

A Systematic Literature Review of Research on Data Finance in China

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Abstract: With the rapid development of the internet, the digital economy has made significant progress, and data has become a new type of production factor. Academic achievements related to data fiscal policy have also been increasingly enriched. This paper systematically reviews the major achievements in the field of data fiscal policy research in China. It focuses on the definition, significance, and value of data fiscal policy, as well as implementation measures. The paper summarizes the different definitions of the core concepts of data elements and data fiscal policy by scholars both at home and abroad, expounds on the theoretical foundations of data fiscal policy in terms of economic development, resource allocation, and fiscal revenue, and analyzes the important significance of data fiscal policy from the perspectives of economic transformation, fiscal revenue, and data element markets. The paper highlights its role in promoting high-quality development of the digital economy, enhancing government fiscal capacity, and optimizing resource allocation. Furthermore, it summarizes scholars' specific suggestions regarding the implementation of data fiscal policy, including the design of data taxation systems, public data operation models, and lessons from international experiences. Based on the current state of research, this paper also analyzes and summarizes existing gaps in research and provides directions and recommendations for future studies on data fiscal policy. .

Keywords: Data elements, Data finance, Public data operation revenue, Data tax, Data service tax

1. Introduction

With the rapid development of the digital economy and AI, data elements, as an emerging production factor, have become a key driver of economic growth. In the context of globalization, the explosive growth of data has not only reshaped the economic structure but also accelerated the rapid development of Web 3.0, AI, the Metaverse, and other technologies. This has sparked widespread discussion on data governance and data taxes. The concept of data fiscal policy has gradually emerged as a focal point for both academics and policymakers. Internationally, some countries have already begun experimenting with data taxation practices, attempting to transform data resources into a part of national fiscal revenue. For instance, the European Union and the United States have been leaders in data protection and data economy, imposing data monopoly taxes and privacy taxes on large technology companies. Their policies and practices provide significant references for the development of global data fiscal policy.

As a leader in artificial intelligence technology, China's economic growth model is undergoing a transformation from land-based fiscal policy to data fiscal policy. With the increasing strategic and fiscal value of data resources, the Chinese government has started to focus on the development of data fiscal policy at the policy level, proposing requirements to strengthen data governance and promote the development of the data economy. This has provided direction and impetus for academic research, and academic studies on data fiscal policy in China have begun to emerge.

This paper systematically reviews the existing literature on data fiscal policy in China, aiming to summarize and synthesize the analytical framework and logic of current research in the field. First, the understanding and interpretation of concepts is the starting point of the research. This paper will summarize relevant literature concerning the definitions of concepts such as data elements and data fiscal policy. Second, the value and significance of data fiscal policy are also important aspects of concern for both the academic community and the government. Therefore, this paper will review literature from three dimensions—economic transformation, fiscal revenue, and data element markets—that discusses the necessity and value of developing data fiscal policy. Furthermore, as data fiscal policy is still in the early exploration phase, scholars have proposed numerous suggestions on how to implement it. This paper will also summarize literature on the implementation of data fiscal policy, including topics on tax system design, fiscal expenditure, and international comparisons.

The structure of this paper is as follows: Section 2 provides a literature review on the concepts related to data fiscal policy; Section 3 reviews the literature on the significance and value of data fiscal policy; Section 4 reviews literature on the implementation measures of data fiscal policy; the final section offers a summary and critique of the literature.

2. Literature Review on Concepts Related to Data Finance

Understanding data elements is a key starting point for studying concepts such as data fiscal policy. Many scholars have conducted related research on data elements. Feng Yongqi and Lin Huangfeng [1], in their study of data elements, define data elements as data resources that are electronically recorded during the production and operational process, creating economic benefits for both users and owners. These primarily consist of data sets, data products, and information generated based on data, which are aggregated, organized, and processed according to specific production needs. Cai Yuezhou and Ma Wenjun [2], starting from the characteristics of data elements, argue that low cost and large-scale availability are prerequisites for data to be widely used and become a key factor. These are also fundamental characteristics shared by new key factors during each technological revolution. On the other hand, non-competitiveness, low replication costs, non-exclusivity/partial exclusivity, externalities, and immediacy are the technological and economic characteristics that fundamentally differentiate data elements from other traditional tangible production factors such as capital, labor, and land. These characteristics also form the foundation for the emergence and operation of various new economies, business models, and patterns in recent years. Hu Jiye and Fu Weiwei [3] analyze the value of data elements and point out that the significance of data elements lies in data, as a core production factor, significantly driving the development of new productive forces through value formation, value creation, value realization, and value sharing. Meanwhile, Yao Changcheng and Yao Houzhuang [4] focus more on the role of “data elements” in promoting common prosperity. They argue that data elements, through collaboration with other factors such as labor and capital, enhance the efficiency of various links in social reproduction, thereby strengthening the material foundation for common prosperity.

Based on the understanding of data elements, some scholars have explored the connotations of data fiscal policy and related concepts. Zhu Yangyong [5] was the first to explicitly introduce the concept of “data fiscal policy” in China, with its logical origin beginning with land-based fiscal policy. He emphasized that data fiscal policy should be based on the operation of public data and

called for increased research and attention to data fiscal policy, highlighting the unsustainability of land-based fiscal policy. Wang Sanshou [6] defined “data fiscal policy” as referring to local governments’ reliance on activating and operating the value of big data, promoting the deep integration of big data with various industries, and achieving rapid economic growth to increase fiscal revenue. Zhao Rong et al. [7], in emphasizing the necessity of big data tools, defined data fiscal policy as a system arrangement that involves the reasonable allocation and effective use of government data assets, utilizing various big data tools for data asset operation to achieve both economic and social benefits.

Data taxation and public data operation are two main models of data fiscal policy [8]. Therefore, some scholars have focused on analyzing the connotations of data taxation and public data operation. Regarding data taxation, Xie Bofeng and Chen Hao [9], from the perspective of the digital economy, argued that data taxation mainly arises from the transaction, use, and possession of data. They advocated for attention to the digital presence of operational frameworks, the tracking of intangible assets, cloud computing, and digital platforms, emphasizing the importance of digital currencies and digital payment methods. They believe that tax policies should be built on the foundation of the digital economy and align with its planning. Deng Wei [10] further divided data taxation into broad and narrow concepts. The broad concept refers to all taxes imposed on data, including various direct and indirect taxes levied on data; the narrow concept specifically refers to special taxes imposed on data as the tax subject. Zhao Shenhao [11] regarded data tax as a taxation method for data as production materials and goods, further subdividing data tax into corporate income tax, value-added tax, digital service tax, etc. In terms of public data operation research, Tong Nannan et al. [12] defined public data as data that is government-led and generates usage fee income through methods such as authorized operation. These data products and services can also be further traded and circulated in secondary markets. Zhang Huiping et al. [13] further explained the significance of public data operation, pointing out that by authorizing government data to specific entities for market-based operations, the economic and social value of government data can be more comprehensively and fully explored and released. In agreement with Zhang Huiping [13], Shang Xixue [14] also agreed that the value of open and re-utilized public data lies in driving the overall development and value release of data resources through public data openness. This study also classified public data authorization and operation into primary and secondary markets and analyzed how the opening logic of the primary market determines the distribution of benefits from secondary market re-use. The re-use of public data in the secondary market and its benefit distribution should also feed back into the open resources of the primary market, forming the institutional logic of data fiscal policy. Regarding the methods of public data operation, Chang Jiang and Zhang Zhen [15] regarded it as a public service-oriented franchise, while Liu Yangyang [16] proposed that public data operation exists in two forms: state-owned capital operation companies and franchising.

3. Literature Review on the Significance and Value of Data Finance

As a policy concept derived from the data age, its value and significance need to be fully understood and recognized. Therefore, many studies have made this aspect a key part of their research. In the context of China’s economic transformation, some scholars have explored the value of data fiscal policy for China’s macroeconomy and structural transformation. Yang Feihu and Wang Zhigao [17] argue that data fiscal policy will guide the government and private investments into the infrastructure of the data elements market, establishing and improving the system for the circulation, turnover, and capitalization of data elements, thus greatly promoting the development of the digital economy. Zhu Yangyong and Xie Bofeng [18] point out that data fiscal policy drives data elements to become a new production factor on par with traditional factors, laying the foundation for the further development of data elements and the digital economy. At the same time, data fiscal policy innovates fiscal tools and

mechanisms, embedding them into the social production and circulation cycle of new factors, thereby creating a favorable environment for the market-based allocation of factors and playing a pillar role in national governance in the digital economy era. Lin Zhenyang et al. [19], using the context of Digital China, focus on the collaborative advancement of data fiscal policy construction between the central and local governments, demonstrating that data fiscal policy helps accelerate the high-quality development of the digital economy. Bai Yanfeng [20], based on the understanding of new productive forces, believes that data fiscal policy lays the foundation for the development of new productive forces. In addition to the economic transformation perspective, some scholars have also studied the significance of developing data fiscal policy from the perspective of fiscal revenue. Wu Zhanxia [21] analyzes the challenges posed by the “intangibility” of the data element transaction process and the difficulty of capturing its value for domestic and international tax systems, highlighting the importance of developing data fiscal policy for increasing fiscal revenue. Chen Jing [22] believes that data is an important force in the construction of local financial resources. Data has opened up new pathways for high-quality fiscal development in the new era and brought value-added wealth to local finances. Cong Zhongfei [23] focuses on the differences between the data fiscal model and the land-based fiscal model. His research finds that government data resources are recyclable, their use value is sustainable, and data itself, along with its derivative information, will continue to grow explosively, avoiding the diminishing returns issue faced by traditional land resources. Therefore, compared to land-based fiscal policy, data fiscal policy is more sustainable in terms of increasing fiscal revenue.

As the importance of data elements continues to rise, the data elements market has attracted societal attention. Consequently, some scholars have discussed the significance of data fiscal policy from the perspective of the formation and development of the data elements market. Zeng Zheng and Wang Lei [24] found that the current data elements market faces issues such as a lack of systemic institutional frameworks, underdeveloped governance and legal systems, and insufficient implementation of management practices. They argue that actively exploring the establishment of a data fiscal system and piloting the use of tools such as digital taxes would help promote the more efficient and equitable primary, secondary, and tertiary distribution of data element revenues, thereby providing stronger incentives for businesses and individuals to utilize data elements to develop the economy, create value, and increase wealth. Xie Bofeng [25] pointed out that establishing a data taxation system would contribute to the growth and strengthening of multi-level data entities, including the data transaction market, data supply and demand sides, and data vendors, thereby fostering the creation of a favorable market environment for data taxation. Zhao Caijing [26] focuses more on the supply-demand relationship in the data market, asserting that data fiscal policy and the authorized operation of public data stimulate data demand and enable better supply-demand matching, reducing instances of role and boundary misalignment between the government and businesses.

4. Literature Review on Strategies for Implementing Data Finance

In addition to the concepts, classifications, and significance of data fiscal policy, how to implement data fiscal policy has also been a key focus of scholarly research, with some scholars proposing their own frameworks for data fiscal policy. Xie Bofeng and Zhu Yangyong [27] divided the implementation of data fiscal policy into three approaches: first, collecting, organizing, and publishing relevant data sets and products for citizens and charging corresponding fees; second, offering data reserves to market entities in need and taxing subsequent data circulation and usage. Lu Wencheng [28], based on the “data rent” theory, characterized data tax as a resource tax and further proposed policy suggestions on data tax rates, tax bases, tax calculation methods, and tax incentives. Chen Rongxin [29] suggested that data fiscal policy should shift to a specialized data tax model focused on data resource taxes and data usage taxes, proposing that operating revenue based on data

flow should be used as the primary tax base, with appropriate increases in the personal tax threshold and reductions in the corporate tax threshold.

Some literature has provided more detailed discussions on the basis and targets of data fiscal charges. Li Xiaxu [30] compared two viewpoints: the “compensating users” argument and the “public cost-sharing” argument, believing that in the process of generating, processing, and circulating data elements, public products and services provided by the state are needed. Therefore, the state has the right to levy taxes based on public cost-sharing. Building on Li Xiaxu’s [30] research, Zhao Zheng et al. [31] argued that public data, as data generated in the business processes of public management departments, already includes the costs of initial collection in fiscal expenditures. Public management departments could charge for these services through concessions for additional expenditures related to authorized data governance. Hu Yuancong [32] stated that the government primarily invests in information disclosure and data opening, and should levy data taxes to compensate for these expenditures. The exploration of data fiscal policy or data taxes in developed countries has also provided inspiration for China’s data fiscal policy. Some scholars have conducted research on this aspect. Yang Zhiyong [33] examined countries with strict digital asset tax enforcement (such as the United States, Canada, and the United Kingdom), countries offering tax incentives (such as Singapore, Germany, and Japan), and countries undergoing changes (such as South Korea and Russia), pointing out that, compared to digital asset taxes under traditional tax frameworks, digital services taxes are more beneficial for safeguarding national tax interests. Bai Yanfeng [34] studied the target groups and areas of digital economy taxes and digital services taxes in foreign countries, suggesting that China should focus on taxing digital economy revenue from sources such as search engines, online video platforms, instant messaging services, e-commerce platforms, and social media. Xie Bofeng [35] analyzed the theoretical connections between digital services taxes, digital asset taxes, intangible asset taxes, and data taxes, elaborating on the practices of countries such as France, the United Kingdom, and the United States within these tax regimes. He also pointed out that the design of data taxes should balance incentives and regulation, linking policy and tax administration.

5. Conclusion

With the development of the digital economy, data fiscal policy has gradually become a focal point for both scholars and policymakers, and many related academic achievements have emerged in recent years. This paper provides a review and summary of academic literature on data fiscal policy in China, focusing on three main aspects. First, in terms of concept definition, the literature provides an in-depth analysis of core concepts such as data elements and data fiscal policy. Some studies further refine the definition of data elements, exploring their differences from traditional production factors and deepening the understanding of the connotation of data fiscal policy. Second, regarding the significance of data fiscal policy, scholars have widely discussed the importance of data fiscal policy for economic transformation, fiscal revenue, and the development of the data elements market. They believe that it has a profound impact on promoting digital economy development, increasing fiscal revenue, and optimizing resource allocation. Finally, in terms of practical measures, many studies have proposed specific measures for implementing data fiscal policy, including the targets and tax rates of data taxes, drawing on international experiences and providing corresponding suggestions.

Through a review of the existing literature, it can be observed that most of the current studies focus on qualitative research on data fiscal policy, while quantitative analysis on this topic is relatively limited, and there is a lack of rigorous mathematical model support. Further research in these areas is recommended. In particular, the estimation of the scale of data fiscal policy is an important aspect of analyzing its quantitative impact, but rigorous academic research on this topic is still insufficient and requires further exploration. For empirical analysis, it is suggested to use data from countries that have implemented data taxes, such as the United States, Canada, and Japan, as research samples to

explore the specific impact of data fiscal policy on fiscal revenue, economic growth, and other aspects. Additionally, some more detailed research directions are worth further investigation, such as focusing on different stakeholders of data fiscal policy and studying how to better coordinate the interests of governments, enterprises, and individuals in data tax distribution. Research on the regional differences in the implementation effects of data fiscal policy in different areas and economic environments is also recommended. Overall, research on data fiscal policy in China is still in its early stages, with broad potential for future study, which warrants more attention and in-depth exploration by scholars.

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