

# The Impact of the Epidemic on E-commerce Industry

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## ABSTRACT

Under the condition that the COVID-19 spread all over the world, the economy is affected negatively. The government published some policies to pretend people from the virus. At the same time, global commerce is affected. In this condition, e-commerce met its opportunity and risk. This paper contains some statistics and analyses to explain the development of e-commerce. During the related research, it is said that due to the spread of the virus, people tend to decrease their social activities and change their approach to shopping. When the demand for online shopping increases, people still worry about logistics delays, supply shortages, and food safety. The analysis of the environment includes policy, economy, society, and technology. Confronting with the virus, many countries published policies to face this epidemic and many companies tend to develop online shopping. Besides, people were more likely to purchase online with the development and spread of the mobile phone as well as the mobile payment. It is discovered that some factors, like advanced technology, free delivery, lower price, and reviews from other customers, can be used to explain people's activities. Eventually, some solutions are mentioned to solve problems. To solve the lack of commodities, the store owners tend to sell them in advance through live telecasts. Moreover, to reduce people's anxiety about the safety of frozen food, a mobile tracking system is supposed to be built up and companies' epidemic prevention situation can also be shown.

**Keywords:** COVID-19 pandemic, E-commerce, consumer behavior, changing trends.

## 1. INTRODUCTION

### 1.1. Background

At the end of 2019, the coronavirus appeared for the first time. This respiratory disease with strong infectivity quickly spread throughout the world. Until now human beings are still living under the influence of the virus. To reduce the spread of the virus, various countries have begun to implement lockdown policies to close public places such as shopping malls and restaurants. These policies have had an impact and disruption on the real economy. But on the other hand, the closure of offline stores has led to the rise of online commerce. The focus of this paper is to analyse the impact of the epidemic on e-commerce through policies, economics, society, and technology. In the purpose of quickly recovering from the declining real economy that has been hit by the pandemic, policies such that encouraging digitalization of enterprises and designing business continuity

subsidies to expand sales channels have been introduced to help the development of e-commerce. From an economic point of view, converting the store from offline to online can reduce the cost of operation; the maintenance cost for the website or mobile device app is far less than the cost of rent and manual service. Similarly, the rapid development of e-commerce during covid-19 is also inseparable from technological and social factors. For instance, due to the restrictions of closure and social distance, online shopping has become the most convenient choice for people to buy things they want.

During the pandemic, many people tried online shopping for the first time and the proportion of online shopping increased compared to before the pandemic, and the proportion of online shopping did not drop significantly in the post-epidemic era, which gives a reason to believe that the pandemic has changed the consumer behaviours [11]. Also, firms make quick

responses to this change, and activities such as free shipping and discounts over certain purchases have been launched to stimulate consumers' purchasing power.

### **1.2. Related Research**

With the sudden outbreak of the epidemic in 2019, countries' economies were caught off guard, and more and more scholars began to study the impact of the epidemic on e-commerce. Some scholars believe that as a result of the epidemic, the frequency of people going out gradually decreases, people's social needs become less and less, and their shopping tendency gradually shifts from watching movies, traveling, and other outdoor activities to home shopping [1-4]. Shopping has also shifted from shopping malls to online shopping, which has become more frequent. Jilkova et al. People are more likely to use computer websites to browse shopping websites [5]. At the same time, COVID-19 has accelerated the transition from the real economy to e-commerce in almost every country and changed its share of global trade, with China's exports growing by about 3.6% to reach a record high of \$2.6 trillion in 2020, while imports fell by about 1.1%. However, in some developing countries, such as Bangladesh, the pandemic has not caused much change in consumer behavior [6]. Since 2015, the trade surplus has reached a record \$535 billion [2]. Other scholars have pointed out that people's demand for online shopping has increased sharply as a result of the epidemic, exposing logistics and supply shortfalls. Logistics delays and supply shortages, as well as whether food safety can be guaranteed, have many people worried [1, 7-9]. The trend of electronic commerce digital shopping is approaching. In this field with both challenges and benefits, managers need to enhance management awareness, look for opportunities to create value, constantly explore and improve, complete the reversal of disadvantages, turn losses into profits, and achieve greater benefits [10-11].

### **1.3. Objective**

This paper will analyze the impact of the epidemic on e-commerce from four aspects of politics, economy, society, and technology, and further, analyze consumers' shopping behavior and economic changes caused by the epidemic through data in more detail. Finally, this paper gives some personal views and opinions on the existing problems in e-commerce and provides solutions for managers and researchers in the field of e-commerce for reference.

## **2. PEST ANALYSIS**

### **2.1. Policy**

Affected by the epidemic, the economies of various countries have been affected to varying degrees, and e-

commerce has become a starting point for different countries to recover their economies as soon as possible so that national trade is not greatly affected. Therefore, countries have introduced different policies. Some governments in developing countries have intervened to protect the income of companies and individuals. In Africa, Senegal has carried out information, education, and advocacy activities on the benefits of e-commerce for all people [14]. In Asia, Indonesia has launched a capacity-building program to accelerate the digitization and digitization of micro, small and medium-sized enterprises. In Latin America and the Caribbean, the Costa Rican government has launched a platform for companies that do not have an online business and has launched smartphone applications and text messaging services to promote trade between producers of agricultural products, meat, and fish products [14]. Japan has designed a business continuity subsidy to help companies diversify and expand sales channels. South Korea also encourages brick-and-mortar stores to conduct business online through dedicated support programs [15]. China and Singapore actively support small, medium, and micro enterprises to access e-commerce platforms with regional or global influence and help them reduce costs or sell overseas through digital means [16].

### **2.2. Economic**

Economic development and e-commerce are highly interrelated and enhanced mutually. E-commerce could satisfy different people's needs, no matter their needs on food, house supply, daily necessities, or goods from other countries. There is a saying that there are only things you cannot imagine, not things you cannot buy. The notable development of online shopping greatly increases people's consuming capability, decreases in-person shopping and during the pandemic, people's shopping habits have changed, more and more people tend to shop online instead of going to an actual store. As a result of these factors, many companies are starting to focus more on online shops instead of offline stores. For instance, the chocolate company Godiva announced to close all the offline stores in America and Canada and switch to online operation. The advantage of opening an online store is that it cuts off the cost of maintaining offline stores, which greatly increases revenue. And the form of online shopping allows people to buy whatever they want anytime and anywhere, which greatly promotes people's purchasing power and promotes economic development. On the other hand, economic development has improved people's quality of life, and people are willing to spend more money to enjoy instead of just making a living. In this cycle, economic development and e-commerce are mutually beneficial.

### 2.3. Society

Society has a great impact on the development of E-commerce. But during the pandemic, the whole population of the world fluctuated greatly, hundreds of thousands of people are infected and died. Faced with this situation, people tend to be in lockdown, which offers an excellent opportunity for E-commerce. Not allowed to shop in offline stores, more people chose to buy things online for the basic need of life and entertainment. Another factor that impacts people's tendency that they are more likely to purchase things online rather than offline is people's thoughts. While being locked home, individuals tend to feel nervous and anxious due to the news and the words used to describe how terrible the virus is. In that case, people tend to surf the internet to buy some things they need. Until 2020, in the US, retail e-commerce sales reached 8611.2 hundred million dollars, a year-to-year increase reaching 44%.[19]And the users of online shopping and the sales volume in China also increase rapidly in 2020. Due to the reduction of the employment rate around the world. more poor people will appear as well as the low efficiency of the logistics impact on E-commerce. The global rate of unemployment will increase to 5.7% in 2022, according to the ILO.[20]With the strict requirements, logistics has to enhance examination and control, which slows down the transportation speed.

### 2.4. Technology

Internet and mobile communication are basic and indispensable components in the field of e-commerce, which serves as the essential bridge between consumers and companies. According to statistics collected up to January 2021, 5.22 billion people are using a mobile phone and 4.66 billion people use the Internet, which is equivalent to 66.6% and 59.5% of the world's total population [17]. On account of the extensive usage of the

Internet and mobile devices, individuals have an easy way towards online shopping. People can shop online anytime and anywhere even if someone is in quarantine, as long as there is an Internet signal. At the same time, the development and improvement of e-commerce payment infrastructures, such as PayPal, Alipay, and Apple Pay, make customers have a better shopping experience and shopping security, avoiding tedious payment procedures and default risk when refunding. Data encryption technology (e.g., Secure Electronic Transaction, Secure Sockets Layer) is used in the transaction process to ensure cyber security and sustainability. In addition, blockchains, cloud computing, machine learning, collaborative filtering technology, etc. are also used in e-commerce to improve data processing and clearing speed, adjust inventory levels and generate personalized recommendation shopping pages.

## 3. CHANGES AND IMPACT FACTORS

### 3.1. Changes in Consumer Behaviour

The sales of the e-commerce retail industry have started to grow steadily since 2014 and will continue to grow according to expectations. Under the influence of the pandemic, the growth rate of e-commerce retail sales in 2020 has reached 27.6% as shown in Figure 1, creating a new high in recent years. Although the growth rate has slowed after 2020, it has always maintained a positive growth trend. It can be shown in Figure 2 that some people have tried online shopping for the first time due to the impact of the pandemic. This can be inferred that the pandemic has changed consumer behavior. More and more people choose to shop online and retain their online shopping habits after the pandemic is over. It is predicted that despite the end of the pandemic, the proportion of e-commerce at this stage has increased compared with that before the pandemic.

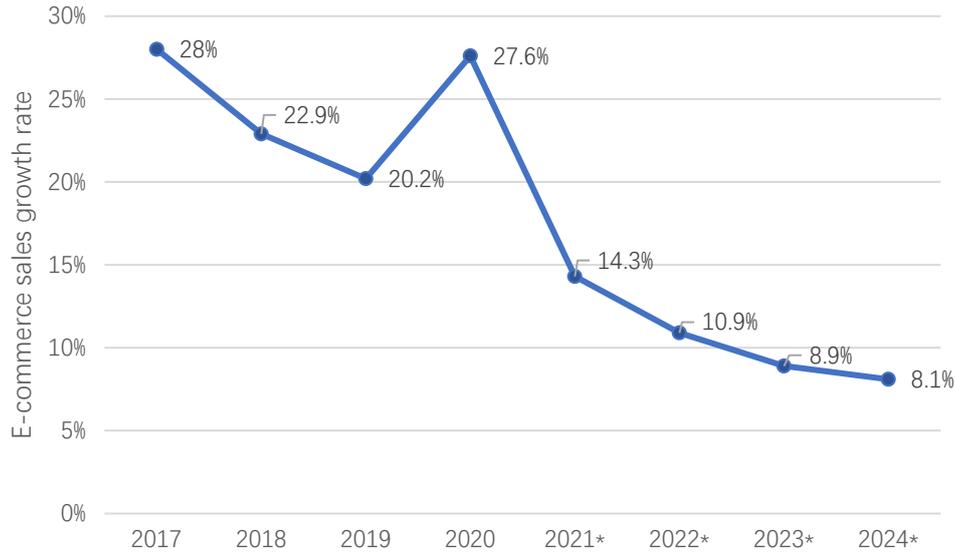


Figure 1 Annual retail e-commerce sales growth worldwide from 2017 to 2024 [12].

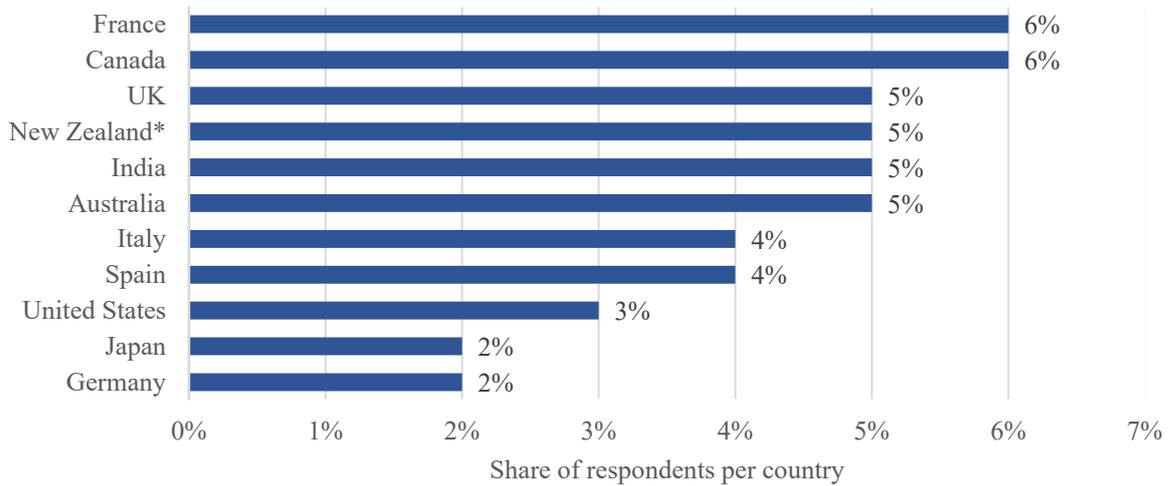


Figure 2 Share of consumers that shopped online for the first time since the coronavirus pandemic was declared in 2020, by country [13].

Therefore, what are the factors that stimulate people to make further online purchases during the epidemic? First of all, online shopping focuses more on mobile phone clients. Due to the increasing development of technology, mobile phones, and other mobile terminals have become an inseparable part of people's lives. Advertisements are placed by AI recommendations on everyone's mobile phones according to personal preferences, which greatly stimulates the desire to buy and increases the probability of impulse consumption. Second, portable mobile devices provide a more efficient process of selecting goods, paying, and delivering, which

completely cuts off the necessary waiting time and provides convenience for people's lives. Finally, the personal information left during online shopping, such as contact information, enables shopping websites to push new products or discounts to users later, and the order history makes it easier to re-order.

### 3.2. Impact Factors of E-Commerce

The crucial factors that have an impact on purchasing products online are figured out and shown in Figure 3.



**Figure 3** Leading reasons among internet users for purchasing a product when shopping online worldwide in 2020[18].

According to the statistic of the distribution of tons of factors, the most influential one is the free delivery, holding the distribution of 53%. The secondary one is coupons and discounts, followed by reviews from other customers as well as an easy returns policy. During the pandemic, delivery is becoming a significant factor for the transportation of the products, especially in the period that people are acquired to stay home. Besides, during the lockdown, the income of citizens reduces, and in that case, people tend to care about the prices. Another two factors are related to online platforms. Customers tend to post reviews online, which are likely to be seen by others. The easy returns policy of the platforms also offers customers convenience and profits. Regarding the determinants of the online shopping behaviors mentioned above, there are some relative examples to have a better understanding of the influence factors and inspire other merchants through the real cases. Some booksellers adopt an approach that buyers can get free delivery as long as they spend enough money the merchants have set, which not only can attract those who tend to have free shipping, but also earn more than the buyers have expected. Taobao, an e-commerce platform in China, takes a measure that consumers can get considerable discounts and coupons if they join in the activities held in Double Eleven Event. Cheap prices and fast expressing delivery speed in Taobao catch much attention of people and finally get 498.2 billion yuan in the 2020 Double Eleven Event. In addition, according to the relationship between revenue and reviews that have been found in Figure 3, online sellers can encourage buyers to write a comment about goods by sending discount coupons on the premise of ensuring product quality. It also suggests that the sellers should put more weight on strengthening the design and development of

web pages, increasing advertisement and AI product recommendations on tablets and desktops.

In general, the e-commerce turnover has grown at a slow rate before the pandemic. Under the stimulus of the pandemic, the turnover of online shopping has increased significantly. And due to the impact of the pandemic, people's consumption habits have changed. It is predicted that online shopping after the pandemic will also gradually increase, but the magnitude is not as large as during the pandemic.

#### 4. EXISTING PROBLEMS IN E-COMMERCE AND SOLUTIONS

##### 4.1. Lack of commodities

Regarding the deadly virus, the government suggested all the citizens stay indoors and avoid hanging outdoors, preventing them from being infected by the terrible COVID-19. It is even published that hanging out of the community or traveling to another city is forbidden. Receiving this announcement, people are supposed to stay home, which means that they cannot hang out to buy some necessities. The only way citizens can purchase what they need is to go online and choose what they want. In some aspects, this trend that more people went online to buy commodities has a beneficial impact on the development of e-commerce, fostering the increase of the bill online and bringing good news to the platform like Amazon and Taobao together with the online store owners. However, this condition has more than good news. With the burst of the deals, the shop owners had to offer enough commodities to satisfy the great quantity of the customers. The most significant problem is the lack

of goods. Take the masks, for instance, almost everyone is supposed to wear the mask, though the supplement of the mask couldn't catch up with the pace of the increasing need of the people. Therefore, in a short time, some necessities like masks and food were sold out online and the owners had to wait for the opening of the companies. In that case, the procedure of shopping online stopped.

Confronting with this serious condition, the flow line of e-commerce paused for a while. Fortunately, to continue their business, the online owners and the platforms came up with an excellent idea that it is supported to sign up for the bill and pay the earnest money in advance. To handle the worry of the customers, for example, someone may not trust the pictures or some may worry whether the money can be refunded if the deal fails, the platforms offer some policy to protect the buyers. Besides, the owners also offer an effective approach called live telecast, which gives their buyers a great opportunity to get to know some details of the commodities, encouraging them to pay the money in advance. In some cases, due to the lack of the commodities, the owners choose to give customers a guarantee like that they will send it in ten days so that the owners can arrange the priority of sending them. The fact can be the evidence that it is a fascinating solution to solve this hard condition.

#### **4.2. Distrust of Frozen Food**

However, the development of the e-commerce industry during the pandemic comes up against a great deal of resistance. In the light of the virus which may be carried in ice, people are concerned about food safety and prudent to buy frozen food online, especially cross-country or cross-regional frozen food. Scientific research on COVID-19 shows that coronavirus can still survive and remain active even below minus 20 degrees Celsius. In order to keep the food quality and avoid spoilage, the process of fresh food production and transportation is indispensable to low temperature, which supplies a favorable living condition for the virus at the same time. People have graver misgivings about the purchase of frozen food after hearing the actual infection cases caused by viruses on the surface of frozen food or in the ice of the food.

For the sake of alleviating the public's distrust in cold chain food, our research puts forward the following recommendations. First of all, e-commerce platforms or shopkeepers can develop a mobile tracking system to provide product traceability service for consumers. With the use of the tracking system, buyers can check the information of sources of raw materials, production place, transportation route, and quarantine information at any time under the premise of no leakage of the company's secret. What is more, it would be more convincing for consumers when companies disclose their epidemic prevention situation, such as the disinfection frequency

of the storage warehouse, the environmental virus detection results of cargo containers, workers' negative proportion of regular testing for COVID-19, etc. In addition, businesses had better pay close attention to the change of both global and domestic epidemic situations and adopt the logistics transportation routes through areas with mild epidemic situations to reduce exposure to the virus.

### **5. CONCLUSION**

This study has presented the impact of the epidemic on e-commerce by analyzing the changes and influenced factors of e-commerce and has provided solutions to the existing problems for managers and researchers in the field of e-commerce for reference. It has been found that Covid-19 has changed consumer shopping behaviors including spending more money on e-commerce and getting used to shopping online. Furthermore, the factors that determine the sales are free delivery, coupons and discounts, return policy, reviews on goods, etc. Although e-commerce has a promising future, there are still some problems to be solved and this paper provides some solutions accordingly. (problem1 and solution1). People are concerned about the safety of frozen food and our study suggests that merchants can develop a mobile tracking system for food to alleviate the public's distrust. Thanks to the pandemic, e-commerce enterprises can have a comprehensive understanding of people's needs, have an opportunity to improve their competitiveness, and will probably develop new directions and thoughts for the business in the future.

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