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Dr. Guilherme Bridi (IPA), Bel. Taciana Lucia Fialho (IPA), Dr. Manuela Polidoro Lima (PUCRS)
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The baggage allowance policies and its relationship to rates applied on domestic flights
Dr. Guilherme Bridi (IPA), Bel. Taciana Lucia Fialho (IPA), Dr. Manuela Polidoro Lima (PUCRS)

Tourism and Events Department Methodist University Center- IPA Brazil

Abstract:-

The analysis of the scenario before and after consolidation of the new Brazilian civil aviation rules, with emphasis on the pricing rules that involves the check in luggage rules stipulated by airlines. It was carried out a price analysis with a weekly search into the airline web sites. After that, will be presented the pricing behavior in the context of post-consolidation of the new rules. After that data collect was statistically analyzed, indicating that, 89.5% of the routes suffered an average increase after adoption of the new pricing rules, which directly opposes to the official speech, which indicated that there would be a reduction of prices. Thus, the Brazilian civil aviation context identified could be considered a reversal of the real policy of the low cost / low fare models, becoming a different model, being then called the low cost / HIGH fare airline models.

Keywords:- Airlines; New pricing rules; Civil Aviation; Rates; Baggage fees.

1 INITIAL CONSIDERATIONS

This article has as its central theme the analysis of the new rules of the Brazilian civil aviation, which entered into force on April 29th, 2017, observing the pricing behavior pricing adopted by airlines into a pre and post context of implementation / execution of these new rules, which includes an extra charging fee for each checked luggage. The survey was conducted in a period of six months, from March to September 2017. The main purpose of this research aimed to answer the following questions: Assuming that the new baggage allowance charging rules may provide a reduction in fares applied by airlines, the pricing charged to airline tickets rates changed its configuration from the moment that the new rules came into effect? Was there a reduction of the average prices applied to the flights surveyed?

The main objective is to analyze the pre and post scenario of the consolidation of the new rules of the Brazilian civil aviation, with emphasis on new policies of franchises baggage stipulated by Brazilian carriers, comparing the pricing behavior and aiming to present
relevant developments of this new situation, such as if there were any price reduction. The specific objectives are: Present registered data about the discourse adopted by airlines as a possible explanation for implementing these new rules; Provide an analysis of prices in the context of pre and post consolidation of the new rules of the Brazilian civil aviation, from a weekly search into AVIANCA LATAM, GOL and AZUL portals; Present a possible ticket price policies changing context, after the consolidation of these new rules.

On the global context, specially after the 2000’s, carriers are developing a new way of doing business, unbundling their products as a strategy to reduce costs. This happens in a context that indicates that profitability is becoming a rare privilege for airlines during the past few years, due to the high levels of competition and the economic recession of the last decade. (O’ CONNEL AND WARNock-SMITH, 2013).

Into this very same logic, U.S carriers began to unbundle their services during the 2000’s, including the charging of baggage fees as a new source of income. Considering U.S airlines market context, the polices that included and extra fee charging on tickets gained popularity when American Airlines started this new model in the middle of 2008, then being followed by other carriers such as United Airlines, Continental and Delta Airlines. On the following years, airlines income from baggage fees increased in about seven times (SCOTTI, DRESNER AND MARTINI, 2016).

Therefore, in order to follow U.S and global carriers trends to reduce costs, National Agency of Civil Aviation – ANAC developed new rules for Brazilian civil aviation, which came into force on April, 29th, 2017, after several law obstacles. These rules are urging many discussions and doubts into society members, once they imply price changing rules, especially regarding on checked baggage fees as a tool for reducing prices of the airline commercial flights tickets in general terms.

On the past few decades, airlines in Brazil had some sort of agreement with the Brazilian Company of Airport Infrastructure (INFRAERO), regarding checked baggage allowances. For domestic flights, it was possible to check for free a 50-pound luggage for each passenger, and a 15-pound carry-on luggage. Therefore, it is possible to consider that these new rules will cause a true changing in a traditional way of flying of the Brazilian airline’s customers.

All of these reasons justify the idea of producing this sort of research, once it instigates such an important matter on the current Brazilian situation and its relation to global trends.

On first, will be brought an initial perspective on the current model of airlines business in Brazil and in the entire world, the low - cost low fare model, which is exactly the
model that has as its core business unbundling services to provide news sources of profitability.

1.2 CURRENT MODEL OF AIRLINES BUSINESS - LOW COST - LOW FARE

The drastic economic and technologic changes occurred on content of civil aviation demanded that the Airlines changed and adapted themselves with the same intensity about their way of doing business on the global market. Regarding this matter, Almeida and Costa (2012) emphasize the first deregulation process, occurred on U.S. which made possible the entry of a new airline business model, the low cost-low fare. On this new market reality, the demand of new airlines passengers highly increased, reducing distances and, thereafter, putting emerging tourist destinations on the spotlight.

The low cost - low fare model is based on a lower cost of general items and services pattern, which turns possible to reach another market share, mostly composed by people who couldn’t have prior access to air transport until then (ALMEIDA; COSTA, 2012). With the deregulation process, there was the perfect time for the new emerging airlines models, because these companies could finally rule their business and pricing without direct State classical intervention. One of the first Airlines to adopt this new model was the Southeest Airlines (PALHARES, 2002).

The frequent technological changes also contributed to this new model of doing airlines business into American soil, once the airplanes security and general quality were constantly increased, and due to this, each day more and more citizens got interested in using this way of transport. Another pioneer company on this business model was Ryanair, which, on early 1990’s, changed its model for low cost- low fare, attracting a whole new market share based on customers who emphasize lower prices of the flights. (Almeida; Costa 2012).

Those Airlines that adopted low cost low fare model have as their main goal to provide lower prices for the final customer, and of, course, for themselves. Therefore, they should provide basic on-board services, with lower rates than the competition, a reduced number of crew members and a larger number of flight with a short and medium distance.

Corroborating on this matter, Abrantes (2010, p. 87), point that a pattern model of a low cost- low fare airline should provide “A simple service; Low operating costs maintenance; Accuracy on market positioning.”Due to that, these practices will directly reflect on general lower costs and, finally, on better prices to customers. It will also provide to reach a whole new Market share who cares about price and with leisure, cultural and business purposes. This new low cost-low fare model also allowed the airlines to adapt
themselves to a new dynamic and global market, where free competition rules do apply to all carriers.

Regarding the Brazilian context, the first airline to introduce the business model of low cost - low fare was GOL Airlines. On this matter, Correia and Mello (2008) point out that the company achieved in a brief time a profound influence on the market, making it more competitive in relation to companies that were about to fail, such as Transbrasil and VASP. On middle 2000’s GOL already had one of the biggest shares of Brazilian air transport market, especially competing with TAM airlines (current LATAM).

After GOL, other airlines entered on the market carrying the low fare low cost flag, such as BRA, Web jet and Ocean Air (Current AVIANCA), but most of them could not stay much longer on such a competitive market and eventually ended up sold or bankrupt. The biggest exception is AZUL airlines, who entered on the Brazilian market in 2008 and is still active and is expanding its routes to new cities and countries.

These airline models of low cost low fare led, among other things, to new concepts about services and products that are currently offered by carriers, as will be discussed in the following section.

1.3 AIRLINES UNBUNDLED AND ANCILLARY SERVICES

Due to the growing demand for air transport in the entire world, combined with the emergence of higher technological structure, that includes new and better-quality airplanes, it was possible for the tourism market to develop itself in greater scale on the past decades.

In order to adapt to this new reality, the airlines had to adopt several procedures. One of these procedures is to pursue new forms of lowering costs to supply these new global customers that demands for low prices as first reason of airline’s choice. The new forms of airlines services consider the highest airline capacity and, for sure, the highest crew working capacity, which, combined, lead to lower costs and allow better rates for customers (Abrantes, 2010)

Therefore, one of the main carriers strategies to reduce costs is unbundling products such as baggage fees, Food & Beverage Services, Internet Wifi access, priority boarding and providing ancillary services like Hotel booking, car renting and travel insurance. (O’ CONNELL, 2011)

Providing ancillary revenues is rapidly becoming essential for low cost-low fare carriers, because it is one of the best ways to provide income from secondary sources. (O’ CONNEL AND WARNOCK- SMITH, 2013). Ancillary fees refer to charges for services that passengers used to be given for free. Airlines’ revenues from ancillary fees in 2008 were...
almost $10.25 billion, which was a 346% increase from 2006 in the United States, making ancillary fees one of the fastest-growing industry norms. (CHUNG AND PETRICK, 2012)

Another aspect that must be mentioned is the reduction of the general airlines structures, combined with the online selling process, which made possible to shorten the number of airline stores and, logically, lowering their general costs. The airlines industry is currently adapted to a fully diversified market, which is characterized by high levels of competition (Abrantes, 2010).

Regarding this matter, Almeida e Costa (2012) consider that the technological improvements allowed a significant increase on airplanes performance, turning into possible to provide transport to a higher number of flying customers.

The advent of the internet caused another deep changing on the airline business and services. It turned possible to create sales channels directly to the final customers and offer them a whole new world of services and benefits. It sure was a revolution into air transport market in a global scale. The online booking reaches a total different market share, developing new business to low fare- low cost airlines and putting them on the spotlight. (ALMEIDA; COSTA 2012).

Due to this new global scenario, the airlines continued their quest for lowering cost policies, also based on unbundling products and services provided to customers, in order to offer lower rates. However, these price reductions are not always that apparent and also, unbundling fares implies charging services that were once complimentary, which can lead to a new reality that indicates to a possible lack of satisfaction for the customers about these new forms of doing airlines business. (O’ CONNEL AND WARNOCK-SMITH, 2013). For Chung and Petrick (2012), it’s comprehensible that price increases or extra fees charge would reflect negatively on psychological and/or behavioral reactions. Scotti and Dresner (2015) find out that the charging fees for luggage could cause a decrease of passenger demands.

On this same direction, Henrickson and Scott (2012) performed a study about the impact of baggage fees on airline tickets prices and reached the conclusion that they are negative correlated, once the rates searched increased even without checked baggage complimentary service offered previously.

On the Brazilian Market, a good example of these practices is the new rules of civil aviation, which includes new baggage allowance rules and came into force on late April 2017. Among other things, these new rules allow the airlines the possibility of charging a fee for checked baggages. Some other specifications about these rules will be contemplated on the following item.
1.4 NEW POLICIES FOR BAGGAGE ALLOWANCE IN BRAZIL

During 2016, ANAC, introduced the prediction of the new aviation rules for Brazilian scenario, which came into force on 2017. These rules included changes regarding baggage allowance for airline customers. According to these rules, it is now allowed for the airlines to charge a fee for each checked baggage, turning this into a new extra service offered to customers. (ANAC, 2017).

Also according to ANAC (2017): airlines may offer the mail transport service dispatched separately from the airfare. Thus, each passenger can choose whether to purchase the luggage allowance and the weight limit that best meets your needs. The new rules for baggage transport also includes: the airline must allow a maximum of 10 kg free of charge hand luggage to the passenger transport as carry on luggage on the flight.

Other requirements were also regulated, according to ANAC, such as the time limit for the airline to answer customers about must mishandled luggage and also refunds deadlines.

Therefore, this new reality regarding air transport and civil aviation, where the lowering cost policies stands absolutely, combined with new forms of airlines services and these Brazilian new civil aviation rules, it is also required a hard thinking about ways of monitoring and evaluating this scenario, to provide elements that can contribute for the continuous airlines services improvement.

2 METHODOLOGY

This research used the study of case method, in a quantitative approach with previous specific analysis to airlines rates by a weekly search ate their online portals.

The study of case, according to Yin (2010):

[...] arises from the desire to understand complex social phenomena. In short terms, the case study method allows researchers to retain the holistic and meaningful characteristics of real-life events - such as individual life cycles, small group behavior, organizational and administrative proceedings [...]. (Yin, 2010, p. 24):

On the same direction, Dencker (2003 p.127) points that the case study provides "in-depth knowledge of the processes and social relations." It is indicated in the initial stages of the investigation, to construct hypotheses or redesign the problem."
The research technique used was quantitative approach, with specific airlines price analysis carried out by a weekly search into their portals. A quantitative study shows a representative random sample, its approach is superficial and is a statistical analysis. It allows the generalization in terms of probability of occurrence (Dencker 2003).

2.1 DATA COLLECTION

Data collection included Searching to the airlines online portals from March to September 2017.

Regarding this matter, were conducted price surveys twice a week (Wednesdays and Saturdays), on airline tickets in official online portals of GOL, LATAM, AVIANCA and AZUL, which have flights departing from Salgado Filho Airport (Porto Alegre). These are the main four airlines that operates on Brazilian aviation, with an estimated market share of 90%.

Usually, it is common to find out different rates on airline flights, especially after the deregulation process, as we presented on the prior item. One possible cause for its high price variation is the advance purchase. On this matter, it is also important to signal that the weekly searches were always performed with an exactly week in advance regarding the selected flights, with the intention to produce a more reliable data, once the average price estimated will consider the same search antecedence.

All flights surveyed (AVIANCA, LATAM, GOL, AZUL) included the following routes:

a) Departing from Porto Alegre (POA) to Congonhas Airport, São Paulo (CGH);

b) Departing from Porto Alegre (POA) to Guarulhos Airport, São Paulo (GRU);

c) Departing from Porto Alegre (POA) to Santos Dumont Airport, Rio de Janeiro (SDU);

d) Departing from Porto Alegre (POA) to Galeão Airport, Rio de Janeiro (GIG);

e) Departing from Porto Alegre (POA) to Salvador Airport (SSA).

After proper research and fare records (Always choosing the cheapest flight available), these data were tabulated on SPSS, in order to find out verify possible variations and average calculus.

Aiming to provide at this research a global character, all rates were converted into American dollars, using as reference the currency of January, 28th, 2018, which was rated in 3,151 Brazilian reais.

3 RESULTS
Before showing the results obtained by the weekly searches, first will be presented parts of online press reports about new civil aviation rules, with specific subjects about LATAM, GOL AZUL E AVIANCA new fare policies and their following justifications for applying these new rules.

3.1 A ONLINE PRESS REPORTS ABOUT NEW CIVIL AVIATION RULES AND NEW FARES POLICIES

a) Online press report about LATAM, published on March, 3rd, 2017 – on Gaucha ZH-Clicrbs¹

**Chart 1 - Partial transcript I**

“The company hopes to reduce in 20% its rates on domestic flights until 2020. “The previous international situation shows that there was a lowering prices and a increasing in the number of travelers once airlines began to charge fees for checked luggage’s.”, says Latam, in not.”

Source: Authors. (2017).

b) Online press report about GOL, published on March, 14th, 2017 on Revista Hotéis²

**Chart 2 - Partial transcript II**

“After April, Gol customers will be able to choose what’s best for their trips. The company introduce the Light Rate, which will be cheaper than others and will supply a demand of customers that choose not to check their luggages.”

Source: Authors. (2017).

c) Online press report about AZUL, published on May, 4th, 2017 on Globo.com³

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Chart 3 - Partial transcript III

“...The release of this new fare class is an important milestone on the Brazilian civil aviation scenario, allowing that customers could have access to lower rates and, at the very same time, enjoy the largest and finest network of the country”, said by Antonoaldo Neves, chairman of Azul, into a press note”.

Source: Authors. (2017)


Chart 4 - Partial transcript IV

“Avianca will begin to charge fees for checked luggage on flights on next Monday, (09/25). The airline will follow the same strategy adopted by its competition, which includes the creation of a special and cheaper rate for carry-on luggages only.”

Source: Authors. (2017).

According to the content of all these online press reports, the main reason used by the airlines to adopt these new rules and to create a new class with carry-on baggage only rate is basically the fact that this class would be priced by lower rates.

3.2 AIRLINES RATES WEEKLY SEARCH RESULTS

As presented into the methodology, the data collect occurred between March to September, 2017, from weekly searches to online airline portals. After this process, the data was entered on SPSS, whose results will be show non the following item.

3.2.1 Results obtained by GOL rate analysis

Data collect of GOL flights was also held between the months of March to September 2017. The new rules of civil aviation came into force on April 29, 2017. However, GOL has started charging per item of luggage just two months after that date, on 28 June 2017. Thus, the cutoff point will be that date, regarding the comparative analyzes, as follows in Chart 5.

Before = Period Prior to 06/28/17

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After = period after 06/28/17

<p>| Chart 5: Comparative GOL rates before and after the new rules (in dollars - USD). |
|---------------------------------|---|---|---|---|
|    | N   | Minimum (USD) | Maximum (USD) | Average (USD) | % Of Growth after new rules |
| Wednesday Rates before: POA_SSA (3) | 16 | 110.44 | 420.50 | 272.4730 | -4% |
| Wednesday Rates after: POA_SSA (3A) | 12 | 183.75 | 431.61 | 261.5836 | |
| Saturday Rates before: POA_SSA (4) | 16 | 152.02 | 420.50 | 290.9989 | -2.5% |
| Saturday Rates after: POA_SSA (4A) | 11 | 233.58 | 405.90 | 283.6329 | |
| Wednesday Rates before: POA_GIG (5) | 16 | 72.04 | 453.82 | 147.6912 | +49.9% |
| Wednesday Rates after: POA_GIG (5A) | 12 | 56.81 | 377.34 | 221.3583 | |
| Saturday Rates before: POA_GIG (6) | 16 | 72.04 | 259.28 | 115.1619 | +50.3% |
| Saturday Rates after: POA_GIG (6A) | 11 | 47.29 | 356.71 | 173.1052 | |
| Wednesday Rates before: POA_SDU (7) | 16 | 101.24 | 404.32 | 284.1955 | +0.4% |
| Wednesday Rates after: POA_SDU (7A) | 12 | 173.91 | 337.04 | 285.2005 | |
| Saturday Rates before: POA_SDU (8) | 16 | 86.64 | 279.28 | 161.5757 | +71% |
| Saturday Rates after: POA_SDU (8A) | 11 | 173.91 | 337.04 | 276.3048 | |
| Wednesday Rates before: POA_GRU (9) | 16 | 47.60 | 244.05 | 111.4725 | +31.2% |
| Wednesday Rates after: POA_GRU (9A) | 12 | 74.26 | 440.81 | 146.1970 | |
| Saturday Rates before: POA_GRU (10) | 16 | 50.46 | 370.99 | 240.5784 | |</p>
<table>
<thead>
<tr>
<th>Saturday Rates after: POA_GRU (10A)</th>
<th>11</th>
<th>95.53</th>
<th>440.81</th>
<th>239.8373</th>
<th>-0.3%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wednesday Rates before: POA_CGH (11)</td>
<td>16</td>
<td>56.81</td>
<td>358.62</td>
<td>177.1461</td>
<td>23.9%</td>
</tr>
<tr>
<td>Wednesday Rates after: POA_CGH (11A)</td>
<td>12</td>
<td>81.24</td>
<td>265.95</td>
<td>219.4277</td>
<td></td>
</tr>
<tr>
<td>Saturday Rates before: POA_CGH (12)</td>
<td>16</td>
<td>63.47</td>
<td>401.14</td>
<td>238.3172</td>
<td>-7%</td>
</tr>
<tr>
<td>Saturday Rates after: POA_CGH (12A)</td>
<td>11</td>
<td>124.40</td>
<td>341.16</td>
<td>221.6612</td>
<td></td>
</tr>
</tbody>
</table>

Source: Authors. (2017).

A graphic about results obtained on Chart 5 (encoded as shown) is presented below on Figure 1.

**Figure 1 – Comparison GOL before and after new rules**

**Subtitle:**

- Before new rules
- After new rules
As shown, from the total of 10 sections surveyed, 04 had a lower rate average after deployment of new rules of civil aviation and baggage allowance. The specifications of these rates behavior will be better detailed in section 3.3.

3.2.2 Descriptive Analysis LATAM

Data collect of LATAM flights was also held between the months of March to September 2017. The new rules of civil aviation came into force on April 29, 2017. However, LATAM has started charging per item of luggage just two months after that date, on 28 June 2017. Thus, the cutoff point will be that date, regarding the comparative analyzes, as follows in Chart 6.

Before = Period Prior to 06/28/17
After = period after 06/28/17
Chart 6: Comparative rates LATAM before and after the new rules (in dollars - USD).

<table>
<thead>
<tr>
<th>N</th>
<th>Minimum (USD)</th>
<th>Maximum (USD)</th>
<th>Average (USD)</th>
<th>% Of Growth after new rules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wednesday Rates before: POA_SSA (13)</td>
<td>16</td>
<td>113.93</td>
<td>466.84</td>
<td>268.406 9</td>
</tr>
<tr>
<td>Wednesday Rates after: POA_SSA (13A)</td>
<td>12</td>
<td>185.34</td>
<td>755.32</td>
<td>324.0506</td>
</tr>
<tr>
<td>Saturday Rates before: POA_SSA1(4)</td>
<td>16</td>
<td>137.10</td>
<td>343.70</td>
<td>232.267 5</td>
</tr>
<tr>
<td>Saturday Rates after: POA_SSA (14A)</td>
<td>11</td>
<td>175.82</td>
<td>783.56</td>
<td>388.303 9</td>
</tr>
<tr>
<td>Wednesday Rates before: POA_GIG (15)</td>
<td>16</td>
<td>105.05</td>
<td>245.95</td>
<td>186.171 1</td>
</tr>
<tr>
<td>Wednesday Rates after: POA_GIG (15A)</td>
<td>12</td>
<td>201.21</td>
<td>755.63</td>
<td>297.471 7</td>
</tr>
<tr>
<td>Saturday Rates before: POA_GIG (16)</td>
<td>16</td>
<td>73.94</td>
<td>634.40</td>
<td>212.511 9</td>
</tr>
<tr>
<td>Saturday Rates after: POA_GIG (16A)</td>
<td>11</td>
<td>150.43</td>
<td>634.40</td>
<td>309.223 6</td>
</tr>
<tr>
<td>Wednesday Rates before: POA_SDU (17)</td>
<td>16</td>
<td>86.96</td>
<td>372.90</td>
<td>188.491 7</td>
</tr>
<tr>
<td>Wednesday Rates after: POA_SDU (17A)</td>
<td>12</td>
<td>174.23</td>
<td>634.40</td>
<td>287.765 8</td>
</tr>
<tr>
<td>Saturday Rates before: POA_SDU (18)</td>
<td>16</td>
<td>131.39</td>
<td>531.58</td>
<td>234.072 5</td>
</tr>
<tr>
<td>Saturday Rates after: POA_SDU (18A)</td>
<td>11</td>
<td>158.68</td>
<td>561.09</td>
<td>259.282 8</td>
</tr>
<tr>
<td>Day</td>
<td>Before</td>
<td>After</td>
<td>+ %</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>--------</td>
<td>--------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td>POA GRU (19)</td>
<td>16</td>
<td>92.03</td>
<td>697.87</td>
</tr>
<tr>
<td>Wednesday</td>
<td>POA GRU (19A)</td>
<td>12</td>
<td>72.68</td>
<td>497.87</td>
</tr>
<tr>
<td>Saturday</td>
<td>POA GRU (20)</td>
<td>16</td>
<td>50.46</td>
<td>266.26</td>
</tr>
<tr>
<td>Saturday</td>
<td>POA GRU (20A)</td>
<td>11</td>
<td>74.26</td>
<td>364.40</td>
</tr>
<tr>
<td>Wednesday</td>
<td>POA CGH (21)</td>
<td>16</td>
<td>63.15</td>
<td>358.62</td>
</tr>
<tr>
<td>Wednesday</td>
<td>POA CGH (21A)</td>
<td>12</td>
<td>125.04</td>
<td>634.40</td>
</tr>
<tr>
<td>Saturday</td>
<td>POA CGH (22)</td>
<td>16</td>
<td>46.33</td>
<td>634.40</td>
</tr>
<tr>
<td>Saturday</td>
<td>POA CGH (22A)</td>
<td>11</td>
<td>203.74</td>
<td>557.28</td>
</tr>
</tbody>
</table>

Source: Authors. (2017).

A graphic about results obtained on Chart 6 (encoded as shown) is presented below on Figure 2.

Figure 2 – Comparison LATAM before and after new rules

Subtitle:

Before new rules

After new rules
As shown, from the total of 10 sections surveyed in LATAM, 100% had a higher rate average after deployment of new rules of civil aviation and baggage allowance. The specifications of these rates behavior will be better detailed in section 3.3.

### 3.2.3 Descriptive Analysis AVIANCA

Data collection of AVIANCA flight was also held between the months of March to September 2017. The new rules of civil aviation came into force on April 29, 2017. However, AVIANCA was the only airline that has not adopted the charging fees for luggage during the research's time, taking place just after the end of September. Thus, it was decided to consider the same cutoff of other stances on June 28, 2017, in order to carry out the necessary comparative analyzes, as follows in Chart 7.

- **Before** = Period Prior to 06/28/17
- **After** = Period after 06/28/17
Chart 7 - Comparative AVIANCA rates before and after the new rules. (In US dollars - USD).

<table>
<thead>
<tr>
<th>Day</th>
<th>Departure Airport</th>
<th>Flight Code</th>
<th>N</th>
<th>Minimum (USD)</th>
<th>Maximum (USD)</th>
<th>Average (USD)</th>
<th>% Of Growth after new rules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wednesday</td>
<td>POA_SSA</td>
<td>(23)</td>
<td>16</td>
<td>126.63</td>
<td>258.65</td>
<td>173.9924</td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td>POA_SSA</td>
<td>(23A)</td>
<td>12</td>
<td>157.09</td>
<td>634.40</td>
<td>234.8461</td>
<td>+ 35%</td>
</tr>
<tr>
<td>Saturday</td>
<td>POA_SSA</td>
<td>(24)</td>
<td>16</td>
<td>126.63</td>
<td>294.83</td>
<td>183.3148</td>
<td></td>
</tr>
<tr>
<td>Saturday</td>
<td>POA_SSA</td>
<td>(24A)</td>
<td>11</td>
<td>144.40</td>
<td>418.60</td>
<td>263.8412</td>
<td>+ 43.9%</td>
</tr>
<tr>
<td>Wednesday</td>
<td>POA_GIG</td>
<td>(25)</td>
<td>16</td>
<td>74.58</td>
<td>177.40</td>
<td>111.0362</td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td>POA_GIG</td>
<td>(25A)</td>
<td>12</td>
<td>87.27</td>
<td>226.91</td>
<td>122.7653</td>
<td>+ 10.6%</td>
</tr>
<tr>
<td>Saturday</td>
<td>POA_GIG</td>
<td>(26)</td>
<td>16</td>
<td>74.58</td>
<td>204.70</td>
<td>127.1422</td>
<td></td>
</tr>
<tr>
<td>Saturday</td>
<td>POA_GIG</td>
<td>(26A)</td>
<td>11</td>
<td>88.54</td>
<td>317.04</td>
<td>165.7482</td>
<td>+ 30.3%</td>
</tr>
<tr>
<td>Wednesday</td>
<td>POA_SDU</td>
<td>(27)</td>
<td>16</td>
<td>82.20</td>
<td>190.10</td>
<td>110.7982</td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td>POA_SDU</td>
<td>(27A)</td>
<td>12</td>
<td>72.68</td>
<td>380.51</td>
<td>134.5605</td>
<td>+ 21.4%</td>
</tr>
<tr>
<td>Saturday</td>
<td>POA_SDU</td>
<td>(28)</td>
<td>16</td>
<td>82.20</td>
<td>221.83</td>
<td>126.4678</td>
<td></td>
</tr>
<tr>
<td>Saturday</td>
<td>POA_SDU</td>
<td>(28A)</td>
<td>11</td>
<td>87.27</td>
<td>294.83</td>
<td>159.6896</td>
<td>+ 26.2%</td>
</tr>
<tr>
<td>Wednesday</td>
<td>POA_GRU</td>
<td>(29)</td>
<td>16</td>
<td>155.19</td>
<td>230.09</td>
<td>185.6355</td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td>POA_GRU</td>
<td>(29A)</td>
<td>12</td>
<td>160.27</td>
<td>280.86</td>
<td>207.1300</td>
<td>+ 11.6%</td>
</tr>
</tbody>
</table>
Saturday Rates before: POA_GRU (30)

<table>
<thead>
<tr>
<th></th>
<th>15</th>
<th>155.19</th>
<th>218.66</th>
<th>185.5707</th>
</tr>
</thead>
</table>

Saturday Rates after: POA_GRU (30A)

<table>
<thead>
<tr>
<th></th>
<th>11</th>
<th>132.97</th>
<th>332.91</th>
<th>226.6236</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+22.1%</td>
</tr>
</tbody>
</table>

Source: Authors. (2017).

A graphic about results obtained on Chart 7 (encoded as shown) is presented below on Figure 3.

Figure 3 – Comparison AVIANCA before and after new rules

Subtitle:

- Before new rules
- After new rules
As shown, the total of 08 sections surveyed in AVIANCA had a higher rate average after deployment of new rules of civil aviation and baggage allowance. The specifications of these rates behavior will be better detailed in section 3.3.

### 3.2.4 Descriptive Analysis AZUL

Data collection of flights AZUL was also held between the months of March to September 2017. The new rules of civil aviation came into force on April 29, 2017. However, the AZUL has started charging per item of luggage just two months after that date, on 28 June 2017. Thus, the cutoff point will be that date, regarding the comparative analyzes, as follows in Chart 8.

**Before** = Period Prior to 06/28/17  
**After** = Period after 06/28/17
Chart 8 - Comparative AZUL rates before and after the new rules (in US dollars - USD).

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum (USD)</th>
<th>Maximum (USD)</th>
<th>Average (USD)</th>
<th>% Of Growth after new rules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wednesday Rates before: POA_SSA (31)</td>
<td>16</td>
<td>00</td>
<td>952.36</td>
<td>260.040</td>
<td>+ 4.6%</td>
</tr>
<tr>
<td>Wednesday Rates after: POA_SSA (31A)</td>
<td>12</td>
<td>137.96</td>
<td>441.99</td>
<td>271.940</td>
<td>1</td>
</tr>
<tr>
<td>Saturday Rates before: POA_SSA (32)</td>
<td>16</td>
<td>116.41</td>
<td>447.73</td>
<td>200.888</td>
<td>6</td>
</tr>
<tr>
<td>Saturday Rates after: POA_SSA (32A)</td>
<td>11</td>
<td>137.96</td>
<td>508.95</td>
<td>293.352</td>
<td>+ 46%</td>
</tr>
<tr>
<td>Wednesday Rates before: POA_GIG (33)</td>
<td>16</td>
<td>00</td>
<td>286.51</td>
<td>169.733</td>
<td>8</td>
</tr>
<tr>
<td>Wednesday Rates after: POA_GIG (33A)</td>
<td>12</td>
<td>80.86</td>
<td>336.31</td>
<td>220.131</td>
<td>+ 29.7%</td>
</tr>
<tr>
<td>Saturday Rates before: POA_GIG (34)</td>
<td>16</td>
<td>00</td>
<td>230.97</td>
<td>131.964</td>
<td>1</td>
</tr>
<tr>
<td>Saturday Rates after: POA_GIG (34A)</td>
<td>11</td>
<td>104.00</td>
<td>339.80</td>
<td>283.139</td>
<td>+ 114.6%</td>
</tr>
<tr>
<td>Wednesday Rates before: POA(SDLU) (35)</td>
<td>16</td>
<td>00</td>
<td>215.74</td>
<td>118.976</td>
<td>1</td>
</tr>
<tr>
<td>Wednesday Rates after: POA_SDU (35A)</td>
<td>12</td>
<td>100.54</td>
<td>344.87</td>
<td>188.395 2</td>
<td>+ 58.3%</td>
</tr>
<tr>
<td>Saturday Rates before: POA_SDU (36)</td>
<td>16</td>
<td>157.03</td>
<td>323.64</td>
<td>220.644 2</td>
<td></td>
</tr>
<tr>
<td>Saturday Rates after: POA_SDU (36A)</td>
<td>11</td>
<td>91.02</td>
<td>344.87</td>
<td>228.726 8</td>
<td>+ 3.6%</td>
</tr>
<tr>
<td>Wednesday Rates before: POA_GRU (37)</td>
<td>16</td>
<td>00</td>
<td>253.86</td>
<td>107.174 3</td>
<td></td>
</tr>
<tr>
<td>Wednesday Rates after: POA_GRU (37A)</td>
<td>12</td>
<td>72.90</td>
<td>268.71</td>
<td>125.904 5</td>
<td>+ 17.5%</td>
</tr>
<tr>
<td>Saturday Rates before: POA_GRU (38)</td>
<td>16</td>
<td>50.71</td>
<td>491.84</td>
<td>170.620 4</td>
<td></td>
</tr>
<tr>
<td>Saturday Rates after: POA_GRU (38A)</td>
<td>11</td>
<td>80.20</td>
<td>351.22</td>
<td>216.840 3</td>
<td>+ 27.1%</td>
</tr>
<tr>
<td>Wednesday Rates before: POA_CGH (39)</td>
<td>16</td>
<td>00</td>
<td>364.93</td>
<td>175.880 7</td>
<td></td>
</tr>
<tr>
<td>Wednesday Rates after: POA_CGH (39A)</td>
<td>12</td>
<td>123.07</td>
<td>332.18</td>
<td>228.594 1</td>
<td>+ 30%</td>
</tr>
<tr>
<td>Saturday Rates before: POA_CGH (40)</td>
<td>16</td>
<td>63.76</td>
<td>269.69</td>
<td>173.177 2</td>
<td></td>
</tr>
<tr>
<td>Saturday Rates after: POA_CGH (40A)</td>
<td>11</td>
<td>73.85</td>
<td>468.64</td>
<td>217.936 6</td>
<td>+ 25.8%</td>
</tr>
</tbody>
</table>

Source: Authors. (2017).
A graphic about results obtained on Chart 8 (encoded as shown) is presented below on Figure 4.

**Figure 4 – Comparison AZUL before and after new rules**

Subtitle:

- Before new rules
- After new rules

Source: Authors. (2017).
As shown, from the total of 10 sections surveyed in AZUL airlines, none had a lower rate average after deployment of new rules of civil aviation and baggage allowance. The specifications of these rates behavior will be better detailed in section 3.3.

3.3 GENERAL RESULTS AND OBJECTIVES RESUMPTION

As it is possible to realize, the routes and week days searched were the same for all airlines, in at total of 38 analyzed sections. On Wednesdays, before new rules, each airline had a total of 16 surveys conducted for each of the five routes searched;

On Wednesdays, after new rules, each airline had a total of 12 surveys conducted for each route; On Saturdays, before new rules, each airline had a total of 16 surveys conducted for each route; On Saturdays, after new rules, each airline had a total of 11 surveys conducted for each route; A total of 640 Flights were surveyed before new rules and 460 flights were surveyed after execution new rules. Each airline had 275 flights searched during the six months of this research in a total of 1,100 flights.

3.3.1 Routes with lower rate average after new rules

As was identified in the content of all the tables presented, from all 38 sections searched, only the airline GOL, and in four occasions, showed lower average rates after new rules. Here are some specifications of these lowerings:

In the route POA_SSA on Wednesdays, there was a decrease of the average rate in 4%. In this same route on Saturdays there was a decrease of the average rate in 2.5%;

In the route POA_GRU on Saturdays, there was a decrease in the average rate in 0.3%; In the route POA_CGH on Saturdays, there was a decrease in the average rate on 7%.

Therefore, it is important to mention that these lowering fare percentage is quite modest, not exceeding the range of 7%, with an average of 3.5%.

Regarding the same matter, the other airlines searched, LATAM, AVIANCA and AZUL did not show any route with a decreased average rate of their tickets after new rules of the Brazilian civil aviation.

3.3.2 Routes with higher rate average after new rules

As showed on the tables presented, about 34 of the 38 sections analyzed had a higher rate average after applying new rules, which represents a total of 89.5%. On the following item, will be presented the routes that had the highest percentage of increasing.
3.3.2.1. GOL airlines:

In the route POA_GIG on Wednesdays, there was an increase in the average rate in 49.95%; In this same route on Saturdays there was an increase of the average rate in 50.3% than in the previous period the effectiveness of new rules.

In the route POA_SDU on Saturdays, there was an increase in the average rate in 71%; In the route POA_GRU on Wednesdays, there was increase in the average rate in 31.2%. In the route POA_CGH on Wednesdays there was an increase in the average rate in 23.9%.

Regarding the airline of overall average rates, it was identified that GOL increased in 21.3% its tickets fares after applying new rules.

3.3.2.2. LATAM airlines:

After the analysis of all LATAM routes, it was identified that all of them had a higher rate average after new rules. Among these, here follows the ones that stand out:

In the route POA_SSA on Wednesdays, there was an average rate increase of 20.7%; On Saturdays, this same route was increased in 67.2%.

The route POA_GIG on Wednesdays increased in 59.8% and 45.5% on Saturdays; In route POA_SDU on Wednesdays, there was an increase in the rate average in 52.7%. This same route on Saturdays showed an average increase of 10.8%;

In the route POA_GRU on Wednesdays, there was an increase of the rate average in 48.2% and, on Saturdays, the increasing was 30.2%.

In the route POA_CGH on Wednesdays, there was an increase in the rate average in 8%, in relation to the period prior of new rules. On Saturdays, this same route was increased in 29.8%.

In terms of overall average rates, it was identified that LATAM increased in 37.3% its tickets fares after applying new rules.

3.3.2.3  AVIANCA airlines:

As mentioned above, all the flights searched in Avianca airlines showed an average rate increase after new rules. Among these, here follows the ones that stand out:

In the route POA_SSA on Wednesdays, there was an increase of the average rate in 35%. On Saturdays, this same route suffered an average increase of 43.9% .In the route POA_GIGon Saturdays, it was identified an increase of average rate in 30.3%.
In the route POA_GRU on Wednesdays, there was an increase of 21.4% on the average rate. On Saturdays, the increase was around 26.2%. In the route POA_CGH on Saturdays, there was an increase in the average rate in 22.1%.

In terms of overall rate average, it was identified that AVIANCA increased in 25.1% its tickets fares after new rules came into force.

3.3.2.4 AZUL airlines

As LATAM and AVIANCA, all routes analyzed AZUL showed an increasing in their average rates after the execution of the new rules. Here are some of these main increases below.

In the route POA_SSA on Saturdays, there was an increase of the average rate in 46%. In the route POA_GIG on Wednesdays, there was an increase in the average rates in 29.7%, while on Saturdays, this same route suffered the highest percentage increase identified during the application of this research, showing an average rate 114.6% higher than in the period prior to the application of new rules. In the route POA_SDU on Wednesdays, there was also a considerable increase in the rate average, this being about 58.3% more expensive;

In the route POA_CGH on Wednesdays, there was an increase in the average price in 30%. On Saturdays, the same flight suffered average increase of 25.8%.

In terms of overall average, AZUL airlines increased its routes rates in 35.7% in comparison to the period before new rules.

The Graph 05, listed below shows the average percentage increase occurred in each airline searched. It can be seen that the highest increase is observed on LATAM (37.3%) and AZUL (35.7%) airlines, while the lowest increases were identified on AVIANCA (25.1%) and GOL (21.3%) airlines.

Figure 05: Average airlines rate increase.
After the presentation of the results of all airlines routes, the seven largest percentage increases identified in this research, all higher than 50%, are listed below:

1st – AZUL: Route POA_GIG on Saturdays: Increase of 114.6%;
2nd - GOL: Route POA_SDU on Saturday: Increase of 71%;
3rd - LATAM: Route POA_SSA on Saturdays: Increase of 67.2%;
4th - LATAM: Route POA_GIG Wednesdays: Increase of 59.8%;
5th - AZUL: Route POA_SDU Wednesdays: Increase of 58.5% 
6th - LATAM: Route POA_SDU Wednesdays: Increase of 52.7%;
7th - GOL: Route POA_GIG on Saturdays: Increase of 50.3%.

When performed the average rate increasing of all airlines, which occurred in 34 of the 38 sections, it’s got the general range of 34.1%. Comparing these percentages with the average rate reductions identified in 4 routes (3.5%), it is identified a scenario in which the rate increase of airline tickets is set in a much more obvious reality to costumers than those routes who suffered average rate reductions.

After presenting these data, in an overview, it is also possible to realize that in practice, the lowering prices airlines speech to justify carry on baggage fares is not being confirmed in most of the searched routes, whereas 34 the 38 parts (89.5%) experienced an average increase after the implementation of these rules.

Source: Authors. (2018).
These results reflect the main concerns of Henrickson and Scott (2012), who indicates that airlines tickets fares may not be correlated with baggage fees, pointing towards a direction that assume that airlines are still applying higher tickets price, despite the baggage fees charging.

In fact, based on queries to the database collection, what has been occurring is a process of new categorization airfares, which, based on the current reality, actually have lower values for which routes that do not include baggage allowance. This discount amount varies, on average, of $ 8.00 to $ 10.00 each way. However, this discount does not reflect into a real price lowering scenario, since the average rate prior to application of the rules was lower and also included standard baggage allowance. As an example of this issue, a regular rate of POA / SAO PAULO route (Cong on has) after the implementation of the new rules could cost an average of US$ 200.00 without checked baggage and US$ 230.00 with this service included (dummy values). The main point is that before the rules, the customer could pay an average US$ 180.00 for this very same route and also could check his luggage with no extra charge.

In a short term, these data presented could cause a reduction in passenger demand due to the considerable increasing of air ticket prices, corroborating to the study provided by Scotti and Dresner (2015).

Regarding the first specific objective proposed for this paper, which was to Present registered data about the discourse adopted by airlines as a possible explanation for implementing these new rules, it is observed that it was achieved from the 3.1 item, which brought up the reports of online portals regarding the discourse adopted by airlines to support the application of these new rules. It was identified that all stances at some point, signaled for a fare reduction context to justify the validity of these new rules. The second specific objective aimed to provide an analysis of prices in the context of pre and post consolidation of the new rules of the Brazilian civil aviation, from a weekly search into AVIANCA LATAM, GOL and AZUL portals. It was achieved through the methodologic purpose of this research, which implied, among other things, this weekly search, with a following data analysis on SPSS.

The third specific objective, which was to present a possible price changing scenario, after the consolidation of these new rules, was also achieved, once a total of 1100 flights displayed in five routes of four Airlines were search, registered, analyzed and categorized into charts and graphics, which, signaled a scenario that the high rate majority (34.1%) had a significative increase after new aviation rules and baggage allowance took place. Only a few number of rates had a decreasing average, and this reduction was not significative on general terms, not exceeding 7%. Therefore, it was identified that the lowering average prices speech made by Airlines in order to justify these new rules does not reflect the real
context. What is really occurring is that now rates are fragmented, adding or decreasing an average amount from US$ 8,00 to US$ 10,00 in order to include or not baggage allowance in the rate. However, these average fares are higher than those one applied before new civil aviation rules came into force.

Regarding the main objective, which was to analyze the pre and post scenario of the consolidation of the new rules of the Brazilian civil aviation, with emphasis on new policies of franchises baggage stipulated by certain airlines, comparing the pricing behavior and aiming to present relevant developments of this new scenario, such as if there were any price reduction, it was achieved through the whole construction itself of this work, which included initially the historical aviation context in Brazil, together with the historical setting of low cost / low fare models worldwide. Regular and effective weekly collect of flight data can also be considered one of the factors that made it possible to achieve the main objective. Upon finishing data collect, it was also possible to perform the data analysis considering the contexts pre and post implementation of the new rules that based this research.

4 FINAL CONSIDERATIONS

Within this research, it was possible to observe how complex is the civil aviation matter into current society. In order to achieve the results and as an example of this complexity, many authors, details and historical records were brought up with the purpose on showing a small fraction of a huge scenario.

Reaching all the objectives was only possible through a constant six month weekly search that allow collecting enough data for further analysis on SPSS, which signaled for the fact that only 10,5% of the 38 routes searched has showed lower average fares, and the average percental of lowering rates was around 3,5%, which is not relevant in comparison to the average percental of increasing rates, that was 34,1%.

In general terms, these numbers point out for a reality that shows it is more expensive to travel with Brazilian airlines on domestic flights after new rules of civil aviation and baggage allowance policies toke place, which opposes directly to the reasons given by airlines to adopt these very same rules, which would be primarily to reduce ticket prices. Therefore, based on these considerations and numbers, it is possible to consider that what is really occurring in the Brazilian civil aviation scenario could be considered an effective reversal of the real policy of the low cost / low fare airline models, observed in U.S and Europe, walking towards to develop an entire different model, characterized by airlines that, despite seeking to reduce most of their costs with products and services, do not repass, in
fact, this reduction to their customers, and then being called the low cost / HIGH fare airline models.

About limitations observed in this study, it is important to consider that there are, in fact, other factors that can influence the rates applied on Brazilian airlines, which can be: fuel prices variation, dollar, tax increasing, inflation, among others. As future study proposal, the analysis of these indicators behavior could be added during the same period of the rate’s collect, which would allow expanding the field of discussion regarding this subject and, of course, will also allow the formulation of new hypothesis that could greatly amplify this research.

REFERENCES


