

Analyses on Issues and Countermeasures of China's Digital Economy Development

Haozhe Chen*

School of Public Policy and Administration, Chongqing University, Chongqing, China

* Corresponding Author Email: 20216167@stu.cqu.edu.cn

Abstract. The vigorous development of the digital economy has made it a significant driving force for global economic growth. As a major economic entity and a populous nation of 1.4 billion people, China must become a key participant in the transformation of the digital economy to achieve a new leap forward in economic development. This paper explores a series of issues that have arisen in the process of China's digital economic development and the underlying logic behind them. By using reliable data to thoroughly understand the scale of China's digital economic development and to bring out related issues, this paper then analyzes the causes of problems such as information leakage, technological monopolies, insufficient innovation drive, and regional equity from the perspectives of economic frameworks, social structures, and governmental levels, and subsequently proposes possible solutions. Furthermore, in the section on strategies, this paper innovatively provides recommendations for sustaining high-quality growth in China's digital economy from multiple perspectives such as government, corporations, and society, and integrates research on relevant issues and strategies with Chinese national projects and policy factors. Ultimately, this study contributes to a deeper understanding of the dynamics of the digital economy and offers insights to promote sustainable growth and prosperity in China's digital era.

Keywords: Digital economy, China, policy implication.

1. Introduction

With the rapid development of the digital economy globally, it has become one of the crucial engines driving the growth of the world economy. By 2022, the global scale of the digital economy had far exceeded 30 trillion US dollars, accounting for nearly one-fourth of the global GDP [1].

In this wave of digitalization, China, as a major economic entity, plays a crucial role. China boasts the largest population of internet users in the world, with the internet penetration rate continuing to rise. According to statistics from the China Internet Network Information Center (CNNIC), by the end of 2023, the number of internet users in China had reached 1.092 billion, with an internet penetration rate exceeding 70%. This massive market size provides significant momentum and potential for the development of the digital economy. Furthermore, according to data from the China Academy of Information and Communications Technology, the scale of China's digital economy exceeded 50.2 trillion yuan in 2022, accounting for over 40% of the gross domestic product (GDP).

However, with the rapid development of the digital economy, a series of new challenges and issues have emerged, posing severe challenges to the further development of the digital economy. Therefore, in-depth research into the potential problems in the development of the digital economy has become one of the urgent issues that need to be addressed. This paper will delve into the issues in the development of China's digital economy and propose corresponding strategies and suggestions to facilitate its better development.

Specifically, it will focus on key issues in the digital economy, including data privacy protection, innovation-driven development, technological monopolies, regional heterogeneity analysis, aiming to provide beneficial insights and suggestions for the sustainable development of China's digital economy.

2. Issues

2.1. Privacy Leakage

The overall framework of "2522" released by the Chinese State Council emphasizes the important role of building the digital economy in the structural reform of China's economy. As a new development engine, the digital economy has begun to attract public attention and gradually become a new growth point in China's economy. However, with the emergence of highly transparent digital tools such as the internet, the scale of people's data privacy leaks has significantly increased, leading to the following issues:

From an individual perspective, users' rights are infringed upon. Firstly, individuals may face economic losses or other adverse consequences due to privacy data leaks. Secondly, in the digital economy, advertisers use the analysis of large amounts of users' personal data to accurately push advertisements at lower costs, tracking or disturbing users' relevant usage. From a societal perspective, the digital economy also faces privacy leakage issues. On the one hand, the rise of the digital economy has had a significant impact on the definition and protection of property rights, with some companies' internal data or systems facing security risks, which is not conducive to spontaneous technological innovation in the market. On the other hand, data leaks may exacerbate social inequality, making information gaps and digital divides more pronounced among different social strata [2].

Therefore, the issue of privacy leakage not only affects individuals' rights and business operations but also relates to the security and stability of society and the country. Therefore, it is necessary for the whole society to pay attention to and solve the issue of privacy protection together, safeguarding the security and privacy rights of personal data.

2.2. "Winner-takes-all" Technological Monopolies

In the field of the digital economy, the phenomenon of "winner takes all" may become a potential risk hindering the development of the Chinese economy. In sectors or development models highly reliant on high technology, monopoly issues are inevitable. Firstly, in the development of the digital economy, search engines serve as the primary tools for people to directly access data and information. Monopoly companies in the market typically acquire large user traffic and advertising revenue at relatively low costs, making it difficult for other competitors to enter the market, thereby inhibiting the advancement of industrial technology and conceptual innovation. Taking Baidu in China as an example, according to StatCounter data, Baidu holds a market share of 49.1% domestically, ranking first. Other excellent search engine companies (such as 360 Search, Sogou, etc.) face certain limitations in their development in the Chinese market, while smaller search engines find it even more challenging to compete. Secondly, in the e-commerce market, there is also a monopoly phenomenon, with Alipay and WeChat collectively occupying most of the mobile payment market share. Their extensive user base and powerful supply chain systems have allowed them to achieve a monopoly position in the Chinese market, leading to a situation of "winner takes all".

In summary, the issues of monopoly and "winner takes all" in the field of the digital economy are widespread in China, posing challenges to market competition and consumer rights in the digital economy. Therefore, regulatory agencies and the government need to take appropriate measures to maintain market competition, protect consumer interests, and promote the healthy development of the digital economy [3].

2.3. Lack of Scientific and Technological Innovation

The development of the digital economy heavily relies on the support and application of advanced technology such as the internet, big data, and artificial intelligence. However, in the development of China's digital economy, a long-standing issue has been the large quantity but insufficient accuracy of data, along with a lack of technological innovation. Although China has made certain advancements in manufacturing and internet sectors, the number of international patent applications filed by Chinese enterprises remains relatively low. In contrast, companies from countries like the

United States, Japan, and South Korea tend to file more patent applications in technological innovation, reflecting the relative lag of China's digital economy in terms of technological innovation. Furthermore, although the Chinese government has been vigorously supporting the development of high-tech industries, China's research, and development (R&D) investment in high-tech industries remains relatively low compared to countries with a high proportion of the digital economy or countries at a similar level (such as the United States and Japan). Data shows that China's R&D expenditure as a proportion of gross domestic product (GDP) still lags far behind that of developed countries.

The above evidence indicates that, despite China's remarkable achievements in the scale and quantity of its digital economy, there are still certain deficiencies in terms of quality. Issues such as the lack of international patent applications, insufficient investment in research and development, low rankings in innovation indices (Global Innovation Index), and inadequate cooperation between research institutions and enterprises all reflect the current situation of lacking technological innovation in China's digital economy development.

Additionally, in terms of societal orientation, some Chinese enterprises in the digital economy domain excessively rely on traditional business models and technologies, lacking an innovative spirit and being reluctant to step out of their comfort zones. They may tend more towards imitation and replication of successful business models rather than engaging in independent research and innovation. This tendency of excessive pursuit of scale expansion might be one of the reasons why China's digital economy lacks innovation [4].

2.4. Regional Heterogeneity - Regional Equity Issues

China's digital economy development exhibits significant regional heterogeneity in spatial structure, where the spatial spillover effects brought by the digital economy do not necessarily alleviate regional equity issues as expected—some developed regions are far ahead in digital economy development, while central and western regions as well as remote areas even lack digital economy infrastructure. There are significant disparities in digital economy between urban and rural areas, with short-term insurmountable gaps existing in fields such as education and healthcare [5].

Firstly, there is an uneven level of digital infrastructure construction. In most eastern regions, digital infrastructure construction such as network coverage, broadband speed, and cloud computing centers is relatively well-developed, while in central and western regions or remote areas, the infrastructure is lagging or incomplete. Meanwhile, disparities in industrial structures across different regions lead to heterogeneity in digital economy development. Developed regions primarily focus on industries such as information technology, the internet, and high-tech industries, leading to relatively fast development of the digital economy, whereas resource-based regions or cities may rely on traditional manufacturing or agriculture, resulting in relatively lagging development of the digital economy.

Secondly, there are variations in the extent of policy support for digital economy development across different regions of China. Secondly, there are variations in the extent of policy support for digital economy development across different regions of China. The development of the digital economy requires many high-quality talents, and there is an imbalance in the distribution of talent resources across different regions. Some regions concentrate many digital economy talents in universities, research institutions, and enterprises, while talent reserves in other regions are relatively scarce. This paper needs to consider whether this mode of talent mobility and resource allocation promotes fair development and regional balance.

3. Countermeasures

3.1. Privacy Protection

The advent of the digital economy era has made data an economic factor, and its exponential growth undoubtedly demonstrates the powerful vitality of the digital economy. However, the rapid development of China's digital economy has also brought about many challenges in terms of privacy protection. Therefore, efforts should be made to strengthen privacy protection in the construction of the digital economy in the following aspects:

At the societal level, governments and relevant institutions should enact stricter data protection laws and privacy policies, enhance regulation of the digital economy, and ensure that personal data is used through legitimate channels. Meanwhile, corresponding enterprises and organizations should strengthen the management and protection of the data they possess and collect, promote advancements in technologies such as confidentiality, secure transmission and storage, and firewalls. Additionally, industries should establish self-regulatory systems, with upstream and downstream entities jointly supervising data. At the individual level, there is a need to enhance users' awareness of protecting privacy information. Training or education can be provided to enhance individuals' awareness of privacy information protection, enabling them to clearly understand the importance of personal data and the dangers of data breaches.

3.2. Countermeasures Against Monopolization

The monopolistic phenomenon in China's digital economy sector is unhealthy. The lack of market competition and participation of private capital result in incumbent monopolists in the digital economy sector accumulating large amounts of data. This not only fails to stimulate innovation but also leads to inefficiency and cumbersome management structures [6]. Therefore, effective measures must be taken to address this issue:

Establish open platforms, introduce transparent and decentralized technologies such as blockchain, encourage all parties to share data, technology, and resources, and promote collaborative innovation and development. Through platforms, it is possible to effectively reduce the risk of technological monopolies, promote the formation and development of innovative ecosystems, and reduce internal friction caused by cumbersome management structures; Encourage technology sharing and transfer to promote the widespread application and popularization of technology. Technology sharing and data open sourcing can be promoted through public-private partnerships, establishment of funding organizations, and other means to reduce the market influence of technological monopolists and enhance market competition and research innovation; Emphasize data ownership and control rights, encourage users to manage and control their data. This is akin to property rights protection, which can enhance users' awareness of data control, reduce the data control capability of technological monopolists, and prevent monopolists from gaining unfair competitive advantages through technical means.

3.3. Overcoming Technological Challenges

At the forefront of key technologies, China's innovation productivity does not match its economic level. The rapid economic growth brought about by industrialization transformation and demographic dividends has led to lagging and neglect in investment in basic technological research. However, the development of the digital economy relies on technological progress. Therefore, the following recommendations are provided here: Increase investment in basic research, encourage research institutions and universities to conduct in-depth research in key technological areas, and enhance technological innovation capabilities; Establish national-level research projects, with a focus on supporting basic research in technologies related to the digital economy, and foster breakthroughs in core and key technologies; Strengthen cooperation between industry, academia, and research institutions to promote the transformation and application of research results; Establish collaborative platforms between industry, academia, and research to promote educational reform in universities,

establish private universities, detach from politicized student training methods, and improve the treatment of basic disciplines; Formulate policies to support innovation and entrepreneurship, providing policy support such as tax incentives, financial support, and talent training for technology companies.

3.4. Countermeasures for Regional Equitable Development

The unfairness or drawbacks brought by regional heterogeneity in the development of the digital economy can be overcome or even utilized. China's digital economy development requires a rational approach to regional heterogeneity, promoting coordinated social and economic development and reducing unfairness.

Economically, firstly, the government can support the construction of typical digital economy characteristic towns, creating a batch of characteristic towns with the digital economy as the core. By integrating advantageous resources, introducing high-end industries and talents, attracting investment, and promoting the development of the local digital economy. Using these towns as pivot points to gradually expand the radiation scope of the digital economy. Secondly, private enterprises and local governments can cooperate to promote the integrated development of the digital economy between eastern and western regions, such as projects like "Eastern Calculation, Western Computation". The government can promote urban-rural integration development, achieve urban-rural integration development through digital means. For example, constructing digital smart cities and smart villages, improving urban and rural infrastructure and public service levels, narrowing the urban-rural digital gap, and promoting integrated urban and rural economic development.

In terms of education and healthcare, the government and enterprises can promote the construction of digital resource sharing platforms to achieve the sharing and interoperability of high-quality resources nationwide. Through this method, the imbalance in regional education resources can be broken, promoting fairness in education and healthcare, improving the overall quality and skill level of the population, and advancing the talent and technological support needed for digital economy development.

4. Conclusion

In the process of building and transforming China's digital economy, a series of problems and challenges have emerged, including but not limited to information leakage, technological monopolies, insufficient innovation drive, and regional equity. Moreover, the root causes of these problems may lie in various aspects of digital economy development, such as the adjustment of China's economic structure, changes in social culture, and the gradual standardization of government regulation. Regarding the issue of information leakage, it is necessary to improve relevant laws to protect basic data, while the government should strengthen supervision and management of data security. To address the issue of technological monopolies, it is necessary to establish open and unified platforms, stimulate competition mechanisms, break industry monopolies, and promote fair market competition. Meanwhile, insufficient innovation drive is also a significant factor constraining the development of the digital economy. The government should increase support for innovation, protect intellectual property rights and patents, and enhance innovation capability and level. Additionally, the imbalance in regional development also needs attention. This can be addressed by establishing typical towns as hubs to promote coordinated development of regional economies. In conclusion, addressing these issues requires joint efforts from the government, enterprises, and society. Only through collaborative cooperation can China's economy achieve healthier, sustainable, high-quality development, and digital transformation.

References

- [1] Zhou, L., Gong, Z. The promotion effect of the level of digital economy on the green high-quality development of cities. *Economic Geography*, 2022, 42(11): 133-141.
- [2] Wang, Y., Xu, Y. Information Security Protection in the Era of Digital Economy: Taking China as an Example. In *Proceedings of the 2021 3rd International Conference on Information Management and Management Sciences*, 2021: 133-137.
- [3] Xie, Y. Governance Mechanisms for Data Circulation. *Information Security and Communication Confidentiality*, 2021, (07): 19-27.
- [4] Dobson, W., Safarian, A. E. The transition from imitation to innovation: An enquiry into China's evolving institutions and firm capabilities. *Journal of Asian Economics*, 2008, 19(4): 301-311.
- [5] Zhao, T., Zhang, Z., Liang, S. Digital Economy, Entrepreneurial Activity, and High-Quality Development: Empirical Evidence from Chinese Cities. *Management World*, 2020, 36(10): 65-76.
- [6] Li, M., Shi, X. International Experience and Path Exploration of Innovative Development of Digital Economy in Hainan Free Trade Port. *International Trade*, 2020, (12): 58-66+74.