

## Based on the 2019-Ncov, the Applicability of Swot Analysis -- a Case Study of the Aviation Industry

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**Abstract:** The international political situation is unstable and the economy is greatly fluctuated due to the new epidemic. At the same time, the impact on various industries is also very obvious, such as aviation. In this paper, the civil aviation industry as the research object, in the context of the new crown epidemic, using SWOT analysis, the strategic choice of this industry. The conclusions are as follows: First, the civil aviation industry is greatly affected by the epidemic; Second, Although affected, but for the future economic situation of civil aviation industry is optimistic. On the one hand, the research of this paper has expanded the SWOT analysis theory to a certain extent, and on the other hand, it has a great policy support for the development of civil aviation industry.

### 1. Introduction

COVID-19 has swept the world, with confirmed cases in more than 200 countries. By the forth quarter in 2020, total number of confirmed cases has reached 70 million and death number has reached 1 million. Most countries has taken containment measures such as city closure, stop working, isolation, reducing trade, restrict tourism and so on. Therefore, global economy has suffered a great impact. Up to February 15, 2020, the total number of tourists transported was 37.846 million, which reduced 43.9% from the previous year. Also, the passenger load factor on the day was only 44.16%, which was a 40.9% reduction from the previous year. Due to the declining trend of the tourism industry, the civil transportation has also been greatly affected. During the outbreak, the number of tourists decreased significantly and the number of flights also dropped sharply. Globally, airlines includes Virgin Australia and South Africa Airlines have declared bankruptcy.

The strategic management theory based on industry analysis, especially the SWOT method, has been studied by scholars at home and abroad for several decades. Andrews established a SWOT matrix analysis model by integrating the four factors of strength, weakness, opportunity and threat based on previous research results<sup>[1]</sup>.Kolter determined the attribute value of factors by attraction and probability of success, that is, the importance and occurrence probability of external factors were distinguished, while the actual situation and importance of internal factors were used to identify advantages and disadvantages<sup>[2]</sup>.Wheelen and Hunger summarized the four Factors in SWOT analysis as Internal and External Factors, and established EFAS (Synthesis of External Strategic Factors) and IFAS(Synthesis of Internal Strategic Factors) Internal Strategic Factors<sup>[3]</sup>.Mikko introduced AHP into the SWOT model, studied the importance of each strategic influencing factor, sorted it according to its weight value, and quantified the ranking of each internal and external factor affecting enterprise strategy, so as to carry out strategic combination<sup>[4]</sup>.In addition, domestic scholars such as Niu Zhende and Pan Jun discussed the rationalization of SWOT analysis, analyzed the rationalization of competitive environment, and proposed the problems existing in the rationalization application process<sup>[5]</sup>.Wang Zongjun, Jiang Yuantao designed a new SWOT based intelligent dynamic strategic decision support system structure framework<sup>[6]</sup>;Xu Fei, yuki think innovation such as SWOT matrix mainly includes industrial level, organization level and the analysis of the market level and so on three aspects, combined the target group 3 level of competitiveness of core technology innovation matrix, target group industrial competitiveness of core technology key success factor matrix, competitors, industry core technology innovation competitiveness critical success factors innovation matrix and customer demand matrix, that target

the competitiveness of core technology innovation SWOT matrix<sup>[7]</sup>; Song Jicheng and Pan Jianwei, on the basis of analyzing the limitations of SWOT assumptions, proposed that the model improvement should start from the enterprise capability, pay attention to internal and external relations, and fully recognize the mutual transformation of advantages, disadvantages, opportunities and threats. In the fierce competitive environment, SWOT analysis should focus on the future and innovation. Strategy selection should focus on strategic innovation<sup>[8]</sup>.

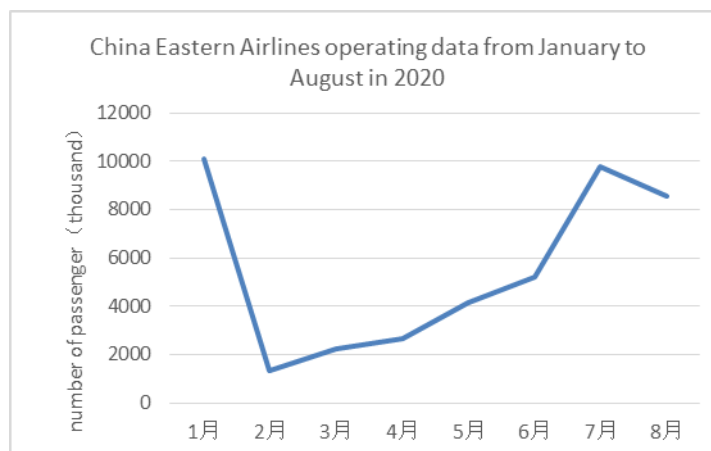
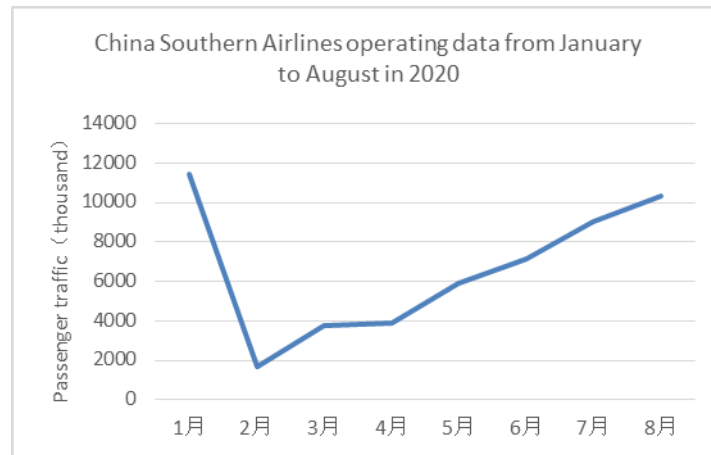
Based on the above practical background and theoretical basis, we find that the existing literature is biased to quantitative research on SWOT theory, and all studies are conducted at the level of industry, organization and country. There are few in-depth studies on SWOT theory based on industry analysis and qualitative research methods. At the same time, in the research background, SWOT analysis method is widely used in the stable economic form, but it is not clear whether SWOT analysis is applicable in such special environment under the new crown epidemic situation. Therefore, this paper studies the applicability of SWOT method in the aviation industry under the background of the new crown epidemic. In theory, it provides a basis for the expansion of SWOT theory under special circumstances. In practice, it can provide empirical support for industry research.

## 2. Data and Method

### 2.1 Data

In this paper, the data are all from civil aviation statistics of the Ministry of Transport of the People's republic of China, the operating data announcement of China Easter Airlines(in graph 1), the operating data announcement of China Southern Airlines(in graph 2)and the operating data announcement of China International Airlines. They are rich and authoritative. The data sample selected in this paper are from January to August 2020, which mainly include the transportation turnover of China Civil Aviation and the volume of tourists' transportation. From January 2020, during the outbreak, total transportation turnover and tourist's transportation of China Civil Aviation decreased rapidly due to the implement of isolation and closure policies. Among them, total transportation turnover declined from 101 billion ton-km to 25.2 billion ton-km. Moreover, total tourist traffic declined from 5060.2 thousand people to 834 thousand people. Since then, the situation became better and gradually returned in July and August on account of timely identifying and controlling epidemics. As for passenger numbers, related enterprises include China Southern Airlines, China Eastern Airlines have similar trends and both of them fell to their lowest point in February, which are conformed to the trend of China Civil Aviation. Furthermore, the data experienced a slight fluctuated between March and August, but the overall trend is still up and close to the volume of traffic in January.





## 2.2 Method

This paper uses case study, there are three reasons: first. This research aims to answer the impact of COVID-19 on China Civil Aviation(CAAC), which belongs to “impact” problem. It is suitable for case study and CAAC to further analysis the impact of COVID-19 on the whole aviation industries; second, this research aims to explore the impact on CAAC, which needs data to support. As a result, qualitative research is more suitable to analyze existing data and providing a reasonable explanation; third, due to the sudden occurrence of COVID-19, research in this field is still limited. This study explores the impact of COVID-19 on CAAC in order to further reveals the impact on aviation industry.

The reason of selecting civil enterprises in China as a case study is based on the following three criteria: first, it is representative and essential. During the outbreak, every industries encountered various effects. Among them, CAAC as a strategic industry of China’s developing has suffered a large impact, in line with the principles of representativeness and importance; second is theoretical sampling principle. This research mainly use SWOT to analyze this field. There are only a few papers analyzing by this method, which accords with the principle of case study; third is the consistency of enterprise’s theoretical goals and its practice. In order to establish our country into a powerful civil aviation country, the research and response of the development environment must be valued. As a strategic leading industry in China, CAAC has been significantly affects by the epidemic. Consequently, COVID-19 as a micro-environment change is consistent with the theoretical objectives of CAAC.

To sum up, this study follows the research logic of theory proposed-model combination-results analysis to make strategic analysis of civil aviation industry.

## 3. Results and Discussion

SWOT analysis is to provide internal and external competitive environment and competitive conditions under the situation analysis, where “S” is strength, “W” is weakness, “O” is opportunities, “T” is threats. As a strategic industry in China, strength, weakness, opportunities and threats can be investigated in CAAC via SWOT in order to observe the impact of COVID-19 on civil aviation enterprises.

Table 4 Swot Analysis Model

Strength	Weakness
1.Domestic epidemic is under control. Flights can run normally	1.Number of tourists has decreased significantly, the number of flights has also decreased and their incomes have decreased; 2.The epidemic abroad is not optimistic
Opportunities	Threats
1.Less competitors; 2.Support of national policy	1.External situation is dim so that international flights have met a decline, global aviation market situation is unfavorable; 2.Increased cost

### 3.1 S: Domestic Epidemic is under Control. Flights Can Run Normally

“S” refers to the internal advantages of the enterprise relative to its competitors. Up to December 16, 2020, the number of confirmed cases in China is only 1687, of which the number of confirmed cases in Hongkong and Taiwan is 1371. The number of cases in mainland is relatively small, and most of them are imported cases. This situation shows that the domestic outbreak is still in control, which means the civil aviation industry will not suffer a huge blow. Also, though the number of flights cannot return to normal level, it is still in a gradual rise.

### 3.2 W: Number of Tourists Has Decreased Significantly, the Number of Flights Has Also Decreased and Their Incomes Have Decreased

“W” refers to the internal disadvantages of the enterprise relative to its competitors. From February to April, when the epidemic is most severe, flights were required to stop flying to satisfy the needs of city closure so that widespread transmission of COVID-19 can be avoided within a big region. As a result, only a small amount of flights can run normally in order to ensure the necessary need of people.

The epidemic abroad is not optimistic. As of December 16, 2020, the number of confirmed diagnoses in the world is as high as 22, 970, 877. At this stage, the epidemic has not eased, which posed a serious blow to international flights. The number of international flights has decreased considerably due to the necessity of epidemic control.

### 3.3 O: Less Competitors

“O” refers to favorable factors in the external environment of the enterprise. The civil aviation industry has been hit hard. Within the globe, airlines such as Mexico’s largest airlines-- Aeromexico, Latin America’s largest airlines-- LATAM, Southern Indian Ocean major airlines-- Air Mauritius and so on declared to enter bankruptcy protection stage or termination operations.

Support of national policy. During the period of epidemic prevention and control, in order to encourage non-suspension or resumption of international flights, the central finance gives financial support to the civil aviation transportation industry. The Subsidies are targeted at Chinese and foreign airlines which operate schedule international passenger flights or perform major transportation missions. Each airlines applies in accordance with declaration and examine procedure.

### 3.4 T: External Situation is Dim So That International Flights Have Met a Decline, Global Aviation Market Situation is Unfavorable

“T” refers to the adverse factors in the external environment of the enterprise. Since the global epidemic has not improves, in order to further implement the epidemic prevention and control, CAAC controls the number of arrivals strictly and implements strict isolation and Nucleic Acid Detection measures. As the increase in cases imported from overseas, the number of international

flights is restricted, which brings inconvenience to civil aviation.

Increased cost. Because of the influence of COVID-19, normalization of epidemic prevention and control reduces passenger traffic and increases the cost of cleaning, checking and disinfecting the plane. At the same time, the cost of personal protective devices, the cost of cleaning staffs and others also increase costs. Low passenger traffic and high operating costs let airline profits decrease

#### 4. Conclusion

In the context of COVID-19, as the situation of global aviation market is not optimistic, civil aviation industry in China will also be affected. However, although it is still in the dilemma of low income, with the situation of epidemic in China becoming better and the number of passengers recovered, domestic flights can still operate normally. At the same time, due to the support of national policies and reduction in competitors, in spite of China's civil aviation industry can not turn losses into profits, the situation after the epidemic is still favorable.

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