.9	F value	138.53
R^2	0.4528	R^2	0.4191

As Table 14 illustrates, allocative efficiency serves as a double threshold for the impact of digital inclusiveFinance on Economic Resilience. When the capital allocation efficiency is less than 0.2142, the impact coefficient of digital finance on county economic resilience is 0.023, and it passes the significance test of 1% level. When the capital allocation efficiency is greater than 0.2142 and less than 0.3439, the influence coefficient of digital finance is 0.050 and passes the significance test of 1% level. When the efficiency of resource allocation is greater than 0.3439, the influence coefficient of digital finance is 0.071 and it also passes the significance test of 1% level. This strongly proves that the influence of digital finance on economic resilience is gradually increasing with the difference of capital allocation efficiency, the bigger the threshold, the more obvious the positive effect of digital finance.

Table 14 also displays there are double thresholds for the vitality of entrepreneurial employment, but the threshold effect and capital allocation efficiency are different. When the vitality of entrepreneurial employment is less than 0.1552, the impact coefficient of digital finance on county economic resilience is 0.033, passing the significance test of 1% level. When the vitality of entrepreneurial employment is greater than 0.1552 and less than 0.2026, the influence coefficient of digital finance shrinks to 0.020, indicating that the influence of digital finance decreases instead. After crossing the threshold of 0.2026, the influence coefficient of digital finance was expanded to 0.051, and passed the significance test of 1% level, the results fully prove that the impact of digital finance on economic resilience has a fluctuating growth effect with the threshold value of the vitality of entrepreneurial employment, which may be closely related to the risks of digital finance for entrepreneurial employment.

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7. Conclusion and Enlightenment

This paper analyzes the current situation of financial development and economic resilience development in the northwestern provinces of Shanxi, Gansu, Qinghai, Ningxia and Xinjiang from 2014 to 2021, and further puts forward the theoretical mechanism and research hypothesis of the impact of digital inclusive finance on economic resilience. In order to verify whether the hypothesis is consistent with the reality of China, this study builds a county-level digital finance and economic resilience index system in five northwestern provinces with the help of small unit data at the county level, and tests the overall impact of digital inclusive finance on economic resilience, its impact on the sub-dimension of economic resilience and the impact of financial risk. It also examines the intermediate roles of capital allocation efficiency, entrepreneurship and employment vitality and pollution emission reduction in the influencing process, and deeply explored the threshold effect of intermediate variable.

The important conclusions of this paper are as follows: (1) On the whole, the rapid development of finance has enhanced the resilience of county economy and provided a strong and effective tool effect for county government governance in the under-developed regions in the five provinces in northwest China, and has a significant positive impact on the applicability, organization and creativity of the economic system, and can restrain the recovery, which shows that digital finance provides effective organization and innovation, but it also brings risks to county economy. (2) The efficiency of capital allocation, the vitality of entrepreneurial employment and the reduction of pollution emissions play a significant part in mediating the role of digital finance in enhancing economic resilience of China's five northwest provinces. (3) The impact of digital finance on economic resilience is heterogeneous, and it appears as Shanxi > Ningxia > Gansu > Xinjiang > Qinghai, and this effect are more significant in the high-level areas of financial development. (4) There is a double threshold effect in the process of the impact of digital finance on economic resilience, in which the capital allocation efficiency has a gradual increasing threshold effect, the vitality of entrepreneurial employment has the effect of fluctuating growth threshold.

Based on the above trustworthy characteristic facts and empirical test conclusions, several important enlightenments are as follows:

"Digital inclusive finance" in underdeveloped regions is an indispensable part of financial globalization. Digital inclusive finance provides innovative tools for govern-ments in less developed regions to allocate resources and macro-control, and a new way of thinking for governments to coordinate economic organizations, innovate economic development, and achieve sustainability.

Promoting the healthy development of digital finance is the basis and premise for providing a good financial environment for government management. China should expand financial assistance to the underdeveloped regions, promote the incentive policy to the underdeveloped regions, effectively strengthen the help and management of regional finance, so as to promote the overall governance of the government.

The significant role of fintech cannot be ignored. The government governance process should pay attention to the nature of digital finance and make full use of financial technology to develop financial diversification functions to speed up the flow of financial resources, stimulate the entrepreneurial drive, developing Green finance products to reduce pollution, deepen the reform of financial field, and promoting the green development of finance.

Note:

In my view, both financial and economic resilience issues are at the center of sustainable development. There are certain risks in the development of finance, especially how to deal with the strong impact of digital finance, which is a major problem facing the sustainable development of China and even the world. The essence of economic resilience is the ability to self-adjust after facing a series of shocks and still achieve self-stability, which is an important reflection of the effect of macro management and sustainable development. In addition, my research has found that digital finance can enhance economic resilience by reducing emissions, suggesting that the development of finance may also have important implications for the ecological sustainability.

Institute Email Address： zhaoliyu@xjshzu.com.

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Author: Xinshu Gong: Department of Economics and Management, Shihezi University； . Liyu Zhao (corresponding author), Department of Economics and Management, Shihezi University.

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