

A Study on The Impact of Digital Transformation of Government Governance on The Efficiency of Public Services

-- Experience Data from The Information for People National Pilot Cities

Bo Li¹, Yali Liu^{1,*}

¹Anhui University of Finance and Economics, Bengbu Anhui, 233030, China

* Corresponding author: Yali Liu (Email: liuyali2318@163.com)

Abstract: As China's rapid urbanization enters a new phase, the digital transformation of urban governance is increasingly becoming a key move for cities, regions and even countries to shape their core competitiveness. In the traditional urban governance process, the collective action dilemma caused by fragmented departments and multiple levels of government at has invariably raised the cost of market operation and reduced the efficiency of resource allocation, while the digital transformation of governance provides another possible path to resolve the "governance dilemma". The digital transformation of urban governance uses "technology logic" as a tool and "data logic" as a carrier, and takes the "demand side" and "supply side" of the governance scenario as two paths. supply side of the governance scenario, which can contribute to the improvement of the efficiency of public services by increasing fiscal transparency and optimising the structure of fiscal expenditure.

Keywords: Government governance, Public service efficiency, Double differential.

1. Introduction

At present, with the rapid development of urbanisation in China entering a new stage, the speed and scale of population movement across regions, urban and rural areas and cities has increased significantly, and the population is gathering in cities to an ever-increasing extent, while the resulting contradiction between the people's growing need for public services and the unbalanced and inadequate supply of public services is gradually becoming prominent. This includes not only the "quantitative" gap, but more importantly, the "qualitative" contradiction. In the 13th Five-Year Plan, China has highlighted the need to optimise government services, actively innovate the way government services are delivered, and make public services more open and transparent, efficient and convenient, as well as fair and accessible. The outline of the 14th Five-Year Plan, which was adopted at the Fifth Plenary Session of the 19th CPC Central Committee, once again clearly states that by the end of the 14th Five-Year Plan, "the level of equalisation of basic public services will be significantly improved". Therefore, how to improve the efficiency of public services has become an important issue in implementing the new development concept and promoting high-quality economic development.

In traditional urban governance, the distortion of resource allocation caused by information asymmetry between the 'demand side' and the 'supply side', the inefficiency of resource allocation, the hierarchical nature of the 'supply side', the fragmentation, data silos and the non-transparent nature of government, have led to increasing costs of market operation. The problems caused by the lack of transparency in government services, fragmentation and data silos, and the increase in the cost of market operation, have become increasingly prominent. With the development of a new generation of information technology such as big data, cloud computing, Internet of Things, blockchain and artificial

intelligence, the digital transformation of urban governance offers another possible path to improve the efficiency of public services. China's central government has also placed further emphasis on beginning to accelerate the digital transformation of government governance, and in 2016, 2018 and 2019 issued the Guidance Opinions of the State Council on Accelerating the Work of "Internet + Government Services" (Guo Fa [2016] No. 55), the State Council on Accelerating the Guiding Opinions on Accelerating the Construction of a Nationwide Integrated Online Government Services Platform" (Guo Fa [2018] No. 27) and "Certain Provisions of the State Council on Online Government Services" (State Council Decree No. 716). The introduction of a series of policies reflects the state's determination to digitally build governance and demonstrates the state's intention to "do practical things for the people". According to the digital governance theory, the digital transformation of urban governance is promoted through two paths: the "demand side" and the "supply side" to improve the efficiency of public services. On the "demand side", there is a shift from a bureaucratic-based administration to a citizen-based governance philosophy, which "reclaims the citizen" in governance by constructing an interface that enhances financial transparency and meets the diverse needs of citizens, while at the same time allowing for precise provision based on their preferences and values. This will make governance more precise, flexible and efficient. On the "supply side", the governance sector is reintegrated, the horizontal relationship between the government, the market and society is adjusted, a public governance structure is digitally constructed in which the three parties cooperate in all aspects and coordinate their affairs, and the degree of information exchange between different sectors and subjects is enhanced, thus improving the efficiency of public services. Based on this, this project seeks to explore new ideas to improve the efficiency of public services in China from the digital transformation of urban

governance.

2. Review of the Literature

2.1. Foreign Studies

Foreign scholars' research on the digital transformation of urban governance can be broadly divided into three aspects: 1. some scholars focus on digital transformation and study the behaviour of urban administration after the transformation. Doug Schule (2002) argues that digital governance will enable urban administration to develop into a SMART governance model, i.e. a simple, ethical, accountable, responsive cohesive and transparent 2. There are also some scholars who study the relationship between government and civil rights based on the broader context of digital transformation of cities. In a broader sense, digital governance refers to the way in which society as a whole is run and organised with the support of electronic technology, including the integrated governance of economic and social resources; in a narrower sense, it refers to the application of electronic technology in the interaction between the government and civil society, the government and the economic society represented by enterprises, as well as in the internal operation of the government to simplify the administration of the government and the processing of affairs, and to increase its democratisation. Ehiane et al. argue that the information-based model of urban development reduces government autonomy and expands public participation.3 Some scholars have also explored the role of digital technology tools as an aid to urban management. Repetti Alexandre (2002) takes a city in Senegal as an example and studies the application and effects of a public participatory management system based on geographic information systems (GIS) in urban management arguing that combining modern information technology tools with the administrative concept of public participation can better achieve "good governance It is argued that combining modern information technology tools with the concept of public participation in administration can better achieve "good governance".

In foreign countries, research on the factors affecting the efficiency of public services has started earlier, both in terms of theoretical analysis and empirical tests, but the main angle of exploration is the fiscal system, of which the most thoroughly studied is fiscal decentralisation.1 Some scholars believe that decentralisation promotes the efficiency of public services for the following reasons: First, local governments have more information advantages. Local governments have a better understanding of what their constituents want within their jurisdictions, which allows them to provide public goods in a more targeted manner and to allocate resources in a way that does not lead to allocation failures due to poor information gathering (Hayek, 2009). Second, electoral constraints. Under fiscal decentralisation, local government officials have a subjective incentive to reduce rent shifting in order to win elections and reduce the likelihood of being judged as a 'bad' official if they are not elected, thus increasing the efficiency of public goods provision (Hindriks and Lockwood, 2009). Third, local governments compete with each other. Voters will compare the policy choices of their own jurisdictions with those of neighbouring jurisdictions and thus choose to move to jurisdictions that can provide better public services, which inadvertently evaluates the governing performance of local governments, which in turn will force local governments to compete with each other and can

improve the supply of public goods by local governments (Tiebout, 1956).2. In contrast, some scholars have also argued that fiscal decentralisation can have a negative impact on the efficiency of service provision. On the one hand, fiscal decentralisation increases the cost of supplying public goods due to economies of scale, leading to an inefficient supply of public goods (Tanzi, 1996), while on the other hand, increased fiscal decentralisation by local governments in order to develop the local economy can prompt local governments to increase local investment in productive expenditure, thereby weakening welfare expenditure (Carbini, 2015).

2.2. Domestic Research

Domestic research on the digitalization of urban governance focuses on the evaluation of the digitalization level of urban governance, the policy system and implementation path of urban governance, and the evaluation of the effect of policy implementation.1 In the evaluation of the digitalization level of urban governance, the main focus is on the evaluation of the equalization degree of urban digital governance development and the study of influencing factors. According to the China Urban Digital Governance Report (2020), the development of digital governance in China's cities is uneven, showing a pattern of "high in the east and low in the west, high in the south and low in the north", which is related to the basic technical facilities on the one hand, and more importantly, is restricted by the regional economy. The economic level affects the strength of factor integration and technological innovation, and the economic difference increases the gap in the digital level of urban governance (Duan Wei, 2020).2 In terms of the research on the digital policy system and implementation path of urban governance, most scholars believe that the construction of digital governance infrastructure and hardware, digital administrative services, digital public services and digital life services are important elements of the current digital policy system of urban governance (Xue,2020). The majority of scholars believe that digital governance infrastructure hardware construction, digital administrative services, digital public services and digital life services are important elements of the current urban governance digital policy system (Xue Zelin, 2021). Li Wenzhao (2020), based on the interface theory, suggests that by constructing a two-layer nested governance interface, the governance goal of "two-layer interface, multiple integration, and integrated supply and demand" can be achieved. Xia Zemin (2021) analyses the effectiveness of blockchain and its application scenarios, arguing that blockchain technology can help break through the data governance dilemma and speed up the process of digital urban governance.3 In terms of evaluating the effectiveness of policy implementation, most of the existing studies have elaborated on digitalization for urban governance from a theoretical perspective, making it more concise and efficient.

In China, scholars have also conducted extensive research on the factors influencing public service efficiency and have achieved a series of results, which are summarised as follows: First, the impact of fiscal decentralisation on public service efficiency is explored from the perspective of the fiscal system. Xu Lin et al. (2022) argue that fiscal decentralisation has reinforced the local perceptions of officials, which has led to local governments moving from being managers of economic activities to being subjects of economic activities and interests, resulting in China's "vassal economy" and

market fragmentation. Wang Yongqin et al. (2007) argue that economic decentralisation under political centralisation provides local governments with incentives to develop the economy, but creates problems such as market fragmentation between regions and a lack of equity in public utilities. Second, the impact of government officials on the efficiency of public services is explored from the perspective of official promotion, which is unique to China. Based on the public service provision of 70 Chinese cities and detailed personal information of serving municipal party secretaries from 2006-2016, Yang Gangqiang et al. (2019) systematically studied the relationship between local officials' governance and public service provision, finding that the greater the pressure for promotion on urban officials under the incentive of pursuing political promotion, the more likely they are to interfere with the provision of public services for personal self-interest. The relationship between the tenure of urban officials and the efficiency of public service provision in the context of promotion tournaments shows a significant positive U-shaped relationship.

Through literature review, it can be seen that the research on digital transformation of urban governance and public service efficiency at home and abroad varies slightly, which has a great deal to do with the political, economic and social environment, while not much research has been conducted on the potential link between the two, and the few studies that have been conducted are only at the theoretical level, with few empirical studies. Based on this, this paper explores the impact of the digital transformation of government governance on the efficiency of public services from the perspective of the "Information for the People" policy pilot, using the announcement of the "Information for the People National Pilot Cities" list as an exogenous policy shock.

3. Affects Path

Improving the transparency of government finance and optimizing the structure of government expenditure are two important paths to promote the efficiency of public services (Ye Mancheng et al., 2020; Fu Yong et al., 2007). Theoretically, the government and the public are in a principal-agent relationship in the provision of public goods. When the government chooses not to disclose timely or even specific information on the use of financial resources, this will affect the public's ability to monitor the government's actions in a timely and effective manner, and the government will have room to operate in a corrupt manner, which in turn will have a negative impact on the efficiency of public services. This can lead to corruption, which in turn can have a negative impact on the efficiency of public services. Improving financial transparency can reduce the likelihood of government corruption due to information asymmetries, and can help to control the cost of public governance and improve the efficiency of services through both public scrutiny and higher-level supervision. On the other hand, another cause of inefficiency in public services is the unreasonable structure of financial expenditure. From the perspective of the specific process of government governance, there are inherent problems in the traditional governance process, such as the problem of inaccurate information on public service needs, the problem of rapid integration and analysis of information, and the problem of difficult coordination between departments from policy formulation to implementation. These factors can interfere with the rationality of public service decisions and the effective implementation of policies,

and if not handled properly, can distort the structure of financial expenditure and cause a loss of public service efficiency. Digital transformation of government governance, as an important tool for modernising the country's governance capacity and system, can reduce the crowding out of public service efficiency through corruption and optimise the structure of fiscal expenditure, as well as achieve a rational and accurate matching of resource supply and demand, in terms of specifically.

Firstly, the digital transformation of government governance can improve the efficiency of public services by reducing the cost of information disclosure and increasing the coverage of financial information to enhance financial transparency. In terms of information cost theory, under the traditional governance model, due to the level of technology and the complexity of public affairs, the cost of collecting, collating and transmitting information remains high, which gives local governments a "good" reason not to disclose the performance of financial resources and other affairs. Even if local governments choose to disclose it, the time lag and the lack of comprehensive coverage of groups due to limited transmission channels result in a lack of transparency in government finances under the traditional governance model. In contrast, digital transformation of governance can, on the one hand, break down the barriers between departments, departments and individuals, and between individuals through digital empowerment, enabling the rapid collection, collation and transmission of information, effectively reducing the cost of information disclosure, making it technically possible for government finance to be transparent, and forcing local governments to make changes in the area of financial transparency. On the other hand, the digital transformation of governance can enable the rapid, lossless and extensive transmission of raw information through various digital electronic channels such as the government's official website, official media and manual online, broadening the coverage of fiscal information and improving fiscal transparency in a broad sense, and the government's actions will be better subject to external regulation, thus reducing the possibility of the government wanting to make private profits through information asymmetry and losing public service (Zhang Degang, 2021). The government's actions will also be better subject to external regulation, thus reducing the possibility of government profiteering through information asymmetry and loss of public service efficiency (Zhang Degang, 2021).

Secondly, the digital transformation of government governance can help the government gain the ability to obtain timely and effective information, improve the ability to integrate and analyse government information, enhance the government's ability to collaborate on government operations to make rational public service decisions and ensure effective policy implementation, achieve accurate matching of resources on the supply side and gaps on the demand side, and optimize the restructuring of expenditure. This will enable the government to improve the efficiency of public services. In terms of information access, according to the theory of mobile space, with the development of digital technology, the flow of factors will no longer be restricted, and all factors will be in a field of interconnection, mutual sharing and mutual flow (Zhen Feng et al., 2015). Based on this, the digital transformation of government governance will promote the rapid flow of information elements, which will completely change the status quo of the traditional governance scenario,

where the government is unable to obtain timely, complete and effective information on the demand for public services from constituents in its jurisdiction due to the spatial scope. In terms of information integration and processing, the government can rely on modern data analysis software to efficiently collate the information collected, and can use remote experience guidance and other means to achieve the goal of deeper extraction of the information reflected behind the data. In terms of policy implementation, the government can build an integrated government digital service platform with the participation of multiple parties, and bring into play the role of various organisations such as the government, society and social groups to facilitate a new pattern of "co-construction, co-rule and sharing". Therefore, the digital transformation of government governance is intended to reconstruct the public service supply system and build an intelligent system of "efficient information acquisition-efficient data integration-rational policy formulation - efficient policy implementation". The digital transformation of government governance is therefore aimed at restructuring the public service delivery system, building an intelligent response mechanism of "efficient access to information - efficient data integration - rational policy formulation - efficient policy implementation", achieving precise allocation of public services from the supply system, thus optimising the expenditure structure and promoting the efficiency of public services.

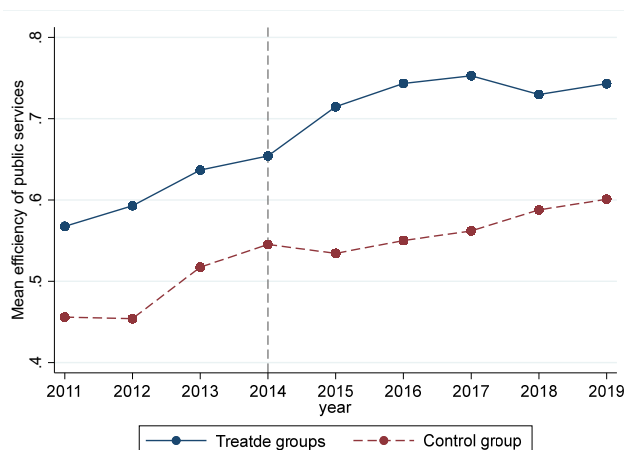


Figure 1. Trends in the efficiency of public services in the treatment and control groups, 2011-2019

4. Conclusions and insights

In the digital era, digital empowerment of government governance, i.e. the digitization of government governance, is an important path to break the traditional government governance dilemma, improve the efficiency of public services and promote the modernization of national governance capacity and governance system. This paper explores the impact of the digital transformation of government governance on public service efficiency from the perspective of the "Information for the People" policy pilot, using the announcement of the list of "National Pilot Cities for Information for the People" as an exogenous policy shock. The digitalisation of government governance can improve the efficiency of public services by enhancing fiscal transparency and optimising the structure of fiscal expenditure. Therefore, based on the above findings, this paper draws the following insights.

In order to further unleash the efficiency-enhancing effect of the digital construction of governance on public services, the system of information disclosure and departmental business collaboration should be further improved and laws and regulations to match it should be promoted in a timely manner so that government departments can dare and actually take action. At present, local governments in China have made significant improvements in terms of financial transparency, and big data authorities have been set up in various places to facilitate the unified development and use of data, but the construction in terms of safeguarding sensitive information security is slightly inadequate, and the emergency management plans for departmental business collaboration are not complete, thus leading to the government being "not bold enough" in terms of digital governance reform "The policy enhancement effect cannot be fully released.

The digitalisation of government governance should take into account regional differences in factor resource endowments and city positioning, and adopt reform strategies tailored to local conditions, so as to better unleash the promotional effect of the digitalisation of governance on the efficiency of public services. Specifically, eastern cities, provincial capitals and large-scale cities need to further deepen the reform of digital governance and fully seize the advantages of their factor resource endowments, such as enhancing government digital services while also strengthening the construction of government digital offices, using digital technology as support and giving full play to the advantages of human capital to improve the efficiency of government daily offices. The point to focus on in terms of digital governance construction for cities in central and western regions, non-capital cities and small and medium-sized cities is that efforts to promote digital governance construction should be supported by other supporting policies. For example, on the one hand, accelerating the introduction of digital technology professionals in mid-western cities and, at the same time, improving the level of IT use among public officials in mid-western cities to achieve the goal of enhancing the stock of IT talent in mid-western cities. On the other hand, modern digital technology should be used to facilitate the exchange of experience between the governments of central and western cities and those of eastern cities, so as to fill the shortcomings in digital governance of central and western cities and thus promote the transformation of digital governance.

Acknowledgment

Anhui University of Finance and Economics Postgraduate Research and Innovation Fund Project "A study on the impact of digital transformation of government governance on the efficiency of public services--Experience data from the Information for People national pilot cities" (Project Approval Number: ACYC2021002).

References

- [1] Schuler D. Digital Cities and Digital Citizens[J]. Springer-Verlag, 2001,1(2) 134-140.
- [2] Stanley O. Ehiane, Maria Lauda J. Goyayi, Kehinde David Adejuwon. Revolutionising public service delivery through digital governance: assessing the government to citizens (G2C) scenario in Nigeria[J]. AFFRIKA Journal of Politics, Economics and Society,2019,9(1): 5-29.

- [3] Repetti A , R Prélaz-Droux. IMAP: Instruments et modèles pour un aménagement participatif, rapport final phase[J]. Epfl, 2002,14(1):67-89.
- [4] Hayek F. The economic nature of the firm:The use of knowledge in society [J]. Journal of Global Information Management, 2009, 12(3) 121-143.
- [5] Hindriks J ,Lockwood B. Decentralization and Electoral Accountability:Incentives, Separation, and Voter Welfare[J]. Social Science Electronic Publishing,2009,3(2)89-97.
- [6] Tiebout C M . A Pure Theory or Local Expenditure, 1956.27(2): 122-135.
- [7] Bertram L, Allen N C, Bagade S, et al. Systematic meta-analyses and field synopsis of genetic association studies in schizophrenia:the SzGene database.[J].Nature Genetics, 2008, 40(7): 827-834.
- [8] Carhini L, Dazzi E, Grisorio M R. Nutrient composition in some species of macroalgae, 2015,
- [9] Duan Wei, Wu Fuxiang, Wang Ming. Policy preference, provincial capital primacy and city size distribution[J]. China Industrial Economy, 2020(4):19.
- [10] Xue Zelin, Wu Chen. American practice and inspiration of digital transformation of urban governance[J]. E-Government, 2022(04): 91-100.
- [11] Zhu Geng. Mechanisms, paths and countermeasures of digital governance-driven modernization of urban governance capacity [J]. Reform and Strategy, 2020, 36(12):32-39.
- [12] Li Wenzhao. Double nested governance interface construction: directions and paths of digital transformation of urban governance[J]. E-Government,2020(07):32-42.
- [13] Xia Zemin. Blockchain and digital urban governance: applications and challenges [J]. Journal of Liaoning Administrative College, 2021(03): 12-17.
- [14] Xu Lin, Hou Linqi, Cheng Guangbin. Fiscal decentralization, promotion incentives and local government debt risk[J]. Statistics and Decision Making, 2022, 38(12): 141-145.
- [15] Wang Yongqin, Zhang Yan, Zhang Yuan, Chen Zhao, Lu Ming. China's path to great power development-On the gains and losses of decentralized reform [J]. Economic Research, 2007 (01): 4-16.
- [16] Yang Gangqiang,Cheng Hengxiang,Wu S. Promotion pressure, official tenure and efficiency of public service provision--empirical evidence based on 70 cities in China[J]. Journal of Yunnan University of Finance and Economics,2020,36(02):89-100.
- [17] Ye Mancheng, Liu Shuang. Local government fiscal transparency, information delivery and public governance cost control[J]. Contemporary Economic Studies,2020(03):97-104.
- [18] Fu Y, Zhang Y. Chinese decentralization and fiscal expenditure structure bias:The cost of competing for growth [J]. Management World, 2007(03):4-12+22.
- [19] Zhang Degang, Guo Hahaohao, Lu Yuanquan, Huang Weiyao. A study on the impact of fiscal transparency on the equalization of basic public services [J]. Macroeconomic Research, 2021(11): 5-16+111.
- [20] Yan Feng, Qin Xiao, Xi Guangliang. Geography and human geography innovation in the information age [J]. Geoscience, 2015 ((1): 11-18.