THE AIR TRANSPORT SUPPLY IN THE LATIN AMERICAN CITIES

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ABSTRACT
With the enlargement and deepening of global economy, the cities try to gain prominence to invigorate their economies. This happens in a framework where the role of national states was reduced and where the most dynamic economic activities tend to be located in the cities. In this way, cities must design politics that permit to alleviate the retreat of national states to be able to grasp flows of economic activities, among them the air transport. In Latin America the air transport politics have been developed almost exclusively by national states and official statistical agencies rarely publish data on urban scale. In this context, the data originating from the air transport supply allow to generate a state of situation for the cities of this region, allowing the development of comparative analysis. From these data the existing differences for the cities of the region are verified, even inside their own countries.

RESUMEN
Con la ampliación y profundización de la economía global, las ciudades intentan ganar protagonismo para dinamizar sus economías. Esto sucede en un marco donde el papel de los estados nacionales se redujo y donde las actividades económicas más dinámicas tienden a localizarse en las ciudades. Así, las ciudades tienen que diseñar políticas que permitan paliar la retirada de los estados nacionales para poder captar flujos de las actividades económicas, entre ellas el transporte aerocomercial. En América Latina las políticas aerocomerciales han sido desarrolladas casi exclusivamente por los estados nacionales y las agencias estadísticas oficiales raramente publican datos a escala urbana. En este contexto, los datos provenientes de la oferta aerocomercial permiten generar un estado de situación para las ciudades de la región, permitiendo el desarrollo de análisis comparativos. A partir de estos datos se verifican las diferencias existentes para las ciudades de la región, incluso dentro de sus propios países.

1. INTRODUCTION

Cities are considered as the engines of the economic development by their capacity to concentrate the most dynamic economic activity: the services. In this sense, the air transport can be considered as a strategic activity due to its capacity to generate employment and as factor of urban positioning in the 21st century. In response to the scarce offering of official statistical data referring to the air market in Latin American cities and by possessing the countries of this region air transport politics developed at national level, this paper displays information at urban scale generated by a data capture of the air transport supply. These data can provide a state of situation for the main Latin-American cities and to make comparative analyses among these that may help us to design air transport politics at urban or metropolitan level.

This article is divided in two chapters. The first one displays the present scene of the cities and air transportation in the paradigm of global economy. The main statistical data are presented in the second chapter, where a comparative analysis of the state of situation for the different selected cities is also found.

2. DYNAMIC CITIES AS ENGINES OF GROWTH

2.1 Cities in the context of global economy

Chapter 6 of the World Development Report 1999-2000 of the World Bank (2000) refers to the importance of the cities as engines of the growth in the 21st century. The changes in the patterns of economic development were altered through history. The process of expansion and deepening of *global economy* from mid seventies (Coriat, 1997), justifies this situation. The rise of this new economy was prompted, among others factors, by the oil crisis and the progress of new technologies. One of the main premises of this new paradigm consists on the possibility to expand and to accelerate the reproduction cycles of capital in the framework of the neoliberal globalization of the economy. This framework is sustained in what we could denominate as reduction or weakening of the state and its capacity of management and regulation, passing from a situation of welfare state to a *neoliberal state* (Ciccolella, 2003). In this way, an increasing internationalization of capital was produced that originated a series of consequences in the world commerce. The most important of these are: the increase in amounts and destinies of the direct foreign investments, the development of a highly integrated financial system,

the increase in the size and in number of the multinational companies and, finally, the strong migratory impulses (Lipovich, 2005).

The development of the financial system, the generation of advanced and banal services and the increment of the multinational companies were fortified inside the logic called as agglomeration economies. This have originated a concentration of management and economic control in the urban centers, denominated in some cases as *global cities* (Sassen, 1999). If in other times agriculture and industry have been the most dynamic economic sectors, today the most dynamic sector are the services and by their own characteristics, these are located mainly in the cities. At the same time, global economy incited national governments to erase or to alleviate the customs barriers to permit a greater degree of commercial exchange on planetary scale. Therefore, the national governments are the ones that at a first moment have seen reduced their capacity of management by being the heads in legislating about these questions and other linked to the expansion of the global economy, as the laws of labor flexibility and insertion of the foreign capital.

In this way, a gap between the importance of the cities inside the economic development and the weakness of the national governments was opened. In front of this situation the urban governments remained a little unprotected by the central governments, but with a great potentiality to invigorate its economies. Therefore, the searching to generate economic dynamism at urban level has used new strategies called as *local development*. Besides, this situation has influenced the strengthening of the urban competence with the objective of each city based on grasping investments and sources of work. It is in this direction that most cities have developed strategic plans to be positioned better inside the own dynamics of the global economy. The result of the strong competition among cities can be measured and classified with different qualifications that permit to generate city rankings (AméricaEconomía, 2003). The effort of the management of the urban governments to remain as highest as possible in these rankings (where variables related to the air transport activity are generally included) carry to apply vanguard strategies. It could be possible to think that large cities are the multinationals of the 21st century (Borja and Castells, 1997).

2.2 The air transport in the urban agenda

In this context, the air transport activity continues being hardly tied with the national states, although little by little the urban governments have greater participation. In Latin America, the governments of the different countries still have a very high interference in air market questions. Nevertheless some few cities have considered the necessity to include air transport aspects in their strategic plans and very few have advanced in this sense. Depending on the objectives of the management of the national governments, their air transport politics will be adjusted more or less to the requests, needs or desires of the urban managements. Although the national laws (that can also be subscribed to macro regions) cover all the cities of a country, it is possible to detect different cases. Significant differences in some aspects of the air market for each urban unit of a same country may exist.

The magnitude of the air transport flow does not only impact on the positioning of the cities in general rankings with views to attract investments, companies or executives. It is necessary to make an analysis about the city-airport relation to establish the advantages or disadvantages of the fluctuations that the air transport activity has in a city. At a first moment it is possible to say that the airports conform an activity that demands numerous of employment positions and includes economic activities and services of high added value. When varying the importance of the operation of each airport and when more complex are the activities, these characteristics can vary of exponential way until conforming a technopole with thousands of employees and with activities of high added value. In some cases they also can be cited as a location factor of different economic activities in the centre business district of the cities and thus increase the positioning of a certain metropolis in the present context of strong urban competitions (Lipovich, 2004). Nel·lo and Muñoz (2004) affirm that the city management would have to consider clear territorial objectives, among which the basic ones should be: to fortify the economic capacity and economic competitiveness and the exterior accessibility of the city; to organize functionally the urban structure; to guarantee the environmental sustainability linked to the social cohesion and the collective use of the territory. In this sense the air transportation is a key economic activity for the cities.

As an example the case of the Barcelona city government can be mentioned. This city has supported the transformations of El Prat Airport and created in 2005 the *Barcelona - Comitè de Desenvolupament de Rutes Aèries* (Barcelona Air Route Development Committee) that already counts with some positive results that are adjusted to the policy faced by his urban government. The activity of this committee is concentrated on two strategies: to settle down as an organ of contact and promotion of the Barcelona Airport for the air carriers and

the Catalonian institutions and to offer support for the establishment of new intercontinental routes and to maintain the present ones. The lines of work of this committee consist of devising market research to identify routes of interest and to carry out the promotion to obtain that they be established (Barcelona - Comitè de Desenvolupament de Rutes Aèries, 2006). The routes established by this committee from and towards Barcelona are: Atlanta, Bogota, Buenos Aires, Cartagena, Guayaquil, Havana, Hong Kong, Lima, Los Angeles, Natal, New York, Philadelphia, Quito, Santiago and Tokyo.

2.3 The study of the air transport in the Latin American cities

For developing air transport related policies is necessary, in the first place, to identify the potentialities of this activity and the objectives of a certain city that can be satisfied by the air transport. Nevertheless, the first step should contain statistical information about the air transport activity in this city and in another one that could be comparable, to qualify the situation of each city and to establish the potentialities of the case from the reality of other comparable cases. Although it may seem simple, in Latin America the obtaining of updated, comparable and on urban scale statistical data is an almost impossible task.

In developed countries is very probable to find updated and sufficiently released information to make analysis on the air transport activity of the cities in a compared way. However, the difficulty is greater for those researchers who work on the Latin American case. This is, probably not only for the limited resources of the statistical offices of this countries, but also because in these countries the air transport statistic is frequently defined on the national territory because the air transport policy is, in many cases, exclusiveness of the national agencies of government. Exceptions exist where we can find initiatives within scopes of urban governments or statistical offices that publish the situation for each airport (such is the case of Brazil, Chile and Mexico).

In front of this situation the researcher can work with the published data or can decide to generate the data. For this last case, the supply study may be useful. Although the study of the effective demand provides more representative data of the reality, the supply data can be useful as an alternative. In any case, it will be necessary to clarify that the supply between cities is being studied and compared. In fact, the city rankings sometimes take data from the demand (yearly passengers) or from the supply (quantity of destinies or frequencies). This work consists of displaying statistical data of the air transport supply that counts on the advantage to provide data that are generally outside the official statistics of demand, like the seats supply in different classes, the average prices or the monopolization level.

3 THE AIR TRANSPORT SUPPLY IN THE LATIN AMERICAN CITIES

3.1 Methodological aspects

The presented statistics were made on the basis of the main cities of Latin America. All the air flows with origin or destiny in a same week were considered (second week of December, 2005) so that the results were comparable. The cities included in the study were 41 and were selected from the criterion of having more than a million inhabitants according to the data of the official statistical agencies of each country. The cities at issue are: Buenos Aires, Cordoba and Rosario (Argentina); La Paz and Santa Cruz (Bolivia); Belem, Belo Horizonte, Brasilia, Campinas, Curitiba, Fortaleza, Goiania, Manaus, Natal, Porto Alegre, Recife, Rio de Janeiro, Salvador, Sao Luis, Sao Paulo, Vitoria (Brazil); Santiago (Chile); Barranquilla, Bogota, Cali and Medellin (Colombia); San Jose (Costa Rica); Havana (Cuba); Santo Domingo (Dominican Republic); Guayaquil and Quito (Ecuador); Guatemala City (Guatemala); Guadalajara, Mexico City, Monterrey and Puebla (Mexico); Lima (Peru); Montevideo (Uruguay) and Caracas, Maracaibo and Valencia (Venezuela). Because some of these cities include air transport services in more than one airport, it is necessary to clarify that for these cases the data corresponding to each airport were added. These cases are: Belo Horizonte (Confins and Pampulha), Buenos Aires (Aeroparque Jorge Newbery and Ezeiza), Medellin (Jose Maria Cordova and Olaya Herrera), Mexico City (Benito Juarez and Toluca), Rio de Janeiro (Galeao and Santos Dumont), San Jose (Juan Santamaria and Tobias Bolanos), Santa Cruz (El Trompillo and Viru Viru) and Sao Paulo (Congonhas and Guarulhos).

Because this cities are not directly comparable by having different characteristics and functionalities, the comparative analysis is presented (in point 3.3) from 6 city groups: the *great metropolitan cities* (set 1), the *great capitals* (set 2), the *great medium-size cities* (set 3), the *small capitals* (set 4), the *small medium-size cities* (set 5) and *the cities close to great metropolis* (set 6).

The data was extracted mainly of Internet. In the first place the carriers that fly in each airport of the studied cities were looked. Then, from the data of each carrier a database was generated that contains the following

fields: origin and destiny of the flight, carrier, flight number, operation days, weekly frequencies, departure and arrival schedule (that allows to verify schedules peak of operation in each airport), aircraft, number of seats (divided in tourist, executive and first class), flight distance (that permit to calculate the amount of offered seat-kilometers) and price of roundtrip in local currency. This last field then is divided by two (because many carriers do not offer one-way trips) and is converted to American Dollars. In order to calculate the price of the flights between two cities that are member of the group of the 41 selected cities, the price offered is taken according to the place where the passage is emitted (because usually there are differences) and the reference price for each city is taken.

Altogether, the flights that have as origin or destiny any of the 41 selected cities are operated by 113 air carriers that cover 469 airports with 43,004 frequencies during the chosen week. The amount of seats offered was of 3,656,698 (of which 95.18% correspond to tourist class, 4.67% to executive class and 0.15% to first class) and the amount of seat-kilometers offered for that week by all the carriers was of 7,312 million.

3.2 The data for the Latin American cities

The data capture carried out permits to present a great quantity of data. Nevertheless, in this paper are displayed the data of some variables that are useful to detect some differences among the cities and to expose the situation states.

Table 1: Weekly seats offered (December 11-17, 2005)

Order	City	Set	Seats	Order	City	Set	Seats
1	Sao Paulo	(1)	822,321	21	Medellin	(3)	66,291
2	Mexico City	(1)	678,307	22	Cali	(3)	60,421
3	Rio de Janeiro	(1)	349,946	23	Fortaleza	(3)	58,696
4	Buenos Aires	(1)	319,236	24	Havana	(4)	54,046
5	Bogota	(2)	290,235	25	Guatemala City	(4)	51,431
6	Santiago	(2)	210,456	26	Vitoria	(5)	44,024
7	Caracas	(2)	200,334	27	Maracaibo	(3)	42,474
8	Brasilia	(2)	190,440	28	Santa Cruz	(5)	42,425
9	Guadalajara	(3)	159,186	29	Manaus	(5)	36,665
10	Lima	(2)	147,239	30	Montevideo	(4)	31,905
11	Monterrey	(3)	132,377	31	Goiania	(5)	29,677
12	Belo Horizonte	(3)	105,955	32	Belem	(3)	28,123
13	Quito	(4)	93,909	33	Barranquilla	(5)	26,929
14	Porto Alegre	(3)	93,156	34	La Paz	(4)	26,525
15	Salvador	(3)	91,936	35	Campinas	(6)	26,103
16	Curitiba	(3)	90,227	36	Cordoba	(5)	24,753
17	San Jose	(4)	89,884	37	Natal	(5)	24,614
18	Recife	(3)	75,327	38	Valencia	(6)	22,827
19	Guayaquil	(3)	71,844	39	Sao Luis	(5)	18,798
20	Santo Domingo	(4)	67,703	40	Puebla	(6)	4,348
				41	Rosario	(6)	2,112

Tables 1 and 2 reflect the situation of the seats supply for the selected Latin American cities. The concentration of the seats supply in Sao Paulo and Mexico City is remarkable. Also it is possible to add Buenos Aires if we consider the seats-kilometers offered and an important participation of Rio de Janeiro. On the other hand, this tables shows other great South American capitals that have a good participation (Bogota, Caracas, Lima and Santiago), like some Brazilian and Mexican big cities (Brasilia, Belo Horizonte, Guadalajara and Monterrey).

Table 2: Weekly seats-kilometers offered (December 11-17, 2005)

Order	City	Set	Seats-Kilometers
1	Sao Paulo	(1)	1,643,038,046
2	Mexico City	(1)	1,250,495,583
3	Buenos Aires	(1)	1,004,762,395
4	Santiago	(2)	658,823,393
5	Rio de Janeiro	(1)	547,081,961
6	Lima	(2)	395,987,929
7	Bogota	(2)	350,410,885
8	Caracas	(2)	340,455,020
9	Brasilia	(2)	210,545,086
10	San Jose	(4)	204,398,964
11	Guadalajara	(3)	203,810,308
12	Havana	(4)	198,690,854
13	Santo Domingo	(4)	155,816,281
14	Guayaquil	(3)	135,171,945
15	Salvador	(3)	134,005,409
16	Recife	(3)	118,431,800
17	Quito	(4)	114,663,085
18	Monterrey	(3)	111,123,589
19	Fortaleza	(3)	108,032,122
20	Porto Alegre	(3)	94,213,296
21	Guatemala City	(4)	84,834,321
22	Montevideo	(4)	66,427,997
23	Manaus	(5)	65,908,744
24	Santa Cruz	(5)	64,012,255
25	Belo Horizonte	(3)	54,119,779
26	Natal	(5)	44,829,112
27	Cali	(3)	43,170,073
28	Curitiba	(3)	43,137,314
29	Belem	(3)	35,844,987
30	Medellin	(3)	34,268,030
31	Maracaibo	(3)	28,564,088
32	Vitoria	(5)	26,046,203
33	Sao Luis	(5)	25,266,753
34	Goiania	(5)	21,848,807
35	Campinas	(6)	21,218,675
36	La Paz	(4)	20,486,631
37	Barranquilla	(5)	19,314,365
38	Cordoba	(5)	16,304,112
39	Valencia	(6)	10,404,496
40	Puebla	(6)	5,996,498
41	Rosario	(6)	1,383,838

Another important variable within the study of the air transport supply in the Latin American cities is the price. This data generally does not appear in the statistical tables published by the official agencies.

Table 3: average of price/kilometer offered in American Dollars (December 11-17, 2005)

Order	City	Set	$/ Km
1	Puebla	(6)	$ 0.0640
2	Monterrey	(3)	$ 0.0792
3	Santiago	(2)	$ 0.0865
4	Lima	(2)	$ 0.0867
5	Buenos Aires	(1)	$ 0.0925
6	Havana	(4)	$ 0.0926
7	Cordoba	(5)	$ 0.0952
8	Guadalajara	(3)	$ 0.0993
9	Maracaibo	(3)	$ 0.1056
10	Rosario	(6)	$ 0.1098
11	Fortaleza	(3)	$ 0.1227
12	Mexico City	(1)	$ 0.1245
13	Caracas	(2)	$ 0.1305
14	Salvador	(3)	$ 0.1331
15	Natal	(5)	$ 0.1368
16	Santo Domingo	(4)	$ 0.1431
17	Recife	(3)	$ 0.1443
18	Porto Alegre	(3)	$ 0.1454
19	Guayaquil	(3)	$ 0.1500
20	Brasilia	(2)	$ 0.1510
21	Quito	(4)	$ 0.1544
22	Manaus	(5)	$ 0.1595
23	Goiania	(5)	$ 0.1604
24	Belem	(3)	$ 0.1618
25	Santa Cruz	(5)	$ 0.1620
26	Cali	(3)	$ 0.1671
27	Campinas	(6)	$ 0.1693
28	Sao Luis	(5)	$ 0.1693
29	Sao Paulo	(1)	$ 0.1788
30	Guatemala City	(4)	$ 0.1810
31	Bogota	(2)	$ 0.1816
32	Vitoria	(5)	$ 0.1864
33	Barranquilla	(5)	$ 0.1903
34	La Paz	(4)	$ 0.1974
35	Curitiba	(3)	$ 0.1990
36	Valencia	(6)	$ 0.2029
37	Rio de Janeiro	(1)	$ 0.2052
38	Montevideo	(4)	$ 0.2148
39	Medellin	(3)	$ 0.2214
40	Belo Horizonte	(3)	$ 0.2292
41	San Jose	(4)	$ 0.3509

This average of price/kilometer (table 3) was calculated having as reference the lowest prices offered by the carriers for the different flights that then were weighed by the amount of weekly frequencies offered for each

flight. In this way, average prices were generated for each city that were included with the aim of being representative and not really exact, since a part of the price is independent of the distance and the price/kilometer is not directly proportional to the distance. Nevertheless, this situation exists for all flights in all cities.

Table 4: Air market participation of major carrier by city (December 11-17, 2005)

Order	City	Set	Carrier	Participation	Order	City	Set	Carrier	Participation
1	Habana	(4)	Cubana de Aviación	100.00%	21	Quito	(4)	TAME	47.32%
2	Montevideo	(4)	Aeromas	100.00%	22	Guayaquil	(3)	TAME	46.38%
3	Rosario	(6)	Aerolineas Argentinas	100.00%	23	Puebla	(6)	Avolar	46.05%
4	Buenos Aires	(1)	Aerolineas Argentinas	86.66%	24	Campinas	(6)	TAM Group	45.91%
5	Guatemala City	(4)	Aviateca	78.70%	25	Recife	(3)	TAM Group	45.24%
6	Santiago	(2)	LAN Group	74.17%	26	Belem	(3)	TAM Group	43.73%
7	Cordoba	(5)	Aerolineas Argentinas	73.78%	27	Sao Paulo	(1)	TAM Group	42.92%
8	Santa Cruz	(5)	Lloyd Aereo Boliviano	73.03%	28	Salvador	(3)	TAM Group	41.01%
9	Cali	(3)	Avianca - SAM	65.54%	29	Belo Horizonte	(3)	TAM Group	40.97%
10	San Jose	(4)	Nature Air	59.51%	30	Curitiba	(3)	TAM Group	40.54%
11	La Paz	(4)	Lloyd Aereo Boliviano	59.26%	31	Fortaleza	(3)	TAM Group	38.50%
12	Sao Luis	(5)	TAM Group	59.21%	32	Maracaibo	(3)	Aserca	38.19%
13	Bogota	(2)	Avianca - SAM	58.61%	33	Natal	(5)	TAM Group	37.40%
14	Medellín	(3)	Avianca - SAM	58.47%	34	Rio de Janeiro	(1)	VARIG	36.78%
15	Valencia	(6)	AeroPostal	57.44%	35	Manaus	(5)	VARIG	36.27%
16	Barranquilla	(5)	Avianca - SAM	57.26%	36	Mexico City	(1)	Mexicana	35.08%
17	Goiania	(5)	TAM Group	52.21%	37	Porto Alegre	(3)	GOL	32.55%
18	Brasilia	(2)	TAM Group	51.40%	38	Caracas	(2)	Aserca	32.19%
19	Vitoria	(5)	TAM Group	49.00%	39	Guadalajara	(3)	Aeromexico	30.57%
20	Lima	(2)	LAN Group	47.40%	40	Monterrey	(3)	Aeromexico	27.22%
					41	Santo Domingo	(4)	None	0.00%

Table 5: average of price/kilometer offered in domestic flights (December 11-17, 2005)

Order	City	Set	$/ Km
1	Puebla	(6)	$ 0.0573
2	Monterrey	(3)	$ 0.0682
3	Buenos Aires	(1)	$ 0.0738
4	Santiago	(2)	$ 0.0751
5	Cordoba	(5)	$ 0.0900
6	Havana	(4)	$ 0.0909
7	Lima	(2)	$ 0.0911
8	Maracaibo	(3)	$ 0.1055
9	Guadalajara	(3)	$ 0.1064
10	Rosario	(6)	$ 0.1114
11	Fortaleza	(3)	$ 0.1243
12	Montevideo	(4)	$ 0.1257
13	Salvador	(3)	$ 0.1339
14	Natal	(5)	$ 0.1393
15	Mexico City	(1)	$ 0.1413
16	Caracas	(2)	$ 0.1437
17	Recife	(3)	$ 0.1453
18	Porto Alegre	(3)	$ 0.1472
19	Brasilia	(2)	$ 0.1513
20	Manaus	(5)	$ 0.1595
21	Goiania	(5)	$ 0.1604
22	Belem	(3)	$ 0.1623
23	Campinas	(6)	$ 0.1693
24	Sao Luis	(5)	$ 0.1693
25	Quito	(4)	$ 0.1740
26	Cali	(3)	$ 0.1771
27	Barranquilla	(5)	$ 0.1814
28	Guayaquil	(3)	$ 0.1829
29	Vitoria	(5)	$ 0.1864
30	Sao Paulo	(1)	$ 0.1911
31	Santa Cruz	(5)	$ 0.1994
32	Curitiba	(3)	$ 0.1999
33	Bogota	(2)	$ 0.2041
34	Valencia	(6)	$ 0.2088
35	Rio de Janeiro	(1)	$ 0.2166
36	La Paz	(4)	$ 0.2231
37	Medellin	(3)	$ 0.2255
38	Belo Horizonte	(3)	$ 0.2292
39	Guatemala City	(4)	$ 0.2818
40	San Jose	(4)	$ 0.5616
41	Santo Domingo	(4)	$ 0.0000

The price average could respond to other situations. One of these situations is reflected by the price regulation and the existence of monopolies or the competitiveness levels. Therefore, the last variable to present in this paper refers to the participation (in number of offered seats) of the carriers in the air market of each city.

The information of the monopolization level (table 4) is accompanied by the data of the average of price/kilometer to make a relation between them. In order to study this variable the data referred to the domestic markets appears in table 5 because in the international flights, generally, the monopolization levels usually are lower due to the reciprocity of services between carriers of different countries.

With all the exposed data, it is possible now to throw light on some points that may arise from the comparative analysis of the air transport supply for these cities.

3.3 Comparative analysis of the situation in the Latin American cities

The first condition to make a comparative analysis is to know how to distinguish comparable and non comparable cases. This is a subjective process based on some conception of the sets of comparable elements. In this case, where the base of the analysis is focused in studying very general questions like those exposed in the previous point, 6 city sets have been generated that share some characteristics and allow to make a brief comparative state of situation.

In the first place, there is the group of the *great metropolitan cities* (set 1). These are the cities that surpass the 10 million inhabitants (Buenos Aires, Mexico City, Sao Paulo and Rio de Janeiro). In relation to these cities the concentration of seats offered in Sao Paulo and Mexico City is remarkable, both can be considered as great points of attraction of flows of all region. It is possible to add Buenos Aires if we consider the seats-kilometers offered. Besides, the cities of this group are positioned acceptably in reference to the amount of seats offered by inhabitant, although Sao Paulo and Mexico City are located clearly over the average. From the price/kilometer arises that Buenos Aires is the cheapest of this group in spite of being the city that less seats offers weekly. Sao Paulo and Rio de Janeiro have much higher prices that almost duplicate the values of Buenos Aires. With respect to the monopolization levels in relation to the price/kilometer in domestic flights, this group of cities presents an opposed behaviour to the expected one because Buenos Aires is the city with greater monopolization level but at the same time is the cheapest one. The situation of the other cities is inverse, low monopolization levels with high prices, mainly in Sao Paulo and Rio de Janeiro.

Secondly, the group of the *great capitals* (set 2), that by being administrative capitals have a greater dynamism by the own demand of the governmental activities. These cities have more than 3 million inhabitants and they are: Brasilia, Bogota, Caracas, Lima and Santiago. This group is the second segment in relation to the amount of seats and seats-kilometers offered. Analyzing the seats offered by inhabitant, all these cities have the highest numbers except for Lima than have one of the lowest of the region. In relation with the price/kilometer, these are found between the cheapest of the region with the exception of Bogota that is one of the most expensive. With respect to the monopolization levels, Santiago is the most monopolistic city and, like the case of Buenos Aires, is one of the cheapest. The rest of the cities have high monopolization levels, except Caracas that is one of the most competitive cities.

Thirdly, we found two groups within the same rank of offered seats: the one of the *great medium-size cities* and the one of the *small capitals*. The first one is composed by cities of more than 2 million inhabitants that are not national capitals (set 3). These cities are: Belem, Belo Horizonte, Cali, Curitiba, Fortaleza, Guadalajara, Guayaquil, Maracaibo, Medellin, Monterrey, Porto Alegre, Recife and Salvador. The cities that count with more offered seats by inhabitant are the Mexicans (Guadalajara and Monterrey), whereas Belem and Fortaleza are those that have less offered seats by inhabitant. In relation to the price/kilometer we can say that the cheapest are Monterrey, Guadalajara and Maracaibo, and the most expensive ones are Belo Horizonte, Medellin and Curitiba. With respect to the monopolization levels linked to the price/kilometer, it can be told that these cities have lower prices at least centralized is the market. Belo Horizonte and Curitiba are the exception because they include competitive markets, but with very high prices.

The group of the *small capitals* (set 4) is conformed by those national capitals that do not surpass the 3 million inhabitants. The cities are: Guatemala City, Havana, La Paz, Montevideo, Quito, San Jose and Santo Domingo. The cities with more seats supply are Quito, San Jose and Santo Domingo, whereas La Paz is the one that counts with less supply of this type. At the same time, San Jose, Quito and Guatemala City stand out being the cities that more seats by inhabitants offer in relation to the rest of the cities of the entire region. With respect to price/kilometer it is possible to be affirmed that Havana is the cheapest one and San Jose and Montevideo the most expensive. Finally, all these cities have high monopolization levels; nevertheless, Havana and Montevideo have low prices.

Another group is the one of the *small medium-size cities* (set 5). These cities have up to 2 million inhabitants and they are not national capitals. The cities of this group are: Barranquilla, Cordoba, Goiania, Manaus, Natal, Santa Cruz, Sao Luis and Vitoria. Their participation in comparison with the other cities is much smaller. This happens not only because they have less inhabitants, but also because in addition they have a low proportion of offered seats by inhabitant. Perhaps the reason consists of which the air transport is super concentrated in comparison with the population or other economic activities. With respect to the price/kilometer it is possible to be affirmed that Cordoba is the cheapest city and Barranquilla and Vitoria are the more expensive ones. If we see what happens with the monopolization levels it is possible to say that a high monopolization for these cities exists with exception of Manaus and Natal that are most competitive of this group. Again a paradox appears to us since Cordoba presents a very monopolistic air market and has very low tariffs.

Finally, it is possible to talk about the *cities close to great metropolis* (set 6). These cities are near great nodes, nevertheless they are not sufficiently close enough to operate complementary flights with those nodes. These cities are: Campinas, Puebla, Rosario and Valencia. These cities stand out for having the smaller numbers of seats supply. In addition, they conform the last block keeping in mind the variable of offered seats by inhabitant. In relation to the price/kilometer they do not have a common pattern, being the cheapest one the city of Puebla (the cheapest one of Latin America) and the most expensive is Valencia. The monopolization level of these cities is high although Puebla and Rosario have low prices.

4. FINAL REFLECTIONS

The analysis of the air transport on urban scale is opportune if we consider that at the moment the cities are the engines of the economic development. In Latin America the air transport policy is defined, almost exclusively, on national scale. Therefore, and from the shortage of official statistical data, the study of the air transport supply by cities enables an approach to the reality of this market that can help to the research and to the design of urban politics linked to the air transport.

The 41 Latin American cities selected have great differences among them, thus the definition of comparable elements sets can help to research equivalent cases that present different air transport realities. In this work the

processed data are exposed to be offered to the academic community and proposes sets of comparable cities with a brief comparative analysis.

Of what was exposed, can be told that Mexico City and Sao Paulo are great nodes that concentrate an important part of the air flows. In addition, it is possible to be said that the monopolization level of the Latin American cities is high, although there are cases where the prices are relatively low. The Argentinean cities and Santiago present monopolized markets with a low price/kilometer. On the other hand, the Brazilian cities have scenes of greater competitiveness maintaining a high price/kilometer. The reasons can be looked for in the politics and economic realities that exist at national level. In this sense, the displayed data can be transformed into an analysis tool that serves to see how the different cities can use another models in spite of the national politics that influence in their air markets and to provide, in some way, power to exert some type of political pressure towards the national governments with views to improve their situation.

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