AN ANALYSIS OF THE LATENT DEMAND FOR LOW-COST AIR TRANSPORT SERVICES IN SOUTH AMERICA

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ABSTRACT

The goal of the present paper is to assess the potential role that low cost air transport services could play in South America. We will briefly review the characteristics of the low cost air transport model, in order to check to which extent existing South American airlines conform to it. The outcome is that this industry generally does not present many of the characteristics of low cost airlines located in North America and Europe. Therefore, there appears to be a substantial market development potential for these services, provided that a more favourable regulatory framework is set up. Such potential market is assessed through a geographical analysis aimed at discovering the main production and attraction points for trips that could be served by low-cost air mobility services in South America. A production index for a given area is then defined on the basis of (1) the size of the population that can afford such a service, (2) the percentage of immigrants within the basin, that are more likely to use low cost services to visit friends and relatives, and (3) the number of urbanites, as a proxy of those people more conveniently located near the airport. A complementary attraction index is defined by looking at the number of tourists that visits the different regions. By combining the two indexes through a simplified gravitational trip distribution model, we individuate the routes that should have the highest market potential for low cost air travel services. The ten most promising routes are all located in the southern part of this subcontinent.

Keywords: low cost flights, air travel demand

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1. INTRODUCTION

The deregulation of air transport services in the latest 30 years has driven major changes in the structure of the air travel offer in many regions around the world. One of the most relevant consequences of this new legal framework has been the development of low cost airlines, whose market share has been steadily increasing in the last decade. However, deregulation processes have not equally hit all countries and regions in the world. North America pioneered this tendency, mainly followed by Europe and by some Asian countries.

The goal of the present paper is to assess the potential role that low cost air transport services could play in South America. There are several elements that make such exercise interesting and challenging both on a theoretical and on a policy point of view. The steady economic development process in many countries in this region is stimulating the demand for faster and more comfortable travel means, yet the income distribution still makes traditional air transport services too expensive for the majority of the population. Looking at competing travel modes, average interregional trip lengths make the use of road transport not so convenient, whereas long distance railways play a minor role compared to other parts of the world. On the other hand, air transport regulations are still rather rigid in many countries of this subcontinent, thus hindering the organisation of low cost services.

Given such situation, it seems relevant on one hand to assess the actual feasibility of offering a low cost air transport service in South America, particularly concerning regulatory issues, on the other to study the potential demand in order to start identifying the most promising routes. Accordingly, the paper is organised as follows. We start by briefly reviewing the air transport deregulation process in the U.S. and in Europe on one hand, and the evolution of the air transport system in South America on the other. This will allow us to define the characteristics of the low cost air transport model, in order to check to which extent existing South American airlines conform to it. The paper will then carry out a geographical analysis aimed at discovering the main production and attraction points for trips that could be served by low-cost air mobility services in South America. The following step is to quantitatively characterise such poles, by gathering and elaborating those data that measure important attributes of the poles. In the final part of the paper, it will therefore be possible to individuate the routes that should have the highest market potential.

2. HISTORICAL PERSPECTIVES ON THE AIR TRANSPORT SYSTEM IN THE AMERICAS AND IN EUROPE

2.1. Deregulation processes in the U.S. and in Europe

Most transport systems, including air services, have been strictly regulated until the last quarter of the past century both in the U.S. and in Europe. The new course of action started in 1978, when the Carter administration promoted the U.S. Airline Deregulation Act, aiming at the development of a competition market, the promotion of a greater number of small air transport companies and the increase of the service offer (TRB, 1991). Actions were primarily taken to overcome the previous framework, particularly concerning the market accessibility for those companies complying with given technical and economic standards, the possibility

of buying slots on underutilized routes from other operators, the possibility for foreign companies to operate domestic flights, the creation of an antitrust authority. Normative restrictions should have been removed from 1981 for domestic flights and from 1983 for all services.

The European deregulation process started about one decade later. Three liberalization packages were approved in the former European Community about twenty years ago. In 1988, the first package mainly aimed at removing some of the limitations concerning the governments' control of tariffs and the possibility of setting up new connections among regional airports. It was followed in 1990 by the implementation of some cabotage rights, the obligation to accept new companies entering the market if technically suit and a further liberalization of tariffs; all these three deregulation trends have further been enforced in 1993 (Button, 2001).

The deregulation process itself is not fully achieved, given for example the lack of contendibility of airport capacities. Slots are in fact mostly freely assigned following IATA regulations. According to the "grandfather rights", operators have the right of having their utilized slot reconfirmed for at least 80% of the scheduled time.

Beyond these technical details, it is important here to note that the two processes have followed rather different patterns, according to the different institutional framework, although both the objectives and even the practical measures being taken were very similar. When dealing with a single market that spans over several different sovereign states, as in Europe and potentially in South America, the implementation of any reform is inevitably slower. It is therefore important to correctly set up an effective framework for a negotiation process needed to compose the inevitably diverging interests of the concerned countries. Such framework, which can be represented by supranational entities such as the EU or a free trade organism, is normally needed in order to go beyond the empowerment of a series of bilateral or multilateral treaties, whose compounding effects can originate regulatory intricacies that can severely hinder the deregulation process itself.

2.2. The development of air transport services in South America

National air transport companies (the so-called flag carriers) were set up in most South American countries in the Fifties, although state-owned companies had existed in this regions since the end of the First World War. Both service tariffs and cost levels were determined by public powers, along with the possibility of new operators to enter into the market. The liberalization process started in the Nineties through a series of bilateral and multilateral agreements. Under this new trend and for example as a consequence of the agreement between Colombia and Venezuela in 1991, there was a spectacular increase of the related air traffic of 45% from 1993 and 1994, whereas in the same year the agreement between Chile and Colombia opened to some extent the skies of the latter country to Chilean companies willing to serve Colombian cities beyond Bogotá. This integration process was strengthened by the Fortaleza agreement of 1996, which ensured fly over and non-commercial landing rights and enlarged the network of air connections.

In these same years, the privatization of many national companies was carried out, and subsequent concentration processes in this industry were further pushed by the market crisis following the September 11, 2001 attacks. The current asset of the offer of air transport in

South America therefore is characterized by the presence of some big operators, at least compared with the market dimension, that in many cases are also bounded by cross shareholdings. We represent in Figures 1 and 2 the most important international (but inside South America) and domestic air routes in terms of number of travellers in 2010. We notice the importance of airports in Santiago, Lima, São Paulo, Rio de Janeiro and Buenos Aires, along with the relevance of the domestic market in Brazil.

Despite the above mentioned integration processes concerning both the market and the service suppliers, there is still not a common regulatory framework concerning air transport operations in South America. The Fortaleza agreement actually brings together Argentina, Brazil, Paraguay, Uruguay, Chile, Bolivia and Peru, but is still subject to a series of bilateral agreements when coming to its actual implementation.
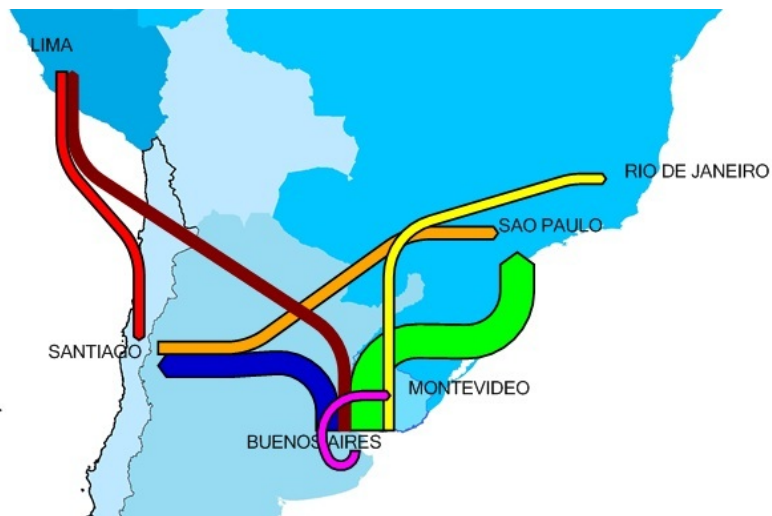

Figure 1 – Main international routes inside South America in terms of number of passengers (ALTA, 2011)
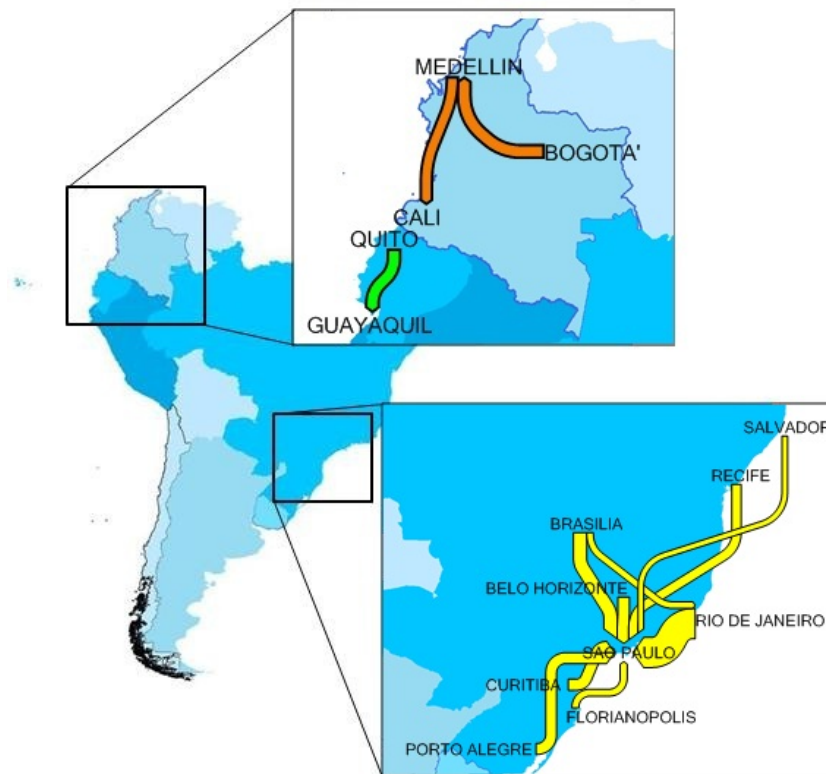
Figure 2 – Main domestic routes in South America in terms of number of passengers (ALTA, 2011)

In this section we have described the deregulation processes that, to different extents, took place both in Europe and in the U.S, and we sketched the parallel evolution in South American air services. For the purposes of the present paper, it is important to note that one of the consequences of the deregulation in the Northern Hemisphere was the birth of low cost airline companies. In order to understand to which extent a similar trend is in progress also in South America, we need first to define what we mean by low cost air transport. This is the object of the following section.

3. THE LOW-COST AIR TRANSPORT MODEL AND ITS IMPLEMENTATION IN SOUTH AMERICA

3.1. Definition of the model and market dimension in the northern hemisphere

The service characteristics that are generally associated with low cost companies are the following:
- Point-to-point operational scheme, as opposed to hub-and-spokes that are typical of traditional companies. According to the former scheme, there is no hierarchy among different airports and routes, whose service is exclusively dimensioned on the basis of the corresponding demand. This has a number of consequences: for example, low cost tickets are usually sold by single journey legs and seat occupancy tends to be higher.
- Also partially as a consequence of the above scheme, the aircraft fleet is homogeneous, thus simplifying a lot of logistics aspects, the training of pilots etc.

- Service operations such as catering services are also simplified by the fact that there is a unique service class in all airplanes and places are not numbered.
- Flights cover short and midrange routes, which are easier to operate.
- Airport fees are minimized (and possibly subsidies are secured by local authorities) by taking off and landing in secondary airports overnight or early in the morning.
- Target customers are tourists and "visiting friends and relatives" trip makers rather than business travellers.
- Ticket sales and possibly check-in procedures are performed over internet.
- On-board occupancy is maximized through the less constrained point-to-point operating scheme (absence of connections) along with a targeted pricing policy.
- All on-board services are charged ("no frills").

Understanding whether a given air transport service can be considered as low-cost or not is only apparently an easy task in contemporary air transport operations. This is due to the fact that, after the appearance of low cost companies, virtually all operators reacted by adopting some of their characteristics and strategies, thus giving place to mixed service schemes. In particular, traditional companies are increasingly simplifying their logistics through the standardization of the fleet or by streamlining on-board services. Conversely, many low-cost companies do not present all the above listed characteristics.

The above difficulty in classifying airline companies into "traditional" and "low cost" is reflected in the approximation of current estimates of the demand that is served by low cost services. According to ITF (2002), about 19% of all companies could be considered as low cost at the beginning of the century. Their market share has been steadily increasing in the past decade in all regions of the world where they are present, as shown in Figure 3. It is particularly interesting to note that about ten years ago this share was not negligible only in the U.S., probably due to the fact that the deregulation process started about one decade before, whereas in more recent years low cost flights are more and more diffused in Europe, possibly due to stronger competitiveness difficulties of the traditional industry. Further analyses on the development stages, current status and future prospects of this industry are reported elsewhere (Francis et al., 2006).
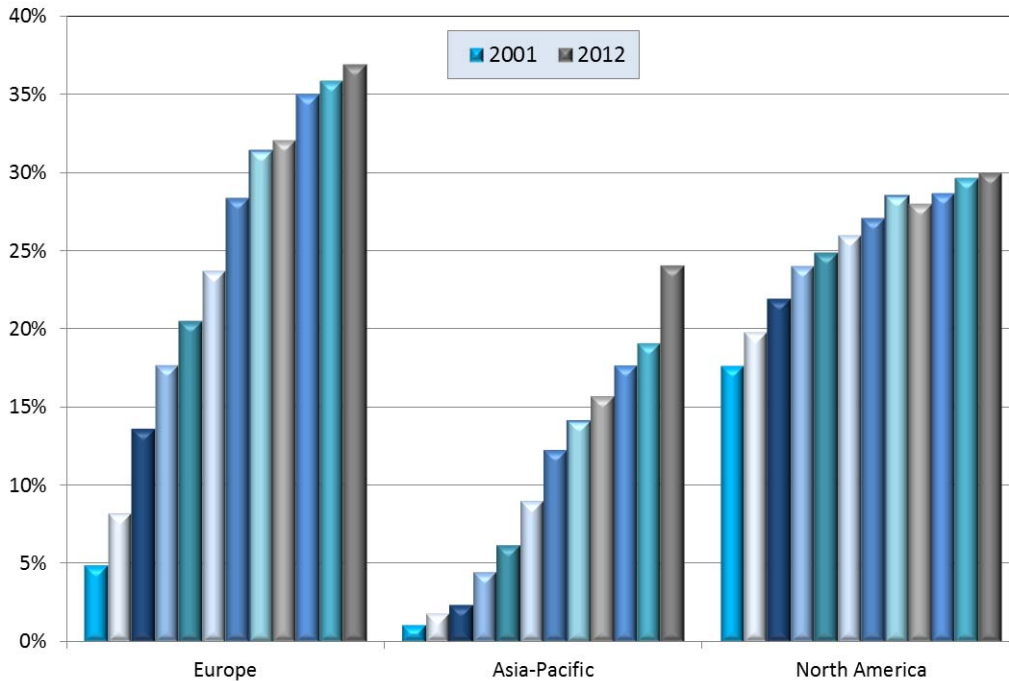
Figure 3 – Percentage of low cost flights from 2001 to 2012 in different world regions (CAPA, 2012)

3.2. The compliance of airline companies in South America with the low-cost model

Presently, none of the main 44 air transport companies in South America seems to fully comply with the low cost model, according to our previous definition, even if some of them occasionally use such concept mainly for commercial reasons. Of course, according to the definition that is given to the low cost model, some of these are considered as low cost (for example the Brazilian GOL: see Lawton, 2002 as reported by Francis et al., 2006, and Evangelho et al., 2005). However, the operational model for most of these is normally the hub and spokes one, so that it is possible to buy tickets to destinations that are not directly connected with the airport of origin, thus making use of connections. The fleets are often rather heterogeneous as well, and it is normally possible to buy tickets through some staffed sales office.

Fare levels and structure are also more in line with traditional airline companies. To this effect, we have driven a study to compare the prices of the two most important low-cost airline companies in Europe and in the U.S., namely Ryanair and Southwest Airlines, with those of two South American operators that are closer the low cost model, GOL and Sky Airline, respectively based in Brazil and Chile. The least expensive tariff was checked for a travel in the week between 13 and 20/2/2012, 20 days before the travel date. Several different kinds of trips were investigated, in terms of total travel distance and kind of destinations. The same analysis was then repeated about eight months later, namely looking for a trip between 18 and 21/10/2012 with about the same advance notice, in order to control for seasonality effects that might act in opposite directions in the two hemispheres.

The results of the first wave of the survey are shown in Figure 4, where the experimental points represent the tariffs as a function of distance. We do not present the same results also

for the second wave since they are very similar: in other words, seasonality effects seems not to affect these results. The points in the figure are plotted together with their fitting curves. It can be seen that prices are higher for the two South American companies, despite the fact that costs of the factors of production of the service are presumably lower than in the Europe and in the U.S., particularly concerning labour. The mean tariff for the considered flights was 18.5 € *cent / km* and 14.2 € *cent / km* for Sky Airline and GOL, against 5.1 € *cent / km* for Southwest and 2.8 € *cent / km* for Ryanair[2]. It is also interesting to note that tariffs are more predictable in terms of travel distance for the two low cost companies, even if they are less influenced by distance itself (more horizontal lines). This could be due to the relative weight of airport taxes on the fares of short and medium distance flights, which are more frequently served by low cost companies. To sum up, both distance and other factors have a greater influence on the tariffs of the two South American operators.
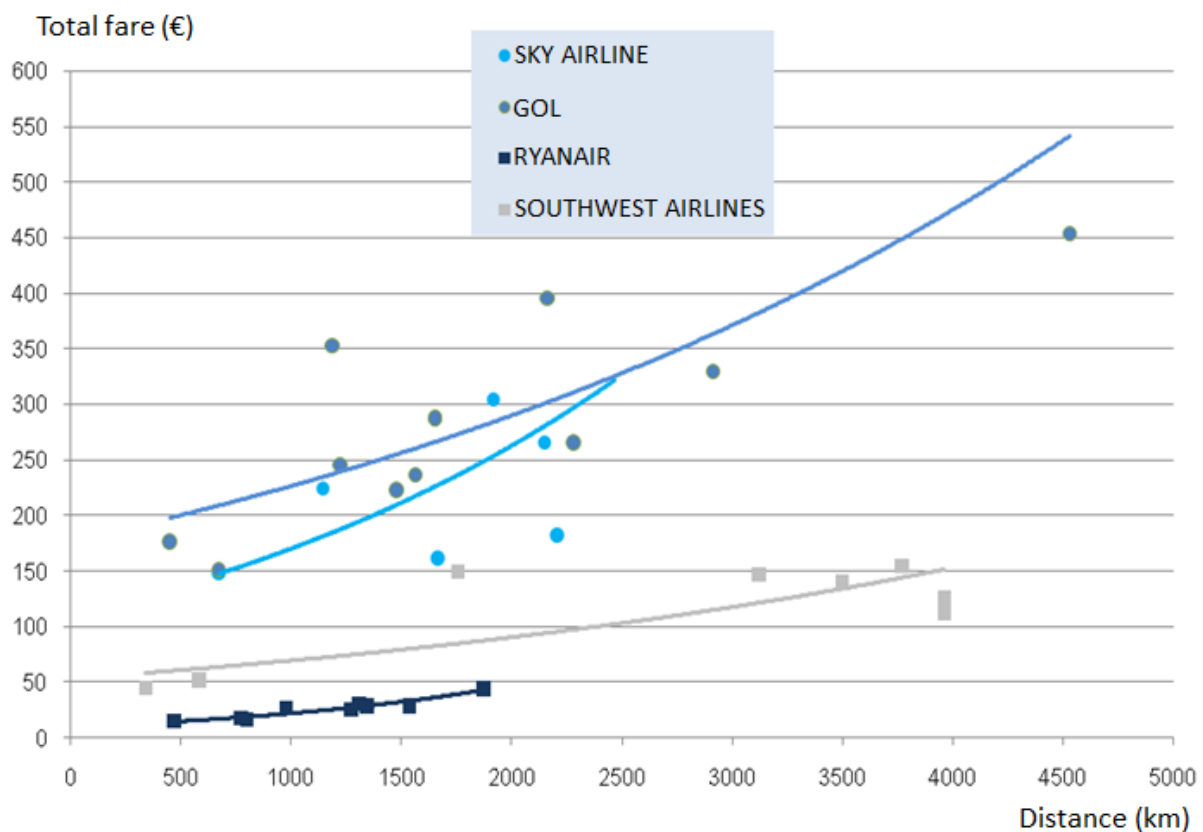

Figure 4 – Air fares of four operators as a function of distance

4. AN INVESTIGATION ON THE MAIN DETERMINANTS OF THE DEMAND FOR LOW COST SERVICES

We have seen in the preceding paragraph that a true low cost air transport service is currently unavailable in South America. Offering low-cost air transport services is likely to expand the total demand for air travel. In order to assess such increase, it seems rather difficult for

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[2] Throughout the paper, we are expressing monetary values in Euros (€). Readers more familiar with US dollars can consider that, at the time of writing this article, 1 € is around 1.3 $.

example to try to perform an elasticity analysis on the basis of the actual air travel demand levels and market prices, since both the air fares of hypothetical low-cost services in South America and the elasticity values to be considered would be hardly predictable. Therefore we take a different approach, more in line with transport engineering and planning methods in comparison with econometric researches, by studying the influence of the following factors on the demand for low cost services:

- the average available income of the target population
- the spatial configuration of the main demand basins
- the main migration trends inside the study area
- the development of tourism in different regions
- the main traffic flows related to existing air services
- the influence of air market regulations.

In the following subsection we try to quantitatively assess such demand determinants for the South American air market[3], with the exception of the last one which is evidently qualitative. Therefore, regulatory issues will be discussed in the conclusions, after having individuated the air routes with highest market potential on the basis of a simplified and adapted modelling approach.

4.1. Income, population and resulting main demand basins

The first goal we would like to reach is to estimate the potential number of customers for these new services. In order to do that, we preliminarily try to define a minimum income threshold under which it is unlikely that people can afford a low cost air service. This threshold is expected to be lower than the one related to full service airline companies customers, thus the global demand for air trips will increase.

In order to define such threshold, we consider previous research that characterised the demand for ordinary versus low cost air services in Thailand (Thanasupsin et al., 2010). In particular, the study derived the differences in terms of socioeconomic characteristics of the two groups of users in 2006, updating and following similar customer profiling exercises that were previously conducted for other regions (O'Connell and Williams, 2005; Fourie and Lubbe, 2006). On the basis of its results, we estimate that almost 20% of individuals residing in the basin of the Bangkok airports took the plane at least once in their life (see Medici, 2012 for details). Assuming as an approximation that the above mentioned income threshold is fairly rigidly discriminating between those that travel and those that do not travel by plane, and jointly considering the statistical distribution of incomes in this basin, it seems possible to set such threshold to around 300 euros per month (i.e. the 20th percentile of such distribution). We also note that the paper reports that mean monthly income of low-cost customers in Thailand is 462 euros, that become 564 euros for full-service customers. Our "lower bound" of 300 euros seems therefore reasonable also in light of these two latter figures.

The relevance of the Thanasupsin et al. (2010) study is given by the fact that Thailand is a country with economic trends that are similar to those in our study area, both in terms of annual mean income and economic development rate. Therefore, we considered the above

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[3] We are not considering in our analyses Guyana, Suriname and French Guyana, given the difficulty of collecting data comparable with those of the other South American countries.

threshold, along with the distribution of incomes in different regions in South America, to understand the number of potential low-cost customers that are located in different areas. The analysis was driven on a regional rather than a national basis due to the large differences within countries, for example between urban and rural areas. Also, the actual threshold values were slightly varied from country to country on the basis of the relative differences in key economic indicators between each country and Thailand (see Medici, 2012 for details). The results are presented in Table 1.

Table 1 – Target population of low-cost services in different countries and regions. (Source: SEDLAC (CEDLAS and The World Bank) and own elaborations for the last two columns)

Country/region	Average monthly income (€)	Individuals above the income threshold (*1000)	Percentage over the population
Argentina			
Buenos Aires	241	6942	44.4
Corrientes, Chaco, Entre Ríos, Formosa, Misiones, Santa Fe	137	1477	18.3
Neuquén, Río Negro, Chubut, Santa Cruz	301	616	36.0
Córdoba	157	544	16.6
La Pampa	220	87	27.8
Bolivia			
Cochabamba	76	1982	11.5
La Paz	81	553	21.1
Santa Cruz	84	492	20.5
Pando	91	13	19.8
Brazil			
Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo	346	28270	35.9
Paraná, Rio Grande do Sul, Santa Catarina	359	14759	54.5
Distrito Federal, Goiás, Mato Grosso, Mato Grosso do Sul	345	4786	37.0
Alagoas, Bahia, Ceará, Maranhão, Paraíba, Pernambuco, Piauí, Rio Grande do Norte, Sergipe	183	2085	15.1
Chile			
Metropolitana de Santiago	457	4180	63.2
Valparaíso	302	701	41.9
Bío Bío	252	540	27.6
Antofagasta	336	203	37.1
Los Lagos	272	202	25.1
Atacama	280	122	45.0
Magallanes y la Antártica Chilena	408	76	48.4
Aysén del General Carlos Ibáñez del Campo	388	51	51.0
Colombia			
Antioquia, Bolívar, Boyacá, Caldas, Chocó, Córdoba, Santander, Sucre	147	3096	16.0
Bogotá Capital District	273	2952	43.5
Ecuador			
Guayas, Manabì	123	826	18.4
Pichincha	104	487	20.5
Paraguay			
Central	168	457	33.5
Distrito Capital	241	214	41.8
Alto Paraná, Itapúa	161	139	24.8
Peru			
Lima	232	2988	34.6
Cajamarca, Chiclayo, Lambayeque, Piura, Trujillo	147	1030	16.2
Amazonas, Loreto, Madre de Dios, San Martín, Ucayali	138	453	18.2
Abancay, Apurimac, Cuzco, Puno	146	189	16.1
Uruguay			
Montevideo	426	755	56.4
Canelones, Maldonado	297	415	53.0
Venezuela			
Capital District	164	737	15.1
Aragua, Caraboto, Cojedes	117	422	19.0
Anzoátegui, Nueva Esparta, Monagas, Sucre	127	78	17.0

4.2. Migration

It is widely acknowledged that low cost air transport is mainly serving trips done for tourism or for visiting friends and relatives. In order to keep into consideration the latter aspect, we consider the percentage of people residing in the different South American countries that were not born where they live, i.e. either in another state or in another region of the same state. Those data are presented in Table 2, were countries are ranged by decreasing number of foreign residents.

Table 2 – Migrant population for different South American countries (Source: national bureau of statistics of different countries)

Country	Population (millions)	Total migrant population (millions)	Total migrant population (%)	Foreigners (thousands)	Foreigners among migrants (%)
Argentina	40.67	10.70	26.3	2086	19.5
Venezuela	29.04	7.61	26.2	1096	14.4
Brazil	190.76	75.35	39.5	678	0.9
Colombia	46.30	19.26	41.6	231	1.2
Chile	17.13	7.04	41.1	218	3.1
Paraguay	6.46	2.75	42.6	176	6.4
Peru	29.50	15.04	51.0	90	0.6
Uruguay	3.37	1.17	34.7	82	7.0
Bolivia	10.03	2.58	25.7	67	2.6
Ecuador	13.77	2.25	16.3	0	0

4.3. Tourism

Perhaps the single most important attraction factor for low cost air trips is given by the presence of touristic areas (Bieger and Wittmer, 2006). In order to understand the touristic potential of the different regions in South America, we consider the number of arrivals, of overnight stays, of available rooms and of available beds. These data are qualitatively summed up in Figure 5: not all four variables were available for every region. We do not show the detailed statistics for the sake of briefness (they are reported in Medici, 2012), simply noting that in most cases the main tourist attraction is the capital city of a country. Notable exceptions are the Maldonado region in Uruguay (Punta Del Este), more attractive than Montevideo, the coastal cities of Brazil, the Titicaca Lake, Salar de Uijuni and Cochabamba department in Bolivia and the Paraná plateau in Paraguay, beyond Ushuaia in Argentina.

4.4. International traffic flows by purpose

In previous subsections we analysed some factors related to the likely production and attraction poles that generate the demand for low cost air transport, according to the usual transport planning definitions. The following logical step is to understand which travel links among poles have the highest market potential. To achieve this, we firstly consider the actual air travel routes with highest traffic that were introduced in subsection 2.2. However we already noticed that low cost air travel demand is not merely a substitute of ordinary air transport services. Therefore, we also consider here international passenger flows within South America as categorised by the World Tourist Organisation, i.e. split in business, leisure and VFR (visiting friends and relatives).

This information is shown in Figure 6, where the thickness of each directional link is proportional to the number of passengers. As previously noted, tourism and VFR flows are the most relevant ones concerning low cost air trips. As in the previous subsection, we do not show here detailed figures, since the point is simply to appreciate the most relevant international traffic flows. Nevertheless, we note that most of international trips within South America are already related to tourism. Flows between Argentina and Uruguay and between Argentina and Brazil are mainly in summertime, given the relatively scarce appeal of the Mar del Plata shores. On the other hand, a non-negligible part of tourist flows between Chile and Argentina are land trips across the border, given the presence of attractions spanning over the territory of both states. It is important to keep into account such boundary effects to avoid overestimating the potential air travel demand between some countries.
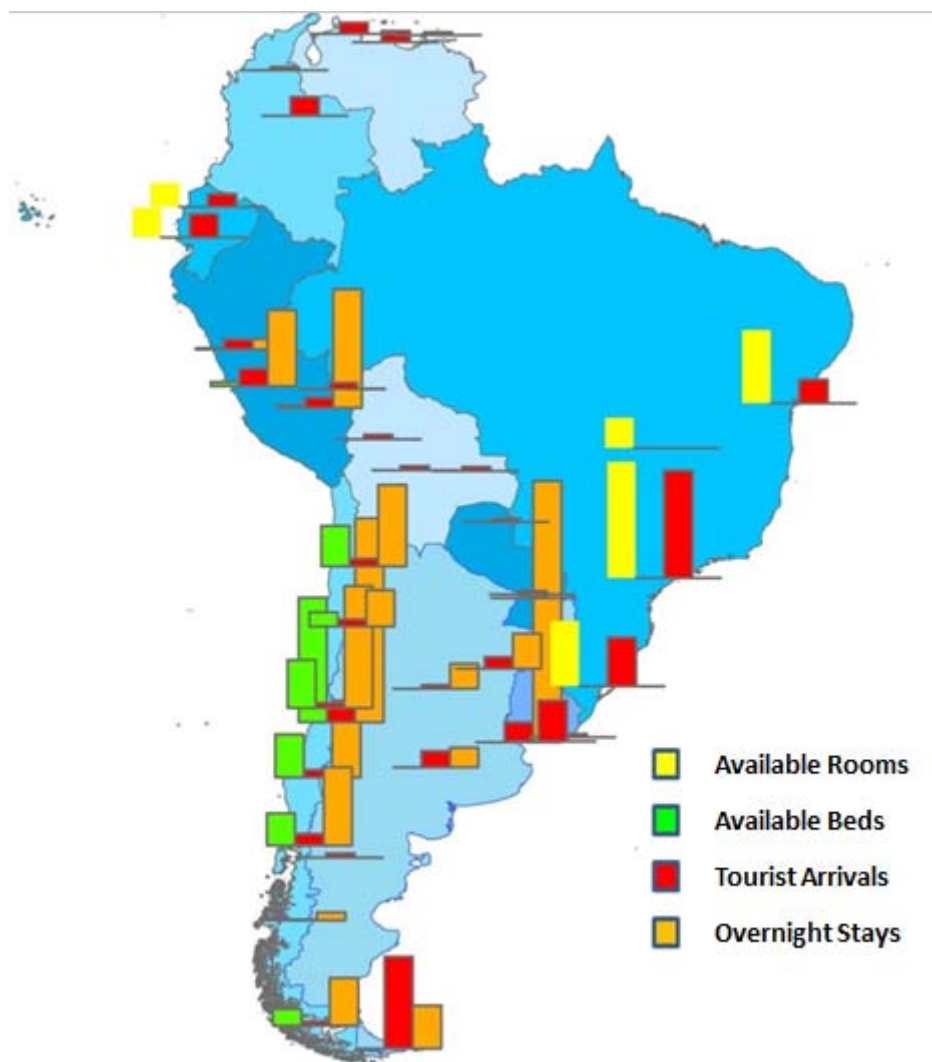

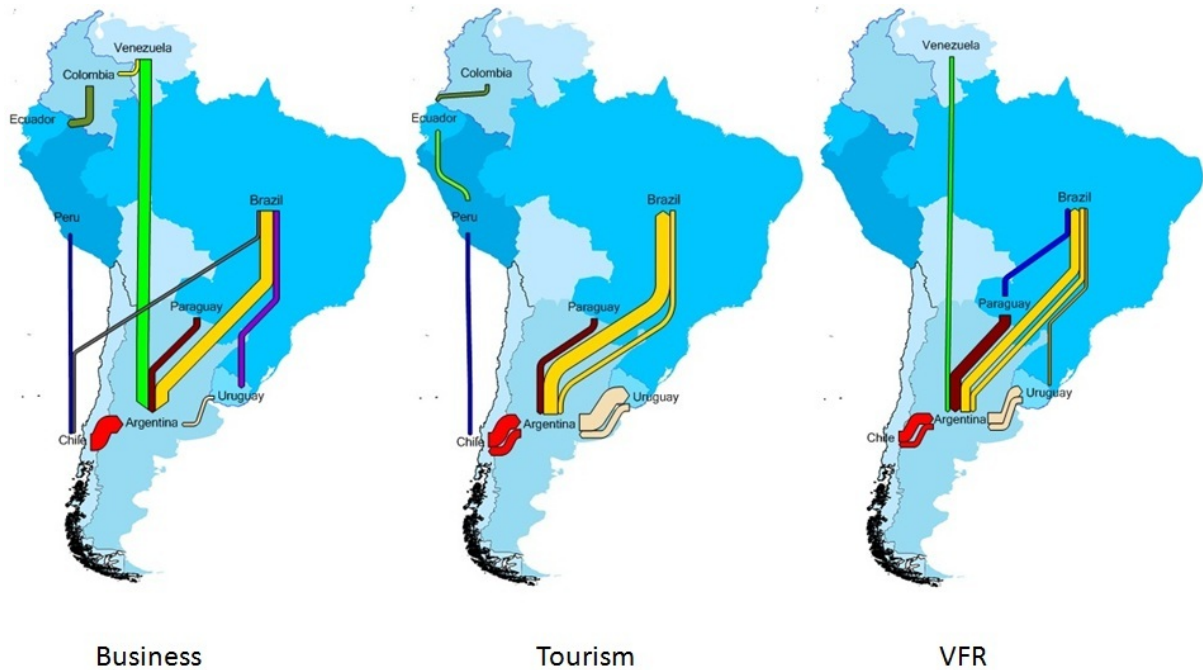Figure 5 – Main tourist attraction areas in South America (Source: national statistics on tourism)

Figure 6 – Relative importance of directional business, tourism and VFR international flows (Source: WTO)

5. FINDING THE MOST PROMISING LOW COST AIR ROUTES

In order to find out the origin-destination flows that could be served by a low cost service, we rely on the information that we reported in the previous paragraph. The methodology that we follow is inspired by classical transport modelling processes, with particular reference to the generation and distribution phases of the four-step model, that normally lead to the assessment of origin - destination flows (Ortúzar and Willumsen, 2011).

5.1. Trip generation: production and attraction indexes

Concerning the generation step and according to the previous discussion, we respectively identify the relevant production and attraction poles as the "middle-class" and "foreigners" population basins on one hand, and the main tourist areas on the other. Such poles should ideally be assessed through regressions, thus building some sort of generation models. However we do not have sufficient information to fully develop a statistically sound process, because the target service does not exist, nor we have stated preference data to calibrate the model. Due to these limitations, in the following we are not quantitatively forecasting the amount of trips generated and attracted. We will rather build two series of indices related to production and attraction points that try to combine the related quantitative information that was presented in the previous section.

Concerning productions, the composition process that we perform consists in simply multiplying the different attributes that characterise each pole: in doing so, we lose the related metric information and therefore these indexes should simply be viewed as ordinal variables, that can point at the relative importance of each pole but cannot forecast the actual number of trips that would be produced or attracted by each pole. One advantage of this method over

other possible ones, such taking the sum of the attributes, is that it can cope with the different scales of measurement of attributes themselves. Low-cost trip production indexes I_P have then been computed by multiplying for each region the number of individuals whose income is above the previously defined threshold (that are reported in the third column of Table 1) with the following two variables:

- the percentage of foreigners living in the region, that are particularly prone to take trips to visit friends and relatives (taken from the fourth column of Table 2);
- the percentage of people living in urban areas, assuming that airport infrastructures are more accessible to them.

Attractions are simply assessed by considering the number of tourist arrivals, so that no compounding process is needed. However, for practical reasons we normalise such number by dividing it by the number of tourists arrived in the most attractive region, i.e. the South-Eastern part of Brazil. In this way, we computed a series of low-cost attraction indexes I_A.

The two indexes are graphically shown and compared in Figure 7. We note that the highest production indices are located in Buenos Aires, in the South-East of Brazil and around the capital cities Santiago and Caracas. However it is interesting to note that this is due to different factors, namely higher population in Brazil versus higher percentage of immigrants in Venezuela and Buenos Aires. Attraction points are more dispersed: the main ones are again Buenos Aires, the Southern Brazilian shores and Patagonia.

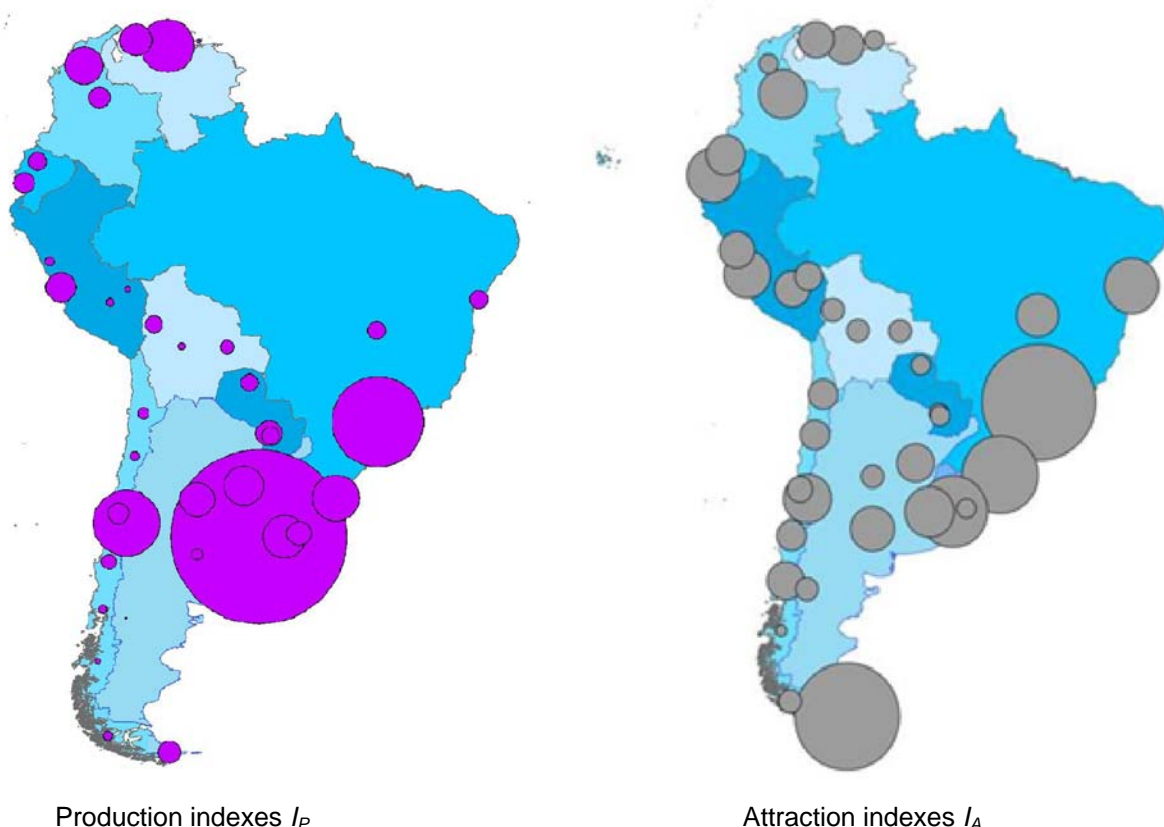Production indexes I_P Attraction indexes I_A

Figure 7 – Low-cost trip production (left) and attraction (right) indexes by geographical region

5.2. Trip distribution: a pseudo-gravity model

In the second phase of the work, we studied the flows between productions and attractions through a variant of a classical distribution model. Data limitations are still those discussed when dealing with the generation process: due to the lack of field observations, our goal is simply to understand which production-attraction links could present higher levels of demand for a low cost air service. It seems therefore possible to use a variant of a classical gravity distribution model, which allows computing for each production-attraction pair a distribution index I_D as follows:

$$I_D = I_P * I_A / d$$

where I_P and I_A have been computed in the previous subsection and d is the distance between the two considered production and attraction areas, which was computed considering the reference urban centre inside each region on the basis of its population and geographical position. In current modelling practice, the distance in the above formula is then raised to the power of a number between 1 and 2, which should be determined through the model calibration: in our case, we take the easiest form of the function. Finally, we do not consider production-attraction pairs that are less than 300 *km* far each other, since we focus on air trips. We report in Figure 8 the ten directional production-attraction relationships that have the greatest value of I_D. These mainly link Buenos Aires to Southern Brazil, Patagonia and Santiago. We see from the figure that all the ten most significant routes are concentrated in the triangular region south of the tropic of Capricorn.
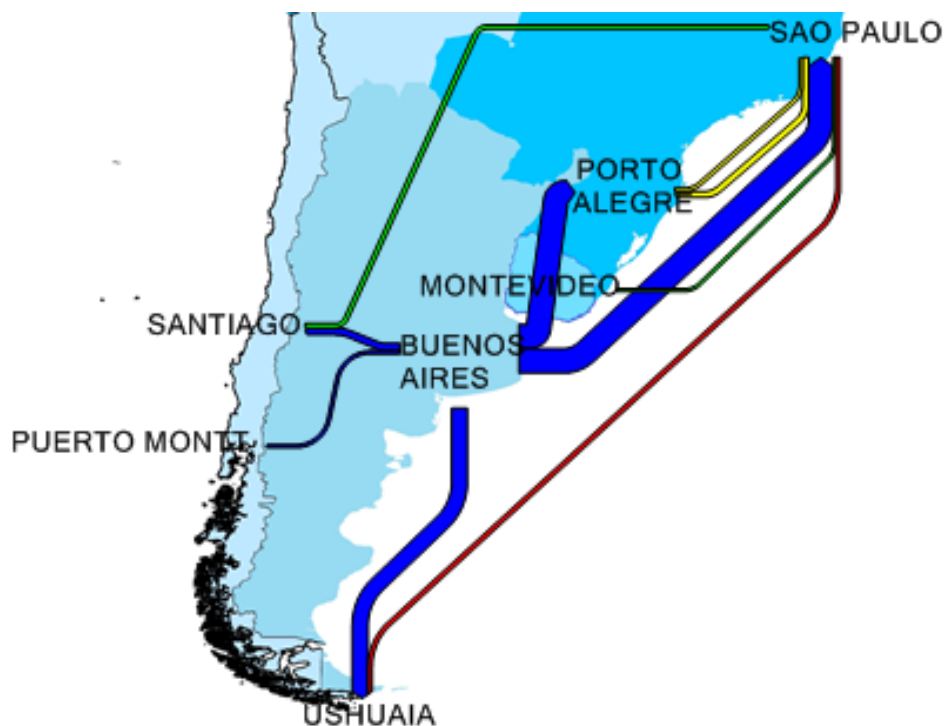

Figure 8 – Ten most significant directional production-attraction flows

6. CONCLUSIONS

In this paper we studied the feasibility of setting up low cost air transport services in South America. We preliminarily performed an analysis of existing air services in this region and concluded that they are substantially different from the low cost operational model, as it is normally encountered in other parts of the world. A quantitative analysis has then been carried out on the main determinants that could affect the demand for low cost services in different regions, and on how these could interact one another to determine the most charged air routes. Our methodology does not allow giving an actual forecast of traffic flows, but we believe it is effective in individuating the routes with higher potential. The ten most significant links connect Buenos Aires with Southern Brazil, Patagonia and Santiago and are concentrated in the triangular region south of the tropic of Capricorn.

A more detailed transport demand study on such promising routes would be the natural follow-up of the present research. This should help to remove some of the limitations of the present study, starting from the use of indexes that cannot give any metric information on the number of potential travellers. A targeted data collection effort with a Stated Preferences questionnaire on a representative sample of potential customers should be implemented to this effect, possibly with a comparative analysis of the actual transport offer on these connections. This would allow building more robust transport planning models to study this particular market segment.

Finally, beyond the technical difficulties in both forecasting and in actually implementing such services, also the regulatory framework that was synthetically described in section 2 has a historically proven influence. A harmonised deregulation process in this sector would certainly boost such services, although low cost services seem to some extent already viable under the actual rules. Let aside domestic routes that obviously are the less problematic under this point of view, by analysing the regulations in different countries it seems that some difficulties could be faced when operating low cost flights between Argentina and Chile on one hand, and between Brazil and Uruguay on the other (Medici, 2012). As already noted, multilateral agreements are usually the most effective way to cope with such constraints, provided that they are effective in involving all countries in a geographical area.

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