

# Comparative Analysis of the Brazilian and Indian Aerospace Industries

Xiaoyue Peng

Dongbei University of Finance and Economics, Dalian 116025, China.

---

**Abstract:** At present, the international competition is increasingly fierce, how to enhance the national competitive advantage has attracted much attention. This paper takes the aerospace industry as a specific research object, taking Brazil and India as examples. Use the Porter's Diamond model to determine the operations of the Brazilian and Indian aerospace industries from factors, context for firm strategy and rivalry, related and support industries, demand conditions, government and chance, respectively. By analyzing and comparing the different competitive advantages and potential weaknesses of the two countries, different suggestions are given.

**Keywords:** Aerospace; Competitive advantage; Porter's Diamond Model

---

## 1. Introduction

At present, international competition is becoming increasingly fierce, and the complexity of the world market and business environment is both an opportunity and a challenge for every country. In this context, comparative country analysis is necessary. In this report, Brazil and India are taken as examples to conduct a comparative country analysis of national and aerospace industry level research, and the essential differences of national markets and business environments, their competitiveness and comparative advantages are analyzed by using Porter's diamond model. Finally, suggestions are put forward to improve the competitiveness based on the analysis results.

## 2. Overview of Chosen Industry

Aerospace industry is a typical technology intensive and high value-added industry. This industry usually includes the production enterprises as well as the research, design, sales, and management departments. Because the aerospace industry needs to adopt contemporary advanced scientific and technological achievements, it is often an industry that reflects the level of a country's technology and industrial development. Therefore, the aerospace industry as the research object to study the national industrial development level is very representative. Business Research data shows that the global aerospace industry has a market value of \$298.01 billion in 2020 and \$327.96 billion in 2021. Overall, the global aerospace market showed a downward trend, with a compound growth rate of -0.3% (CAGR) falling since 2015 (Deloitte, 2021). However, the development of the aerospace industry in developing countries shows a growing trend. Among them, Brazil and India are both typical examples of rapid development.

Brazil is the largest aviation market in Latin America. Brazil is an important aerospace industry exporter around the world. According to the recent AIAB results, its export revenue is about BRL 6 billion (Igor, 2014). Brazil's aviation industry has more than 90 airlines in 61 countries, the third largest commercial aircraft manufacturer. In business aviation, Brazil has delivered more than 850 aircraft in 50 countries (Rossetti, 2010).

Globally, India has 91 international airlines that have established air connections with 59 countries through 344 air routes. The country's air traffic volume has been growing rapidly, as compared to the global average. In India, the aerospace industry is the country's best promising industry sector (Raunaq, 2020). According to the International Air Transport Association, passenger growth is expected to reach 442 million by 2035, and the aviation industry will support 19.1 million

jobs and contribute \$172 billion to the country's GDP (International Trade Administration, 2021).

### **3. Porter's Diamond Model-Comparative analysis**

#### **3.1 Factor**

Brazil has a total area of 8,514,900 square kilometers, ranking fifth in the world. The aerospace industry has a large demand for land area. Abundant in mineral resources. The rich natural resources provide Brazil with raw materials for the aerospace industry, forming a natural competitive advantage. Brazil has a relatively complete infrastructure in aviation. According to the General Aviation Association of Brazil, General Aviation plays a strategically key role in the development of Brazil's transport and logistics through 5,568 cities through 2,567 airports across Brazil.

India is a populous country, rich in cheap labor, has a low cost of producing parts and has a competitive advantage than other countries. The availability of low cost engineers and scientists has attracted global players to build up captive R & D units in India. Besides, India has a scientific infrastructure. India has proposed an ecosystem that can ensure quality and improve performance in the overall effectiveness of business operations. In the third and latest edition of the FDI's "Future Aerospace Cities 2020-21" ranking, Hyderabad was ranked first in the "Top 10 Cost-effective Aerospace Cities" category by FDI Intelligence.com (a division of the Financial Times Group (AVIA,2021).

#### **3.2 Context for firm strategy and rivalry**

Currently, 11 domestic air transport companies in Brazil are certified to operate regularly in the country, and 72 foreign companies are certified to operate regularly in the country. The US owns the majority of these companies, followed by Argentina and Colombia, with seven, five and four companies, respectively. The participation of foreign companies intensifies the local competition, which can promote the development and innovation of domestic enterprises and form a competitive advantage (Barry, 2013).

The market in India is dominated by multinationals like Boeing, Airbus and by government organizations like ISRO and NASA, even though the number of players is very low. The products are not much differentiated and the cost of switching is low. The level of investment needed is very high as well as the barriers to entry and exit. The growth in the Asia-pacific, especially the Indian, market is expected to be very high which makes the market very attractive.

#### **3.3 Related and support industries**

Ground Service Providers (GSP) play a key role in supporting Brazil's aviation industry. Currently, it accounts for 40% of the potential service types in Brazil. According to the International Air Transport Association, the world average is 50%, indicating that the country is going on the right path to achieve this goal. This market segment grew by 30%, as compared to December 2018. Brazil has 120 GDP, and together they create more than 42,000 direct jobs. The Brazilian Aerospace cluster gathers more than 100 companies, totaling more than 15,000 jobs. Companies in the cluster do business in engineering, avionics, mold, logistics, industry and manufacturing, defense, security, and space. Related industries have gathered to form a scale effect (ITA,2021).

India's aerospace industry development has strong industry support. As India is rapidly modernizing its military sector, the aerospace and defense industry is expected to consume \$70 billion to \$72 billion in electronics over the next decade and reach agreements with two industry associations, the National Association of Software and Service Companies and the Electronics and Semiconductors Association of India (AVIA, 2021). Suppliers are usually smaller and more numerous, and thus have less bargaining power. Because the level of investment required is beyond their financial capacity, suppliers are less threatened by long-term consolidation (Roger, 2019).

#### **3.4 Demand Conditions**

Brazil's domestic market has a high demand for commercial air travel. Brazil has a huge commercial aviation market, ranking fifth in the world in terms of annual domestic flights in 2020, carrying 92 million passengers. Brazil saw 20107

million passenger trips in 2019, up 1.2 percent from the previous year. Domestic and international passenger traffic declined significantly in 2020 due to the pandemic. However, the three major domestic airlines reported 70-80% of pre-pandemic operations in the fourth quarter of 2020, making industry observers optimistic that domestic shipments will return to 2019 levels by mid-2021 (CAPA, 2021).

Demand is high in the Indian military aerospace industry. According to the Stockholm International Peace Institute, the five largest military spending countries in 2020 are the US, China, India (\$72.9 billion), Russia and Britain; these account for 62% of global military spending. India has the world's third-largest armed force and plans to spend billions of dollars on defense procurement over the next few years. India not only has a high domestic demand for military aerospace equipment, but also a high international order demand for India's military aerospace industry orders. India's commercial aerospace demand is also rising. Domestic air travel demand continued to rise in October 2020, up 33 percent from September to about 5.2 million people (Tang, 2011).

### **3.5 Government**

Brazil's government has enacted a slew of policies to boost the country's aerospace industry, including direct investment, tax breaks and other incentives, protective tariffs, and import restrictions. The Brazilian government has made a few short-term investments in new enterprises, goods, and services in the industry. As part of its crime-fighting efforts, the state government of Sao Paulo, for example, is investing in drone technology to assist in the identification of offenders. The Brazilian government is also attempting to gradually cut, if not completely eliminate, the international passenger tax. Customers are price sensitive, thus taxation will increase demand.

The Indian government has provided policy assistance to the country's aircraft industry. In May 2020, the Indian government stated that the Indian private sector would be able to join in the Indian Space Research Organization's space activities and plans, signaling a policy paradigm shift. Various government reform initiatives in India have taken a step ahead in reaching targets such as raising foreign direct investment to 74 percent through automated procedures in the defense sector. According to 80 businesses, foreign direct investment inflows in defense and aerospace had crossed Rs 34.54 billion (US \$463.55 million) as of June 2020. (Sinha, 2017)

### **3.6 Chance**

Driven by suppressed demand, an effective COVID-19 vaccine could drive up passenger traffic in Brazil. The COVID-19 outbreak has led to certain changes in passenger behaviour, with more focus on short-distance and domestic travel and increased demand for domestic air travel. However, public safety problems can lead to instability in the national economy. Uncertainty over the trade dispute also continues to threaten Brazil's economy. Perhaps potential investors are on the sidelines of Brazil's economic performance before making any commitment to entering the market (CAPA, 2021).

Domestic demand for goods has increased significantly. India's shipping industry is enjoying new growth opportunities. According to the most recent MoCA announcements, the Indian government's privatization of Air India will be completed by December 2021. However, most companies have already completed their bids. The second wave of pandemic that hit India in the summer of 2021 delayed privatization, which caused a financial blow to NAirlines (Zsidisin, 2019).

## **4. Observations of Competitiveness**

### **4.1 Challenges**

As the Brazilian aviation market continues to recover from the COVID-19 pandemic, market dynamics are changing. Brazil faces market restructuring challenges in the aviation industry, and some small airlines are highly likely to be acquired. Increased uncertainty in the market is highly likely to trigger chaos within Brazil's aerospace cluster (Materna, 2015).

India faces challenges from potential new entrants. Airasia and Esharehad Airways are also likely to enter Indian airspace as the government allows 49% foreign direct investment. Given the capital-intensive nature of the industry, the availability of capital could be a game changer for the sector. In the long run, airlines without access to foreign or other investment could be

hit hard (Platinumessays, 2014).

## 4.2 Recommendations

The Brazilian government funded to nationalised small airlines. Capable large state-owned airlines can also serve as an opportunity for market integration to acquire small airlines and increase their own market share. Stabilize the market and maintain the stability of the cluster by increasing the nationalization proportion of the aerospace industry.

The Indian government can raise the entry threshold, and foreign companies will need to invest more capital to enter the Indian market. Laws will be introduced to protect local enterprises.

## 5. Conclusion

This essay first summarizes the overall situation of aerospace industry. It then outlines the economies of Brazil and India. Porter's diamond model is used to compare the operations of the Brazilian and Indian aviation industries in terms of factors, corporate strategy and competitive environment, relevant and supporting industries, demand conditions, governments and opportunities. According to the competitiveness watch, Brazil faces potential challenges from market restructuring, while India faces challenges from potential entrants. To improve its competitive edge, Brazil should increase its state share of the aerospace market, while India should raise investment barriers to protect its industry by law. In short, the development of a national industry is closely related to the national conditions, but also to the horizontal comparison in the global environment. Research on specific industries needs to pay attention not only to its development within the country, but also to its comparative competitive advantage on a global scale. Seize the opportunities, identify potential threats, and improve your competitive advantage.

## References

- [1] AVIA (2021) Indian Aerospace Industry - Upward & Onward, Available from: <https://www.aviapromsolutions.com/indian-aerospace-industry-upward-onward/#:~:text=In%20India%2C%20the%20aerospace%20industry%20is%20growing%20significantly,manufacturing%20activities%20are%20expected%20to%20be%20carried%20out>. (Accessed 26 April 2022).
- [2] Barry, J. (2013) 'Supply chain risk in an uncertain global supply chain environment', International Journal of Physical Distribution & Logistics Management, Vol.34, No.9, pp. 695–697.
- [3] CAPA (2021) Airlines jockey for position in changing Brazilian market Available from: <https://centreforaviation.com/analysis/reports/airlines-jockey-for-position-in-changing-brazilian-market-579513> (Accessed 26 April 2022).
- [4] CAPA (2021) Brazil: aviation market ripe for more growth and some promising signs Available from: <https://centreforaviation.com/analysis/reports/brazil-aviation-market-ripe-for-more-growth-and-some-promising-signs-500880> (Accessed 26 April 2022).
- [5] Deloitte (2021) 2021 Aerospace and defense industry outlook Available from: <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/energy-resources/us-eri-aerospace-defense-industry-outlook.pdf> (Accessed 26 April 2022).
- [6] International Trade Administration (2021) India - Country Commercial Guide Available from: <https://www.trade.gov/country-commercial-guides/india-aerospace-and-defense#:~:text=According%20to%20the%20International%20Air%20Transport%20Association%20%28IATA%29%2C,and%20contributing%20%24172%20billion%20to%20the%20country%E2%80%99s%20GDP>. (Accessed 26 April 2022).
- [7] Igor, U (2014) Brazilian Aerospace Industry, Available from: <https://thebrazilbusiness.com/article/brazilian-aerospace-industry> (Accessed 26 April 2022).
- [8] International Trade Administration (2021) Aerospace Defense Market Resource Guide - Brazil, Available from:

<https://www.trade.gov/country-commercial-guides/india-aerospace-and-defense#:~:text=According%20to%20the%20International%20Air%20Transport%20Association%20%28IATA%29%2C.and%20contributing%20%24172%20billion%20to%20the%20country%E2%80%99s%20GDP.> (Accessed 26 April 2022).

[9] Materna, R. (2015) Aerospace Industry Report. USA: Lulu.com

[10] Platinumessays (2014) Porter's Analysis of Indian Aviation Industry

Available from: <https://www.platinumessays.com/essays/Porter's-Analysis-of-Indian-Aviation-Industry/15904.html>

(Accessed 26 April 2022).

[11] Roger, M. (2019) The Indian Aerospace Industry 2019. Gallen: BrainNet.

[12] Rossetti, C. (2010) 'On the dark side of strategic sourcing: experiences from the aerospace industry', Academy of Management Executive, Vol. 19, No. 1, pp.46–60.

[13] Raunaq, R. (2020) India: Performance of Aerospace and Defence Industry. Oxford: Tecnova.

[14] Sinha, P. (2017) 'Methodology to mitigate supplier risk in an aerospace supply chain', Supply Chain Management, Vol. 9, No. 2, pp.154–168.

[15] Tang, C. (2011) 'The power of flexibility for mitigating supply chain risks', International Journal of Production Economics, Vol. 116, No. 1, pp.12–27.

[16] Zsidisin, G. (2019) 'An analysis of supply risk assessment techniques', International Journal of Physical Distribution & Logistics Management, Vol. 34, No. 5, pp.397–413.