

Development Status, Problems and Countermeasures of E-Commerce During the Epidemic Period

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Abstract. The COVID-19 pandemic imposed a significant need for innovative and creative approaches across all industries. Indeed, the pandemic provided a viable breeding ground for the development of ecommerce in China. The paper examines the impact of COVID-19 on three of the most influential sectors in China, namely makeup industry, food industry and agriculture industry. Summarizing the status, problems, and countermeasures of these three industries separately. Overall, the empirical findings demonstrate high level of ecommerce transactions in the makeup industry affirm the continued development of the industry in the post pandemic period. Moreover, during the pandemic and post pandemic era, Chinese consumers increasingly opted for online purchases by transitioning from conventional and traditional purchases. Similarly, Chinese farmers are increasingly adopting ecommerce as a way of reducing costs and enhancing the efficiency in the agriculture sector.

Keywords: Ecommerce; COVID-19; makeup; food; agriculture; countermeasures; status; problems.

1. Introduction

The epidemic period has contributed to significant long-term changes and short-term disruptions in the business world. Since late 2019, the world has increasingly adopted new measures towards reliance on digital platforms in the fulfillment of orders. In particular, the COVID-19 pandemic has facilitated the transition from a traditional-based business world to one based on ecommerce. As the world experienced disruptions in supply chains and logistics, businesses adopted innovations and creativity backed by a looming surge of ecommerce. According to Jilkova and Kralova[1], the COVID-19 epidemic provided a viable breeding ground for the development of ecommerce in China. The significance of the ecommerce expansion is based on the broadening of consumer markets and liberalization of businesses. In essence, the recent growth of ecommerce industry has significantly enhanced the volume of trade within China and across the globe. One of the most prominent benefits of ecommerce is the convenience imparted on consumers through fulfillment of remote orders [2]. Indeed, consumers can make orders and receive them while at the comfort of their homes or offices. Similarly, ecommerce promotes increased trade for organizations thus widening the tax base for most economies. It is not surprising, therefore, that ecommerce expansion coincides with increased tax revenues as more businesses are engaged in tax generating economic activities.

The growth and expansion of ecommerce platforms has been the subject of multiple studies in the recent past. In particular, predictions for ecommerce being the major tool of business transactions in the near future have been confirmed [2, 3]. Similarly, the popularity of ecommerce is attributed to the increasingly growing number of younger shoppers and businesses targeting younger populations. Today, the volume of sales attributed to ecommerce have superseded those attributed to brick-and-mortar stores. As observed in Khan's paper [4], even brick and mortar stores have developed an online presence to fulfil the demand for online purchases and payments. The popularity of ecommerce further cuts across generations with both existing and new customers having a stronger appeal towards the convenience of remote shopping. Still, Jilkova and Kralova [1] found that the COVID-9 pandemic has contributed to a significant rise in the volume of digital consumption. Consequently, the transition to ecommerce is likely to be a permanent move post the COVID-19 pandemic period.

This study considers the development status of ecommerce during the epidemic period as well as the problems and countermeasures. In particular, the study utilizes literature review forma in exploring various aspects of ecommerce. In the next section, an introduction of ecommerce

development is done with a primary focus on the changes that have been experienced during the pandemic period. Similarly, the study will provide an analysis of the makeup industry including the sales model and the benefits and demerits accrued from ecommerce expansions. In making this analysis, the paper will consider the status of development, perceived and actual problems as well as countermeasures. The next sections will review the food and agriculture industries to identify the relevant sales models, benefits, and demerits of ecommerce expansion. A similar approach of considering the status, problems and countermeasures of ecommerce expansion will be applied. Finally, the paper will make conclusions about some implications of the findings from the review.

2. Literature review

The purpose of this article is to analysis the impact of COVID-19 on development of ecommerce of three different sectors in China, namely makeup, food and agriculture industry. These three sectors are chosen since they are affected by the epidemic in a similar way. Following paragraphs will cite opinion from existing literatures to overview development status, current problems, and countermeasures of the three sectors mentioned above. After reading all materials, I found that the influence of COVID-19 on ecommerce is mostly positive regardless of industry. Data and argument from these resources will be used to give evidence to my arguments.

2.1 The Makeup Industry

2.1.1 Development Status

Although the country is the second largest consumer of makeup products, its online consumption ranks first in the world. Consequently, the country has experienced a significant growth in the volume of online transactions involving the makeup industry. Gerstell et al. [5] argued that at least 84% of all makeup retail sales are done through online channels making China a leader in ecommerce transactions. Similarly, the makeup industry has achieved significant growth in the ecommerce sector with at least 6.2% of all ecommerce transactions being attributed to makeup products. The high level of ecommerce transactions in the makeup industry affirms the continued development of the industry in the post pandemic period. The expansion of the makeup industry in China is also confirmed in Ma and Kwon's study [6] who find that the country's online consumption of makeup products is more than half of the total demand for beauty products. These developments are particularly significant considering that most cities have room for further growth.

The pandemic period has significantly contributed to the expansion of the commerce segment of the makeup industry. The rebound in consumer demand for makeup products during the sunset years of the COVID-9 pandemic is attributable to retaliatory consumption. According to a study by Lee and Kwon [7], the rise of local brands during the COVID-19 period, coupled by emerging media marketing, and rise in sophisticated consumers have facilitated the expansion of ecommerce. The growth in ecommerce in makeup industry is also propelled by a rise in the number of younger consumers. In their study on consumption trends, Gerstell et al. [5] observed that women under the age of thirty years have dominated ecommerce sales for makeup products within lower tier cities in China. Indeed, this consumer segment has young professionals that are open to new ideas and with a high propensity for beauty products. Moreover, the entry of foreign brands in the Chinese makeup market has also spurred growth of ecommerce through their huge online presence and digital campaigns.

2.1.2 Problems

The COVID-9 pandemic has also contributed to significant problems in the sale of makeup products. In particular, the period was characterized by significant disruptions in supply chains thereby affecting the quality of makeup products within the country. Prior to the pandemic period, most of the products on sale in the country were based on foreign brands. With increased regulation and travel restrictions, the makeup industry suffered from quality problems as customers could no

access reputable brands within local stores. As noted by Dal Zotto[8], the gaps in supply of makeup products during the pandemic period gave rise to multiple local producers, albeit with poor quality products. The influx of low-quality products and the growing awareness among Chinese consumers gave rise to high demands for high quality makeup products. In an effort to overcome the problem of low quality, players in the makeup industry have enhanced their production levels.

2.1.3 Countermeasures

The pandemic period in China provided ripe ground for the expansion of the ecommerce industry with regards to makeup sales. Indeed, the need for experience resulted in the emergence of multiple makeup collection centers across the country. Based on the high demand for makeup products and the diversification of the market, there was an increased need for fulfillment and collection centers. In turn, most consumers would order products online and receive them through fulfillment centers closer to their locations [9]. The limitation on travel further propelled the emergence of fulfillment centers as most makeup companies established innovative ways of serving their customers. Both expensive and cheaper brands increased their online presence as they targeted different consumer profiles within different price ranges. Ultimately, the desire for increased presence in both digital and physical locations facilitated an increment in the number of online sales and remote deliveries.

Still, the ecommerce segment of the makeup industry has benefited from the emergence of the O2O retail model. This model is based on online to offline commerce involving the derivation of potential clients from online stores to make purchases in physical locations [10]. The dual relationship between online presence and increased physical presence has facilitated this model in the country. In particular, makeup brands have concentrated their marketing efforts to digital advertisements and online reviews while driving traffic to their physical locations. Consumers in the makeup industry, therefore, rely on online reviews and recommendations to visit physical stores and make purchases. In contrast, Lee and Kwon [7] identified the emergence of multi-brand retailers as the most significant cause of ecommerce expansion in the makeup industry. In this arrangement, most brands combine the sale of makeup and lifestyle products including products that promote wellness and healthy living. In turn, the country has experienced rapid product diversification and generated more immersive shopping situations for local consumers.

2.2 The Food Industry

2.2.1 Development Status

The development of online food industry in China is based on the likelihood of Chinese customers to consider food safety in making purchases. Consequently, the desire for approval through online reviews and recommendations has increased the volume of online sales in the food industry. During the pandemic and post pandemic era, Chinese consumers increasingly opted for online purchases by transitioning from conventional and traditional purchases [11]. Besides considerations of safety, the growth of the ecommerce segment in the food industry is attributable to the changes in trend and preferences. In essence, most consumers have a high affinity for snacks and soft drinks, both of which are easily fulfilled through online purchases. It is not surprising, therefore, that a sizeable segment of the Chinese consumer market prefers to take up snacks for lunch rather than order wholesome food items. Even when food is preferred, the consumers incline towards packaged and processed food through online orders.

The growth of the online food delivery industry is affirmed through projections of continued development in the post pandemic period. Indeed, the pandemic period provide the right environment to spur growth in the medium and long term. According to paper by Zhao et al. [12], the food delivery segment is touted to achieve revenues of \$55 billion in 2022 thus affirming the significance of this market segment. Besides the high revenue levels, the industry has been recording an annual growth rate of well over 5% beginning in the pandemic period of 2019 and 2020. The high revenue recorded in China with regards to the online food market is the highest across the globe thereby outlining the entrenchment of ecommerce in China's food industry. Indeed, the country has achieved significant

user penetration rates with well over 47.9% of food purchases being rendered through digital platforms [13]. Even though the segment is also recording growth to date, the success is directly attributed to the pandemic period.

2.2.2 Problems

Despite the successful expansion of the ecommerce segment of the Chinese food industry, it experienced significant problems over the pandemic period. In particular, the industry was faced with the challenge of delivery problems occasioned by travel restrictions and curtailing of movement for goods and personnel. At the height of the global pandemic, food delivery services were disrupted with many companies struggling to fulfil orders [14]. Similarly, customers were constrained in geographical locations and could not walk into food stores to make purchases. In turn, the disruptions brought along a necessity for delivery services in an effort to bridge the existing supply chain gaps. Still, the ecommerce segment of the food industry further suffered challenges associated with reduced supply of critical raw materials for production and packaging of food products. The imposition of social distancing requirements reduced the capacity of companies to facilitate delivery and fulfilment of orders made during the pandemic period.

2.2.3 Countermeasures

The problems characterizing the ecommerce segment of the food industry elicited favorable countermeasures that revolutionized the industry. In essence, companies initiated innovative and creative approaches towards addressing the inherent challenges at the height of the COVID-19 pandemic. One of the most prominent countermeasures pertained to the shortening of the supply chain in response to reduced capacity for mass deliveries [11]. Companies in the food industry developed structures for efficient delivery of products through lean production and low stocking levels. In this approach, companies would reduce the volumes of stock stored within stores based on the rate of consumption to avoid wastages and subsequent losses. Similarly, companies would only produce food products on orders with fulfillments being scheduled for next-day deliveries [13]. Consequently, consumers would place online orders and reservations in anticipation of scheduled deliveries. This new arrangement allowed for a more robust ecommerce segment within the food industry.

Besides, the challenges experienced in the pandemic period ushered in new developments on O2O catering in China. In particular, more Chinese consumers made orders of for delivery of meals within the comfort of their homes in 2020. According to Zhao et al. [12], the development of the offline to online model is based on the innovations in online food ordering processes developed over the pandemic period. Similarly, the pandemic period resulted in increased creativity among players in the food delivery industry with regards to their use of customer reviews, online marketing and customer services. Inherently, more food stores utilize mobile application and web extensions to facilitate placement of orders and racking of deliveries by customers. The use of artificial intelligence has also facilitated the digitization of the food industry thus contributing to an expansion of online sales and deliveries [11]. All these factors have cumulatively resulted to the liberalization of the food industry and a continuous expansion of its ecommerce segment.

2.3 The Agriculture Industry

2.3.1 Development Status

The rise in popularity of online purchases during the pandemic period has resulted in increased use of ecommerce in the agriculture sector. As noted by Pu and Zhong [15], Chinese farmers are increasingly adopting ecommerce as a way of reducing costs and enhancing the efficiency in the agriculture sector. In part, the improvements in the use of ecommerce platforms in agriculture sector is attributed to improved infrastructure allowing for efficient delivery of goods and products. Moreover, the penetration of multiple ecommerce players and platforms in rural areas during the COVID-19 period has enhanced the adoption of digital retail services in the country. In turn, the embracement of online sales in the agriculture sector has resulted in increased diversity of choice for consumers. As Pan et al. [16] asserted, increased growth of ecommerce in the agriculture industry has

enhanced the quality of consumption choices available to diverse consumer segments. Ultimately, digital retail has facilitated an increase in rural consumption and effectively broadening the commerce sector.

The agriculture industry has also experienced significant growth in terms of its fulfillment of products to consumers in China. The expansion of the agriculture industry has been shaped by an increasingly growing popularity of farm to kitchen ecommerce concepts [13]. Indeed, the country has experienced a surge in the number of companies providing agricultural products directly to consumers without requiring intermediaries such as food stores. The agricultural landscape in rural China is shaped by a vast number of small-scale farmers producing a wide array of agriculture products. Consequently, this environment has facilitated increased use of ecommerce platforms in fulfilling orders made by consumers. In 2020, the country experienced an increase of 143% in the digital sale of agriculture products based on information from popular interactive ecommerce platforms [17]. It is not surprising, therefore, that today, more than half of all users on Pinduoduo ecommerce platform are engaged in the sale of agricultural products.

2.3.2 Problems

The ecommerce segment in the agriculture industry was characterized by significant influx of problems during the pandemic period. Indeed, the industry faced the challenge of addressing a growing population of people whose spending habits were difficult to change. Even though agricultural products in China are relatively cheaper, the growing population of younger people incline towards the purchase of snacks and fast-food items [10]. During the pandemic period, in particular, a vast majority of consumers in the Chinese market shied away from agricultural products in favor of processed and fast-food items. The convenience of processed food and snacks meant that producers of agricultural products faced significant challenges in marketing their products. Similarly, the difficulty of changing consumption habits forced most producers to sell at throw away prices to avoid losses and wastages. The imposition of travel restrictions and guideline on social distancing also mean that farmers could not sell their produce in local markets.

2.3.3 Countermeasures

The problems that characterized the pandemic period elicited the need for increased creativity for farmers in rural China. In essence, the farmers had to adopt farm to kitchen approaches to selling their produce in time [11]. Through listing in ecommerce platforms such as Alibaba and Pinduoduo, farmers could secure online consumers and arrange for deliveries at the convenience of the customers. This approach also enhanced the success of schedule management by allowing for production of agricultural goods that had been ordered. Similarly, the problems of the pandemic era facilitated the creative use of word-of-mouth approaches to marketing fresh farm produce in both rural and urban China [10]. In turn, farmers would rely on word-of-mouth marketing and referrals from loyal customers to secure new sales. Through word of mouth selling, farmers successfully managed to list their produces on ecommerce platforms and fulfil online orders in time.

The table 1 below is a summary about the references mentioned above. It shows the impact of COVID-19 on three selected industries briefly.

Table 1. Studies on the Influences of COVID-19 on Ecommerce

Industry	Author(s)	Influence of COVID-19
Makeup	Jinkyung Lee, Ki Han Kwon	People's demand for beauty and cosmetic products did not fade away under epidemic. Also, epidemic is benefit to the rise of local brands.
Makeup	Dal Zotto	Further legislation and regulation are inevitable. The market is under pressure due to impact on every part of the supply chain.
Food	Xuwen Gao, Xinjie Shi, Hongdong Guo, Yehong Liu	According to studies, severe epidemic increases the possibility of purchasing online since lower risk is perceived when consuming online.
Food	Shafique Ul Rehman Memon, Vijayanta Ramesh Pawase, ORCID, Tushar Ramesh Pavase, Maqsood Ahmed Soomro	Several major cities were locked down during epidemic, which not only affected the supply of food within China, but also the whole world.
Agriculture	Shulang Fei, Jia Ni, Guido Santini	The crisis has facilitated the digitization of food supply chains and agricultural services, which has helped diversify food distribution channels and transform food systems.
Agriculture	Dan Pan, Jiaqing Yang, Guzhen Zhou, Fanbin Kong	The impact of the epidemic on China's agricultural economy is mainly reflected in crop production, agricultural product supply, livestock production, farmers' income and employment, cash crop development, agricultural product sales model, leisure agriculture development, and agricultural product trade these eight aspects.

3. Conclusion

There is no doubt that the pandemic period imposed significant disruptions across different industries in China. In particular, the food, agriculture and makeup industries experienced similar forms of disruptions associated with supply chain and logistics management. However, the pandemic period also provided accurate environment for the expansion of the ecommerce segment across the three industries. As pointed out in the findings, the problems occasioned by the COVID-19 pandemic encouraged creative use of digital platforms in facilitating online orders and deliveries. The growth in ecommerce in makeup industry is also propelled by a rise in the number of younger consumers coupled with entry of foreign brands in the Chinese market. The limitation on travel further propelled the emergence of fulfillment centers as most makeup companies established innovative ways of serving their customers. The food sector has also exhibited significant levels of growth and expansion over the pandemic and post pandemic period. During the pandemic and post pandemic era, Chinese consumers increasingly opted for online purchases by transitioning from conventional and traditional purchases. The high revenue recorded in China with regards to the online food market is the highest across the globe thereby outlining the entrenchment of ecommerce in China's food industry. Similarly, developments in the ecommerce segment of the agriculture industry were unprecedented in the pandemic and post pandemic period. Indeed, the country has experienced a surge in the number of companies providing agricultural products directly to consumers. The problems characterizing the ecommerce segment of the food and agriculture industries elicited favorable countermeasures that revolutionized the industry. The popularity of the offline to online model is based on the innovations in online food ordering processes developed over the pandemic period. Similarly, the adoption of

farm to kitchen approaches through listing of agricultural products in ecommerce platforms was occasioned by the challenges of the pandemic era.

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