

Original Research Article

Air Transportation in Brazil: Guarulhos International Airport

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Abstract: On January 2020, the busiest airport in Brazil and South America, the Guarulhos International Airport (*Aeroporto Internacional de São Paulo/Guarulhos – Governador André Franco Montoro*) - or simply GRU (IATA), completes 35 years of existence. Civil aviation history in Brazil, however, backs to 1936 when the Santos Dumont Airport (SDU), was founded in Rio de Janeiro, former Brazilian capital. This article presents a descriptive case study on GRU airport, and its importance to the Brazilian civil transportation. Key findings point GRU reaching 41.2 million people transported in 2018. Analysis GRU performance over the last decade showed GRU losing the position of the busiest airport in Latin America to Mexico International Airport in 2015, with a forecast of passenger transportation near 60 million passengers in 2030. Discussion and recommendations for future research compile this work.

Keywords: Aviation, Civil transportation, Brazilian, Airport.

INTRODUCTION

This article investigated the Brazilian air passenger transportation, regarding Guarulhos International Airport (*Aeroporto Internacional de São Paulo/Guarulhos – Governador André Franco Montoro*, hereafter simply GRU), as the unit of analysis [1]. GRU Airport is located in São Paulo state, southeastern Brazil. Multiple methods approach was employed in this qualitative research, including a descriptive single case study, direct observation, and archival research. This work was motivated by previous research on the subject [2-4]. GRU Airport is currently the busiest airport in Brazil and South America, as illustrated in the following Figure 1:

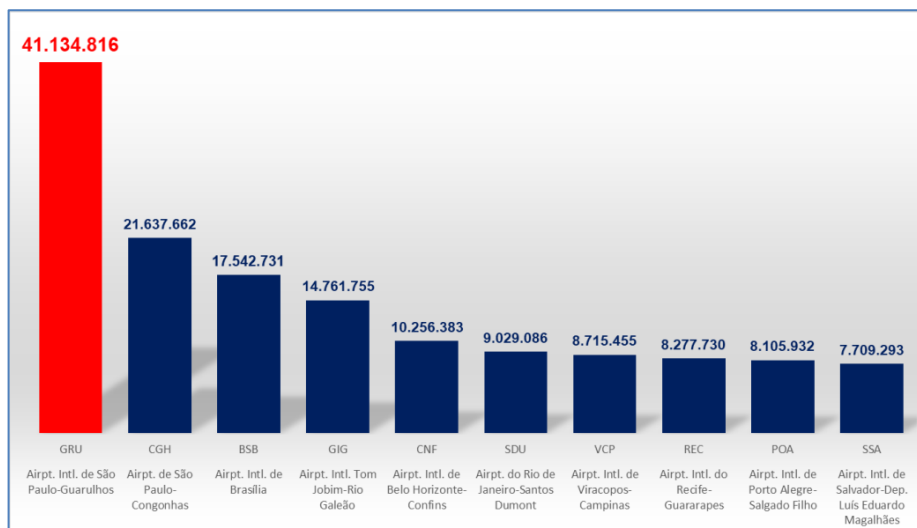


Fig-1: Ten busiest Airports in Brazil. Source: Infraero, 2019

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Guarulhos International Airport was first conceived to substitute Congonhas Airport (CGH) in 1951, due to the lack of CGH's capacity to support ever-increasing aircraft, as well as international flights. GRU is the second busiest airport in Latin America, as illustrated in the following Figure 2:

#	Airport (position on December 2018)	Location	Country	2018	2017	2016	2015	2014
1	Mexico City International Airport	Mexico City	Mexico	47,700,547	44,732,418	41,710,254	38,984,587	39,573,000
2	São Paulo-Guarulhos International Airport	São Paulo	Brazil	42,831,981	37,765,898	36,596,326	38,433,078	34,255,739
3	El Dorado International Airport	Bogotá	Colombia	32,716,468	30,989,932	31,041,841	29,956,551	27,430,266
4	Cancún International Airport	Cancún	Mexico	25,202,016	23,601,509	21,415,795	19,821,796	18,146,405
5	Jorge Chávez International Airport	Lima	Peru	23,659,196	22,046,042	20,816,957	19,596,485	18,134,768
6	Comodoro Arturo Merino Benitez International Airport	Santiago	Chile	23,324,306	21,426,871	19,286,158	19,279,644	17,455,353
7	São Paulo-Congonhas Airport	São Paulo	Brazil	21,546,480	21,859,453	18,943,231	17,575,919	17,261,873
8	Brasília International Airport	Brasília	Brazil	17,622,873	16,912,680	17,947,153	17,230,567	16,170,035
9	Tocumen International Airport	Panama City	Panama	16,242,679	15,616,065	16,103,011	16,942,229	16,068,242
10	Rio de Janeiro-Galeão International Airport	Rio de Janeiro	Brazil	15,005,304	16,243,253	14,741,937	13,434,673	12,782,167

Fig-2: Ten busiest Airports in Latin America. Source: IATA, 2019

Observe in Figure 2 with the following the rising importance of MEX airport regarding civil transportation in Latin America. Figure 3 demonstrates GRU airport in comparison to MEX airport:

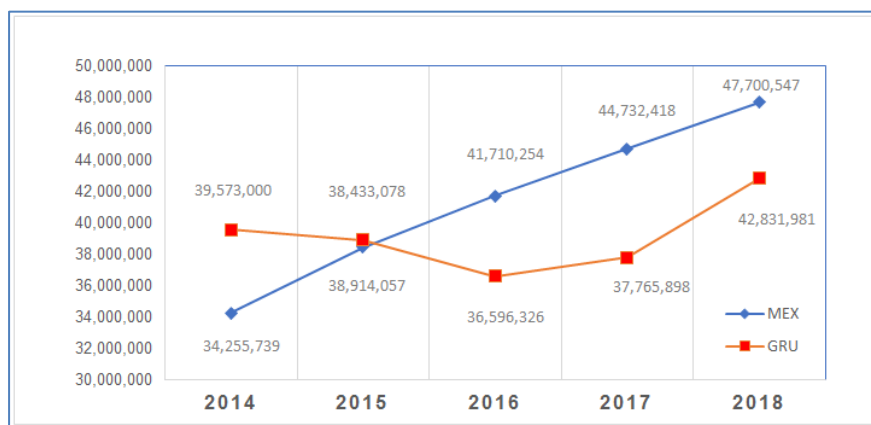


Fig-3: Comparison between GRU and MEX over the past five years. Source: IATA, 2019.

Observe in Figure 3 that GRU airport lost its importance as the busiest airport in Latin America in 2015 to MEX international airport. In this article, it is discussed why such events took place, regarding government concessions, FIFA 2014 World Cup, 2016 Olympics, and other major economic events that shaped the current situation. The next section presents the methods employed, as well as the research limitations.

METHODS AND LIMITATIONS

The present study is qualitative research, cross-sectional, inductive reasoning, compiled of multiple methods, including descriptive, single case study, in which unit of analysis is the GRU Airport, in São Paulo state, the wealthiest and most populous state in Brazil [1].

This research investigated the N = 597 airports in Brazil, according to the illustrated in the following Table 1:

Table-1: Airport Network in Brazil, per state. Source: Infraero, 2019

State	Federal	State	Municipal	Concession	Private	FAB (Air Force)	Brazilian Army	Total
Acre	2	0	9	0	0	0	0	11
Alagoas	1	0	4	0	0	0	0	5
Amapá	1	0	4	0	0	0	0	5
Amazonas	3	0	6	0	0	0	0	9
Bahia	2	3	1	5	0	0	0	11
Ceará	1	0	24	1	0	0	0	26
DF (Capital)	0	0	0	1	0	0	0	1
Espírito Santo	1	0	6	0	0	0	0	7
Goiás	1	0	25	0	0	0	0	26
Maranhão	4	0	30	0	0	0	0	34
Mato Grosso	1	0	40	0	0	0	0	41
Mato Grosso do Sul	3	0	20	0	0	0	0	23
Minas Gerais	7	0	36	4	0	0	0	47
Pará	6	0	22	0	0	0	0	28
Paraíba	2	0	13	0	0	0	0	15
Paraná	4	0	39	0	4	0	0	47
Pernambuco	3	0	10	0	0	0	0	13
Piauí	2	0	8	0	0	0	0	10
Rio de Janeiro	4	0	10	2	2	3	0	21
Riop Grande do Norte	0	0	7	0	1	0	0	8
Rio Grande do Sul	4	0	65	0	0	0	0	69
Rondônia	1	3	5	0	0	0	0	9
Roraima	2	0	7	0	0	0	0	9
Santa Catarina	3	0	17	4	1	0	0	25
São Paulo	3	21	30	8	10	3	1	75
Sergipe	2	0	2	0	0	0	0	4
Tocantins	2	0	15	0	0	0	0	17
Total	65	27	455	25	18	6	1	597

Out of these, N= 590 airports are civil (98.8 percent), and seven are military ones (1.2 percent). One of the limitations of the present research is the focus solely on civil airports. Military airports are not investigated in the present research. Also, only the n=10 busiest ones were investigated, from which GRU, the busiest airport in Brazil is the unit of analysis of this descriptive single case study [1]. Moreover, the N=10 busiest airports in Latin America (See Figure 12), were investigated to provide a comparison and to portrait the Brazilian civil aviation in passenger transportation within the international scenario.

Secondary data were collected through archival research on central Brazilian Federal government databases [8] and further analyzed through content analysis. The sample under investigation (N=590 civil airports – see Table 1) gathers (i) federal; (ii) municipal; (iii) state; (iv) concessions, and (iv) private civil airports.

In this regard, the unit of analysis [1], GRU airport, is a 20-year concession to the consortium GRU Airport, since 2011, as described in the following sections. This article is also limited to civil air passenger transportation. Cargo transportation, shopping center, or parking lot administration, are not objects of appreciation in the present work.

BACKGROUND

In 1960, the large aircrafts required even larger runways, due to technological improvements on aviation; Congonhas's (CGH) runways were limited, capable of receiving only domestic and a few international flights from South America [8].

However, only in the 70s, the project gained importance. On September 15, 1975, former São Paulo Governor Paulo Egidio signed a public utility decree for the expropriation of some 60 km² of land in Ibiúna. Nevertheless, a series of lawsuits involving the choice of the region prevented the project from following through on that occasion.

The airport master plan was conceived between in the early 1980s and was approved in 1983. The project was designed so that the airport could meet the demand for domestic flights from Greater São Paulo (with the exception of Rio de Janeiro Air Bridge). Sao Paulo), receives international flights from South America and serve as an alternative to Viracopos Airport (VCP), at Campinas, São Paulo countryside [8].

GRU was designed initially with two runways, respectively 3,000 and 3,500 m distance, to operate simultaneously. However, due to the terrain and other local infrastructure conditions [8], they cannot work in parallel, as Brasília International Airport, the only airport in Brazil where the two runways operate simultaneously [2].

The passengers' terminal was designed to serve 7.5 million passengers per year. The civil constructions started on 11 August 1980 [8], built by Camargo Corrêa and Constran consortium, at the cost of approximately USD 82.5 million [8].

GRU was inaugurated on January 20, 1985, when a flight from New York landed at GRU airport, which had only one runway at the inauguration. The second runway was inaugurated in 1989 [8].

Later, on January 2011, former president Dilma Rouseff decided to grant GRU airport to the private initiative, through a public contest, won by the consortium Invepar and Airports Company South Africa, which combined offered BRL 16 billion (approximately USD 4 billion), to obtain the concession until 2032. The consortium holds 51 percent of the airport administration, while INFRAERO, Government Company kept 49 percent of the total GRU administration [8].

GRU airport terminal 3 is depicted in the following Figure 4, as follows



Fig-4: Terminal 3 at GRU. Source: Infraero, 2019

GRU airport runways are illustrated in Figure 5, as follows



Fig-5: GRU runways. Source: Infraero, 2019

Observe in Figures 4 and 5 the result of the infrastructure works that expanded GRU capacity to welcome 42 million passengers per year, destined to accommodate the 2014 World Cup, when the construction the Terminal 3 was built after 18 months of construction and was inaugurated on May 11, 2014 [8]. Figure 6 illustrates the distribution of passengers in GRU, between domestic and international flights, from 2014 to 2018, as follows:

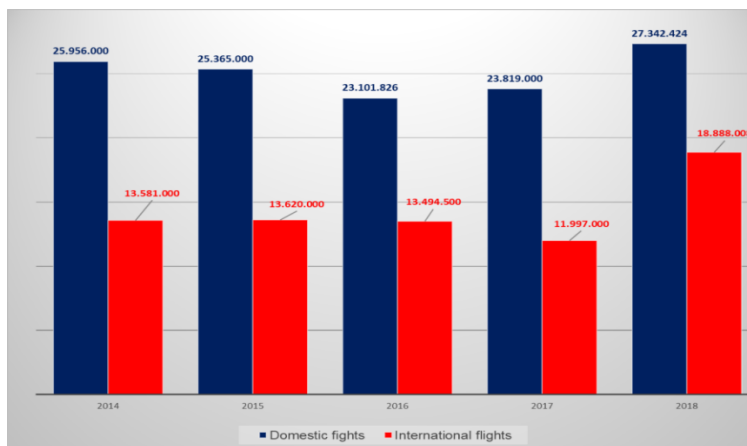


Fig-5: GRU domestic x international flight distribution (2014-2018). Source: Infraero, 2019

DISCUSSION

Civil aviation in Brazil started when the first civil aviation airport in Brazil, Santos Dumont Airport (SDU), was inaugurated in 1936. However, São Paulo, in the second half of the XX century, became the wealthiest city in Brazil, currently with 45 million inhabitants. Moreover, after WWII, intercontinental flight activities demanded aircrafts suitable to the new technological requisites, which increased civil aviation transportation. Examples are larger runways for landings and take-offs.

GRU has currently a 24-hour indoor parking, which facilitates access. However, due to the traffic between GRU and the Center São Paulo, can take two hours bus, which represents a challenge to be solved in future research. Connections GRI to CGH and VCP can be lost because of traffic in the areas. There is a poor connection service between the airports, supported by the airlines operating in the aforementioned airports.

There are about 4,000 parking spaces in the main parking lot and Terminal 4. Besides, Terminal 3 has a garage building with a capacity of 2,600 parking spaces on eight floors, occupying an area of 89,000 square meters. In total, the airport complex offers around seven thousand parking spaces. However, the terminals are not connected by trains. Shuttles are available but represent a 30-min walk until reaching bus terminals. In sum, GRU airport needs civil works on infrastructure of the older terminals, to leveling the services to the new terminals.

Finally, future research is encouraged on GRU expansion and performance to the next five years.

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