

The Research Progress of China E-commerce Analysis in Different Periods of Epidemic

Shilin Wang^{1,a,*}

¹*McMaster University 1280 Main St W, Hamilton, ON Canada L8S 4L8*

a. 857565428@qq.com

**corresponding author*

Abstract: This article describes how e-commerce in China has developed in different periods of time, respectively, the stable development before the epidemic, like the three five-year plans, in China, the “five-year plan”, known as the Outline of the Five-Year Plan for National Economic and Social Development of the People’s Republic of China, is an important part of China’s national economic programme and is a long-term plan. It is a long-term plan, mainly for planning major national construction projects, the distribution of productive forces and important proportional relationships in the national economy, and for setting goals and directions for economic development. and the emergence of new retail, the time of the epidemic, although faced with the epidemic affecting the economic difficulties, but e-commerce also has its own unique advantages. The opportunities for e-commerce development in the post epidemic era and the future direction of development. E-commerce is an important part of the future market economy, and with China’s well-developed transportation industry, online retailing will become one of the most important ways to consume.

Keywords: Chinese economy, e-commerce, e-commerce development under COVID-19, the future development of e-commerce

1. Introduction

Covid-19 is the fastest-spreading and most widespread disease of the 21st century [1]. In the face of the huge impact of the epidemic, many countries and regions have been affected in their economic development, such as the European Union, the United States, and China. Their GDP declined by 3.8% [2], 1.2% [3], and 2.3% [4] in the first quarter of 2020.

In China, e-commerce is relatively mature. It has established its e-commerce system and built an e-commerce eco-system based on the three most essential elements: people, products, and origin. With the development of the e-commerce eco-system, all individual plays a vital role, and the cooperation between the customers, retailers, wholesalers, and logistics has led to rapid business changes, so e-commerce has appeared to be in demand, and the demand for the e-commerce eco-system has been increasing trend of fast-changing and normalized cross-domain collaboration [5].

The recent virus outbreak has had a significant impact on individuals, and even with the availability of a vaccine, people have developed a habit of shopping online and prioritizing essential purchases [6]. Therefore, e-commerce has become the main channel for people to consume, and people must choose online shopping to avoid contact with each other. Because the government

considered Covid-19 as a great threat in the early stage of the epidemic in China, various cities in China were blocked to different degrees, such as blocking roads, blocking neighborhoods, blocking highway entrances and exits, etc. Later, after the blockade was lifted, the government required all people who needed to travel to provide a health report. People infected with the virus face charges if they are found to have intentionally spread the virus or falsified health reports [7]. Although China has contained the outbreak, these policies could still have a negative impact on the economy. During this time, China's offline recession, decreased by 1.22 trillion RMB, this is equivalent to 1.2% of China's GDP in 2019 [8]. In this environment, the importance of e-commerce increased significantly as the real economy was affected by the epidemic and government policies.

Although online shopping across China has become more frequent due to the pandemic, e-commerce has become an essential sales method for many companies during the pandemic. Although a lot of research on e-commerce exists nowadays, there is not a summarized overview of how e-commerce develops in different periods and the opportunities, problems and solutions that e-commerce faces in different periods as well as how e-commerce can help businesses because e-commerce is volatile and needs to be compared with the different issues faced in different periods. This study investigates the development of e-commerce at different times, before the epidemic, during the outbreak, and after the epidemic. The opportunities and problems faced in different periods are described respectively, and the direction of development and solutions to the problems are illustrated.

2. The Development of E-commerce in China over Time

2.1. E-commerce Development Before the Epidemic Outbreak

2.1.1. The Development Process of E-commerce Industry

The development of e-commerce in China is divided into several stages. According to Zhongyu Fang and Lichun Fang [9], In the first phase (2001-2005), the use of information technology facilitated the development of e-commerce in China and changed the operation mode of domestic enterprises, and the promotion of e-commerce platforms and the restructuring of the economy improved China's future economic competitiveness. Therefore, it can be concluded that digital service quality, online shopping experience, cross-border e-commerce, digital authentication, online transactions, payments, logistics, credit, security protection and market monitoring have had a significant impact on consumers' purchase intentions and online shopping experience during the development history of e-commerce research in China. In the second phase (2006-2010), research themes such as digital authentication, online transactions, payment, logistics, credit, security protection and market monitoring paved the way for the development of e-commerce in China. In the third phase (2011-2015), a significant increase in business service awareness improved the quality of digital services and boosted consumers' willingness to buy. The online shopping experience has also improved significantly, with a shift in end devices from PC to mobile. In addition, several B2B and B2C e-commerce platforms were formed as cross-border e-commerce expanded in China and foreign markets.

After these three stages, e-commerce focuses more on improving the level of service because of the specific nature of e-commerce, so on e-commerce platforms, administrators and customer service have many restrictions on the selling and buying behavior of sellers and buyers. Platform administrators create many general rules to limit the scope of sellers' sales as well as buyers' purchasing behavior and rights. These rules have the highest priority, and no other rules are allowed to conflict with them. These restrictions have an important impact on the operation and development of e-commerce platforms, which can ensure the stability and fairness of the platform, as well as improve the shopping experience and trust of users [5].

2.1.2. Emerging New Retail Sales Models

The industry of e-commerce has developed comprehensively in all aspects, and many new dimensions have emerged with many business strategies, the most representative being new retail. While the industry of e-commerce has developed comprehensively in all aspects, many new dimensions have emerged as business strategies, the most representative one being new retailing. Under the new retail model, the concepts of people, products and places have changed. People refer to the sellers and buyers involved in the trading activities of e-commerce platforms, who are bound by the platform management and customer service. Product refers to the goods sold by the seller, while place refers to the location where the goods are displayed on the e-commerce platform. The emergence of new retail models has changed the traditional concepts of people, products and places, and e-commerce platforms have evolved from monocentric to polycentric, from exchange to service commoditization, and from vertical to horizontal e-commerce. These changes have had a profound impact on the operation and development of e-commerce platforms, making it necessary for e-commerce platforms to more accurately grasp user needs and improve the efficiency and effectiveness of business development. To this end, a unified modeling approach is needed to address the communication and validation issues between business experts and developers to improve development efficiency and reduce development costs [5].

2.2. The Impact on the E-commerce During the Epidemic

2.2.1. Impact of the Epidemic on the Household Economy and Market Economy

The COVID-19 outbreak has had an impact on the e-commerce industry in China. E-commerce sales and user behavior changed as people avoided going outside and kept a social distance. Some products associated with the outbreak, such as masks, disinfectants and disposable gloves, are in high demand, and the lack of availability of key products may lead to disruptions in e-commerce marketplaces and consumer panic. The researchers studied the impact of COVID-19 on Chinese e-commerce by analyzing behavioral changes on large online shopping platforms. They conducted a time-series analysis to identify the most affected product categories and proposed a consumer demand forecasting method that combines outbreak statistics and behavioral characteristics of COVID-19-related products. The experimental results show that their forecasts outperform existing baseline methods and are further extended to long-term and provincial forecasts. In addition, the researchers make policy recommendations, such as that policymakers look at the most relevant products identified in this study to understand household needs and take early preparedness measures [6].

Compared with the family economy, the epidemic has also created a lot of trouble for the e-commerce field. Brian Rongqing Han et al. [10] used data from Alibaba Group to construct city-day panel data to study the impact of the epidemic on e-commerce sales in China. The study found that overall e-commerce sales declined by about 11-22% during the epidemic, but gradually recovered after the epidemic ended, with the decline dropping to about 5%-8%. In addition, the study found that the epidemic had an impact on e-commerce's logistics and supply chain management, but that e-commerce was more digitally resilient compared to offline retail and was able to maintain a certain level of sales during the epidemic. Therefore, overall, the impact of the epidemic on e-commerce companies is limited, but there is still a need to focus on logistics and supply chain management, among other things.

2.2.2. How E-commerce Can Help Businesses Mitigate the Problems Caused by the Pandemic

Small businesses were greatly affected during the epidemic, and many suffered huge losses, including closures and work stoppages. In Wuhan, the government introduced a series of policies to help small

businesses overcome their difficulties, such as tax cuts, rent reductions and interest-free loans. During the epidemic, 82.8% of small businesses encountered operational problems caused by the epidemic. The specific difficulties faced by small businesses during the epidemic included a lack of cash flow, impacted production patterns, and limited technological innovation [11]. Thus, the impact of the epidemic on small businesses was multifaceted, not only in economic terms, but also in terms of production and technology. But there are many small businesses that have survived in the face of the epidemic. During the COVID-19 pandemic, the ability of small businesses to survive and recover was related to the characteristics of the owners. Owner characteristics include gender, education, age, experience, and expectations [12][13][14]. Fan Li et al. [11] have shown that owners' education, experience, and expectations are associated with small business survival and recovery after natural disasters. Female owners were more likely to go bankrupt during the COVID-19 pandemic, while owners' age and education may be the main drivers of small business survival and resilience [15]. In addition, owners' employee empowerment and innovation, and entrepreneurial leadership may also have an impact on small business survival and resilience. In addition, the viability and resilience of small businesses are also related to their business type, size, major markets, and financial position. Therefore, it is concluded that small businesses are less likely to survive during the COVID-19 pandemic than large businesses. In addition, the smaller the market coverage of a small business, the more likely it is to suffer from financial problems, thereby reducing its survival during a pandemic.

But when some companies can go ahead and pool their resources to develop e-commerce, then they can increase their sales during the epidemic prevention period. Due to the epidemic and government controls, many offline retailers experienced a sharp decline in sales, and e-commerce became the primary shopping channel. Consumers had to use online channels to purchase products, which could greatly benefit e-commerce. E-commerce has several advantages over offline commerce, such as typically lower prices, a wider range of products, and greater convenience. According to Brian Rongqing Han et al. [10], e-commerce can also help companies cope with the logistics and supply chain issues associated with an epidemic. Although the epidemic and related control measures may have some impact on e-commerce, the advantages of e-commerce can still help companies alleviate the problems caused by the epidemic. Therefore, e-commerce can help companies maintain sales and operational capacity during the epidemic.

2.3. How Should E-commerce be Developed in the Post-epidemic Period

After the epidemic, e-commerce needs to adapt to market changes in order to continue to grow. Some strategies can help e-commerce adapt to market changes, Yuan Yuan et al. [6] proposed to provide more online services: during the epidemic, people prefer to shop and service online. E-commerce can provide more online services, such as online customer service, online booking and online payment. There is also enhanced security: During an epidemic, people are more concerned about security. Fan Li et al. [11] make similar points and add some additional points, such as strengthening online channels: as consumers choose to shop online more often, e-commerce companies should strengthen online channels, improve the user experience of their websites or apps, increase the variety and quality of products, and improve the speed and service of logistics and delivery quality, and improve logistics and delivery speed and service quality to meet consumers' needs. As well as strengthen data analysis and artificial intelligence applications: E-commerce enterprises can improve the accuracy and personalization of product recommendations by strengthening data analysis and artificial intelligence applications to improve consumers' purchasing experience and satisfaction. In conclusion, e-commerce companies should continuously innovate and optimize their business models and services according to market demand and business challenges to adapt to the business environment in the post-epidemic period.

2.4. Advantages of Developing E-commerce

From Zhongyu Fang and Lichun Fang [9], The fourth stage (2016-2020) is the peak of e-commerce development, where e-commerce companies begin to focus on consumers' individualized needs, actively integrate AI technologies into their platforms, stop using traditional sales models, and adopt active marketing and diverse communication models. Therefore, after the epidemic, e-commerce can continue to focus on consumers' individualized needs, actively adopt AI technologies, and improve service quality and user experience to cope with the new market environment. In addition, e-commerce can adopt a more flexible supply chain management approach to cope with the challenges posed by the epidemic. Meanwhile, e-commerce can strengthen cooperation with logistics companies to improve logistics efficiency and service quality to meet consumer demand. Finally, e-commerce can strengthen cooperation with financial institutions to provide more convenient payment and financing services to support the development of enterprises.

Unlike traditional sales methods, e-commerce can help businesses to maintain their operations because it provides a contactless way of shopping, allowing consumers to buy what they need from the comfort of their own homes, avoiding the risk of congregation and the transmission of viruses. In addition, e-commerce can help businesses cope with the challenges posed by an outbreak, for example, by providing online sales and delivery services to help them maintain sales and revenue. E-commerce can also provide consumers with a better shopping experience and service by offering more payment options and extended return periods, thereby increasing customer loyalty and satisfaction. In addition, e-commerce can help businesses better understand market demand and trends through data analysis and forecasting, which can lead to better planning of production and inventory and reduce inventory backlogs and waste.

And the development direction of e-commerce is relatively broad. Enterprises can decide the development direction according to their own different situations. The development direction of e-commerce mainly includes the following aspects: first, strengthen the digital transformation, improve the online sales capacity and service level; second, expand new marketing channels, such as social media, live broadcasting, etc.; third, strengthen the supply chain management, improve the efficiency and accuracy of logistics; fourth, strengthen the brand construction, and improve brand awareness and reputation; and fifth, strengthen user experience to improve user satisfaction and loyalty. The impact of the epidemic on the development of e-commerce mainly includes logistics, supply chain, consumer psychology, etc. E-commerce companies should strengthen their response to these aspects, such as strengthening the logistics and distribution capacity, optimizing supply chain management, and improving consumer trust. At the same time, e-commerce should also strengthen the analysis and utilization of user data to improve the level of personalized services to meet user needs.

3. Conclusion

In conclusion, this study summarizes the difficulties or opportunities faced by e-commerce and the advantages of e-commerce in different periods of time. Before the outbreak of the epidemic, the development of e-commerce in China had gone through three phases, which took a total of 15 years (2001-2015). The first phase was the extensive use of the Internet and information technology to improve the competitiveness of China's science and technology and, at the same time, lay a good foundation for e-commerce popularity after the first phase. During the second phase, several government departments and industries facilitated the growth of e-commerce in China. The final stage aims to enhance the service and after-sales capabilities of e-commerce, build trust among consumers for online shopping, and leverage smartphone technology to improve convenience. Additionally, the

emergence of new retail allows direct transactions between buyers and sellers, increasing efficiency and fulfilling customer needs more precisely.

Then came the outbreak of the epidemic and the government's embargo policy, which led to a shortage of some common medical supplies, such as masks and alcohol, affecting families and the market economy. E-commerce sales declined due to the panic caused by the lack of supply of necessities and the loss of income during the outbreak, but this is one of the advantages of e-commerce, which allows the sale of goods to be maintained in the face of the embargo. Another role e-commerce played was to alleviate the sales difficulties of some businesses. During the embargo, shopping malls and businesses were not allowed to open, except for daily necessities stores and logistics, which were allowed to open. However, e-commerce has provided enterprises with a sales channel that allows them to utilize logistics to deliver their goods without having to open their doors, which, although it does not completely solve the problem, has helped to alleviate the economic pressure on the enterprises.

In the post-epidemic era, e-commerce has become better after many years of development as well as epidemics. The direction of discovery afterwards is to ensure the stability of the supply channel, improve the level of service, and some sellers can use social media to expand their visibility. To help them increase sales. Therefore, the core of the development of e-commerce in the post-epidemic era is to improve efficiency and reduce costs.

Because the Chinese government has just ended its control over the epidemic in 2023, it is not possible to give much substantive advice about the direction of e-commerce in the aftermath of the epidemic. The contribution of this study is to integrate the development process of e-commerce in China in the last 20 years, summarize the role and advantages of e-commerce as well as analyze the irreplaceable role of e-commerce in the face of the epidemic. However, there is no practical case for the specific application of e-commerce, which may be a research direction.

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