Case on Domestic Air Passenger Transport Market in Brazil

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Abstract. The Brazilian civil passenger transportation market has reversed a six-year downturn trend in the second semester of 2019, according to the National Civil Aviation Agency (ANAC). Approximately 815.9 thousand flights and 117.6 million domestic and international passengers were carried out, from which 93.6 million passengers (79.6 percent) were domestic passengers, transported in 489 aircraft. This case investigated the domestic air passenger airlines and aircraft through extensive archival research and content analysis. Key findings pointed out the aircraft manufacturers Airbus and Boeing holding 77.5 percent of the total passenger aircraft in Brazil. Regarding the major airliner, the leading company is GOL, and LATAM, responsible for 35.7 percent, and 31.9 percent of the domestic air passenger flights in Brazil, respectively. Evidence was found on the demand and supply by the measurement of RPK (Revenue Passenger Kilometers), increased by 4.4 percent, and ASK (Available Seat Miles) by 4.6 percent in the same period. In sum, analysis evidenced an increase of both supply and demand regarding the period under investigation. Also, this case is useful for students, civil aviation agents, academics, managers, decision-makers, and practitioners in general. Discussion and future research recommendations compile the present study.

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1. Introduction:

This study investigated the domestic air passenger transport market in Brazil, as the unit of analysis (Yin, 1994). It aims to call into question (i) the Brazilian airlines, and their current performance (RPK and ASK) RPK (Revenue Passenger Kilometers) and ASK (Available Seat Miles) are the key performance indexes in civil aviation. (ii) comparison of the aircraft operating in Brazil, amongst the leading five major international aircraft manufacturers: Fokker (discontinued operations in 2015); EMBRAER; Boeing; ATR, and Airbus. In the present research, it was adopted a multi-method approach, such as extensive archival research combined with a descriptive case study (Yin, 1994), as well as direct observation. Secondary data was gathered from the National Civil Aviation Agency (ANAC) (ANAC, 2020), and from the International Air Transport Association (IATA), which is the trade association for the world's airlines (IATA, 2020; IATA, 2019).

Recent body of research has motivated the deepening of civil aviation studies in Brazil: air transportation in Brazil (Dias, M.O., 2019); Congon has Airport - CGH (Dias, M.O., 2020); Guarulhos International Airport - GRU (Dias, M.O., 2019a). Brasilia International Airport - BSB (Dias, M.O., 2019b); Rio

de Janeiro International Airport Galeão/Tom Jobim - GIG (Dias , M.O. & Albergarias, 2019); Santos.

Dumont Airport - SDU (Dias, 2019c); Also, air passenger transportation in Latin America (Dias, M.O & Pessanha, 2019), cargo transportation in Brazil (Dias, M.O Lopes, & Teles, 2020), and the aircraft industry (Cruz & Dias, M.O, 2020), international airport network (Dias, M.O., Lopes, & Teles, 2020). The Brazilian domestic market, per company, is illustrated in the following Figure 1.

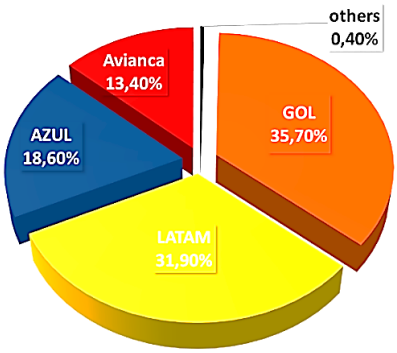

Figure 1. Principal Brazilian Airlines. Source: (ANAC, 2020).

Observe in Figure 1 that GOL and LATAM are responsible for 67.6 percent. Note also that, due to bankruptcy, Avianca Brasil, officially Oceanair Linhas Aéreas, subsidiary of the Colombian Avianca Holdings, was prohibited by the ANAC to fly in Brazil, until it proved the to be able to transport passengers safely, on May 24, 2019 (ANAC, 2020). Therefore, in 2020, the market shall absorb Avianca's share, once this article is written, Avianca did not show any forecast for returning to the Brazilian passenger transport market, this far. Avianca Brasil faces a judicial reorganization to date (ANAC, 2020).

The evolution of the domestic flights in Brazil, in the last decade (2009-2018), is depicted in the following Figure 2.

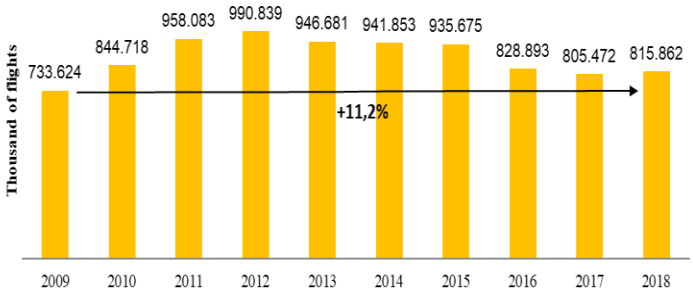

Figure 1. Flights in Brazil (2009-2018). Source: (ANAC, 2020).

Observe in Figure 2 that the average variation within the period was 11.2 percent. However, the sector is still eight percent below the best performance in 2012, when almost one million flights took off/landed in Brazil.

Approximately 93.6 million passengers flew to the following Brazilian destinations, as illustrated in the following Figure 3:

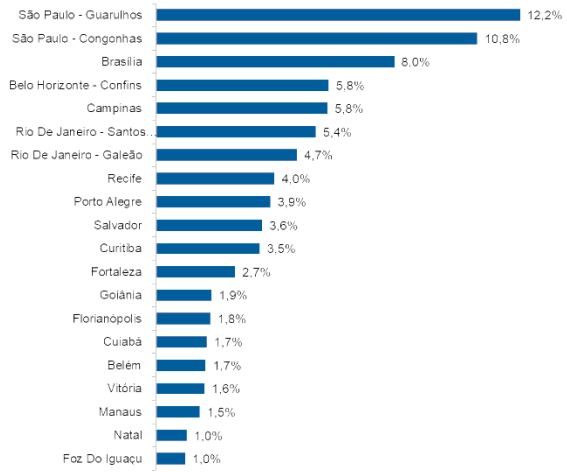

Figure 2. Principal Brazilian destinations. Source: (ANAC, 2020).

Observe in Figure 3 that the premier destination, the São Paulo Guarulhos International Airport is also the busiest airport in Brazil, as depicted in the following Figure 4, the ten busiest airports in Brazil:

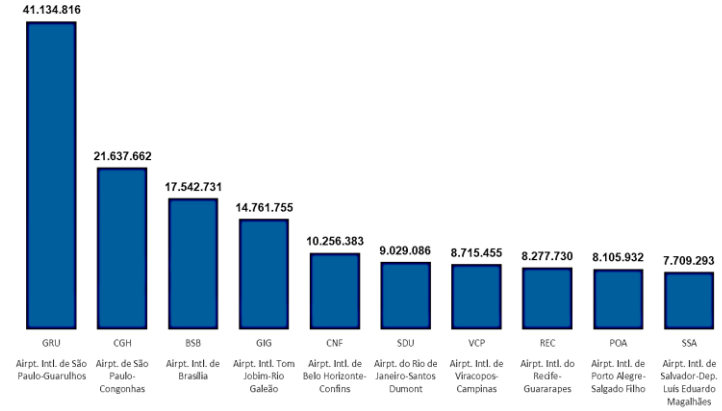

Figure 3. Ten busiest Brazilian Airports. Source: (Infraero, 2019).

In comparison to Figures 3 and 4, observe that the Rio de Janeiro International Airport is the fourth busiest airport in Brazil (instead of Confins in Figure 3), due to the international flights. Figure 3 considers only domestic flights. Finally, in the next section, the research methods and limitations are presented.

2. Research methods and Limitations:

The present research combined qualitative multi methods approach, such as extensive archival research, and single, descriptive case study, in which unit of analysis is the Brazilian domestic flight market (Yin, 1994). This work is compiled of inductive reasoning and interpretive approach.

This case is limited to the Brazilian civil air passenger transportation, regardless of other air transport modals, such as cargo freight transportation. Military or executive private jets transportation are not investigated in the present work. It is also limited to the N=3 major airlines operating domestic flights in Brazil.

Other airport activities, such as (i) food court administration; (ii) parking lot administration; (iii) shopping centers; (iv) cargo terminal logistics operation, among others, are not investigated in this research. N=10 airports were investigated, as well as secondary data from the National Civil Aviation Agency (ANAC), in turn, submitted to the Ministry of Transport, Ports and Civil Aviation. Therefore, this article is limited to Federal Law 11.182, from September 27, 2005 (Brasil, (2005), who created ANAC.

Finally, this study is limited to the international Federal Aviation Administration's (FAA) and the International Air Transport Association's (IATA) international regulations (ANAC, 2020).

In the next section, the results of the Brazilian domestic air transportation market are presented. Finally, this study is limited to the international Federal Aviation Administration's (FAA) and the International Air Transport Association's (IATA) international regulations (ANAC, 2020). In the next section, the results on the Brazilian domestic air transportation market are presented.

3. Leading airliners operating domestic flights in Brazil

In this section, the three major airlines in Brazil are presented. According to the ANAC, the most relevant aircraft manufacturers in Brazil are the following: Airbus, Boeing, Embraer (Brazilian manufacturer), and ATR. The Dutch Fokker no longer has aircraft operating in Brazil, since 1996, when it bankrupted. The last Fokker's aircraft ended their operations in 2015, as illustrated in the following Figure 5:

Manufacturer	2014	2015	2016	2017	2018
Airbus	183	195	195	189	193
ATR	76	78	56	54	47
Boeing	184	186	171	166	186
EMBRAER	89	91	76	74	63
Fokker	11	7	-	-	-
Total	549	561	498	483	499

Figure 4. Aircraft manufacturers in Brazil. Source: ANAC, 2020.

Observe in Figure 5 that currently, there are 499 aircraft operating in regional flight in Brazil (domestic ones), from which Airbus has the most significant number of aircraft operating in the country (ANAC, 2020). Figure 6 shows the distributions of the aircraft per airline:

Figure 5. Aircraft distribution per airline. Source: (ANAC, 2020).

Airline	Airbus	ATR	Boeing	Embraer	CESSNA	Total
Latam	119	0	37	0	0	156
Azul	27	36	2	63	0	128
Gol	0	0	121	0	0	121
Avianca	47	0	0	0	0	47
Sideral	0	0	15	0	0	15
Two	0	0	0	0	10	10
MAP	0	5	0	0	0	5
Passaredo	0	5	0	0	0	5
Absa	0	0	4	0	0	4
Modern	0	0	4	0	0	4
Total Linhas Aéreas	0	1	3	0	0	4
Total	193	47	186	63	10	499

4. Leading airlines operating domestic flights in Brazil

4.1. GOL Linhas Aéreas SA:

GOL Linhas Aéreas SA is the major airliner in Brazil, as discussed before (see Figure 1).

GOL was founded on August 1, 2000, the first airline founded in the XXI century, after acquiring the former VARIG company, the late 2000s. Currently, the GOL fleet is entirely comprised of Boeing 737 (GOL, 2020), as illustrated in the following Figure 7:

Aircrafts	Qty	Passengers	Purpose
Boeing 737-700	23	138	domestic and international routes
Boeing 737-800	105	177-186	domestic and international routes
Boeing 737 MAX 8	7	186	domestic and international routes inoperating due to FAA decision
Boeing 737 MAX 10	—		order cancelled
Total	135		

Figure 6. GOL fleet. Source: (GOL, 2020).

Observe in Figure 7 that the seven aircraft Boeing 737 MAX 8, recently acquired from Boeing in 2017 are grounded by the international aviation authorities, due to the two fatal crash accidents, until Boeing improve safety conditions on the aircraft. They are parked at Confins (CNF) airport (Minas Gerais state) currently. In consequence, Boeing 737 MAX 10 orders are suspended (Cruz & Dias, M.O., 2020). Boeing has announced in January 2020 the discontinuing the 737 MAX fabrication (Cruz & Dias, M.O., 2020).

4.2. LATAM Airlines Group:

LATAM is the name of the company resulting from the merger between Chilean LAN Airlines and

Brazilian TAM Linhas Aéreas, on Aust 13, 2010. LATAM is the biggest airline in Latin America (LATAM, 2020). LATAM's fleet is depicted in Figure 8, as follows:

Aircrafts	Qty	Passengers	Purpose
Airbus A319-100	78	144	domestic and international routes
Airbus A320-200	206	174	domestic and international routes
Airbus A321-200	35	220	domestic and international routes
Total	319		

Figure 7. LATAM's fleet. Source: LATAM, 2020

Compare Figures 6 and 8. LATAM's fleet has 156 aircraft in total (see Figure), and 319 in Figure 8. The discrepancy is given that Figure 6 contains aircraft currently flying in Brazilian regional flights only, while Figure 8 includes aircraft for LATAM'S international routes (both in Brazilian and Chilean). In sum, while GOL has chosen Boeing to operate in Brazil, LATAM opted for Airbus, regarding domestic flights for long-distance, international flights, LATAM has 67 Boeing aircraft (GOL, 2020).

4.3. AZUL Linhas Aéreas Brasileiras SA:

Founded on November 7, 2008, by the former creator of the Jet Blue company, David Neeleman, Azul is the third largest airline in Brazil. Azul currently has 128 aircraft. In May 2012, Azul merged with Trip Linhas Aéreas (Azul, 2020). The total Azul fleet for domestic flights is shown in Figure 9:

Aircrafts	Qty	Passengers	Purpose
Boeing			
737-400F	2	174	domestic flights
Airbus			
A320neo	39	174	domestic / international flights
ATR			
72-600	33	70	domestic flights
Embraer			
190	6	106	domestic flights
195	47	118	domestic flights
195 E2	5	136	domestic flights
Total	132		

Figure 8. Azul's fleet. Source: (Azul, 2020).

In sum, for domestic flights, while GOL has chosen Boeing 737s primarily, LATAM opted for Airbus A320s, and Azul has chosen mainly Embraer, and ATR (after the merger with Trip Airlines), in less proportion, both Boeing and Airbus. In the next section, the analysis and discussion are presented.

5. Analysis and Discussion

The Brazilian civil aviation market seems to be recovering from the downturn in the domestic flights, which had its peak of operation in the last decade in 2012 (see Figure 2). To date, 95.6 million passengers were carried (1.3 percent increase regarding the previous year), in 815.9 thousand domestic flights (3.3 percent of the increase, for the same period).

Both demand metrics - RPK (Revenue Per Kilometer), as well as supply - ASK (Available Seats per Kilometer), increased 1.3 percent and 3.3 percent, respectively, according to the ANAC, (2020). It also indicates an increase in the average travel distance, Figure 10 illustrates the supply metric (ASK).

Analysis indicated that an increase in RPK was definite for the Brazilian airlines in general. In sum, more passengers are using airlines' services, shown in Figure 11.

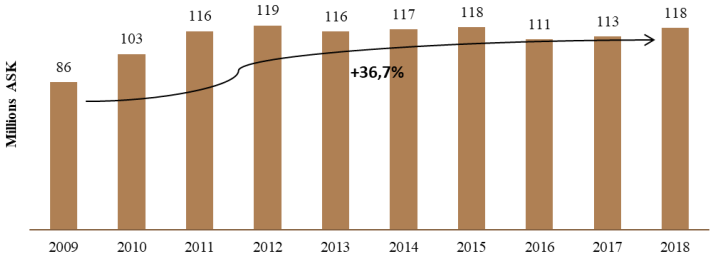

Figure 9. ASK variation (2009-2018). Source: ANAC, 2020.

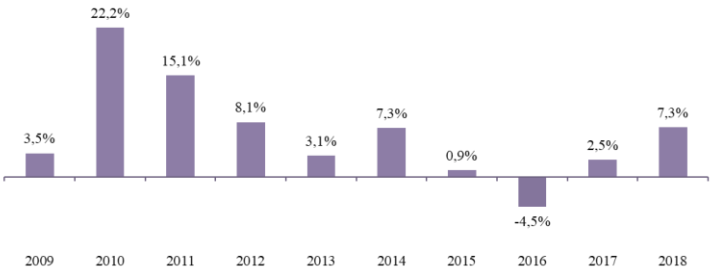

Figure 10. RPK ASK variation (2009-2018). Source: ANAC, 2020.

Analysis indicated that in 2016 (light red in Figure 11) showed a decrease of -4.5 percent. Maybe influenced by the worst political and economic crisis in the recent Brazilian history, which culminated with the impeachment from former president Dilma Rousseff, in 2016.

Finally, the analysis indicated that almost half of the 93.6 million passengers flew through the wealthiest region in Brazil: the southwest region. The most traveled route in Brazil is the air-bridge Rio de Janeiro-São Paulo (both in the southwest region), transporting more than four million passengers in 2018 (Dias, M.O., 2019c).

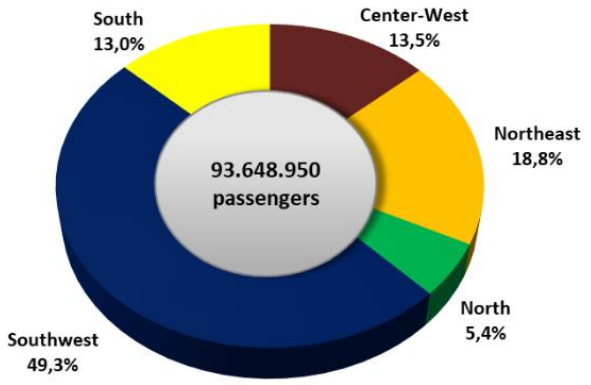

Figure 11. Flight distribution per region. Source: ANAC, 2020.

Regarding the net revenues, the Brazilian airlines had in 2018, a loss of USD 500 million. Among the four largest companies, only the Azul company presented a positive net result in 2018 ANAC, (2020).

This research has the merit of gathering different sources of information in one single study, deepening the understanding of civil aviation in Brazil. Also, this case is useful for students, civil aviation agents, academics, managers, decision-makers, and practitioners in general. In the next section, future research recommendations.

6. Future Research

Future research is encouraged to throw more light on the perception of the passengers with the services offered by the Brazilian airlines. Studies on the level of satisfaction with the onboard services, for instance. Studies are also recommended on case revisiting, especially to investigate the impact of Avianca's prohibition of operating on domestic flights in Brazil.

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