

The development of digital economy in times of a pandemic crisis

Jiyuan Geng

School of Social Science, University of California - Irvine, CA 92697, US

ellageng01@gmail.com

Abstract. The overarching goal of this research is to explore the role of the digital economy in the Covid-19 pandemic, and it is also the impetus of the digital economy in times of crisis. Driven by market changing from the impact of the pandemic and the need for enhanced governance capacity, the epidemic proved to provide numerous opportunities for the rapid development of digital economy industry. Although many academics have emphasized the epidemic's impact on the Chinese economy since it began, there is an attested blank in the Covid-19 pandemic's influence on the development of the digital economy industry. Thus, this research is a significant infill the gap in the role of the digital economy during the global crisis.

Keywords: Digital economy; Covid-19 pandemic; global crisis.

1. Introduction

According to the White Paper on China's Digital Economy Development and Employment (2019), the scale of China's digital economy reached 31.3 trillion in 2018, accounting for 34.8% of GDP, and the digital economy has become an essential driving force for the transformation of the old and new dynamics of China's economic development (Kovalev and Yanhai, 2020). The digital economy consists of two parts: digital industrialisation, also known as the foundation of the digital economy, i.e. the information and communication (ICT) industry. The second is the digitisation of industry, i.e., integrating new-generation information technologies such as the Internet, big data, and artificial intelligence with traditional industries. With the development of ICT and its diffusion and popularity, the industry has gradually shown a trend towards digitisation. In recent years, the integration of information and communication technologies (ICT) and industry has begun to gain sustained attention from the academic community (Khumalo, 2010).

2. Literature review

The epidemic outbreak as a global crisis has received a great deal of attention and has been the subject of numerous studies in various academic fields, including economics (Legese Feyisa, 2020). As mentioned earlier, many scholars have focused on the impact of Covid-19 on economics, but there is limited research on the influence of the epidemic on the development of the digital economy (Petushkova, 2021). Most of the studies cover a wide range of topics, including short-term forecasts and industry investment analysis. Scholars have proposed initiatives to mitigate the harmful effects of the epidemic on the economy, which can help government departments to target their responses. As can be seen, there is little existing literature on the impact of major public health emergencies on the digitalisation of industry.

Foreign scholars have systematically studied the evolutionary characteristics of public health emergencies, containing its impact on the economy and society, the strategies adopted in response to outbreaks. The economic impact of epidemics is mainly in the form of short-term shocks. A review of the economic impact of major global outbreaks over the past 20 years shows that most pandemics have a significant adverse effect on the economy in the short term rather than the long term. This is because as the epidemic is gradually brought under control, the previously suppressed demand for consumption and investment is accelerated, leading to an economic rebound. For example, after the SARS epidemic, China's economy resumed growth from the third quarter onwards; even sectors

where consumption had fallen sharply rebounded rapidly in the fourth quarter after the crisis had subsided (Beutels, Edmunds and Smith, 2008).

3. Digital Economy in China

The digital economy is a series of economic activities in which the digitization of information and knowledge is the key to optimizing the economic structure (Longmei Zhang, Chen and And, 2019). China's digital technology services integrate with industries and pull effect on output growth, and efficiency improvement of other industries is increasing. Over the past few years, China's digital economy has been booming. Structurally, the two primary components of digital industrialization and industrial digitization keep the growing trend. In 2018, China's digital industrialization achieved a total of 6.4 trillion, accounting for 20 percent of the total scale of the digital economy and 7.0 percent of GDP. In contrast, industrial digitalization development is much higher than digital industrialization. The scale in 2018 was as high as 24.9 trillion, accounting for 80% of the total scale of the digital economy (Yin et al., 2019).

The epidemic accelerated institutional reforms and informal institutional change, thereby improving the efficiency of social resource allocation and the ability to deal with emergencies, which contributes to long-term economic development. Compared to developed countries, epidemics in developing countries have had a significant negative impact on both individuals and economies. On the one hand, the epidemic has sharply constrained the development of sectors such as tourism, real estate, hotels, restaurants, construction, and reduced foreign direct investment. However, public health programs and government-related reforms in response to the epidemic were able to significantly counteract the harmful effects of the epidemic, contributing to industry recovery, individual income, and macroeconomic growth (Song, Zheng and Wang, 2021).

4. The role of digital economy in controlling Covid-19 pandemic

Digital technology has been critical in controlling Covid-19 and social life during the epidemic period. For pandemic control, it assists four parts of pandemic anticipation and control: clinical determination and treatment, pandemic dashboard, publicly supported following and separated administration for various gatherings of patients. Regarding social life, digital technologies have offered enormous specialized support in multiple areas, such as online shopping, food delivery, cooperation, and internet business. Other than the previously mentioned advancements, technology companies ceaselessly enhance technologies and innovation capacities. For instance, in the tourism industry, Meituan as a partner with the China Tourist Attractions Association and the China Hospitality Association, presented an online-disconnected combination highlighted work on its portable application to designate Safe fascination and Safe hotel, given the mutually proposed COVID-19 counteraction rules (Mont, Curtis and Palgan, 2021).

The digital economy is seen as an essential instrument for epidemic prevention. Big data from telecoms operators can add real-time, accurate, and comprehensive support for epidemic prevention and control decision-making. For example, based on telecoms' population flow data, such as the analysis of changes in the flow of people in critical areas such as designated hospitals, fever clinics, and people gathering places, while ensuring the privacy and security of subscribers, to develop corresponding strategies. In addition, digital technology has made it possible for many tasks to be done from home. Considering that people are in social nature, digital developments have enriched people's quarantine lives with online entertainment options and online socializing.

China's home isolation or other social distance policies are considered the most effective and strongly related to the digitization of China's local living industry (Saeed et al., 2020).

5. The changing market and new space for digital economy

The Covid-19 outbreak that broke out at the end of 2019 has become a significant global public health emergency that has hugely impacted the economy and society in China. While the epidemic has dealt a severe blow to industries such as transportation, tourism, and retail, online consumption such as telecommuting, telemedicine, online education, online entertainment, and new industries, unmanned delivery and intelligent manufacturing have shown strong growth potential. These new industries have forced the government and enterprises to increase investment in digital construction such as 5G, artificial intelligence, and industrial internet, driving the transformation of China's industries' old and new dynamics and the development of digital economy industries (Ganichev and Koshovets, 2021).

According to the National Bureau of Statistics of China, in the first quarter of 2020, food and beverage consumption fell by 46.8% year on year due to the epidemic, but online consumption of food items grew by 32.7% year on year in the same period. The epidemic has reshaped individual habits and brought about changes in market demand. The Covid-19 epidemic is characterized by great danger and a long prevention and control period, changing public lifestyles and habits to a large extent. In addition, the urgent need to modernize the government's governance system and e capacity in a big way is another important driver of investment in digital technology and the development of the digital economy (Lestari et al., 2020).

6. Future development of digital economy

In the medium to long term, the epidemic provides an opportunity for China's industrial transformation and upgrading, although the epidemic has had a significant negative impact on many industries. Examples include online healthcare, online education, intelligent supply chain, telecommuting, online entertainment, and other online consumer industries. For example, during the epidemic, the massive contradiction between the tight medical resources and the public's demand facilitated the widespread use of online treatment. During the epidemic, the use of online medical apps has increased significantly compared to 2019, and the number of hospitals offering online clinic services has also shown growth compared to 2019 (Ba and Bai, 2020).

Digital industrialization is mainly concerned with the market-based application of ICT and is a fundamental part of the digital economy. Although the development of digital automation in China is currently lagging far behind the digitization of industries, the rapid growth of digital business in many emerging industries driven by the epidemic will certainly force digital industrialization to develop rapidly (Sun et al., 2021). For instance, the newly stimulated demand for online consumption and intelligent manufacturing will further accelerate big data and the Internet of Things industries, a new generation of artificial intelligence.

The Chinese government was referenced that it is essential to extend the innovative work and use big data and artificial intelligence to develop another age of innovation enterprises. In 2020, the nation was urged to enthusiastically foster progressed fabricating industry and present supporting approaches for framework development. Speeding up the commercialization of 5 G, fortifying the development of new frameworks like artificial intelligence and IIoT, and presenting pertinent venture support approaches are significant undertakings for China's future economic development and digital innovation (Soomro, Mangi and Shah, 2021).

The digital economy ushers in a new era of development. It is hard for the authority to make arrangements ahead of time because of high-speed advancement. Market systems and the actual market must assume the main part (Abidin et al., 2020). China has numerous top-notch digital organizations with solid capacities and a worldwide vision apart from a highly aggressive market. These organizations can surely assume a part in the following round of advancement of the digital economy. The improvement of the digital economy is a long-term plan for China. In the Central Economic Work Conference in December 2018, the Chinese government proposed to speed up the

speed of 5G business advancement and reinforce the development of the new foundation, for example, artificial intelligence (Petushkova, 2021).

7. Conclusions

This thesis reviewed the role of the digital economy in the Covid-19 pandemic. First, while the epidemic has harmed many industries in China, it has created opportunities to develop the digital economy. Second, the digital economy plays an essential role in China's efforts to combat the epidemic and in people's social lives. Third, the Covid-19 epidemic has reshaped the way people live and work, and market demand has changed, providing digital economy more space for growth, such as in the field of e-commerce, food delivery, online education, and logistics. China's digital economy has seen a whole new development under the Covid-19 epidemic. Chinese companies with top technologies and international perspectives are undoubtedly the pioneers of this round of digital economy development.

References

- [1] Abidin, C., Lee, J., Barbetta, T., & Miao, W. S. (2020). Influencers and COVID-19: reviewing key issues in press coverage across Australia, China, Japan, and South Korea. *Media International Australia*, 178(1).
- [2] Ba, S., & Bai, H. (2020). Covid-19 pandemic as an accelerator of economic transition and financial innovation in China. *Journal of Chinese Economic and Business Studies*, 18(4), 341–348.
- [3] Belova, L. (2021). Sharing Economy: the Business Model of the Digital Economy in the COVID-19 Period. *World Economy and International Relations*, 65(5), 87–94.
- [4] Beutels, P., Edmunds, W. J., & Smith, R. D. (2008). Partially wrong? Partial equilibrium and the economic analysis of public health emergencies of international concern. *Health Economics*, 17(11), 1317–1322.
- [5] Ganichev, N. A., & Koshovets, O. B. (2021). Forcing the Digital Economy: How will the Structure of Digital Markets Change as a Result of the COVID-19 Pandemic. *Studies on Russian Economic Development*, 32(1), 11–22.
- [6] Khumalo, B. (2010). Digital Economy and Knowledge Economics. *International Journal of Innovation in the Digital Economy*, 1(1), 19–36.
- [7] Kovalev, M. M., & Yanhai, H. (2020). Chinese Experience of the Development of the Digital Economy. *Digital Transformation*, 2, 16–25.
- [8] Legese Feyisa, H. (2020). The World Economy at COVID-19 Quarantine: Contemporary Review. *International Journal of Economics, Finance and Management Sciences*, 8(2), 63.
- [9] Lestari, D., Caisar Darma, D., Amalia, S., & Setini, M. (2020). INTERNATIONAL TRADE IN THE COVID-19 OUTBREAK: IS THE DIGITAL ECONOMY WORKING? *International Journal of Business and Management*, VIII(2).
- [10] Longmei Zhang, Chen, S., & And, A. (2019). China's digital economy : opportunities and risks. *International Monetary Fund*.
- [11] Mont, O., Curtis, S. K., & Palgan, Y. V. (2021). Organisational Response Strategies to COVID-19 in the Sharing Economy. *Sustainable Production and Consumption*, 28.
- [12] etushkova, V. (2021). THE IMPACT OF THE COVID-19 PANDEMIC ON CHINA'S ECONOMY: 2020 RESULTS. *Economic and Social Problems of Russia the Digital Economy Current State and Prospects*, 3, 104–122.
- [13] Saeed, N., Bader, A., Al-Naffouri, T. Y., & Alouini, M.-S. (2020). When Wireless Communication Responds to COVID-19: Combating the Pandemic and Saving the Economy. *Frontiers in Communications and Networks*, 1.
- [14] Song, M., Zheng, C., & Wang, J. (2021). The role of digital economy in China's sustainable development in a post-pandemic environment. *Journal of Enterprise Information Management*, ahead-of-print(ahead-of-print).

- [15] Soomro, B. A., Mangi, S. N., & Shah, N. (2021). COVID-19 complications and economic recovery of China: guidelines for other economies. *Journal of Economic and Administrative Sciences*, ahead-of-print(ahead-of-print).
- [16] Sun, Y., Zeng, X., Zhao, H., Simkins, B., & Cui, X. (2021). The impact of COVID-19 on SMEs in China: Textual analysis and empirical evidence. *Finance Research Letters*, 102211.
- [17] in, Z., Gong, X., Guo, P., & Wu, T. (2019). What Drives Entrepreneurship in Digital Economy? Evidence from China. *Economic Modelling*, 82, 66–73.