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The Liberalisation of Air Transport and the Impacts on Travel and Tourism: The Case of the Azores Archipelago

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Abstract: This paper intends to fill a gap by analysing the changes wrought by full air liberalisation and its impacts on travel and tourism in the Azores archipelago. This study examines the Tourism Planning Plan of the Autonomous Region of the Azores (POTRAA), the new air transport model and several statistics related to air transport and tourism dynamics before and after the liberalisation, which took place in 2015. Time series analyses were used, and the period under analysis was defined (2013–2022). The results show that the entry of low-cost carriers (LCCs) resulted in flag carriers having to change to keep being competitive. Furthermore, a more extensive exposure of the destination through the LCCs created opportunities for all airlines. The results directly related to tourism include tourist numbers increasing in inter-island, national, and international flights, new routes opening to Europe and the USA, higher accommodation occupancy, and market diversification.

Keywords: tourism; air transport; liberalisation; impacts; islands

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1. Introduction

Transport is a vital element of the tourism system and air transport is largely responsible for international arrivals. In 2019 (the last year before the COVID-19 pandemic), this mode of transport accounted for 59% of visitor arrivals (35% of international arrivals were by road, 5% by water and 1% by rail [1]. The Azores, a Portuguese autonomous archipelago in the north Atlantic, received more than 30 awards in previous years as a tourist destination and a region of scenic natural and human landscapes. Among those awards/recognitions are 2010—2nd Best islands in the world for sustainable tourism (award granted by National Geographic Travel); 2011—10 Best Trips of Summer 2011 (National Geographic Travel); 2013—25 Places to go in 2013 (Fodor's Travel Guide); 2013—Azores Geopark—Entry in the UNESCO list (European and Global Geoparks Networks); 2017—Election of the seven wonders of Portugal—small villages (Fajã dos Cubres on São Jorge island was selected); and in 2022—Top 10 of the best islands in Europe (Condé Nast Traveler 2022).

Regarding the dominant activity, after the Azores were colonised by the Portuguese in the fifteenth century their economy experienced several phases. From the production of oranges and their export to several European countries through the cultivation of dye producing plants, fishing and livestock have been vital economic activities in recent centuries. The previous and current basic activities (livestock and fisheries) continue on the strategic horizon but now they share it with the tourism economy. The turn of the millennium matched the regional government planning and investment in facilities, education and services related to tourism. The Plano de Ordenamento Turístico da Região Autónoma dos Açores, POTRAA (Tourism Planning Plan of the Autonomous Region of the Azores) develops the tools needed to expand tourist services in the region in a sustainable manner. The objectives are to ensure economic development and preserve the natural and human environment. Tourist activity in the Azores is still developing and has achieved percentage growth rates above the national average in recent years. The prime reason for travel by the three main tourism markets was leisure (82.9% for Portuguese, 88.8% for

Germans and 85.5% for others) [2]. The main tourist products consist of nature-related activities like hiking trails, landscape appreciation/contemplation and marine wildlife watching (whales and other cetaceans).

The Azores are nine islands divided into three groups (western, central, and eastern). This spatial organisation is supported by the distance/proximity and economic and regional government services organisation. For example, to obtain access to specialised healthcare services, Graciosa and São Jorge (less populated islands) residents need to fly to Terceira Island (the main hospital). The islands of Flores and Corvo constitute the western group; the central group is formed by Faial, Pico, São Jorge, Graciosa, and Terceira. São Miguel and Santa Maria comprise the eastern group.

There are crucial differences between islands in terms of the population and area. From a total of 236,440 inhabitants (2021 census), São Miguel Island has 133,295 inhabitants, representing 56.4% of the whole archipelago. Terceira Island has 53,244 (22.5%). The other seven islands account for 21.1%. Corvo, has the smallest population with only 384 inhabitants. Concerning the surface area of the archipelago (2333 km^2), there are inequalities between the islands: São Miguel has 746.8 km^2 (=32%), and Corvo, the smallest, has 17.1 km^2 (less than 1%). This is important because the relationship between population–area naturally influences air transport and tourism since these activities depend on the availability of facilities, support services and enough inhabitants to bring economic sustainability. This means that in general the islands with the most substantial population–area ratio will be more suitable for tourism development. Within this context of smaller islands with various terrains and people far from the main tourist markets (Figure 1), air transport is key to the development of this archipelago. Therefore, it is vital to analyse this specific archipelagic reality and understand it as a pertinent and necessary example which is being studied.

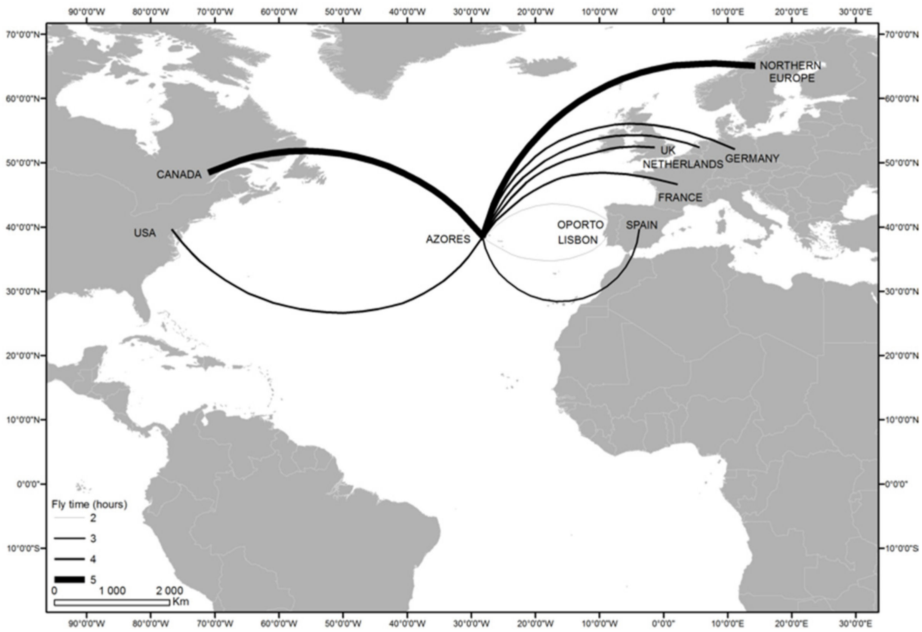

Figure 1. Flight time from the Azores to the main tourism markets. Source: authors.

Air transport in the Azores was limited to two state-owned airlines by 2015 and was outside the European airspace liberalisation process (except for international routes) [3,4]. In 2015, the Azores fully liberalised its airspace, bringing changes to the tourist dynamic [5]. In this respect, the main goal is to understand tourism development before and after air route liberalisation in the Azores in 2015. This article aims to analyse this period, 2013–2019 (21), and present the changes and impacts of this liberalisation in the Azores from the perspective of air transport and tourism. The analysis of the liberalisation of air transport proves to be fundamental and necessary in order to understand the changes and impacts that this factor brought to the tourism industry and economic development of an archipelago that has the status of an outermost region of the European Union.

The paper is organised as follows: after the introduction, Section 2 presents the literature review, which looks at the relevance of air transport in the tourism system models, and the mobility policies. Special attention is given to the main features and changes in the new air transport model for passengers implemented after 2015, the year of the airspace liberalisation of the Azores. Several changes in air transport in this North Atlantic archipelago are highlighted, which makes it an interesting case. Section 3 briefly presents the methodology. Section 4 focuses on results and discussion, where various data related to air routes and commercial flights at different scales (international, national and inter-island) are presented and discussed, notably the connectivity matrix or binary matrix to show the impact of the liberalisation of the Azores skies on air travel supply, travel behaviour and on tourism activity. There is specific reference to the amount and types of accommodation, number of beds, overnight stays, differentiation of guests by residence country, gross domestic product (GDP) and RevPAR (revenue per available room). Section 5 summarises the conclusions by presenting a diagram summarising changes in the air transport model of the Azores and the multidimensional impact on the tourist destination.

2. Literature Review

2.1. Air Transport and Mobility Policies

Transport is a crucial factor in tourism activity. The notion of a tourism system arises insofar as tourism embodies a set of elements that establish interdependent connections between them (of a functional and spatial nature), such as traveller-generating regions, tourist destination regions, transit routes and all activities that produce goods and services [6,7]. Cuervo [8] was the first author to define tourism as a system and to recognise the importance of transport (C_1) of Tourism as a whole (T), understanding [9] a subset of international air transport as fundamental for the development of tourism. After him, several tourism system models were presented over the years that include and highlight transport [10–16]. Transport developed crucially in the twentieth century, especially after the second world war, and with particular emphasis on air transport [17].

Today, contrary to mass tourism, there is the sustainability concept approach, even in massified tourism. For sustainable tourism, Clarke [18] notes that transport, infrastructure, and reservation systems usually related to mass tourism are also used by sustainable tourism consumers. Accordingly, this is in line with the main tourist product in the Azores, which is nature tourism [19].

The impact of air transport on economic growth is evident [20–22]. Air transport and tourism are inextricably linked [23]. The aviation industry has a substantial economic impact through its activities and as an enabler of other sectors. There are four levels of economic effects, and tourism (through the income generated by tourist spending) occupies one of these levels [24]. Prideaux [25] argues for the significance of transport as a factor in destination development and the selection of destinations by prospective tourists. He demonstrates, too, that if the transport to an equally attractive and competitive destination costs less, the tourist is likely to opt for the destination with cheaper transport.

Regarding liberalisation, Goetz [26] states that the deregulated environment results in significant reductions in prices and, thus, profits in the aviation sector. With this price reduction, demand increases and development opportunities arise for destinations. Fare reductions due to liberalisation are generally provided by LCCs [27–32], which, in the case of the Azores, were promoted by Ryanair and easyJet, leading flag carriers such as Azores Airlines and TAP Portugal to reduce their prices or adapt to this competition with differentiated services.

Papatheodorou [33] states that air transport demand strongly depends on spatially fixed activities, mainly related to leisure tourism, business, visits to friends and family and other purposes. This situation occurred in the Azores, even accepting that the demand was arising because some airlines opted to fly to this region for the first time, which positively influenced the increase in the number of visitors. Air transport is a fundamental factor in developing tourist destinations, and this is heightened even more in relation to islands, because of their geographic particularities, like small Scottish island groups [34], Barbados [35], and the Canary Islands [32,36]. Tourism has become crucial for the local development of many island economies and an essential source of employment and foreign exchange earnings [37]. Although many studies have examined the effect of air transport on regional development, only a few have specifically examined the relationship between tourism and transport flows [38,39] and their interlinked role in a region's growth process [39,40]. It is also noted that even fewer studies have explicitly explored the relationship between air transport and tourism demand on islands [39,41]. Air transport between the Azores islands and from the five designated gateways (Santa Maria, São Miguel, Terceira, Pico, and Faial) to Portugal's mainland and Madeira (Figure 2) are under the regime of the Public Service Obligations (PSOs). This regime is established in Article 16 of Regulation (EC) No 1008/2008 of the European Parliament and the Council of 24 September 2008 [42]. The remaining islands (Corvo, Flores, Graciosa and S. Jorge) are not gateways, as they only receive internal flights, that is, only from the five identified gateways.

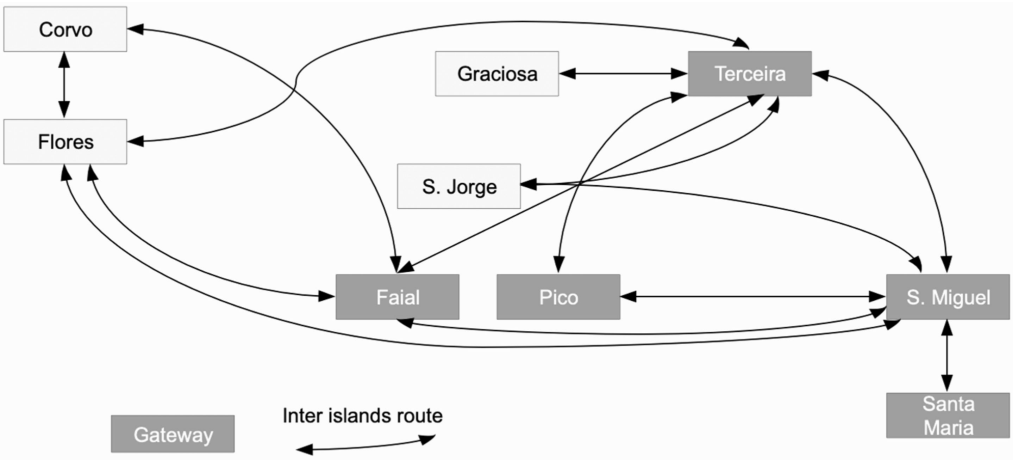

Figure 2. The five gateways and inter-island routes after 2015. Source: the authors.

A member state may impose a public service obligation in respect of scheduled air services between an airport in the Community and an airport serving a peripheral or development region in its territory or on a minor route to any airport on its territory. Any such route would be considered vital for the economic and social development of the region which the airport serves. That obligation shall be imposed only to the extent necessary to ensure that the route enjoys the minimum provision of scheduled air services satisfying fixed standards of continuity, regularity, pricing or minimum capacity, which air carriers would not assume if they were solely considering their commercial interest [42].

Portuguese Decree-Law 138/99 of 23 April regulates the fixing of public service obligations and State aid for air services to island, peripheral, or developing regions. The aim is to ensure that air carriers guarantee these routes' regularity and quality of operation without this being strictly dependent on their commercial interests. Subsidy or compensation mechanisms are provided to achieve this, which, while respecting the European Union's regulation, do allow reduced tariffs for the operators concerned in terms of economic profitability [43].

In 2014, the Azorean Regional Government presented the Plano Integrado dos Transportes dos Açores, PIT (Integrated transport plan for the Azores) [44]. It is explained in this document that the geographic reality, the size of the market, the seasonality and the costs inherent to the operation lead to economically flawed routes [45]. The result is the imposition of a PSO to ensure that regular, reliable and continuous air accesses are maintained, both in the inter-island connections [46] and in the connections to the Portuguese mainland and the Autonomous Region of Madeira [44].

In force since 1 June 2009, according to an excerpt published in the Official Journal of the European Union 2009/C 111/4, of 15 May 2009, the current PSOs define the minimum weekly frequencies and capacities for 15 routes between the islands of the archipelago, for both passengers and cargo, stipulating the tariff structures and defining some of these tariffs. SATA Air Açores is currently providing this service. Concerning the air connections between the Azores and the Portuguese mainland and the Autonomous Region of Madeira, they are imposed by a PSO, whose definition is the responsibility of the Government of the Republic, focusing on eight routes [44]. Until 2015 two airlines were operating these routes, under a code share regime (Azores Airlines and TAP Portugal), with the Government of the Republic responsible for the ticket price subsidy payment and routing. Regarding international routes, access to the Azores is fully liberalised.

2.2. Main Features and Changes in the New Air Transport Model

In 2015, in accordance with Decree-Law No. 41/2015 of 24 March [47] and Ordinance (Portaria) No. 95-A/2015 of 27 March [48], through the work and negotiation of the Regional Government, National Government and the Autoridade Nacional da Aviação Civil, ANAC (Portuguese Civil Aviation Authority), a new model of passenger air transport was implemented. The terms of the new Public Service Obligations in the air connections between the Azores and the mainland, and between the Azores and Madeira, in force from 29 March 2015, have the following main features and changes to the prior model [49]: (1) liberalisation of the routes Lisbon/Ponta Delgada; Lisbon/Terceira; Porto/Ponta Delgada and Porto/Terceira; (2) differential protection of Azorean residents and students; (3) improvement of the conditions of Public Service Obligations on the routes Lisbon/Santa Maria, Lisbon/Faial, Lisbon/Pico and Madeira/São Miguel; (4) improvement of the conditions of routing within the Region of passengers wishing to access any Gateway with an external connection; (5) improvement of the conditions for the carriage of cargo by air, between the Azores and the mainland.

The implementation of these measures resulted in several changes in air transport in the Azores. Concerning measure 1, the low-cost carriers (LCCs) Ryanair and easyJet started to fly to São Miguel in 2015. First, easyJet flew between Lisbon and São Miguel with 3–4 flights a week until 2017. After that, easyJet decided not to fly to the Azores anymore, explaining that the decision was due to the lack of aircraft availability to accompany the offer of other companies currently operating in Ponta Delgada [50]. Ryanair started with two daily flights to Lisbon, one to Porto and one weekly to London (Stansted).

Regarding measure 2, a social mobility allowance was introduced, which established a maximum price that residents in the Azores and Azorean students studying in universities on the mainland and Madeira should pay. Residents pay a maximum of €134 (round trip) between the Azores and the mainland, and the cost is €99 for students. For round trips between the Azores and Madeira, it is €119 for residents and €89 for students. If residents and students buy a ticket with a higher price than the maximum established, they are refunded, receiving the difference from the government.

In relation to measure 3, some changes occurred between Azores Airlines and TAP Portugal with those gateways under the PSO. Before, TAP Portugal used to have exclusivity on the routes from Lisbon to Faial, from Lisbon to Pico and from Lisbon to Terceira. With a commercial agreement, Azores Airlines started to fly exclusively to Faial and Pico, and TAP Portugal raised its presence with more weekly flights between Lisbon and Terceira and between Lisbon and São Miguel. Concerning Santa Maria, Azores Airlines retained exclusivity. Concerning São Miguel and with already two LCCs operating and one flag carrier (TAP Portugal), Azores Airlines decreased its presence on the Lisbon–São Miguel route, increasing the number of flights between Lisbon and Terceira, and from São Miguel to Boston, Toronto, Cape Verde, and some European cities.

Measure 4 was the crucial factor that permitted tourism to achieve major increases in percentages in all islands in recent years. Under the rules of the air transport model on routes from mainland Portugal–Azores and Madeira–Azores, SATA Air Açores is required to provide a routing service, according to the availability of seats, free of charge, for passengers travelling within the Azores, starting or ending in Mainland Portugal or Funchal, and intending to use any gateway in Azores (São Miguel [PDL], Santa Maria [SMA], Terceira [TER], Faial [HOR], Pico [PIX]) [51]. This measure established the possibility, for example, for a passenger (travelling between Lisbon and São Jorge Island) to be able to buy the cheapest flight (choosing from Azores Airlines, Ryanair or TAP Portugal) between Lisbon and any of the five gateways and then (on condition of not stopping more than 24 h) to get a free flight to São Jorge Island or any of the other islands which are not gateways.

Measure 5 came with the sense of improving conditions for transporting cargo. It allowed the setting of maximum values for cargo tariffs for goods and products from the Azores with export potential (fish, dairy products, perishable goods, among others), in order to strengthen the competitive advantages of the sectors with greater export vocation and to encourage the reduction of costs associated with air cargo transport. Currently, for example, some of the reference restaurants in mainland Portugal benefit from the quality of the fish from the Azores and can serve it in the form of sushi, which can only happen if there are good connections and conditions for its transport.

Based on the development of tourism in the Azores since 2008, and through the Regional Legislative Decree No. 38/2008/A, 11 August the Plano de Ordenamento Turístico da Região Autónoma dos Açores, POTRAA (Tourism Planning Plan of the Autonomous Region of the Azores) was approved. It defines the strategy for the sustainable development of tourism and the territorial model to be adopted. Its fundamental purpose is to combine regional and local public administrations' efforts and initiatives and those of Azorean society around a set of common, shared objectives. It is also an instrument that guides the various economic agents and controls the administrative action, defining for each island the strategic tourism products and the evolution of the tourist supply until 2015 (currently under review).

The development and affirmation of sustainable tourism (which secures economic development, preservation of the natural and human environment, also contributing to the planning of the island territory and the attenuation of the disparity between the different spaces) has been defined as a global objective for this plan [52]. The plan included a maximum number of beds, established at 15,500 for all nine islands, with the dominant type of accommodation consisting of low-density hotels and rural tourism, which are suitably sited in the surrounding landscape, especially on the smaller islands. Due to the growth of tourism below expectations in the Azores in the first decade of the current century and especially as a reflection of the global crisis, POTRAA was partially suspended by the Regional Government through the Regional Legislative Decree No. 13/2010/A. This partial suspension served to make a new allocation of beds within the total of 15,500 based on the different dynamics of tourist growth of some islands compared to others. Investments in tourism ventures have also been prioritised, while others relapsed to a certain extent [53].

3. Methodology

The impacts of 2015's full air transport liberalisation in the Azores islands are analysed as a case. This is clearly an exploratory and descriptive study; the main goal is to understand and describe the process that has occurred in this archipelago and the current situation. The case is characterised and contextualised in terms of geographical, public policy, and socioeconomic perspectives. Time series analyses were used, and the period under analysis was defined (2013–2022). Multiple sources of information were used to gain an in-depth understanding of the case. Information was collected from different sources (ANA, Aeroportos de Portugal, Aerogare Civil das Lajes, SATA Air Açores, Agência Nacional de Aviação Civil, Statistics Regional Service of the Azores, SREA). Time-series analysis was used to identify and understand trends. Different indicators of tourism supply and demand were taken into account (passengers disembarked from international, national, and inter-island flights, accommodation types, number of beds in tourist accommodation, overnight stays, guests by residence country, Gross Domestic Product per capita, number of people employed in accommodation, restaurants and similar, and revenue per available room). International, national and inter-island air routes in the Azores islands were analysed for the case study.

The purpose was to examine the new dynamic of air transport through changes that occurred on each island, in the archipelago as a whole, and the dynamic created from this territory to the outside. A connectivity (binary matrix) with quantitative measures was created to show the linkage between each pair of nodes. In a conventional form, the rows of a matrix are identified as Azores islands with commercial flights, and the vertical columns of the matrix are defined as a set of destination nodes, i.e., the number of rows and columns in the matrix will each correspond to the total number of nodes in the network. The matrix shows the total number of direct aeroplane linkages from a given island to a set of other islands. If a direct linkage exists, a value of “1” is entered in the cell, otherwise a value of “0” is entered. The matrix presents only elementary information about the network, the presence or absence of direct connectivity. The total represents the relationship between a pair of nodes and allows easy identification of the island with the greatest connectivity. A review of laws and regulations from the European Union, from the Portuguese and Azorean governments, was essential to characterise the situation before and after air transport liberalisation in the Azores.

4. Results and discussion

4.1. The Liberalisation of the Azores’ Skies and the Impact on Travel

Almost every island and its respective airport have a single dynamic concerning the routes/destinations served and their type. The Azores have three types/territory scales: international, national (outside the region but to other Portuguese airports) and inter-island (regional). Concerning Table 1 and the year 2022, only two islands (São Miguel and Terceira) have commercial flights to international airports. From São Miguel there are flights to 24 destinations on three continents (North America, Europe, and Africa). Terceira island has eight routes: three to the USA (Boston, Oakland and New York) and two to Canada (Toronto and Montreal), all in North America. These flights are seasonal (April/May to September/October). Excluding New York, they are related to the presence of numerous Azorean emigrants (specifically from Terceira, Graciosa, São Jorge, Pico, and Faial islands) in the states of Massachusetts, California in the USA, and Ontario and Quebec (Canada). One of the primary purposes of this tourist group is to visit friends and relatives (VFR).

Regarding São Miguel, all the routes to North America (apart from New York) are to cities where important communities of emigrants and their descendants, from all islands, but mainly from São Miguel, are located and where they emigrated to in the 1960s, 1970s and 1980s. Concerning the European routes, 17 from/to Ponta Delgada and three from/to Terceira bring tourists attracted by the Azores’ main tourist product, nature tourism.

Concerning the national flights, there are five gateways, as noted before, in the archipelago (São Miguel, Terceira, Faial, Pico, and Santa Maria). All these islands receive flights from Lisbon, but only São Miguel and Terceira have flights to Porto (Portugal’s second most populated area). Flights to Madeira (the other Portuguese archipelago and autonomous region) depart only from São Miguel. Even though it is the most extensive metropolitan area in Portugal and its capital, Lisbon only receives daily flights from São Miguel, Terceira, and Faial airports. The frequency varies between one and three flights per week from the other two gateways, Pico and Santa Maria.

As for inter-island routes, there are different dynamics related to the distance, population size and the economic/services relationship between islands. All nine islands receive inter-island flights, but São Miguel (seven routes), Terceira (five routes), Faial (four routes) and Flores (four routes) are the only islands with airports which have arrivals, departures, and stopovers. For residents’ regular access or tourism purposes, we can confirm that, for example, if a visitor/tourist departing from Lisbon wants to visit Corvo island the itinerary will have to be Lisbon–Faial–Corvo or if departing from Porto it will have to be Porto–São

Miguel–Flores/Faial–Corvo. Adding flights and stopovers between tourism markets and destinations can limit tourism development and growth, because access is more complex and prices are usually higher. The air transport model brought the possibility of a routing service which annuls the price factor when considering the access to any island in the Azores. São Miguel airport is the principal element in the region with a total of 34 air routes; Terceira follows at a distance with 15 routes, and Faial has five connections.

Table 1. International, national and inter-island air routes in the Azores islands (2022).

International	**North America**			**Europe**					**Africa**	**Total**
SMG	Bermuda; Boston; Montreal; New York; Providence; Toronto			Amsterdam; Barcelona; Billund; Brussels; Copenhagen; Dusseldorf; Frankfurt; Geneva; Gran Canaria; London; Madrid; Manchester; Munich; Nuremberg; Paris; Stockholm; Zurich					Praia	24
TER	Boston; Montreal; New York; Oakland; Toronto			Amsterdam; Brussels; London						8
National	Lisbon	Porto	Madeira							Total
SMG	1	1	1							3
TER	1	1	0							2
FAI	1	0	0							1
PIC	1	0	0							1
SMA	1	0	0							1
Inter islands	SMG	TER	FAI	PIC	SMA	SJO	GRA	FLO	COR	Total
SMG	-	1	1	1	1	1	1	1	0	7
TER	1	-	1	1	0	1	1	1	0	5
FAI	1	0	-	0	0	0	0	0	1	4
PIC	1	0	0	-	0	0	0	0	0	2
SMA	1	1	0	0	-	0	0	0	0	1
SJO	1	1	0	0		-		0	0	2
GRA	1	1	0	0	0	0	-	0	0	2
FLO	1	1	1	0	0	0	0	-	1	4
COR	0	0	1	0	0	0	0	1	-	2

Source: created from [51,54,55].

The Azores were accessed from the outside in 2022, with commercial flights through 11 airlines (Table 2). The four main airlines in the Azores are SATA, Azores Airlines, TAP Air Portugal and Ryanair.

Air connections between the nine islands are only served by SATA, a regional public and the oldest Portuguese airline (founded in 1941). SATA connects all islands with a fleet of five Bombardier Q400 (80 pax) and two Q200 (37 pax). Corvo island is only accessed by the Q200 due to runway limitations.

Azores Airlines (founded in 1990 and named before SATA International) is the carrier which, together with SATA Air Açores, belongs to Group SATA. This airline is the only carrier that serves the routes Faial/Pico/Santa Maria to Lisbon. It also flies from Terceira to Lisbon, Porto, Boston, New York, Oakland, Toronto and Montreal. Within Portugal it flies from São Miguel to Lisbon, Porto, and Madeira, and internationally to Bermuda, Boston, Providence, New York, Montreal, and Toronto in North America, to Praia (Cape Verde) in Africa, and Barcelona, Dusseldorf, Frankfurt, and Gran Canaria in Europe.

Table 2. Operating airlines by island (2022) and pax market share in São Miguel Island (2013 and 2021).

	Destinations	**Airlines**											
	SMG	SATA	Azores Airlines	TAP Portugal	Ryanair	TUI Fly	British Airways	United Airlines	Lufthansa	Transavia	Iberia	Swiss	Edelweiss
	TER	SATA	Azores Airlines	TAP Portugal	Ryanair	TUI Fly	British Airways						
	FAI	SATA	Azores Airlines										
	PIC	SATA	Azores Airlines										
	SMA	SATA	Azores Airlines										
	SJO	SATA											
	GRA	SATA											
	FLO	SATA											
	COR	SATA											
Pax market share in S. Miguel	Jul–Sep 2013	30%	57%	4%		1%							
	Jul–Sep 2015	22%	44%	5%	18%	2%							
	Jul–Sep 2017	26%	39%	12%	17%	1.2%							
	Jul–Sep 2019	26%	33%	19%	16%	1.1%							
	Jul–Sep 2021	33%	34%	11%	19%	1%			1%		1%	0.4%	

Source: created from [51,54–60].

TAP Portugal flies daily from Lisbon to São Miguel and Terceira. Ryanair (main European LCC) flies daily between São Miguel and Lisbon and Porto (since 2015) and also daily from Terceira to Lisbon, and two times a week to Porto (started at the end of 2016). In high season, Ryanair flies weekly from São Miguel to London (Stansted), Manchester and Nuremberg. Besides Ryanair, but in charter and seasonal (IATA summer) mode, other companies such as TUI Fly, British Airways, Lufthansa, and United airlines began flying to the Azores in the years following the liberalisation of air transport to the archipelago, connecting major cities like New York (by United airlines) and major European cities like Frankfurt, Amsterdam, London, and Paris.

São Miguel airport is the main airport structure in the Azores and the only one that receives flights operated by all airlines accessing the archipelago. Until 2015, it was practically limited to the airlines SATA, Azores Airlines and TAP Air Portugal, and the passengers (pax) market share was shared among them. Despite the growing flows of passengers between islands (totally dependent on SATA), the pax market share has remained stable (30% in 2013 and 33% in 2021 in high season quarters (July to September)). Azores airlines (national and international flights) saw its share fall from 57% to 34%. Ryanair, which started flying to São Miguel in 2015, conquered a share of 19% in 2021, and TAP Portugal climbed from 4% to 11%.

In 2019, state-owned flag carriers (Azores Airlines and TAP Portugal) still had the main share of flights to and from the Azores. Despite seeing their market share decline over the years due to the competition from other carriers such as Ryanair, the flag carriers are still competitive, with differentiated services from other airlines. Azores Airlines had the following services: (1) Frequent flyer programme; (2) More flights to USA and Canada; (3) New airfares: Discount (23 kg baggage allowance, meal included), Smart, Value and Comfort; (4) Free travel for kids (season promotions: Father's Day, etc.). TAP Portugal is offering: (1) Frequent flyer program; (2) Airfares: Discount (meal, 10% miles), Basic, Classic, Plus, Executive and Top Executive; (3) Stopovers in Portugal (up to five nights with no charges); (4) Aircraft overnight in São Miguel and Terceira (first flight in the morning to Lisbon and last flight from Lisbon).

Some of these differentiated services were introduced after the air liberalisation and as a direct reaction to the competition. In the case of Azores Airlines, this airline increased the number of flights to destinations (USA and Canada) where they have almost no competition and introduced more opportunities/discounts associated with seasonal events such as Father's Day, and free travel for kids, among other offers. TAP Portugal introduced two early daily flights from Terceira and São Miguel islands to Lisbon and the opposite at the end of the day, which means that both aircraft and crews have to overnight on these islands.

According to Figure 3, it can be confirmed that between 2015 and 2017, the entry of Ryanair and easyJet (in the second quarter of 2015) on the routes Lisbon/Porto to São Miguel (national flights) has boosted and increased the number of pax disembarking on the main island (variation of 47.1%) and the number of available seats (67.4%). The general fall in prices (competition between airlines on the routes to São Miguel and Terceira and routing to other islands), the awards that boosted recognition of the Azores as a quality nature destination, and the onboard and online advertising by easyJet, Ryanair and TAP Portugal constituted the factors leveraging the general growth of pax disembarked. Even though seven islands are not operating LCCs, tourism numbers rose significantly between 2015 and 2017 due to the inter-island distribution flights and more frequent national flights (+49.5% in available seats and +35.5% in pax disembarked).

Between 2017 and 2019, there was an adjustment in the supply of seats on board airlines, with a reduction of 4.7% in relation to the São Miguel airport and 11% in the rest of the archipelago. Despite that, the number of passengers disembarked continued to grow (by 9.2% on São Miguel and 8.7% on all the other islands). This fact allows greater economic sustainability of the airlines themselves since the average occupancy of flights is higher.

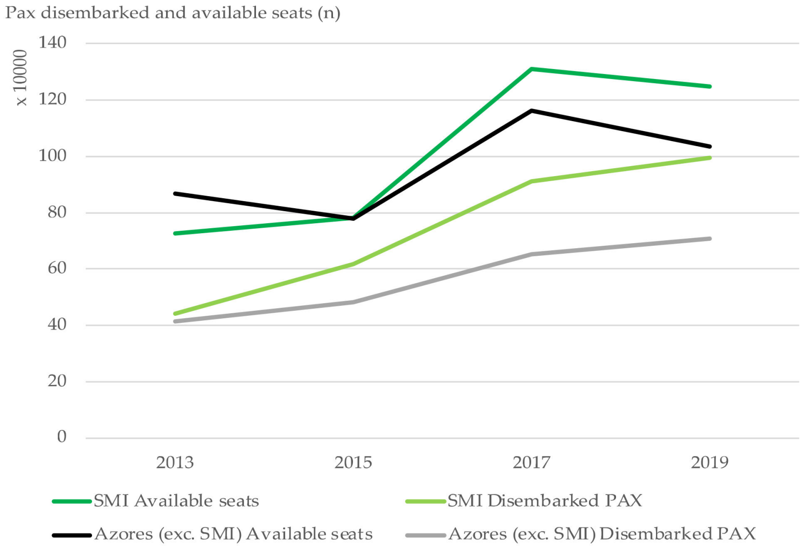

Figure 3. Passengers disembarked and available seats on São Miguel and the Azores (2013–2019). Source: created from [61–68].

When analysing the dynamics of international flights to the Azores (Figure 4), the only two gateways that receive flights from other countries, São Miguel and Terceira, enjoyed a significant increase in the period immediately following the air liberalisation (2015–2017). In 2015, on São Miguel, 115,900 pax landed and, in 2017, this number rose to 168,862 passengers (expressive variation of +45.7%). For the same period and for Terceira Island, the number of passengers landed went from 13,158 to 26,310, an increase of 100%. Between 2017 and 2019 the number of international passengers decreased, a reflection of the restructuring of Azores Airlines, involving a reduction in the number of international flights and destinations during the 2019 high season and the increased offer of national flights.

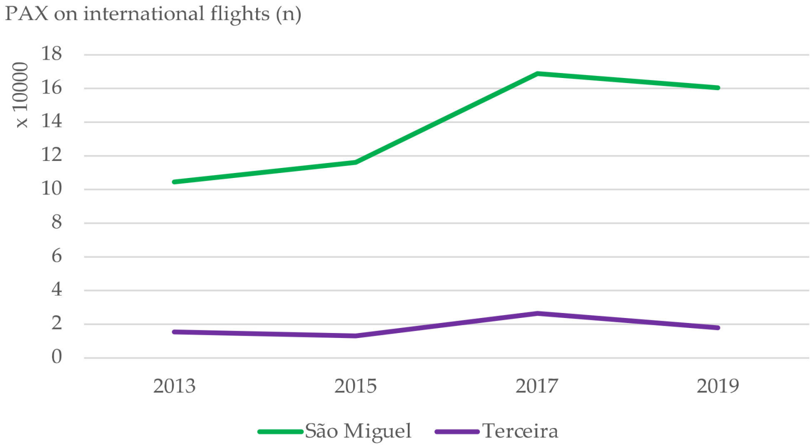

Figure 4. Passengers disembarked from international flights in the Azores. Source: created from [65–68].

In terms of national flights, the five gateways achieved growth in the number of passengers disembarked over the years (from 2013 to 2019) (Figure 5). Terceira and Pico were the islands that saw the biggest variation, having achieved growth of 64.9% and 63% between 2015 and 2017. However, in quantitative terms, also in national flights, the island of São Miguel received the most passengers over the years (583,855 pax in 2019), followed by Terceira, Faial, Pico and Santa Maria.

Regarding inter-island flights, which are of particular importance for four islands in the archipelago (São Jorge, Graciosa, Flores and Corvo), because they only have internal air connections, the liberalisation of flights out of the Azores has benefited all the islands. It led to an increase in the percentage of passengers disembarking between the time spans of 2013–2015, 2015–2017 and 2017–2019. This increase was notably higher in the period immediately following liberalisation (2015–2017). In this timeframe, the percentages varied between 35.6% in São Jorge and 17.4% in Santa Maria (Figure 6).

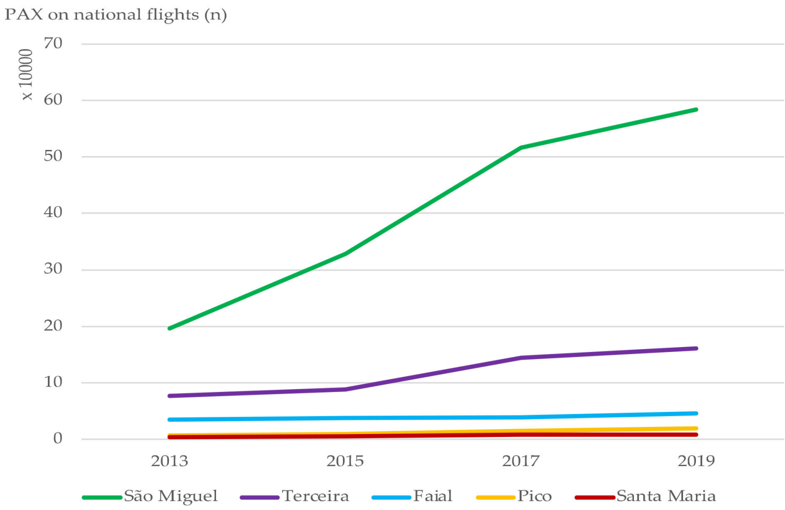

Figure 5. Passengers disembarked from national flights in the Azores. Source: created from [65–68].

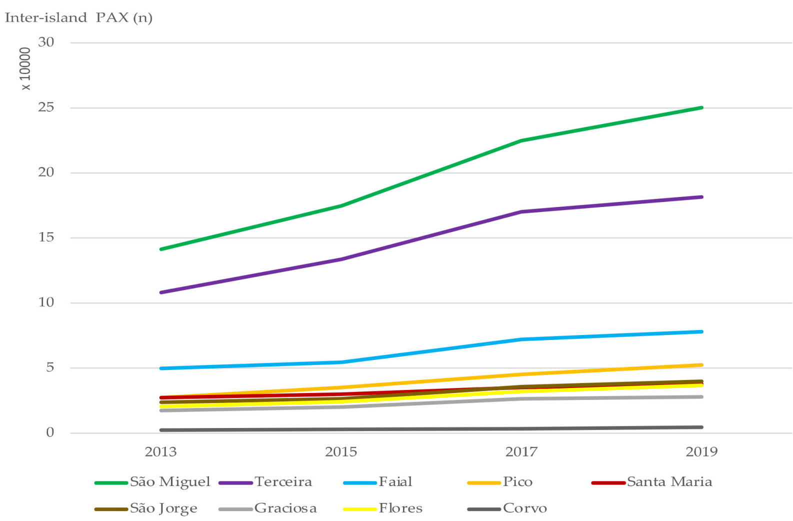

Figure 6. Passengers disembarked from inter-island flights. Source: created from [65–68].

4.2. The Liberalisation of the Azores' Skies and the Impact on Tourism

The liberalisation of airspace also had important direct impacts on the tourism activity in the Azores. In 2013 the archipelago had 12,196 beds and in 2021 that number would rise to 28,089 beds. The increase in supply was not uniform over time. Indeed, between 2013 and 2015, the change was negative on four islands (Terceira, Pico, Santa Maria and Flores) (Table 3). The weak generic increase is explained by the (at that time) recovering economic situation due to the global crisis of 2008–2010. The Azores was the last Portuguese region where tourism started to recover after that crisis.

Between 2017 and 2019 is when there was the most expressive increase in the number of beds available in the Azorean islands. Graciosa had the lowest percentage increase (26.1%) and the island of Pico had the highest percentage (283.2%). In this period, there was a beneficial combination of three factors: (1) the consolidation of air transport supply; (2) the general national and international economic growth and; (3) the political streamlining for converting private houses into accommodation for tourists, through Law no. 62/2018, of 22 August.

Table 3. Variation in the number of beds in tourist accommodation (2013–2021) and the share in 2013 and 2021.

	Var. 13–15%	Var. 15–17%	Var. 17–19%	Var. 19–21%	Share 2013 %	Share 2021 %
SMI	6.7	20.0	116.4	5.1	50.9	57.9
TER	−2.7	0.7	115.3	−6.2	19.1	14.8
FAI	0.8	0.1	96.9	0.3	9.5	7.4
PIC	−12.7	9.9	283.2	−0.8	7.3	10.4
SMA	−21.8	30.7	31.9	1.3	3.9	2.1
SJO	18.5	−4.7	176.4	0.8	3.0	3.7
GRA	1.8	−2.6	26.1	−15.4	2.2	0.9
FLO	−43.5	4.4	216.6	−6.3	3.9	2.7
COR	0.0	111.1	57.9	−18.3	0.2	0.2

Source: created from [69–73].

Even though the number of beds increased on all the islands between 2013 and 2021, in terms of the share of beds available, the island of São Miguel consolidated its position, going from 50.9% in 2013 to 57.9% in 2021. Given that houses of residents were converted into tourist accommodation, reinforced by the construction of several medium and large traditional hotel units (mainly three- and four-star ratings). It should also be noted that since São Miguel Island is the biggest and has the largest population, with tourism support and diversified offer of services, direct flights, and a higher carrying capacity, it has all the conditions needed to be a year-round destination. The islands of Pico (2nd largest in area and 4th largest in population) and São Jorge also strengthened their position in 2021 by 10.4% and 3.7%, respectively.

Throughout the 2010s, the various types of accommodation saw their numbers generally increase. However, this growth was much higher in the Local lodging type, followed by the Traditional hotels (Figure 7). In 2013 traditional hotels were the most representative type (79) followed by local lodging (68), but in 2015 the latter category was already leading with 539 units. The period 2017–2019 was marked by the highest growth due to several factors as identified above, rising from 976 to 2363 local lodging units. Unlike traditional hotels, often owned by national and international economic groups whose headquarters are not located in the archipelago, local lodging is mostly owned by citizens residing in the Azores and provides a direct flow of income to the Azorean economy.

The data on overnight stays in the Azores between 2013 and 2021 (Figure 8) show from the number of beds that the dynamics differ (the greatest change occurred in the 2015–2017 period). The hotel industry needs time to construct and adapt facilities and structures, also benefiting from other factors, as mentioned above. But regarding the number of nights spent in accommodation, it was in the 2015–2017 period that the highest positive percentages occur, as a direct consequence of the increased offer of the number of flights, derived from liberalisation in 2015.

Although the variations remain positive and there was a growth in the number of overnight stays between the years 2017 and 2019, these percentages were significantly lower. In the period 2019–2021 and already suffering the consequences of the pandemic caused by SARS-CoV-2 on tourism globally, the variations were negative in seven of the nine islands. Corvo (+19.9% and Flores (+4.7%) were the only islands that saw positive percentages. As these islands are two of the smallest, the least populated and the most distant from the others, they benefited from the worldwide trend of demand for more isolated destinations, more rural and more associated with the element of nature.

In the period between 2013 and 2021, the average stay in the Azores was found to be stable, oscillating between 2.7 and 2.8 nights. Thanks to its size and greater offer of attractions and services, São Miguel is the island with the longest average stay (3.3 nights) in 2021. The average stay can be longer, as happens in other destinations, but both São Miguel and the Azores have a higher average stay than Portugal (2.6 nights).

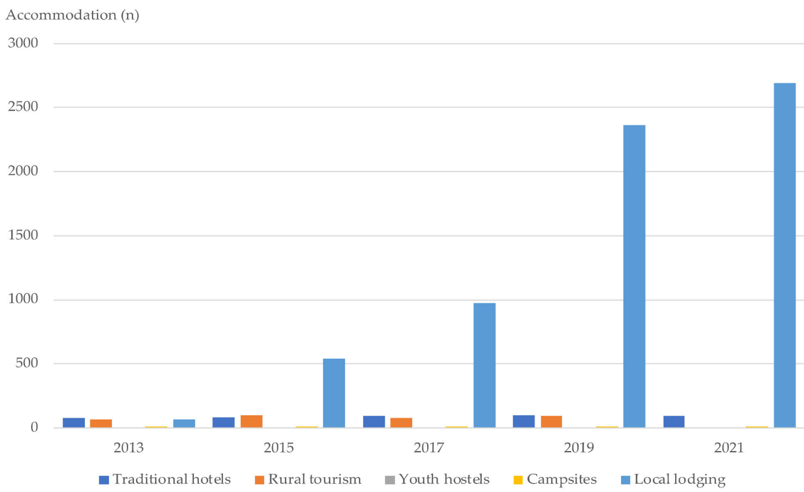

Figure 7. Yearly variation of accommodation types (2013 to 2021). Source: created from [69–73].

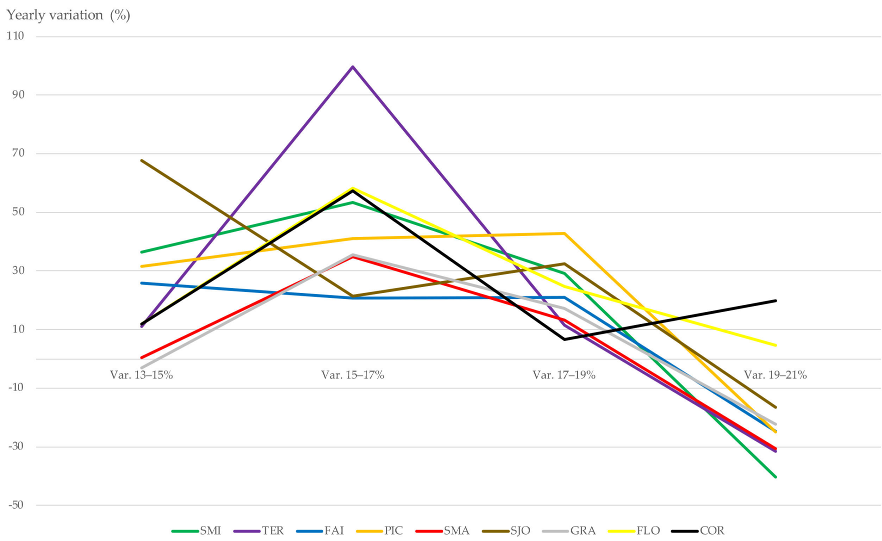

Figure 8. Yearly variation of overnight stays (2013 to 2021). Source: created from [69–73].

Regarding the tourists that most visit the Azores, the Portuguese market stands out over the years (Figure 9). In the overall period between 2013 and 2019, the percentage of tourists resident in Portugal was decreasing (from 49.5% to 47.2%) in favour of other markets, following the diversification of the markets of origin. However, because of the pandemic and respective international mobility limitations, the Portuguese market leveraged its first position to achieve a 64.7% share in 2021.

In the pre-pandemic economic growth period, the German market (9.3% in 2019 and 3.8% in 2013), the North American market (8.9% and 3.9% in 2013) and the French market (5.3% and 3.8% in 2013) were the three next highest after the Portuguese market. Tourists from Germany and France have nature as their main motivation for visiting the Azores, with the main activities being trekking, hiking and landscape contemplation.

As for visitors from the USA, although in recent years there have been flights from New York (where there are no relevant Azorean emigrant communities), the remaining North American destinations (e.g., Boston) concentrate on important Azorean and Portuguese communities. It is in this context that among the main reasons for visiting the archipelago are Visiting family and friends (VFR), genealogical tourism and nature tourism. However, the growth of the New York market stands out as strategic, because they are travelling for motivations concerning nature, cultural, and landscape tourism, thus diversifying the type of consumer in relation to other North American cities.

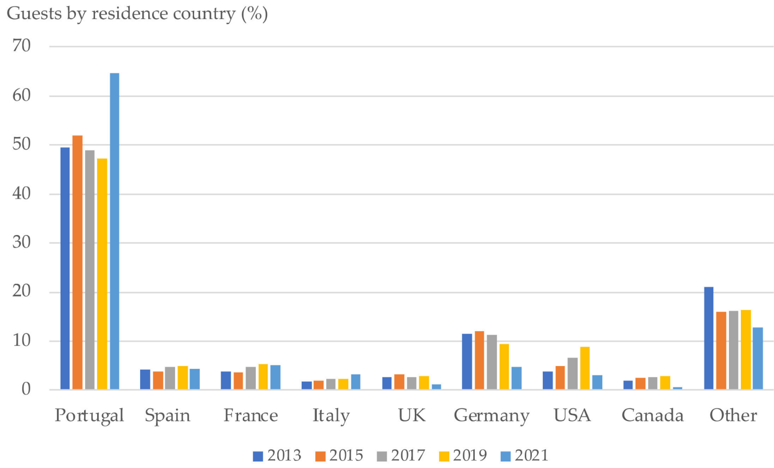

Figure 9. Share and range of guests by residence country between 2013 and 2021. Source: created from [69–73].

Other data allow us to check the direct and indirect impacts of air transport on tourism. In 2013 the Azores had a per capita gross domestic product (GDP) of €15,200 [74] and, in 2015, of €15,011 (a small decrease) [75]. However, in 2017, with the impact of the liberalisation of air transport, GDP rose significantly (€16,631) [76]. In 2019, the last year of the pandemic, per capita GDP was €18,405 [77].

Regarding the employed population by main activity sector (CAE-Rev. 3), in 2014 (one year before liberalisation), the number of people working in Sector I—Hotels, restaurants and similar was 5517, which was 5.4% of the active population of the Azores [78]. In 2016 the percentage rose to 6.2% (corresponding to 1233 more people working in this sector) [79]. Three years after the change in the transport model (2018), around 8873 people worked in this sector, or 7.9% of the active population of the archipelago [80]. In 2020, the first and worst year of the pandemic, the number of people employed dropped to 7547 (6.5%) [81] but by 2022 that number was already close to pre-pandemic levels (8500 people; 7.3%) [82].

Regarding valuing tourism services and the destination itself, RevPAR (revenue per available room) grew significantly in the years following the change in air transport. In 2013, RevPAR in the region was €22.6 [69] and €26.8 in 2015 [70]. However, the following years saw a greater appreciation, with this figure rising to €37.4 in 2017 [71] and to €43.1 in 2019 (the highest value ever in the Azores) [72]. In 2021, by then under the effect of the pandemic, the RevPAr decreased to €34.7 [73].

5. Conclusions

The 2010s will be recorded as a decade that dramatically changed air transport and the Azores as a destination in this North Atlantic archipelago. In the 1990s and 2000s, POTRAA established the Azores as a tourism destination with a mission, a vision and goals. Tourism increased in these decades, but only with a change in air transport rules (through liberalisation and routing) did tourism numbers achieve expressive growth. In 2015, in addition to the new air transport model, low-cost carriers joined the regular companies that flew to the Azores (flag and charter carriers).

Full air liberalisation brought new opportunities and dynamics to the Azores as a destination, with the increasing number of operating airlines, flights and routes. Consequently, the number of passengers and tourists has risen. The entry of LCCs such as Ryanair and easyJet in the Azores motivated flag carriers to adapt to this new reality. At the same time, this change has created opportunities for all airlines. Among other factors, for example, when a destination is promoted on board an aircraft of the biggest European low-cost carrier (an advertising agreement in 2018 established between the Azores Government and Ryanair allowed advertising of the archipelago on board some planes), this publicity can directly influence thousands of potential tourists to visit the Azores in the future. For that reason and because of passengers' different needs, buying power and annual/calendar availability to go on holidays or another motive, some of the people who see the advertising will choose the other airlines.

LCCs mostly started to compete with flag carriers on national flights (Azores–Portugal mainland) and flying from some destinations in Central Europe. This induced Azores Airlines to adapt its schedules and number of flights and to divert its attention to other markets (flights increased to USA and Canada). TAP Portugal put on more flights between mainland Portugal and the Azores due to considerably more demand and as a strategic bet due to the greater exposure of the destination Azores.

Most tourists visit the Azores for leisure purposes, and the main links to the destination include visiting friends and relatives (VFR) and Nature tourism (plus regional culture). There are significant communities of Azoreans and descendants in Portugal's mainland and North America (USA and Canada), which contributes to substantial flows throughout all year, especially during festive seasons such as Easter, popular saints (summer months) and Christmas. After 2015, the primary growth of tourists came from those who travelled from the mainland and the USA to visit the Azores and consume nature and cultural tourism products.

All these changes in tourism activity and air transport brought a set of essential impacts. New routes from North America and Europe were open, making the Azores less dependent on traditional markets. There was an increase in the share from Spain, France, the USA and other countries. Passengers disembarking increased on international, national, and inter-island routes. Consequently, there was a higher increase in guests and overnight stays on all islands. Regarding accommodation, local lodging obtained higher growth values than traditional hotels, potentially benefiting more small entrepreneurs and local investors. In terms of per capita GDP of population employed in the tourism sector, specifically in accommodation, restaurants and similar, and of RevPAR, the region also benefited from remarkable growth. All this served to dynamize the economy, evident throughout recent history in public administration, defence, education, health and social action, as well as in the agriculture and fishing sectors.

This study has the virtue of investigating a reality that has been very little studied: the effect of air transport liberalisation on tourism in ultra-peripheral island regions. It therefore fills a gap in the scientific literature. One of the limitations of this study is that it focuses on one case, so the results and conclusions are valid for this case and cannot be extrapolated. Nevertheless, its validity is irrefutable because it highlights a trend that is shared by several tourist destinations with the liberalisation of air transport and the rise of low-cost carriers, as reported by many authors for different islands/archipelagos around the world.

In terms of future research, it would be relevant to analyse how the stakeholders of this tourism archipelago perceive the effect of liberalisation of air transport, particularly in terms of tourism and sustainability, namely, the balance between tourism growth and maintaining the levels of sustainability of the destination that has been the promoter of awards and international promotion. On the other hand, it would be relevant to carry out a comparative analysis of cases, considering, for example, the Macaronesian archipelagos and regarding the air transport system, its changes over the years and the respective impacts on the economy and tourism.

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