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National Governance and Economic Transformation in the Digital Economy

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Abstract

The digital economy, as a product of the information age, is reshaping economic and social structures. It is not only a new form of economic development, but also infrastructure and general purpose technology. Digital technologies, such as big data analytics and blockchain, are transforming government decision-making and public services, improving governance efficiency and transparency. At the same time, the digital economy is driving industrial upgrading and transforming the industrial structure to "software-defined and data-driven", in order to realize sustainable economic growth and social well-being.

Keywords

Digital Economy; Digital Technology; National Governance; Economic Transformation.

1. Introduction

Digital economy is an economic and social form after the development of the information age to a mature stage, at present, it has transcended the scope of the information industry and the scope of Internet technology, rich in richer connotations. First of all, digital economy is a form of economic development. Ma Huateng (2007) believes that digital economy is a new form of economic and social development after agricultural economy and industrial economy, and that the profound and long-term impacts of digital economy should be viewed in the long history of the evolution of human economic and social forms.[1]Secondly, the digital economy is a kind of infrastructure, not only at the technical and instrumental levels, but also as a networked infrastructure. Like the industrial era, which was built on a network of physical infrastructure such as electricity and transportation, the future economic and social development will be built on digital infrastructure, and the traditional infrastructure will be fully digitized under the auspices of the Internet of Things (IoT) technology to enter the era of the Internet of Everything (IoE). Finally, the digital economy is a techno-economic paradigm, from the history of science and technology development, digital technology is the same as the steam engine, electric power, the "general purpose technology", will inevitably reshape the entire economy and society, the data become the most important factors of production, reconfigure the business model of all walks of life and the way of profitability, the future of all industries are digital industries, all enterprises are digital enterprises. In the future, all industries will be digital industries and all enterprises will be digital enterprises.

The rise of the digital economy has fundamentally changed the way in which governments, businesses and consumers interact, bringing new opportunities and challenges to policymakers and market regulators. State governance in the modernization process is both a dialectical unity of modernized governance and governance modernization, and a process in which modernization and state governance are closely linked and interdependent. The two have been iterating and evolving together in long-term interaction. The digital economy empowers the modernization of the national governance system and governance capacity at two levels, namely, the innovation of governance and the optimization of governance mechanisms, and at

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the same time brings a series of new governance problems. In the modernization of governance, which is mainly characterized by the digital economy, it is necessary to re-examine the relationship between efficiency, fairness and security.[2]By strengthening the digital technology foundation for modernized development, sounding the digital institutional construction for modernized governance, and building a digital security system for modernized development, it will not only help to understand how digital technology can reshape government functions and optimize the public service process, but also provide a basis for the formulation of forward-looking policies to ensure that sustainable economic growth and the overall well-being of the society can be achieved while safeguarding data security and personal privacy.

2. Digital Technology and National Governance

The study of digital technology originated in the 1960s and 1970s, and has become a focus of academic discussion along with the rapid technological progress and expansion of social influence. Technological innovation has always been regarded as a key driver of social transformation, and sometimes even as a core element. Digital technology, due to its unique characteristics, displays a different logic when it comes to influencing society. It is flexible and scalable, meaning that its software code and hardware components can be easily replaced and quickly spread to a wider audience, a characteristic that can be called “diffusion”. In addition, digital technologies exhibit generative and innovative qualities that enable them to migrate from one scenario to another through self-replication and iterative upgrading, improving performance and adapting to diverse needs, which is known as “strong adaptation”.

Digital transformation is the most macroscopic change of the times that individuals, organizations and even countries are facing today.[3]This change, driven by the widespread dissemination and application of digital technology, has not only brought about significant changes in the lives of individuals and the operation of organizations, but has also profoundly affected national governance. Digital transformation has brought significant changes to individuals, organizations, and all levels and domains of society, and has also had a profound impact on the process and effects of national governance, while existing studies have rarely systematically analyzed the changes in national governance triggered by digital transformation from a macro perspective. The difference between national governance and the past is reflected in at least three dimensions: first, from the perspective of domestic governance, digital transformation has provided new opportunities for economic growth and prompted innovation in the path of national development; second, from the perspective of international comparison, there is a convergence of governance styles among countries due to the common challenges they face in the digital era; lastly, under the background of globalization, the development of digital technology has made national governance face multiple challenges, and national governance needs to be balanced with the challenges of digitalization, which has led to the development of digital technology. multiple challenges, and national governance needs to take into account the global digital order. The proliferation and adaptability of digital technologies and the connectivity and generative logic of digital transformation are the intrinsic mechanisms of changes in national governance.

In modernized governance, big data analysis has become a key tool for enhancing the science and effectiveness of government decision-making based on digital technology. The application of big data not only enriches the information base of government decision-making, but also greatly improves the accuracy and responsiveness of decision-making. For example, in public health management, the government can monitor disease spreading trends by analyzing keywords on social media, release timely warning information, and reasonably deploy medical resources so as to effectively control the spread of epidemics; in urban traffic planning, big data

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helps the government optimize traffic signal control, plan new public transportation routes, reduce traffic congestion, and enhance the travel experience of citizens. In addition, by analyzing historical accident data, the government is able to identify areas with high incidence of traffic accidents and take preventive measures to reduce the incidence of accidents. In terms of social security maintenance, big data technology integrates multiple sources of information from CCTV surveillance, social media and other sources to help predict the likelihood of criminal activities, enabling law enforcement agencies to deploy police forces in advance to effectively curb crime. In order to further improve the quality of decision-making, the Government needs to further utilize big data analysis by strengthening data governance and establishing unified data standards and norms; breaking down information silos and promoting cross-sectoral collaboration; investing in technological infrastructure to enhance data-processing capabilities; strengthening talent training to improve the data-analysis capabilities of government staff; and encouraging public participation to enhance the transparency of decision-making.

Since 2016, blockchain technology has been highly valued by governments and financial institutions for its potential to improve transparency and efficiency. Blockchain is a new decentralized infrastructure and distributed computing paradigm that has gradually emerged with the growing popularity of digital cryptocurrencies such as Bitcoin, and has attracted great attention and widespread interest from government departments, financial institutions, technology companies, and capital markets. Blockchain technology is characterized by decentralization, time-series data, collective maintenance, programmability, security and trustworthiness, and is particularly suitable for the construction of programmable monetary systems, financial systems and even macro-social systems.[4]The UK government and the People's Bank of China have explored the application of the technology in public services and digital currency issuance, respectively; Nasdaq's launch of its Linq platform marks the beginning of the decentralization of the financial market; and Deloitte and Ernst & Young have invested resources in research and development to optimize auditing services. In addition, R3CEV has cooperated with a number of banks to develop banking blockchain standards, showing the importance of blockchain in enhancing the effectiveness of public management.

Today in the digital era, the much-anticipated blockchain technology has initially shown the prototype of collaborative sharing of digital labor, and many digital fields use this technology. Virtual currency (digital currency) is a typical example of the use of this technology, the publisher of open source software, any user can be unrestricted in the software platform for data production, everyone can pack the data, every successful packing of a block of data, other users will have to pack the data after this block of data, and so on to form a data chain. There is no restriction for users to participate in data block packing, data packing requires a lot of data calculation, so it can not be controlled by a certain person or company, and all the successfully packed data are saved in the public blockchain, which has strong confidentiality and is not easy to be stolen by others. At the same time, it is a “decentralized” system with no interference from background programs, and has the basic characteristics of digital labor sharing.[5]“The future of a person's data is likely to be kept not in some large Internet company, but on a public blockchain''[6], showing where the value of digital labor will go in the future.

3. Digital Economy and Economic Transformation

The digital economy has provided new support for China's industrial and economic upgrading, and at the same time, since the digital economy is a general purpose technology and infrastructure, it also puts forward higher requirements for China's industrial structure, with most industries showing 'software-defined, data-driven, platform-supported, value-added services, and intelligence-led' 's new features.[7]The path of China's industrial upgrading

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driven by the digital economy is changing, with platform, ecology, software, sharing, denuclearization, etc. to achieve "lane change". The penetration and promotion of digital economy in the field of transformation and upgrading of industrial structure must have a unified smart manufacturing standards, to avoid the construction process of different standards, resulting in segmented development, difficult to form an overall advantage. At the same time, actively participate in the development of global intelligent manufacturing standards, Germany and the United States are currently working together to explore the consistency of the Industry 4.0 Reference Architecture Model (RAMI4.0) and the Industrial Internet Reference Architecture (IIRA), and ultimately to form a unified global framework, China should give full play to the comprehensive advantages of manufacturing scale, information technology, and big data technology to cooperate with Germany and the United States, and seek to participate and speak in the global framework. participation and discourse rights in the global framework.

Since the reform and opening up, the impact of industrial structure change on China's economic growth was once very significant, but with the increase of China's marketization, the role of industrial structure change in promoting economic growth is weakening. in the 1980s, the contribution rate of structural change effect has been more than 50 percent. [8]The contribution of industrial structure change to economic growth even exceeds that of technological progress; in the early and mid-1990s, the contribution of industrial structure change to economic growth and technological progress were basically equal; after 1998, the contribution of industrial structure change to economic growth became less and less significant, and gradually gave way to technological progress, i.e., the power of marketization represented by industrial structure change has gradually given way to the power of technological progress. In other words, the power of marketization represented by industrial structure change has gradually given way to the power of technological progress. In this way, the unsustainable East Asian growth model pointed out by Krugman (1994) is similar to the economic growth model of China before 1998. However, in the process of China's economic growth after 1998, on the one hand, the contribution rate of factor input growth has been gradually reduced while the contribution rate of total factor productivity growth has been increasing; on the other hand, within total factor productivity, the effect of industrial structure change and the effect of net technological progress have also shown the relationship between the two. Thus, China's economic growth model after 1998 has increasingly demonstrated its own sustainability. Since 1998, the implementation of the scientific outlook on development, the transformation of the growth mode, and the enhancement of technological innovation capability are no longer simple slogans for China, but the necessary way to realize China's long-term sustainable economic growth. The weakening contribution of industrial structure change to China's economic growth does not mean that the benefits of market-oriented reforms will return to zero. There are a number of developmental and institutional factors that make it difficult for the market mechanism to function fully and efficiently. These developmental and institutional factors indicate that China's potential for future economic growth is still very large, and that China's efforts to improve the market mechanism will continue.

The rapid development of the digital economy, with digitized knowledge and information as the factors of production, has pushed the world's development towards the digital age. The intelligent features of information technology, big data and artificial intelligence technologies in the digital era have made industrial transformation and upgrading, and the transformation and upgrading of the digital economy, more controllable, accessible and reliable. Many studies have pointed out that technological innovation, among other things, is a key factor in the transformation of China's economic growth dynamics.[9][10][11][12]Emerging technologies represented by Internet technologies are the most widely used and mature innovative technologies at present, which have given rise to a series of emerging economic forms such as

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the Internet economy or digital economy. Under the urgent needs of real development and the guidance of corresponding policies, China's digital economy has been developing rapidly, playing an important role in stimulating consumption, boosting investment, creating employment, and enhancing innovation and competitiveness, thus providing a brand-new impetus and a feasible path to promote the high-quality development of China's economy and the construction of a modernized economic system.

With the deepening application of mobile Internet, big data, cloud computing and other technologies, the deep integration of the digital economy with the traditional economy has become a new feature of the development of the digital economy.[13]It is mainly manifested in three aspects: firstly, micro subjects apply the Internet and other technologies to engage in relevant economic activities, such as more and more enterprises begin to use the Internet to improve their business processes, and according to the data of China Internet Information Center (CNNIC), as of December 2016, the proportion of enterprises using the Internet has already reached 95.6%; secondly, the digital economy, as a kind of economic form, has an impact on the traditional economy; this is most obvious in the consumer sector, where the proportion of online retail sales to the total retail sales of social consumer goods increases year by year. Secondly, digital economy as an economic form has an impact on traditional economy, which is most obvious in the consumer sector, as shown in the 41st Statistical Report on the Internet Development in China released by CNNIC, the proportion of online retail sales to the total retail sales of social consumer goods has been increasing year by year; thirdly, with the deepening of the degree of convergence, the service mode and technology form of traditional economy are constantly innovating and breaking through, for example, in the field of B2B, with the help of big data and cloud computing, the e-commerce enterprises have realized the “industry chain + supply chain finance”. For example, in the B2B field, with the help of big data and cloud computing, e-commerce enterprises have realized the service mode of “industry chain + supply chain finance”, which has improved the trade achievement rate. The integration of digital economy and traditional economy is not only a basic fact of the current economy and society, but also represents the development trend of the future economy.

4. Conclusion

The digital economy is reshaping economic structures, governance, and industrial transformations. By integrating digital technologies like big data and blockchain, it brings significant benefits in terms of efficiency, transparency, and sustainable growth. However, these advancements also present challenges that require adaptive governance and international cooperation. As the digital economy continues to evolve, it will be crucial to balance technological opportunities with effective policies to ensure both economic development and social well-being.

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