

# E-Commerce Under the Pandemic: What They Have Been Through?

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## ABSTRACT

E-commerce refers to the use of the Internet for commodity trading business activities, the realization of consumers online shopping, and online transactions between merchants. The difference between E-commerce and traditional transaction models is that the transaction activities are supported by information network platforms and do not require the two parties to meet. During the outbreak, this new trading model reduces the circulation and concentration of people, guaranteeing the wellness of both sides of the trade. E-commerce has gained new growth points and provided solutions for traditional enterprises seriously affected by the epidemic. In order to assess the impact of the epidemic on the development of E-commerce, this paper takes the Chinese market as an example and takes the Spring Festival as a turning point to analyze it from a macro perspective. Meanwhile, the mathematical model of cash flow prediction is established to explore the relationship between the maintenance time of enterprise capital flow and the company scale in a micro perspective, hoping to provide insights for the transformation line of traditional enterprises.

**Key words:** Economic Influence of the Pandemic, E-commerce, Online Teaching, Cash Flow of the Enterprise.

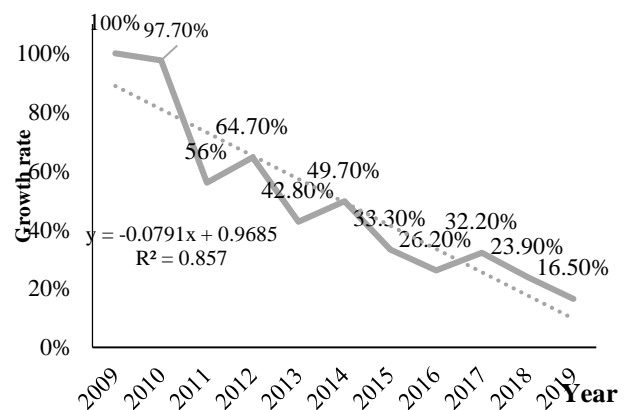
## 1. INTRODUCTION

In a cold and damp January of 2020, the outbreak of the corona-virus just broke everyone’s life routine. The streets may seem quieter than before, while E-commerce industries are boosting. We will analyze the impacts of the epidemic as follows: 1. The development of e-commerce industry. 2.The impact of the outbreak on online shopping Types. 3.The impact of the epidemic on consumption levels. 4.The influence of outbreak on network teaching. Comparisons will be made between the period in 2020 Spring Festival, that is before the pandemic and the period after the breakout. In addition, the relationship between company size and cash flow to support the operation time of enterprises will be examined to help shed light on the survival of the small and medium enterprises during the plight.

## 2. OVERVIEW OF THE DEVELOPMENT E-COMMERCE INDUSTRY

The proportion of mobile Internet users in China is as high as 98.6%. The continuous development of mobile Internet has become an important factor in

promoting e-commerce. In 2019, China's online retail sales reached 1.06324 trillion yuan, up 16.5 percent from the previous year [1]. The rapid growth of online retail scale in China has pushed up the overall retail market in China. But the trend has slowed in recent years.



**Figure 1** The Scale of Online Retail Transactions in China from 2009-2019

Common electric business model of B2B (Alibaba, for example, business to business transactions, the decrease of the intermediate links), B2C (Tmall and JD, for example, direct-to-consumer marketing products and services), C2C (in the case of Taobao, individual consumers for personal electronic commerce), as well as the emerging of new retail business model (comprehensive online sales). Among them, B2C e-commerce platform still holds an advantage. From the perspective of the B2C e-commerce market in 2019, Tmall occupies more than half of the market share, followed by JD. The industry concentration degree is at a high level. E-commerce, which belongs to the TOP5 platform, occupies more than 90% of the market share and is the dominant player in the whole e-commerce market.

In recent years, in addition to the mainstream e-commerce model, some social network e-commerce has emerged, which use social software to spread the information, through the means of social interaction to achieve the transaction of goods. The content-oriented social e-commerce represented by Tik Tok and Red Book is an emerging mainstream business model. On these platforms, users can post high-quality content to attract other users with similar interests to browse, thus achieving the purpose of targeted marketing. At the same time, users can quickly understand the mainstream of consumption, and even search for relevant product evaluation information, which is helpful to guide the development trend of rational consumption. They have some advantages that mainstream e-commerce does not have and have great potential for future development

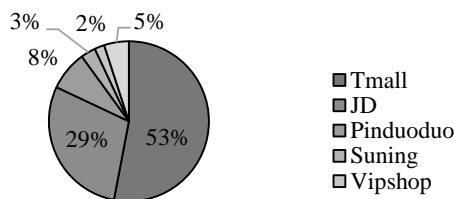


Figure 2 The Proportion of B2C E-commerce Platforms in 2019.

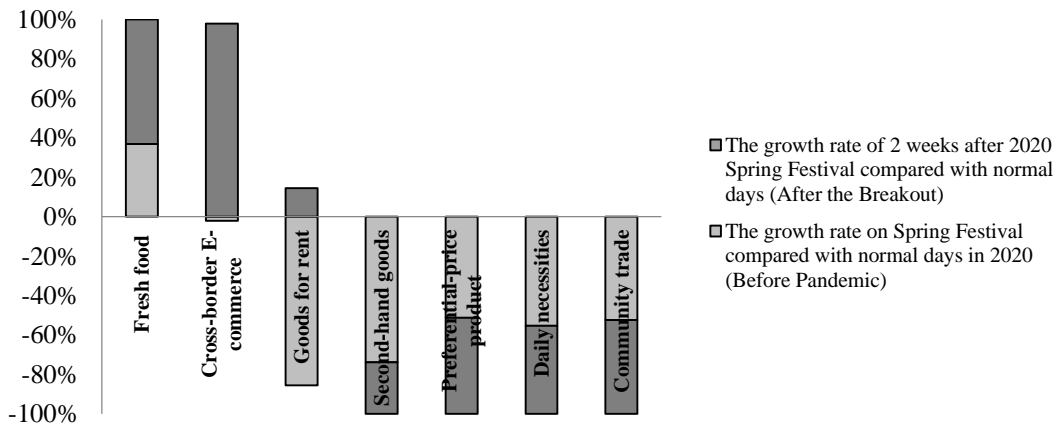


Figure 3 Changes in the proportion of shopping types before and after the outbreak.

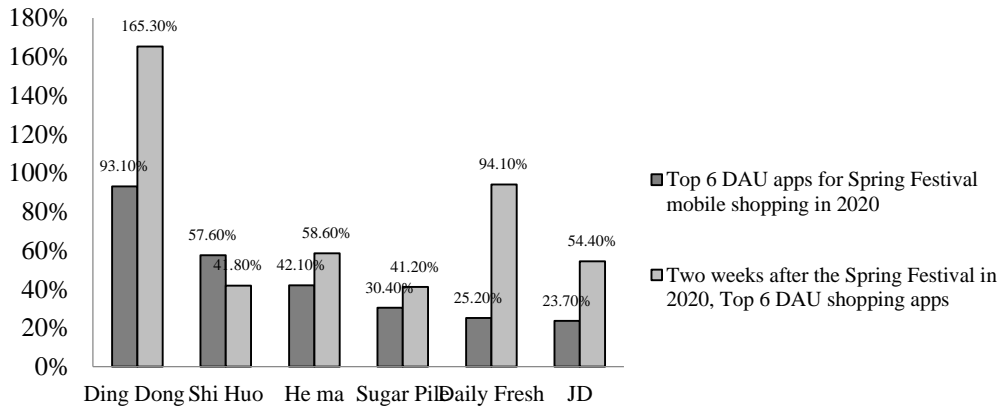


Figure 4 Changes of daily active users of the top six mobile shopping apps before and after the outbreak.

### 3. THE IMPACT OF THE OUTBREAK ON ONLINE SHOPPING TYPES

The original data are collected from the National Bureau of Statistics [2] and Tmall big data platform [3]. From the Figure 3: Throughout the country to fight the epidemic, shopping consumption demand and consumption patterns have changed. The usage time of fresh e-commerce and cross-border e-commerce users who can buy food protection products has increased significantly. From the Figure 4 As a result of the outbreak of the epidemic, the New Year goods and stock are exhausted. Therefore, people's demand for purchasing fresh dishes continues to rise, and fresh e-commerce continues to lead the rise. People's merchandise shopping direction toward fresh and protective equipment direction large-scale development.

### 4. THE IMPACT OF THE EPIDEMIC ON CONSUMPTION LEVELS

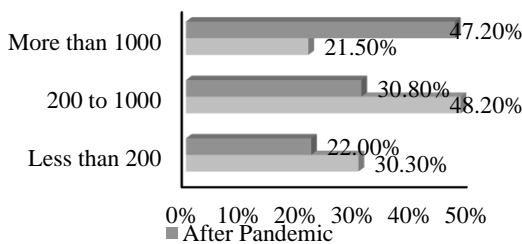


Figure 5 Changes in online consumption level structure before and after the outbreak.

Before the outbreak, only 22 percent were below 200, and 30 percent were between 200 and 1,000. During the epidemic, people's average weekly consumption moved to less than 1,000 yuan. We can make a reasonable guess here. At present, people's purchase direction is mainly daily life and protective equipment and other practical goods. Accordingly, consumption amount is

given priority to with small amount commonly. At the same time in the online sales of small goods, general quality will not have too much difference. And for expensive goods, generally in the physical store to buy primarily. And because of the outbreak, people return to work later. Since there is no source of income, there will be some restraint in consumption [4].

### 5. THE INFLUENCE OF OUTBREAK ON NETWORK TEACHING

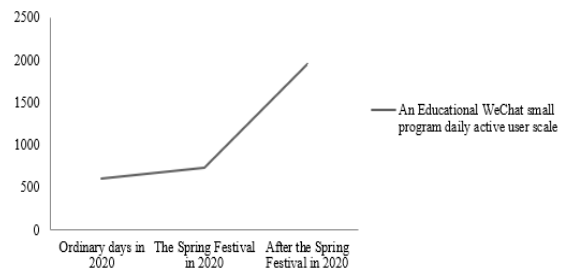


Figure 6 The average daily usage scale of an educational learning APP during the period.

In the week after the Spring Festival (After the outbreak), there is a surge in the demand for telecommuting and online learning. Each school responds to the country to work from home positively, suspend a class not to suspend a school and so on request, carry out "cloud study" and "cloud office". The epidemic situation has promoted the development of network teaching and opened a new era of information teaching. By June 2020, stock prices of 40% enterprises in the online education sector had risen by more than half its stock price.

The speed and transparency of information we have obtained during the epidemic have been greatly improved. The biggest feature of this outbreak is that it is habit-changing [5]. Even after the epidemic, people will reduce the frequency of crowded places, and

purchase online, which used to be intermittent consumption, now have become a lifestyle.

**6. THE RELATIONSHIP BETWEEN COMPANY SIZE AND CASH FLOW TO SUPPORT THE OPERATION TIME OF ENTERPRISES**

To know more about the current situation of E-commerce enterprises. There are 3286 observations of companies of different scales. The following table will show the distribution in detailed. We use the Cash Flow Forecast model to calculate the present cash flow:

**Table 1.** Frequency and percent frequency distributions of company scale

Company scale(person)	Frequency	Percentage frequency
<50	2419	73.62
50-99	380	11.56
100-199	229	6.97
200-499	144	4.38
500-1000	48	1.46
>1000	66	2.01
Total	3286	100.00

$$F(\text{Cash Flow Forecast}) = \text{Beginning Cash} + \text{Projected Inflows} - \text{Projected Outflows} = \text{Ending Cash} \quad (1)$$

As a result of the revenue decline and high operation expense, the enterprises are inevitably facing the cash flow squeeze. The following crosstabulation will tell the frequency distribution of the amount of time that cash flow can support for companies of different scales.

**7. ESTABLISH THE FORECASTING MODEL**

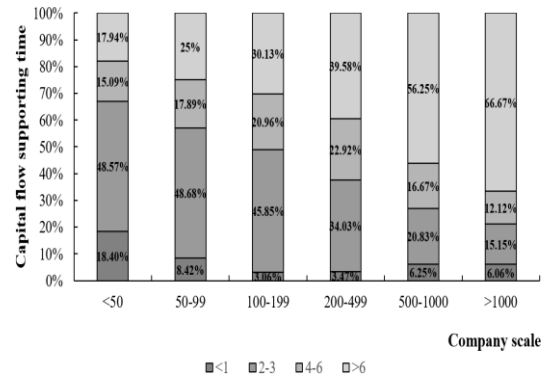
$$\text{Current Cashflow Supporting Time (Days)} = (\text{Liquid Asset} + \text{Operating Cashflow} - \text{Company Scale} * \text{Percentage frequency} * \text{Marginal Cost}) / \text{Avg. Expenses during Current Period} \quad (2)$$

Then convert the result of total days to months, we get the table 2

**Table 2.** Crosstabulation of company scale and capital

Company Scale (Number of Employee)	Cash supporting time(month)				Total
	<1	2-3	4-6	>6	
<50	445	1175	365	434	2419
50-99	32	185	68	95	380
100-199	7	105	48	69	229
200-499	5	49	33	57	144
500-1000	3	10	8	27	48
>1000	4	10	8	44	66
Total	496	1534	530	726	3286
Percentage	15.09	46.68	16.13	22.09	100

To visualize the relationship between company scale and the amount of time that cash flow can support, the following stacked bar chart is created.



**Figure 7** Stacked bar chart for capital flow supporting time and company scale.

If the situation continues, nearly 47% of enterprises will face the dilemma of capital chain rupture within two months. Notice that companies with large scale are more likely to have the ability to run the company longer. Companies with small scale usually have no collaterals so that it's hard for them to get a bank loan. Therefore, they have few money supplies and need to squeeze cost and improve the efficiency of capital operation. No matter large or small company scale, they should develop key initiatives and action plans to increase revenue and reduce expenditure, and make operational efficiency improvement plans. According to their own category trends, product characteristics, enterprise status quo, they should develop the enterprise's liquidity and ability to react wisely.

**8. CONCLUSION**

The epidemic has accelerated the transformation of people's living habits and informatization reform. Traditional habits have changed a lot since the outbreak. E-commerce for fresh food and community convenience stores are becoming part of residents' daily lives, and online education is providing universities with solutions to the epidemic. This will be a turning point in the integration of traditional manufacturing with the Internet industry in the future. Even after the epidemic, people will reduce the frequency of crowded activities. Online purchasing used to be a consumption habit in the past, but now it has become a living habit. The change of consumption structure and consumption types analyzed in this paper, combined with the cash flow model of enterprises, shed light on and provide theoretical support for traditional industries to transform into E-commerce.

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