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Impact of public policies on the development of the air transport industry. The case of Colombia

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Following the global and regional trend, Colombia liberalized the air transport sector at the beginning of the 1990s. This measure unleashed an uninterrupted (until now) set of public policies for the sector, accompanied by several reforms at the institutional level, all in the belief that the Colombian state considers air transport an essential public service that contributes to national economic development. This work uses the case study method to present and analyze the impact of public policies on the development and evolution of the air transport sector in Colombia. The analysis focuses on the approach of the Colombian authorities in the design and implementation of public policies, and the evaluation of the development and growth of the air transport sector and its direct influence on other related industries and socio-economic indicators. The main results of the implemented policies are: high and continued growth of air traffic, mainly at the domestic level, which consolidated and strengthened connectivity and territorial cohesion; contribution to national wealth; generation of employment; and support to closely related industries.
Keywords: air transport; public policy; liberalization; airport; Colombia.

Impacto das políticas públicas no desenvolvimento do setor de transporte aéreo. O caso da Colômbia

Seguindo a tendência mundial e regional, a Colômbia liberalizou o setor de transporte aéreo, ou indústria, no início da década de 1990, e assim deu início a uma bateria ininterrupta (até o momento) de políticas públicas para esse setor, acompanhada paralelamente por diversas reformas no nível institucional, todas baseadas no conceito de que o Estado colombiano considera o transporte aéreo um serviço público essencial e que contribui para o desenvolvimento econômico nacional. Portanto, este trabalho, cujo caráter é a análise de um estudo de caso, apresenta e analisa o impacto das políticas públicas no desenvolvimento e evolução da indústria do transporte aéreo na Colômbia. Para tanto, a análise se concentra, por um lado, na abordagem e abordagem das autoridades colombianas na formulação e implementação das referidas políticas públicas e, por outro, na avaliação do desenvolvimento e crescimento do setor de transporte aéreo e sua influência direta. em outros setores relacionados e indicadores socioeconômicos. O principal resultado das políticas implementadas é: o elevado e continuado crescimento do tráfego aéreo, principalmente a nível doméstico, que consolidou e reforçou a conectividade e a coesão territorial; contribuição para a riqueza nacional; geração de empregos; e apoio a setores intimamente relacionados.
Palavras-chave: transporte aéreo; políticas públicas; liberalização; aeroporto; Colômbia.

Impacto de las políticas públicas en el desarrollo de la industria del transporte aéreo. El caso de Colombia

Siguiendo la tendencia mundial y regional, Colombia liberalizó el sector o industria del transporte aéreo, a principios de década de 1990, y con ello dio inicio a una ininterrumpida (hasta el presente) batería de políticas públicas para dicho sector, paralelamente acompañadas de varias reformas a nivel institucional, todas ellas basadas en la concepción de que el estado colombiano considera el transporte aéreo un servicio público esencial, y que contribuye al desarrollo económico nacional. Por lo tanto, este trabajo, cuyo carácter es de análisis de un estudio de caso, presenta y analiza el impacto de las políticas públicas en el desarrollo y evolución de la industria del transporte aéreo en Colombia. Para ello el análisis se centra, por un lado, en el enfoque y planteamiento de las autoridades colombianas en el diseño e implementación de dichas políticas públicas, y por otro, en la evaluación del desarrollo y crecimiento del sector del transporte aéreo y su directa influencia en otras industrias relacionadas e indicadores socioeconómicos. El principal resultado de las políticas implementadas es: el alto y continuo crecimiento del tráfico aéreo, principalmente a nivel doméstico, lo que consolidó y fortaleció la conectividad y cohesión territorial; aportación a la riqueza nacional; generación de empleo; y apoyo a industrias muy relacionadas entre sí.
Palabras clave: transporte aéreo; políticas públicas; liberalización; aeropuerto; Colombia.

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1. INTRODUCTION

Air transportation performs a significant role in the current globalized society. An increasing comprehension exists among the governments worldwide that air connectivity is an asset that improves global competitiveness of the cities, regions and countries. Within this context, many governments formulate public policies in the air transportation industries (premises) to improve connectivity results at regional territory level, in order to achieve a connectivity portfolio that best satisfies the society's needs (van de Vijver, Derudder, Bassens & Witlox, 2014). There is more evidence with time that the air connectivity growth stimulates productivity, direct foreign investment, tourism, etc. in the country's different regions (Burghouwt, 2017).

Connectivity's improvement within territories and regions, in the different countries worldwide and among these, owes its positive development in the last three decades to the boost of the aviation industry. Thus, this industry has had to experience a significant evolution as from its beginning. A relevant event marks a milestone in the civil aviation industry, the Chicago Convention (December 1944), from which the regulation of the international civil aviation is started (International Civil Aviation Organization [ICAO], 2006). But the industry regulation, at world level, through the development of very strict and even restrictive regulations (mainly in the 60´s and 70's), affected the competition market, negatively impacting ticket prices, in the demand and finally in the flow/movement of passengers (Forsyth, 2006). But the industry undergoes a huge change in the year 1978, when in the United States, the air commercial business was opened up, event that continued in Europe in the 80's, and then in the rest of the world, at different speeds (Belobaba, Odoni & Barnhart, 2009). The industry's opening up concatenated a series of relevant events, to wit: traffic right exchange (through the bilateral agreement execution), privatization of the flag airlines (or national airlines), entrance to new private air operator markets, specifically the charter operators and low-cost carrier (LCC), open sky agreements, generation of the large alliances between air operators, and lastly the airport commercialization and privatization (Doganis, 2006; Wittmer, Bieger & Müller, 2011). This all, which still continues its course, eliminated protection barriers, favored competition, fees were decreased and stimulated the demand tripling world air traffic in the last three decades (International Air Transport Association [IATA], 2016).

In Colombia the air transportation industry was opened up in early 90's and it experienced all the aforementioned events, produced at world level through a set of public policies solely designed for the air sector, and which are still in effect (Díaz Olariaga, 2016a). For this reason, this paper introduces, as differential development line, the evolution of the Colombian air transportation as from the public policy view, that is to say, how these affected its evolution and development. And lastly, although not least important, in addition to this research we aim to fill in the existing gap in the scientific literature, in the thematic, both at regional level (Latin America) and local (Colombia), where there are only several sector technical reports from Pan-American institutions

(Economic Commission for Latin America and the Caribbean [CEPAL], 2015, 2017; Banco Interamericano de Desarrollo [BID] - Inter-American Development Bank-, 2007, 2016, 2018; Corporación Andina de Fomento [CAF], 2006) and only one regional economic survey from the World Bank (Serebrisky, 2012).

Then, this article, which structure is of development of a "study case (or practice perspective)", introduces the following methodological line: firstly, the conceptual framework is developed, which analysis basis is the regulation and further deregulation of the world air transportation; requiring the introduction within the context of this industry's evolution to understand the events occurred in it in the last six/seven decades. Immediately after was developed the study case, and made in two basic strands, on one hand was introduced the institutional, legal and regulatory framework of the air transportation in Colombia, and on the other hand the airport privatization policies, fundamental basis of the public policies for the industry. In the third place are introduced and analyzed, up to what the work scope allows it, the impact from public policies in the Colombian air transportation, through certain related indicators. And finally, the paper closes with the final timely conclusions.

2. CONCEPTUAL FRAMEWORK

2.1 International air transportation regulation

We can assert that the air transportation industry, or civil aviation, began to be formally regulated as from the Chicago Convention of 1944, which gave name to what is known as the Convention on International Civil Aviation (ICAO, 2006). The objective of this multinational convention, held in the city of Chicago (USA), was to establish the framework for all the future bilateral and multilateral agreements to use air space controlled by the States. The resulting agreement (and mentioned above), delimited through instrumentations contained within the international law the establishment of air routes, which at the same time originated the so-called Air Freedom (International Civil Aviation Organization [ICAO], 2004), which exercised a regulating action ruling the air transit flow through State frontiers.

The regulation was considered necessary in the air industry to prevent destructive competition and the market's instability (Papatheodorou, 2002). Then, at national (or domestic) level in several countries, starting (and mainly) by the United States, it was considering that the fee regulation and seat capacity would provide stability to the market, which would enable carriers with institution license to grow and prosper accomplishing high cargo factors and scale economies without diluting the yield. And at international level the regulation adopted to restrictive bilateral agreement form between countries in respect to the exchange of traffic rights, designation of authorized airlines to fly between both States, fee control, frequency, and capacity.

In this order, another of the pillars or basic components of the air transportation industry was also strongly regulated. More specifically the airports which are essentially suppliers of passive services for

the airlines (Diaz Olariaga, 2017a). These were owned by the State and managed/operated by them (although the latter has now changed, currently many airports are operated by private companies), in most of the cases their income depends solely on aeronautic sources and subsidies; their fee policies used to be determined by the government on an *ad hoc* basis and the commercial activities performed a minor role (or almost null).

Therefore, it seems that the air transportation sector's economic regulation had a ratio (of interest) behind it. In the practice, however, the strict regulatory regimen created more problems than the ones it actually solved. For example, in many countries, the flag (or national) companies constantly exercised pressure for government subsidies to continue in order to over their (habitual) inefficient and deficient operations. This inevitably generated public concerns and generated a negative feeling if the taxpayers´ resources were appropriately spent (Doganis, 2002). Additionally, the high fee policy resulted detrimental for tourism development in most of the cases, since it was not accompanied by rendering a high-quality service on board or at the destination (Papetheorodorou, 2008).

2.2 Deregulation of the international air transportation

The air transportation deregulation, at world level, was commenced when the United States government deregulated in the year 1978 the air commercial market (or airline market) (Bailey, Graham & Kaplan, 1985; Goetz & Vowles, 2009) and continued an active opening up policy through the so-called open sky agreements at international level (Crook, 2011). This opening up policy continued in Europe, where a gradual process was followed, in three phases within 1988 and 1997 (Barrett, 2009; Wittmer et al., 2011); from then on, fees, frequency and capacity are freely determined by the airlines, although the European Commission reserves the right to intervene against predatory prices, excessive fees and seat *dumpling* (Papatheodorou, 2008).

2.3 Deregulation in the airport sector

The new opening up/deregulation situation of the commercial aviation motivated and instilled airports to set out a new operation and management formula, one with a more commercial approach and aimed to business. In final, this era (mid 80's), could be considered as the start of the airport commercialization (Czerny, 2013; Frank, 2011; Graham, 2014; Ison, Francis, Humphreys & Page, 2011; Jimenez, Claro & Sousa, 2014; Wittmer et al., 2011).

This need and motivation to approach airport management toward the commercial and the business produces several relevant changes. In the first place, airports start to lose their strong bonds with their owners, the government. Airport management is made flexible through the creation of airport authorities, public but more independent, in order to provide more freedom and even autonomy to the airport operator to be able to adopt the new management practices and give priority to the former undervalued activities such as improving non-aeronautical revenue, airport marketing, financial management, comparative evaluation, service quality's control and assurance, etc. (Díaz Olariaga, 2017b; Wittmer et al., 2011).

Then, the airport privatization was a reality as from mid-80's. Since that time a considerable number of airports, both domestic and international, have been privatized, event that started in several developed countries and in a few years has spread to emerging and developing countries. In conclusion, the air transportation deregulation boosted the evolution for the airport sector, first with the "commercialization" and then with the "privatization" of many airports, although at world level the regions/countries have followed different speeds in said processes (Diaz Olariaga, 2017a).

3. CASE OF COLOMBIA STUDY: INSTITUTIONAL STRUCTURE OF THE AIR TRANSPORTATION AND PUBLIC POLICY

3.1 Institutional, legal and regulatory framework of the air transportation in Colombia

In virtue of Decree 260- 2004 (later amended by Decree 886-2007; Decree 1601- 2011; Decree 823- 2017), the Colombian Civil Aviation Authority (hereinafter CCAA) (known as "Aerocivil") is the (sole) public authority responsible for: a) execution of operation functions of Air Traffic Control (ATC), b) non-concession airports' management/operation to the private sector, c) technical and economic regulation of the sector, d) setting air policies to be implemented, and e) investigation of air accidents.

In this order, the CCAA is the entity in charge of determining access to markets by both national and foreign airlines. Through bilateral agreements (or air service agreements) CCAA defines the number of airlines that can be operated in a determined market, offered capacity, as well as the routes (entrance and departure points for every country) and the fee regimen. On the other hand, the CCAA is likewise in charge of the action framework of the national airlines in the Colombian market.

3.2 Airport privatization policies in Colombia

On the Colombian airport infrastructure management, it has been the general trend in Latin America to grant concession to the management/operation of said infrastructures (Diaz Olariaga, 2017b). This model aims to free the State from the high expense required by the aeronautic infrastructure. This process is regulated by a national law (Law 80- 1993, article 30). On the other hand, the national State, through another standard (National Planning Department (DNP for its abbreviation in Spanish), 1994), contemplated the airport concession process through an airport infrastructure code plan. The document, in addition to setting out a technological renewal, authorized the airport concession process to private companies and considered the economic compensation for the State as sole element to deliver the concession. A destination for this consideration was defined: a) feed the aeronautic compensation fund to subsidize the non profitable airports, b) finance new investment in said airports and c) finance the air traffic and security services (Diaz Olariaga & Avila, 2015).

Then as from mid 90's, and in several temporary phases, called generations, the Colombian public sector delivered several airports of the country in concession, a total of 19 to the present date,

the largest and most significant of the airport network (Pulido & Díaz Olariaga, 2018), in order to obtain a better management, modernization and expansion, operation, commercial exploitation and maintenance of most frequently used air terminals. Under the objective set out from the country's terminal maintenance, the company, society, consortium, or concession body of the airports performs solely as its operator.

The first generation of concessions was made under a minimum guaranteed income model for the concessionaire, with which it did not assume any risk. In this generation the concessionaire is assigned all the regulated and nonregulated revenue from the airports, in exchange to a fixed consideration for the State. It also established that the concessionaire is responsible for the management, maintenance and operation of passenger terminal building, runway, apron, airport facilities, approach/landing aids and accessory areas (Diaz Olariaga, 2017b). As from the second generation of concessions, carried out in the period 2000-2007, the considerations for the State were distributed among some fixed and some variable fees on the gross income of the concessionaire. This change in the airport privatization terms was necessary since the income the State received from certain airports was not enough to carry out the investment that had been foreseen. In the third generation of concessions, year 2010, the second's conditions are kept and improved. However, the most significant differences are that, on one hand, the way to determine the percentage increase from the gross income is not made upon the fixed and variable incomes but that correspond to a determined percentage, the concessionaire shall pay the State. On the other hand, as mandatory is defined the compliance with the master plan and therefore the execution of investments on account and risk of the concessionaire, defining an estimate income model as from which the generated regulated income will be equated. The fourth generation of concessions was commenced on December 30, 2014, with the concession of the International Airport of Barranquilla – Ernesto Cotissoz. Futher and finally, in mid 2017, was granted in concession the airport of the city of Pereira (Pulido & Diaz Olariaga, 2018).

The airport concession policy was accompanied by an important public investment policy (at the airports managed by the State) that has not ceased for two decades. And on the other hand, the private investment in airports has evolved according to the concession related dynamic, passing from non-existent in the year 1996, year zero of starting the first concessions, to a 20% as air transportation GDP percentage in the year 2010 (Diaz Olariaga, 2016b). Within the years 1993 and 2013 the sole public investment in airport infrastructures was approximately USD 1,000 million; while the investment solely private, produced in the four airport concession generations (total 18 airports), period 1996-2015, was of USD 1,612 million (Fedesarrollo, 2016). Finally, the Master Plan of Intermodal Transportation 2015-2035 forecasted a mixed investment (both public and private) of USD 5,300 million in airports of the network (most of these small, a few medium and only one large) in the aforementioned period (National Agency of Infrastructure [ANI] for its abbreviation in Spanish], 2019).

4. IMPACT FROM PUBLIC POLICIES OF THE SECTOR

4.1 Development of air traffic

In Colombia air traffic growth, jointly (all the airports) and total (adding both domestic and international passengers), was of 863% in the period 1992- 2016 (Aerocivil, 2020; Diaz Olariaga, 2017c). Thus, although figures tell us a lot on the transported passenger's growth, in air transportation we use, more frequently, the indicator called RPK (Revenue Passenger Kilometers), which provides a more accurate measure of the actual traffic, since it considers the distance the passenger travels in his/her trip. This indicator is useful to identify and dimension the geographic coverage of an airport (in distance to its different destinations). Then, in the case of Colombia, total RPK (domestic + international) of airport system was tripled in the last two decades (Aerocivil, 2020), product from the incorporation, by the airlines, both from new destinations and from further international destinations, in addition to a greater offer both of "seats" as frequencies (Diaz Olariaga, 2016b). Domestic RPK growth is solely due to the increase of seat and frequency offer by the air operators, since the destination network (airport network) has been kept without any alteration in the last decades. While the growth of the international RPK is the result, in addition to the increase in the supply of seats and frequencies, the increase in direct international destinations that connect Colombia with abroad, which has almost doubled in the last 25 years (Aerocivil, 2020; Diaz Olariaga, 2016a).

4.2 Socio-economic impact

In references to the socio-economic effects generated by the air transportation, the present study has not been able to carry out any specific and/or particular analysis (for example, the influence of the regional employment generation, in the GDP of the regions/cities, etc.), since the public institutions related in Colombia do not generate specific statistics from the air transportation sector at the level of regions and/or cities. Likewise, we can contribute three related indicators of interest here. In the first place, in the period 2000-2014, GDP contribution from the air transportation to the national GDP grew from 0.42% to 0.52%, verifying a yearly average growth in the period of the order of 6% (National Administrative Department of Statistics [DANE], 2019; Díaz Olariaga & Avila, 2015). In the second place, the transported air cargo's growth, indirect indicator of the economic and productive activity, was of 158% and 200% at domestic and international level respectively in the period 1992-2016 (Aerocivil, 2020). And in the third place, air transportation industry in Colombia generated approximately 124,000 employments distributed in the following manner: a) 55,000 direct employments; b) 44,000 indirect employments, entailed to the industry supply chain and c) 25,000 induced employments. And in parallel, the creation of 198,000 employments in related industries was promoted, mainly in tourism, as a result from the catalytic effects of the air transportation industry (Díaz Olariaga & Avila, 2015).

In reference to the socio-economic effects generated by the air transportation in the country's inner regions (that is to say, excluding the country's capital city), the present research determined the following indicators: in the period 1992-2019 a yearly mean growth of the air traffic (and average within all the regions in the country, excluding the country's main airport traffic, located in the capital

city) of 12.03% was accompanied with a yearly mean growth of 2.08% of the population (average among all the regions) (Aerovivil, 2020; DANE, 2020).

And finally, in relation to one of the industries benefit the most from the dynamic development of the air transportation, tourism, we highlight that in Colombia the entrance of foreign tourists (non-residents) (receptive tourism) and the departure of Colombian tourists resident abroad (issuing tourism) by air increase in 623% and 304% respectively in the period 2001-2017. In the year 2018 was verified the largest foreign tourist entrance in the country's history, 4.4 million (with a growth of 10.4% in respect to 2017), where 90% of the tourists entered the country by air (Ministry of Commerce, Industry and Tourism [MinCIT], 2019).

5. CONCLUSIONS

The most relevant public policies for the air transportation sector in Colombia started in mid 90's and still are in effect. Likewise, it was not until 2006 when the Colombian national government, due to the high dynamic of the air industry, understood the strategic significance of air transportation for the national economy. For this reason, although certain policies for the sector were being implemented by legislative instruments (*ad hoc* standards and decrees) from mid 90's, it was in the second half of the first decade 2000 when the public policies for the air transportation sector acquired relevance or State character and are introduced (defining planning and objectives) in the national development plans for the country for the periods 2006-2010, 2010-2014, 2014-2018, and 2018-2022 (in progress) (DNP, 2019) - these policies were mainly implemented, administered and control by the CCAA.

The industry indicators show that both the airport concession program to the private sector, carried out in temporary phase within 1996 and 2017, and the progressive opening of the air commercial sector, that started in the 90's (and where in the year 2012 was produced the total deregulation for air fees (Díaz Olariaga & Zea, 2018), and the public investment policies in air infrastructures were fundamental for the growth, consolidation and strengthening of the Colombian air transportation industry. The impact and effects of the public policies in the air transportation are clearly illustrated with all the indicators presented and analyzed herein. These policies not only have catapulted the industry, but also the air transportation significantly contributes to the territorial connectivity and cohesion, national wealth, employment generation and supports and stimulates growth in other strategic sectors of the country, for example, tourism and foreign trade.

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