

The Impact of Digital Government Construction on Digital Finance

-Empirical Test Based on the E-Government Index of 31 Provinces in China

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Abstract: As the digital era dawns, digital government construction and digital financial development play an important role in optimising the market environment and improving the reach of credit, and have become an important force for social progress and high-quality economic development. Digital government construction can promote digital financial development through information sharing, improving the legal environment and promoting market-oriented reform. This paper investigates the impact of digital government construction on digital financial development at the provincial level by using individual fixed-effects models with Chinese provincial panel data from 2018-2021. The study shows that the enhancement of digital government construction significantly increases the degree of local digital finance development. The government should pay attention to the digital construction of platforms, establish government databases, promote data sharing, strengthen financial regulation, and promote the process of financial digitisation.

Keywords: Digital government, digital finance, government digitisation platform.

1. Introduction

As the digital era unfolds, digital government and digital finance have emerged as pivotal forces driving social progress and economic prosperity. The Party Central Committee and the State Council have placed significant emphasis on the construction of digital government, signaling China's entry into a new phase of comprehensive digital transformation. This transformation has not only substantially enhanced the efficiency of government services and optimized the model of public governance, but has also exerted a profound influence on digital finance. As a revolutionary shift in the financial sector, digital finance is leveraging information technology to upgrade and innovate its services. The construction of digital government presents unprecedented opportunities and challenges for digital finance in terms of data openness and process optimization. The primary objective of this paper is to delve into the specific impacts of digital government construction on digital finance and to explore potential pathways for optimizing digital government construction to foster the healthy development of digital finance.

In view of the current financing difficulties of small and micro enterprises and rural enterprises related to agriculture, countryside, and farmers in China, the traditional commercial financing

guarantee system has shown obvious inability to adapt. These enterprises often face the plight of insufficient market supply due to their poor credit status. In order to effectively alleviate the problem of "difficult financing and high costs" for micro and small enterprises, which means it is difficult to obtain funds and the financing costs are high, which limits their development, it is necessary to seek a solution to the information mismatch between commercial banks and micro and small enterprises. In this context, the evolution of digital finance provides us with a new perspective. Through the government-bank co-operation mode, with the help of data sharing and interconnection, we can build digital credit channels to adapt to different credit scenarios in a more accurate and efficient way. For example, the "Zhegang Loan" special service cooperation agreement signed by Shaoxing Human Resources and Social Security Bureau of Zhejiang Province and Bank of China Shaoxing Branch is a successful example of government-bank co-operation, which precisely helps small and micro-enterprises to stabilise their jobs and expand their employment through data empowerment.

With the continuous advancement of technology, the commodity economy has gradually shifted to the digital economy, and the way of governance has also shifted from the logic of commodity to the logic of digital. Currently, academics have a positive attitude towards digital government governance, and the government digital platform presents the logic of function-driven, scene integration and overall wise governance in practice. Through resource integration, process optimisation, agile response and data empowerment, digital government promotes government-enterprise collaboration, information sharing and integrated operation, and plays a role in expanding, linking and integrating the development of digital finance.

Although the impact of digital financial development on enterprise innovation and traditional credit of banks has received wide attention, there is still a relative scarcity of literature on digital government construction as an antecedent variable to explore its role in the promotion of digital financial development, and this paper aims to fill this research gap.

This paper first sorts out the current status of digital government theory development and the evolution of digital finance, analyzes the impact mechanism of digital government construction on digital financial development, and proposes hypotheses. It uses empirical data to support the theoretical analysis, enriching the practical foundation for the benefits of government information sharing and government-bank cooperation on economic development. It also enhances the theoretical foundation for government-bank cooperation and further provides a basis for subsequent research on the impact of digital government construction on the development of banks' digital credit. Additionally, it offers a foundation for further exploration into the promotional role of digital government service development on the advancement of banks' digital credit.

This study not only deepens and improves the theory of digital government and digital finance, but also has important practical value and policy implications. At this pivotal juncture of digital transformation, gaining insights into how digital government influences digital finance is of paramount importance for accelerating China's economic advancement towards high-quality development. This study will provide decision makers with decision-making basis and facilitate the digital evolution in both government and the financial sector by revealing the internal relationship and mechanism between digital government construction and digital financial development. Simultaneously, it offers valuable insights to help the industry effectively embrace and leverage the opportunities and tackle the challenges posed by digital transformation. Furthermore, as the digital transformation progresses rapidly across various sectors, the findings of this study will positively influence the international academic community and policymakers, thereby bolstering China's global voice and influence in the realm of digital evolution.

2. Literature References

The concept of Digital Government emerged in the 1990s, and is derived from the concepts of Digital Earth and Digital City. In today's era, with the continuous evolution and in-depth application of a series of cutting-edge emerging technologies such as big data and artificial intelligence, socio-economic development and national governance have been profoundly affected by the relevant technologies. Using modern information technologies such as big data and cloud computing, government governance is moving towards a new model, showing rich concepts and profound connotations. This new model, known as digital government, is leading the new trend of modern governance by optimizing the decision-making process and improving the quality of public services, such as promoting the construction of smart cities. Different scholars understand its concept and connotation from different directions. Some scholars hold the view that digital government, as one of the components of digital city, is a form of state administration supported by computer network [1]. It mainly relies on information technology to promote the intelligent and convenient development of public services. From the characteristics of digital government, some scholars have summarised its features as informatisation, management network, office automation, openness of government affairs and operational procedures [2]. The core of digital government lies in managing data, with the aim of enhancing the government's governance capacity in various fields. Therefore, digital government is to reshape the management structure, business structure, and technical structure of government information technology on the basis of emerging technologies such as artificial intelligence, Internet of Things, blockchain, 5G, and so on, and optimise the government's operation procedures, organisational structure and management services by building data-driven government mechanisms, platforms and channels, and enhance its capacity to perform its duties in various fields which include regulation of the economy, oversight of markets, management of social affairs, provision of public services, and protection of the environment, among others. Enhance its ability to perform its duties in economic regulation, market supervision, social governance, public service, environmental protection and other fields. E-government, as one of the specific manifestations and development stages of digital government, to a certain extent plays a similar function with digital government [3]. From the point of view of its role and significance, some scholars believe that the operation of e-government has facilitated management to become more convenient, but it has also produced drawbacks, including the "digital divide" and the solidification of management [4]. Under the digital government environment, the mutual flow of government data and information can effectively promote the standardisation and efficient development of government business and enhance the government's social governance capacity. Finally, as for the way to build a digital government, scholars generally believe that we should draw on sophisticated experiences both locally and internationally, tailor our approach to national circumstances, enhance overall planning, and harness the benefits of our institutional framework and policy incentives. [5].

Digital finance embodies the culmination of the seamless fusion between digital technology and financial services, signaling a sophisticated evolution in the realm of finance. A considerable number of contemporary scholars assert that digital finance encompasses a wide range of entities, including traditional financial institutions and internet-based enterprises, which harness the power of the internet and advanced information technology to introduce revolutionary financial business models. These models cater to a diverse array of financial services, such as capital financing, payments, investments, and others, thereby transforming the financial landscape. It integrates digital technologies such as the internet, cloud computing, big data, blockchain, artificial intelligence, and financial services, encompassing both emerging internet enterprises engaged in financial operations and traditional financial institutions like banks, insurance companies, securities firms, and others that utilize digital technology for financial operations [6,7,8]. In terms of measuring digital finance, there

are two primary categories: constructing a sentiment index based on internet search popularity and developing a digital finance index using structured data. The Chinese government places significant emphasis on the development of digital finance, promoting its capacity to serve the real economy and foster rural revitalization. Digital finance exerts a profound influence on traditional credit practices within commercial banks, addresses financing hurdles faced by small and micro-enterprises, elevates the standards and enhances the effectiveness of financial support for the real economy, and fosters the growth of the green economy. Ongoing studies primarily focuses on the effects of digital finance development on other economic behaviors, while paying less attention to the influence of changes in other factors on digital finance development.

The process of moving from a commodity economy to a digital economy is essentially a shift from a commodity logic to a digital logic. The governance mechanism within the realm of digital economics adopts a technology-embedded governance path, which promote the development of governance systems for the digital economy through the construction of a digital government through the collection of big data on affairs and the full-process handling of affairs [9]. In existing studies, scholars have used the number of online services and the number of e-participation as indicators for measuring the development of digital government, pointing out that smart digital administration can promote green infrastructure innovation by playing the role of the market and stimulating the progression potential of the digital economy [10]. Digital government development contributes to business performance, and digital economic growth facilitates the progression [11]. Government governance is critical to the expansion of the digital economy, and the quality of regulation, the control of corruption, the extent of the rule of law, the dynamism of the market and the digital environment have a necessity effect and a sufficiency effect on the development of the digital economy, while at the same time, the approach to digital governance varies across regions with different levels of development [12]. Existing studies mainly focus on the impact of digital government on the development of green innovation and the improvement of enterprise performance, etc., but less directly focus on the impact of digital government and e-government on the development of digital finance.

3. Research Assumptions

Digital government is through the utilization of large-scale data analytics, cloud computing technology, blockchain and other digital technologies, to build a comprehensive information platform for public administration matters openness, the construction of the platform on the one hand, is conducive to the public to improve the efficiency of the work, participation in government decision-making; on the other hand, in the smooth flow of information about the government and the people at the same time, is conducive to the government to further record the people's lives, business operations and other processes of the micro-data, and then to the ever-expanding social data for the generalisation and collation On the other hand, it will help the government to further record the subtle data in the process of people's life and business operation, and then summarise and collate the ever-expanding social data to build up an all-round and multi-level database covering social life.

3.1. Promoting data-sharing and expanding loan stocks

Digital finance encompasses a broad spectrum of entities, including banks, insurance firms, and securities companies, which are traditionally recognized as financial institutions, as well as Internet enterprises engaged in financial services assisted by cloud computing, data science and other information technologies. Among many financial services, credit business accounts for a large proportion and is an important part of financial services. The normal conduct of the loan business is closely linked to the credit of enterprises, and the construction of digital government has improved

the data accessibility of financial institutions and provided a certain degree of credit supplementation for enterprises that cannot provide qualified collateral.

The establishment of a digital government accelerates the development of governmental platforms, financial institutions or Internet enterprises interested in financial business can form a cooperative relationship with the government, and then access to the government platform of the public, enterprise life and business-related data, build a scene from the data, and analyse whether the behaviour of the public, enterprises can provide sufficient credit for themselves. The digital government platform can be used as a supplement to credit investigation, providing decision-making reference for banks and other financial institutions that issue loans, and reducing information asymmetry and moral risks between banks and other financial institutions and borrowers. At present, some banks have begun to carry out data interoperability with government departments such as industry and commerce bureaus, customs bureaus, tax bureaus, etc., so as to analyse whether the target enterprise is carrying out normal and continuous business activities and whether there is any breach of trust by obtaining the relevant data on the enterprise's operation situation over a long period of time. Due to the strong credibility of government departments, the relevant data can be provided as the borrower's credit, on the one hand, it can strengthen the bank's credit risk control; on the other hand, the bank can also use the data to build different scenarios, have a fuller understanding of the poorer qualification of the enterprise, and provide it with possible credit channels. For example, tax loan, this kind of loan product refers to the bank to provide loans to enterprises for tax matters, relying on the cooperation of tax bureaus, banking and insurance supervisors and banks and other institutions and departments, this kind of product has the characteristics of no collateral, flexible repayment methods, and enterprises only need to rely on the credit of tax payment to get a loan. As a result of the "government-bank interaction", the bank only needs to take the actual situation of tax payment by the enterprise in the tax bureau as a reference and decide the actual amount of the loan in accordance with the tax payment situation, thus greatly reducing the risk of the bank's lending; at the same time, the success rate of obtaining a loan for small and medium-sized enterprises with normal business operations has been improved.

The construction of digital government provides a connected information space for market players through the construction of a digital information sharing platform, and the massive increase in the quantity of information and the diversification of communication channels have effectively strengthened the communication between the government, institutions and individuals, and facilitated the communication between the "government, enterprises and service institutions". Based on this, banks are more "able to lend", "dare to lend" and "willing to lend" to long-tail customers, thus expanding the stock of loan business to a certain level of extent, or to a considerable degree and promoting the development of digital finance. In addition to credit business, the data provided by the governmental platform can also be used as the basis for the progression and improvement of other financial services.

3.2. Improving the rule of law environment

Digital government has broadened the channels for the public to report on wrongdoing, improved the interactive mechanism of communication between the public and the government, and is conducive to the formation of a more participatory political culture, the formation of a more participatory political culture [13]. High public participation and sound rule of law environment is linked [14], a sound rule of law environment means strict industry regulation [15], which can effectively enhance the judicial and administrative law enforcement agencies to enforce the law fairly and the efficiency of law enforcement, so as to reduce the public, financial institutions in the financial business of the possible losses caused by the financial industry to ease the slow development of the status quo. In the realm of finance, establishing a solid foundation for legal governance and empowering it with rigorous enforcement is pivotal. By fostering a favorable legal environment within the financial sector,

we can effectively bolster the provision of financial services to the real economy and enhance risk management and mitigation strategies. For instance, robust legal frameworks can ensure transparency and fairness in financial transactions, which in turn bolsters investor confidence and stabilizes markets. Additionally, a strong legal governance system facilitates the prompt identification and resolution of risks, thereby safeguarding the stability and growth of the financial sector. On the one hand, the government platform can be used to identify potential defaulters more accurately, strengthen the penalties for defaulters in the information sharing of the whole society, and impose constraints on the possible defaulter behaviours of the people and enterprises at the government level; on the other hand, the perfect financial laws can impose restrictions on the improper behaviours of financial institutions, and provide effective safeguards for the clients of the financial business.

3.3. Promoting Changes in the Relationship between the Government and the Market and Stimulating Innovative Vigour

The advancement of digital finance hinges on the backbone of sophisticated and comprehensive information technology. The pace and extent of technological enhancements and refinements are directly influenced by the enhancement of enterprises' innovative capabilities. For example, as enterprises continuously innovate and improve their technological solutions, digital financial platforms can offer more secure, efficient, and user-friendly services. Moreover, the integration of cutting-edge technologies like blockchain and artificial intelligence can further propel digital finance towards new heights, enabling more sophisticated risk management, fraud detection, and personalized financial services. The financial market is changing fast, customer needs are diversified, market competition is big, whether to use information technology to keep up with the market changes, while controlling the risk of rapid iteration of the new financial technology, update the financial products to meet the demand, and then expand the market, gain revenue, is the current development of the digital financial institutions interested in the major problems faced by the major issues. Through market-oriented reform, the government promotes the formation of a dynamic market mechanism that adjusts prices by supply and demand, thereby alleviating the distortion of the factor market, improving the construction of market systems, creating a good business environment for enterprises, promoting the enhancement of corporate innovation inputs, and stimulating the vitality of social innovation [16].

Market to break down unreasonable institutional barriers, and "release management and service" reform is to deal with the interplay between public authorities and economic markets is an important reform measures, the essence encompasses the mandates for administrative bodies across all tiers to leverage contemporary digital tools to enhance governmental oversight, operational efficiency, and service capacity. From the perspective of information sharing, the channel to improve government service capacity can be through online government platforms to release effective information in a timely manner; from the perspective of service communication, the government can strengthen communication with social actors and match services by responding to the complex needs of the public and enterprises in a timely manner.

The uniqueness of the government platform operation in the organisational structure, division of labour type and quality feedback and other aspects fundamentally changed the government's organisational structure, promoting the structural transformation of the government that is the platform, which largely enhances the effectiveness of the government's governance, reduces the cost of enterprises, the public and the government departments to deal with the delivery of the period of time, which to a certain extent stimulates the vitality of social and technological innovation [17]. On the one hand, the e-government platform to achieve the "most run once", "do not meet the examination and approval" and other reforms, simplify the business process, compression of the cost of doing business, reduce the operating expenses of enterprises, is conducive to the continued operation of

enterprises; on the other hand, the streamlined enterprise registration On the other hand, the streamlined business registration process to a certain extent reduces the threshold of market access, which is conducive to breaking the monopoly of the industry, and promote favourable competition at the same time to stimulate the momentum of technological innovation of enterprises [18]. At the same time, the digital government platform as a service platform for the public, effective policy information, market resources, data, network, openness, for enterprises to provide information retrieval convenience, reduce the enterprise data search barriers and costs, promote the optimisation of the business environment, enterprises to bolster investment in in innovation endeavors and foster advancements in technology. Technological innovation drives the progress of financial technology, which in turn promotes the in-depth integration of finance and information technology and promotes the development of digital finance.

Based on the above analysis, this paper puts forward the hypothesis.

Hypothesis H0: There is a positive impact of digital government construction on digital financial development, the higher the degree of government digitisation, the higher the level of digital financial development.

Hypothesis H1: There is no significant relationship between the level of government digitisation and digital finance development.

4. Research Design

4.1. Sample Selection and Data Sources

This study selects the data from provinces, autonomous regions, and municipalities directly under the central government spanning from 2018 to 2021 as the initial dataset. Following preprocessing, the sample comprises 125 observations across these regions over the mentioned period. The digital inclusive finance index utilized in this paper is sourced from the "Peking University Digital Inclusive Finance Index," published by the Digital Finance Research Centre of Peking University. Meanwhile, the comprehensive index of e-government service capacity is derived from the "Government e-Service Capacity Index Report," which covers the years 2018 to 2021 for the aforementioned regions. Regarding other economic indicators, the per capita GDP, innovation input and output levels, industry digitization, Internet-related output, urbanization levels, Internet-related employment, per capita loan amounts, and per capita insurance amounts are also part of the initial dataset. These data points are sourced from the China Statistical Yearbook. Notably, the comprehensive index of e-government service capacity aligns with the index reported in the Government e-Service Capacity Index Report for the years 2018 to 2021.

4.2. Model Setting

In order to examine the impact of digital government building on digital financial development, the following panel econometric model is set up:

$$\ln index_i = \beta_0 + \beta_1 \ln eglov_i + \beta_2 innovate_i + \beta_3 \ln industry_i + \beta_4 \ln output_i + \beta_5 city_i + \beta_6 instaff_i + \beta_7 loan_i + \beta_8 insure_i + \beta_9 gdp_i + \sigma_i$$

In this paper, a panel fixed-effects model is used to fix the individual effects in the regression in order to eliminate the influence of individual differences on the regression results. In the formula, the variable subscript i representative region. $\ln index_i$ is an explanatory variable representing the development of digital finance. $\ln eglov_i$ indicates the level of digital government building. $innovate_i$ is the level of innovation inputs and outputs in different regions, reflecting differences in regional innovation inputs and outputs. $\ln industry_i$ representing the degree of digitisation of industries in different regions, expressed in terms of the number of people employed in high-

technology industries. $inoutput_i$ indicates the level of Internet-related outputs. $city_i$ indicates the level of urbanisation in different regions. $instaff_i$ indicates Internet-related practitioners. $loan_i$ representing the level of financial development of different regions, expressed as the ratio of institutional deposit and loan balances to regional gross domestic product (GDP). $insure_i$ representing the level of development of insurance business in different regions. gdp_i is the gross regional product of the different regions; see later for the specific meaning of the variables. σ_i is the error term.

4.3. Description of Variables and Descriptive Statistics

1. Explained variable: digital financial development (lnindex). Because the development of digital finance is extremely complex, a single index to measure its development level is not objective and comprehensive enough, so for the measurement of digital finance, at the macro level, mainly through the construction of indexes to reflect its development status, existing research can be broadly divided into two categories, one is to construct a sentiment index based on the hotness of the network search, and The second is to construct a digital finance index based on structured data. Due to the rapid change of concepts related to digital finance, the construction of the digital finance sentiment index based on Internet hot search may have the problems of "untimely updating" and "incomplete coverage", and to a certain extent, it is difficult to truly reflect the development level of digital finance. To a certain extent, it is difficult to truly reflect the development level of digital finance. The digital finance index constructed by some scholars[19] based on Ant Financial's massive user transaction data can reflect China's digital finance development in a more detailed and comprehensive way. Based on this analysis, when measuring digital finance in this paper, the China Digital Inclusive Finance Index (provincial level) compiled by the Digital Finance Research Centre of Peking University is used as a proxy variable for digital finance.

2. Explanatory variable: the level of digitised government construction (lnelgov). This paper draws on Shi Bingzhan and You Annan [20] to measure the level of government digitisation through the level of e-government. Currently, among the mainstream e-government assessment reports, the government e-service capability index report analyses the capability of government services, government service pathways, provincial government service interval attributes, and government service geographical attributes from the four aspects of provinces, municipalities directly under the central government, prefectural cities, and ministries and commissions under the State Council, combining the four channels of governmental websites, official microblogs, microblogs, and governmental APPs In-depth analyses are carried out to construct China's provincial and municipal government e-service capability index. The index is a comprehensive data source, covering a number of government digital service platforms, which can reflect the level of China's provincial and municipal digital government construction in a more comprehensive way. Based on this analysis, this paper adopts the government e-service capability index compiled by the government e-service capability index report as the proxy variable for the level of digital government construction.

3. Control variables. Drawing on existing literature, this paper controls other variables affecting the level of digital financial development, including: gross domestic product (gdp) per capita; innovation input and output level (innovate), using the number of patents granted with a lag to reflect the innovation input and output situation in each province; the degree of industrial digitisation (lnindustry), using the number of employees in high-tech industries to portray; Internet-related output (inoutput), using the total amount of telecommunications services per capita to describe; the level of urbanisation (city); Internet-related workers (lnindustry), using the number of employees in high-tech industries; Internet-related output (input), using the total amount of telecommunication services per capita; urbanisation level (city); Internet-related employees (staff), using the percentage of computer services and software employees with one period of lag to portray; level of financial development

(loan), using the ratio of the balance of deposits and loans of institutions to the GDP of provinces as a representative variable; level of development of insurance business (loan). The level of financial development (loan) is represented by the ratio of deposit and loan balances of provincial institutions to regional GDP; the level of insurance business development (insurance) is portrayed by the insurance amount per capita with one period of lag.

The descriptive statistics of the variables are shown in Table 1. The mean value of digital financial development level is 5.81, the maximum value is 6.13, the minimum value is 5.57, and the standard deviation is small, indicating that the difference in the level of digital financial development between provinces is small; the mean value of digital government construction water is 4.08, the maximum value is 4.42, the minimum value is 3.36, and the standard deviation is 0.19, and the standard deviation is small, indicating that the difference in the level of digital government construction between provinces is small. The difference in the level of digital government construction is relatively small. The average value of innovation input-output water is 22921.33, the maximum value is 184772, the minimum value is 5306, and the standard deviation is large, the variable is obviously to the left, indicating that the level of innovation input in a certain part of the provinces and municipalities is obviously higher than the average; the degree of digitalisation of the industry is also obviously to the right.

Table 1: Definition of Each Explanatory Variable and Its Descriptive Statistics

Name	Definition	Mean	Standard Deviation	Minimum value	Maximum value
Digital Financial Development (lnindex)	Using the logarithmic form of the Digital Financial Inclusion Index developed by Peking University	5.81	0.12	5.57	6.13
Level of Digitised Government Building (lnelgov)	Adoption of the logarithmic form of the Government e-Services Capability Index compiled by the Government e-Services Capability Index report	4.08	0.19	3.36	4.42
Gross Domestic Product per capita (GDP)	GDP per capita - yuan	71223.53	32128.48	31336	183980
Level of Innovation Inputs and Outputs (Innovate)	Patents granted with a lag of one period - pieces	22921.33	37335.61	5306	184772
Degree of Digitisation of Industry (lnindustry)	Employees in high-tech industries - 10,000 persons	2.891783	1.008752	0.18	5.09
Internet-related Outputs (Inputs)	Total telecommunication services per capita	0.61	0.37	0.07	1.48
Level of Urbanisation (City)	Level of urbanisation lagging one period behind - per cent	62.3281	11.32859	31.14	89.3

Table 1: (continued).

Internet-related Practitioners (Instaff)	Percentage of employees in computer services and software lagging one period behind -- per cent	0.002	0.003	0.009	0.016
Level of Financial Development (Loan)	Institutional deposit and loan balances/gross regional product	46288.9	29943.98	15200	195900
Level of Development of Insurance Business (Insure)	Insurance per capita for the lag period - billion	0.019	0.049	0.317	0.164

5. Empirical Analysis

5.1. Regression to Baseline

The results of the benchmark regression of digital financial development (INDEX) and digital government construction are shown in Table 2. Column (1) shows the mixed regression results, and according to the Hausman test, we believe that fixed effects are more suitable for this study. Column (2) shows the fixed effects regression results controlling for individual effects. It can be seen that no matter which regression method is used, the regression coefficients of the level of digital government construction are positive and always remain significant at the 10% level, which indicates that the improvement of the level of digital government construction can significantly promote the development of digital finance.

Table 2: Benchmark Regression Results

Variant	Scheme 1	Scheme 2
lnelgov	0.085*** (2.78)	0.067* (1.90)
D_innovate	0.000*** (3.74)	0.000*** (2.78)
lnindustry	0.001 (0.09)	0.115** (2.38)
inoutput	-0.114*** (-13.71)	-0.085*** (-6.03)
D_city	0.002*** (3.33)	0.002*** (3.67)
D_instaff	-2.436* (-1.80)	-4.338*** (-2.92)
loan	0.000*** (5.49)	0.000*** (4.61)
D_insure	-0.207*** (-3.08)	-0.201*** (-2.80)
gdp	0.000*** (7.80)	0.000*** (4.19)

Table 2: (continued).

_cons	5.353*** (44.79)	4.949*** (23.78)
N	93	93
R ²		0.9075

Note: t-statistics variables in parentheses, * p < 0.10, ** p < 0.05, *** p < 0.01

In terms of the control variables, Table 2 presents model (2), which investigates various factors influencing the development of digital finance. The regression coefficient for the degree of industrial digitization stands at 0.115, achieving significance at the 5% level. This suggests a positive correlation, implying that regions with advanced industrial digitization exhibit a higher level of digital finance development. This may stem from the abundance of highly skilled workers in these areas, facilitating seamless and efficient integration between the financial sector and digital technology. Conversely, the regression coefficient for Internet-related output, at -0.0085, is statistically significant at the 1% level, indicating an inverse relationship. Specifically, as the total per capita telecommunication volume increases, the degree of digital financial development decreases. This could be attributed to potential saturation or inefficiencies in telecommunication networks at higher volumes. Moreover, the regression coefficient for the urbanization level is 0.002, significant at the 1% level, suggesting a direct correlation. Higher urbanization levels are associated with enhanced digital finance development. This is likely due to superior Internet infrastructure and higher educational attainment among residents in these areas, creating a fertile environment for digital financial advancements. In contrast, the regression coefficient for the number of Internet-related practitioners is -4.338, also significant at the 1% level. This negative coefficient indicates that an increase in the number of these practitioners corresponds to a decrease in digital financial development. This could be explained by potential competition or saturation in the digital financial services market. Lastly, the regression coefficient for the level of insurance business development is -0.201, significant at the 1% level. This negative relationship suggests that as the insurance industry expands, the degree of digital financial development diminishes. This could be due to traditional insurance practices competing with or slowing the adoption of digital financial solutions.

5.2. Robustness analyses

Table 3: Robustness Check Regression Results

Variant	Scheme 1
lnelgov	0.076* (1.78)
D_innovate	0.000*** (3.27)
inoutput	-0.141*** (-14.82)
D_city	0.001** (2.38)
D_instaff	-3.343* (-1.93)
loan	0.000*** (5.38)
_cons	5.550*** (32.24)

Table 3: (continued).

N	93
R2	0.8402

Note: t-statistics variables in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This paper adopts the way of adjusting control variables to carry out the robustness test. After deleting the degree of industrial digitisation, the level of insurance business development and per capita gross regional product for regression, the regression coefficient of the level of digital government construction is 0.076 and passes the significance test of 10%, which indicates that the improvement of the level of digital government construction can increase the degree of regional digital financial development, which is in line with the conclusion of the previous paper.

6. Conclusions and Implications

6.1. Conclusions

After an in-depth study of the relationship between digital government construction and digital financial development, this paper draws the following conclusions: the original hypothesis H0 is accepted, and the hypothesis H1 is rejected. The influence of digital government on the development of digital finance is notably positive, and this relationship becomes increasingly robust as the degree of digitalization within the governmental sphere advances. Specifically, higher levels of digital government not only facilitate the adoption and integration of digital financial tools and services but also contribute to a more streamlined and efficient financial ecosystem, thereby accelerating the overall progression of digital finance. The construction of digital government provides strong data support and platform support for digital finance, making financial services more convenient and efficient. The digital transformation of the government promotes information transparency and data sharing, which leads to a reduction in both the cost and risk associated with financial transactions. By optimising administrative processes, the digital government provides a more friendly business environment for financial institutions. As a result, it fosters an environment conducive to the innovation and advancement of digital financial services. Utilizing data spanning from 2018 to 2021 sourced from the Government e-Service Capacity Index Report, this research paper elucidates a favorable association between advancements in digital government initiatives and the progression of digital financial services. The empirical results show that as the degree of government digitisation increases, There is also a notable upward trajectory observed in the evolution of digital financial services, indicating substantial growth. In conclusion, policymakers should allocate greater resources towards enhancing digital government infrastructure, thereby fostering the swift and sustainable advancement of digital financial services. For financial institutions, they s ought to capitalize fully on the government's digital transformation process., strengthen the cooperation with the government, and innovate the financial service model.

Although the research in this paper provides preliminary evidence support, future research can further explore the specific impact mechanisms of different aspects of digital government construction (e.g., the degree of data openness, service platform functions, etc.) on digital finance. With the advancement of technology and the abundance of data resources, future research can incorporate more micro-data and case studies for a more detailed and in-depth study.

6.2. Policy Implications

1. Use "Internet + government services" to create a government services database. The government should improve the overall planning of digital government, promote business to the cloud, integrate

various businesses through cloud computing technology, open up information silos, and provide a basis for the exchange and sharing of government data.

2. Promote data sharing between the government and financial institutions. Integrate the national integrated government service platform, optimise the government data service portal, build a unified government data catalogue, and unify the application standards for government data requirements. Establishing an open and shared data resource system, converging and integrating multi-source data, coordinating management, strengthening the whole life cycle management of data, and enhancing the classification and hierarchical management of data. Promote the construction of data sharing mechanism between the government and enterprises, and encourage financial institutions to participate in the open sharing of government data.

3. Use the e-government platform to strengthen financial supervision and improve the rule of law environment. The government and relevant institutions in the financial industry should steadily promote the construction of digital facilities in the financial industry, continue to promote the digital interconnection of the financial market, and continuously improve the digital level of the clearing, settlement, registration and custodian systems. They should also establish a national-level regulatory big data platform and promote the standardisation and online integration of various regulatory processes.

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