Frontiers in Economics and Management Volume 7 Issue 1, 2026
ISSN: 2692-7608 DOI: 10.6981/FEM.202601_7(1).0003

The Impact of Digital Economic Development on the Economy During Public Emergencies and Analysis

Yuequn Wang*

Faculty of Arts and Social Sciences, School of Economics, The University of Sydney, Sydney, New South Wales, NSW 2006, Australia

*Email: ywan0273@uni.sydney.edu.au

Abstract

In 2020, China's first annual GDP fell by 6.8% year-on-year, with both consumption and investment showing significant negative growth. The aggressive COVID-19 virus has brought significant negative factors to the development of the national economy and the living standards of residents. Based on the analysis of China's economic development during the SARS period and the COVID-19 epidemic, this paper explores the negative factors of digital economic development on us. The results show that China's industrial structure and Internet development level have improved significantly compared with the SARS period. Digital economic fields such as online education, e-commerce delivery, and online office will become an effective driving force for China to fight against the adverse impact of the virus, promote economic development, improve productivity, and increase employment opportunities. Accelerating the in-depth integration of the digital economy and related fields is an important aspect of the current development of the digital economy.

Keywords

Virus; Digital Economy; Industrial Structure; New Engine; Deep Integration.

1. Introduction

Compared with SARS and the global financial crisis in 2008, the impact of the COVID-19 virus emergency on national economic development and residents' daily lives is greater and more important. In the first quarter of 2002, China's GDP fell by 6.8% year-on-year [1]. At the same time, the two major engines of household consumption and foreign investment also showed a significant negative growth rate. In this viral emergency, the digital economy played a vital role in stabilizing the national economy. Whether it is online consumption, online office, video conferencing, online education, etc., it has effectively ensured that schools can suspend work and production, and suspend classes and learning during the epidemic prevention and control stage; and public health safety has always been an important global issue. The areas involved in major public health emergencies will no longer be limited to a certain country or region, and the outbreak of the epidemic will have a far-reaching impact on the entire global industrial chain .

2. Data Survey During the SARS Period

During the 2003 SARS outbreak, more than 8,000 cases of severe acute respiratory syndrome (SARS) were reported worldwide, with the vast majority occurring in China's mainland and Hong Kong. On November 16, 2002, the first known SARS patient appeared in Foshan, Guangdong Province, China. From February 2003, more patients were discovered in various locations. On March 12, the World Health Organization issued a global alert for the outbreak of atypical pneumonia [2]. From March to May 2003, the number of SARS patients reported

ISSN: 2692-7608 DOI: 10.6981/FEM.202601_7(1).0003

worldwide increased dramatically, and the public emergency was gradually contained after June. By the end of 2003, a total of 8,096 SARS cases had been reported worldwide , including 5,327 cases in China's mainland and 1,755 cases in Hong Kong.

3. Study on the SARS Emergency and its Impact on National Economic Development

After nearly a decade of development, China's current industrial structure has been significantly adjusted compared to the SARS period. The proportion of the tertiary industry has increased from 42.0% to 53.9%, while the primary industry has dropped to 5.3%. China's economy has just begun to shift from the initial stage of industrialization's wild growth to the late stage of industrialization under supply- side reform . Manufacturing growth has begun to decline, while the tertiary industry has grown by about 10%. The proportion of the primary industry has also gradually decreased. However, the rapid development of the tertiary industry has created a superior industry environment for the application of the digital economy [1].

During the SARS period, China's economic growth was mainly driven by the manufacturing industry. Although the growth rate of the secondary industry's GDP fell from 13.20% in the first quarter to 11.30% in the second quarter of 2003, it rebounded to 13.20% in the third quarter. In the second quarter when the public emergency was more severe, the manufacturing industry's GDP continued to maintain a relatively high growth rate. The service industry suffered a much greater blow than the manufacturing industry in this environment. The GDP growth rate of the transportation, logistics and postal industries in the second quarter was only 2.30%, while the accommodation and catering industries showed a significant decline compared with the first two quarters, with a GDP growth rate of 7.40%. They were the industries most threatened by the SARS virus. In the third quarter of the same year, the former two industries experienced a sudden explosive growth, exceeding the previous level [2].

China's traditional service industries, such as transportation, travel, and food and beverage services, which rely on offline operations, were significantly impacted by the SARS epidemic. In February 2003, the added value of postal logistics and transportation services nationwide increased by 2.30% year-on-year, but this was far below the average annual growth rate for the previous two months. The hotel and catering industry saw a year-on-year growth rate of 7.4%, slower than the increases in the previous two quarters. However, the real estate industry saw a significant increase of 3.70%, demonstrating that during the SARS period, when digitalization was still relatively low, people preferred to invest in real estate to preserve their value.

4. The Current Form of the Digital Economy and New Economic Formats

4.1. The Essence of the Current Digital Economy: Price Measurement and Resource Sharing

The essence of the current digital economy is to measure value, but measurement is not about value, but about the economic value of people. Products and benefits in a digital society are becoming increasingly scarce, but through the Internet, the benefits of goods and people can be infinitely expanded. By linking products and markets, a new social productivity is formed, and the value of people is measured through the digitalization of the Internet, thereby rationally dividing the market according to the value created by people and the benefits generated [3]!

The digital economy is essentially about resource sharing and shared benefits, not cost monopoly. In the era of corporate culture and internet-based enterprises, companies monopolized the right to distribute profits. In a digital society, corporate production relations and productivity are decapitalized and decommoditized, allowing companies and users to jointly create value without the price difference imposed by middlemen.

ISSN: 2692-7608 DOI: 10.6981/FEM.202601_7(1).0003

4.2. Three Characteristics of the Current Digital Economy: Result Guidance, Process Services, Data Correction, and Value Sharing

The digital economy is characterized by customized production for consumption, efficient supply matching, algorithmic profit sharing, and intelligent management of the production process. This is a completely different approach from the conventional market economy's production-allocation-exchange model, employing a reverse production process. Elon Musk's Tesla and Lei Jun's Xiaomi are both digital. Musk believes that manufacturing a bunch of goods and waiting for people to buy them is the most foolish business practice.

The digital economy isn't about making more things and selling more, because this market economy, including online e-commerce, has already been realized. The digital market economy is about distributing benefits through information computing! The digital market economy is the digital society, which refers to the gradual transition of human society from agricultural civilization to industrial civilization to digital society, away from selfishness and greed and towards a mutually beneficial economic society.

The digital economy is information-driven intelligent production. This is driven by results, process assurance, data correction, and profit capture, with data-driven decisions for manufacturing, sales, exchange, consumption, and financing. Information computing will become a key output factor in the digital market economy; this is information-driven. Without results-driven decision-making, products can only be directly placed on cloud server database systems. This is business dataization , not digitalization. Just like the ubiquitous cameras, this is built on big data mining within cloud server database systems, not simply playback of images at the time of an event.

4.3. The Most Basic Technology of the Digital Economy is Blockchain

The Internet is the main body of the digital economy, and the blockchain network is the cornerstone of the entire digital economy. Blockchain is not a digital currency, nor is it Bitcoin or virtual currency. Digital currency is just an application of blockchain technology in the market economy [3].

Blockchain consists of three main components: at the bottom is a distributed ledger system that calculates and connects information across all sectors of the global economy (consumption, distribution, flow, and output); in the middle are consensus mechanisms and token tools . Consensus mechanisms represent universally agreed-upon principles, while token tools enable information exchange at multiple levels and with high frequency. At the top are social applications, such as logistics search, which is a direct application of blockchain technology within logistics companies and also forms an industry chain. As the impact of the digital economy has become increasingly prominent with industrial development, the impact of the COVID-19 pandemic on emerging service industries and traditional industries has varied significantly due to the varying penetration of the digital economy within each industry. This has been a springboard for the digital economy, leveraging its diversity, interconnectedness, and synergy: emerging industries such as online education, online hospitals, and online offices have been relatively less impacted by the virus; conversely, traditional service industries with less internet connectivity have been significantly impacted, primarily in areas such as hotel accommodation, transportation, and tourism. However, the digital economy can still empower traditional service industries, thereby mitigating the impact of public emergencies. Internet companies, leveraging their online channel advantages, have applied digital technology to the service industry, benefiting various offline sectors. Data services connect people with one another, with the environment, and with services, enabling refined applications. For example, they precisely match demanders and suppliers of ride-hailing and food delivery services. This data-driven approach has proven highly effective in areas under home quarantine amidst the avian influenza pandemic. The Ministry of Human Resources and Social Security 's "Data

ISSN: 2692-7608 DOI: 10.6981/FEM.202601_7(1).0003

Analysis of China's Internet Industry Operational Status from January to February 2020" report shows that online teaching, online office work, online video services, and online travel enabled internet companies to maintain their revenue growth during this public emergency, achieving a 4.50% increase. The positive externalities generated by the development of the internet have also mitigated the impact of public emergencies on other industries.

4.4. Digital Economy Coordinates Education Resource Allocation

Thanks to the continuous improvement of the national educational information infrastructure, online classrooms offer less latency and packet loss. The use of artificial intelligence and human-computer interaction is becoming increasingly prevalent, and the differences between online and offline teaching experiences are gradually narrowing. Interactive feedback with teachers is becoming more effective, and online classroom activity is increasing. Consequently, online education is becoming increasingly popular. The 2019 Government Work Report clearly states that the application of "Internet + Education" should not be limited to online teaching models such as MOOCs , but should also promote the sharing of high-quality education to reduce regional disparities in educational resources. The 2019 China Online Education Report shows that the number of online education users in China has reached 232 million, an increase of 31.22 million from the end of 2018, and 27.2 % of Chinese netizens have accessed online education platforms. The COVID-19 emergency has also catalyzed the development of the digital economy in higher education. China advocates "no suspension of teaching, no suspension of learning," and this has driven the extension of traditional pedagogy to online learning at the national level. Various universities and mainstream teaching organizations have also begun to respond actively, migrating traditional teaching and tasks to the Internet and introducing various types of live teaching. All kinds of learners and other teaching users have adapted to this online education model in a very short period of time. The courseware for online teaching has become more and more exquisite, and the types of teaching content have become more and more comprehensive [1].

4.5. Digital Economy’s Diversified Services for Offline Hospitals

In the hospital sector, it is another important service area. In addition to conventional offline hospitals, the digital economy has also played a huge role in offline hospitals . The outstanding advantage of the virtualization of the digital economy can prevent cross-infection during offline medical treatment and move the pre-examination service and health education service of the new coronavirus pneumonia to the online stage. Internet treatment technology has broken through the spatial barriers in the field of conventional treatment. Patients can find the best tertiary hospitals and no longer be trapped in the local medical environment. In February 2020, the National Health Commission twice made it clear that it would vigorously develop online diagnosis and treatment services to alleviate the burden of offline medical treatment and introduce online health to the public's attention nationwide, which greatly promoted the widespread use of the digital economy in the health industry. In the past, because patients were always worried about the unprofessionalism of online treatment , the need for hospitalization or inconvenience in getting medicine, the development of offline treatment was relatively slow. The user scale of online treatment grew from 5.6 billion in 2011 to 49.1 billion in 2018, but it never exceeded 50 billion [4].

Online health services under the digital economy are well-suited to citizens' demand for diversified health services. Judging by the average daily active online consultations, during the 2020 Spring Festival, online consultation websites in China saw over 6 million consultations per day. This growth maintained a steady pace from the first day of the Lunar New Year, increasing from 6.059 million consultations per day to 6.712 million consultations per day on the sixth day of the Lunar New Year. This growth is expected to reach nearly 1 million consultations per day, the same level as before the 2019 Spring Festival. Reputable online

ISSN: 2692-7608 DOI: 10.6981/FEM.202601_7(1).0003

companies indirectly provide credibility guarantees for online medical institutions, and patients' trust in online hospitals is gradually increasing. Online hospital systems ensured public access to medical care during public emergencies, reducing the risk of cross-infection among patients visiting hospitals and alleviating public panic. Most online websites connected with domestic medical institutions, pharmacists, and doctors to provide online consultations and address patient issues in real time , ensuring smooth diagnosis and treatment operations on the front lines of China's anti-epidemic efforts. As of February 16, 2002, over 1.5 million patients had received free medical treatment through online diagnosis and treatment, essentially solving the offline medical needs of millions of people. Online hospitals, relying on their interactive online advantages, have directly shortened the time it takes for patients to seek medical treatment, effectively reducing the medical cycle. According to statistics, some " cloud doctors " have conducted up to 300 consultations per day, and their working hours have even reached 18 hours, playing a huge role in effectively combating public emergencies [2].

4.6. The Impact of Digital Economy on the Orderly Progress of Social Production

Different companies have very different types of technology, management systems, working methods, etc., and not every company has the same technical requirements for online office. Online office services can adapt to the personalized and diversified requirements of each company and can realize "customized" office services. Major technological breakthroughs have laid the basic foundation for modern network office. With the continuous advancement of electronic computer technology and the innovation of software application models, more work can be carried out using cloud servers, multi-person sharing, and simultaneous office models. Due to the raging public emergencies around the world, the scale of remote office applications in China's overseas markets will expand further in the future. The huge traffic impact brought about by the resumption of work and production is both an opportunity and a challenge for online office services. Digital economy companies should give full play to the advantages of network resources, understand users' requirements for online office, configure cloud servers in a timely manner, expand capabilities to face the upcoming information peak, and ensure the smooth development of the company's business [5].

4.7. The Digital Economy Can Provide more Diversified Services and more Diversified Heterogeneous Values

The proportion of catering companies using digital equipment has also gradually increased, and many companies have begun to use online systems for sales and logistics operations. According to information released by the Meituan Research Institute , after the outbreak of the COVID-19 public emergency, the Meituan company platform implemented the "Spring Breeze Plan", and from January 12 to March 18, a total of more than 300,000 riders were added. The interconnectedness between the platform and merchants is prominently reflected in: first, it buffered the direct impact of public emergencies on the traditional catering market; second, it effectively protected people's normal diet and daily life, reducing unnecessary outings for citizens; third, it expanded employment. In difficult economic times, the government adopted the method of sharing employees and expanding employment, which effectively maintained society and promoted the economy. Fresh food e-commerce has ushered in a turning point because of the digital economy online network platform, and the online fresh food e-commerce platforms of major companies are also entering the human vision from public emergencies [5]. According to statistics, from January 14 to 28, 2020, the total transaction volume of MissFresh, a Chinese online platform, increased by 321% year -on-year. In early February, JD Fresh's sales increased by 215% year-on-year, selling nearly 15,000 tons of fresh produce. Digital fresh food e-commerce platforms have effectively alleviated the problem of oversale of perishable goods such as fruits and vegetables, alleviating consumers' fear of shortages. By connecting the

ISSN: 2692-7608 DOI: 10.6981/FEM.202601_7(1).0003

consumer and manufacturing ends, they have created a win-win situation for manufacturers, consumers, and the companies themselves.

5. Conclusion

By comparing the impact of the SARS and COVID-19 public emergencies on China's macroeconomic structure, starting from the diversity of information demand services, the interconnectedness of economic and social activities, and the coordination of information resource allocation, combined with the more prominent areas of digital applications, it is pointed out that the digital economy has begun to gradually penetrate into all aspects of production, life, and social management, and will have a profound impact on China's entire national economic system in the future.

Since the digital economy has been clearly reflected in public emergencies, how to make the digital economy form a new driving force for rapid economic and social development, and then promote the high-quality and rapid development of the socialist national economy, is an issue that people must reflect on after public emergencies.

All citizens of society should actively obey and serve the epidemic prevention and control work and the overall national development. While strictly implementing the various epidemic prevention and control regulations and measures of the central and local people's governments at all levels, they should cultivate a sense of awe for companies and respect for entrepreneurs, and do their best to support the majority of private enterprises, especially small and medium-sized private enterprises, to successfully overcome the difficulties of public emergencies, help the country and the nation to withstand the test of the epidemic and ultimately defeat the epidemic.

References

[1] Wang J. (2021) Analysis of the Macroeconomic Impact of the COVID-19 Public Emergency Based on the DSGE Framework. Statistics and Management, 36 (05): 33-39.

[2] Zhang Y., Wang H., Zeng K. (2021) The Impact of the COVID-19 Public Emergency on China's Regional Economy. Journal of Hubei University of Economics (Humanities and Social Sciences Edition), 18 (04): 47-49.

[3] Zhang J., Zhu Y. (2021) The Impact of the COVID-19 Public Emergency on China's Service Economy in the Post-Public Emergency Era-A Study Based on a Multi-Period Double Difference Model. Industrial Technology and Economics, 40 (04): 58-67.

[4] Kistanov, V.O., Yang J. (2021) The Impact of the COVID-19 Public Emergency on Japan's Politics and Economy. Journal of Northeast Asian Studies, (02): 77-83, 148-149.

[5] Cao X., Liu S. (2021) The Impact of the COVID-19 Public Emergency on the Finance and Economy of Zhuzhou City and the Response Strategies. Business and Management, (04): 166-171.