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COMPARATIVE STUDY OF TRANSACTION COSTS BETWEEN US AND BRAZILIAN AIRLINES

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Abstract

This article deals with the transaction costs in the passenger and cargo air transport sector for United States and Brazilian airlines. After discussing transaction costs and their importance, a comparative study is conducted on their relevance for companies in these two countries. The study concludes that transaction costs for Brazilian airlines are proportionally about five times higher than those for US airlines. Finally, simulations are performed for the economic operating results of airlines from both countries if their transaction costs were zero.

Keywords

Brazilian Airlines, Transport Sector, Transaction Costs

1. Introduction

This article reports on a comparative analysis of part of the transaction costs of the major airlines in the scheduled flights segment in Brazil and the United States from 2015 to 2021. The year 2015 was chosen for the beginning of the study period because a change in the Brazilian National Civil Aviation Agency's (ANAC's) chart of accounts made it impossible to create a precise accounting correspondence between the period beginning in 2015 and previous years.

The transaction costs studied for this mode of transport have so far been limited to airlines' distribution costs (Boin et alii, 2022), with other transaction costs, such as commercial expenses as a whole, not having been considered.

On the other hand, most studies on transaction costs deal with the primary and secondary sectors. In the tertiary sector, only the financial subsector (especially in relation to bank fees and commissions) has frequently been addressed. The main reason is the difficulty in obtaining specific quantitative information, since the usual accounting systems (including the International Financial Reporting Standards – IFRS) were not developed to isolate transaction costs.

The airline industry presents an opportunity to carry out this type of study, as it is one of the most standardised sectors in the world. This is due to the work of the International Civil Aviation Organization (ICAO). ICAO is the specialised United Nations agency for air transport and establishes universal standards for the sector, including statistics and accounting reports for airlines in associated countries. Even so, the rules that ICAO sets for its member states are generic and sometimes only allow sectoral transaction costs to be measured.

However, Brazil and the United States publish statistics and financial statements in a comprehensive, precise, regular and detailed manner, allowing the main transaction costs of the sector to be determined.

Even though the regulatory agencies of these two countries do not adopt identical charts of accounts, it is possible to establish significant parallels, enabling comparative economic studies to be carried out with good precision.

Moreover, Brazil and the United States have statistical and accounting records that date back at least to the beginning of this century. For this reason, a comparative analysis can also be done over time.

Thus, methodological questions such as the following can be answered:

What proportion of airlines' revenue is consumed to pay for their operational and non-operational transactions?

In which of the countries studied are the transaction costs of the airline industry proportionally more relevant?

What is the impact of this on the sector's operating profitability?
How have these costs behaved over time?
Are there opportunities to reduce these costs?

2. Literature review

Despite the extensive literature on New Institutional Economics and beyond, there is no consensus on the precise definition of which costs in an economy can be classified as transaction costs (Allen, 1991; Wang, 2003). Thus, in Coase's (1937, pages 386-405) original formulation, transaction costs refer to "the costs of using the price mechanism" or "the costs of carrying out a transaction through an exchange in an open market". In addition, Coase comments: "To carry out a transaction in the market, you need to find out who you want to deal with, inform people what you want to deal with and on what terms, conduct negotiations that lead to an exchange, write the contract, carry out the necessary due diligence to make sure the terms of the contract are being observed, and so on" (Coase, 1960, pages 1-44).

However, other authors, such as Wallis & North (1986), attribute a broader dimension to transaction costs, even formulating the concept of the "transaction sector". According to them, every economy can be divided into two sectors: the production sector and the transaction sector. Furthermore, Wallis and North calculated that the transaction sector accounted for 45% of US GDP in 1970. As noted, conceptions of transaction costs vary widely, even among New Institutional Economics authors.

The definition of transaction costs also differs according to the sector studied. Thus, when studying the financial market (Bhardwaj & Brooks, 1992; Demsetz, 1968; Stoll & Whaley, 1983), transaction costs are generally understood as the cost of investing, including brokerage fees and bid-ask spreads. On the other hand, Williamson (2000) adds concepts (measured indirectly through statistical correlations) such as uncertainty, transaction frequency, asset specificity, opportunism and so on, which strongly affect transaction costs. Finally, costs related to environmental protection, legal provisions, and bribes paid to government officials, among others, are often associated with transaction costs (Wang, 2003).

Although criticising the narrowness of the more usual definition of transaction costs, Allen (1991, pages 1-18) states, "The most widely accepted, though tacit, definition is that transaction costs are all costs that arise in an exchange". Still, according to Allen, "Transaction costs are the resources used to establish and maintain property rights. They include the resources used to protect and capture (appropriated without permission) property rights, plus any deadweight costs that result from any potential or actual protecting and capturing". According to this author, this definition broadens the scope of the most commonly accepted definition because it clearly distinguishes transaction costs from production costs. Thus, the "friction costs" that eventually exist in production are not transaction costs.

To Wang (2003, page 9), "The diversity of approaches in empirical studies … certainly reflects a lack of consensus on important theoretical issues about transaction costs". As a result, it is hard to classify transaction costs, which leads to essential simplifications in empirical studies. For this reason, many economists classify transaction costs as search and information costs, bargaining costs and policing and enforcement costs. Search and information costs are associated with looking for relevant information and meeting with agents with whom a transaction will occur. Bargaining costs are those costs related to coming to an agreement that is acceptable to the parties involved and drawing up a contract. Policing and enforcement costs are associated with ensuring that the parties to the contract keep their word and do not default on the terms of the agreement (Corporate Financing Institute, 2023).

Because public and more detailed information on the air transport sector is not available, transaction costs are considered in this article to be those related to advertising and other promotions, communication, and traffic commissions – passenger and cargo traffic commissions, according to the definition of the US Department of Transportation. The above-mentioned accounting categories are closely related to ANAC's Standardized Chart of Accounts.

It is also an opportune moment for a brief discussion of the relationship between operational efficiency and transaction costs. Production costs correspond to the sum of transformation and transaction costs. Transaction costs, on the other hand, do not add utility to the transacted goods and services (North, 1990). Consequently, if transaction costs are reduced to the minimum possible, this tends to increase the size of the market (via the price mechanism), generating, as a result, an increase in scale gains and added value in the economy or the specific sector (Mizinska, 2019). In this way, low transaction costs equate to greater operational efficiency.

With the aim of reducing transaction costs, the air cargo and passenger transport sector popularised direct sales from the 1980s onwards. The same thing happened in the retail sector with its emphasis on online sales from the mid-1990s onwards.

3. Methodology

Consolidated sector data were obtained by consulting the websites of the National Civil Aviation Agency of Brazil (ANAC) and the US Department of Transportation (US DOT) for the annual periods from 2015 to 2021. The accounting headings considered to refer to identifiable transaction costs and their correspondence in the ANAC and US DOT charts of accounts are presented in the table below.

ANAC (Account code and content)	US DOT (Account code and content)
8.1 Commercial expenses	00220 Advertising and other promotions 00230 Communication 00260 Traffic commissions – passenger 00270 Traffic commissions – cargo

Table 1 – Correspondence of headings considered to be related to transaction costs

Source: ANAC and US DOT

The balances of each heading (or group of headings) were calculated in average annual US Dollars, and these values were compared with total operating revenues and operating costs. Differences in the values declared by airlines in each country were defined as GAPs. Only the average GAPs found from 2015 to 2021 were considered to simplify the analysis of these differences.

In addition, for the purposes of analysis, the balance of each ledger account (or group of ledger accounts) was divided by the consolidated production of the industry in the United States or Brazil, creating the indicator Transaction Costs per Available tonne kilometres (ATK) – here indicated as TC/ATK – corresponding to each group of airlines. (Note: ATK measures an airline's carrying capacity. It is calculated by multiplying the capacity – measured as the number of tonnes available – for transporting passengers and cargo by the distance travelled).

The interpretation of the TC/ATK indicator is that the higher its value, the lower the airline's (or industry's) efficiency from the point of view of transaction costs.

Analogously, the transaction costs were divided by the physical quantity of the sector demand, the Revenue tonne kilometres (RTK). In this way, the indicator of Transaction Costs per Revenue tonne kilometre – indicated here as TC/RTK – was created.

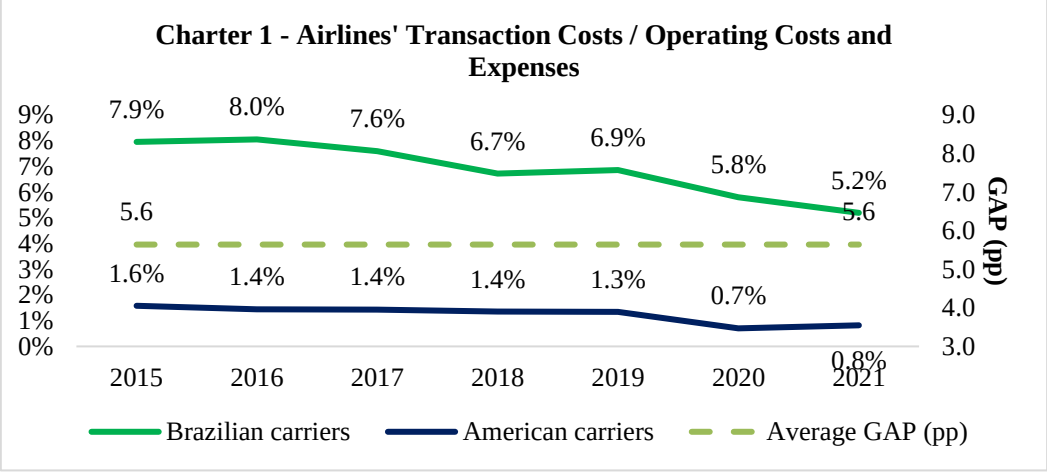
The differences in values of the TC/ATK and TC/RTK indicators, measured in percentage values for North American and Brazilian airlines, were called GAP. This variable expresses the difference in economic performance between the mentioned groups.

Finally, to evaluate the relevance of transaction costs in the profitability of the air transport sector in the United States and Brazil, the transaction costs in each case were added to the respective operating results and compared with the corresponding operating revenues. Doing this makes it possible to assess the significance of transaction costs in relation to the individual operating results. This assessment is instrumental in the case of air transport because the operating margins in this sector are known to be narrow.

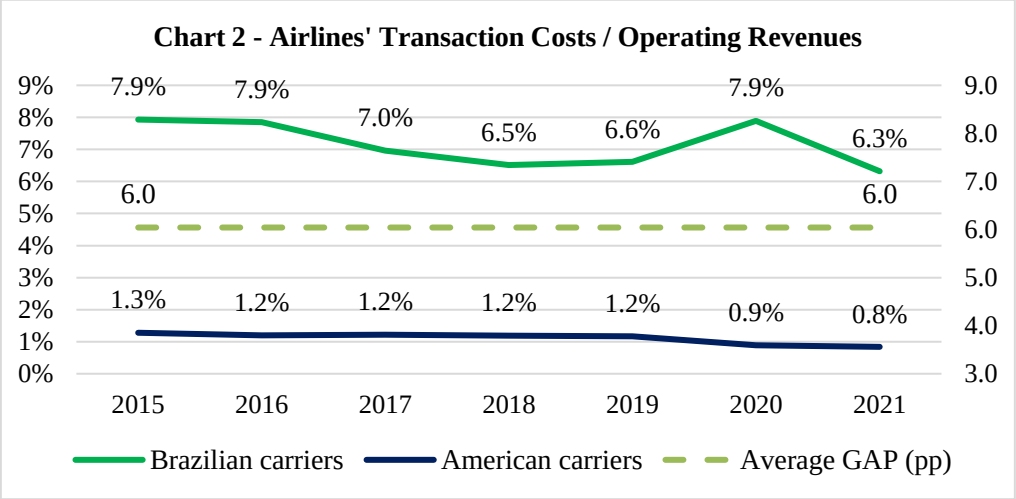
4. Findings

4.1 Transaction costs in relation to (i) operating costs and expenses and (ii) operating revenues

The graphs below indicate the proportion of the economic efforts of US and Brazilian airlines that are used to carry out their transactions. As can be seen, the values of the average GAPs from 2015 to 2021 related to operating costs and expenses and operating revenues were 5.6 and 6.0 percentage points (pps), respectively.



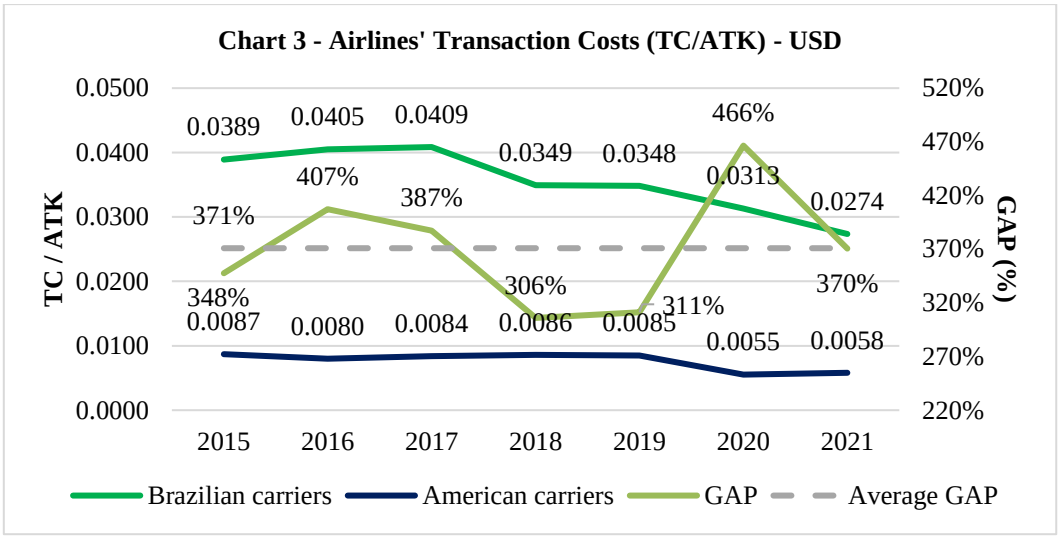
Sources: ANAC, US DOT



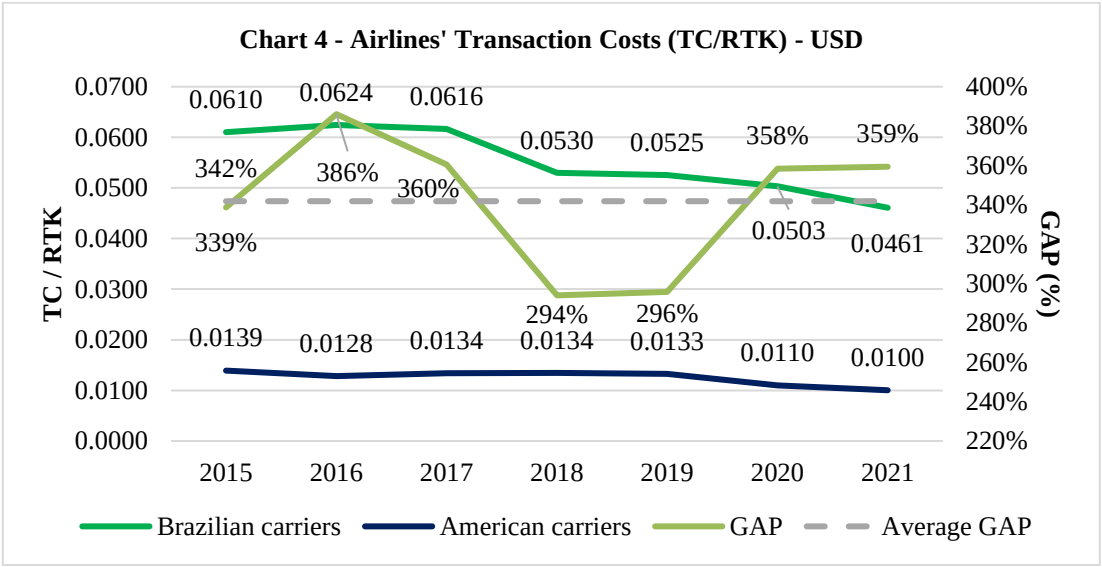
Sources: ANAC, US DOT

4.2 Transaction costs per unit of production (TC/ATK) and per unit of physical demand (TC/RTK)

The graphs below show the values of the TC/ATK and TC/RTK indicators for US and Brazilian airlines for all their domestic and international flights.



Sources: ANAC, US DOT.

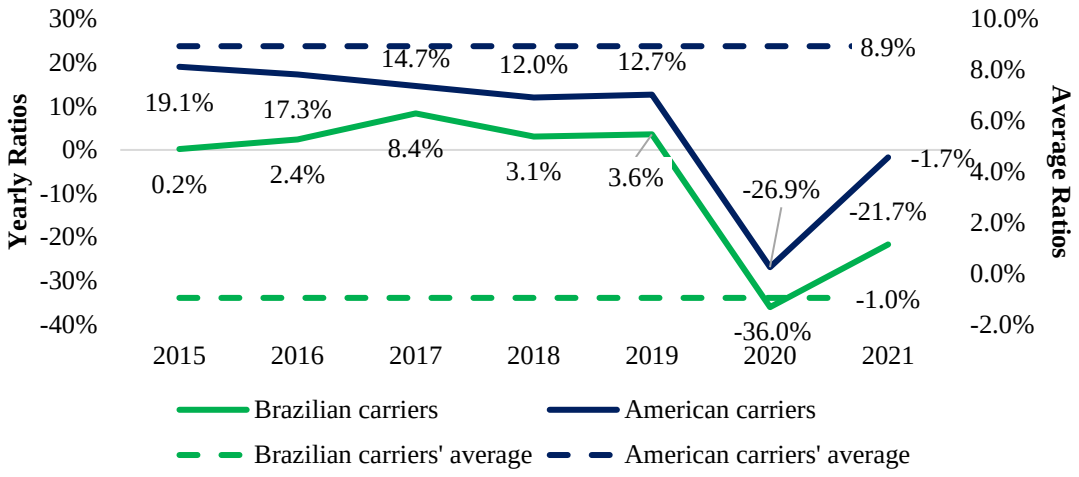


Sources: ANAC, US DOT.

4.3 Impact of transaction costs on net operating income

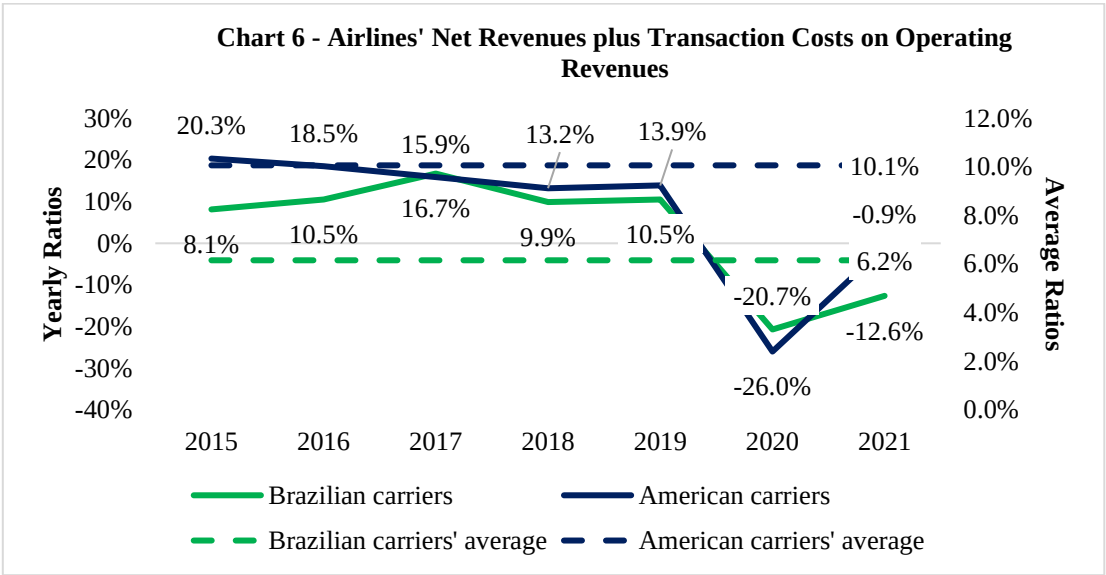
The graphs below indicate the impacts of transaction costs on the net operating results of US and Brazilian airlines. Graph 5 depicts what happened in percentage terms for the respective operating revenues. Graph 6 represents the theoretical situation of the net operating results if the transaction costs had been zero for both the US and the Brazilian airlines.

Chart 5 - Airlines' Net Revenues / Operating Revenues



Sources: ANAC, US DOT.

Chart 6 - Airlines' Net Revenues plus Transaction Costs on Operating Revenues



Sources: ANAC, US DOT.

5. Conclusions

The results demonstrate that the transaction costs of Brazilian airlines are significantly and proportionally higher than those of US airlines by a factor of between four and five. This fact indicates that the sector is less efficient in Brazil than in the United States from the point of view of transaction costs. The most likely reason is that US companies are less dependent than Brazilian companies on the existence and bargaining power of sales intermediaries.

Indeed, the first low-cost airlines appeared in the United States, and one of their first initiatives was to automate their sales. In this way, the participation of travel agents in the sales process was practically eliminated among low-cost companies. Another explanatory hypothesis is the possible lower penetration of information technology resources among part of the Brazilian population.

On the other hand, graphs 5 and 6 show the importance of transaction costs in relation to revenue and operating costs in the Brazilian case. Thus, in an ideal situation in which transaction costs were close to zero, Brazilian airlines would no longer realise an average operating result on revenues in the period equivalent to -1% but would start to realise a positive operating impact of an average of around 6.2% on revenues. There is, therefore,

a variation between what happened and the hypothesis above of about 7.2 percentage points. The same result for the North American airlines would correspond to a favourable variation of only about 1.2 percentage points in relation to operating revenues.

In this way, some critical aspects are demonstrated. First, Brazilian airlines are significantly less efficient than US airlines regarding transaction costs. Second, this lower efficiency translates into low profitability for the airline industry in Brazil. Third, even though transaction costs in the Brazilian airline industry are proportionally higher (in all the indicators used), there has been a tendency for this difference to narrow over time. Fourthly, it seems unlikely that the industry will be able to do anything relevant, in addition to what is currently being done (stimuli via price reductions in the direct purchase of airline tickets), to change the purchasing behaviour of Brazilian travellers.

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