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Airline Capacity Setting After Re-Regulation: The Brazilian Case in the Early 2000s

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Abstract

The Brazilian airline industry is one of the few cases in the world in which authorities temporarily re-regulated the market after years of economic liberalization: alleging excess capacity and systemic financial crisis, regulators reintroduced mechanisms of intervention in the industry in 2003-2004 and airlines were no longer allowed to expand flight frequencies and fleets at will. Additionally, a code-share agreement between the two biggest network carriers was stimulated in order to increase overall profitability. In such context, airline capacity setting was the strategic variable most affected. By deploying econometric techniques over an extensive panel of routes, this article aims at identifying elements that affect the decision Brazilian domestic scheduled passenger airlines make regarding capacity setting. Main results are: 1. the presence of a newcomer low-cost carrier in a market triggered competition in available seats, and was possibly one of the reasons for the alleged excess capacity on the occasion; 2. changes imposed by the re-regulation of the industry significantly affected capacity downwards; and 3. the code-share agreement had a negative impact on the supply of seats, meaning a greater market dominance and monopolization in the markets not entered by the low cost newcomer.

Keywords: capacity setting, code-share agreement, re-regulation.

JEL Classification: L11, L13, L93

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Introduction

The Brazilian airline industry is one of the few cases in the world in which authorities temporarily re-regulated the market after years of economic liberalization. In 2003, the Department of Civil Aviation – the Brazilian aviation authority by the time –, following directives of the new federal government, started implementing some measures of re-regulation, aiming at controlling an alleged excess capacity and over-competition in the market. Undoubtedly, the strategic variable mainly affected by the new measures was capacity, as airlines were no longer allowed to expand flight frequencies and fleets without permission. The present paper aims at identifying elements that affect the decision Brazilian domestic scheduled passenger airlines make in what concerns productive capacity setting. In particular, our objective is to test the impacts that two relevant episodes had on capacity setting behavior of airlines: (1) the economic re-regulation measures of 2003 and (2) the code-share agreement that the two biggest network carriers were stimulated to put in place as a mechanism for cutting capacity and increasing prices and overall profitability.

Our focus here is on the evolution and the determinants of total market supply by airlines. Capacity at the market level is clearly a result of the competitive interactions among profit maximizer firms, once they decided whether to enter and what kind of positioning they will have in the market. In the airline industry, network design and product perishability add complexity to this decision-making. Indeed, firms do not make independent decisions across markets, and although they set capacity individually in each of the routes served, they frequently relocate supply by changing the aircraft types or the number of flight frequencies. Additionally, capacity setting in a selected route impacts capacity setting on the other routes and therefore there may exist network externalities. This is reinforced by the fact that the availability of input factors like crew and fleet is roughly constant at the short term. Moreover, since seat-kilometers cannot be stored, airlines must continuously recommit the capacity they set in the market. This is consistent with the partial equilibrium approach of Berry (1992), which assumes that at the beginning of each period airlines have to decide whether to operate or not in a given market, given the structure and size of their networks and past sunk costs investments.

We therefore take advantage of a peculiarity of the airline industry, in which firms have to commit with capacity in each market and in each period once entry decisions are made. This is peculiar because in other industries firms make decisions on capacity very rarely or in a very infrequent basis. The variability in supply conditions and consequent capacity changes by airlines allows us to econometrically investigate capacity setting at the market level. With this purpose, we examine the case of Brazilian scheduled airlines in the early 2000s. Brazil has experienced relevant supply shocks such as the exchange rates overshootings of 1999 and 2002, which significantly impacted fuel, maintenance and leasing and ultimately, capacity. We use econometric techniques with the aim of empirically identifying the capacity formation process carried out by Brazilian scheduled passenger airlines between the 3rd quarter of 1998 and the 4th quarter of 2004, making use of an extensive panel of routes. The span of this sample allows us to contemplate the entry of a successful low cost carrier in Brazilian market (GOL *Linhas Aéreas Inteligentes*), in early 2001, the period of the re-regulation measures and of the short-lived code-share agreement between the two biggest network carriers, in 2003.

This paper has the following structure. Section 1 presents some of the main characteristics of the air transportation industry in Brazil. Section 2 describes the evolution of economic regulation of airlines in the country. Section 3 presents the empirical model that is developed and estimated, the data base and the methodology employed for the analysis. Section 4 presents the obtained results, which is followed by concluding remarks.

1. Characteristics of the Air Transportation Industry in Brazil

The airline industry is one of the sectors of the Brazilian economy that are usually regarded as "strategic" by both market analysts and the government; among the reasons is the constant need for enhancing the integration between its most important regions – a major issue for a country with the 5th largest area in the world, with approximately 8.5 million squares kilometres. Economic-wise, air transport represents approximately 3% of the country's gross domestic product, meaning a total (direct and indirect) impact of approximately 18 billion dollars on the economy.

Brazil is the most important airline market in Latin America. Out of the 75 million passengers in the whole region in 2000 (domestic and international traffic), the major stake, 35%, was carried by Brazilian airlines (mainly Varig and Tam); in fact, among the major Latin America airlines, and still considering figures for the year 2000, Varig had the largest global market share (14.9%), followed by Aeromexico (13%), Tam (11.9%) and Mexicana (11.7%). Table 1 shows the relative importance of each of the segments (domestic and international) and associated sub-markets (passengers in scheduled flights, passengers in chartered flights, mail, freight and others) in the Brazilian airline industry, by means of a disaggregation of the revenues generated in 2002. It is important to emphasize the relevance of both domestic *and* international segments of the air transport industry: total revenues are split at approximately 40%-60% between the international and domestic markets (roughly 6 million BRL in the former and 10 million BRL in the latter).

Table 1 – Air Transport Revenues by Segment (2002)

Sub-Market	**International**	**Domestic**	**Total**	**%**
Scheduled - Pax	*4,734*	*8,671*	***13,405***	85%
Charter - Pax	*18*	*241*	***259***	2%
Mail	*50*	*176*	***226***	1%
Freight	*1,148*	*709*	***1,857***	12%
Others	*0*	*21*	***21***	0%
Total	**5,950**	**9,818**	**15,768**	**100%**

Notes: Source – Statistical Yearbook of DAC (vol. II); ii. in million BRL, values deflated to 2004 by using IBGE's IPCA.

Brazilian air transportation experienced a steadily growth in terms of traffic (Revenue Passenger-Kilometres, RPK), supply (Available Seat-Kilometres, ASK) and load-factor in the period between 1995 and 2004. The volume of domestic ASK produced by the airlines experienced a growth of almost 60% in this period, while demand experienced a growth of almost 80%, what resulted in growth of almost 12% in load factor. Annual averages are shown in Figure 1 below.

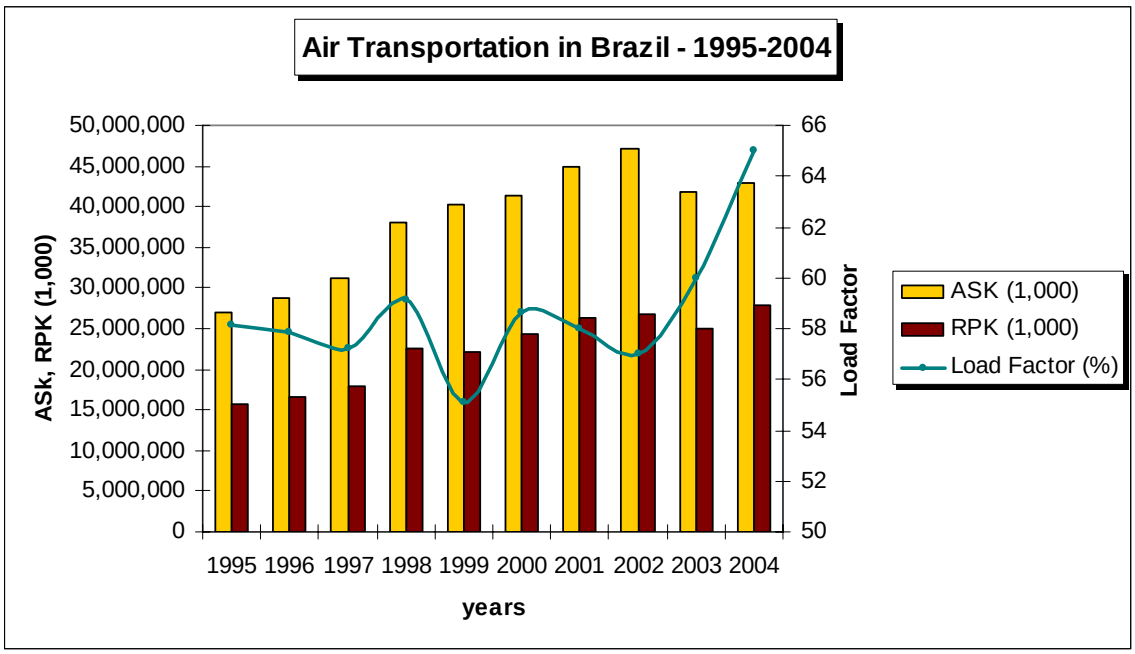

Figure 1 – The Path of ASK and RPK

In spite of its need for significant capital mobilization, the airline industry presents a well-known dynamism with regards to firm entries, expansions, reductions and exits in air markets. In the last years, three out of the four most important major airlines flying by the end of the 1990s have now either closed operations or downsized radically: Transbrasil ceased operations in December, 2001 and Vasp stopped its services in January, 2005. Furthermore, after years of negative financial results, Varig dramatically downsized its number of employees, active fleet and network in 2006. The airline was partied out and a debts-free organization – properly called "Nova Varig" ("New Varig") – was then sold to a group led by one if its former subsidiaries (cargo airline Varig Log)[1].

Meanwhile, some major expansions occurred as well. Tam Airlines became an international airline with fleet composed by more than 90 new-generation Airbus and Fokker jets. Gol Airlines, Brazilian first low-cost airline, was established in 2001 and it is, as of 2007, the second biggest airline in Brazil. It has ordered more than a hundred new narrow-body aircraft from The Boeing Company. It is also pursuing an international expansion of routes in both Brazil and other Latin American countries.

[1] Varig was later incorporated by Gol Airlines.

Furthermore, other changes in the industry involved general agreements between established airlines. The most important one – both in terms of magnitude of involved airlines and duration of the agreement –was the code-share agreement between Tam and Varig, aimed to be an intermediate step in a process that would culminate in a merger between these airlines. This broad code-share agreement between the two biggest airlines was signed in the beginning of the 2nd quarter of 2003 and lasted until the 2nd quarter of 2005. The impact of this agreement in domestic air transportation supply was more than evident, as a joint and simultaneous suspension of profitable flights was an indication of cartel conduct. Based on this fact, Brazilian Secretariat for Economic Monitoring (SEAE), an executive office of Finance Ministry (MF) carried on studies and later filled a lawsuit against the airlines involved in the case – a process that culminated in a Federal Resolution forbidding the agreement to proceed.

2. The Evolution of Economic Regulation of Airlines in Brazil

Until recently, one of the most relevant characteristics of the Brazilian air transport industry was the gradual and continuous process of economic liberalization that had been initiated in the early nineties by the Department of Civil Aviation, DAC, within a broader governmental program for deregulation of Brazil's economy.

The most representative stage of the regulatory period was from 1973 to 1986, where regulation was performed along with mechanisms of industrial policy. In fact, the government accomplished a framework of "four national airlines and five regional airlines" in order to both regulate and promote the industry's development, in a policy completely enacted by 1976. Prices were fixed by authorities, entry was banned, and the country was divided into five main monopolies for regional airlines. Besides that, competition between regionals and national (trunk) airlines was virtually absent. From 1986 to 1992, the government started being more intrusive in terms of macroeconomic interference in the industry, especially with respect to inflation stabilization targeting. This policy was remarkable in terms of interfering in the pricing of all infrastructure industries in the country and led to artificially low real fares, which airlines still claim have caused them great losses.

Liberalization effectively started from 1992 on, although some measures of deregulation were already present since 1989 (fare bounds, for example). During this First Round of Liberalization, regional' monopolies were abolished, with the exception of the airport-pairs linking city centers of four major cities – São Paulo (CGH), Rio de Janeiro (SDU), Belo Horizonte (PLU) and Brasília (BSB) –, called "special" airport-pairs, SAP. Furthermore, the policy of "four nationals & five regionals" was abolished, and newcomers' entry was stimulated by the regulator, which has led to a tide of new small airlines into the market.

To replace price fixing, reference prices and bounds from -50% to +32% of the main value were introduced. Competition in prices was seen as "healthy" for the industry, and was encouraged; fare bounds were conceived only as temporary instruments for enhancing price rivalry. This can be regarded as a period of inactive stabilization policy control, as there was no need for the macroeconomic authorities to interfere in the market, no pressure for price increase, and lower instability on the costs side, as exchange rates were stable during most of the period. In the late nineties the aviation authorities decided to remove the two relevant

regulatory devices still remaining: the fare bounds and the exclusivity of rights for operating SAP's by regionals. This generated the Second Round of Liberalization (enacted in Dec/97-Jan/98), which triggered much strategic interaction by airlines, with intense price and frequency competition.

Another relevant characteristic of the period was the strong instability of exchange rates, especially the high devaluation of January 1999, which represented a major increase in all airlines' operational costs and impacted airlines' activities, as Table 1 testifies with shown decrease in RPK and the smothered increase rate in ASK in 1999. As the pressures for price increase throughout the economy were strong, macroeconomic authorities (Ministério da Fazenda) started interfering in the industry again. This represented a relevant constraint to the airlines' strategies, as they could not increase prices as desired, but instead had to wait for previous authorizations from both the DAC and the MF. Besides that, antitrust authorities were now closely monitoring the market.

In 2001, most of the remaining economic regulation was removed, as well as the macroeconomic interference. All airlines could then set their prices freely and the sector entered a "quasi-deregulation" period, as entry, price and frequencies were also almost entirely liberalized. However, after an episode of severe financial crisis of most airlines in 2002, Brazilian aviation authorities started implementing some procedures of re-regulation in 2003, aiming at controlling an alleged excess capacity and over-competition in the market. New aircraft imports were banned, price competition controls were put in practice once again, and strategic movements increasing market concentration, such as the code-share agreement between the two major airlines, Varig and Tam, were neither disallowed nor discouraged.

3. An Empirical Study of Airline Capacity Setting

In this section we study the determinants of airline capacity setting in Brazil paying special attention to the impacts of the economic re-regulation measures and the code-share agreement of 2003 on market supply. We employ an econometric model of capacity formation by making use of an extensive panel of domestic routes. Route-specific data on flight operations were collected from the Department of Civil Aviation and disaggregated by airline/flight code. Data used originally contain complete information about the seat supply of scheduled airlines in Brazilian domestic markets, with information about days of operation, the name of the airline responsible for the operation, the aircraft deployed, among other information.

We propose the following model of capacity formation:

$$\begin{aligned} \mathrm{seats}_{kt} = {} & \alpha_{kt} + \beta_1 \mathrm{seats}_{kt-1} + \beta_2 \mathrm{gdp}_t + \beta_3 \mathrm{usd}_t + \beta_4 \mathrm{drereg}_t + \\ & + \beta_5 \mathrm{dcodeshare}_{kt} + \beta_6 \mathrm{dlccpres}_{kt} + \beta_7 \mathrm{adj\,seats}_{kt} + \\ & + \beta_8 \min \mathrm{airpseats}_{kt} + \beta_9 \mathrm{trend} + \sum_{s=2}^{4} \beta_{10+s} \mathrm{season}_s + u_{kt} \end{aligned} \qquad (1)$$

Indexes *k* and *t* represent route and time (quarter), respectively.

The dependent variable – $seats_{kt}$ – measures the average number of weekly seats offered in route *k*, in the weekly average for quarter *t*. The use of lagged values, $seats_{kt-1}$, indicates that serial persistence is expected *ex-ante* in this process. Right-hand side variables included in this model aims at identifying factors behind supply decision shifts. With regards to the macroeconomic variables, we included two variables in the model: gdp_t, the monetary value of Brazilian GDP in *t*, and usd_t, the effective exchange rate in *t*. The former variable was built with nominal data obtained from Brazilian Geography and Statistics Institute and brought to present value with the application of a wide consumer price index (Índice Nacional de Preços ao Consumidor Amplo – IPCA), while the latter was obtained from the Brazilian Central Bank. These variables account for, respectively, global demand and cost conditions. Regulatory issues are dealt with the inclusion of $drereg_t$, a binary variable that assumes value 1 whenever observation belongs to the Re-Regulation regulatory period, which started in the 2nd quarter of 2003 and was active up to the end of the sampled period, in 4th quarter of 2004, and 0, otherwise.

We include four variables as proxies for the market-specific conditions. The variable $minairpseat_{kt}$ represents the minimum connectivity each route *k* has at time *t*. This variable was obtained picking the smallest of the number of weekly scheduled domestic seats supplied – whether in departure or in arrival movements – at each extreme of the pair of airports of route *k*, in time *t*. Another market variable included in is $adjseats_{kt}$, which provides an indication of the magnitude of $seats_{kt}$ in departing and/or arriving movements at adjacent airports, as in Morrison (2001). This variable has nonzero values when observation refers to the cities of Belo Horizonte, Rio de Janeiro and São Paulo, where two commercial airports provide local community with scheduled operations, one centrally located and other located in the outskirts of the city.

The code-share agreement Tam and Varig maintained between 2003 and 2004 is controlled with the inclusion of $dcodeshare_t$, a binary variable that indicates if the observation relates simultaneously (i) to one of the routes included in the code-share agreement, and (ii) during the period in which this commercial agreement took place, namely from 1st quarter, 2003 up to the end of period sampled in this research, 4th quarter, 2004. Concern with the impacts of this joint business strategy is backed by the number of examples of literature on the subject, as Heimer & Shy (2006) testifies. The last variable included in the model relating to market structure is $dlccpres_{kt}$: this is a binary variable and assumes value 1 whenever Gol is present in route *k*, at time *t*. Similarly, the inclusion of this variable is inspired by Morrison (2001). Other variables included in the model for econometric control are binary variables that make reference to seasonal time period ($season_s$), plus a time trend *t*.

Originally collected with weekly periodicity, data was then accumulated and averaged in a quarterly fashion along the sampled period, namely between the 3rd quarter of 1998 and the 4th quarter of 2004, totaling 26 quarters. Only routes linking the 30 biggest national airports *and* with non-interrupted air link during the 26 quarters were considered. These airports were obtained after summing up all scheduled domestic number of seats (either arrivals or departures) that go thought each airport in an average week. This set of 30 airports account for 90% of weekly domestic seats. In the sampled period, there was a total of 282 direct links satisfying the initial criteria. The application of this methodology generated a sample of 7332 route-quarter pairs. Links that are possible with connecting flights (when there is at least one intermediate de-boarding and re-boarding procedure, with the change of equipment and/or flight number) were not generated. Descriptive statistics are presented in sequence.

Table 2 – Descriptive Statistics

Variables	Average	Standard Deviation	Min	Max
seats	5,073.373	6,866.7	36.0	81,831.0
gdp	411,853.6	28,831.2	355,256.2	478,340.9
usd	106.42	10.04	90.0	124.15
drereg	0.115	0.319		1.000
dcodeshare	0.126	0.332		1.000
dlccpres	0.235	0.424		1.000
adj'seats	2,646.23	7,576.75		90,659.03
min'airpseat	27665,68	31,446.19	140.0	237,416.7

With regards to the macroeconomic variables, a positive sign is expected for the GDP coefficient, in accordance with the hypothesis that air transportation has a positive correlation with the level of economic activity, following stimulus that economic growth has over demand. As far as the value of the foreign currency (exchange rate) is concerned, we expect that national currency valuation stimulates flight supply, since costs related to aircraft leasing, the import of spare parts and other inputs quoted in foreign currency may be better supported by the domestic airlines. Because the sample contains only domestic flights, positive effects of exchange rate devaluation over the demand for air transportation – and consequently the stimulus for the supply of air transportation – can be minimized. Moreover, a negative sign is expected for $drereg_t$ in case of the efficacy of the re-regulation measures of 2003 in decreasing the freedom of airlines to set capacity.

As far as other market variables are concerned, it is expected that the concentration of seats at the extremes of a route should have a positive impact over supply, a hypothesis coherent with the effects of network connectivity for attracting non-local traffic for the link. This phenomenon corresponds to the effects that hubs present for making links denser. The variable for adjacent airports is expected to present a negative sign, in accordance with the effect that relative substitutability between airports (under the passenger perspective) exerts over airline supply planning. The variable for the code-share agreement between Tam and Varig – another key variable – is predicted to present a negative sign, a result coherent with what theoretical models on oligopolistic competition predict under increased supply concentration. Finally, the binary variable for the presence of Gol is expected to present a positive sign, as the presence of this airline is – theoretically – associated with making routes denser. In other words, we expect a Gol-effect, similar to the so-called "Southwest Airlines Effect" in the United States, meaning the significant boost in traffic and fare cuts generally observed after the successful low cost carrier Southwest Airlines enters a route. Papers like Morrison (2001) and Boguslaski et al. (2004) explicitly deal with this effect. However, whether Gol Airlines is fully comparable to the low-cost paradigm is a subject that still deserves further studies, as Oliveira (2008) discusses.

4. Estimation Results and Discussion

In order to estimate equation (1), we make use of two different econometric procedures. Firstly, we employ feasible generalized least squares (FGLS), allowing for estimation in the presence of AR(1) autocorrelation within panels and cross-sectional correlation and heteroskedasticity across panels. Second, we employ the Arellano-Bond linear dynamic panel-data estimator, by considering that the unobserved panel-level effects is correlated with the lagged dependent variable $seats_{kt-1}$. Table 3 presents the results.

Table 3 – Market Capacity Supply Model Estimation Results

Variables	(1) FGLS	(2) Arellano-Bond
$seats_{kt-1}$	0.941 ‡	0.175 ‡
	(0.008)	(0.010)
gdp_t	-0.004	0.006 ‡
	(0.005)	(0.001)
usd_t	-22.429 ‡	-1.829 *
	(3.007)	(0.971)
$drereg_t$	-391.988 ‡	-100.884 ‡
	(109.558)	(34.600)
$dcodeshare_{kt}$	-178.549 †	-273.695 ‡
	(73.084)	(60.885)
$dlccpres_{kt}$	276.099 ‡	361.744 ‡
	(76.584)	(50.763)
$adj'seats_{kt}$	-0.006 ‡	-0.024 ‡
	(0.002)	(0.008)
$min'airpseats_{kt}$	0.011 ‡	0.119 ‡
	(0.001)	(0.002)
trend	-21.219	-51.479 ‡
	(16.452)	(5.952)
$season_2$	26.00	-106.13 †
	(135.2)	(39.7)
$season_3$	49.74	-71.29 *
	(139.1)	(39.9)
$season_4$	441.33 †	-107.31 †
	(182.3)	(53.0)
constant	4,560.94 †	-469.57
	(1737.2)	(518.0)

Notes: Omitted Fixed Effects; standard-errors in parenthesis;
** significant at 10 %; † significant at 5 %; ‡ significant at 1 %.*

Table 3 permits observing that most estimated coefficients had the expected signs and were statistically significant in both procedures. Results indicate that the re-regulation measures actually led to a reduction in the supply of seats (the coefficient of $drereg_t$ had a negative sign). With respect to the code-share agreement between Tam and Varig, one can see that this alliance probably led to a global reduction in seat supply – that is, a negative coefficient for $dcodeshare_{kt}$. Thus there is evidence that the Brazilian Competition Authorities were probably correct to expect negative, anti-competitive consequences as a result of the agreement.

Gol's presence was associated with higher supply levels. Indeed, the coefficient of $dlccpres_{kt}$ was positive and highly significant in both specifications. However, at the same time as the positive sign may be an indication that a "Gol-effect" exists, it may also indicate that Gol chooses entering denser routes. Oliveira (2008) infers from a discrete-choice model of Gol's entry determinants that seat availability was a possible indicator for underlying route profitability and indeed induced entry. Also, as incumbents were all in a fragile financial situation, any preemptive behavior aiming at predation may not be a realistic explanation for the competitive interaction among players. In lack of a structural model composed by a system of equations to better address the identification issues, no conclusive answer can be given on the subject. The literature has demonstrated, however, that entry episodes by low cost carriers are followed by a "cut fares and add flights" strategy (Whinston and Collins, 1992), which is consistent with our results.

We performed a test of the hypothesis that the negative effect of the code-share agreement on supply was fully compensated by the positive effect of Gol's entry. We therefore employed a Wald test of the linear restriction $\beta_5 + \beta_6 = 0$ in equation (1). In both models (FGLS and Arellano-Bond) the null hypothesis was not rejected, which indicates that the route presence of Gol represented a relevant restriction for Varig and Tam to coordinate their schedules and to adjust supply downwards. This fact is illustrative of how the relaxation of entry barriers may be important to sustain a competitive environment even when market concentration increases. Nowadays we have a highly concentrated market in Brazil, with Tam and Gol dominating more than ninety percent of operations and passengers. The results achieved here are suggestive that a regulator aiming at stimulating competition may have to pursue a target of allowing newcomers to easily access the markets, especially at highly congested, slot-constrained airports.

The variables expressing operations in adjacent airports ($adj'seats_{kt}$) and route connectivity ($min'airpseat_{kt}$), were also statistically significant and with coefficients with intuitive signs. We interpret the result of $adj'seats_{kt}$ as an indication of the perception of travelers considering airports in the same zone of influence as substitutes in a certain degree. Also, $min'airpseat_{kt}$ showed an expected positive sign probably meaning the existence of network externatilities and generation of additional demand for each of the routes leaving from or arriving to airports that concentrate multiple connection options for the passenger.

With regards to the macroeconomic variables included in the model, gdp_t presented a statistically significant coefficient only with the Arellano-Bond estimator. This was due to the inclusion of trend and seasonal effects, which partially captured the effects accredited to gdp_t. Also, the estimated coefficient usd_t indicated a negative and statistically significant correlation between seat supply and the dollar exchange rate. This result is in line with the importance that exchange rate-related costs have for Brazilian airlines. In fact, cost items such as leasing and spare parts for maintenance, as well as fuel, are considered inputs valued in

international currency and are usually highly correlated with the dollar exchange rates in Brazil. This negative coefficient estimate indicates that installed productive capacity in this sector is shrunk (expanded) when national currency devaluates (appreciates) and certainly warrants attention. Episodes of exchange rate overshooting as the ones observed after the exchange rate liberalization of 1999, are certainly illustrative of how airlines conduct and performance are vulnerable to the overall instabilities of emerging economies such as Brazil.

Conclusions

This paper aimed at identifying and quantifying the factors that influence the decision-making of Brazilian airlines concerning seat supply in their domestic scheduled network, paying special attention to the re-regulation of the industry in 2003 and a code-share agreement between two of the biggest network airlines. Although the econometric framework lacks in what regards demand data and a more structural modeling, the more straightforward reduced form approach chosen here was sufficient for uncovering basic elements behind airline capacity setting in Brazil in latest years.

It is clear from the empirical model developed that seat supply was significantly reduced during the period of re-regulation and of the code-share agreement. Particularly regarding the code-share agreement, capacity was significantly shelved and, if economic theory on oligopoly prevails, lower level of service and higher prices may have arisen, which justifies economic monitoring of concentration actions by regulatory authorities.

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